

A photograph of a person walking away from the camera on a dirt path through a forest. The trees are tall and thin, with some showing autumn-colored leaves in shades of orange and yellow. The ground is covered in fallen leaves. The overall atmosphere is peaceful and serene.

# EXPERIENCE

## Retirement

**Missouri State Employees' Retirement System**  
*A Pension Trust Fund of the State of Missouri*  
**Annual Comprehensive Financial Report**  
*Fiscal Year Ended June 30, 2024*



A photograph of a person walking away from the camera on a path through a forest. The path is covered in fallen autumn leaves, and the trees are tall with some foliage showing autumn colors. The scene is misty and has a soft, golden light.

# EXPERIENCE

## Retirement

**Abby Spieler, Executive Director**  
**Jeremy Pond, Chief Financial Officer**

*Prepared by the MOSERS staff*

**Missouri State Employees' Retirement System**  
*A Pension Trust Fund of the State of Missouri*  
**Annual Comprehensive Financial Report**  
*Fiscal Year Ended June 30, 2024*

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# INTRODUCTORY Section

Built on a strong foundation, MOSERS has administered retirement, life insurance, and long-term disability benefits to state employees for over 67 years. That's experience you can count on.





## Professional Awards



### Certificate of Achievement for Excellence in Financial Reporting

MOSERS *Annual Comprehensive Financial Report* for the fiscal year ended June 30, 2023, was awarded the Certificate of Achievement for Excellence in Financial Reporting by the Government Finance Officers Association of the United States and Canada (GFOA). This was the 35th consecutive year that MOSERS has received this prestigious award. The Certificate of Achievement is the highest form of recognition for excellence in state and local government financial reporting. To be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized financial report. The ACFR must satisfy generally accepted accounting principles, applicable legal requirements, and GFOA reporting standards.

### Public Pension Standards Award

MOSERS received the Public Pension Standards Award from the Public Pension Coordinating Council (PPCC) in 2023 in recognition of meeting professional standards for plan design and administration as set forth in the Public Pension Standards. This award is presented by the PPCC, 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).

## Letter of Transmittal



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[mosers@mosers.org](mailto:mosers@mosers.org) (email)

Visit us at 907 Wildwood Drive or [www.mosers.org](http://www.mosers.org)

---

October 21, 2024

The Board of Trustees  
Missouri State Employees' Retirement System  
907 Wildwood Drive  
Jefferson City, MO 65109

To the Board of Trustees and Members of MOSERS:

We are pleased to submit the *Annual Comprehensive Financial Report (ACFR)* of the Missouri State Employees' Retirement System (MOSERS) for the fiscal year ended June 30, 2024. During fiscal year 2024, the Board and staff worked extensively and collaboratively on solutions to ensure the fiscal sustainability of MOSERS for current and future members. I would like to thank our trustees for their dedication and commitment.

This ACFR is designed to provide an overview of the financial condition of MOSERS while also satisfying the reporting requirements of state law as stipulated in Sections 104.480, 104.1006, and 105.661 of the Revised Statutes of Missouri (RSMo), as amended. In addition to the *Introductory Section*, the MOSERS ACFR also contains a *Financial Section*, *Investment Section*, *Actuarial Section*, and *Statistical Section*. This report is available on our website at [www.mosers.org](http://www.mosers.org).

### Profile of MOSERS

MOSERS is a cost-sharing, multiple-employer defined benefit pension plan that was established in 1957 by state law for the purpose of providing retirement benefits to most state employees. MOSERS is governed by an 11-member Board of Trustees (the Board). As of June 30, 2024, MOSERS serves 45,104 active employees and pays 56,205 benefit recipients across the Missouri State Employees Plan (MSEP) and the Judicial Plan.

In addition to retirement benefits, MOSERS administers term life and long-term disability insurance for most state employees. MOSERS provides these benefits through insured plans with The Standard Insurance Company (The Standard). We maintain membership information on those eligible and manage a custodial fund to track premiums collected from employers and payments made to The Standard.

MOSERS oversees the State of Missouri Deferred Compensation Plan (MO Deferred Comp). We administer this plan through a contractual relationship with MissionSquare Retirement as the third-party record keeper. The plan provides various investment options to participants who retain responsibility for the investment of their individual accounts. MO Deferred Comp activity and administrative costs are reported via separate audited financial statements.

Additionally, MOSERS oversees the Colleges and Universities Retirement Plan (CURP), a mandatory 401(a) defined contribution plan for education employees hired after June 30, 2002, by the regional universities that participate in MOSERS. TIAA is responsible for third-party administration and for providing investment products to plan members. The activities of CURP are not included within this report.

### Financial Statements

The financial statements in this report were prepared in accordance with accounting principles generally accepted in the United States. Management is responsible for the preparation of this report and the fairness and integrity of the information presented herein. Some amounts included in the financial statements and elsewhere may be based on estimates and judgments. Management is responsible for maintaining a system of adequate internal controls designed to provide reasonable, but not absolute, assurance that assets are properly safeguarded and that the financial statements are fairly stated. We believe that the internal controls currently in place support this purpose and that the financial statements and accompanying schedules are fairly presented in all material respects.

Eide Bailly, LLP, our independent external auditors, conducted an audit of the *Basic Financial Statements* in accordance with U.S. generally accepted auditing standards. This audit and the financial statements and related notes are presented in the *Financial Section* of this report.

*Management's Discussion and Analysis* in the *Financial Section* serves as an introduction to and overview of the financial statements. Additional financial information can be found in the financial statements and schedules included in the *Financial Section* of this report.

MOSERS retirement funds are pension trust funds of the state of Missouri for financial reporting purposes and as such, the financial statements in this report are also included in the *Annual Comprehensive Financial Report* of the state of Missouri.

### Investments

The MOSERS investment portfolio generated a time-weighted return of 6.6%, net of fees, for fiscal year 2024. The total fund returned 0.8% more than would have been expected through passive investing in the benchmarks.

The MOSERS Board of Trustees has adopted investment objectives, investment philosophies, and a strategic asset allocation to guide all investment related decisions. Investment objectives strive to maintain stable and reasonable contribution rates over long periods of time, while maximizing investment return by exposing assets to a prudent level of risk. In FY24, the Board took part in an asset-liability study and ultimately selected a new policy portfolio. Additional detailed information regarding MOSERS' investments, including policies and strategies, can be found in the *Investment Section* of this report.

### Actuarial Information

The Board contracts with CavMac to perform an actuarial valuation of each plan every year. The valuations use economic and demographic assumptions adopted by the Board based upon experience studies conducted at least every five years. The most recent full experience study was adopted effective June 30, 2021.

To allow for more predictable and stable contribution rates, MOSERS' funding is based upon the actuarial value of assets, which smooths asset gains and losses over a five-year period. As of June 30, 2024, the MSEP was 55.3% pre-funded and the Judicial Plan was 31.0% pre-funded on an actuarial basis. The MSEP reflected a decrease compared to the June 30, 2023, funded status of 57.6%. The Judicial Plan reflected a decrease from the June 30, 2023 funded status of 31.7%.

In 2023, the Board voted to increase the minimum employer contribution rate from 16.97% of pay for all years to 28.75% of pay in fiscal year 2025, 30.25% of pay in fiscal year 2026, and 32% of pay thereafter. The minimum contribution rate expires once the System reaches a funded ratio of 80%.

In 2018, the Board adopted a new asset smoothing method and switched to a layered amortization of the unfunded actuarial accrued liability. As part of the transition to the new asset smoothing method, unrecognized investment experience as of June 30, 2017, was recognized evenly over a seven-year period beginning June 30, 2018. With the June 30, 2024, valuation, this experience has been fully recognized.

The required certification letter from the Board's retained actuary is included at the beginning of the *Actuarial Section*. Additional information regarding the financial condition of the pension trust funds can be found in the *Actuarial Section* of this report.

### Legislative Changes

- **House Bill 2005** – The General Assembly appropriated more than \$776 million to the Office of Administration to pay the required employer contribution payments to MOSERS in fiscal year 2025 to fund the MSEP, the Judicial Plan, life insurance premiums, and long-term disability premiums. House Bill 2005 was vetoed in part by the Governor on June 28, 2024; however the MOSERS-related provisions were unaffected.

### Administrative Initiatives

MOSERS' staff engaged in several administrative initiatives during the year. The more notable items are listed below.

- **Implementation of State and Federal Legislation** – The MOSERS team successfully implemented changes necessary from clean-up legislation that went into effect on August 28, 2023. Many of the statutory changes were administrative in nature and intended to clarify and/or eliminate inconsistencies in the law. At the federal level, MOSERS implemented provisions of SECURE 2.0 in fiscal year 2024.
- **Project Phoenix** – MOSERS continues to work on the replacement of our legacy pension administration system (PAS). Tegrit Software Ventures, Inc. is implementing its Arrivos 2.0 PAS with required enhancements and a planned deployment in 2025. This system replaces the current line-of-business solution which has been in service since 1987 and is a major information technology improvement.
- **MOSERS' Strategic Plan** – The MOSERS Board of Trustees approved an organization-wide strategic plan for a three-year cycle beginning July 1, 2022, through June 30, 2025. During the second year, staff completed two initiatives – conducting an asset-liability study and expanding our outreach to active members of the Missouri Department of Corrections. Significant progress was made on the four remaining initiatives with planned completion during fiscal year 2025.
- **Expanded Outreach to Department of Corrections' Active Members** – MOSERS expanded member education and outreach to our largest employer, the Missouri Department of Corrections. Due to workplace demands, this member population routinely struggles to attend our traditional educational and counseling options. In the last quarter of fiscal year 2024, a pilot program was launched to take education and counseling directly to each correctional institution. As a result, member participation in education sessions increased 25% over the prior fiscal year.
- **Employer Education** – In November 2023, the MOSERS team hosted Benefits U, a day-long education conference with over 220 human resources and payroll representatives in attendance. Benefits U is one part of our employer engagement strategy to continually inform and educate employers about their responsibility to provide accurate member salary and service data.

### Awards

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to MOSERS for its Annual Comprehensive Financial Report for the fiscal year ended June 30, 2023. This was the 35th consecutive year that MOSERS has received this prestigious award. To be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized Annual Comprehensive Financial Report. The report must satisfy generally accepted accounting principles and applicable legal requirements. A Certificate of Achievement is valid for a period of one year only. We believe that our current Annual Comprehensive Financial Report 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.

MOSERS received the Public Pension Coordinating Council (PPCC), Public Pension Standards Award, in recognition of meeting the professional standards for plan design and administration as set forth in the Public Pension Standards. This award is presented by the PPCC, 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).

MOSERS received four awards from the National Association of Government Communicators (NAGC). These awards include first-place honors in the Internal Communications category for MOSERS Month 2023. We also received first-place honors in the Digital Communications/Website category and Best in Show for the MOSERS Month website. Second-place honors in the Special Event or Conference category for the 2023 Benefits U conference was also awarded. The Blue Pencil & Gold Screen Competition is an annual international awards program that recognizes superior government communication products and those who produce them at all levels of government.

The State of Missouri Deferred Compensation Plan (MO Deferred Comp) received two National Association of Government Defined Contribution Administrators (NAGDCA) Leadership Awards and two *Pensions & Investments* Eddy Awards for their efforts with the 2022 National Retirement Security Month "Measure Twice, Retire Once" campaign and the Fiscal Year 2022 State "Incentive Match" campaign.

These prestigious awards recognize MOSERS for financial and professional standards of excellence and reflect the dedication and competence of the MOSERS staff.

### Conclusion

This report is a product of the combined efforts of the MOSERS staff and advisors functioning under the Board's leadership. It is intended to provide complete and reliable information that facilitates the management decision-making process, serves as a means for determining compliance with legal requirements, and allows for the evaluation of responsible guardianship of System funds.

Digital copies of this report are provided to the Governor, State Auditor, and the Joint Committee on Public Employee Retirement of the General Assembly. Their support contributes to the success of MOSERS.

Respectfully submitted,

Abby Spieler, JD  
Executive Director

Jeremy Pond, CPA, CFE, CGFM  
Chief Financial Officer

## Letter from the Board Chairwoman



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[mosers@mosers.org](mailto:mosers@mosers.org) (email)  
Visit us at 907 Wildwood Drive or [www.mosers.org](http://www.mosers.org)

October 21, 2024

Dear Members:

On behalf of the MOSERS Board of Trustees, I am pleased to present the *MOSERS Annual Comprehensive Financial Report* for the fiscal year ended June 30, 2024. This report is one of MOSERS' finest examples of collaboration and an organization-wide team effort.

During the year ended June 30, 2024, the Board of Trustees continued its work on behalf of the MOSERS membership. The MOSERS Board of Trustees met 20 times in fiscal year 2024. The Board and MOSERS staff continued to work on key initiatives over the last fiscal year, some of which included:

- Completion of two additional initiatives on the formal MOSERS fiscal year 2023-2025 strategic plan. The remaining four initiatives are scheduled for completion in fiscal year 2025.
- Exceeded our policy benchmark return expectations, as set by the Board, by 0.8% resulting in more than \$74 million of value added to the fund this fiscal year versus the policy portfolio.
- Expansion of education and outreach to active members.
- Took numerous steps to strengthen the System relative to investments: conducted an asset-liability study, approved a new investment policy portfolio, implemented a new funding policy strategy, and updated the Governance Manual and Investment Policy Statement.
- Made significant progress toward the implementation of a new pension administration system which will bring a new and improved *myMOSERS* member portal in 2025.

During my tenure as Board chairwoman, I have witnessed the substantial amount of time and service our trustees have dedicated to MOSERS. I am proud to lead this fine group of fiduciaries in acting in the best interest of our members. As we look to fiscal year 2025, the Board, in conjunction with staff, will continue to further our core mission of advancing the financial security of our members.

I wish to express my appreciation to you, our members, for your commitment and service to this great state and its citizens. I am honored to serve as one of your representatives on the MOSERS Board.

If you ever have any questions, please contact us at MOSERS, P.O. Box 209, Jefferson City, MO 65102, call us at (800) 827-1063, or visit our website at [www.mosers.org](http://www.mosers.org).

Sincerely,

Crystal Wessing, Chairwoman  
Board of Trustees

## Board of Trustees

June 30, 2024



**Crystal Wessing – Chairwoman**  
*Elected Active Member*



**Jenny Jacobs, CPA – Vice Chairwoman**  
*Elected Active Member*

**Senator Rusty Black**  
*Senate Appointed Member*

**Gary Findlay**  
*Elected Retired Member*

**Treasurer Vivek Malek**  
*Ex-Officio Member*



**Gary Metzger**  
*Governor Appointed Member*

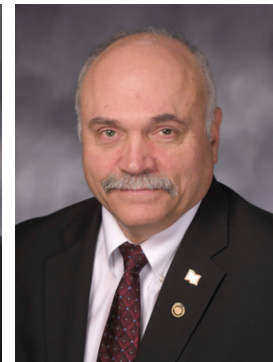
**Joe Keifer**  
*Governor Appointed Member*

**Senator John Rizzo**  
*Senate Appointed Member*

**Commissioner Ken Zellers**  
**Office of Administration**  
*Ex-Officio Member*

**Representative Dirk Deaton**  
*House Appointed Member*

**Representative Don Mayhew**  
*House Appointed Member*



## Administrative Organization



**Abby Spieler, JD**

*Executive Director*

- TJ Carlson, MBA, CAIA, CTP  
*Chief Investment Officer*
- Cindy Dixon, MPA  
*Chief Operating Officer*
- Rochelle Reeves, JD  
*General Counsel*
- Cindy Rehmeier, CFP  
*Manager, Defined Contribution Plans*
- Nicki Russell, CPA, CIA, MPA  
*Chief Auditor*
- Lisa Verslues, PHR, SHRM-CP  
*Human Resources Officer*



**Cindy Dixon, MPA**

*Chief Operating Officer*

- Andrea Binkley, CGBA  
*Chief Benefits Officer*
- Paul Moyer  
*Chief Technology Officer*
- Jamie Mullen  
*Employer Services Manager*
- Jeremy Pond, CPA, CFE, CGFM  
*Chief Financial Officer*
- Candy Smith, MPA  
*Chief Communications Officer*



**TJ Carlson, MBA, CAIA, CTP**

*Chief Investment Officer*

- Scott Hankins, CFA  
*Managing Director – Investment Risk & Operations*
- Tyson Rehfeld, CFA  
*Deputy Chief Investment Officer*
- Ed Robertiello, CFA, MBA  
*Managing Investment Director*



## About MOSERS



### Purpose

MOSERS was established September 1, 1957, and is governed by the laws of the state of Missouri.

MOSERS administers retirement, survivor, life insurance, and long-term disability benefits, as well as deferred compensation plan management to its members.

MOSERS administers benefits for most state employees, including general state employees, employees of 10 regional colleges and universities, members of the Missouri General Assembly, statewide elected officials, judges, administrative judges, and legal advisors. MOSERS is responsible for administering benefits as set forth in state law and bears a fiduciary obligation to the state employees who are its members.

### Administration

State law provides that responsibility for the administration of MOSERS is vested in an 11-member Board of Trustees. The Board is comprised of the following:

- Two members of the Senate appointed by the President Pro Tem of the Senate;
- Two members of the House of Representatives appointed by the Speaker of the House;
- Two members appointed by the Governor;
- The State Treasurer;
- The Commissioner of Administration; and
- Three System members: two active members elected by the active and inactive-vested members, and one retiree elected by the retired members.

## **Introductory Section**

The day-to-day management of MOSERS is delegated to the executive director who is appointed by the Board. The executive director acts as advisor to the Board on all matters pertaining to the System, and employs the remaining staff needed to manage the System.

### **Organization**

The executive director, chief operating officer, and chief investment officer are responsible for planning, organizing, and administering the operations of the System under the broad policy guidance and direction of the Board.

### **Executive**

The executive staff provide administrative support by assisting the executive director in the major legal, financial, operational, and oversight functions. Human resources, which includes oversight of general building maintenance, is also represented in this section. Responsible for business continuity preparation and planning, this section also coordinates activities and processes for the organization that facilitate strategic thinking, planning, and implementation.

### **Accounting**

The staff in this section are responsible for all financial records of the programs administered by MOSERS, including the preparation of financial and statistical reports and purchasing functions for MOSERS. This team works with the investment custodian, internal investment managers, Office of Administration accounting team, state of Missouri, actuaries, banks, and the IRS.

### **Benefits Administration**

Staff in the benefits administration section are responsible for all member data, benefit verifications and inceptions, as well as contact with members regarding the benefit programs administered by MOSERS (retirement, life insurance, and long-term disability insurance).

### **Communications and Education**

Communications and education staff are responsible for presenting information in clear and concise ways to facilitate effective and well-informed decision-making, planning, and action. They produce materials for members regarding the benefits administered by MOSERS including publications such as newsletters, handbooks, forms, and brochures. This team works in conjunction with information technology staff on electronic materials and tools such as the public, Board, secure member, and internal websites, social media, and member emails. This team also conducts educational seminars in multiple cities around the state each year and hosts webinars to inform members about their MOSERS benefits.

### **Employer Services**

Staff in the employer services section facilitate the collection of member and employer contributions, maintain member benefit eligibility records, and provide technical assistance and general education to employer representatives regarding the timely and accurate submission of payroll and benefit eligibility data.

### **Information Technology**

Staff in this section provide computer and technical design support for MOSERS' administrative activities. This team is responsible for developing and maintaining the automated systems used to administer benefits. They are also responsible for the document imaging system, network and data security, unified communication system, and personal computers.

### **Internal Audit**

Internal audit staff are responsible for identifying and managing MOSERS' risks and ensuring policies, procedures, and controls are in place and working effectively. They improve MOSERS' operations by strengthening the organization and protecting stakeholders.

### **Investments**

The investments staff oversees and implements MOSERS' investment program. Primary functions include managing assets internally, selecting external managers for portions of the portfolio, researching and implementing portfolio allocation shifts and rebalancing, providing technical advice, serving as a liaison to the investment community, and informing and advising the Board and executive director on financial, economic, and political developments which may affect the System. This team works closely with external investment consultants, legal counsel, and the executive director.

## Outside Professional Services

### Actuary

- CavMac

### Auditor

- Eide Bailly, LLP

### Governmental Consultant

- Gamble & Schlemeier, Ltd.

### Legal Counsel

- Ice Miller, LLP
- Thompson Coburn, LLP

### Information Technology Consultants

- Huber & Associates

### Pension System Administration Consultants

- Linea Solutions
- Tegrity

### Risk Management Consultant

- Charlesworth & Associates, LLC

### Third-Party Administrators

- MissionSquare Retirement  
*Deferred Compensation Plan*
- The Standard Insurance Company  
*Life Insurance & Long-Term Disability Insurance*
- TIAA  
*Colleges & Universities Retirement Plan*

### Investment Management Consultants

- Blackstone Multi-Asset Investing  
*Specialty Consultant - Hedge Funds*
- Meketa Investment Group  
*Specialty Consultant - Public Markets*
- NEPC, LLC  
*Specialty Consultant - Private Markets*
- Verus Advisory, Inc.  
*Board Investment Consultant*

### Master Custodian

- Bank of New York Mellon

### Business Bank

- Central Bank

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*The Schedule of Fees and Commissions can be found on page 74. Investment management, custodial, and consulting fees can be found in the Schedule of Investment Expenses on pages 60-62. Additional information on investment managers can also be found in the Investment Section of this report.*



# FINANCIAL

## Section

From date-of-hire to retirement, we strive to make every experience with MOSERS personal and unique. We are here for your benefit.





## Independent Auditor's Report

To the Board of Trustees  
Missouri State Employees' Retirement System  
Jefferson City, Missouri

### Report on the Audit of the Financial Statements

#### **Opinions**

We have audited the financial statements of pension funds and custodial fund, collectively the aggregate fiduciary funds of the Missouri State Employees' Retirement System (MOSERS), a pension (and other employee benefit) trust fund of the state of Missouri, as of and for the year ended June 30, 2024, and the related notes to the financial statements, which collectively comprise MOSERS' basic financial statements as listed in the table of contents.

In our opinion, the accompanying financial statements referred to above present fairly, in all material respects, the respective fiduciary net position of the pension funds and custodial fund, collectively the aggregate fiduciary funds of MOSERS, as of June 30, 2024, and the respective changes in fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

#### **Basis for Opinion**

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

#### **Responsibilities of Management for the Financial Statements**

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

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

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### **Auditor's Responsibilities for the Audit of the Financial Statements**

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

In performing an audit in accordance with GAAS and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of MOSERS' internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about MOSERS' ability to continue as a going concern for a reasonable period of time.

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

### **Required Supplementary Information**

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and required supplementary information on pages 20-23 and 52-59 be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with GAAS, 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 the MOSERS *Basic Financial Statements*. The additional supplementary information accompanying financial information listed as additional supplemental schedules in the table of contents are presented for purposes of additional analysis and are not a required part of the *Basic Financial Statements*. Such 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*. The information has been subjected to the auditing procedures applied in the audit of the *Basic Financial Statements* and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the *Basic Financial Statements* or to the *Basic Financial Statements* themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the additional supplementary information accompanying financial information listed as additional supplemental schedules in the table of contents are fairly stated, in all material respects, in relation to the *Basic Financial Statements* as a whole.



**Other Information**

Management is responsible for the other information included in the annual report. The other information comprises the *Introductory, Investment, Actuarial, and Statistical Sections* but does not include the *Basic Financial Statements* and our auditor's report thereon. Our opinion on the *Basic Financial Statements* does not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the *Basic Financial Statements*, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

**Other Reporting Required by Government Auditing Standards**

In accordance with *Government Auditing Standards*, we have also issued our report dated October 21, 2024, on our consideration of the MOSERS internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of MOSERS' 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 MOSERS' internal control over financial reporting and compliance.



Boise, Idaho

October 21, 2024

## Management's Discussion and Analysis

This discussion and analysis of the Missouri State Employees' Retirement System (MOSERS) provides an overview of the retirement system's financial activities for the fiscal year ended June 30, 2024. It is intended to be used in conjunction with the *Transmittal Letter* beginning on page 6 and *Basic Financial Statements and Notes to the Basic Financial Statements*, beginning on page 24 of this report.

### Using This Financial Report

This *Annual Comprehensive Financial Report* (ACFR) reflects the activities of MOSERS as reported in the *Statements of Fiduciary Net Position* and the *Statements of Changes in Fiduciary Net Position*, which begin on page 24. These statements are prepared in conformity with generally accepted accounting principles. The *Notes to the Basic 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* (RSI) and *Additional Financial Information* following the *Notes to the Basic Financial Statements* provide historical information and additional details considered useful in evaluating the condition of the plan.

See the *Actuarial Section* of this report for a detailed discussion of the actuarial value of assets and liabilities and the funded status of the plans.

The *Basic Financial Statements* contained in this section of the ACFR consist of:

- The *Statements of Fiduciary Net Position* report the fiduciary funds' assets, deferred outflows, liabilities, deferred inflows, and resulting net position, where total assets plus deferred outflows less current liabilities and deferred inflows equal net position held in trust for future pension benefits available at the end of the fiscal year. It is a snapshot of the financial position of the fiduciary funds at that specific point in time.
- The *Statements of Changes in Fiduciary Net Position* summarize the fiduciary funds' financial transactions that have occurred during the fiscal year where additions less deductions equal the change in net position. It supports the change that has occurred from the prior year's net position on the *Statements of Fiduciary Net Position*.
- The *Notes to the Basic Financial Statements* are an integral part of the above financial statements and include additional information not readily evident in the statements themselves.

### Funding Analysis

Funded status is presented using two different valuation methods within this document for two different purposes. One valuation method is for the purpose of determining contribution rates, and the other method is required by Governmental Accounting Standards Board (GASB) Statement 67, *Financial Reporting for Pension Plans*, to provide information about the net pension liability as of a specific point in time using the fair value of investment assets. The valuation method used for determining contribution rates smooths investment activity over a period of five years to minimize the impact investment market volatility can have on contribution rates.

### Funding Methodology for Determining Contribution Rates

The unfunded actuarial accrued liability (UAAL) for the Missouri State Employees' Plan (MSEP) increased by approximately \$700 million from \$6.9 billion at June 30, 2023, to \$7.6 billion at June 30, 2024, with a corresponding decrease in funded percentage from 57.6% to 55.3%. Like last year, the primary causes of the increase in the UAAL were actuarial losses on active employee covered payroll and retiree cost of living adjustments driven by inflation. Increases to both of these exceeded long-term actuarial assumptions. The increase in covered payroll of active employees, along with the COLA adjustments to pension benefits, caused the projection of future benefit payments to increase. Although increases in covered payroll increase the UAAL, it has a less significant effect on the contribution rate because the larger covered payroll base naturally results in more retirement contributions flowing into the system.

The year over year payroll growth for active members was most pronounced during the first half of the fiscal year. The growth in number of active MSEP members continued into the first half of this fiscal year, however it mostly leveled off during the second half of the year after getting close to pre-pandemic levels.

The UAAL for the Judicial Plan increased by \$19 million from \$447 million at June 30, 2023, to \$466 million at June 30, 2024, with a decrease in funded percentage from 31.7% to 31.0%.

The assumed rate of investment return was 6.95% for both the MSEP and the Judicial Plan.

**Financial Reporting Methodology required by GASB Statement 67**

The fund net position as a percentage of total pension liability decreased from 52.9% at June 30, 2023, to 52.0% at June 30, 2024, for the MSEP Fund, and increased from 29.08% to 29.12% for the Judicial Plan Fund. See the *Required Supplementary Information* section of this report for more information about net pension liability and related information.

**Financial Reporting Highlights**

The *Summary Comparative Statements of Fiduciary Net Position*, and the *Summary Comparative Statements of Changes in Fiduciary Net Position* presented below are designed to provide the reader of this report with a high level overview of MOSERS' financial activity and net position.

**Summary Comparative Statements of Fiduciary Net Position**

	As of June 30, 2024	As of June 30, 2023	Amount of Change	Percentage Change
<b>Assets</b>				
Administrative operating cash and equivalents	\$ 16,374,267	\$ 14,176,248	\$ 2,198,019	15.50%
Receivables	682,177,634	801,745,263	(119,567,629)	(14.91)
Investments	12,303,351,397	12,207,445,578	95,905,819	0.79
Capital assets, net of accumulated depreciation	16,728,940	15,148,833	1,580,107	10.43
Total assets	13,018,632,238	13,038,515,922	(19,883,684)	(0.15)
<b>Deferred outflow of resources</b>	1,008,133	1,078,184	(70,051)	(6.50)
<b>Liabilities</b>				
Administrative and other payables	18,426,077	16,049,335	2,376,742	14.81
Investment related payables and obligations	3,993,980,968	4,263,787,195	(269,806,227)	(6.33)
MOSERS investment portfolio liability (MIP)	3,838,147	3,632,433	205,714	5.66
Net OPEB liability	5,574,870	5,635,287	(60,417)	(1.07)
Total liabilities	4,021,820,062	4,289,104,250	(267,284,188)	(6.23)
<b>Deferred inflow of resources</b>	2,185,471	2,256,993	(71,522)	(3.17)
<b>Net position restricted for fiduciary activities</b>	\$ 8,995,634,838	\$ 8,748,232,863	\$ 247,401,975	2.83

The largest components of the net position of the pension trust funds are investments, and investment related receivables and liabilities. The majority of MOSERS' receivable balances are comprised of investment related transactions, such as pending trade settlements, and interest and dividends receivable. Investment related liabilities include payables for investments purchased, manager fees payable, and obligations under repurchase agreements. MOSERS investment portfolio liability (MIP) represents the amount Missouri Deferred Compensation Plan participants have invested in MOSERS' portfolio.

The investment portfolio, which includes investments, and investment related receivable and liability balances experienced positive performance this year. The markets were somewhat volatile during the fiscal year due to uncertainty about economic growth, concern about geopolitical events, and optimism about technological advancements in artificial intelligence. MOSERS experienced a 6.59% time-weighted return on plan assets. MOSERS, like other mature pension plans, relies in part on cash flow generated from investments, to fund benefit payments.

Another noteworthy change in MOSERS' *Statement of Fiduciary Net Position* is the increase in capital assets related to the continued development of our new pension administration system. MOSERS capitalized approximately \$1.7 million in project costs incurred during the year. When the new pension administration system is implemented, these capitalized software development project costs will be amortized over the estimated useful life of the system. The project timeline has been extended to allow more time to test the system prior to deployment, and the project is now expected to be completed in 2025.

**Summary Comparative Statements of Changes in Fiduciary Net Position**

	Year Ended June 30, 2024	Year Ended June 30, 2023	Amount of Change	Percentage Change
<b>Additions</b>				
Contributions	\$ 811,296,711	\$ 1,206,881,008	\$ (395,584,297)	(32.78%)
Net investment income	569,520,077	181,851,788	387,668,289	213.18
Miscellaneous income	481,148	480,766	382	0.08
Total additions	1,381,297,936	1,389,213,562	(7,915,626)	(0.57)
<b>Deductions</b>				
Benefit payments	1,070,147,669	1,024,251,130	45,896,539	4.48
Premium disbursements	34,574,075	31,737,102	2,836,973	8.94
Service transfers and refunds	16,708,833	12,425,868	4,282,965	34.47
Administrative expenses	12,465,384	11,555,745	909,639	7.87
Total deductions	1,133,895,961	1,079,969,845	53,926,116	4.99
<b>Net increase (decrease)</b>	247,401,975	309,243,717	(61,841,742)	(20.00)
<b>Net position beginning of year</b>	8,748,232,863	8,438,989,146	309,243,717	3.66
<b>Net positions restricted for fiduciary activities</b>	\$ 8,995,634,838	\$ 8,748,232,863	\$ 247,401,975	2.83

**Investment Results**

MOSERS' total fund net position increased by \$0.2 billion, to end at \$9.0 billion in fiscal year 2024. Net position increased slightly from last year, driven primarily by investment returns. The fund returned a time-weighted return of 6.59% in fiscal year 2024 compared to 2.53% in fiscal year 2023.

In an effort to bring inflation under control, the Federal Reserve steadily increased the federal funds rate over time until they reached a target rate range of 5.25% to 5.50% in July 2023. Yield rates for long treasuries continued to rise during fiscal year 2024. This shift to a higher interest rate environment, combined with uncertainty about the future, has generally resulted in mixed results in many asset classes this year. Like last year, growth assets experienced positive returns but our fixed income assets in total produced negative returns. As further discussed in the *Investment Section* of this report, we continue to recognize the importance of diversifying our investment assets to contribute to our long-term success.

It is also important to note that investment gains and losses are actuarially smoothed over a 5-year period to prevent market volatility from causing significant year-to-year changes in the contribution rate.

The *Investment Section* of this report contains additional information regarding investments activity.

### Contribution Revenue

After excluding the \$500 million ad hoc contribution from the state of Missouri, contribution revenue increased by 14.8% from the prior year. This increase in contribution revenue is primarily due to two factors: the contribution rate increased, and the covered payroll of active benefit-eligible employees increased. The contribution rate is set in advance; however, unexpected changes in covered payroll can cause contribution revenue to come in above or below expectation.

The employer retirement contribution rates for the MSEP members is a primary driver for total fund contributions revenue. This rate increased from 26.33% in fiscal year 2023 to 27.26% in fiscal year 2024. The employee contribution rates for 2011 tier members is set by statute at 4% of gross pay. The percent of MSEP 2011 tier members who contribute 4% continues to grow every year to make up a larger percentage of our overall membership base. As of June 30, 2024, 66% of the active membership population were MSEP 2011 members.

Covered payroll is the other primary factor that ultimately determines our contribution revenue. There was a significant increase in covered payroll during the fiscal year. The active MSEP membership base increased this year by 3.7%, close to levels immediately preceding the pandemic. Active MSEP member covered payroll increased this year by 11.1%. These increases were greater than our actuarial assumptions.

Judicial Plan contributions and Insurance fund premium contributions each account for less than 10% of total fund contributions revenues. Covered payroll for judges increased 6.6% over last year based on the actuarial valuation report. Judges contributions revenue was almost 5% greater than last year because of the increase in covered payroll. In addition, the active membership population was comprised of 77% of Judicial Plan 2011 tier members, compared to 73% last year. Insurance fund premium contributions were also higher than the prior year.

The *Actuarial Section* of this report contains more information about our actuarial assumptions and experience.

### Benefits Expenses

Benefit payment expenses were 4.48% greater than the prior year due to a growing retiree population and cost-of-living adjustments (COLAs).

The population of retirees receiving benefits continued to grow during the fiscal year. A growing retiree population puts upward pressure on the contribution rate. Schedules of retirees added and removed from the benefit rolls can be viewed on pages 104-105 of the *Actuarial Section* of this report.

COLAs provided to existing benefit recipients also cause benefit expenses to increase each year. Members employed before August 28, 1997, who retired under the MSEP, receive a COLA of at least 4% each year (maximum 5%) until they reach their COLA cap. For general state employees, COLAs are based on 80% of the percentage increase in the average Consumer Price Index (CPI) from one year to the next. The maximum increase is 5% (minimum 0%). The cost-of-living adjustment for fiscal year 2024 was 3.293%.

### Administrative Expenses

Administrative expenses totaled \$12.5 million in fiscal year 2024, compared to \$11.6 million in fiscal year 2023. MOSERS experienced an increase in administrative expense due mainly due to increases in personnel services, fringe benefits, and professional services.

### Requests for Information

This financial report is designed to provide a general overview of the System's finances for all those who are interested. Questions concerning any of the information provided in this report or requests for additional information should be addressed to MOSERS, at P.O. Box 209, Jefferson City, MO 65102 or by email at [sunshinelanrequest@mosers.org](mailto:sunshinelanrequest@mosers.org).

## Statements of Fiduciary Net Position

As of June 30, 2024

	MSEP Pension Fund	Judicial Pension Fund	Insurance Custodial Fund	Total
<b>Assets</b>				
Administrative operating cash and cash equivalents	\$ 10,812,204	\$ 1,887,062	\$ 3,675,001	\$ 16,374,267
<b>Receivables</b>				
Contributions and premiums	32,150,952	1,794,680	1,038,278	34,983,910
Investment income	368,067,856	8,133,653	0	376,201,509
Investment sales	265,051,192	5,872,054	0	270,923,246
Other receivables	68,969	0	0	68,969
Total receivables	665,338,969	15,800,387	1,038,278	682,177,634
<b>Investments and derivatives</b>				
Investments - cash and cash equivalents	1,352,193,931	29,937,340	0	1,382,131,271
Investments - treasuries	4,415,730,266	97,706,558	0	4,513,436,824
Investments - fixed income	225,950,092	5,010,466	0	230,960,558
Investments - equities	190,795,788	4,213,943	0	195,009,731
Investments - real estate investment trusts	429,078,006	9,501,327	0	438,579,333
Investments - equity and fixed income commingled funds	985,515,345	21,799,968	0	1,007,315,313
Investments - alternatives and limited partnerships	4,431,522,226	98,026,926	0	4,529,549,152
Investments - derivative instruments	6,231,077	138,138	0	6,369,215
Total investments and derivatives	12,037,016,731	266,334,666	0	12,303,351,397
Capital assets, net of accumulated depreciation	16,728,940	0	0	16,728,940
<b>Total assets</b>	12,729,896,844	284,022,115	4,713,279	13,018,632,238
<b>Deferred outflow of resources</b>	986,102	22,031	0	1,008,133
<b>Liabilities</b>				
Administrative and benefit expense payables	12,555,501	753,593	4,297,166	17,606,260
Employee vacation and overtime liability	801,901	17,916	0	819,817
Payable for investments purchased	151,960,873	3,360,607	0	155,321,480
Management fees payable	1,160,370	26,443	0	1,186,813
Investment activities payable	277,698,980	6,133,451	0	283,832,431
Obligations under repurchase agreements	3,476,714,318	76,925,926	0	3,553,640,244
MOSERS investment portfolio liability (MIP)	3,755,065	83,082	0	3,838,147
Net OPEB liability	5,453,042	121,828	0	5,574,870
<b>Total liabilities</b>	3,930,100,050	87,422,846	4,297,166	4,021,820,062
<b>Deferred inflow of resources</b>	2,137,712	47,759	0	2,185,471
Net position restricted for pension activities	8,798,645,184	196,573,541	0	8,995,218,725
Net position restricted for custodial activities	0	0	416,113	416,113
<b>Net position restricted for fiduciary activities</b>	<b>\$ 8,798,645,184</b>	<b>\$ 196,573,541</b>	<b>\$ 416,113</b>	<b>\$ 8,995,634,838</b>

See accompanying *Notes to the Basic Financial Statements*.

## Statements of Changes in Fiduciary Net Position

For the Year Ended June 30, 2024

	MSEP Pension Fund	Judicial Pension Fund	Insurance Custodial Fund	Total
<b>Additions</b>				
<i>Contributions and premiums</i>				
Employer contributions and premiums	\$ 671,523,865	\$ 40,748,235	\$ 16,240,835	\$ 728,512,935
Employee contributions and premiums	58,710,640	2,029,670	18,380,817	79,121,127
Member purchases of service credit	1,063,108	0	0	1,063,108
Service transfer contributions	4,220,333	0	0	4,220,333
Prepaid employer contributions discount	(1,620,792)	0	0	(1,620,792)
<b>Total contributions and premiums</b>	<b>733,897,154</b>	<b>42,777,905</b>	<b>34,621,652</b>	<b>811,296,711</b>
<i>Investment activity</i>				
Investing activity income:				
Net appreciation in fair value of investments	773,277,136	17,271,248	0	790,548,384
Interest	110,539,787	2,533,082	203,253	113,276,122
Dividends	23,146,091	516,404	0	23,662,495
Other	172,536	3,848	0	176,384
<b>Total investing activity income</b>	<b>907,135,550</b>	<b>20,324,582</b>	<b>203,253</b>	<b>927,663,385</b>
Investing activity expenses:				
Management and incentives fees	163,862,182	3,660,003	0	167,522,185
Custody and other fees	651,415	14,551	0	665,966
Consultant fees	868,752	19,383	0	888,135
Internal investment activity expenses	9,965,685	90,114	0	10,055,799
<b>Total investing activity expenses</b>	<b>175,348,034</b>	<b>3,784,051</b>	<b>0</b>	<b>179,132,085</b>
Reverse repurchase agreement activity:				
Income from assets in reverse repurchase agreements	18,176,926	418,223	0	18,595,149
Interest expense from reverse repurchase agreements	(193,294,810)	(4,311,562)	0	(197,606,372)
<b>Total net loss from reverse repurchase agreement activity</b>	<b>(175,117,884)</b>	<b>(3,893,339)</b>	<b>0</b>	<b>(179,011,223)</b>
<b>Total net investment income</b>	<b>556,669,632</b>	<b>12,647,192</b>	<b>203,253</b>	<b>569,520,077</b>
Miscellaneous income	1,025	3	480,120	481,148
<b>Total additions</b>	<b>1,290,567,811</b>	<b>55,425,100</b>	<b>35,305,025</b>	<b>1,381,297,936</b>
<b>Deductions</b>				
Benefit payments	969,924,539	48,947,605	0	1,018,872,144
Premium disbursements	0	0	34,574,075	34,574,075
BackDROP payments	51,101,956	0	0	51,101,956
Buyout and lump-sum payments	173,569	0	0	173,569
Service transfer payments	7,111,722	0	0	7,111,722
Contribution and premium refunds	9,518,285	31,249	47,577	9,597,111
Administrative expenses	11,885,804	99,460	480,120	12,465,384
<b>Total deductions</b>	<b>1,049,715,875</b>	<b>49,078,314</b>	<b>35,101,772</b>	<b>1,133,895,961</b>
<b>Net increase in net position</b>	<b>240,851,936</b>	<b>6,346,786</b>	<b>203,253</b>	<b>247,401,975</b>
<b>Net position restricted for fiduciary activities:</b>				
Beginning of year	8,557,793,248	190,226,755	212,860	8,748,232,863
End of year	\$ 8,798,645,184	\$ 196,573,541	\$ 416,113	\$ 8,995,634,838

See accompanying *Notes to the Basic Financial Statements*.

## Notes to the Basic Financial Statements

### Note 1 – Plan Descriptions and Contribution Information

The MSEP and the Judicial Plan are pension plans covering substantially all state of Missouri employees and judges.

#### Missouri State Employees’ Plan (MSEP)

The MSEP is a cost-sharing multiple-employer, defined benefit public employee retirement plan with two benefit structures known as the MSEP (closed plan) and MSEP 2000 (which includes the MSEP 2011 tier), which are administered by the Missouri State Employees’ Retirement System (MOSERS) in accordance with Sections 104.010 and 104.312 to 104.1215 of the Revised Statutes of Missouri (RSMo). As established under Section 104.320, RSMo, MOSERS is a body corporate and an instrumentality of the state. The System is vested with the powers and duties specified in Sections 104.010 and 104.312 to 104.1215, RSMo, and such other powers as may be necessary or proper to enable it, its officers, employees, and agents to carry out fully and effectively all the purposes of Sections 104.010 and 104.312 to 104.1215, RSMo.

Responsibility for the operation and administration of the System is vested in the 11-member MOSERS Board of Trustees (the Board) as defined by state law. Due to the nature of MOSERS’ reliance on funding from the state of Missouri and the overall control of the plan document by the legislative and executive branches of state government, the MSEP is considered a pension trust fund of the state of Missouri, and is included in the state’s financial reports as a pension trust fund.

The Board intends to follow a financing pattern that computes and requires contribution amounts which, expressed as a percent of active member payroll, will remain approximately level from year to year and from one generation of citizens to the next. For the year ended June 30, 2024, the employer contribution rate was 27.26% of covered payroll.

Complete recognition of the year-to-year swings in the fair value of System assets would produce contribution rate changes that would run counter to the “approximately level” goal. A common actuarial practice, referred to as asset smoothing, is used to address that issue. Recognizing the difference between the actual and assumed investment returns over a closed, five-year period helps ensure a more stable contribution rate.

At any point in time, the actuarial value of assets will be more or less than the fair value but, if the smoothing method is prudent and properly constructed, those values will converge over time. As of June 30, 2024, the ratio of actuarial value of assets to fair value of assets was 106.33%, for the MSEP.

#### Per the June 30, 2024, actuarial valuation, membership in the MSEP consisted of the following:

Retirees and beneficiaries currently receiving benefits		55,579
Active		
Vested	25,105	
Nonvested	19,575	44,680
Inactive		
Vested (not yet receiving benefits)*	17,962	
Nonvested (with contribution balances)	34,969	52,931
<b>Total membership</b>		<b>153,190</b>

*\* Includes 130 members on leave of absence and 491 members on long-term disability*

Generally, all full-time state employees, employed before July 2000, who became vested and were not covered under another state-sponsored retirement plan, are eligible for membership in the MSEP (closed plan). Full-time state employees who were employed after July 1, 2000, but before January 1, 2011, are members of the MSEP 2000.

Those first employed in a benefit-eligible position on or after January 1, 2011, are members of the MSEP 2011 tier of the MSEP 2000.

MOSERS participates as an employer in the MSEP and MSEP 2000, including the MSEP 2011 tier.



Unless otherwise delineated, data for the MSEP is inclusive of members in the MSEP 2000 and MSEP 2011, which all provide defined benefit pension, survivor, life insurance, and long-term disability benefits.

Employer contributions for the MSEP are determined through annual actuarial valuations. The required contributions are expressed as a percentage of covered payroll. The state of Missouri and its component employers make required contributions to the plans. Employer contributions for the fiscal year ended June 30, 2024, were 27.26% of covered payroll. Members of MSEP and MSEP 2000 do not make employee contributions. Members of MSEP 2011 tier are required to contribute 4% of covered payroll.

Final average pay (FAP) is the average pay of a member for the 36 full, consecutive months of service before termination of employment when the member's pay was greatest. If the member was on workers compensation leave of absence or medical leave of absence due to an employee illness, or on long-term disability, FAP is the amount of pay the member would have received, but for such leave of absence as reported and verified by the employing department. If the member was employed for less than 36 months, FAP is the average monthly pay of a member during the period for which the member was employed.

For a summary of benefits for general state employees, legislators, and statewide elected officials under the MSEP, MSEP 2000, and MSEP 2011 tier, refer to the *Summary of Plan Provisions* in the *Actuarial Section* of this report.

### **MSEP (closed plan)**

General state employees are fully vested for benefits upon accruing five years of credited service. Under the MSEP, general employees may retire with full benefits upon the earliest of attaining:

- Age 65 with 5 years of service; or
- Age 60 with 15 years of service; or
- Age 48 with age and service equaling 80 or more – “Rule of 80.”

General employees may retire early at age 55 with at least 10 years of service with reduced benefits. The base benefit in the general employee plan is equal to 1.6% multiplied by the final average pay multiplied by years of credited service.

Members employed prior to August 28, 1997, receive cost-of-living adjustments (COLAs) annually based on 80% of the percentage increase in the average consumer price index (CPI) from one year to the next, with a minimum rate of 4% and maximum rate of 5% until the cumulative amount of COLAs equal 65% of the original benefit. Thereafter, the 4% minimum rate is eliminated. Members employed on or after August 28, 1997, and members who have met their COLA cap receive COLAs annually based on 80% of the percentage increase in the average CPI from one year to the next, up to a maximum rate of 5%.

Qualified, inactive-vested members may make a one-time election to receive the present value of their future benefit in a lump-sum payment rather than a monthly benefit at retirement age. To qualify, members must have left state employment on or after October 1, 1984, and prior to September 1, 2002, have less than 10 years of service, not be within five years of retirement eligibility, and meet age requirements. In addition, if members left state employment on or after August 28, 1997, and prior to September 1, 2002, the present value of their benefit must be less than \$10,000.

### **MSEP 2000**

General state employees are fully vested for benefits upon accruing five years of credited service. Under the MSEP 2000, general employees may retire with full benefits upon the earliest of attaining:

- Age 62 with 5 years of service; or
- Age 48 with age and service equaling 80 or more – “Rule of 80.”

General employees may retire early at age 57 with at least five years of service with reduced benefits. The base benefit in the general employee plan is equal to 1.7% multiplied by final average pay multiplied by years of credited service.

Those retiring under the “Rule of 80” receive an additional temporary benefit equivalent to 0.8% multiplied by final average pay multiplied by years of credited service, which is payable until age 62.

COLAs are provided annually based on 80% of the percentage increase in the average CPI from one year to the next, up to a maximum rate of 5%.

**MSEP 2011 Tier**

On July 19, 2010, legislation was signed into law adding a new tier (MSEP 2011) to the MSEP 2000 defined benefit pension plan. This tier includes all members first employed in a benefit-eligible position on or after January 1, 2011.

Legislation signed into law on July 14, 2017, changed the original vesting requirement of 10 years to five years for actively employed members of the MSEP 2011, effective January 1, 2018.

Under the MSEP 2011, general employees may retire with full benefits upon the earliest of attaining:

- Age 67 with 5 years of service; or
- Age 55 with age and service equaling 90 or more – “Rule of 90.”

General employees may retire early at age 62 with at least five years of service with reduced benefits. The base benefit in the general employee plan is equal to 1.7% multiplied by final average pay multiplied by years of credited service.

Those retiring under “Rule of 90” receive an additional temporary benefit equivalent to 0.8% multiplied by final average pay multiplied by years of credited service, which is payable until age 62.

COLAs are provided annually based on 80% of the percentage increase in the average CPI from one year to the next, up to a maximum rate of 5%.

**Judicial Plan**

The Judicial Plan is a single-employer, defined benefit public employee retirement plan administered in accordance with Sections 476.445 to 476.690, RSMo. Responsibility for the operation and administration of the Judicial Plan is vested in the MOSERS Board of Trustees. Due to the nature of MOSERS’ reliance on funding from the state of Missouri and the overall control of the plan document by the legislative and executive branches of state government, the Judicial Plan is considered a pension trust fund of the state of Missouri financial reporting entity and is included in the state’s financial reports as a pension trust fund.

Judges and commissioners of the supreme court or the court of appeals, judges of any circuit court, probate court, magistrate court, court of common pleas, court of criminal corrections, justices of the peace, commissioners or deputy commissioners of the probate division of the circuit court appointed after February 29, 1972, in a first class county having a charter form of government in a city not within a county, commissioners of the juvenile division of the circuit court appointed pursuant to Section 211.023, RSMo, commissioners of the drug court or commissioners of any family court are eligible for membership in the Judicial Plan. The Judicial Plan provides defined benefit pension and survivor benefits. Members are immediately vested.

**Per the June 30, 2024, actuarial valuation, membership in the Judicial Plan consisted of the following:**

Retirees and beneficiaries currently receiving benefits		626
Active		
Vested	424	
Nonvested	0	424
Inactive		
Vested (not yet receiving benefits)		30
<b>Total membership</b>		<b>1,080</b>

Funding of the Judicial Plan on an actuarial basis began on July 1, 1998. Employer contributions are determined through annual actuarial valuations. For the year ended June 30, 2024, the employer contribution rate was 59.83% of covered payroll. The state of Missouri makes the employer contribution to the Judicial Plan. Members of the Judicial Plan (closed plan) do not make employee contributions. Members of the Judicial Plan 2011 tier are required to contribute 4% of covered payroll.

### Judicial Plan (closed plan)

Members of the Judicial Plan may retire with full benefits upon the earliest of attaining:

- Age 62 with 12 years of service; or
- Age 60 with 15 years of service; or
- Age 55 with 20 years of service.

Employees may retire early at age 62 with less than 12 years of service, or age 60 with less than 15 years of service with a reduced benefit that is based upon years of service relative to 12 or 15 years.

In the Judicial Plan, the base benefit for members with 12 or more years of service is equivalent to 50% of compensation on the highest court served.

Members first employed prior to August 28, 1997, receive COLAs annually based on 80% of the percentage increase in the average CPI from one year to the next, with a minimum rate of 4% and a maximum rate of 5% until the cumulative amount of COLAs equals 65% of the original benefit. Thereafter, the 4% minimum rate is eliminated. Members first employed on or after August 28, 1997, and members who have met their COLA cap receive COLAs annually based on 80% of the percentage increase in the average CPI from one year to the next, up to a maximum rate of 5%.

Qualified, inactive-vested members may make a one-time election to receive the present value of their future benefit in a lump-sum payment rather than a monthly benefit at retirement age. To qualify, they must have left state employment on or after August 28, 1997, and prior to September 1, 2002, have less than 10 years of service, not be within five years of retirement eligibility, and have a benefit present value of less than \$10,000.

### Judicial Plan 2011 Tier

On July 19, 2010, an additional tier of the defined benefit Judicial Plan was signed into law. This tier (Judicial Plan 2011) includes all new judicial members first employed as a judge on or after January 1, 2011.

Under the Judicial Plan 2011, members may retire with full benefits upon the earliest of attaining:

- Age 67 with 12 years of service; or
- Age 62 with 20 years of service.

Judicial Plan 2011 members may retire early at age 67 with less than 12 years of service with reduced benefits, or age 62 with less than 20 years of service with a reduced benefit based on years of service.

For a more detailed summary of benefits for members of the Judicial Plan, refer to the *Summary of Plan Provisions* in the *Actuarial Section* of this report.

### Administrative Law Judges and Legal Advisors' Plan

On April 26, 2005, Senate Bill 202 was enacted, which terminated the Administrative Law Judges and Legal Advisors' Plan (ALJLAP) for new hires only. Under this legislation, administrative law judges and legal advisors (ALJs) who assume a position after April 26, 2005, and would have otherwise been covered by the ALJLAP will instead participate in the MSEP or the MSEP 2000, depending on when they initially became state employees. For fiscal years 2005 and after, all liabilities and assets of the ALJLAP were transferred and combined with the MSEP. Membership totals for the ALJLAP are included in the MSEP in all relevant sections of this report.

### Missouri State Insured Defined Benefit Insurance Plan

The Missouri State Insured Defined Benefit Insurance Plan is administered through and underwritten by The Standard Insurance Company (The Standard), which is a third-party administrator with oversight by MOSERS. It provides basic life insurance in an amount equal to one times an employee's annual salary while actively employed (with a \$15,000 minimum) to eligible members of the MSEP, MSEP 2000, and MSEP 2011 (except employees of the Missouri Department of Conservation and certain state universities), Judicial Plan, Judicial Plan 2011, and certain members of the Public School Retirement System (PSRS).

The plan also provides duty-related death benefits, optional life insurance for active employees and retirees who are eligible for basic coverage, and a long-term disability insurance plan for eligible members. For a more detailed description of insurance benefits, refer to pages 118-119 in the *Actuarial Section* of this report.

Due to the nature of MOSERS' reliance on funding from the state of Missouri and its component employers, and the overall control of the plan document by the legislative and executive branches of state government, the Missouri State Insured Defined Benefit Insurance Plan is considered a component unit of the state of Missouri financial reporting entity and is included in the state's financial reports.

### **State of Missouri Deferred Compensation Plan (MO Deferred Comp)**

MO Deferred Comp is a retirement savings plan for state of Missouri employees, including faculty and staff at 10 state colleges and universities. Money invested in the plan provides income in retirement to supplement the member's defined benefit pension and Social Security benefits. Funds are automatically deducted from the employee's pay and placed in their account. The participant decides how the money will be invested. Employees may also roll over eligible pre-tax distributions from other qualified retirement plans.

The MO Deferred Comp plan is comprised of a 457 deferred compensation plan for employee contributions and a related 401(a) plan for an employer incentive match contribution. MOSERS uses MissionSquare Retirement as an external provider for record keeping for the plans. These plans have separately issued financial statements. The net position of these plans was approximately \$2.3 billion and \$673.9 million as of June 30, 2024, for the 457 and 401(a) plans, respectively.

MOSERS unitizes investments for the purpose of allowing participants in the State of Missouri Deferred Compensation Plan the option to invest in the MOSERS investment portfolio (MIP). For financial reporting purposes, investments throughout this ACFR are reported in whole and include 0.04%, or approximately \$3.8 million, of the units invested in the MIP by Deferred Compensation participants. Effective June 30, 2017, the option to invest in the MIP fund was no longer available to Plan participants. All participants invested in the MIP fund as of that date may continue to defer into it, but no rollovers or new elections are permitted.

Audited financial statements for the State of Missouri Deferred Compensation Plan can be viewed online at [www.modeferrredcomp.org](http://www.modeferrredcomp.org).

### **Colleges & Universities Retirement Plan (CURP)**

The Colleges & Universities Retirement Plan (CURP) is a defined contribution plan administered by MOSERS for education employees (as determined by the university) at nine Missouri state universities. Retirement income from the plan is dependent upon the employee's plan account balance at retirement. The employee's plan account balance is built from mandatory contributions to the plan and the investment returns generated from employee-selected investment options. To be eligible for the CURP, the employee must:

- Meet the definition of "education employee" as defined by their employer, and
- Be employed in this position for the first time on or after July 1, 2002, and
- Not have previous employment in a position covered by another defined benefit pension plan administered by MOSERS, and
- Be employed at a participating regional Missouri university.

After six years of participation in CURP, the employee may transfer to a MOSERS defined benefit pension plan and will immediately become a vested member of MSEP 2011. By transferring to MOSERS, the employee forfeits all rights to future participation in CURP (i.e., they can't go back to CURP). However, the employee will continue to own and control their CURP account. CURP activities are not included within this report.

## Note 2 – Summary of Significant Accounting Policies

### Basis of Accounting

The accompanying financial statements are prepared in accordance with accounting principles generally accepted in the U.S. that apply to governmental accounting on an accrual basis.

Contributions are recognized as revenues when due, pursuant to statutory requirements. Benefits, refunds, and BackDROP payments are recognized when due and payable. Administrative and other expenses are recorded when the corresponding liabilities are incurred.

### Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect the accompanying financial statements and disclosures. Actual results could differ from those estimates.

### Method Used to Value Investments

Investment assets are reported at fair value, in accordance with Standards issued by the Governmental Accounting Standards Board (see Note 3 for discussion of the valuation methodology for investment assets). The *Schedule of Investments and Derivative Instruments Measured at Fair Value* in Note 3 presents the fair value information of the investments as reported on the *Statements of Fiduciary Net Position*.

### MOSERS' Participation in Other Post-Employment Benefit (OPEB) Programs

Other Post-Employment Benefit (OPEB) related items, including: net OPEB liability, deferred outflows of resources, deferred inflows of resources, net OPEB expense, fiduciary net assets, and additions to and deductions from fiduciary net assets have been determined on the same basis as they are reported by MCHCP. For this purpose, employer contributions are recognized as revenue when due and payable. Benefits are recognized when due and payable in accordance with the terms of the Plan (see *Note 7 – MCHCP Post-Employment Retiree Health Care OPEB Program*).

### Capital & Intangible Assets

The MOSERS building and other capital assets are stated at cost less accumulated depreciation. Intangible assets include software applications and are stated at cost less accumulated amortization. Intangible assets are reported with capital assets in the *Statements of Changes in Fiduciary Net Position*. Capital and intangible assets are depreciated on a straight-line basis over their estimated useful lives. MOSERS evaluates leases and subscription-based information technology arrangements to determine if they should be capitalized as right-to-use assets. Right-to-use assets are depreciated on a straight-line basis over the non-cancellable life of the lease, including only those optional periods for which MOSERS is reasonably certain to renew the subscription.

### Note 3 – Cash and Investments

#### Cash Deposits with Financial Institutions

MOSERS requires its business bank to collateralize amounts on deposits that exceed the Federal Deposit Insurance Corporation (FDIC) insured amount. The types of collateral security shall be included on a list maintained by the State Treasurer’s office in accordance with Section 30.270, RSMo. Securities pledged as collateral are held in agency by a separate bank. As of June 30, 2024, all deposit balances with MOSERS’ business bank in excess of FDIC insurance limits were fully collateralized.

#### Investment Policy

Section 104.440, RSMo allows the Board of Trustees to invest the trust fund assets in accordance with the prudent person rule. In June 2018, the Board voted to adopt a new asset allocation, which includes four broad categories: growth, income, inflation hedge, and absolute return.

MOSERS’ policy, with respect to the allocation of invested assets, is established and amended by a majority vote by the Board of Trustees. The Board’s guiding principles with respect to the investment of MOSERS’ assets are to maximize total return within prudent risk parameters, and act in the exclusive interest of the members of the System. The Board has developed a policy allocation that is designed to achieve the long-term required return objectives of the System, given certain risk constraints. The current asset allocation reflects a diversified portfolio, which will perform well in a variety of economic conditions and will help reduce the portfolio’s overall volatility.

The Board has authorized staff to create and maintain a portfolio that utilizes a modest amount of leverage in order to diversify the risk across the four asset class categories contained in the portfolio. The market exposure is limited to 1.5 times capital. The limit may also be stated as 150% of capital. The table below illustrates the fair value, market exposure, and policy exposure of the portfolio by asset class as of June 30, 2024.

#### Schedule of Internally Managed Leverage

	Fair Value Capital	Percent of Portfolio at Fair Value	Market Exposure	Percent of Portfolio at Market Exposure	Policy Exposure
Growth	\$ 4,058,350,830	45.3%	\$ 4,047,455,791	45.2%	45.0%
Income	1,654,144,807	18.5	3,102,973,562	34.7	35.0
Inflation hedge	1,396,470,835	15.6	3,551,907,885	39.7	40.0
Absolute return	1,843,615,244	20.6	1,843,610,589	20.6	20.0
Total portfolio	\$ 8,952,581,716	100.0%	\$ 12,545,947,827	140.1%	140.0%

*Percentages may not total due to rounding.*

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate rates of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future rates of return by the target asset allocation percentage and by adjusting for expected inflation, volatility, and correlations. Best estimates of the real rates of return for each major asset class included in MOSERS’ target asset allocation as of June 30, 2024, are summarized in the table below.

**Target Asset Allocation**

Asset Class	Policy Allocation	Long-Term Expected Nominal Return*	Long-Term Expected Real Return	Weighted Average Long-Term Expected Nominal Return
Global public equities	30.0%	7.7%	5.8%	2.3%
Global private equities	15.0	9.3	7.4	1.4
Long treasuries	25.0	3.5	1.6	0.9
Core bonds	10.0	3.1	1.2	0.3
Commodities	5.0	5.5	3.6	0.3
TIPS	25.0	2.7	0.8	0.7
Private real assets	5.0	7.1	5.2	0.3
Public real assets	5.0	7.7	5.8	0.4
Hedge funds	5.0	4.8	2.9	0.2
Alternative beta	10.0	5.3	3.4	0.5
Private credit	5.0	9.5	7.6	0.5
Cash and cash equivalents**	(40.0)	0.0	0.0	0.0
	<u>100.0%</u>			
			Correlation/volatility adjustment	(0.6)
			Long-term expected net nominal return	7.2
			Less: investment inflation assumption	(1.9)
			Long-term expected geometric net real return	<u>5.3 %</u>

\* Long-term expected arithmetic returns of the asset classes at the time of the asset allocation study for the portfolio.

\*\* Cash and cash equivalents policy allocation amounts are negative due to use of leverage.

**Money-Weighted Rate of Return**

The annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 6.73% for the year ended June 30, 2024. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for changing amounts actually invested.

### Fair Value Measurement

MOSERS categorizes 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).

- **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.

The categorization of investments within the hierarchy is based upon the pricing transparency of the instrument and should not be perceived as the particular investment's risk.

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. MOSERS' assessment of the significance of particular inputs to these fair value measurements requires judgment and considers factors specific to each asset or liability. The tables on pages 35-36 show the fair value leveling of the investments and additional information for investments valued at net asset value.

Debt, equities, and investment derivatives classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets for those securities.

Debt securities classified in Level 2 have non-proprietary information that was readily available to market participants from multiple independent sources, which are known to be actively involved in the market. Pricing inputs may include market quotations, yields, maturities, call features, and ratings. Derivative securities classified in Level 2 are contracts whose values are derived daily from associated traded securities.

Fair values for the private real estate investments are based on appraisals. Fair values of the limited partnership investments are based on valuations of the underlying companies of the limited partnerships as reported by the general partner. Certain limited partnerships reflect values and related performance on a quarter lag basis due to the nature of those investments and the time it takes to value them. Fair value of the commingled funds is determined based on the underlying asset values. The remaining assets are primarily valued by the System's master custodian using the last trade price information supplied by various pricing data vendors.



## Investments and Derivative Instruments Measured at Fair Value

	Total	Fair Value Measurement Using		
		Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
<b>June 30, 2024</b>				
<b>Investment by fair value level</b>				
<b>Treasuries</b>				
U.S. government securities	\$ 4,513,436,824	\$ 4,513,436,824	\$ 0	\$ 0
<b>Fixed income securities</b>				
Corporate bonds and asset-backed securities	217,258,365	0	217,242,183	16,182
Non-U.S. sovereign	5,925,435	0	5,925,435	0
Municipal bonds	7,540,854	0	7,540,854	0
Collateralized mortgage obligations	235,904	0	235,869	35
<b>Total fixed income securities</b>	230,960,558	0	230,944,341	16,217
<b>Equity</b>				
Real estate investment trusts	438,579,333	438,579,333	0	0
Equity mutual funds	194,845,623	194,845,623	0	0
Other equity securities	164,108	105,690	0	58,418
<b>Total equities</b>	633,589,064	633,530,646	0	58,418
<b>Total investment by fair value level</b>	5,377,986,446	5,146,967,470	230,944,341	74,635
<b>Investments measured at the NAV</b>				
Commingled funds - equity funds	759,242,099			
Commingled funds - investment grade fixed income funds	248,073,214			
Commingled funds - short-term investment funds	16,162,000			
Hedge funds	2,941,425,081			
Private markets funds	1,588,124,071			
<b>Total investments measured at the NAV</b>	5,553,026,465			
<b>Total investments measured at fair value</b>	10,931,012,911	5,146,967,470	230,944,341	74,635
<b>Investment derivative instruments</b>				
Future contracts	4,906,782	4,906,782	0	0
Credit default swap contracts	1,462,433	0	1,462,433	0
<b>Total investment derivative instruments</b>	6,369,215	4,906,782	1,462,433	0
<b>Investments at cost\contract value:</b>				
Cash held in investment accounts	645,969,271			
Repurchase agreements	720,000,000			
<b>Total investments at cost\contract value</b>	1,365,969,271			
<b>Total investments</b>	12,303,351,397	5,151,874,252	232,406,774	74,635
<b>Obligations under repurchase agreements</b>	(3,553,640,244)			
<b>Total investments, net of obligations under repurchase agreements</b>	\$ 8,749,711,153	\$ 5,151,874,252	\$ 232,406,774	\$ 74,635

## Investments Measured at the Net Asset Value

	June 30, 2024	Unfunded Commitments	Redemption Frequency (If Currently Eligible)	Redemption Notice Period (Days)
<b>Commingled fund - equity funds</b>	\$ 759,242,099		Daily, Monthly	1-10
<b>Commingled fund - investment grade fixed income funds</b>	248,073,214		Daily	2
<b>Commingled fund - short-term investment fund</b>	16,162,000		Daily	0
<b>Active hedge funds</b>				
Equity market neutral	179,802,085		Quarterly	90
Fund-of-funds	1,234,415,078		Monthly, Quarterly	10-95
Merger arbitrage	120,096,791		Monthly	45
Multi-strategy	1,104,596,877		Monthly, Quarterly	60-90
Quantitative	104,616,603		Monthly, Quarterly	30-60
Relative value volatility	94,339,354		Monthly	30
Securitized credit	100,483,468			
<b>Pending liquidated hedge funds</b>	3,074,825			
<b>Private markets funds</b>	1,588,124,071	\$ 972,228,255		
<b>Total investments measured at the net asset value (NAV)</b>	<u>\$ 5,553,026,465</u>	<u>\$ 972,228,255</u>		

- **Commingled fund - equity funds** – Four equity funds are considered to be commingled in nature. Each are valued at the NAV held at the end of the period based upon the fair value of the underlying investments.
- **Commingled fund - investment grade fixed income funds** – Three fixed income funds are considered to be commingled in nature and are valued at the NAV held at the end of the period based upon the fair value of the underlying investments.
- **Commingled fund - short term investment fund** – One short-term investment fund is considered to be commingled in nature and is valued at the NAV held at the end of the period based upon the fair value of the underlying investments.
- **Equity market neutral hedge fund** – Consisting of one fund, this strategy invests in both long and short U.S. and global equity securities, with the goal of having little to no net market exposure. This investment is valued at the NAV, is redeemable quarterly, and is not subject to lock-up restrictions.
- **Fund-of-funds** – Consisting of four funds, these funds seek to provide diversification by holding a number of funds within a single fund structure. These investments are valued at the NAV, are redeemable monthly or quarterly, and are subject to liquidation of the underlying funds.
- **Merger arbitrage hedge fund** – Consisting of one fund, this strategy invests in the common stock of companies that are involved in publicly announced mergers and seeks to generate attractive returns while dampening volatility. This investment is valued at the NAV, is redeemable monthly, and is not subject to lock-up restrictions.
- **Multi-strategy hedge funds** – Consisting of six funds, these funds aim to pursue varying strategies in order to diversify risks and reduce volatility. These investments are valued at the NAV, are redeemable monthly or quarterly, but are subject to lock-up restrictions.
- **Quantitative hedge funds** – Consisting of two funds, this strategy attempts to achieve uncorrelated returns using advanced statistical methods to select securities across liquid public markets and systematic volatility trading. These investments are valued at the NAV, are redeemable monthly or quarterly, and are not subject to lock-up restrictions.
- **Relative value volatility hedge funds** – Consisting of one fund, this strategy invests liquid volatility-related instruments in listed futures and options primarily in US markets, with the goal of having little to no net market exposure. This investment is valued at the NAV, is redeemable monthly, and is not subject to lock-up restrictions.
- **Securitized credit hedge fund** – Consisting of one fund, this strategy invests in investment grade synthetic securitizations primarily in the US and Europe. This investment is valued at the NAV and is not redeemable.

- **Pending liquidated hedge funds** – Consisting of seven funds which have been fully redeemed as of June 30, 2024, for which MOSERS is awaiting final distribution of the proceeds, which will be received upon sale of the underlying investments or upon completion of the audit of the firm’s annual financial statements.
- **Private markets funds** – The MOSERS private markets portfolio consists of 59 funds with exposure to buyout funds, direct lending, distressed funds, infrastructure, energy, secondary, royalty funds, special situations, and U.S. commercial real estate. The timber portfolio consists of one fund in liquidation which invests in global timberland. The fair values of the majority of these funds have been determined using net assets valued one quarter in arrears plus current quarter cash flows. Most of these funds are not eligible for redemption. Distributions are received as underlying investments in the funds are liquidated, which on average, can occur over the span of five to 10 years.

### Credit Risk

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations to MOSERS. As of June 30, 2024, MOSERS’ fixed income assets that are not U.S. government guaranteed represented 27.9% of fixed income securities. In preparing this report, credit risk associated with all fixed income holdings, including collateral for repurchase agreements, has been included. The tables on the following page summarize MOSERS’ fixed income security exposure levels and credit qualities.

As a matter of practice, there are no overarching limitations for credit risk exposures within the overall fixed income portfolio. Each individual portfolio within fixed income is managed in accordance with operational guidelines that are specific as to permissible credit quality ranges, exposure levels within individual quality tiers, and average credit quality.

Credit risk for derivative instruments held by the System results from counterparty risk assumed by MOSERS. This is essentially the risk that the counterparty to a MOSERS transaction will be unable to meet its obligation. Information regarding MOSERS’ credit risk related to derivatives is found under the derivatives disclosures beginning on page 41 of the notes.

The commingled fund - investment grade fixed income funds are invested and reinvested primarily in a portfolio of U.S. dollar denominated investment grade securitized debt obligations, with the objective of approximating the total rate of return of the market for debt securities as defined by the *Bloomberg U.S. Securitized Index*. The average rating for the underlying securities within this fund is AA+.

**Average Credit Quality and Exposure Levels of Nongovernment Guaranteed Securities**

<b>Fixed Income Security Type</b>	<b>Fair Value June 30, 2024</b>	<b>Percent of all Fixed Income Assets</b>	<b>Weighted Average Credit Quality</b>	<b>Ratings Dispersion Requiring Further Disclosure</b>
Asset-backed securities	\$ 2,541,035	0.0 %	AAA	See below
Collateralized mortgage obligations	235,904	0.0	AA+	See below
Corporate bonds	214,717,330	3.3	A-	See below
Municipal bonds	7,540,854	0.1	AA-	See below
Non-U.S. sovereign	5,925,435	0.1	BBB	See below
Total nongov't. guaranteed fixed income securities	230,960,558	3.5		
Nongov't. guaranteed repurchase agreements	640,000,000	10.0	Not rated	None
Bank deposits held in STIF account	650,000,000	10.2	FDIC insured	None
Commingled funds - investment grade fixed income	248,073,214	3.9	Not rated	None
Pooled instruments	16,162,000	0.3	AAA	None
Total nongov't. guaranteed securities	1,785,195,772	27.9		
U.S. government securities held in portfolio	4,513,436,824	70.8		
Repurchase agreement with U.S. government securities held as collateral	80,000,000	1.3		
Total fixed income securities	<u>\$ 6,378,632,596</u>	<u>100.0%</u>		

**Ratings Dispersion Detail - Fair Value**

<b>Credit Rating Level</b>	<b>Asset-Backed Securities</b>	<b>Collateralized Mortgage Obligations</b>	<b>Corporate Bonds</b>	<b>Municipal Bonds</b>	<b>Non-U.S. Sovereign</b>
AAA	\$ 2,524,852	\$ 0	\$ 9,108,700	\$ 966,937	\$ 0
AA	0	235,869	7,585,762	3,987,320	1,028,197
A	0	0	89,330,759	2,586,597	2,111,780
BBB	0	0	105,450,712	0	2,453,657
BB	0	0	3,241,397	0	331,801
Not rated	16,183	35	0	0	0
	<u>\$ 2,541,035</u>	<u>\$ 235,904</u>	<u>\$ 214,717,330</u>	<u>\$ 7,540,854</u>	<u>\$ 5,925,435</u>

**Interest Rate Risk**

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. This risk is managed by using the effective duration or option adjusted methodology. It is widely used in the management of fixed income assets by quantifying the risk of interest rate changes. This 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. Within the investment policy, operational guidelines specify the degree of interest rate risk taken within the System’s fixed income portfolios, with the exception of some portfolios in which credit risk is the predominant factor and is also controlled by specific guidelines. MOSERS believes that the reporting of effective duration found in the tables below quantifies to the fullest extent possible the interest rate risk of the System’s fixed income securities.

MOSERS invests in mortgage-backed securities, which have embedded within them the option of being repaid, whereby the borrower has the option to keep the debt outstanding in rising interest rate environments or repay the debt in declining interest rate environments, a factor that advantages the issuer. This risk is incorporated within the effective duration calculation used in the interest rate risk analysis.

**Effective Duration of Fixed Income Assets by Security Type**

<b>Fixed Income Security Type</b>	<b>Fair Value June 30, 2024</b>	<b>Percent of all Fixed Income Assets</b>	<b>Weighted Average Effective Duration (Years)</b>	<b>Interest Rate Risk Requiring Further Disclosure</b>
U.S. treasuries	\$ 4,513,436,824	70.8%	7.9	See below
Asset-backed securities	2,541,035	0.0	3.8	None
Collateralized mortgage obligations	235,904	0.0	0.1	None
Corporate bonds	214,717,330	3.3	7.2	None
Municipal bonds	7,540,854	0.1	8.2	None
Non-U.S. sovereign	5,925,435	0.1	10.2	None
Bank deposits held in STIF account	650,000,000	10.2	0.0	None
Repurchase agreements	720,000,000	11.3	0.0	None
Commingled funds - investment grade fixed income	248,073,214	3.9	5.9	None
Pooled instruments	16,162,000	0.3	0.0	None
	<b>\$ 6,378,632,596</b>	<b>100.0%</b>	<b>6.1</b>	

**Effective Duration Analysis of U.S. Treasuries**

<b>Maturity</b>	<b>Fair Value June 30, 2024</b>	<b>Average Effective Duration of the Security Type (Years)</b>	<b>Contribution to Effective Duration (Years)</b>
Less than 1 year to maturity	\$ 401,569,286	0.2	0.0
1- to 10-year maturities	2,425,807,625	4.4	2.4
Long coupon treasuries	1,686,059,913	14.7	5.5
	<b>\$ 4,513,436,824</b>		<b>7.9</b>

### Repurchase Agreements

Tri-party repurchase agreements (repos) are a secured loan by a financial institution with the collateral held at a custodian bank. In a tri-party repo transaction, MOSERS transfers cash to a financial institution and the financial institution transfers securities to the custodian bank. Simultaneously, the financial institution promises to repay the loan in the future plus interest in exchange for the return of the securities.

Reverse repurchase agreements (reverse repos) are used to convert securities into cash. In a reverse repo transaction, MOSERS transfers securities that are owned in the portfolio to a financial institution and the financial institution transfers cash to MOSERS. Simultaneously, MOSERS promises to repay the loan in the future plus interest in exchange for the return of the securities.

Typical collateral for repos and reverse repos include treasury securities, agency securities, mortgage-backed securities, investment grade corporate bonds, commercial paper, and common stock. Repos and reverse repos are typically done for an overnight term; however, they can be done for a longer term. MOSERS enters into repo transactions to earn interest on short-term funds and enters into reverse repos to finance the purchase of additional securities.

The yield earned by MOSERS on the repo transactions ranged from 5.06% to 5.44% with maturities of one to five days.

The yield earned by the counterparties on the reverse repo transactions ranged from 4.30% to 5.60% and had maturities of one month to one year. The maturities of the investments made with reverse repo proceeds generally have maturities of one to 30 years.

In repo transactions, MOSERS may have credit risk if the counterparty fails to repay the loan and the value of the securities held as collateral falls below the loan balance. To minimize this risk, MOSERS requires the financial institution to send collateral with a fair value greater than the value of the loan and revalues the collateral on a daily basis. As of fiscal year end, MOSERS held approximately \$34.2 million of counterparty collateral in excess of the repo balance.

In a reverse repo transaction, MOSERS may be subject to credit risk if the counterparty fails to return the securities and the value of the securities held as collateral rise above the loan balance. To minimize this risk, MOSERS sends the minimum amount of collateral required by the financial institution and requires the financial institution to revalue the collateral and return excess collateral on a daily basis. Counterparties held approximately \$13.2 million of MOSERS' collateral in excess of the reverse repo balance as of the end of the fiscal year.

The tables below summarize MOSERS' exposure for repo and reverse repo transactions.

#### Tri-Party Repurchase Agreements by Collateral Type

Collateral Type	Fair Value of Collateral June 30, 2024	Fair Value Including Accrued Interest of Repurchase Agreements June 30, 2024	Excess (Deficit) Collateral	Percent Over Collateralized
U.S. treasuries	\$ 81,618,100	\$ 80,000,000	\$ 1,618,100	
U.S. government agencies	397,800,019	390,000,000	7,800,019	
Common stock	275,099,886	250,000,000	25,099,886	
Accrued interest	0	322,133	(322,133)	
	<u>\$ 754,518,005</u>	<u>\$ 720,322,133</u>	<u>\$ 34,195,872</u>	4.7%

#### Reverse Repurchase Agreements by Collateral Type

Collateral Type	Fair Value of Collateral June 30, 2024	Fair Value Including Accrued Interest of Repurchase Agreements June 30, 2024	Excess (Deficit) Collateral	Percent Over Collateralized
U.S. treasuries	\$ 3,615,786,863	\$ 3,553,640,244	\$ 62,146,619	
Payables	(26,425,982)	0	(26,425,982)	
Accrued interest	0	22,489,064	(22,489,064)	
	<u>\$ 3,589,360,881</u>	<u>\$ 3,576,129,308</u>	<u>\$ 13,231,573</u>	0.4 %

### Foreign Currency Risk

Foreign currency risk is the risk that changes to foreign exchange rates will adversely impact the fair value of non-U.S. Dollar denominated assets. The following table summarizes MOSERS' exposure to foreign currencies for all assets that are held in custody at the System's custodial bank. MOSERS has exposure to foreign currencies in other areas of the portfolio, such as commingled international funds, hedge funds, and private partnerships, which are held in the custody of other banks acting as administrators for the funds. MOSERS' exposure to foreign currency risk in U.S. dollars, as of June 30, 2024, is highlighted in the table below.

#### Currency Exposures by Asset Class

Currency	Cash & Cash Equivalents	Equities	Fixed Income	Total
Australian Dollar	\$ 8,044,052	\$ 0	\$ 0	\$ 8,044,052
Canadian Dollar	5,220,903	0	0	5,220,903
Euro	6,096,936	(445,037)	(240,428)	5,411,471
Hong Kong Dollar	(7,164,107)	0	0	(7,164,107)
Israeli Shekel	1	0	0	1
Japanese Yen	1,254,384	189,046	136,765	1,580,195
South African Rand	(888,937)	0	0	(888,937)
South Korean Won	760,569	470,998	0	1,231,567
United Kingdom Pound Sterling	1,228,921	0	0	1,228,921
	<b>\$ 14,552,722</b>	<b>\$ 215,007</b>	<b>\$ (103,663)</b>	<b>\$ 14,664,066</b>

### Derivatives

Derivative instruments are financial contracts whose values depend on the values of one or more underlying assets, reference rates, or financial indexes. They include futures contracts, swap contracts, options contracts, and forward foreign currency exchange. The following tables summarize the various contracts in the portfolio as of June 30, 2024.

#### Futures Contracts

Futures Contract	Notional Value	Exposure
Currency futures	\$ (96,275,674)	\$ 1,261,619
Fixed income futures	(191,972,916)	(1,228,183)
Equity index futures	74,483,707	1,208,997
Commodity futures	28,818,669	3,664,349
Total	<b>\$ (184,946,214)</b>	<b>\$ 4,906,782</b>

## Swap Contracts

Counterparty Credit Rating	Notional Value	Exposure
<b>Total return swaps - equity</b>		
A+	\$ 2,065,223,923	\$ 71,092,720
Total	\$ 2,065,223,923	\$ 71,092,720
<b>Total return swaps - fixed income</b>		
A+	\$ 665,948,969	\$ 10,621,916
A	118,999,516	0
Total	\$ 784,948,485	\$ 10,621,916
<b>Total return swaps - commodities</b>		
A+	\$ 422,522,247	\$ 0
A	25,800,686	0
Total	\$ 448,322,933	\$ 0

While the Board has no formal policy specific to derivatives, the MOSERS investment implementation program, through its external managers, holds investments in futures contracts and swap contracts. MOSERS enters into these certain derivative instruments as investments primarily to enhance the performance and reduce the volatility of its portfolio. It enters swaps and futures contracts to gain or hedge exposure to certain markets and to manage interest rate risk.

The notional values associated with these derivative instruments are generally not recorded in the financial statements; however, the fair values of these instruments are recorded in the *Statements of Fiduciary Net Position* and the total changes in fair value for the year are included as net appreciation in fair value of investments in the *Statements of Changes in Fiduciary Net Position*. For the year ended June 30, 2024, the change in fair value in the swap contracts resulted in a gain of \$267 million of investment income. The change in fair value in the futures contracts resulted in a loss of \$10.6 million of investment income. Foreign currency risk associated with derivative activities is included in the *Currency Exposures by Asset Class* table. MOSERS does not anticipate additional significant market risk from the derivative arrangements.

MOSERS could be exposed to risk if the counterparties to the contracts are unable to meet the terms of the contracts. MOSERS' investment managers seek to control this risk through counterparty credit evaluations and approvals, counterparty credit limits, and exposure monitoring procedures. MOSERS anticipates that the counterparties will be able to satisfy their obligations under the contracts. Investments in limited partnerships and commingled funds may include derivatives that are not shown in the derivative totals.

### Securities Lending Program

The Board of Trustees' *Investment Policy Statement* permits the pension trust funds to participate in a securities lending program. Fixed income, international equity, and domestic equity securities of the pension trust funds can be loaned to participating brokers who provide collateral in the form of cash, U.S. Treasury or government agency securities, or letters of credit issued by approved banks. Collateral must be provided in the amount of 102% of fair value for domestic loans and 105% of fair value for international loans. MOSERS does not have the authority to pledge or sell collateral securities without borrower default.

There was no securities lending activity in fiscal year 2024.



**Note 4 – Capital Assets**

Office building, furniture, fixtures, equipment, and software costing \$10,000 or more are capitalized. Capital assets are valued at cost and reported net of accumulated depreciation. Improvements, which increase the useful life of the property, are also capitalized. The cost of internally developed software incurred during the application development state, including staff payroll costs, are capitalized in accordance with GASB Statement No. 51, *Accounting and Financial Reporting for Intangible Assets*. Maintenance and repairs are charged to expense as incurred. Depreciation is computed using the straight-line method over the estimated useful life of the related assets according to the following guidelines:

- 5 years for furniture, fixtures, and equipment
- 40 years for building
- 5 years for software

Schedules of the capital asset account balances for the year ended June 30, 2024, are as follows:

**Capital Assets**

	Right-to-Use Assets	CIP - Internally Developed Pension Admin. System	Building and Building Improvements *	Furniture, Fixtures and Equipment	Software	Total Capital Assets
<b>Capital assets</b>						
Balances June 30, 2023	\$ 1,378,363	\$ 11,685,401	\$ 4,475,671	\$ 2,116,394	\$ 728,761	\$ 20,384,590
Additions	623,966	1,690,113	21,418	60,416	0	2,395,913
Deletions	(247,989)	0	0	(8,995)	0	(256,984)
Capital assets June 30, 2024	1,754,340	13,375,514	4,497,089	2,167,815	728,761	22,523,519
<b>Accumulated depreciation</b>						
Balances June 30, 2023	596,735	0	2,350,922	1,563,422	724,678	5,235,757
Depreciation expense	499,988	0	105,155	189,329	527	794,999
Deletions	(227,182)	0	0	(8,995)	0	(236,177)
Accumulated depreciation June 30, 2024	869,541	0	2,456,077	1,743,756	725,205	5,794,579
Net capital assets June 30, 2024	\$ 884,799	\$ 13,375,514	\$ 2,041,012	\$ 424,059	\$ 3,556	\$ 16,728,940

\* Building and Building Improvements includes \$267,286 of land that the building is situated on.

**Capital Assets - Right-to-Use Assets**

	Right-to-Use Assets Buildings	Right-to-Use Assets Software	Total Right-to-Use Assets
<b>Right-to-use assets</b>			
Balances June 30, 2023	\$ 278,312	\$ 1,100,051	\$ 1,378,363
Additions	0	623,966	623,966
Deletions	0	(247,989)	(247,989)
Right-to-use assets June 30, 2024	278,312	1,476,028	1,754,340
<b>Accumulated amortization</b>			
Balances June 30, 2023	125,829	470,906	596,735
Depreciation expense	94,834	405,154	499,988
Deletions	0	(227,182)	(227,182)
Accumulated amortization June 30, 2024	220,663	648,878	869,541
Net right-to-use assets June 30, 2024	\$ 57,649	\$ 827,150	\$ 884,799

**Right-to-Use Assets**

Right-to-use assets consist of leased office space and subscription-based software. The intangible right-to-use assets and related liabilities are recorded under GASB Statement No. 87, *Leases*, and GASB Statement No. 96, *Subscription-Based Information Technology Arrangements*. The capitalized value of right-to-use assets and lease liabilities has been calculated based on the future lease payments, discounted to present value. The difference between the liability booked to record the present value of these future payment obligations, and the actual lease payments, is reported as interest expense.

The recording of these liabilities resulted in a future minimum lease commitment, as follows:

**Schedule of Minimum Lease Commitments**

Year Ended June 30	Building			Software		
	Principal	Imputed Interest	Total	Principal	Imputed Interest	Total
2025	\$ 57,649	\$ 578	\$ 58,227	\$ 273,408	\$ 31,576	\$ 304,984
2026	0	0	0	261,297	20,521	281,818
2027	0	0	0	98,492	9,925	108,417
2028	0	0	0	107,718	5,814	113,532
2029	0	0	0	86,235	1,444	87,679
Total commitments	\$ 57,649	\$ 578	\$ 58,227	\$ 827,150	\$ 69,280	\$ 896,430

The changes in the lease liability amounts are reported in the following table:

**Schedule of Changes in Lease Liability Amount**

	Right-to-Use Assets Buildings	Right-to-Use Assets Software	Total Right-to-Use Assets
Balances June 30, 2023	\$ 152,483	\$ 629,145	\$ 781,628
Increases to liability	0	623,966	623,966
Decreases from liability	(94,834)	(425,961)	(520,795)
Net capital assets June 30, 2024	\$ 57,649	\$ 827,150	\$ 884,799

**Note 5 – Employers’ Net Pension Liability**

The components of net pension liability as of June 30, 2024, are in the *Schedule of Employers’ Net Pension Liability* below.

**Schedule of Employers’ Net Pension Liability**

	MSEP	Judicial Plan
Total pension liability	\$ 16,915,028,387	\$ 675,035,481
MOSERS’ fiduciary net position	8,798,645,184	196,573,541
Employers’ net pension liability	<u>\$ 8,116,383,203</u>	<u>\$ 478,461,940</u>
Plan net position as a percentage of the total pension liability	52.02%	29.12%
Covered payroll	\$ 2,463,403,760	\$ 68,106,694
Employers’ net pension liability as a percentage of covered payroll	329.48%	702.52%

An actuarial valuation of an ongoing plan involves estimates of the reported amounts and assumptions about the probability of occurrence of events far into the future. Examples include assumptions about future employment, mortality, and future salary increases. Amounts determined regarding the net pension liability are subject to continual revision as actual results are compared with past expectations and new estimates are made about the future. The *Schedule of Changes in Employers’ Net Pension Liability* presents multi-year trend information about whether the plan fiduciary net positions are increasing or decreasing over time relative to the total pension liability. These schedules are presented in the *Required Supplementary Information*. The total pension liability as of June 30, 2024, is \$16,915,028,387 for the MSEP and \$675,035,481 for the Judicial Plan based on an actuarial valuation performed as of June 30, 2024, and a measurement date of June 30, 2024, using generally accepted actuarial procedures.

**Actuarial Assumptions Used to Determine Net Pension Liability**

An actuarial experience study covering the five-year period ended June 30, 2020, was performed in 2021. A summary of the assumptions used to calculate the net pension liability is contained in the table below. The next experience study is scheduled for 2026.

**Summary of Actuarial Assumptions for the MSEP & the Judicial Plan Used to Determine Net Pension Liability**

Valuation date	June 30, 2024
Actuarial cost method	Entry age normal
Asset valuation method	Fair value
Investment rate of return, net of investment expense	6.95%
Projected salary increases	2.75 – 10.00% (MSEP) 3.00% (Judicial Plan)
Rate of payroll growth	2.25%
COLAs	4% or 1.80% *
Price inflation	2.25%

\* 4.00% compounded annually, when a minimum COLA of 4.00% is in effect. 1.80% compounded annually, when no minimum COLA is in effect (80% of price inflation).

**Mortality Rates - MSEP**

Pre-retirement mortality rates were based on the Pub-2010 General Members Below Median Employee mortality table, set back two years for males and set forward one year for females. Mortality was projected generationally from 2010 to 2020 using Scale MP-2020 and 75% of Scale MP-2020 for years after 2020.

Post-retirement mortality rates for retirees were based on the Pub-2010 General Members Below Median Healthy Retiree mortality table, scaled by 104%, set back two years for males and set forward one year for females. Mortality projected generationally from 2010 to 2020 using Scale MP-2020 and 75% of Scale MP-2020 for years after 2020.

Post-retirement mortality rates for beneficiaries were based on the Pub-2010 General Members Below Median Contingent Survivor mortality table, set back two years for males and set forward one year for females. Mortality was projected generationally from 2010 to 2020 using Scale MP-2020 and 75% of Scale MP-2020 for years after 2020.

Disabled mortality rates were based on the Pub-2010 Non-Safety Disabled Retiree mortality table, without mortality projection.

**Mortality Rates - Judicial Plan**

Pre-retirement mortality rates were based on the Pub-2010 General Members Median Employee mortality table. Mortality was projected generationally from 2010 to 2020 using Scale MP-2020 and 75% of Scale MP-2020 for years after 2020.

Post-retirement mortality rates for retirees were based on the Pub-2010 General Members Median Healthy Retiree mortality table. Mortality was projected generationally from 2010 to 2020 using Scale MP-2020 and 75% of Scale MP-2020 for years after 2020.

Post-retirement mortality rates for beneficiaries were based on the Pub-2010 General Members Median Contingent Survivor mortality table. Mortality was projected generationally from 2010 to 2020 using Scale MP-2020 and 75% of Scale MP-2020 for years after 2020.

**Discount Rate**

The discount rate used to measure the total pension liability was 6.95%, net of investment expenses. The projection of cash flows used to determine the discount rate assumed that contributions from participating employers will be made using the actuarially determined rates. Based on those assumptions, MOSERS’ fiduciary net position was projected to be available to make all the projected future benefit payments of the current plan members. As a result, the long-term expected rate of return on pension plan investments, net of investment expense of 6.95%, was applied to all periods of projected benefit payments to determine the total pension liability.

The table below presents the net pension liability of the plans, as of June 30, 2024, calculated using the discount rate of 6.95%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1% lower (5.95%) or 1% higher (7.95%) than the current rate.

**Sensitivity of Net Pension Liability to Changes in the Discount Rate**

Employers’ Net Pension Liability	1% Decrease 5.95%	Current Discount Rate 6.95%	1% Increase 7.95%
MSEP	\$ 10,076,615,263	\$ 8,116,383,203	\$ 6,479,063,398
Judicial Plan	\$ 543,691,214	\$ 478,461,940	\$ 422,445,589

The funding status of the plans and *Employer Schedule of Funding Progress* can be found in the *Actuarial Section* on page 100.

## Note 6 – Retiree Life Insurance and Long-Term Disability Insurance Programs

In addition to the defined benefit pension provided through MOSERS, the state of Missouri also funds, either partially or in its entirety, retiree life insurance, and long-term disability insurance programs for eligible members. These insurance programs are underwritten by The Standard. MOSERS collects premiums for participants of these programs and remits them to the The Standard on behalf of the state of Missouri.

### Retiree Life Insurance

Members who retire on or after October 1, 1985, are eligible for \$5,000 of state-sponsored basic life insurance coverage if they retire directly from active employment. As of June 30, 2024, 30,448 retirees were participating in the program. This insured defined benefit coverage is financed on a percentage of payroll (.115%) and is purchased as a group policy through The Standard. The cost for the year ended June 30, 2024, was \$2,438,374. Premiums are contributed entirely by the state and its component employers as provided by Section 104.515, RSMo.

Retirees of the Department of Labor and Industrial Relations (DOLIR) who retired prior to January 1, 1996, are eligible for state-sponsored insured defined benefit insurance coverage in the same amount of coverage they were receiving through the DOLIR. As of June 30, 2024, 62 retirees were participating in the program. The coverage for this closed group is purchased as a group policy at a current cost of \$2.07 per thousand dollars of coverage, per month, per eligible participant (\$7,881 for the year ended June 30, 2024). Premiums are paid entirely by the DOLIR as provided by Section 288.225, RSMo. Retirees of the DOLIR who retired on or after January 1, 1996, are eligible for \$5,000 of state-sponsored life insurance coverage if they retire directly from active employment. They are included in the group described in the preceding paragraph.

### Long-Term Disability Insurance (LTD)

MOSERS provides LTD coverage for eligible members and generally includes those active members of MOSERS' retirement plans who do not have other disability coverage and are not yet eligible to receive normal (unreduced) retirement benefits.

There were 24,456 members covered under the program as of June 30, 2024. This insured defined benefit coverage is financed on a percentage of covered payroll (0.0445%). Purchased as a group policy, LTD is administered by The Standard. The cost for the year ended June 30, 2024, was \$8,648,765. Premiums are contributed by the state and its component employers, as provided for by Section 104.515, RSMo.

**Note 7 – MCHCP Post-Employment Retiree Health Care OPEB Program**

MOSERS participates as an employer in a cost-sharing, multiple-employer, defined benefit, other post-employment benefits plan, the State Retiree Welfare Benefit Trust (SRWBT), operated by Missouri Consolidated Health Care Plan (MCHCP). Employees may participate at retirement if eligible to receive a monthly retirement benefit from MOSERS. The terms and conditions governing post-employment benefits are vested with the MCHCP Board of Trustees within the authority granted under Chapter 103, Sections 103.003 through 103.178, RSMo. The SRWBT does not issue a separate stand-alone financial report. Financial activity of the SRWBT is included in the *MCHCP Annual Comprehensive Financial Report* as a fiduciary fund and is intended to present only the financial position of the activities attributable to the SRWBT. Additionally, MCHCP is considered a component unit of the state of Missouri reporting entity and is included in the state’s financial report.

The Plan’s financial statements are available on the MCHCP website at [www.mchcp.org](http://www.mchcp.org).

**Benefits**

The SRWBT was established and organized on June 27, 2008, pursuant to Sections 103.003 through 103.178, RSMo, to provide health and welfare benefits for the exclusive benefit of current and future retired employees of the state and their dependents who meet eligibility requirements, except for those retired members covered by other OPEB plans of the state. The three medical plans from MCHCP offer the same basic coverage such as preventative care and freedom to choose care from a nationwide network of primary care providers, specialists, pharmacies, and hospitals, usually at a lower negotiated group discount and the same covered benefits for both medical and pharmacy. Benefits are the same in all three plans; other aspects differ such as premium, deductible, and out-of-pocket costs. Retiree benefits are the same as for active employees, until they are Medicare eligible.

**Contributions**

Contributions are established and may be amended by the MCHCP Board of Trustees with the authority granted under Chapter 103, Sections 103.003 through 103.178, RSMo. For the fiscal year ended June 30, 2023, employers were required to contribute, on average, 4.05% of active employee covered payroll to fund current fiscal year cost of retiree plan benefits. Employees do not contribute to this plan.

**OPEB Liabilities, OPEB Expense, Deferred Outflows of Resources, and Deferred Inflows of Resources**

At June 30, 2024, MOSERS reported a liability of \$5,574,870 for its proportionate share of the net OPEB liability. The net OPEB liability was measured as of June 30, 2023, and the total OPEB liability used to calculate the net OPEB liability was determined by an actuarial valuation as of that date. MOSERS’ proportion of the net OPEB liability was based on a projection of its long-term share of contributions to the OPEB plan relative to the projected contributions of all participating entities, actuarially determined. At June 30, 2023, MOSERS’ proportionate share was 0.3869%. For the year ended June 30, 2024, MOSERS recognized a net increase in administrative costs of \$222,221 related to OPEB expense. As of June 30, 2024, MOSERS reported deferred outflows of resources and deferred inflows of resources as follows:

**Deferred Outflows/Inflows of Resources Related to Post-Employment Retiree Health Care**

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	\$ 261,746	\$ 41,159
Changes of assumptions	0	1,710,196
Net difference between projected and actual earnings on plan investments	35,496	0
Changes in proportion and differences between MOSERS’ contributions and proportionate share of contributions	426,785	434,116
MOSERS’ contributions subsequent to the measurement date	284,106	0
	\$ 1,008,133	\$ 2,185,471

The \$284,106 currently reported as deferred outflows of resources related to OPEB resulting from MOSERS' contributions subsequent to the measurement date will be recognized as a reduction of the net OPEB liability in the year ended June 30, 2025. Other amounts reported as deferred inflows of resources related to OPEB will be recognized in OPEB expense as follows:

**Deferred Outflows/Inflows of Resources Related to Post-Employment Retiree Health Care to be Recognized in Future Years**

**Year Ending June 30**

2025	\$ 276,424
2026	279,573
2027	265,061
2028	286,033
2029	235,338
Thereafter	119,015
<b>Total</b>	<b>\$ 1,461,444</b>

**Actuarial Assumptions**

The collective total OPEB liability for the June 30, 2023, measurement date was determined by an actuarial valuation as of July 1, 2023. This actuarial valuation used the following actuarial assumptions:

**Summary of MCHCP's Actuarial Assumptions for Post-Employment Retiree Health Care**

Valuation year	July 1, 2022 - June 30, 2023
Actuarial cost method	Entry age normal, level percentage of payroll
Asset valuation method	Fair value
Discount rate	5.50%
Projected payroll growth rate	4.0%
Inflation rate	3.0%
Health care cost trend rate (medical & prescription drugs combined)	
Non-Medicare	6.68% *
	* (6.68% in fiscal year 2024, 6.59% in fiscal year 2025, 6.29% in fiscal year 2026, 5.99% in fiscal year 2027, 5.69% in fiscal year 2028, 5.38% in fiscal year 2029, 5.16% in fiscal year 2030, 5.02% in fiscal year 2031, 4.88% in fiscal year 2032, 4.73% in fiscal year 2033, 4.58% in fiscal year 2034, and 4.50% in fiscal year 2035 and later.)
Medicare	11.79% **
	** (11.79% in fiscal year 2024, 12.54% in fiscal year 2025, 11.38% in fiscal year 2026, 9.06% in fiscal year 2027, 7.19% in fiscal year 2028, 6.75% in fiscal year 2029, 6.33% in fiscal year 2030, 5.93% in fiscal year 2031, 5.52% in fiscal year 2032, 5.11% in fiscal year 2033, 4.70% in fiscal year 2034, then 4.50% in fiscal year 2035 and later.)

Mortality: *Pre-Retirement*: Pri-2012 Employee Amount-weighted Mortality Table projected generationally using MP-2021.

*Annuitant*: Pri-2012 Retiree Amount-weighted Mortality Table projected generationally using MP-2021.

The last experience study was conducted in 2020. Termination rates and retirement rates are updated based on an experience study conducted in 2020. Participation and dependent coverage assumptions were updated based upon an experience study conducted in July 2020. Per capita claims costs, administrative expenses, and retiree contributions were updated based on analysis of 2023 rates.

**Change in Assumptions and Methods Since Prior Valuation**

Per capita health costs, administrative expenses, and retiree contributions were updated to reflect current experience. Trend assumptions were revised to reflect future expectations. There were no changes in benefits.

**Sensitivity to Changes in the Health Care Cost Trend Rates**

The following table presents MOSERS’ net OPEB liability, calculated using the current trend rate, as well as what the net OPEB liability would be if it were calculated using a trend rate that is one percent lower or one percent higher:

**Sensitivity of the Net MCHCP OPEB Liability to Changes in Health Care Cost Trend Rates**

	1% Decrease in Trend Rates	Current Trend Rates	1% Increase in Trend Rates
Net OPEB liability	\$ 4,757,223	\$ 5,574,870	\$ 6,598,705

**Discount Rate**

A discount rate of 5.5% was used to measure the total OPEB liabilities. The projection of cash flows used to determine the discount rate assumed that contributions from plan members will be made at the current contribution rates and the contributions will be made at statutorily required rates, actuarially determined. This discount rate was determined as the best estimate of the expected return on plan assets as of the measurement date.

**Sensitivity to Changes in the MCHCP Discount Rate**

The following table presents MOSERS’ net OPEB liability, calculated using a discount rate of 5.5%, as well as what the net OPEB liability would be if it were calculated using a discount rate that is one percent lower or one percent higher:

**Sensitivity of the Net MCHCP OPEB Liability to Changes in Discount Rate**

	1% Decrease in Discount Rate (4.5%)	Current Discount Rate (5.5%)	1% Increase in Discount Rate (6.5%)
Net OPEB liability	\$ 6,539,276	\$ 5,574,870	\$ 4,796,281

**Long-Term Expected Rate of Return**

The target allocation and expected real rate of return for each major asset class are listed below:

**MCHCP Long-Term Expected Rate of Return**

Asset Class	Target Allocation	Expected Real Rate of Return
Domestic large cap stocks	17.0%	5.9%
Domestic mid cap stocks	4.0	5.9
Domestic small cap stocks	6.0	5.6
Global equity	5.0	9.4
Domestic fixed income	67.0	4.2
Cash equivalents	1.0	3.5



### Note 8 – Commitments

As of June 30, 2024, MOSERS has \$972.2 million in unfunded commitments in the private asset class.

MOSERS has contracted with various software and consulting firms to provide and implement a pension administration system at a cost of approximately \$10.4 million. In addition to the cost of the system, MOSERS has engaged consultants to assist with project governance, change management, and data validation. The contracts for these consulting services have an approximate cost of \$3.2 million. As of June 30, 2024, the remaining commitments on these agreements was approximately \$1.9 million.

### Note 9 – Contingencies

There were no contingencies which would have a material impact on the financial statements as of June 30, 2024.

### Note 10 – Risk Management

MOSERS is exposed to various risks of loss related to natural disasters, errors and omissions, loss of assets, torts, etc. MOSERS has chosen to cover such losses through the purchase of commercial insurance to help mitigate some of the exposure to those risks. In the previous three years, MOSERS has not experienced any losses that exceeded our insurance coverage limits.

**Schedule of Changes in Employers' Net Pension Liability - MSEP**

Last Ten Fiscal Years

	2024	2023	2022	2021	2020
<b>Total pension liability</b>					
Service cost	\$ 185,156,962	\$ 166,052,284	\$ 166,110,518	\$ 162,668,072	\$ 159,559,528
Interest on the total pension liability	1,089,983,221	1,037,223,987	1,017,493,541	959,662,398	960,644,327
Benefit changes	0	0	0	0	0
Difference between expected and actual experience	486,904,589	570,092,422	77,335,262	133,886,066	(70,371,777)
Assumption changes	0	0	0	515,859,705	124,766,739
Benefit payments and member refunds	(1,037,830,071)	(991,550,039)	(962,590,826)	(919,838,592)	(873,816,238)
<b>Net change in total pension liability</b>	724,214,701	781,818,654	298,348,495	852,237,649	300,782,579
<b>Total pension liability - beginning</b>	16,190,813,686	15,408,995,032	15,110,646,537	14,258,408,888	13,957,626,309
<b>Total pension liability - ending (a)</b>	\$16,915,028,387	\$16,190,813,686	\$15,408,995,032	\$15,110,646,537	\$14,258,408,888
<b>Plan fiduciary net position</b>					
Employer contributions	\$ 669,903,073	\$ 1,080,661,379	\$ 471,302,256	\$ 463,293,368	\$ 436,895,653
Employee contributions	58,710,640	48,487,731	39,809,873	37,571,263	35,141,960
Pension plan net investment income (loss)	556,669,632	177,598,790	(816,407,543)	2,032,991,086	400,354,303
Benefit payments and member refunds	(1,037,830,071)	(991,550,039)	(962,590,826)	(919,838,592)	(873,816,238)
Pension plan administrative expense	(11,885,804)	(10,984,550)	(9,248,916)	(8,816,943)	(8,398,164)
Other	5,284,466	5,165,340	5,619,673	3,899,365	4,187,740
<b>Net change in plan fiduciary net position</b>	240,851,936	309,378,651	(1,271,515,483)	1,609,099,547	(5,634,746)
<b>Plan fiduciary net position - beginning</b>	8,557,793,248	8,248,414,597	9,519,930,080	7,910,830,533	7,916,465,279
<b>Plan fiduciary net position - ending (b)</b>	8,798,645,184	8,557,793,248	8,248,414,597	9,519,930,080	7,910,830,533
<b>Net pension liability - ending (a)-(b)</b>	\$ 8,116,383,203	\$ 7,633,020,438	\$ 7,160,580,435	\$ 5,590,716,457	\$ 6,347,578,355
<b>Plan fiduciary net position as a percentage of total pension liability</b>	52.02%	52.86%	53.53%	63.00%	55.48%
<b>Covered payroll</b>	\$ 2,463,403,760	\$ 2,211,853,954	\$ 2,004,688,456	\$ 2,024,883,601	\$ 2,006,870,248
<b>Net pension liability as a percentage of covered payroll</b>	329.48%	345.10%	357.19%	276.10%	316.29%

 See accompanying *Notes to the Schedules of Required Supplementary Information - Pension Trust Funds*.

**Schedule of Changes in Employers' Net Pension Liability - MSEP (continued)**

Last Ten Fiscal Years

	2019	2018	2017	2016	2015
<b>Total pension liability</b>					
Service cost	\$ 158,190,866	\$ 157,351,979	\$ 152,766,134	\$ 149,021,755	\$ 150,412,577
Interest on the total pension liability	956,725,536	956,201,619	945,654,398	913,877,923	896,451,618
Benefit changes	0	0	(1,696,059)	0	0
Difference between expected and actual experience	7,426,685	(118,252,032)	(104,203,260)	61,150,083	(27,983,267)
Assumption changes	74,340,841	351,899,973	202,554,786	656,805,085	(57,568,553)
Benefit payments and member refunds	(851,821,580)	(886,711,473)	(793,964,857)	(757,310,503)	(728,265,800)
<b>Net change in total pension liability</b>	344,862,348	460,490,066	401,111,142	1,023,544,343	233,046,575
<b>Total pension liability - beginning</b>	13,612,763,961	13,152,273,895	12,751,162,753	11,727,618,410	11,494,571,835
<b>Total pension liability - ending (a)</b>	<b>\$13,957,626,309</b>	<b>\$13,612,763,961</b>	<b>\$13,152,273,895</b>	<b>\$12,751,162,753</b>	<b>\$11,727,618,410</b>
<b>Plan fiduciary net position</b>					
Employer contributions	\$ 394,150,042	\$ 379,557,962	\$ 335,217,422	\$ 329,957,369	\$ 329,752,832
Employee contributions	31,286,632	28,303,994	25,439,343	21,684,920	18,099,455
Pension plan net investment income (loss)	313,159,178	576,188,826	272,595,668	1,740,269	(237,070,529)
Benefit payments and member refunds	(851,821,580)	(886,711,473)	(793,964,857)	(757,310,503)	(728,265,800)
Pension plan administrative expense	(9,200,826)	(9,799,256)	(8,759,341)	(8,489,375)	(8,077,692)
Other	4,383,409	1,610,073	5,668,849	4,923,622	5,434,820
<b>Net change in plan fiduciary net position</b>	(118,043,145)	89,150,126	(163,802,916)	(407,493,698)	(620,126,914)
<b>Plan fiduciary net position - beginning</b>	8,034,508,424	7,945,358,298	8,109,161,214	8,516,654,912	9,136,781,826
<b>Plan fiduciary net position - ending (b)</b>	7,916,465,279	8,034,508,424	7,945,358,298	8,109,161,214	8,516,654,912
<b>Net pension liability - ending (a)-(b)</b>	<b>\$ 6,041,161,030</b>	<b>\$ 5,578,255,537</b>	<b>\$ 5,206,915,597</b>	<b>\$ 4,642,001,539</b>	<b>\$ 3,210,963,498</b>
<b>Plan fiduciary net position as a percentage of total pension liability</b>	56.72%	59.02%	60.41%	63.60%	72.62%
<b>Covered payroll</b>	\$ 1,950,272,350	\$ 1,951,454,817	\$ 1,975,353,105	\$ 1,921,528,936	\$ 1,918,527,768
<b>Net pension liability as a percentage of covered payroll</b>	309.76%	285.85%	263.59%	241.58%	167.37%

See accompanying *Notes to the Schedules of Required Supplementary Information - Pension Trust Funds*.

**Schedule of Changes in Employers' Net Pension Liability - Judicial Plan**

*Last Ten Fiscal Years*

	2024	2023	2022	2021	2020
<b>Total pension liability</b>					
Service cost	\$ 13,144,478	\$ 13,037,787	\$ 13,303,763	\$ 12,872,644	\$ 13,119,646
Interest on the total pension liability	43,796,414	42,246,794	42,073,646	42,004,675	42,458,800
Benefit changes	0	0	0	0	0
Difference between expected and actual experience	12,831,120	14,023,318	(9,088,237)	(6,886,109)	(14,933,643)
Assumption changes	0	0	0	(4,928,456)	6,341,771
Benefit payments and member refunds	(48,978,854)	(45,108,589)	(42,530,378)	(41,625,546)	(39,622,268)
<b>Net change in total pension liability</b>	20,793,158	24,199,310	3,758,794	1,437,208	7,364,306
<b>Total pension liability - beginning</b>	654,242,323	630,043,013	626,284,219	624,847,011	617,482,705
<b>Total pension liability - ending (a)</b>	\$ 675,035,481	\$ 654,242,323	\$ 630,043,013	\$ 626,284,219	\$ 624,847,011
<b>Plan fiduciary net position</b>					
Employer contributions	\$ 40,748,235	\$ 39,064,758	\$ 39,228,848	\$ 39,996,509	\$ 39,174,515
Employee contributions	2,029,670	1,746,913	1,550,712	1,448,428	1,314,570
Pension plan net investment income (loss)	12,647,192	4,165,663	(18,801,946)	44,049,707	8,162,709
Benefit payments	(48,978,854)	(45,108,589)	(42,530,378)	(41,625,546)	(39,622,268)
Pension plan administrative expense	(99,460)	(91,076)	(79,492)	(75,822)	(74,450)
Other	3	0	0	0	0
<b>Net change in plan fiduciary net position</b>	\$ 6,346,786	\$ (222,331)	\$ (20,632,256)	\$ 43,793,276	\$ 8,955,076
<b>Plan fiduciary net position - beginning</b>	190,226,755	190,449,086	211,081,342	167,288,066	158,332,990
<b>Plan fiduciary net position - ending (b)</b>	196,573,541	190,226,755	190,449,086	211,081,342	167,288,066
<b>Net pension liability - ending (a)-(b)</b>	\$ 478,461,940	\$ 464,015,568	\$ 439,593,927	\$ 415,202,877	\$ 457,558,945
<b>Plan fiduciary net position as a percentage of total pension liability</b>	29.12%	29.08%	30.23%	33.70%	26.77%
<b>Covered payroll</b>	\$ 68,106,694	\$ 64,923,979	\$ 63,333,626	\$ 63,105,884	\$ 61,402,061
<b>Net pension liability as a percentage of covered payroll</b>	702.52%	714.71%	694.09%	657.95%	745.18%

See accompanying *Notes to the Schedules of Required Supplementary Information - Pension Trust Funds*.

**Schedule of Changes in Employers' Net Pension Liability - Judicial Plan (continued)**

Last Ten Fiscal Years

	2019	2018	2017	2016	2015
<b>Total pension liability</b>					
Service cost	\$ 13,573,453	\$ 12,997,198	\$ 12,945,567	\$ 10,932,097	\$ 10,613,686
Interest on the total pension liability	41,710,768	41,018,371	40,617,091	37,755,240	36,161,612
Benefit changes	0	0	0	0	0
Difference between expected and actual experience	978,884	(1,319,696)	(10,687,091)	(5,036,696)	5,103,664
Assumption changes	5,024,057	12,332,042	7,905,466	53,991,379	0
Benefit payments and member refunds	(37,593,049)	(35,657,248)	(33,984,725)	(32,989,714)	(31,245,906)
<b>Net change in total pension liability</b>	<b>23,694,113</b>	<b>29,370,667</b>	<b>16,796,308</b>	<b>64,652,306</b>	<b>20,633,056</b>
<b>Total pension liability - beginning</b>	<b>593,788,592</b>	<b>564,417,925</b>	<b>547,621,617</b>	<b>482,969,311</b>	<b>462,336,255</b>
<b>Total pension liability - ending (a)</b>	<b>\$ 617,482,705</b>	<b>\$ 593,788,592</b>	<b>\$ 564,417,925</b>	<b>\$ 547,621,617</b>	<b>\$ 482,969,311</b>
<b>Plan fiduciary net position</b>					
Employer contributions	\$ 38,604,668	\$ 36,892,203	\$ 34,246,826	\$ 33,642,498	\$ 32,696,686
Employee contributions	1,138,101	902,319	786,745	661,206	488,193
Pension plan net investment income (loss)	6,051,941	10,677,666	4,680,131	28,081	(3,610,352)
Benefit payments	(37,593,049)	(35,657,248)	(33,984,725)	(32,989,714)	(31,245,906)
Pension plan administrative expense	(72,141)	(181,595)	(150,387)	(136,983)	(123,015)
Other	3,895	(68,711)	0	0	0
<b>Net change in plan fiduciary net position</b>	<b>\$ 8,133,415</b>	<b>\$ 12,564,634</b>	<b>\$ 5,578,590</b>	<b>\$ 1,205,088</b>	<b>\$ (1,794,394)</b>
<b>Plan fiduciary net position - beginning</b>	<b>150,199,575</b>	<b>137,634,941</b>	<b>132,056,351</b>	<b>130,851,263</b>	<b>132,645,657</b>
<b>Plan fiduciary net position - ending (b)</b>	<b>158,332,990</b>	<b>150,199,575</b>	<b>137,634,941</b>	<b>132,056,351</b>	<b>130,851,263</b>
<b>Net pension liability - ending (a)-(b)</b>	<b>\$ 459,149,715</b>	<b>\$ 443,589,017</b>	<b>\$ 426,782,984</b>	<b>\$ 415,565,266</b>	<b>\$ 352,118,048</b>
<b>Plan fiduciary net position as a percentage of total pension liability</b>	<b>25.64%</b>	<b>25.30%</b>	<b>24.39%</b>	<b>24.11%</b>	<b>27.09%</b>
<b>Covered payroll</b>	<b>\$ 60,594,362</b>	<b>\$ 59,417,302</b>	<b>\$ 58,591,661</b>	<b>\$ 57,421,016</b>	<b>\$ 55,656,457</b>
<b>Net pension liability as a percentage of covered payroll</b>	<b>757.74%</b>	<b>746.57%</b>	<b>728.40%</b>	<b>723.72%</b>	<b>632.66%</b>

See accompanying *Notes to the Schedules of Required Supplementary Information - Pension Trust Funds*.

Pension Trust Funds  
**Schedules of Employer Contributions**  
 Last Ten Fiscal Years

**MSEP**

Year Ended June 30	Actuarially Determined Contribution	Contributions in Relation to the Actuarially Determined Contribution*	Contribution Deficiency (Excess)	Covered Payroll**	Contributions as a Percentage of Covered Payroll ***
2024	\$ 669,903,073	\$ 669,903,073	\$ 0	\$ 2,463,403,760	27.19%
2023	580,661,379	1,080,661,379	(500,000,000)	2,211,853,954	48.86
2022	471,302,256	471,302,256	0	2,004,688,456	23.51
2021	463,293,368	463,293,368	0	2,024,883,601	22.88
2020	436,895,653	436,895,653	0	2,006,870,248	21.77
2019	394,150,042	394,150,042	0	1,950,272,350	20.21
2018	379,557,962	379,557,962	0	1,951,454,817	19.45
2017	322,772,697	335,217,422	(12,444,725)	1,975,353,105	16.97
2016	310,124,928	329,957,369	(19,832,414)	1,921,528,936	16.97
2015	329,752,832	329,752,832	0	1,918,527,768	16.97

**Judicial Plan**

Year Ended June 30	Actuarially Determined Contribution	Contributions in Relation to the Actuarially Determined Contribution*	Contribution Deficiency (Excess)	Covered Payroll**	Contributions as a Percentage of Covered Payroll
2024	\$ 40,748,235	\$ 40,748,235	\$ 0	\$ 68,106,694	59.83%
2023	39,064,758	39,064,758	0	64,923,979	60.17
2022	39,228,848	39,228,848	0	63,333,626	61.94
2021	39,996,509	39,996,509	0	63,105,884	63.38
2020	39,174,515	39,174,515	0	61,402,061	63.80
2019	38,604,668	38,604,668	0	60,594,362	63.71
2018	36,892,203	36,892,203	0	59,417,302	62.09
2017	32,670,710	34,246,826	(1,576,116)	58,591,661	58.45
2016	31,604,527	33,642,498	(2,037,971)	57,421,016	58.45
2015	32,696,686	32,696,686	0	55,656,457	58.45

\* Since the percent of payroll contributions rate was applied to the pension payroll during the fiscal year, the actuarially determined contribution is equal to the actual contribution. In fiscal years 2016 and 2017, excess contributions were made because the actuarially determined contribution rate fell below the Board-established minimum contribution rate.

\*\* For fiscal years 2016 and prior, covered payroll totals from the valuation report were used, which includes actual covered payroll from July through May with estimated amounts for June. For fiscal years 2017 and forward, covered payroll totals used are actual covered payroll from July through June, as reported in the GASB 67 report.

\*\*\* Beginning in fiscal year 2023, the employers were given the option to prepay contributions at certain times during the year and receive an actuarially determined present value discount based on MOSERS' investment return assumption. During fiscal year 2023, MOSERS received a one-time contribution of \$500 million from the state of Missouri.

See accompanying Notes to the Schedules of Required Supplementary Information - Pension Trust Funds.

*Pension Trust Funds*

**Schedule of Annual Money-Weighted Rate of Return on Investments**

*Last Ten Fiscal Years*

<b>Year Ended June 30</b>	<b>Annual Money-Weighted Rate of Return - Net of Investment Expense</b>
2024	6.73 %
2023	2.13
2022	(8.75)
2021	26.56
2020	5.25
2019	4.10
2018	7.57
2017	3.51
2016	0.08
2015	(2.60)

See accompanying *Notes to the Schedules of Required Supplementary Information - Pension Trust Funds*.

## Notes to the Schedules of Required Supplementary Information - Pension Trust Funds

### Actuarial Methods and Assumptions for Valuations Performed as of June 30, 2024

The entry age normal actuarial cost method of valuation is used in determining liabilities and normal cost. Regular actuarial valuations provide valuable information about the composite change in the unfunded actuarial accrued liabilities (whether or not the liabilities are increasing or decreasing, and by how much). Since the future cannot be predicted with precision, actual experience is expected to differ from assumed experience. Differences occurring in the past between assumed experience and actual experience (actuarial gains and losses) become part of actuarial accrued liabilities. Unfunded actuarial accrued liabilities are amortized to produce payments (principal and interest), which are expressed as a percent of payroll. A layered, closed 25-year amortization period was used for the June 30, 2024, valuations to determine the fiscal year 2026 contribution rates. The actuarial value is calculated by recognizing the difference between the actual and expected return on the fair value of assets each year over a closed five-year period. In addition, the total unrecognized investment experience as of June 30, 2017, was recognized evenly over a seven-year period beginning June 30, 2018. With the June 30, 2024, valuation, this experience has been fully recognized.

The investment return rate assumption remained constant at 6.95% per year as of June 30, 2024, compounded annually (net of investment expenses). The price inflation assumption used was 2.25% per year. Projected salary assumptions were 2.75% to 10.00% for the MSEP and 3.00% for the Judicial Plan. The assumption used for annual post-retirement benefit increases (COLAs) is 4.0% (on a compound basis) when a minimum COLA is in effect. When no minimum COLA is in effect, the annual COLA is assumed to be 1.80% (80% of the 2.25% price inflation) on a compounded basis.

### Actuarial Assumptions and Methods Used to Set the Actuarially Determined Contributions - Five-Year Review

#### MSEP & Judicial

Valuation year	2024	2023	2022	2021	2020
Contribution rate for fiscal year	2026	2025	2024	2023	2022
Actuarial cost method	Entry age normal	Entry age normal	Entry age normal	Entry age normal	Entry age normal
Amortization method	Layered bases approach - Level percentage of payroll	Layered bases approach - Level percentage of payroll	Layered bases approach - Level percentage of payroll	Layered bases approach - Level percentage of payroll	Layered bases approach - Level percentage of payroll
Amortization periods	Closed 25-year period	Closed 25-year period	Closed 25-year period	Closed 25-year period	Closed 30-year period
Inflation	2.25%	2.25%	2.25%	2.25%	2.25%
Cost-of-living adjustment	4% or 1.80%	4% or 1.80%	4% or 1.80%	4% or 1.80%	4% or 1.80%
Salary increase	varied	varied	varied	3.00	varied
Payroll growth	2.25%	2.25%	2.25%	2.25%	2.25%
Investment rate of return	6.95%	6.95%	6.95%	6.95%	6.95%



**Schedule of Proportionate Share of the Net OPEB Liability**

For Years Ended June 30, 2018 – 2024\*

**State Retiree Welfare Benefit Trust**

	2024	2023	2022	2021	2020	2019	2018
MOSERS' proportion of the net OPEB liability	0.3869%	0.4000%	0.3760%	0.4313%	0.4352%	0.4375%	0.4121%
MOSERS' proportionate share of the net OPEB liability	\$5,574,870	\$5,635,287	\$6,413,236	\$7,682,560	\$7,697,649	\$7,666,038	\$7,272,038
MOSERS' covered payroll	\$7,700,645	\$7,262,074	\$7,004,895	\$7,569,252	\$7,370,032	\$7,056,668	\$6,669,717
MOSERS' proportionate share of the net OPEB liability as a percentage of its covered payroll	72.39%	77.60%	91.55%	101.50%	104.45%	108.64%	109.03%
Plan fiduciary net position as a percentage of the total OPEB liability	12.18%	12.12%	10.14%	8.24%	7.31%	6.90%	6.64%

\* The amounts presented in this schedule were determined as of the previous fiscal year end. Intended to show information for 10 years, data for additional years will be displayed as it becomes available.

**Schedule of Employer Contributions for OPEB**

For Years Ended June 30, 2018 – 2024\*

	2024	2023	2022	2021	2020	2019	2018
Contractually required contribution	\$ 284,106	\$ 286,406	\$ 291,661	\$ 283,613	\$ 311,510	\$ 331,275	\$ 301,182
Contributions in relation to the contractually required contribution	\$ 284,106	\$ 286,406	\$ 291,661	\$ 283,613	\$ 311,510	\$ 331,275	\$ 301,182
Contribution deficiency (excess)	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Covered payroll	\$8,440,246	\$7,700,645	\$7,262,074	\$7,004,895	\$7,569,252	\$7,370,032	\$7,056,668
Contributions as a percentage of covered payroll	3.37%	3.72%	4.02%	4.05%	4.12%	4.49%	4.27%

\* Intended to show information for 10 years, data for additional years will be displayed as it becomes available.

**Schedules of Investment Expenses**

For the Year Ended June 30, 2024

Investing activity	MSEP	Judicial Plan	Total
<b>Investment management and incentive fees</b>			
<b>Equity</b>			
Artisan International Value Fund	\$ 2,929,400	\$ 65,431	\$ 2,994,831
Baillie Gifford Intl Alpha Private Equity	1,004,173	22,429	1,026,602
Baillie Gifford EM Private Equity	671,907	15,008	686,915
NS Partners Emerging Markets	1,934,535	43,210	1,977,745
Silchester International Investors	1,954,545	43,656	1,998,201
<b>Fixed Income</b>			
BlackRock, Inc.	84,263	1,882	86,145
<b>Multi-asset</b>			
NISA Investment Advisors	5,266,602	117,634	5,384,236
<b>Alternatives</b>			
Aberdeen Standard Investments	1,226,973	27,406	1,254,379
Aberdeen Davi Alpha	954,252	21,314	975,566
Actis Emerging Markets 3	65,536	1,464	67,000
Actis Emerging Markets 4	487,120	10,880	498,000
Altas Partners Holdings III L.P.	1,177,410	26,298	1,203,708
Appian Natural Resources Fund III	1,849,353	41,307	1,890,660
Arlington Capital Partners VI, L.P.	2,858,691	63,851	2,922,542
Avista Healthcare Partners VI, L.P.	3,920,091	87,559	4,007,650
Axiom Asia Private Capital Fund II, L.P.	49,755	1,111	50,866
Axiom Asia Private Capital Fund III, L.P.	566,701	12,658	579,359
Axiom Asia Fund 6, L.P.	533,044	11,906	544,950
Axxon Brazil Private Equity Fund II B, L.P.	103,174	2,304	105,478
BlackRock Private Equity Co-Investments 2021, LP	1,773,643	39,616	1,813,259
Blackstone Real Estate Partners IV	55,154	1,232	56,386
Blackstone Real Estate Partners V	937	21	958
Blackstone Real Estate Partners VI	101,132	2,259	103,391
Blackstone Real Estate Partners VII	(986,197)	(22,028)	(1,008,225)
Blackstone Topaz Fund, L.P.	4,514,434	100,834	4,615,268
Blackstone Topaz Private Credit	2,487,896	55,569	2,543,465
Blue Diamond Non-Directional Fund	3,170,721	70,821	3,241,542
Brevan Howard Alpha Strategies Fund, L.P.	16,577,041	370,263	16,947,304
Catalyst Fund Limited Partnership III	82,985	1,854	84,839
Catalyst Fund Limited Partnership IV	98,010	2,189	100,199
Catalyst Fund Limited Partnership V	1,806,163	40,342	1,846,505
CBRE U.S. Core Partners, LP	1,291,207	28,840	1,320,047
Centiva Capital	13,609,463	303,979	13,913,442
Comvest Credit Partners 2023, L.P.	441,983	9,872	451,855

Schedule of Investment Expenses continued on following page.

**Schedules of Investment Expenses (continued)**

For the Year Ended June 30, 2024

*Schedule of Investment Expenses continued from previous page*

Investing activity	MSEP	Judicial Plan	Total
Cornwall Domestic, LP	\$ 5,204	\$ 116	\$ 5,320
DE Shaw Dioptr Fund, LLC	4,729,396	105,635	4,835,031
EIG Energy Fund XIV, LP	77,427	1,729	79,156
EIG Energy Fund XV, LP	72,719	1,624	74,343
EIG Energy Fund XVI, LP	229,260	5,121	234,381
EIG Co-Investment	29,121	650	29,771
Eilser Multi-Strategy Fund, L.P.	18,348,981	409,840	18,758,821
Elliott International Limited	11,093,187	247,776	11,340,963
Exodus Point Partners Fund	13,894,873	310,354	14,205,227
Farallon Capital Institutional Partners, L.P.	(6,633)	(148)	(6,781)
Gateway Energy & Resource Holdings, LLC	18,507	413	18,920
Global Forest Partners GTI7 Institutional Investors Company Limited	3,841	86	3,927
Gryphon Partners VI, L.P.	3,936,649	87,928	4,024,577
Harrison Street Real Estate Core Property Fund, L.P.	454,531	10,152	464,683
HBK Merger Strategies Offshore Fund, Ltd.	3,033,415	67,754	3,101,169
HIG Middle Mkt LBO Fund IV, L.P.	1,552,103	34,668	1,586,771
JLL Partners Fund V, L.P.	133,622	2,985	136,607
JLL Partners Fund VI, L.P.	(3,822)	(85)	(3,907)
King Street Capital, LP	12,843	287	13,130
LaSalle Property Fund	773,648	17,280	790,928
Linden Capital Partners II, L.P.	218,923	4,890	223,813
Mercato Partners Traverse IV, L.P.	4,665,048	104,198	4,769,246
Merit Energy Partners F-II, L.P.	1,332	30	1,362
MGG Evergreen Cardinal Fund, L.P.	588,946	13,155	602,101
MHR Institutional Partners IIA, L.P.	(10,132)	(226)	(10,358)
MHR Institutional Partners III, L.P.	18,727	418	19,145
MHR Institutional Partners IV, L.P.	553,768	12,369	566,137
Millennium USA L.P.	(932,020)	(20,817)	(952,837)
Millennium Technology Value Partners II	(40,611)	(907)	(41,518)
Oaktree Real Estate Income Fund, L.P.	1,057,270	23,615	1,080,885
OCM Opportunities Fund VIIb, L.P.	5,491	123	5,614
OCM Opportunities Fund VIIIb, L.P.	1,274,965	28,477	1,303,442
OCM Power Opportunities Fund III, L.P.	64,217	1,434	65,651
Partners Group Direct Equity IV A, L.P.	1,979,026	44,203	2,023,229
Partners Group Direct Equity V A, L.P.	(518,016)	(11,570)	(529,586)
Portfolio Advisors Secondary Fund IV, L.P.	2,418,964	54,030	2,472,994
Silver Creek Special Opportunities Fund I, LP	26,442	591	27,033
Silver Creek Special Opportunities Fund II, LP	37,176	830	38,006
Standard Investment Research Hedged Equity Fund	5,422,644	121,119	5,543,763
Stockbridge Core & Value Advisors, LLC	530,060	11,839	541,899

*Schedule of Investment Expenses continued on following page.*

**Schedules of Investment Expenses (continued)**

For the Year Ended June 30, 2024

*Schedule of Investment Expenses continued from previous page*

<b>Investing activity</b>	<b>MSEP</b>	<b>Judicial Plan</b>	<b>Total</b>
TA Realty Core Property Fund, L.P.	\$ 718,687	\$ 16,052	\$ 734,739
Thomas H. Lee Partners L.P.	2,704,568	60,409	2,764,977
Vista Equity Partners VIII, L.P.	3,059,631	68,339	3,127,970
Voleon Institutional Strategies Fund LP	4,848,839	108,303	4,957,142
Voleon Investors Fund LP	1,243,146	27,767	1,270,913
Warren Equity Partners VI, L.P.	2,874,122	64,196	2,938,318
Total investment management and incentive fees	163,862,182	3,660,003	167,522,185
<b>Other investment fees</b>			
<i>Investment consultant fees</i>			
Egan-Jones Ratings Company	8,804	196	9,000
Meketa Investment Group	284,047	6,338	290,385
NEPC	313,016	6,984	320,000
Verus Advisory, Inc.	262,885	5,865	268,750
Total investment consultant fees	868,752	19,383	888,135
<i>Investment custodial and other fees</i>			
BNY Mellon (custodial)	446,565	9,975	456,540
BNY Mellon (performance calculation)	204,850	4,576	209,426
Total investment custodial and other fees	651,415	14,551	665,966
Internal investment activity expenses	9,965,685	90,114	10,055,799
Total investing activity expenses	\$ 175,348,034	\$ 3,784,051	\$ 179,132,085

**Schedule of Internal Investment Activity Expenses**

For the Year Ended June 30, 2024

<b>Personnel services</b>	
Salaries	\$ 2,377,126
Fringe benefits	996,931
Total personnel services	<u>3,374,057</u>
<b>Professional services</b>	
Attorney services	5,888,406
Total professional services	<u>5,888,406</u>
<b>Communications</b>	
Telephone	5,630
Total communications	<u>5,630</u>
<b>Facilities</b>	
Utilities	8,019
Lease expense	89,776
Facility maintenance	1,685
Total facilities	<u>99,480</u>
<b>Software and equipment</b>	
Computer supplies and software	209,069
Total software and equipment	<u>209,069</u>
<b>Education, meetings, and travel</b>	
Professional development including travel	33,554
Due diligence travel	27,986
Total education, meetings, and travel	<u>61,540</u>
<b>General</b>	
Research and information services	398,026
Membership dues	13,690
Office supplies	1,582
Periodicals and publications	3,919
Recruiting	400
Total general	<u>417,617</u>
 Total internal investment activity expenses	 <u><u>\$ 10,055,799</u></u>

**Schedule of Administrative Expenses**

For the Year Ended June 30, 2024

<b>Personnel services</b>	
Salaries	\$ 6,283,717
Fringe benefits	3,197,382
Total personnel services	<u>9,481,099</u>
<b>Professional services</b>	
Consulting services	148,869
Attorney services	61,181
Auditing services	63,523
Actuarial services	190,708
Total professional services	<u>464,281</u>
<b>Communications</b>	
Postage and mailing	222,509
Telephone and internet	72,557
Printing	21,758
Video production	2,093
Total communications	<u>318,917</u>
<b>Facilities</b>	
Utilities	85,402
Facility maintenance	51,322
Vehicle maintenance and operation	4,492
Total facilities	<u>141,216</u>
<b>Software and equipment</b>	
Maintenance agreements and licenses	879,938
Computer supplies and software	84,513
Equipment rental	56,894
Gain on sale of equipment	(3,739)
Total software and equipment	<u>1,017,606</u>
<b>Education, meetings, and travel</b>	
Professional development including travel	104,548
Board travel and meetings	15,692
MOSERS sponsored seminars	91,420
Due diligence	1,631
Total education, meetings, and travel	<u>213,291</u>
<b>General</b>	
Depreciation and amortization	295,011
Insurance	219,215
Business continuity	100,777
Banking services	52,883
Research and information services	56,340
Office supplies and miscellaneous	56,527
Membership dues	27,713
Recruiting and outreach	20,508
Total general	<u>828,974</u>
Total administrative expenses	<u>\$ 12,465,384</u>

**Schedule of Professional Service Fees**

For the Year Ended June 30, 2024

**Professional Services**

**Operations administrative expenses**

*Actuarial services*

CavMac	\$ 190,708
<b>Total actuarial services</b>	<b>190,708</b>

*Attorney services*

Ice Miller, LLP	9,287
Thompson Coburn, LLP	51,894
<b>Total attorney services</b>	<b>61,181</b>

*Auditing services*

Eide Bailly, LLP	63,523
<b>Total auditing services</b>	<b>63,523</b>

*Consulting services*

Black Hills Information Security – information technology	91,086
Charlesworth & Associates – risk management	13,842
Gamble & Schlemeier, Ltd. – governmental affairs	32,327
Huber & Associates – information technology	6,400
Linea Solutions – information technology	3,125
Other consulting services	2,089
<b>Total consulting services</b>	<b>148,869</b>

Total operations administrative expenses	<b>464,281</b>
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**Investment administrative expenses**

*Attorney services*

Bates White, LLC	802,141
Cassels Brock & Blackwell, LLP	137,409
Delta Consulting Group, Ltd.	13,974
Guru Discovery, LLC	550,934
Hemming Morse, LLP	34,799
Quinn Emanuel Urquhart & Sullivan, LLP	3,768,970
Thompson Coburn, LLP	578,541
Other attorney services	1,638
<b>Total attorney services</b>	<b>5,888,406</b>

Total investment administrative expenses	<b>5,888,406</b>
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Total professional services expenses	<b>\$ 6,352,687</b>
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Information on investment management and consulting fees can be found in the Schedules of Investment Expenses on pages 60-62.

**Capitalized professional service fees for the pension administration system**

*Consulting services*

ICON Integration and Design, Inc.	\$ 232,042
Tegrit	1,268,636
<b>Total consulting services</b>	<b>\$ 1,500,678</b>

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# INVESTMENT Section

MOSERS' experienced team of investment professionals work hard every day to ensure the long-term sustainability of the System.  
Your benefits are secure.



## Chief Investment Officer's Report



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[mosers@mosers.org](mailto:mosers@mosers.org) (email)  
Visit us at 907 Wildwood Drive or [www.mosers.org](http://www.mosers.org)

October 21, 2024

Dear Members,

In fiscal year 2024, every asset class outperformed its individual benchmark, and the total portfolio generated a time-weighted rate of return of +6.6%, net of all fees and expenses. This result exceeded the policy benchmark of +5.8% by 0.8%. Due to this outperformance, approximately \$74 million in value was added to the MOSERS portfolio above our policy benchmark. Total trust fund assets as of June 30, 2024, were nearly \$9.0 billion.

The growth portfolio delivered strong returns for 2024, coming in at 16.7%. This result was led by the Global Public Equities allocation, which outperformed its benchmark by more than 1%, coming in at 20.8%. The income portfolio continued to struggle on a nominal basis in a high inflation and a rising interest rate environment. As a result, this portfolio returned -6.1% for the year but still outperformed the portfolio's benchmark return of -6.6%. The inflation bucket faced similar headwinds and returned -0.5%, slightly ahead of its benchmark. Finally, the absolute return portfolio had a good year, coming in at +7.4%, which exceeded its benchmark of +6.6% by 0.8%.

During the first half of the fiscal year, markets were trying to determine if the Federal Reserve (the Fed) was finished raising rates and the overall direction of the economy, given all the conflicting signals at the time. In the latter half of the year, the general belief was that the Fed was done with rate increases. Market watchers began to anticipate the next round of interest rate cuts that would help achieve the desired "soft landing" and avoid a recession in the near term.

Meanwhile, unemployment has begun to increase while inflation slowly declines, nearing the Fed's historic target of 2%. In addition to these changes in the economy, there is also increased volatility in the markets related to the U.S. elections.

As long-term investors, MOSERS recognizes the importance of portfolio diversification and investment discipline during times of uncertainty and over the long term. While the MOSERS portfolio is built to withstand all kinds of market uncertainties over time, the Board also undertakes a detailed portfolio review at least every five years for potential improvements and to reconfirm its soundness.

The total fund 1-, 3-, 5-, 10-, 15-, and 20-year actual performance outperformed the policy benchmark over all periods, adding approximately \$2.1 billion to the trust fund over the 20-year period.

Over the next two fiscal years, MOSERS staff will begin implementing changes approved by the Board, which are designed to improve the portfolio for the foreseeable future. These changes will be completed in a purposeful and targeted manner to ensure the long-term health and resilience of the MOSERS portfolio.

I look forward to working with the MOSERS Board and our highly talented and experienced staff to continue providing secure, reliable retirement benefits to all our plan members.

Sincerely,

TJ Carlson  
Chief Investment Officer

## Investment Policy Summary

The investment policy summary serves as a reference point for management of System assets and outlines MOSERS' investment philosophy and practices. Investments within this report are presented on the basis of fair value using a variety of sources such as appraisals, valuations of underlying companies and assets for limited partnerships and commingled funds, and through fair values obtained from the investment custodian.

The purpose of MOSERS' investment program is to ensure that MOSERS' members and beneficiaries receive their benefits at a reasonable and predictable cost to their employers. Plan assets may be invested, reinvested, and managed by MOSERS' investment staff or third-party investment managers, subject to the terms, conditions, and limitations provided by law and contracts, where applicable.

The MOSERS Board is charged with the responsibility for investing the assets of the System in a manner consistent with fiduciary standards set forth in the prudent person rule and has adopted the following objectives and philosophies to guide all investment related decisions.

### Investment Objectives

- Develop a Real Return Objective (RRO) intended to keep contribution rates at a reasonable level over long periods of time, absent changes in actuarial assumptions.
- Establish an asset allocation policy that is expected to meet the RRO, while minimizing the impact of the portfolio investments' volatility on the contribution rate.
- Maximize long-term investment returns by exposing plan assets to a prudent level of risk in order to support the goal of having sufficient funds available to meet projected benefit payment obligations.
- Monitor costs associated with the efficient implementation of the asset allocation policy through the use of internal and external resources.

### Investment Philosophy

- A key risk to the portfolio is asset shortfall where assets are insufficient to meet promised benefit obligations. As a result, the Board will strive to minimize the potential for long-term impact from disproportionate drawdowns.
- MOSERS is willing to take measured risks for which it expects to be compensated, and will seek to avoid risks which may not be appropriately rewarded.
- The Board will employ a disciplined, objective, and quantitatively-driven asset/liability analysis process with the goal of determining the optimal asset allocation policy to meet the investment objectives.
- In order to meet the RRO, it is necessary for the Plan to maintain a significant allocation to growth (i.e., equity) assets. As a result, equity risk is expected to be the key contributor to the overall risk of the Plan's investments (Total Fund). In recognition of this, the Board's asset allocation policy will seek to mitigate the risk from large equity market declines.
- Strategic asset allocation is a significant factor influencing long-term investment performance and asset volatility. The asset allocation targets, determined by the Board, will be adhered to through clearly defined rebalancing guidelines.
- The Board will seek to cause the total fund to be broadly diversified in view of the fact that not all strategies will add value at all times, which should mitigate the impact of negative market environments over its long-term investment horizon.
- Risk management and performance benchmarking are integral to the investment program. The Board will establish and regularly monitor appropriate absolute and relative return risk as well as other key risks that affect the total fund.
- The Board recognizes the importance of benchmarking for monitoring how well investment decisions are fulfilling the Plan's objectives and will employ industry-accepted benchmarks for all asset classes and sub-asset classes for which the Board sets policy, using published market indices where feasible.
- Costs meaningfully impact investment returns and will be a consideration in all investment program decisions. Investment performance shall be reported net of fees to incorporate the full impact of fees and costs.

## Roles and Responsibilities

### Board of Trustees

The Board bears the ultimate fiduciary responsibility for the investment of System assets. Members of the Board must adhere to state law and prudent standards of diligence with respect to their duties as investment fiduciaries. Accordingly, they are required to discharge their duties in the interest of plan participants. They must also “act with the same care, skill, prudence, and diligence under prevailing circumstances that a prudent person, acting in a similar capacity and familiar with those matters, would use in the conduct of a similar enterprise with similar aims.”<sup>1</sup> Specifically related to investments, the Board is responsible for prudent oversight, governance, and management of the System’s assets.

### Executive Director

The executive director is appointed by and serves at the pleasure of the Board. Pursuant to its authority to delegate functions to employees of the System under Section 104.1069, RSMo, the Board of Trustees has delegated to the executive director the responsibility to manage the staff that oversees and executes MOSERS’ investment program. The executive director selects, evaluates, and terminates the chief investment officer and is responsible for monitoring the investment program compliance, as established by policies set forth by the Board.

### Chief Investment Officer (CIO) and Internal Staff

The CIO serves at the pleasure of the executive director and has primary responsibility for the overall direction of the investment program. The CIO works with the Board investment consultant and executive director in advising the Board on policies related to the investment program. The CIO has primary responsibility to make hiring and termination decisions related to money managers with the approval of the staff investment consultant. The CIO is also charged with the responsibility of making strategic allocation decisions within parameters established by Board policy. Other responsibilities of the CIO include monitoring the investment of System assets, oversight of external money managers and the internally managed portfolios, and keeping the Board apprised of situations that merit their attention. The internal investment staff is accountable to the CIO.

### External Consultants

The Board investment consultant serves at the pleasure of the Board. The Board investment consultant’s primary duty is to provide the Board with independent and objective investment advice and assist the Board in making decisions and overseeing the investment program. Specifically, the Board investment consultant assists the Board in developing investment policy, recommends asset allocation policy as requested by the Board, and assists the Board in oversight of the investment program.

Staff investment consultants serve at the pleasure of the CIO. The primary responsibilities of the staff investment consultants are to provide independent and objective investment advice to the staff. Among other duties, as applicable, each staff investment consultant agrees in writing to the CIO’s proposed hiring or termination of external investment management firms and third-party plan administrators.

### Chief Auditor

The chief auditor reports directly to the executive director and if, in the opinion of the chief auditor, circumstances warrant, may report directly to the Board. The chief auditor is independent of the System’s investment operations and, among other duties, is responsible for providing objective audit and review services for investment operations. It is the chief auditor’s objective to promote adequate and effective internal controls at a reasonable cost.

### Master Custodian

BNY Mellon serves as the master custodian of the System’s assets except in cases where investments are held in partnerships, commingled accounts, or unique asset classes where it is impossible for them to do so. The master custodian is responsible for maintaining the official book of records, providing performance reports, and serving as an additional layer of risk control in the safekeeping of System assets.

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<sup>1</sup> Section 105.688, RSMo - Investment Fiduciaries, Duties.

## Asset Allocation

Determining the System's asset allocation is one of the most important decisions in the investment management process. The Board, with advice from the Board investment consultant and the CIO, adopted a portfolio allocation in July 2018 that is designed to provide the highest probability of meeting or exceeding the System's investment objectives at a controlled level of risk and with liquidity that is acceptable to the Board. In determining the optimum mix of assets, the Board considers factors such as:

- The expected risk of each asset class.
- The expected rate of return for each asset class.
- The correlation between the rates of return of the asset classes.
- The investment objectives and risk constraints of the fund.
- The impact of the portfolio's volatility on the contribution rate.

While the Board maintains a set policy allocation mix, they have taken steps to provide flexibility by granting authority to the CIO to make strategic allocation decisions to capitalize on attractively valued opportunities within prudent risk constraints. This flexibility has allowed the System to take advantage of changing market conditions. The table below illustrates the policy asset allocation and ranges formally adopted by the Board.

### Asset Allocation

Asset Classes	Asset Allocation Policy	Asset Allocation Ranges <sup>1</sup>	Benchmark <sup>2</sup>
<b>Total growth</b>	<b>45%</b>	<b>35% - 55%</b>	<b>Blended</b>
Global public equities	30%	15% - 45%	MSCI ACWI
Global private equities	15%	5% - 20%	Custom Private Equity Benchmark <sup>3</sup>
<b>Total income</b>	<b>35%</b>	<b>30% - 40%</b>	<b>Blended</b>
Long treasuries	25%	20% - 30%	Bloomberg Long U.S. Treasury
Core bonds	10%	5% - 15%	Bloomberg U.S. Aggregate Bond
<b>Total inflation hedge</b>	<b>40%</b>	<b>35% - 45%</b>	<b>Blended</b>
Commodities	5%	0% - 10%	Bloomberg Commodity
TIPS	25%	20% - 30%	Bloomberg U.S. Treasury Inflation Notes 1 - 10 yr
Private real assets	5%	0% - 10%	NCREIF ODCE
Public real assets	5%	0% - 10%	FTSE NAREIT
<b>Total absolute return</b>	<b>20%</b>	<b>15% - 25%</b>	<b>Blended</b>
Hedge funds	5%	0% - 10%	HFRI FoF: Conservative + 0.70%
Alternative beta	10%	5% - 15%	HFRX Macro/CTA
Private credit	5%	0% - 10%	Morningstar LSTA U.S. Leveraged Loan + 2%

<sup>1</sup> The Board has granted the CIO the authority to operate within the risk allocation and policy asset allocation ranges.

<sup>2</sup> Benchmarks are net of MOSERS' actual leveraging costs on borrowed assets.

<sup>3</sup> Custom Private Equity Benchmark is a weighted average roll-up of the underlying manager benchmarks which include State Street Private Equity Buyout Index, MSCI ACWI Index, and Legacy Private Equity Returns.

## Rebalancing

It is the responsibility of staff to ensure that the asset allocation adheres to the System's rebalancing policy. MOSERS utilizes a combination of cash market and derivative transactions to maintain the total portfolio's allocation at the broad policy level. Reviews are conducted at least monthly to bring the portfolio back within allowable ranges of the broad policy targets.

## Risk Controls

MOSERS' investment program faces numerous risks; however, the primary risk to MOSERS is that the assets will not support the liabilities over long periods of time. In order to control this risk and numerous other risks that face the System, the Board has taken the following steps, on an ongoing basis, to help protect the System:

- Actuarial valuations are performed each year to ensure the System is on track to meet the funding objectives of the plan. In addition, every five years an external audit of the actuary is conducted to ensure that the assumptions being made and calculation methods being utilized are resulting in properly computed liabilities.
- Asset/liability studies are conducted at least once every five years. The purpose of these studies is to ensure that the current portfolio design is structured to meet the System's liabilities. During these studies, investment expectations are also re-examined in more detail.
- An investment policy statement is in place to ensure that Board policies are clearly identified. Within these documents, desired outcomes are identified, responsibilities for individuals are identified in relation to particular areas of the portfolio's management, and details are provided for measuring outcomes. Reporting requirements are clearly identified to ensure appropriate checks and balances are in place. In addition, annual performance audits are conducted to ensure the performance measurement tools and methodologies being utilized are proper.

## Performance Objectives and Monitoring Process

Generating a total nominal rate of return net of expenses of at least 6.95% is the primary performance objective for the total portfolio. This return objective is equal to the RRO plus expected inflation.

The reason for the long-term focus on this objective is to preclude the temptation to overreact to events in the marketplace that have no relevance in the management of the relationship between the System's assets and liabilities. The resulting dilemma is the conflicting need to evaluate investment policy implementation decisions over shorter time frames while maintaining the longer-term focus necessary to manage and measure the fund's performance relative to the RRO. To address this problem, the Board evaluates performance relative to policy benchmarks. This helps to evaluate the Board's broad policy decisions and the staff and external consultant's implementation decisions. Policy benchmarks measure broad investment opportunities of each sub-asset class in which MOSERS has chosen to invest. The difference between the policy benchmarks and the actual portfolio returns represent decisions made by the CIO to strategically deviate from the policy asset allocation for each sub-asset class.

The policy benchmarks are used in the following manner to evaluate Board and staff decisions:

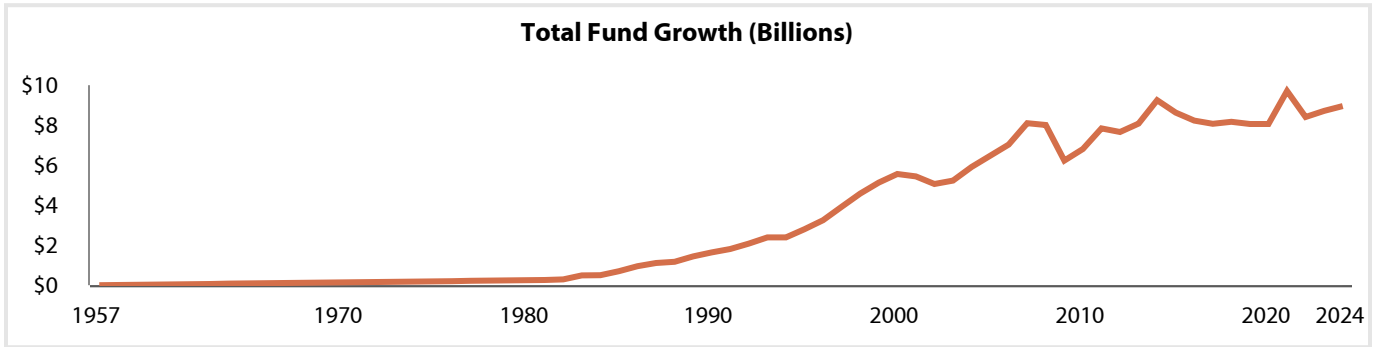
- **Board Decisions:** The value added through Board policy decisions is measured by the difference between the total fund policy benchmark return and the RRO. This difference captures the value added by the Board through their policy asset allocation decisions relative to the return necessary to fund the System's liabilities. A policy benchmark return greater than the RRO reflects the achievement of the RRO goals. A policy benchmark return less than the RRO reflects losses or shortfalls in performance in funding the liabilities. These policy decisions are measured over long periods of time.
- **CIO and External Consultants' Decisions:** There are two components to decisions made by the CIO and external consultants, which are monitored by the Board on an ongoing basis. They are: 1) strategic allocation decisions, and 2) implementation decisions.

Strategy decisions are made by the CIO to deviate from the policy benchmark weight. Implementation decisions are money manager selection choices made by the CIO with the agreement of the appropriate external consultant and the acknowledgement from the executive director that the decision was made in accordance with the Board's adopted policy. The value added through both strategic and implementation decisions is measured by the difference between the actual portfolio return and the policy benchmark return. An actual portfolio return greater than the policy benchmark return reflects value added through these decisions of the CIO and the external consultants. An actual portfolio return less than the policy benchmark return reflects losses to the fund's performance based upon these decisions. These CIO and external consultant decisions should be measured over all periods of time with a majority weight placed on outcomes that have occurred over a market cycle.

The Board reviews performance information on a quarterly basis to help ensure adequate monitoring of the fund's overall performance objectives.

## Total Fund Review

As of June 30, 2024, the MOSERS investment portfolio had a fair value of \$9.0 billion. The graph below illustrates the growth of MOSERS’ portfolio since the System’s inception.



### Investment Performance

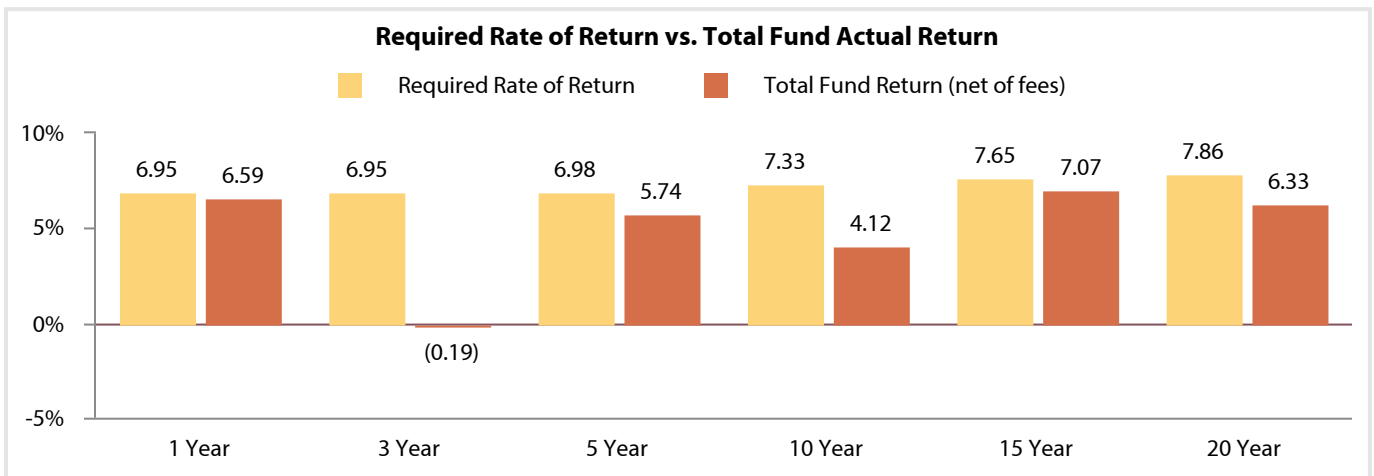
MOSERS’ investments generated a time-weighted return of 6.6%, net of fees, for fiscal year 2024. The total fund return exceeded the 1-year policy benchmark of 5.8%. This additional 0.8% investment return produced approximately \$74 million in excess of what would have been earned if the fund had been invested passively in the policy benchmark.

### Investment Performance vs. Required Rate of Return

The total fund investment return is compared to a required rate of return. The required rate of return is established by the Board to determine how well the fund is performing over the long term in order to meet future plan obligations after accounting for inflation. The required rate of return for fiscal year 2024 is 6.95%.

Given the volatility of the investment markets, the portfolio should not be expected to meet the required rate of return every year. A review of long periods of time is best to evaluate whether or not the total return has kept pace with the System’s funding objectives.

As indicated in the following bar chart, MOSERS’ investment returns trailed the required rate of return by 1.5% over the 20-year period ended June 30, 2024.<sup>1</sup>

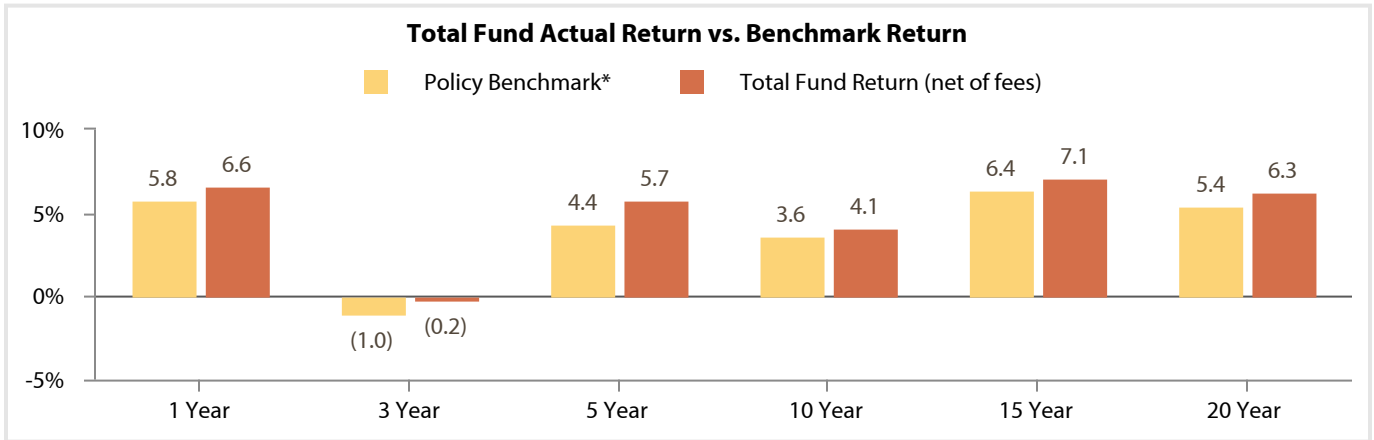


<sup>1</sup> Performance returns are calculated using a time-weighted rate of return on fair values.



**Investment Performance vs. Benchmark Comparisons**

In addition to measuring performance relative to the required rate of return, the Board also compares fund returns to the policy benchmark. Returns for the total fund versus policy benchmarks are displayed in the following bar chart.



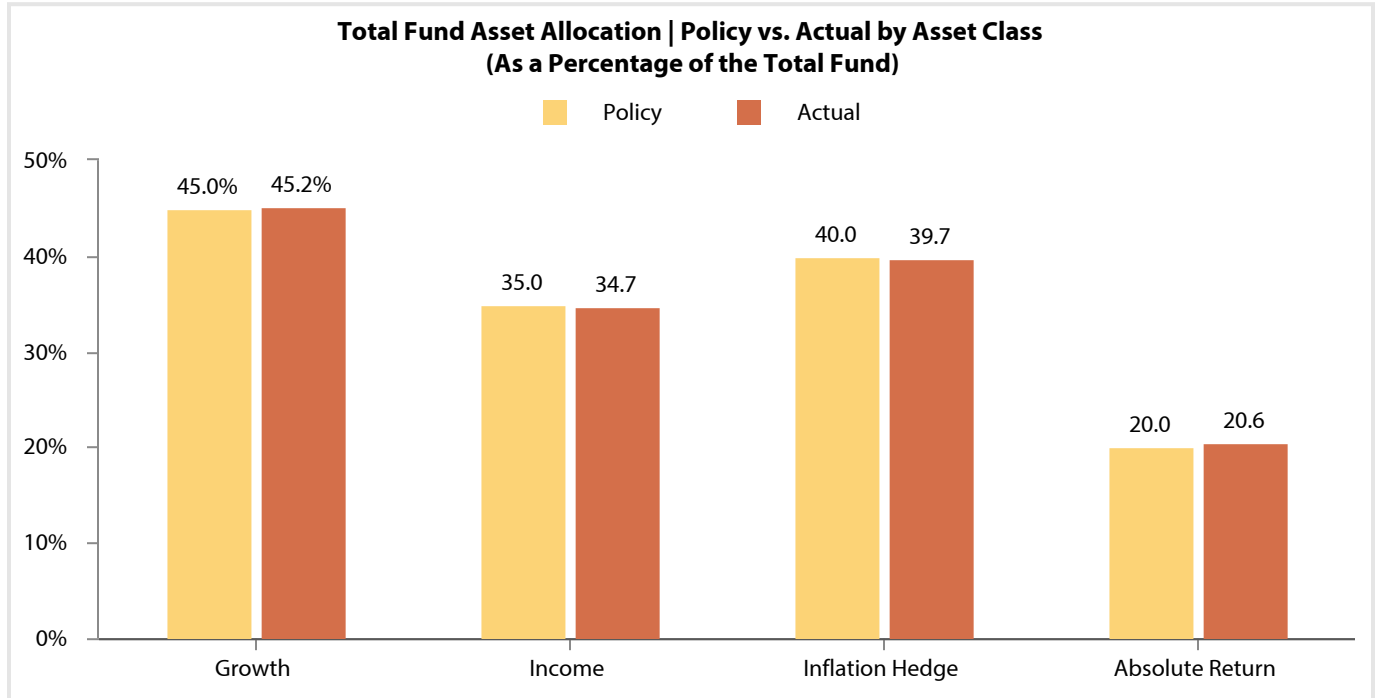
*\* As of June 30, 2024, the total fund policy benchmark was comprised of the following components: 45% total growth policy, 35% total income policy, 40% total inflation hedge policy, and 20% total absolute return policy. All policy return components are adjusted for financing costs associated with the program.*

The policy benchmark provides an indication of the returns that could have been achieved (excluding transaction costs) by a portfolio invested in the designated benchmarks for each asset class at the percentage weights allocated to each asset class in MOSERS’ policy asset allocation. Comparison of the total return to the policy benchmark reflects the total value added or detracted by the CIO through strategic and manager implementation decisions. Value is added when the total fund return exceeds the policy benchmark return. The total fund 1-, 3-, 5-, 10-, 15-, and 20-year actual performance outperformed its policy benchmark by 0.8%, 0.8%, 1.4%, 0.5%, 0.7%, and 0.9%, respectively.

**Total Fund Policy Allocation Overview**

As of June 30, 2024, the Board’s broad policy allocation mix was 45% growth assets, 35% income assets, 40% inflation hedge assets, and 20% absolute return assets. The policy target as of June 30, 2024, for each sub-asset class, along with the actual strategic allocation to each type of investment, is shown in the bar graph below.

The Board has granted authority to the CIO to make strategic decisions. A strategic decision should be thought of as any decision that might cause MOSERS’ actual portfolio to differ from the policy asset allocation.



**Schedule of Fees and Commissions**

	Commissions Paid	Volume of Trades	Shares Traded
Barclays Capital	\$ 933	\$ 9,988,327	186,507
BTIG, LLC	7,913	65,504,714	1,568,815
Jefferies & Co., Inc.	4,155	37,809,372	830,941
Morgan J P Secs., Inc.	(277)	0	0
Morgan Stanley & Co., LLC	146,421	108,054,035	(2,220)
<b>Total</b>	<b>\$ 159,145</b>	<b>\$ 221,356,448</b>	<b>2,584,043</b>

\* Volume does not include futures notional value.

## Schedule of Investment Portfolios by Asset Class

As of June 30, 2024

	Portfolio Value	Percentage of Portfolio	Market Exposure	Percentage of Investments at Market Exposure *
Growth	\$ 4,058,350,830	45.3%	\$ 4,047,455,791	45.2%
Income	1,654,144,807	18.5	3,102,973,562	34.7
Inflation hedge	1,396,470,835	15.6	3,551,907,885	39.7
Absolute return	1,843,615,244	20.6	1,843,610,589	20.6
<b>Total portfolio</b>	<b>8,952,581,716</b>	<b>100.0</b>	<b>12,545,947,827</b>	<b>140.1</b>
Residual accounts	3,560,815	0.0	3,560,815	0.0
Cash reserve	352,653	0.0	352,653	0.0
<b>MOSERS Total Fund</b>	<b>\$ 8,956,495,184</b>	<b>100.0%</b>	<b>\$ 12,549,861,295</b>	<b>140.1%</b>
<i>Reconciliation to Statement of Fiduciary Net Position</i>				
Total fund value	\$ 8,956,495,184			
Obligations under repurchase agreements	3,553,640,244			
Receivable - investment income	(376,201,509)			
Receivable - investment sales	(270,923,246)			
Investment activities payable	283,832,431			
Management and incentive fee payable	1,186,813			
Payable for investments purchased	155,321,480			
Investments per <i>Statement of Fiduciary Net Position</i>	<b>\$ 12,303,351,397</b>			

\* Percentages may not total due to rounding.

## Total Fund – Top Ten Publicly Traded Separate Account Holdings

Ten Largest Holdings as of June 30, 2024*	Fair Value	Percent of the Total Fund
U.S. Treasury Bond CPI Inflation - 1.750% 2034	\$ 99,226,984	1.11%
U.S. Treasury Bond CPI Inflation - 1.375% 2033	94,203,945	1.05
U.S. Treasury Bond CPI Inflation - 1.125% 2033	93,900,675	1.05
U.S. Treasury Bond CPI Inflation - 0.375% 2025	91,183,106	1.02
U.S. Treasury Bond CPI Inflation - 0.625% 2032	89,844,517	1.00
U.S. Treasury Bond CPI Inflation - 2.125% 2029	88,283,705	0.99
U.S. Treasury Bond CPI Inflation - 0.125% 2032	85,400,034	0.95
U.S. Treasury Bond CPI Inflation - 1.625% 2027	83,128,584	0.93
U.S. Treasury Bond CPI Inflation - 0.125% 2027	82,599,190	0.92
U.S. Treasury Bond CPI Inflation - 2.375% 2028	81,920,444	0.91

\* For a complete list of holdings, contact MOSERS.

## Schedule of Investment Results

### 1-, 3-, 5-, 10-, 15-, and 20-Year Periods

Total fund – As of June 30, 2024, the total fund policy benchmark was comprised of the following components: 45% total growth policy, 35% total income policy, 40% total inflation hedge policy, and 20% total absolute return policy.

*Growth* – As of June 30, 2024, the total growth policy was 66.7% global public equities policy benchmark and 33.3% global private equities policy benchmark.

- Global public equities policy - As of June 30, 2024, the total global public equities policy was MSCI All Country World Index (ACWI).
- Global private equities policy - As of June 30, 2024, the global private equities policy benchmark was a blend of 24.9% MOSERS legacy private equity return/55.2% State Street Buyout Index (weighted by vintage year)/19.9% MSCI ACWI Index.

*Income* – As of June 30, 2024, the total income policy was 71.4% long treasury policy benchmark and 28.6% core bonds policy benchmark.

- Long treasuries - As of June 30, 2024, the long treasuries policy was Bloomberg U.S. Long Treasury Index.
- Core bonds - As of June 30, 2024, the core bonds policy was Bloomberg U.S. Aggregate Bond Index.

*Inflation hedge* – As of June 30, 2024, the total inflation hedge policy was 12.5% commodities policy benchmark, 62.5% TIPS policy benchmark, 12.5% private real assets policy benchmark, and 12.5% public real assets policy benchmark.

- Commodities - As of June 30, 2024, the commodities policy was Bloomberg Commodity Index.
- Treasury inflation protected securities (TIPS) - As of June 30, 2024, the TIPS policy was the Bloomberg U.S. Treasury Inflation Notes 1-10 yr Index.
- Private real assets - As of June 30, 2024, the private real assets policy benchmark was NCREIF Fund Index - Open End Diversified Core Equity (ODCE).
- Public real assets - As of June 30, 2024, the public real assets policy was FTSE NAREIT ALL REITS Index.

*Absolute return* – As of June 30, 2024, the absolute return policy benchmark was comprised of 25.0% direct hedge funds policy benchmark, 50.0% alternative beta - beta policy benchmark, and 25.0% private credit policy benchmark.

- Alternative beta - As of June 30, 2024, the alternative beta policy was HFRX Macro/CTA Index.
- Hedge funds - As of June 30, 2024, the hedge funds policy benchmark was the HFRI Fund of Funds: Conservative Index + 0.70%.
- Private credit - As of June 30, 2024, the private credit policy was Morningstar LSTA U.S. Leveraged Loan + 2%.

## Schedule of Investment Results (continued)

	1 Year	3 Year	5 Year	10 Year	15 Year	20 Year
Total fund	6.6%	(0.2)%	5.7%	4.1%	7.1%	6.3%
<i>Total fund policy benchmark</i>	5.8%	(1.0)%	4.4%	3.6%	6.4%	5.4%
Growth	16.7%	5.0%	10.3%	N/A	N/A	N/A
<i>Growth policy benchmark</i>	15.8%	5.1%	11.5%	N/A	N/A	N/A
Global public equities	20.8%	6.8%	10.7%	7.9%	10.7%	8.8%
<i>Global public equities policy benchmark</i>	19.7%	5.7%	11.0%	8.6%	10.5%	7.8%
Global private equities	8.6%	1.1%	9.0%	N/A	N/A	N/A
<i>Global private equities policy benchmark</i>	7.9%	2.6%	10.8%	N/A	N/A	N/A
Income	(6.1)%	(9.7)%	(4.0)%	N/A	N/A	N/A
<i>Income policy benchmark</i>	(6.6)%	(10.2)%	(4.4)%	N/A	N/A	N/A
Long treasuries	(9.9)%	(12.8)%	(5.9)%	(0.7)%	N/A	N/A
<i>Long treasuries policy benchmark</i>	(10.2)%	(13.0)%	(6.2)%	(0.8)%	N/A	N/A
Core bonds	4.0%	(1.7)%	0.8%	N/A	N/A	N/A
<i>Core bonds policy benchmark</i>	2.6%	(3.0)%	(0.2)%	N/A	N/A	N/A
Inflation hedge	(0.5)%	(0.7)%	2.3%	N/A	N/A	N/A
<i>Inflation hedge policy benchmark</i>	(0.7)%	(1.1)%	1.9%	N/A	N/A	N/A
Commodities	(0.6)%	2.2%	5.7%	(5.8)%	(1.2)%	(1.6)%
<i>Commodities policy benchmark</i>	(0.5)%	2.2%	4.8%	(5.5)%	(2.6)%	(2.8)%
Treasury Inflation Protected Securities (TIPS)	(0.4)%	(2.2)%	0.7%	0.5%	2.2%	2.9%
<i>Treasury inflation protected securities (TIPS) policy benchmark</i>	(0.5)%	(2.2)%	0.6%	0.7%	2.3%	2.9%
Private real assets	(8.3)%	3.3%	3.6%	N/A	N/A	N/A
<i>Private real assets policy benchmark</i>	(10.0)%	(0.4)%	2.1%	N/A	N/A	N/A
Public real assets	5.6%	(2.0)%	3.0%	N/A	N/A	N/A
<i>Public real assets policy benchmark</i>	5.7%	(2.0)%	3.0%	N/A	N/A	N/A
Absolute return	7.4%	6.1%	5.6%	N/A	N/A	N/A
<i>Absolute return policy benchmark</i>	6.6%	3.9%	5.1%	N/A	N/A	N/A
Hedge funds	9.2%	7.2%	7.9%	N/A	N/A	N/A
<i>Hedge funds policy benchmark</i>	7.4%	4.2%	7.5%	N/A	N/A	N/A
Alternative beta	4.8%	4.5%	3.5%	3.1%	N/A	N/A
<i>Alternative beta policy benchmark</i>	2.8%	1.4%	0.1%	(0.3)%	N/A	N/A
Private credit	11.2%	8.2%	7.9%	N/A	N/A	N/A
<i>Private credit policy benchmark</i>	13.1%	8.1%	7.5%	N/A	N/A	N/A

Results are based on time-weighted rates of return on fair values adjusted for cash flows. Where applicable, benchmarks are calculated net of financing costs.

Broad asset allocations (Growth, Income, Inflation Hedge, and Absolute Return) were established with the asset allocation adopted by the Board in 2018. Therefore, 5-, 10-, 15-, and 20-Year returns are not available yet as of June 30, 2024.

## Schedule of Investment Manager Fees

For the Year Ended June 30, 2024

	Portfolio Fair Value	Total Fees	Manager Fees	Fund Pass Through Expenses *	Incentive Fees Earned
<b>Equity</b>					
Artisan International Value Fund	\$ 194,845,623	\$ 2,994,831	\$ 2,726,360	\$ 268,471	\$ 0
Baillie Gifford Intl. Alpha Private Equity	191,449,654	1,026,602	847,384	179,218	0
Baillie Gifford EM Private Equity	64,353,224	686,915	556,240	130,675	0
NS Partners Emerging Markets	158,730,678	1,977,745	996,673	981,072	0
Silchester International Investors	344,708,543	1,998,201	1,998,201	0	0
Total equity	954,087,722	8,684,294	7,124,858	1,559,436	0
<b>Fixed Income</b>					
BlackRock, Inc.	248,073,214	86,145	86,145	0	0
Total fixed income	248,073,214	86,145	86,145	0	0
<b>Multi-asset</b>					
NISA Investment Advisors	1,812,694,270	5,384,236	5,384,236	0	0
Total multi-asset	1,812,694,270	5,384,236	5,384,236	0	0
<b>Alternatives</b>					
Aberdeen Standard Investments	357,308,300	1,254,379	437,187	817,192	0
Aberdeen Davi Alpha	166,838,160	975,566	800,210	175,356	0
Actis Emerging Markets 3	411,000	67,000	0	67,000	0
Actis Emerging Markets 4	20,659,000	498,000	314,000	184,000	0
Altas Partners Holdings III L.P.	11,593,845	1,203,708	1,015,366	188,342	0
Appian Natural Resources Fund III	1,350,413	1,890,660	1,504,110	386,550	0
Appian Petra Co-Investment	7,617,265	0	0	0	0
Arlington Capital Partners VI, L.P.	38,426,526	2,922,542	1,713,702	113,803	1,095,037
Avista Healthcare Partners VI, L.P.	46,878,933	4,007,650	2,470,109	336,148	1,201,393
Axiom Asia Private Capital Fund II, L.P.	12,613,298	50,866	151,091	27,392	(127,617)
Axiom Asia Private Capital Fund III, L.P.	54,779,180	579,359	259,076	38,073	282,210
Axiom Asia Fund 6, L.P.	29,561,159	544,950	500,000	101,927	(56,977)
Axxon Brazil Private Equity Fund II B, L.P.	5,712,018	105,478	70,739	34,739	0
BlackRock Private Equity Co-Investments 2021, LP	100,408,158	1,813,259	468,752	(25,309)	1,369,816
Blackstone Real Estate Partners IV	392,852	56,386	0	13,082	43,304
Blackstone Real Estate Partners V	115,288	958	0	0	958
Blackstone Real Estate Partners VI	56,257	103,391	0	61,995	41,396
Blackstone Real Estate Partners VII	10,859,355	(1,008,225)	0	363,784	(1,372,009)
Blackstone Topaz Fund, L.P.	406,699,700	4,615,268	2,700,978	329,878	1,584,412
Blackstone Topaz Private Credit	303,459,047	2,543,465	1,765,340	242,548	535,577
Blue Diamond Non-Directional Fund	94,339,354	3,241,542	1,573,670	94,231	1,573,641
Brevan Howard Alpha Strategies Fund, L.P.	234,110,310	16,947,304	2,350,275	7,725,527	6,871,502
Catalyst Fund Limited Partnership III	7,086,605	84,839	39,886	44,953	0
Catalyst Fund Limited Partnership IV	3,096,962	100,199	51,482	48,717	0
Catalyst Fund Limited Partnership V	61,882,756	1,846,505	1,949,849	(103,344)	0
CBRE U.S. Core Partners, L.P.	107,256,396	1,320,047	972,637	233,777	113,633
Centiva Capital	142,109,577	13,913,442	0	4,421,154	9,492,288
Comvest Credit Partners 2023, L.P.	28,217,928	451,855	73,583	378,272	0

Schedule of Investment Manager Fees continued on following page

## Schedule of Investment Manager Fees (continued)

For the Year Ended June 30, 2024

	Portfolio Fair Value	Total Fees	Manager Fees	Fund Pass Through Expenses*	Incentive Fees Earned
Cornwall Domestic, L.P.	\$ 1	\$ 5,320	\$ 0	\$ 5,320	\$ 0
DE Shaw Dioptr Fund, LLC	100,483,468	4,835,031	1,226,617	202,818	3,405,596
EIG Energy Fund XIV, L.P.	1,733,098	79,156	0	79,156	0
EIG Energy Fund XV, L.P.	3,150,924	74,343	0	74,343	0
EIG Energy Fund XVI, L.P.	18,283,247	234,381	179,977	54,404	0
EIG Co-Investment	6,459	29,771	0	29,771	0
Eilser Multi-Strategy Fund, L.P.	199,192,230	18,758,821	0	4,562,328	14,196,493
Elliott International Limited	285,026,386	11,340,963	4,036,268	1,830,391	5,474,304
Exodus Point Partners Fund	169,158,374	14,205,227	0	5,385,006	8,820,221
Farallon Capital Institutional Partners, L.P.	538,549	(6,781)	0	0	(6,781)
Gateway Energy & Resource Holdings, LLC	2,276,655	18,920	0	18,920	0
Global Forest Partners GTI7 Institutional Investors Company Limited	1	3,927	1,712	2,215	0
Gryphon Partners VI, L.P.	93,514,739	4,024,577	2,000,000	2,024,577	0
Harrison Street Real Estate Core Property Fund, L.P.	54,075,400	464,683	598,811	(134,128)	0
HBK Merger Strategies Offshore Fund, Ltd.	120,096,791	3,101,169	858,265	205,658	2,037,246
HIG Middle Mkt LBO Fund IV, L.P.	1,914,296	1,586,771	1,500,000	86,771	0
JLL Partners Fund V, L.P.	3,520,959	136,607	0	5,881	130,726
JLL Partners Fund VI, L.P.	1,209,879	(3,907)	0	14,509	(18,416)
King Street Capital, L.P.	1,044,508	13,130	13,130	0	0
LaSalle Property Fund	70,488,667	790,928	668,496	122,432	0
Linden Capital Partners II, L.P.	14,276,873	223,813	0	14,764	209,049
Mercato Partners Traverse IV, L.P.	47,125,624	4,769,246	1,210,169	172,491	3,386,586
Merit Energy Partners F-II, L.P.	274,909	1,362	(984)	2,346	0
MGG Evergreen Cardinal Fund, L.P.	72,532,186	602,101	164,551	260,964	176,586
MHR Institutional Partners IIA, L.P.	9,565,521	(10,358)	0	25,497	(35,855)
MHR Institutional Partners III, L.P.	12,873,033	19,145	0	19,145	0
MHR Institutional Partners IV, L.P.	62,893,433	566,137	689,846	170,703	(294,412)
Millennium USA L.P.	0	(952,837)	0	(952,837)	0
Millennium Technology Value Partners II	10,117,767	(41,518)	233,170	19,318	(294,006)
Oaktree Real Estate Income Fund, L.P.	44,092,804	1,080,885	491,821	589,064	0
OCM Opportunities Fund VIIIb, L.P.	1	5,614	0	6,608	(994)
OCM Opportunities Fund VIIIb, L.P.	3,213,026	1,303,442	0	23,156	1,280,286
OCM Power Opportunities Fund III, L.P.	103,900	65,651	0	30,460	35,191
Partners Group Direct Equity IV A, L.P.	87,966,087	2,023,229	1,400,000	111,385	511,844
Partners Group Direct Equity V A, L.P.	8,892,211	(529,586)	(529,586)	0	0
Portfolio Advisors Secondary Fund IV, L.P.	149,371,275	2,472,994	1,714,076	212,986	545,932
Silver Creek Special Opportunities Fund I, L.P.	2,400,034	27,033	0	27,033	0
Silver Creek Special Opportunities Fund II, L.P.	4,995,106	38,006	0	38,006	0
Standard Investment Research Hedged Equity Fund	179,802,085	5,543,763	3,528,595	240,507	1,774,661
Stockbridge Core & Value Advisors, LLC	46,728,816	541,899	457,561	84,338	0

Schedule of Investment Manager Fees continued on following page



## Schedule of Investment Manager Fees (continued)

For the Year Ended June 30, 2024

	Portfolio Fair Value	Total Fees	Manager Fees	Fund Pass Through Expenses*	Incentive Fees Earned
TA Realty Core Property Fund, L.P.	\$ 80,154,094	\$ 734,739	\$ 598,756	\$ 135,983	\$ 0
Thomas H. Lee Partners L.P.	59,777,426	2,764,977	1,502,055	1,262,922	0
Vista Equity Partners VIII, L.P.	31,550,162	3,127,970	1,875,000	325,969	927,001
Voleon Institutional Strategies Fund L.P.	80,328,372	4,957,142	1,458,358	443,237	3,055,547
Voleon Investors Fund LP	24,288,231	1,270,913	452,370	142,358	676,185
Warren Equity Partners VI, L.P.	40,064,224	2,938,318	2,576,087	362,231	0
Total alternatives	4,452,941,473	153,367,510	50,087,163	34,638,793	68,641,554
<b>Total fees</b>	<b>\$ 7,467,796,679</b>	<b>\$167,522,185</b>	<b>\$ 62,682,402</b>	<b>\$ 36,198,229</b>	<b>\$ 68,641,554</b>

\* Fund pass through expenses are administrative expenses charged to the fund and paid by the limited partners (including MOSERS), in addition or in lieu of management fees and incentive fees. These expenses may include, but are not limited to, accounting, audit, legal, and custody expenses directly related to the administration of the underlying fund investments and pass through management fees and incentive fees.

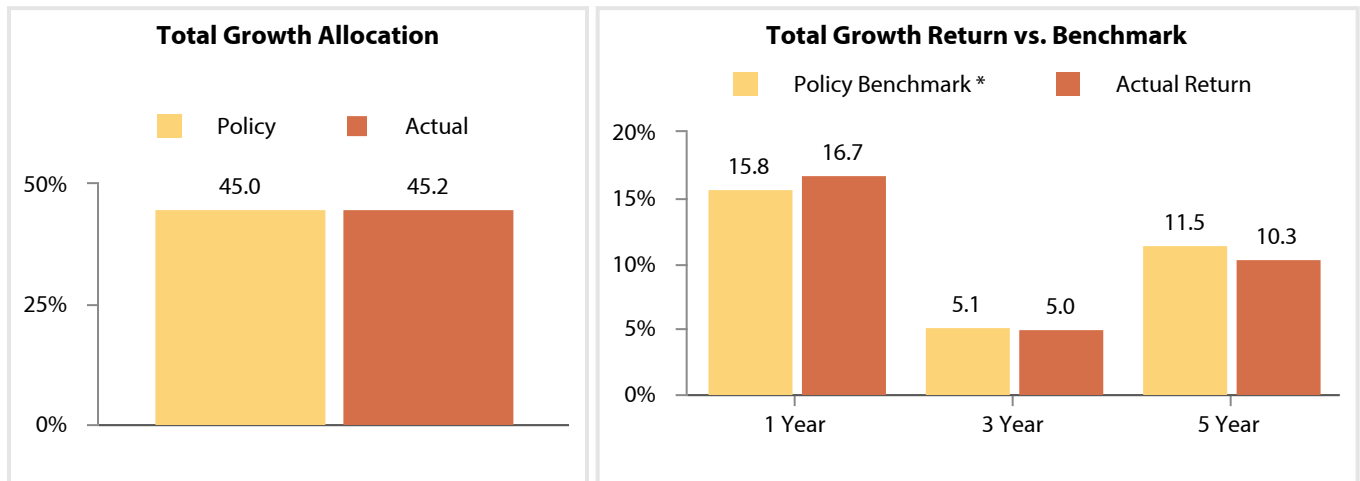
## Asset Class Summary

The portfolio consists of four broad investment allocations: growth, income, inflation hedge, and absolute return. Each of these allocations are made up of a number of different sub-asset classes. Two of the four allocations had positive performance during the fiscal year. The growth allocation return was 16.7%, and the income allocation returned (6.1)%. The inflation hedge allocation return was (0.5)% and the absolute return allocation returned 7.4%.

### Growth Allocation

The growth allocation is designed to provide capital appreciation by accessing both an equity risk premium and a liquidity risk premium. In addition, it is expected that investments in this category would perform well in periods of rising economic growth. Investments in this allocation include U.S. and non-U.S. equity investments with varying characteristics related to market capitalization and investment style. Because of the non-U.S. nature of some of these investments, this allocation is subject to some foreign currency exposure. The growth allocation is made up of global public equities and global private equities.

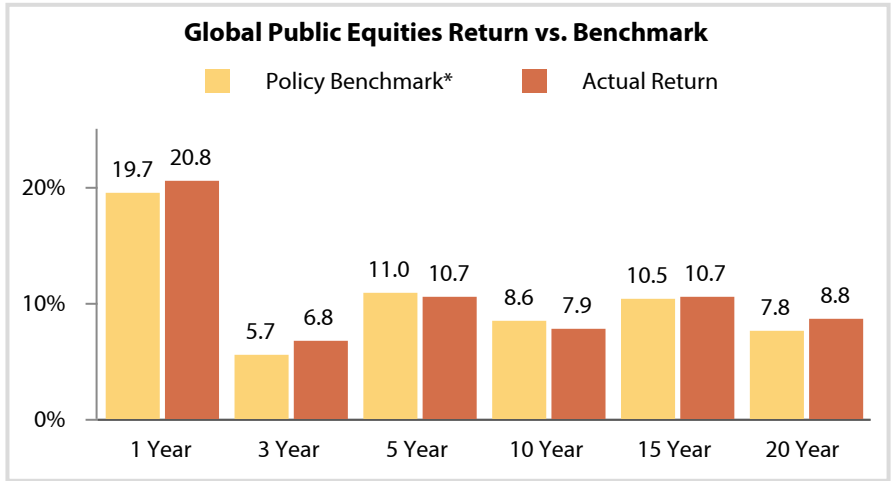
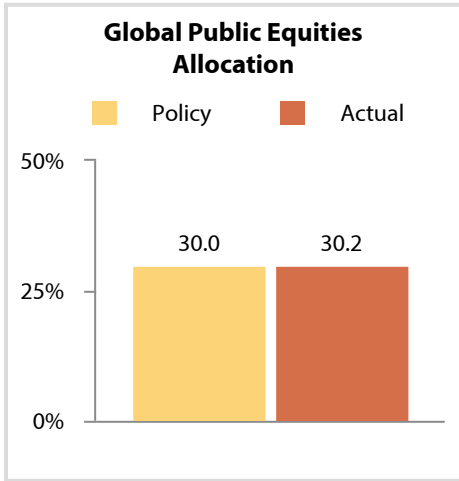
The market exposure of the growth allocation on June 30, 2024, was \$4.05 billion, representing 45.2% of total market value of the portfolio. The bar chart below (left) illustrates the actual exposure compared to policy. For the fiscal year, the growth allocation returned 16.7% versus 15.8% for the policy benchmark. This outperformance was the result of manager implementation that outperformed the benchmark. The bar chart below (right) illustrates actual performance as compared to the policy benchmark.



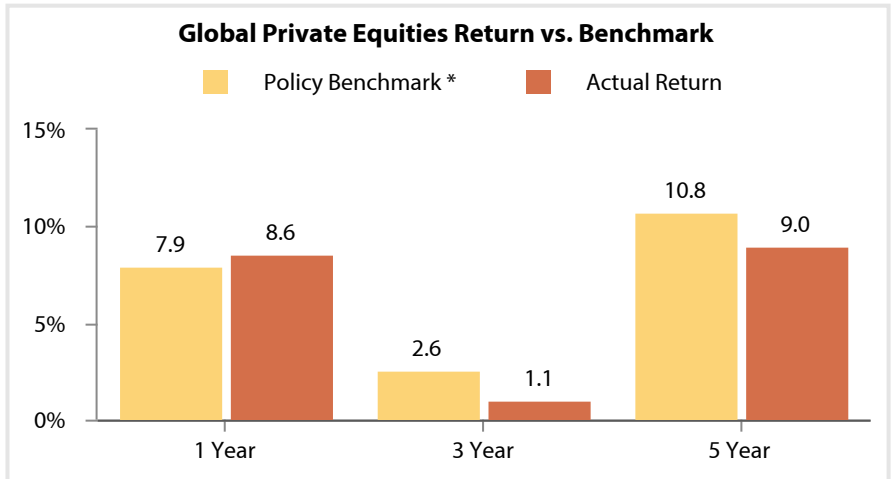
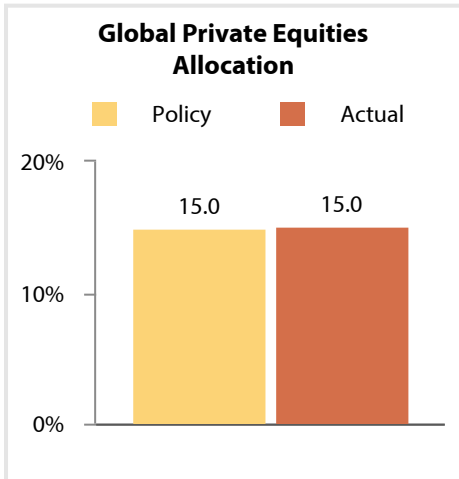
\* As of June 30, 2024, the total growth policy benchmark was comprised of 66.7% global public equities policy benchmark and 33.3% global private equities policy benchmark.

**Investment Section**

For the fiscal year, public equities returned 20.8% versus 19.7% for the policy benchmark. This outperformance was the result of manager implementation that outperformed the benchmark. Private equities for the fiscal year returned 8.6% compared to its policy benchmark return of 7.9%. This outperformance was the result of manager implementation that outperformed the benchmark.



\* As of June 30, 2024, the global public equities policy benchmark was MSCI All Country World Index (ACWI).

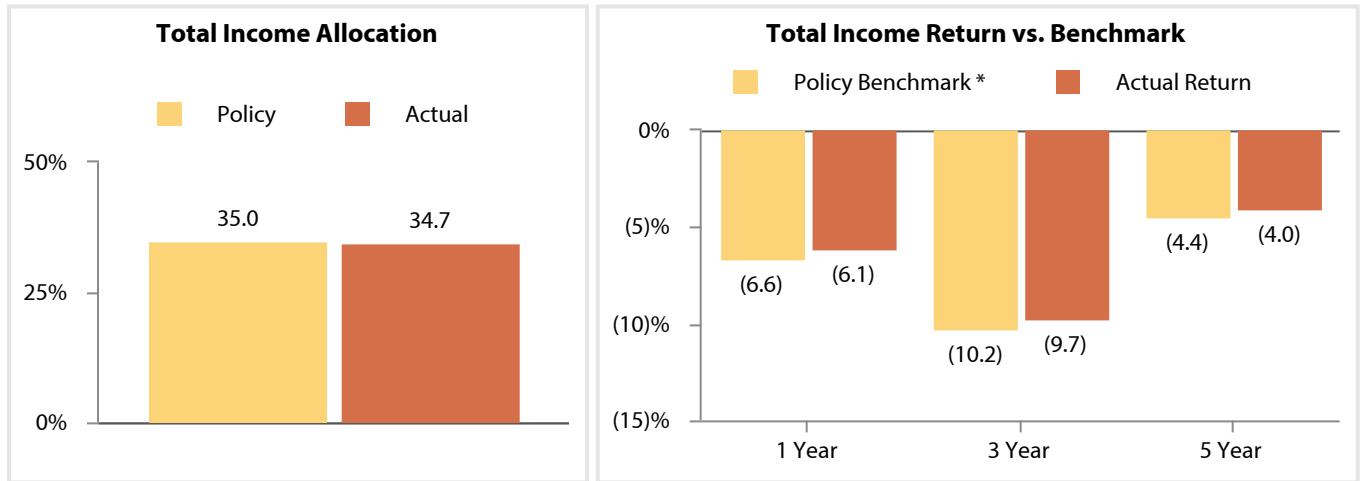


\* As of June 30, 2024, the global private equities policy benchmark was a blend of 24.9% MOSERS legacy private equity return/ 55.2% State Street Buyout Index (weighted by vintage year)/ 19.9% MSCI ACWI Index.

**Income Allocation**

This allocation is designed to provide a source of current income and to reduce overall fund volatility. It is expected that investments in this asset class will perform well in periods of stable or falling economic growth and falling inflation. Investments in this asset class include U.S. bonds that have been issued, collateralized, or guaranteed by the U.S. Government, its agencies, or its instrumentalities. Core bonds may also include debt issued by corporations, or securitized debt. Because this asset class is invested in all U.S. bonds, there is currently not any foreign currency exposure as part of this allocation.

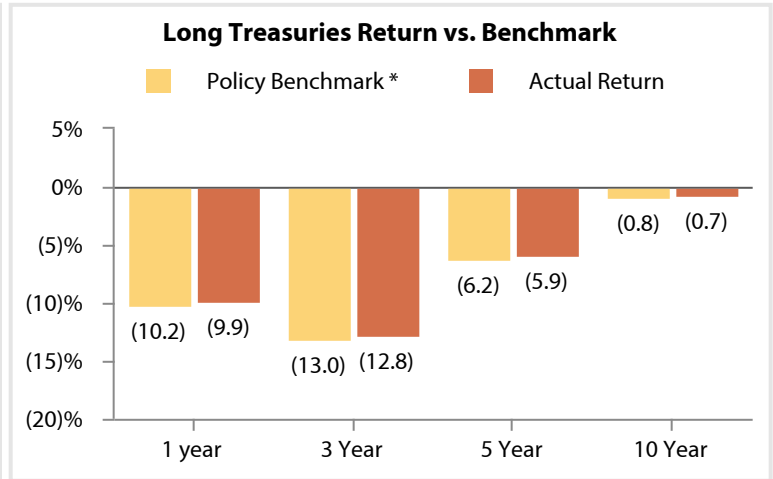
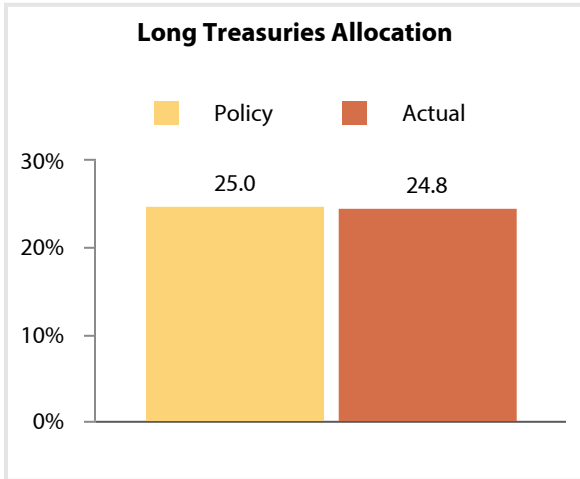
As of June 30, 2024, the market exposure of the income allocation was \$3.10 billion, representing 34.7% of total market value of the portfolio. The bar chart below (left) illustrates the actual exposure compared to policy. For the fiscal year, the income allocation returned (6.1)% as compared to (6.6)% for the income allocation policy benchmark. The outperformance was mainly driven by core bonds that outperformed the policy benchmark by 1.3%. The bar chart below (right) illustrates actual performance as compared to the policy benchmark.



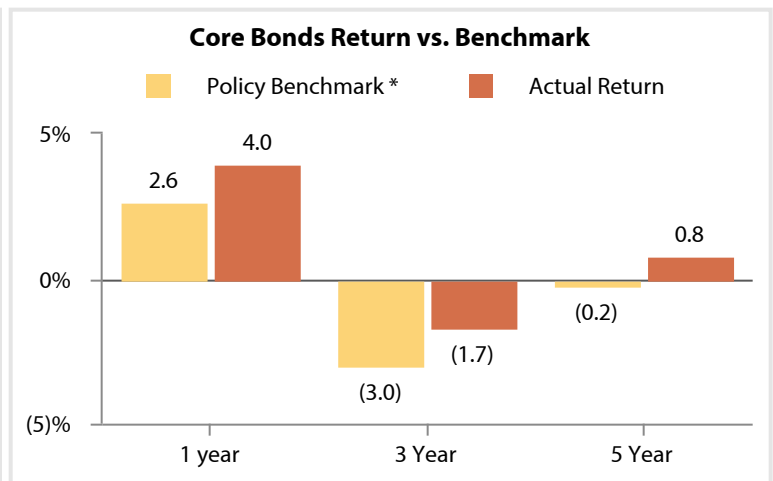
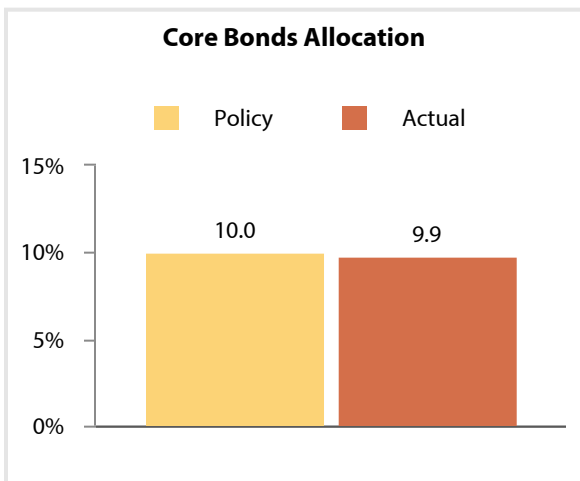
\* As of June 30, 2024, the total income policy benchmark was comprised of 71.4% long treasury policy benchmark and 28.6% core bonds policy benchmark.

## Investment Section

For the fiscal year, long treasuries returned (9.9)% versus (10.2)% for the policy benchmark. The exposure to long treasuries is gained passively with minimal tracking error. Core bonds, for the fiscal year, returned 4.0% compared to its policy benchmark return of 2.6%. This outperformance was the result of manager implementation that outperformed the benchmark.



\* As of June 30, 2024, the long treasuries policy benchmark was Bloomberg U.S. Long Treasury Index.

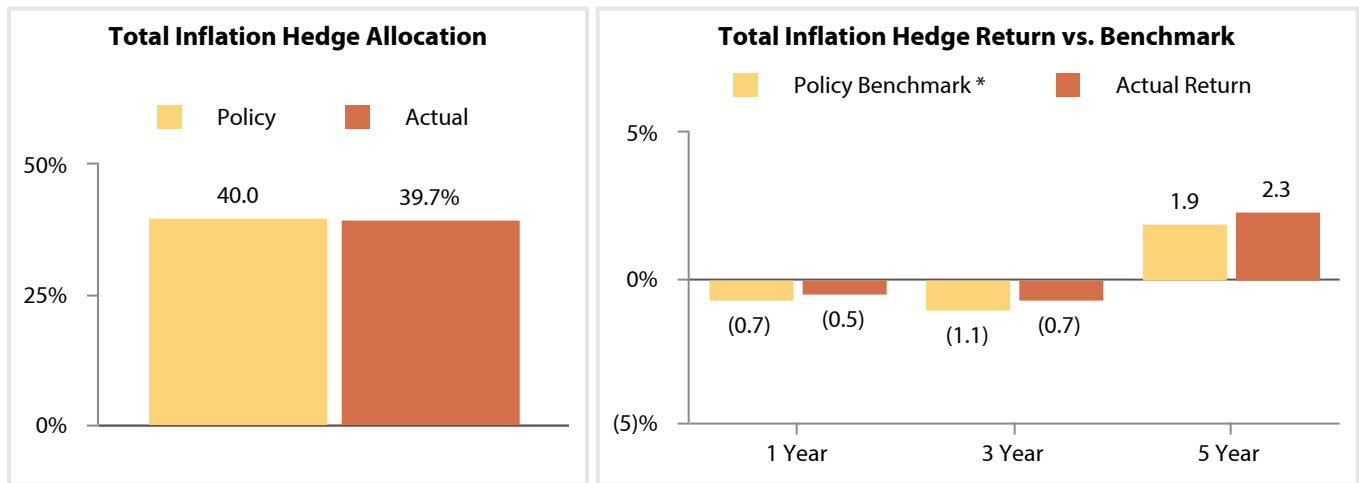


\* As of June 30, 2024, the core bonds strategy benchmark was Bloomberg U.S. Aggregate Bond Index.

### Inflation Hedge Allocation

It is expected that investments in this asset class will perform well during periods of rising inflation. Investments in this asset class include U.S. Government treasury inflation protected securities (TIPS), commodities, private real assets, and public real assets. TIPS are designed to provide a source of current income and protect against actual inflation. It is expected that investments in this asset class will perform well during periods of falling economic growth and rising inflation. Commodities are designed to provide protection from an unexpected rise in inflation. In addition, it is expected that investments in this category would perform well in periods of rising economic growth. Private real assets are designed to provide capital appreciation and income and provide access to a form of equity risk premium and liquidity risk premium. It is expected that investments in this category would perform well in periods of rising economic growth and rising inflation. Public real assets are designed to provide capital appreciation and income and provide access to a form of equity risk premium. In addition, it is expected that investments in this category would perform well in periods of rising economic growth and rising inflation. Because this asset class is invested primarily in U.S. denominated assets, there is not expected to be meaningful foreign currency exposure as part of this allocation.

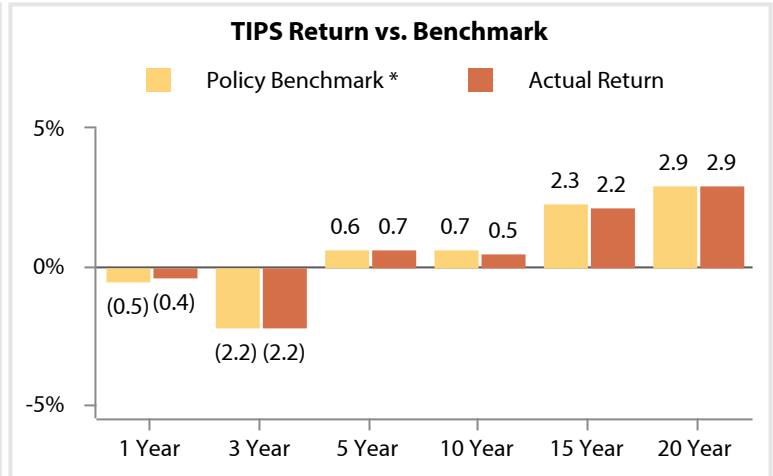
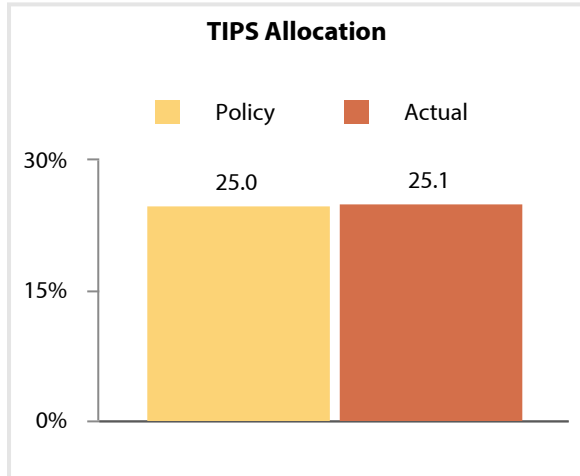
As of June 30, 2024, the market exposure of the inflation hedge allocation was \$3.55 billion representing 39.7% of total market value of the portfolio. The bar chart below (left) illustrates the actual exposure compared to policy. For the fiscal year, the inflation hedge allocation returned (0.5)% versus (0.7)% for the policy benchmark. The outperformance was mainly driven by private real assets that outperformed the policy benchmark by 1.7%. The bar chart below (right) illustrates actual performance as compared to the policy benchmark.



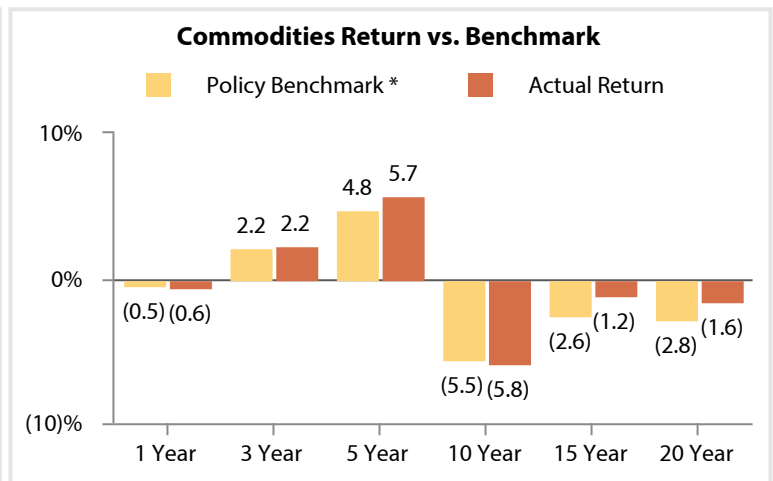
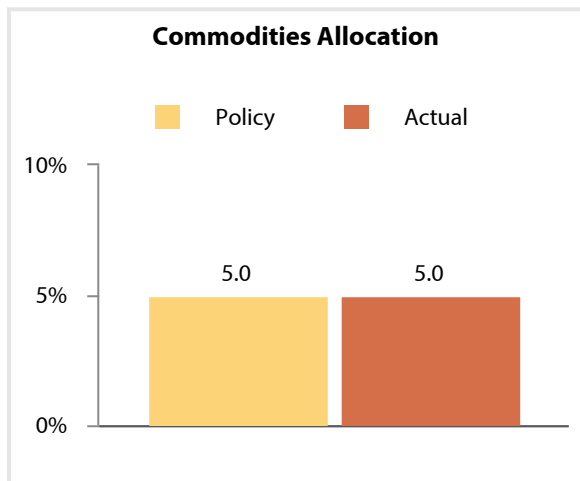
\* As of June 30, 2024, the total inflation hedge policy benchmark was comprised of 12.5% commodities policy benchmark, 62.5% TIPS policy benchmark, 12.5% private real assets policy benchmark, and 12.5% public real assets policy benchmark.

## Investment Section

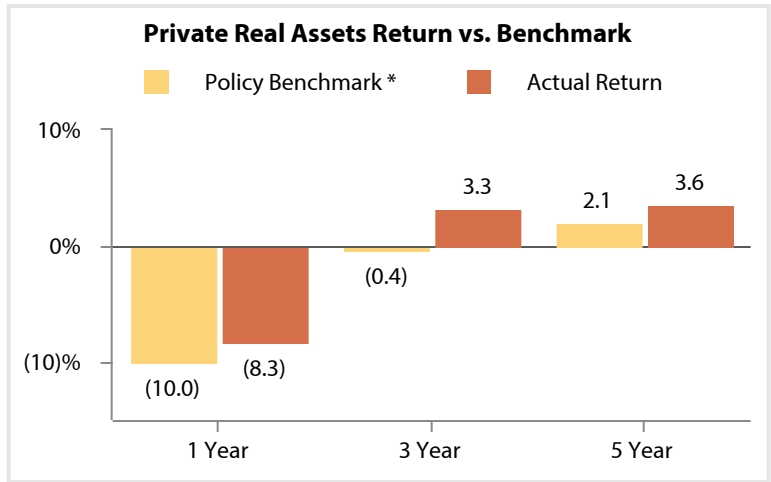
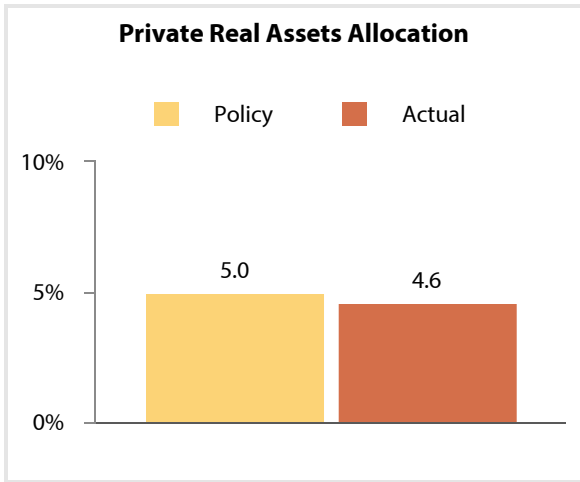
For the fiscal year, TIPS returned (0.4)% versus (0.5)% for the policy benchmark. There was no internal or external active management strategy utilized during the fiscal year; thus providing a return that closely matched the benchmark. Commodities for the fiscal year returned (0.6)% compared to its policy benchmark return of (0.5)%, providing a return similar to the benchmark. Public real assets returned 5.6% for the fiscal year, compared to its policy benchmark return of 5.7%. There was no internal or external active management strategy utilized during the fiscal year; thus, providing a return that closely matched the benchmark. For the fiscal year, private real assets returned (8.3)% versus (10.0)% for its policy benchmark. This outperformance was the result of manager implementation that outperformed the benchmark.



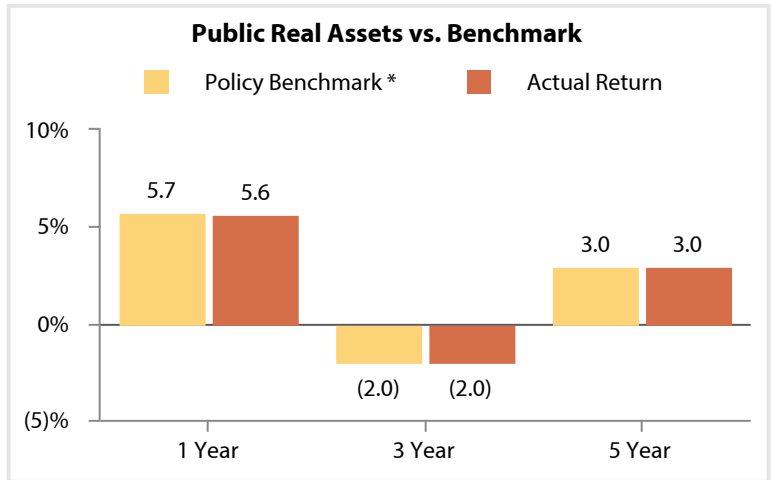
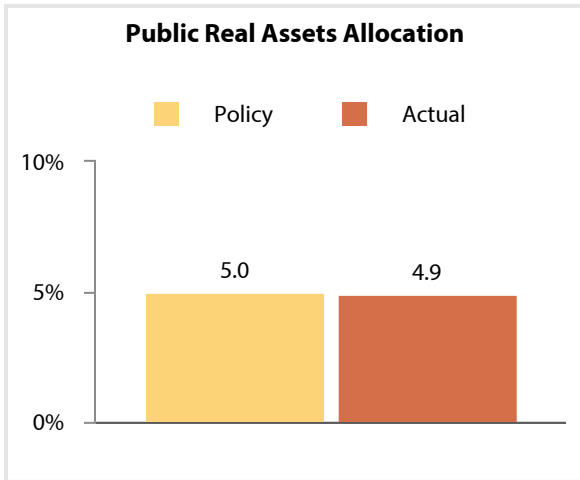
\* As of June 30, 2024, the TIPS policy benchmark was the Bloomberg U.S. Treasury Inflation Notes 1-10 yr Index.



\* As of June 30, 2024, the commodities policy benchmark was the Bloomberg Commodity Index.



\* As of June 30, 2024, the private real assets policy benchmark was NCREIF Fund Index - Open End Diversified Core Equity (ODCE).



\* As of June 30, 2024, the public real assets policy benchmark was the FTSE NAREIT ALL REITS Index.

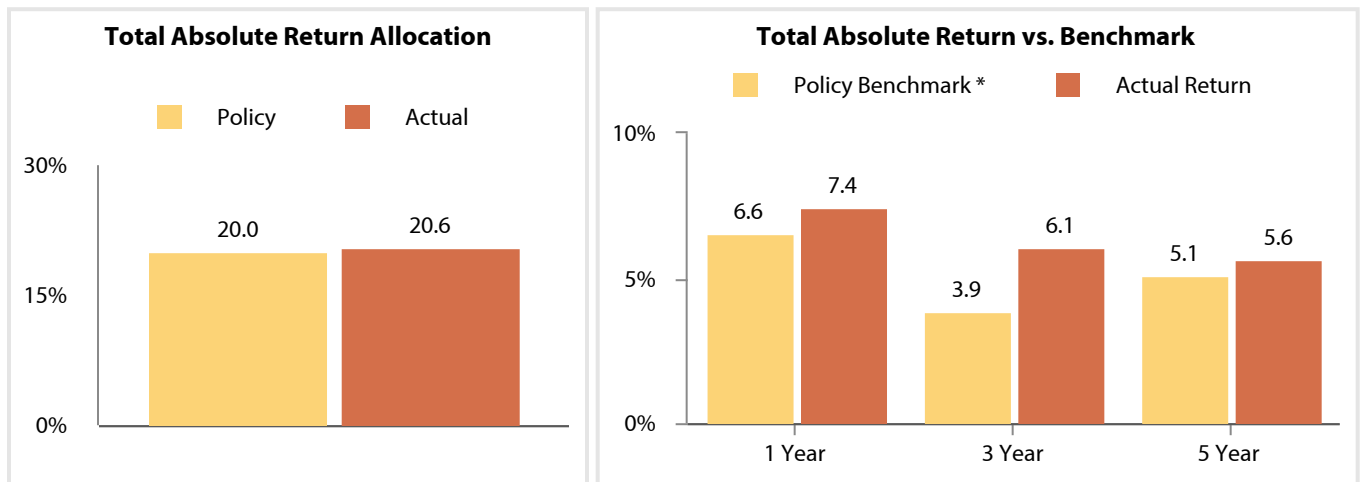


### Absolute Return Allocation

This asset class represents alternative betas, hedge funds, and private credit. Alternative betas and hedge funds are designed to provide a source of stable returns and low correlations with traditional asset strategies. In addition, it is expected that investments in this category would perform well across multiple economic environments. Private credit is designed to provide a source of current income and provide access to a form of credit risk premium. It is expected that investments in this category would perform well in periods of rising economic growth.

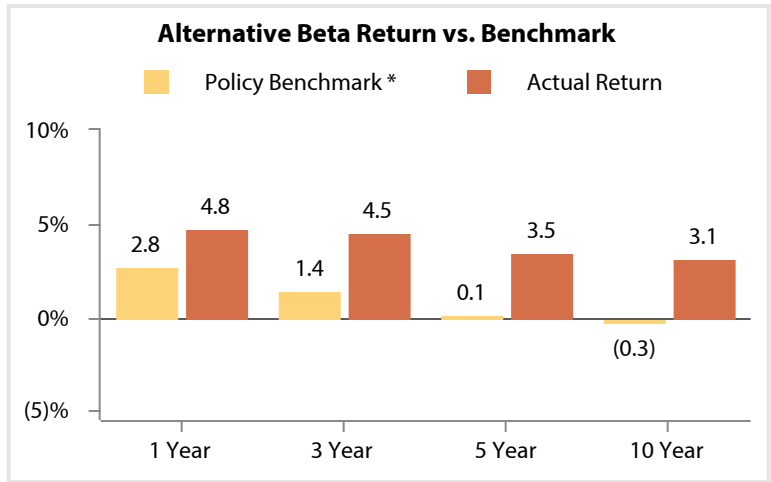
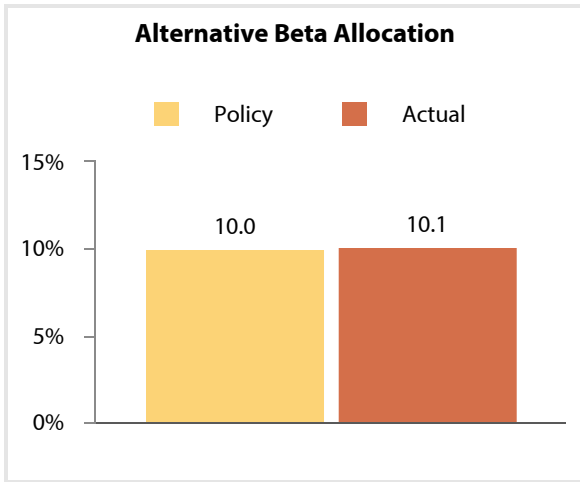
As a result of the multitude of strategies being deployed, it is expected that this asset class will provide meaningful diversification to the portfolio. While the sensitivities to economics will be dependent on positioning at the time, it is expected that these betas will have their best returns in rising growth environments and their worst returns in falling growth environments. Because of the non-U.S. nature of some of these investments, this allocation is subject to some foreign currency exposure.

As of June 30, 2024, the market exposure of the absolute return allocation was \$1.84 billion, representing 20.6% of total market value of the portfolio. The bar chart below (left) illustrates the actual exposure compared to policy. The absolute return allocation returned 7.4% for the fiscal year versus 6.6% for the policy benchmark. The outperformance was mainly driven by hedge funds and alternative betas that outperformed the policy benchmarks by 1.8% and 2.0%, respectively. The bar chart below (right) illustrates actual performance as compared to the policy benchmark.

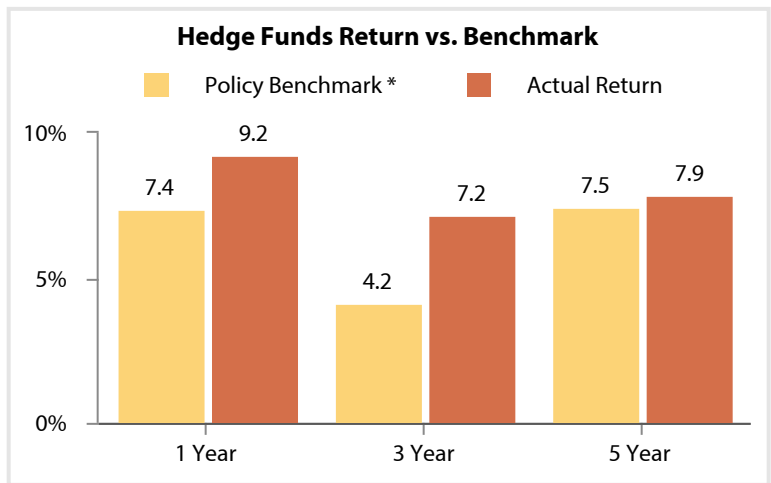
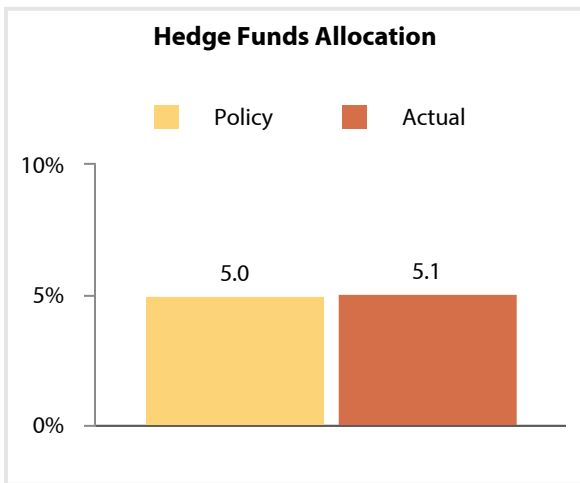


\* As of June 30, 2024, the absolute return policy benchmark was comprised of 25.0% direct hedge funds policy benchmark, 50.0% alternative beta - beta policy benchmark, and 25.0% private credit policy benchmark.

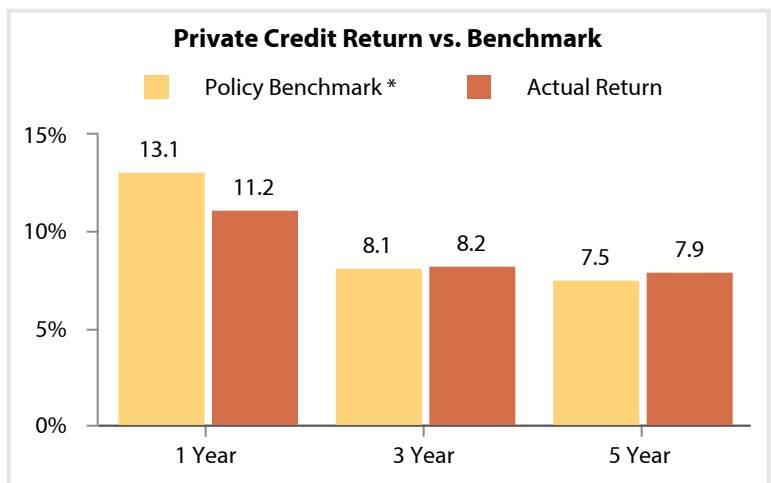
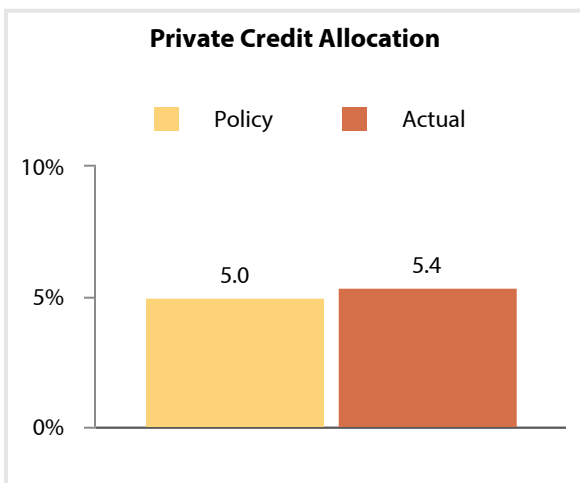
For the fiscal year, alternative betas returned 4.8% versus 2.8% for the policy benchmark. The outperformance was primarily related to manager implementation. Hedge funds for the fiscal year returned 9.2% compared to its policy benchmark return of 7.4%. The primary driver of the outperformance was manager implementation within the hedge fund class. For the fiscal year, private credit returned 11.2% versus 13.1% for its policy benchmark. This underperformance was due to manager implementation that lagged the benchmark.



\* As of June 30, 2024, the alternative beta - beta policy benchmark was the HFRX Macro/CTA Index.



\* As of June 30, 2024, the hedge funds policy benchmark was the HFRI Fund of Funds: Conservative Index + 0.70%.



\* As of June 30, 2024, the private credit policy benchmark was the Morningstar LSTA U.S. Leveraged Loan + 2%.



# ACTUARIAL Section

More than 78,000 participants have experience  
investing in the MO Deferred Comp Plan.  
A smart, simple savings solution.



## Actuary's Certification Letter



September 11, 2024

The Board of Trustees  
Missouri State Employees' Retirement System  
907 Wildwood Drive  
Jefferson City, Missouri 65109

Dear Members of the Board:

At your request, we have performed an actuarial valuation of the Missouri State Employees' Retirement System (MOSERS) as of June 30, 2024, for the purpose of determining the employer required contribution rate for the fiscal year ending June 30, 2026. This report provides valuation results for the Missouri State Employees' Plan (MSEP). The major findings of the valuation are contained in this report, which reflects the benefit provisions in place on June 30, 2024. There have been no changes to the plan provisions or actuarial assumptions since the prior valuation. However, the minimum employer contribution rate in the Funding Policy increased, as scheduled, from 28.75% in last year's valuation to 30.25% in the current valuation. There is one more increase scheduled to 32.00% in the June 30, 2025, valuation.

During the 2022 Missouri General Assembly, legislation was passed and signed by the Governor that provided for an additional contribution to the System of \$500 million. The funds were received by MOSERS on July 13, 2022. At the Board's direction, the accumulated balance of the additional contribution of \$500 million is included in the determination of the funded ratio and unfunded actuarial accrued liability but is excluded from the valuation assets when calculating the actuarial required contribution rate.

In preparing our report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, statutory provisions, member data, and financial information. We found this information to be reasonably consistent and comparable with the information received in the prior year. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different, and our calculations may need to be revised.

The Board of Trustees  
September 11, 2024  
Page 2



We further certify that all costs, liabilities, rates of interest, and other factors for the plans have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the plans and reasonable expectations); and which, in combination, offer the best estimate of anticipated experience affecting the plans. 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 MOSERS Board has the final decision regarding the appropriateness of the assumptions, and adopted them as indicated in Appendix D of our *MSEP Actuarial Valuation Report* and Appendix C of our *Judges Actuarial Valuation Report*.

In order to prepare the results in the actuarial valuation report, we have utilized actuarial models that were developed to measure liabilities and develop actuarial costs. These models include tools that we have produced and tested along with commercially available valuation software that we have reviewed to confirm the appropriateness and accuracy of the output. In utilizing these models, we develop and use input parameters and assumptions about future contingent events along with recognized actuarial approaches to develop the needed results. Future actuarial measurements may differ significantly from the current measurements presented in the June 30, 2024, valuation reports due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

Actuarial computations presented in this section are for purposes of determining the funding amounts for MSEP and the Judicial Retirement Plan as set out in the Missouri state statutes. The calculations have been made on a basis consistent with our understanding of the plans' funding policy. Determinations for purposes other than meeting these requirements may be significantly different from the results shown in the June 30, 2024, valuation reports. Accordingly, additional determinations may be needed for other purposes.

The consultants who worked on this assignment are pension actuaries with substantive experience valuing public retirement systems. CavMac's advice is not intended to be a substitute for qualified legal or accounting counsel.

On the basis of the foregoing, we certify that, to the best of our knowledge and belief, the June 30, 2024, actuarial valuation reports are complete and accurate and have been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Sincerely,

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

Bryan K. Hoge, FSA, EA, FCA, MAAA  
Consulting Actuary

## Summary of Actuarial Assumptions

### Actuarial Methods

#### Calculation of Normal Cost and Actuarial Accrued Liability

The funding method used to determine the normal cost and actuarial accrued liability was the entry age actuarial cost method described below.

- **Entry age actuarial cost method** – Under the entry age normal cost method, the actuarial present value of each member’s projected benefit is allocated on a level basis over the member’s compensation between the entry age of the member and their assumed exit age. The portion of the actuarial present value allocated to the valuation year is called the normal cost. The actuarial present value of benefits allocated to prior years of service is called the actuarial accrued liability. The unfunded actuarial accrued liability represents the difference between the actuarial accrued liability and the actuarial value of assets as of the valuation date. The unfunded actuarial accrued liability is calculated each year and reflects experience gains/losses.
- **Calculation of the actuarial value of assets (AVA)** – The Board adopted the current asset smoothing method effective with the June 30, 2018 valuation. Under the current method, the difference between the actual and assumed investment return on the fair value of assets is recognized evenly over a five-year period. No corridor is used with this method. In addition, the total unrecognized investment experience as of June 30, 2017, will be recognized evenly over a seven-year period beginning June 30, 2018. As of June 30, 2024, this experience has been fully recognized.
- **Amortization of the unfunded actuarial accrued liability (UAAL)** – Beginning with the June 30, 2018, valuation, the UAAL is amortized using a “layered” approach. Under this method, the “Legacy UAAL,” as determined in the June 30, 2018, valuation, is amortized over a closed 30-year period. Subsequent changes in the UAAL due to actuarial gains/losses or assumption changes are separately financed by establishing amortization bases and payments, as a level percentage of payroll, over closed 25-year periods. The bases established prior to June 30, 2021, continue to be amortized on their original schedule. Any change in the System’s benefit structure shall be amortized over a closed period of 20 years, as set out in state statutes. The total UAAL amortization payment is the sum of the payments for each of the amortization bases.

If the System has a negative UAAL (surplus), all prior amortization bases will be eliminated, and a new, single amortization base shall be established and funded over an open 30-year amortization period until the valuation indicates a positive UAAL exists. At that time, the amortization base shall be re-established equal to the amount of the UAAL and amortized over a closed 25-year period.

On July 13, 2022, the state of Missouri made an additional contribution of \$500 million to the MOSERS investment fund. This additional contribution will grow with investment returns in the future, and it will be reflected in the System’s funded ratio and UAAL. However, the accumulated value of the additional contribution will not be reflected in the valuation assets when calculating the UAAL contribution rate.

#### Changes in Methods and Assumptions Since the Prior Year

An experience study which analyzed the System’s economic and demographic assumptions was performed in 2021 and the results were presented to the Board. There have been no changes to the benefit provisions or actuarial assumptions since the prior valuation. However, in September 2023, the Board voted to increase the minimum employer contribution rate from 16.97% of pay for all years to 28.75% of pay in fiscal year 2025, 30.25% of pay in fiscal year 2026, and 32% of pay thereafter. The minimum contribution rate still expires once the System reaches a funded ratio of 80%. Also, during the 2022 Missouri General Assembly, legislation was passed and signed by the governor that provided for an additional contribution to the System of \$500 million. The funds were received by MOSERS on July 13, 2022. At the Board’s direction, the accumulated balance of the additional contribution of \$500 million will not be reflected in the valuation assets when calculating the unfunded actuarial accrued liability contribution rate, which then impacts the actuarial required contribution rate. The determination of the actuarial contribution rate in future years will not reflect the impact of the additional contribution until so directed by the MOSERS Board.

## Actuarial Assumptions

### Economic Assumptions

- **Investment return** – 6.95%, compounded annually, net of investment expenses
- **Inflation** – 2.25% per year
- **Payroll growth** – 2.25% per year
- **Cost-of-living adjustment (COLA)** – 4.00% on a compounded basis when a minimum COLA of 4.00% is in effect; 1.80% on a compounded basis when no minimum COLA is in effect
- **Interest on member contributions** – 1.50% per year
- **Administrative expenses** – Actual prior year expenses are assumed for current year
- **Pay Increases:**
  - **MSEP** – 2.75% - 10.00% based on years of service; General Assembly members have a flat 2.50% assumption; See table on page 97 for pay increase assumptions by years of service.
  - **Judicial Plan** – 3.00% per year

### Demographic Assumptions

- **Mortality** – The mortality assumption includes an appropriate level of conservatism that reflects expected future mortality improvement

#### *MSEP/MSEP 2000/MSEP 2011*

- **Post-retirement (Retirees)** – Pub-2010 General Members Below Median Healthy Retiree mortality table, scaled by 104%, set back two years for males and set forward one year for females and projected generationally from 2010 to 2020 using Scale MP-2020 and 75% of Scale MP-2020 for years after 2020
- **Post-retirement (Beneficiaries)** – Pub-2010 General Members Below Median Contingent Survivor mortality table, set back two years for males and set forward one year for females and projected generationally from 2010 to 2020 using Scale MP-2020 and 75% of Scale MP-2020 for years after 2020
- **Pre-retirement** – Pub-2010 General Members Below Median Employee mortality table, set back two years for males and set forward one year for females, projected generationally from 2010 to 2020 with Scale MP-2020 and 75% of Scale MP-2020 for years after 2020
- **Long-term disability** – Pub-2010 Non-Safety Disabled Retiree mortality table, without mortality projection

#### *Judicial Plan*

- **Post-retirement (Retirees)** – Pub-2010 General Members Median Healthy Retiree mortality table, projected generationally from 2010 to 2020 with Scale MP-2020 and 75% of Scale MP-2020 for years after 2020
- **Post-retirement (Beneficiaries)** – Pub-2010 General Members Median Contingent Survivor mortality table, projected generationally from 2010 to 2020 with Scale MP-2020 and 75% of Scale MP-2020 for years after 2020
- **Pre-retirement** – Pub-2010 General Members Median Employee mortality table, projected generationally from 2010 to 2020 with Scale MP-2020 and 75% of Scale MP-2020 for years after 2020
- **Long-term disability** – None
- **Termination:**
  - **MSEP** – 1.25% - 27.00% based on years of service; Elected Officials and Legislators 5.00% - 35.00% based on years of service; See tables on pages 95-96 for termination assumptions by years of service.
  - **Judicial Plan** – 2.00% per year

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (MAAA). Assumptions were adopted based on the findings of the experience study covering the five-year period ending June 30, 2020, and presented to the Board in 2021.



**MSEP**

**Percent of Eligible Active Members Retiring Within the Next Year**

MSEP	
Early Retirement	
Retirement Age	Percent Retiring
55-56	1%
57-59	2
60-61	8
62	25
63-64	5

MSEP 2000	
Early Retirement	
Retirement Age	Percent Retiring
57-59	3%
60-61	5

MSEP 2011	
Early Retirement	
Retirement Age	Percent Retiring
62-64	10%
65	15
66	20

MSEP	
Normal Retirement	
Retirement Age	Percent Retiring
48-61	17%
62	21
63-64	17
65-66	30
67-69	25
70	40
71-77	25
78	100

MSEP 2000	
Normal Retirement	
Retirement Age	Percent Retiring
48-57	35%
58-60	20
61	12
62	16
63	12
64	20
65	27
66	30
67-69	25
70	30
71-77	25
78	100

MSEP 2011	
Normal Retirement	
Retirement Age	Percent Retiring
55-57	40%
58-66	15
67-77	20
78	100

**Judicial Plan**

**Percent of Eligible Active Members Retiring Within the Next Year**

**Judicial Plan**

Early Retirement		Normal Retirement	
Retirement Age	Percent Retiring	Retirement Age	Percent Retiring
62-69	5%	55	10%
70	100	56-63	3
		64-66	10
		67	17.5
		68	25
		69	35
		70	100

**Judicial Plan 2011**

**Normal Retirement**

Retirement Age	Percent Retiring
62	10%
63-66	3
67	25
68-69	20
70	100

**Elected Officials and Legislators**

**Percent of Active Members Terminating Within the Next Year**

Years of Service	Percent Terminating
0-3	5%
4-7	12
8+	35

**MSEP**

**Separations From Active Employment Before Service Retirement Assumptions**

Termination*		Disability	
Years of Service	Rate	Age	Rate
1	27.00%	25	0.03%
5	12.75	30	0.07
10	7.00	35	0.11
15	4.30	40	0.22
20	2.25	45	0.32
25+	1.25	50	0.43
		55	0.54
		60	0.59
		65	0.64

\*Does not apply to elected officials and legislators.

**MSEP**

**Pay Increase Assumptions**

Years of Service	Rates by Service*			
	Inflation	Productivity	Merit	Total
0	2.25%	0.25%	7.50%	10.00%
1	2.25	0.25	2.50	5.00
2	2.25	0.25	2.25	4.75
3	2.25	0.25	2.00	4.50
4	2.25	0.25	1.85	4.35
5	2.25	0.25	1.70	4.20
10	2.25	0.25	1.00	3.50
15	2.25	0.25	0.75	3.25
20	2.25	0.25	0.50	3.00
25+	2.25	0.25	0.25	2.75

\*General Assembly members have a flat 2.5% assumption.

**Other Assumptions June 30, 2024**

- **Form of payment**

*MSEP*

- 50% Joint & survivor

*MSEP 2000/MSEP 2011*

- Straight life annuity

*Judicial Plan*

- **First employed before January 1, 2011** – 50% Joint & survivor
- **First employed on or after January 1, 2011** – Straight life annuity

- **Marital status**

*MSEP/MSEP 2000/MSEP 2011*

- **Percent married** – 65% married at retirement, 50% of those dying in active service are married.
- **Spouse’s age** – Females assumed to be three years younger than males.

*Judicial Plan*

- **Percent married** – 90% married
- **Spouse’s age** – Females assumed to be four years younger than males.

- **Pay increase timing** – Pay increases are assumed to occur at the beginning of the fiscal year.
- **Decrement timing** – Decrements of all types are assumed to occur mid-year.
- **Eligibility testing** – Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
- **Benefit service** – Exact fractional service is used to determine the amount of the benefit payable.
- **Decrement relativity** – Decrement rates are used directly from the experience study without adjustment for multiple decrement table effects.
- **Decrement operation** – Disability and withdrawal do not operate during normal retirement eligibility.
- **Other liability adjustments**

*MSEP/MSEP 2000*

- Pre-retirement survivor benefits for spouse of an inactive-vested member. These factors are used to estimate the cost of immediate unreduced survivor annuities upon the death of a vested member.

Age	Male	Female
<30	1.56	1.42
30-39	1.26	1.20
40-49	1.11	1.08
>49	1.02	1.02

- **Incidence of contributions** – Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report and the actual payroll payable at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.
- **Retirement election**  
*MSEP 2000*
  - All regular state employees first employed on or before June 30, 2000, are assumed to elect MSEP 2000 prior to age 62 and MSEP on or after age 62.
  - Elected officials, General Assembly members, and uniformed water patrol members first employed before July 1, 2000, are assumed to elect MSEP at retirement.

- **Service adjustment**

- ***MSEP/MSEP 2000***

- It is assumed that each member will be granted seven months of service credit; four months for unused leave upon retirement and three months for military service purchases.

- ***MSEP 2011***

- It is assumed that each member will be granted five months of service credit for unused leave upon retirement. These members are not eligible for military service purchases.

- **Forfeitures**

- ***MSEP 2011/Judicial Plan***

- For those first employed on or after January 1, 2011, employees are assumed to take a refund and forfeit their deferred pension if the refund amount is greater than the present value of their deferred benefit.

- **Salary and benefit limits** – For purposes of the valuation, no limits were applied to member compensation or benefits.

- **Commencement age for deferred vested benefit** – Normal retirement date.

- **Data Adjustments**

- ***MSEP/MSEP 2000/MSEP 2011***

- Active and retired member data was reported as of May 31, 2024. It was brought forward to June 30, 2024, by adding one month of service for all active members, one month of contributions and interest for MSEP 2011 members, and the June COLA for certain retired members. Financial information continues to be reported annually as of June 30. This procedure was instituted to provide sufficient time for the Board of Trustees to certify the appropriate contribution rate prior to the October 1 statutory deadline.

- Active members reported with less than a \$100 annualized salary were assumed to received the average active member pay. As a result, there are 36 active members in the June 30, 2024, data whose salary is assumed to be \$55,250.

- When the option of choosing plans is available, inactive-vested members are reported with two records, one with benefits under the MSEP and one with benefits under the MSEP 2000. Because it is unknown what the member will elect at retirement, both records are valued and the plan that produces the higher present value of future benefits is used for valuation purposes.

- For any retired member who has elected a joint and survivor benefit, yet has no beneficiary date of birth provided, it was assumed that the beneficiary is three years younger for male retirees and three years older for female retirees.

- ***Judicial Plan***

- Active and retired member data was reported as of May 31, 2024. It was brought forward to June 30, 2024, by adding one month of service for all active members, one month of contributions and interest for Judicial Plan 2011 members, and the June COLA for certain retired members. Financial information continues to be reported annually as of June 30. This procedure was instituted to provide sufficient time for the Board of Trustees to certify the appropriate contribution rate prior to the October 1 statutory deadline.

- Active members reported with no annualized salary were assumed to receive the average active member pay.

## **Other Technical Valuation Procedures**

Salary increases are assumed to apply to annual amounts.

Decrements are assumed to occur mid-year, except that immediate retirement is assumed for those who are at or older than the age at which retirement rates are 100%.

No actuarial liability is included for participants who terminated without being vested prior to the valuation date, except those due a refund of contributions.

## Pension Trust Funds

## Employer Schedules of Funding Progress

## Last Ten Fiscal Years

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

## MSEP

Actuarial Valuation Date as of June 30	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b-a)	Percent Funded (a/b)	Annual Covered Payroll (c)	UAAL Percentage of Covered Payroll [(b-a)/c]
2024	\$ 9,355,757,779	\$ 16,915,028,387	\$ 7,559,270,608	55.3%	\$ 2,471,604,459	305.8%
2023	9,331,207,050	16,190,813,686	6,859,606,636	57.6	2,225,164,914	308.3
2022	8,894,328,756	15,408,995,032	6,514,666,276	57.7	1,972,872,754	330.2
2021	8,909,251,051	15,110,646,537	6,201,395,486	59.0	1,961,975,052	316.1
2020	8,711,224,151	14,258,408,888	5,547,184,737	61.1	1,980,910,473	280.0
2019	8,782,383,977	13,957,626,309	5,175,242,332	62.9	1,930,764,635	268.0
2018	8,830,410,210	13,612,763,961	4,782,353,751	64.9	1,915,143,002	249.7
2017	8,872,381,848	13,152,273,895	4,279,892,047	67.5	1,941,969,786	220.4
2016	8,878,057,191	12,751,162,753	3,873,105,562	69.6	1,921,528,936	201.6
2015	8,792,485,658	11,727,618,410	2,935,132,752	75.0	1,918,527,768	153.0

## Judicial Plan

Actuarial Valuation Date as of June 30	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b-a)	Percent Funded (a/b)	Annual Covered Payroll (c)	UAAL Percentage of Covered Payroll [(b-a)/c]
2024	\$ 209,090,000	\$ 675,035,481	\$ 465,945,481	31.0%	\$ 68,907,592	676.2%
2023	207,085,203	654,242,323	447,157,120	31.7	64,660,037	691.6
2022	203,997,065	630,043,013	426,045,948	32.4	63,317,888	672.9
2021	194,988,153	626,284,219	431,296,066	31.1	63,031,506	684.3
2020	180,713,310	624,847,011	444,133,701	28.9	61,450,808	722.7
2019	172,224,529	617,482,705	445,258,176	27.9	60,380,734	737.4
2018	162,135,045	593,788,592	431,653,547	27.3	59,551,874	724.8
2017	151,828,631	564,417,925	412,589,294	26.9	58,150,935	709.5
2016	143,468,860	547,621,617	404,152,757	26.2	57,421,016	703.8
2015	134,349,908	482,969,311	348,619,403	27.8	55,656,457	626.4

See *Schedules of Employer Contributions* on page 56.

Pension Trust Funds

Summary of Member Data Included in Valuations

June 30, 2024

Active Members

Valuation Group	Number	Annual Covered Payroll	Group Averages		
			Annual Salary	Age (Yrs)	Service (Yrs)
<b>MSEP</b>					
Regular state employees	43,917	\$ 2,413,158,441	\$ 54,948	44.6	9.6
Elected officials	5	580,190	116,038	52.4	6.1
Legislative clerks	3	155,114	51,705	69.3	30.7
Legislators	195	7,644,748	39,204	53.0	4.9
Uniformed water patrol	8	811,860	101,483	47.3	21.3
School-term salaried employees	539	47,503,136	88,132	56.8	21.1
Administrative law judges	13	1,750,970	134,690	65.2	27.9
Total MSEP group	44,680	\$ 2,471,604,459	55,318	44.8	9.8
<b>Judicial Plan</b>	424	\$ 68,907,592	\$ 162,518	54.4	9.6

Retired Members and Beneficiaries

Type of Benefit Payment	Number	Annual Benefits	Group Averages	
			Benefit	Age (Yrs)
<b>MSEP</b>				
Retirement	49,236	\$ 893,663,136	\$ 18,151	71.7
Survivor of active member	1,749	22,240,860	12,716	64.9
Survivor of retired member	4,594	70,622,436	15,373	76.7
Total MSEP group	55,579	\$ 986,526,432	17,750	71.9
<b>Judicial Plan</b>	626	\$ 49,559,664	\$ 79,169	76.8

Other Members

Plans	Number Inactive-Vested	Number Inactive-Nonvested	Number Leave of Absence	Number Long-Term Disability
MSEP	17,341	34,969	130	491
Judicial Plan	30	0	0	0

## Active Members by Attained Age and Years of Service

June 30, 2024

### MSEP

Attained Age	Years of Service to Valuation Date								Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	No.	Valuation Payroll
< 25	2,969	10							2,979	\$ 131,096,196
25-29	3,766	547	6						4,319	204,570,260
30-34	2,834	1,437	296	7					4,574	236,195,036
35-39	2,223	1,244	904	374	8				4,753	261,997,030
40-44	1,986	1,052	802	997	415	34			5,286	303,174,028
45-49	1,632	909	684	808	982	484	23		5,522	325,140,099
50-54	1,563	862	671	744	928	1070	245	17	6,100	362,970,099
55-59	1,357	789	615	656	721	598	366	117	5,219	302,814,593
60-64	883	761	565	574	486	414	202	184	4,069	233,533,613
65+	362	398	275	226	171	163	111	153	1,859	110,113,505
Totals	19,575	8,009	4,818	4,386	3,711	2,763	947	471	44,680	\$ 2,471,604,459

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

**Group Averages:** Age – 44.8 years • Service – 9.8 years • Annual pay – \$55,318

### Judicial Plan

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30+	No.	Valuation Payroll
< 40	20	2	2					24	\$ 3,728,633
40-44	39	19	2					60	9,664,658
45-49	24	25	8					57	9,198,217
50-54	18	30	10	11				69	11,061,086
55-59	17	24	15	15	8	3		82	13,424,206
60-64	6	27	21	10	8	7	1	80	13,158,532
65+	3	8	12	6	7	11	5	52	8,672,260
Totals	127	135	70	42	23	21	6	424	\$ 68,907,592

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

**Group Averages:** Age – 54.4 years • Service – 9.6 years • Annual pay – \$162,518



## Schedules of Active Member Valuation Data

Last Ten Fiscal Years

### MSEP

#### Schedule of Active Member Valuation Data

Valuation Date as of June 30	Participating Employers	Number	Annual Payroll	Average Annual Pay	% Increase in Average Pay
2024	17	44,680	\$ 2,471,604,459	\$ 55,318	7.12%
2023	17	43,088	2,225,164,914	51,642	8.88
2022	17	41,595	1,972,872,754	47,431	3.54
2021	17	42,829	1,961,975,052	45,809	6.37
2020	17	45,999	1,980,910,473	43,064	4.53
2019	17	46,864	1,930,764,635	41,199	2.84
2018	18	47,806	1,915,143,002	40,061	0.90
2017	18	48,910	1,941,969,786	39,705	2.21
2016	18	49,464	1,921,528,936	38,847	1.20
2015	18	49,980	1,918,527,768	38,386	2.12

### Judicial Plan

#### Schedule of Active Member Valuation Data

Valuation Date as of June 30	Participating Employers	Number	Annual Payroll	Average Annual Pay	% Increase in Average Pay
2024	1	424	\$ 68,907,592	\$ 162,518	4.31%
2023	1	415	64,660,037	155,807	2.12
2022	1	415	63,317,888	152,573	1.18
2021	1	418	63,031,506	150,793	2.57
2020	1	418	61,450,808	147,012	0.80
2019	1	414	60,380,734	145,847	1.64
2018	1	415	59,551,874	143,498	1.17
2017	1	410	58,150,935	141,832	0.78
2016	1	408	57,421,016	140,738	2.41
2015	1	405	55,656,457	137,423	12.24

## Retirees and Beneficiaries Added and Removed - MSEP

Last Ten Fiscal Years

Benefit Type	Fiscal Year Ended June 30		Added to Rolls		Removed from Rolls		Rolls at End of Year		Percentage Increase/(Decrease)	
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances	Annual Allowances	Average Annual Allowances
<b>2024</b>										
Retirees	2,167	\$ 66,752,029	1,403	\$ 23,126,665	49,236	\$ 893,663,136	\$ 18,151	5.13%	3.50%	
Beneficiaries	499	10,536,249	393	5,484,537	6,343	92,863,296	14,640	5.75	3.99	
<b>2023</b>										
Retirees	2,077	68,905,883	1,673	25,437,207	48,472	850,037,772	17,537	5.39	4.51	
Beneficiaries	436	10,087,007	369	4,521,922	6,237	87,811,584	14,079	6.77	5.62	
<b>2022</b>										
Retirees	2,852	63,494,964	1,628	26,000,820	48,068	806,569,096	16,780	4.88	2.20	
Beneficiaries	633	9,697,992	409	4,179,852	6,170	82,246,499	13,330	7.19	3.30	
<b>2021</b>										
Retirees	2,679	52,111,212	1,558	24,543,024	46,844	769,074,952	16,418	3.72	1.24	
Beneficiaries	623	8,799,852	397	4,270,596	5,946	76,728,359	12,904	6.27	2.23	
<b>2020</b>										
Retirees	2,393	47,592,468	1,347	21,088,044	45,723	741,506,764	16,217	3.71	1.33	
Beneficiaries	506	7,538,112	358	3,849,576	5,720	72,199,103	12,622	5.38	2.66	
<b>2019</b>										
Retirees	2,510	49,663,164	1,247	20,068,656	44,677	715,002,340	16,004	4.32	1.37	
Beneficiaries	513	7,606,344	321	3,395,964	5,572	68,510,567	12,296	6.55	2.88	
<b>2018</b>										
Retirees	2,875	51,096,000	1,295	17,429,136	43,414	685,407,832	15,788	5.17	1.34	
Beneficiaries	480	6,373,080	334	3,124,044	5,380	64,300,187	11,952	5.32	2.46	
<b>2017</b>										
Retirees	2,810	44,397,240	1,282	17,552,484	41,834	651,740,968	15,579	4.30	0.49	
Beneficiaries	473	5,953,224	276	2,599,608	5,234	61,051,151	11,664	5.81	1.83	
<b>2016</b>										
Retirees	2,829	41,259,384	1,165	15,963,864	40,306	624,896,212	15,504	4.22	(0.08)	
Beneficiaries	475	5,779,596	283	2,563,344	5,037	57,697,535	11,455	5.90	1.87	
<b>2015</b>										
Retirees	2,885	43,895,520	1,066	14,075,772	38,642	599,600,692	15,517	5.23	0.28	
Beneficiaries	465	5,649,900	246	2,203,788	4,845	54,481,283	11,245	6.75	1.93	

Source: FY23 and later from MOSERS' MSEP Actuarial Valuation Report; prior to FY23 from MOSERS' Pension Administration System

## Retirees and Beneficiaries Added and Removed - Judicial Plan

Last Ten Fiscal Years

Benefit Type	Fiscal Year Ended June 30		Added to Rolls		Removed from Rolls		Rolls at End of Year		Percentage Increase/(Decrease)	
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances	Average Annual Allowances	Annual Allowances	Average Annual Allowances	
<b>2024</b>										
Retirees	23	\$ 3,657,571	14	\$ 1,371,115	478	\$ 43,004,112	\$ 89,967	5.62%	3.63%	
Beneficiaries	9	703,128	11	446,856	148	6,555,552	44,294	4.07	5.47	
<b>2023</b>										
Retirees	29	5,060,044	22	1,346,394	469	40,717,656	86,818	10.04	8.39	
Beneficiaries	15	906,924	7	329,877	150	6,299,280	41,995	10.08	4.21	
<b>2022</b>										
Retirees	20	2,572,248	18	1,531,644	462	37,004,006	80,095	2.89	2.45	
Beneficiaries	12	594,912	20	729,228	142	5,722,233	40,297	(2.29)	3.21	
<b>2021</b>										
Retirees	26	2,674,404	13	824,256	460	35,963,402	78,181	5.42	2.44	
Beneficiaries	10	411,408	11	469,104	150	5,856,549	39,044	(0.98)	(0.32)	
<b>2020</b>										
Retirees	21	2,245,320	9	753,144	447	34,113,254	76,316	4.57	1.77	
Beneficiaries	7	397,068	11	449,532	151	5,914,245	39,167	(0.88)	1.75	
<b>2019</b>										
Retirees	39	3,749,292	17	1,357,068	435	32,621,078	74,991	7.91	2.46	
Beneficiaries	12	643,452	15	555,528	155	5,966,709	38,495	1.50	3.46	
<b>2018</b>										
Retirees	23	2,642,868	15	1,074,540	413	30,228,854	73,193	5.47	3.43	
Beneficiaries	9	470,700	8	322,200	158	5,878,785	37,208	2.59	1.94	
<b>2017</b>										
Retirees	21	2,128,128	16	1,239,612	405	28,660,526	70,767	3.20	1.93	
Beneficiaries	12	507,360	2	87,936	157	5,730,285	36,499	7.90	1.03	
<b>2016</b>										
Retirees	16	1,671,084	14	1,078,356	400	27,772,010	69,430	2.18	1.67	
Beneficiaries	8	383,940	11	397,176	147	5,310,861	36,128	(0.25)	1.79	
<b>2015</b>										
Retirees	39	3,599,880	21	1,395,888	398	27,179,282	68,290	8.82	3.90	
Beneficiaries	18	739,788	5	198,348	150	5,324,097	35,494	11.32	1.67	

Source: FY23 and later from MOSERS' Judicial Plan Actuarial Valuation Report; prior to FY23 from MOSERS' Pension Administration System

## Short-Term Solvency Test

Last Ten Fiscal Years

### MSEP

#### Actuarial Accrued Liabilities for

Fiscal Year	Member Contributions (1)	Current Retirees and Beneficiaries (2)	Active and Inactive Members, Employer Financed Portion (3)	Actuarial Value of Assets Available for Benefits	Percentage of Actuarial Liabilities Covered by Actuarial Value of Assets Available for		
					(1)	(2)	(3)
2024	\$ 302,361,989	\$ 10,354,611,684	\$ 6,258,054,714	\$ 9,355,757,779	100.0%	87.4%	0.0%
2023	255,269,694	9,939,272,500	5,996,271,492	9,331,207,050	100.0	91.3	0.0
2022	217,318,884	9,463,674,203	5,728,001,945	8,894,328,756	100.0	91.7	0.0
2021	187,797,531	9,037,922,330	5,884,926,676	8,909,251,051	100.0	96.5	0.0
2020	157,133,312	8,701,290,590	5,399,984,986	8,711,224,151	100.0	98.3	0.0
2019	128,255,311	8,430,014,973	5,399,356,055	8,782,383,977	100.0	100.0	4.2
2018	103,784,514	8,073,692,664	5,435,286,783	8,830,410,210	100.0	100.0	12.0
2017	78,979,370	7,559,623,100	5,513,671,425	8,872,381,848	100.0	100.0	22.4
2016	60,618,379	7,305,895,284	5,384,649,090	8,878,057,191	100.0	100.0	28.1
2015	42,731,658	6,695,631,737	4,989,255,015	8,792,485,658	100.0	100.0	41.2

### Judicial Plan

#### Actuarial Accrued Liabilities for

Fiscal Year	Member Contributions (1)	Current Retirees and Beneficiaries (2)	Active and Inactive Members, Employer Financed Portion (3)	Actuarial Value of Assets Available for Benefits	Percentage of Actuarial Liabilities Covered by Actuarial Value of Assets Available for		
					(1)	(2)	(3)
2024	\$ 12,050,259	\$ 502,184,361	\$ 160,800,861	\$ 209,090,000	100.0%	39.2%	0.0%
2023	10,319,516	481,684,580	162,238,227	207,085,203	100.0	40.8	0.0
2022	8,675,309	440,091,330	181,276,374	203,997,065	100.0	44.4	0.0
2021	7,294,197	438,537,859	180,452,163	194,988,153	100.0	42.8	0.0
2020	5,991,360	436,014,583	182,841,068	180,713,310	100.0	40.1	0.0
2019	4,421,019	434,204,353	178,857,333	172,224,529	100.0	38.6	0.0
2018	3,124,482	401,725,610	188,938,500	162,135,045	100.0	39.6	0.0
2017	2,232,405	377,099,534	185,085,986	151,828,631	100.0	39.7	0.0
2016	1,855,955	354,715,048	191,050,614	143,468,860	100.0	39.9	0.0
2015	1,204,757	316,042,514	165,722,040	134,349,908	100.0	42.1	0.0

## Analysis of Financial Experience

Year Ended June 30, 2024

Actual experience will never coincide exactly with assumed experience (except by coincidence). Gains and losses may offset each other over a period of years, but sizable year-to-year variations from assumed experience are common. Detail on the analysis of the financial experience is shown below. A more detailed discussion of the components of our actuarial experience can be found in our June 30, 2024, actuarial valuation report, which is available on our website, [www.mosers.org](http://www.mosers.org).

<b>MSEP</b>		<b>Valuation Date June 30</b>	<b>Actuarial Gain (Loss) as a % of Beginning Accrued Liabilities</b>
Unfunded actuarial accrued liability (UAAL) at beginning of year	\$ 6,859,606,636	2024	(4.7)%
Normal cost from last valuation	173,124,789	2023	(5.8)
Actual employer and member contributions	(728,613,713)	2022	(1.3)
Miscellaneous income	(1,025)	2021	(0.7)
Administrative expenses	11,885,804	2020	(2.3)
Interest accrual	464,286,836	2019	(1.8)
Expected UAAL	6,780,289,327	2018	(0.9)
Less: Actual UAAL at end of year	(7,559,270,608)	2017	(1.6)
Gain (loss) during year from experience	<u>\$ (778,981,281)</u>	2016	(3.2)
Gain (loss) as a percent of expected actuarial accrued liabilities at start of year (\$16,433,407,239)	(4.7)%	2015	(0.9)

<b>Judicial</b>		<b>Valuation Date June 30</b>	<b>Actuarial Gain (Loss) as a % of Beginning Accrued Liabilities</b>
Unfunded actuarial accrued liability (UAAL) at beginning of year	\$ 447,157,120	2024	(2.8)%
Normal cost from last valuation	12,290,302	2023	(3.2)
Actual employer and member contributions	(42,777,905)	2022	0.5
Miscellaneous income	(3)	2021	1.4
Administrative expenses	99,460	2020	(0.2)
Interest accrual	30,473,430	2019	(0.8)
Expected UAAL	447,242,404	2018	(0.3)
Less: Actual UAAL at end of year	(465,945,481)	2017	(0.3)
Gain (loss) during year from experience	<u>\$ (18,703,077)</u>	2016	0.1
Gain (loss) as a percent of expected actuarial accrued liabilities at start of year (\$662,204,361)	(2.8)%	2015	(1.5)

## Comparison of Plans for General State Employees

June 30, 2024

Benefit Provisions	MSEP (Closed Plan)	MSEP 2000	MSEP 2011
<b>Membership</b> <i>Eligible members employed in positions which normally require at least 1,040 hours of work per year</i>	<ul style="list-style-type: none"> <li>Employed prior to July 1, 2000, and vested in MSEP</li> </ul>	<ul style="list-style-type: none"> <li>First employed on or after July 1, 2000, but prior to January 1, 2011, or</li> <li>Left state employment prior to becoming vested and returned to employment on or after July 1, 2000</li> </ul>	<ul style="list-style-type: none"> <li>First employed on or after January 1, 2011, or</li> <li>Returned to employment after electing the buyout option</li> </ul>
<b>Employee Contributions</b>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>4% of pay</li> </ul>
<b>Vesting</b> <i>Eligible for future pension</i>	<ul style="list-style-type: none"> <li>5 years</li> </ul>	<ul style="list-style-type: none"> <li>5 years</li> </ul>	<ul style="list-style-type: none"> <li>5 years</li> </ul>
<b>Service Purchases</b>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>	<ul style="list-style-type: none"> <li>May purchase qualifying public sector service at full actuarial cost</li> </ul>
<b>Service Transfers</b>	<ul style="list-style-type: none"> <li>May transfer state service to other positions covered by MOSERS under 104.800; under 105.691 with written agreements to transfer required funds; from MPERS, PSRS/PEERS, Lincoln Univ.; service as circuit clerk, deputy circuit clerk, division clerk, or juvenile court employee; or qualifying state board service.</li> </ul>	<ul style="list-style-type: none"> <li>May transfer service under 104.1090 or 105.691 from other systems with written agreements to transfer required funds; from MPERS, PSRS/PEERS, Lincoln Univ.; service as circuit clerk, deputy circuit clerk, division clerk, or juvenile court employee; or qualifying state board service.</li> </ul>	<ul style="list-style-type: none"> <li>May transfer service under 105.691 from other systems with written agreements to transfer required funds; from MPERS, PSRS/PEERS; service as circuit clerk, deputy circuit clerk, division clerk, or juvenile court employee; or qualifying state board service.</li> </ul>
<b>Death Prior to Retirement</b>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using Joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.</li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of average compensation. <i>Payable the month following the member's death</i></li> </ul>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using Joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.</li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of average compensation. <i>Payable the month following the member's death</i></li> </ul>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using Joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children. <i>Payable the month following the member's death; for inactive-vested, payable when member would have reached normal retirement eligibility</i></li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of rate of compensation. <i>Payable the month following the member's death</i></li> </ul>
<b>Early Retirement</b> <i>Eligible for reduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Age 55 + 10 years of service  <i>Base benefit reduced 1/2 of 1% (.005) for each month age is younger than normal retirement</i></li> </ul>	<ul style="list-style-type: none"> <li>Age 57 + 5 years of service  <i>Base benefit reduced 1/2 of 1% (.005) for each month age is younger than normal retirement</i></li> </ul>	<ul style="list-style-type: none"> <li>Age 62 + 5 years of service at time of termination  <i>Base benefit reduced 1/2 of 1% (.005) for each month age is younger than normal retirement</i></li> </ul>

## Comparison of Plans for General State Employees (continued)

June 30, 2024

Benefit Provisions	MSEP (Closed Plan)	MSEP 2000	MSEP 2011
<b>Normal Retirement</b> <i>Eligible for unreduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Age 65 + 5 years of service, or</li> <li>Age 60 + 15 years of service, or</li> <li>Rule of 80* – (at least age 48) Age + years of service = 80 or more *Age 50 if first became eligible prior to Aug. 28, 2003</li> </ul>	<ul style="list-style-type: none"> <li>Age 62 + 5 years of service, or</li> <li>Rule of 80* – (at least age 48) Age + years of service = 80 or more at time of termination *Age 50 if first became eligible prior to Aug. 28, 2003</li> </ul>	<ul style="list-style-type: none"> <li>Age 67 + 5 years of service, or</li> <li>Rule of 90 – (at least age 55) Age + years of service = 90 or more at time of termination</li> </ul>
<b>Base Benefit</b> <i>Monthly benefit payable for life</i>	<ul style="list-style-type: none"> <li>.016 x FAP x Service <i>Future formula increases, if any, may be passed along to retirees.</i></li> </ul>	<ul style="list-style-type: none"> <li>.017 x FAP x Service <i>Future formula increases, if any, will not be passed along to retirees.</i></li> </ul>	<ul style="list-style-type: none"> <li>.017 x FAP x Service <i>Future formula increases, if any, will not be passed along to retirees.</i></li> </ul>
<b>Temporary Benefit</b> <i>Stops at age 62</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>.008 x FAP x Service <i>Available to members retiring under Rule of 80</i></li> </ul>	<ul style="list-style-type: none"> <li>.008 x FAP x Service <i>Available to members retiring under Rule of 90</i></li> </ul>
<b>BackDROP</b> <i>Lump-sum payment at retirement in addition to reduced monthly pension</i>	<ul style="list-style-type: none"> <li>Must work at least 2 years beyond normal retirement eligibility to be eligible; elect BackDROP at retirement (if applicable)</li> </ul>	<ul style="list-style-type: none"> <li>Must work at least 2 years beyond normal retirement eligibility to be eligible; elect BackDROP at retirement (if applicable)</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>
<b>Benefit Payment Options</b> <i>Determines whether or not a benefit will be paid to anyone after member's death</i>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Unreduced Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 60 Guaranteed Payments</li> <li>Life Income with 120 Guaranteed Payments</li> </ul>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 120 Guaranteed Payments</li> <li>Life Income with 180 Guaranteed Payments</li> </ul>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 120 Guaranteed Payments</li> <li>Life Income with 180 Guaranteed Payments</li> </ul>
<b>Cost-of-Living Adjustment (COLA)</b> <i>Helps offset effects of inflation increasing the cost of goods and services</i>	<ul style="list-style-type: none"> <li><b>Employed before Aug. 28, 1997</b> Receive 4-5% each year until reaching 65% COLA cap. After reaching cap, rate is based on 80% of the percentage increase in the average CPI (0-5%)</li> <li><b>Employed on/after Aug. 28, 1997</b> Based on 80% of the percentage increase in the average CPI (0-5%)</li> </ul>	<ul style="list-style-type: none"> <li>Based on 80% of the percentage increase in the average CPI (0-5%)</li> </ul>	<ul style="list-style-type: none"> <li>Based on 80% of the percentage increase in the average CPI (0-5%)</li> </ul>
<b>In-Service COLA</b> <i>Service beyond age 65</i>	<ul style="list-style-type: none"> <li>Applicable COLA rate (if eligible)</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>

Effective August 28, 2023, an active previously retired member may return to state employment as a Missouri state legislator or statewide elected official and continue receiving their pension benefit based on their prior MOSERS service.

## Comparison of Plans for Legislators

June 30, 2024

Benefit Provisions	MSEP (Closed Plan)	MSEP 2000	MSEP 2011
<b>Membership</b> <i>Elected Members of the General Assembly</i>	<ul style="list-style-type: none"> <li>Employed prior to July 1, 2000, and vested in MSEP</li> </ul>	<ul style="list-style-type: none"> <li>First employed on or after July 1, 2000, but prior to January 1, 2011, or</li> <li>Left state employment prior to becoming vested and returned to employment on or after July 1, 2000</li> </ul>	<ul style="list-style-type: none"> <li>First employed on or after January 1, 2011, or</li> <li>Returned to employment after electing the buyout option</li> </ul>
<b>Employee Contributions</b>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>4% of pay</li> </ul>
<b>Vesting</b> <i>Eligible for future pension</i>	<ul style="list-style-type: none"> <li>3 biennial assemblies (6 years)</li> </ul>	<ul style="list-style-type: none"> <li>3 biennial assemblies (6 years)</li> </ul>	<ul style="list-style-type: none"> <li>3 biennial assemblies (6 years)</li> </ul>
<b>Service Purchases</b>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>	<ul style="list-style-type: none"> <li>May purchase qualifying public sector service at full actuarial cost</li> </ul>
<b>Service Transfers</b>	<ul style="list-style-type: none"> <li>May transfer state service to other positions covered by MOSERS under 104.800; under 105.691 with written agreements to transfer required funds; from MPERS, PSRS/PEERS, Lincoln Univ.; service as circuit clerk, deputy circuit clerk, division clerk, or juvenile court employee; or qualifying state board service.</li> </ul>	<ul style="list-style-type: none"> <li>May transfer service under 104.1090 or 105.691 from other systems with written agreements to transfer required funds; from MPERS, PSRS/PEERS, Lincoln Univ.; service as circuit clerk, deputy circuit clerk, division clerk, or juvenile court employee; or qualifying state board service.</li> </ul>	<ul style="list-style-type: none"> <li>May transfer service under 105.691 from other systems with written agreements to transfer required funds; from MPERS, PSRS/PEERS; service as circuit clerk, deputy circuit clerk, division clerk, or juvenile court employee; or qualifying state board service.</li> </ul>
<b>Death Prior to Retirement</b>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using Joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.</li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of rate of compensation. <i>Payable the month following the member's death</i></li> </ul>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using Joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.</li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of rate of compensation. <i>Payable the month following the member's death</i></li> </ul>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using Joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children. <i>Payable the month following the member's death; for inactive-vested, payable when member would have reached normal retirement eligibility</i></li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of rate of compensation. <i>Payable the month following the member's death</i></li> </ul>
<b>Early Retirement</b> <i>Eligible for reduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>



## Comparison of Plans for Legislators (continued)

June 30, 2024

Benefit Provisions	MSEP (Closed Plan)	MSEP 2000	MSEP 2011
<b>Normal Retirement</b> <i>Eligible for unreduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Age 55 + 3 biennial assemblies, or</li> <li>Rule of 80 – (at least age 48)</li> <li>Age + years of service = 80 or more</li> </ul>	<ul style="list-style-type: none"> <li>Age 55 + 3 biennial assemblies, or</li> <li>Rule of 80 – (at least age 50)</li> <li>Age + years of service = 80 or more at time of termination</li> </ul>	<ul style="list-style-type: none"> <li>Age 62 + 3 biennial assemblies, or</li> <li>Rule of 90 – (at least age 55)</li> <li>Age + years of service = 90 or more at time of termination</li> </ul>
<b>Base Benefit</b> <i>Monthly Benefit payable for life</i>	<ul style="list-style-type: none"> <li>Biennial Assemblies x \$150</li> <li><i>Future formula increases, if any, may be passed along to retirees.</i></li> </ul>	<ul style="list-style-type: none"> <li>(Active Pay ÷ 24) x Service</li> <li><i>Capped at 12 years of service or 50% of pay; future formula increases, if any, will not be passed along to retirees.</i></li> </ul>	<ul style="list-style-type: none"> <li>(Active Pay ÷ 24) x Service</li> <li><i>Capped at 12 years of service or 50% of pay; future formula increases, if any, will not be passed along to retirees.</i></li> </ul>
<b>Temporary Benefit</b> <i>Stops at age 62</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>
<b>BackDROP</b> <i>Lump-sum payment at retirement in addition to reduced monthly pension</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>
<b>Benefit Payment Options</b> <i>Determines whether or not a benefit will be paid to anyone after member's death</i>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Unreduced Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 60 Guaranteed Payments</li> <li>Life Income with 120 Guaranteed Payments</li> </ul>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 120 Guaranteed Payments</li> <li>Life Income with 180 Guaranteed Payments</li> </ul>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 120 Guaranteed Payments</li> <li>Life Income with 180 Guaranteed Payments</li> </ul>
<b>Cost-of-Living Adjustment (COLA)</b> <i>Helps offset effects of inflation increasing the cost of goods and services</i>	<ul style="list-style-type: none"> <li><b>Sworn in before Aug. 28, 1997</b> Receive 4-5% each year until reaching 65% COLA cap. After reaching cap, rate is based on 80% of the percentage increase in the average CPI (0-5%)</li> <li><b>Sworn in on/after Aug. 28, 1997</b> Based on 80% of the percentage increase in the average CPI (0-5%)</li> </ul>	<ul style="list-style-type: none"> <li>Benefit adjustment based on increase in pay for an active member</li> </ul>	<ul style="list-style-type: none"> <li>Benefit adjustment based on increase in pay for an active member</li> </ul>
<b>In-Service COLA</b> <i>Service beyond age 65</i>	<ul style="list-style-type: none"> <li>Applicable COLA rate (if eligible)</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>

Effective August 28, 2023, an active previously retired member may return to state employment as a Missouri state legislator or statewide elected official and continue receiving their pension benefit based on their prior MOSERS service.

## Comparison of Plans for Statewide Elected Officials

June 30, 2024

Benefit Provisions	MSEP (Closed Plan)	MSEP 2000	MSEP 2011
<b>Membership</b> <i>Members elected to state office</i>	<ul style="list-style-type: none"> <li>Employed prior to July 1, 2000, and vested in MSEP</li> </ul>	<ul style="list-style-type: none"> <li>First employed on or after July 1, 2000, but prior to January 1, 2011, or</li> <li>Left state employment prior to becoming vested and returned to employment on or after July 1, 2000</li> </ul>	<ul style="list-style-type: none"> <li>First employed on or after January 1, 2011, or</li> <li>Returned to employment after electing the buyout option</li> </ul>
<b>Employee Contributions</b>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>4% of pay</li> </ul>
<b>Vesting</b> <i>Eligible for future pension</i>	<ul style="list-style-type: none"> <li>4 years (1 term)</li> </ul>	<ul style="list-style-type: none"> <li>4 years (1 term)</li> </ul>	<ul style="list-style-type: none"> <li>4 years (1 term)</li> </ul>
<b>Service Purchases</b>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>	<ul style="list-style-type: none"> <li>May purchase qualifying public sector service at full actuarial cost</li> </ul>
<b>Service Transfers</b>	<ul style="list-style-type: none"> <li>May transfer state service to other positions covered by MOSERS under 104.800; under 105.691 with written agreements to transfer required funds; from MPERS, PSRS/PEERS, Lincoln Univ.; service as circuit clerk, deputy circuit clerk, division clerk, or juvenile court employee; or qualifying state board service.</li> </ul>	<ul style="list-style-type: none"> <li>May transfer service under 104.1090 or 105.691 from other systems with written agreements to transfer required funds; from MPERS, PSRS/PEERS, Lincoln Univ.; service as circuit clerk, deputy circuit clerk, division clerk, or juvenile court employee; or qualifying state board service.</li> </ul>	<ul style="list-style-type: none"> <li>May transfer service under 105.691 from other systems with written agreements to transfer required funds; from MPERS, PSRS/PEERS; service as circuit clerk, deputy circuit clerk, division clerk, or juvenile court employee; or qualifying state board service.</li> </ul>
<b>Death Prior to Retirement</b>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using Joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.</li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of rate of compensation. <i>Payable the month following the member's death</i></li> </ul>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using Joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.</li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of rate of compensation. <i>Payable the month following the member's death</i></li> </ul>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using Joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children. <i>Payable the month following the member's death; for inactive-vested, payable when member would have reached normal retirement eligibility</i></li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of current pay. <i>Payable the month following the member's death</i></li> </ul>
<b>Early Retirement</b> <i>Eligible for reduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Age 55 + 10 years of service <i>Base benefit reduced 1/2 of 1% (.005) for each month age is younger than normal retirement</i></li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>

## Comparison of Plans for Statewide Elected Officials (continued)

June 30, 2024

Benefit Provisions	MSEP (Closed Plan)	MSEP 2000	MSEP 2011
<b>Normal Retirement</b> <i>Eligible for unreduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Age 65 + 4 years of service, or</li> <li>Age 60 + 15 years of service, or</li> <li>Rule of 80 – (at least age 50) Age + years of service = 80 or more</li> </ul>	<ul style="list-style-type: none"> <li>Age 55 + 4 years of service, or</li> <li>Rule of 80 – (at least age 50) Age + years of service = 80 or more at time of termination</li> </ul>	<ul style="list-style-type: none"> <li>Age 62 + 4 years of service, or</li> <li>Rule of 90 – (at least age 55) Age + years of service = 90 or more at time of termination</li> </ul>
<b>Base Benefit</b> <i>Monthly benefit payable for life</i>	<ul style="list-style-type: none"> <li>Less than 12 years of service .016 x FAP x Service</li> <li>12+ years of service Monthly Statutory Comp. x .50 <i>Future formula increases, if any, may be passed along to retirees</i></li> </ul>	<ul style="list-style-type: none"> <li>(Active Pay ÷ 24) x Service <i>Capped at 12 years of service or 50% of pay; future formula increases, if any, will not be passed along to retirees.</i></li> </ul>	<ul style="list-style-type: none"> <li>(Active Pay ÷ 24) x Service <i>Capped at 12 years of service or 50% of pay; future formula increases, if any, will not be passed along to retirees.</i></li> </ul>
<b>Temporary Benefit</b> <i>Stops at age 62</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>
<b>BackDROP</b> <i>Lump-sum payment at retirement in addition to reduced monthly pension</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>
<b>Benefit Payment Options</b> <i>Determines whether or not a benefit will be paid to anyone after member's death</i>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Unreduced Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 60 Guaranteed Payments</li> <li>Life Income with 120 Guaranteed Payments</li> </ul>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 120 Guaranteed Payments</li> <li>Life Income with 180 Guaranteed Payments</li> </ul>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 120 Guaranteed Payments</li> <li>Life Income with 180 Guaranteed Payments</li> </ul>
<b>Cost-of-Living Adjustment (COLA)</b> <i>Helps offset effects of inflation increasing the cost of goods and services</i>	<ul style="list-style-type: none"> <li><b>Sworn in before Aug. 28, 1997</b> Receive 4-5% each year until reaching 65% COLA cap. After reaching the cap, rate is based on 80% of the percentage increase in the average CPI (0-5%)</li> <li><b>Sworn in on/after Aug. 28, 1997</b> Based on 80% of the percentage increase in the average CPI (0-5%)</li> <li><b>12+ years of service</b> In addition to applicable COLA above, benefit will be recalculated for increases in statutory compensation for highest position held.</li> </ul>	<ul style="list-style-type: none"> <li>Benefit adjustment based on increase in pay for an active member</li> </ul>	<ul style="list-style-type: none"> <li>Benefit adjustment based on increase in pay for an active member</li> </ul>
<b>In-Service COLA</b> <i>Service beyond age 65</i>	<ul style="list-style-type: none"> <li>Applicable COLA rate (if eligible)</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>

*Effective August 28, 2023, an active previously retired member may return to state employment as a Missouri state legislator or statewide elected official and continue receiving their pension benefit based on their prior MOSERS service.*

## Comparison of Plans for Judges

June 30, 2024

Benefit Provisions	Judicial Plan (Closed Plan)	Judicial Plan 2011
<b>Membership</b>	<ul style="list-style-type: none"> <li>Must be employed prior to January 1, 2011, in a MOSERS benefit-eligible position as a judge or commissioner of the supreme court, court of appeals, any circuit court (does not include municipal judge), probate court, magistrate court, court of common pleas, criminal corrections, justice of the peace; commissioner or deputy commissioner of the probate division of the circuit court appointed after February 29, 1972, in a first class county having a charter form of government or in a city not within a county; commissioner of the juvenile division of the circuit court appointed pursuant to RSMo 211.023 or drug treatment court pursuant to RSMo 478.466, or any family court.</li> </ul>	<ul style="list-style-type: none"> <li>Employed for the first time on or after January 1, 2011, as a judge or commissioner of the supreme court, court of appeals, any circuit court (does not include municipal judge), probate court, magistrate court, court of common pleas, criminal corrections, justice of the peace; commissioner or deputy commissioner of the probate division of the circuit court appointed after February 29, 1972, in a first class county having a charter form of government or in a city not within a county; commissioner of the juvenile division of the circuit court appointed pursuant to RSMo 211.023 or drug treatment court pursuant to RSMo 478.466, or any family court.</li> </ul>
<b>Employee Contributions</b>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>4% of pay</li> </ul>
<b>Vesting</b> <i>Eligible for future pension</i>	<ul style="list-style-type: none"> <li>Automatic the day you become a member</li> </ul>	<ul style="list-style-type: none"> <li>Automatic the day you become a member</li> </ul>
<b>Service Purchases</b>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>	<ul style="list-style-type: none"> <li>May purchase qualifying public sector service at full actuarial cost</li> </ul>
<b>Service Transfers</b>	<ul style="list-style-type: none"> <li>May transfer state service to other positions covered by MOSERS under 104.800 or under 105.691 with written agreements to transfer required funds</li> </ul>	<ul style="list-style-type: none"> <li>May transfer state service to other positions covered by MOSERS under 104.800 or under 105.691 with written agreements to transfer required funds</li> </ul>
<b>Death Prior to Retirement</b>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> Survivor benefit paid to eligible spouse equal to 50% of benefit the member would have received based on service to age 70. <i>Payable the month following the member's death</i></li> </ul>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> Survivor benefit paid to eligible spouse equal to 50% of benefit the member would have received based on service to age 70. <i>Payable the month following the member's death</i></li> </ul>
<b>Early Retirement</b> <i>Eligible for reduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li><b>Less than 12 years of service</b> <i>Age 62 or</i></li> <li><b>Less than 15 years of service</b> <i>Age 60</i></li> </ul>	<ul style="list-style-type: none"> <li><b>Less than 12 years of service</b> <i>Age 67 or</i></li> <li><b>Less than 20 years of service</b> <i>Age 62</i></li> </ul>
<b>Normal Retirement</b> <i>Eligible for unreduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Age 62 + 12 years of service, or</li> <li>Age 60 + 15 years of service, or</li> <li>Age 55 + 20 years of service</li> </ul>	<ul style="list-style-type: none"> <li>Age 67 + 12 years of service, or</li> <li>Age 62 + 20 years of service</li> </ul>

## Comparison of Plans for Judges (continued)

June 30, 2024

Benefit Provisions	Judicial Plan (Closed Plan)	Judicial Plan 2011
<b>Base Benefit</b> <i>Monthly benefit payable for life</i>	<ul style="list-style-type: none"> <li>• <i>Monthly pay</i> <math>\times</math> .50 = <i>Monthly Base Benefit</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Monthly pay</i> <math>\times</math> .50 = <i>Monthly Base Benefit</i></li> </ul>
<b>Temporary Benefit</b> <i>Stops at age 62</i>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>
<b>BackDROP</b> <i>Lump-sum payment at retirement in addition to reduced monthly pension</i>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>
<b>Benefit Payment Options</b> <i>Determines whether or not a benefit will be paid to anyone after member's death</i>	<ul style="list-style-type: none"> <li>• Life Income Annuity (if unmarried)</li> <li>• Automatic Unreduced Joint &amp; 50% Survivor (if married)</li> </ul>	<ul style="list-style-type: none"> <li>• Life Income Annuity</li> <li>• Joint &amp; 50% Survivor</li> <li>• Joint &amp; 100% Survivor</li> <li>• Life Income with 120 Guaranteed Payments</li> <li>• Life Income with 180 Guaranteed Payments</li> </ul>
<b>Cost-of-Living Adjustment (COLA)</b> <i>Helps offset effects of inflation increasing the cost of goods and services</i>	<ul style="list-style-type: none"> <li>• <b>Sworn in before Aug. 28, 1997</b>                      Receive 4-5% each year until reaching 65% COLA cap. After reaching cap, rate is based on 80% of the percentage increase in the average CPI (0-5%)</li> <li>• <b>Sworn in on/after Aug. 28, 1997</b>                      Based on 80% of the percentage increase in the average CPI (0-5%)</li> </ul>	<ul style="list-style-type: none"> <li>• Based on 80% of the percentage increase in the average CPI (0-5%)</li> </ul>
<b>In-Service COLA</b> <i>Service beyond age 60</i>	<ul style="list-style-type: none"> <li>• Judges who work beyond normal retirement have increased benefits upon retirement.</li> </ul>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>

## Comparison of Plans for Uniformed Members of the Water Patrol

June 30, 2024

Benefit Provisions	MSEP (Closed Plan)	MSEP 2000
<b>Membership</b> <i>Eligible members employed in positions which normally require at least 1,040 hours of work per year</i>	<ul style="list-style-type: none"> <li>Employed prior to July 1, 2000, and vested in MSEP</li> </ul>	<ul style="list-style-type: none"> <li>Employed for the first time on or after July 1, 2000, but prior to January 1, 2011, or</li> <li>Left state employment prior to becoming vested and returned to employment on or after July 1, 2000</li> </ul>
<b>Employee Contributions</b>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Vesting</b> <i>Eligible for future pension</i>	<ul style="list-style-type: none"> <li>5 years</li> </ul>	<ul style="list-style-type: none"> <li>5 years</li> </ul>
<b>Service Purchases</b>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>
<b>Service Transfers</b>	<ul style="list-style-type: none"> <li>May transfer state service to other positions covered by MOSERS under 104.800</li> </ul>	<ul style="list-style-type: none"> <li>May transfer state service to other positions covered by MOSERS under 104.1090</li> </ul>
<b>Death Prior to Retirement</b>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using Joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.</li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of average compensation. <i>Payable the month following the member's death</i></li> </ul>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using Joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.</li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of average compensation. <i>Payable the month following the member's death</i></li> </ul>
<b>Early Retirement</b> <i>Eligible for reduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Age 57 + 10 years of service</li> </ul>
<b>Normal Retirement</b> <i>Eligible for unreduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Age 55 + 5 years of service, or</li> <li>Rule of 80 – (at least age 48) Age + years of service = 80 or more <i>Age 50 if first became eligible prior to Aug. 28, 2003</i></li> </ul>	<ul style="list-style-type: none"> <li>Age 62 + 5 years of service, or</li> <li>Rule of 80 – (at least age 48) Age + years of service = 80 or more <i>Age 50 if first became eligible prior to Aug. 28, 2003</i> <i>Inactive-vested members ineligible for Rule of 80</i></li> </ul>
<b>Base Benefit</b> <i>Monthly benefit payable for life</i>	<ul style="list-style-type: none"> <li>.016 x FAP x Service increased by 33% <i>Future formula increases, if any, may be passed along to retirees</i></li> </ul>	<ul style="list-style-type: none"> <li>.017 x FAP x Service <i>Future formula increases, if any, will not be passed along to retirees</i></li> </ul>

Eligibility for membership in the MSEP and MSEP 2000 is closed for uniformed members of the water patrol. Employees hired on or after January 1, 2011, are members of the Missouri Department of Transportation and Patrol Employees' Retirement System (MPERS).

## Comparison of Plans for Uniformed Members of the Water Patrol (continued)

June 30, 2024

Benefit Provisions	MSEP (Closed Plan)	MSEP 2000
<b>Temporary Benefit</b> <i>Stops at age 62</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>.008 x FAP x Service  <i>Available to members retiring under Rule of 80</i></li> </ul>
<b>BackDROP</b> <i>Lump-sum payment at retirement in addition to reduced monthly pension</i>	<ul style="list-style-type: none"> <li>Must work at least 2 years beyond normal retirement eligibility to be eligible; elect BackDROP at retirement (if applicable)</li> </ul>	<ul style="list-style-type: none"> <li>Must work at least 2 years beyond normal retirement eligibility to be eligible; elect BackDROP at retirement (if applicable)</li> </ul>
<b>Benefit Payment Options</b> <i>Determines whether or not a benefit will be paid to anyone after member's death</i>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Unreduced Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 60 Guaranteed Payments</li> <li>Life Income with 120 Guaranteed Payments</li> </ul>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 120 Guaranteed Payments</li> <li>Life Income with 180 Guaranteed Payments</li> </ul>
<b>Cost-of-Living Adjustment (COLA)</b> <i>Helps offset effects of inflation increasing the cost of goods and services</i>	<ul style="list-style-type: none"> <li><b>Employed before Aug. 28, 1997</b>                      Receive 4-5% each year until reaching 65% COLA cap. After reaching cap, rate is based on 80% of the percentage increase in the average CPI (0-5%)</li> <li><b>Employed on/after Aug. 28, 1997</b>                      Based on 80% of the percentage increase in the average CPI (0-5%)</li> </ul>	<ul style="list-style-type: none"> <li>Based on 80% of the percentage increase in the average CPI (0-5%)</li> </ul>
<b>In-Service COLA</b> <i>Service beyond age 65</i>	<ul style="list-style-type: none"> <li>COLA given for service beyond age 65  <i>COLA provisions determined by employment date</i></li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>

Eligibility for membership in the MSEP and MSEP 2000 is closed for uniformed members of the water patrol. Employees hired on or after January 1, 2011, are members of the Missouri Department of Transportation and Patrol Employees' Retirement System (MPERS).

## Life Insurance Plans

June 30, 2024

MOSERS administers basic and optional term life insurance plans for eligible state employees and retirees.

### Active Members\*

Plan Provision	Requirement
<ul style="list-style-type: none"> <li>• <b>Basic life insurance</b> An amount equal to one times annual salary (with a minimum of \$15,000) while actively employed.</li> </ul>	<ul style="list-style-type: none"> <li>• Actively employed in an eligible state position resulting in membership in MOSERS.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Duty-related death benefit</b> Duty-related death benefit equivalent to two times the annual salary the member was earning at the time of death in addition to the basic life insurance amount of one times annual salary.</li> </ul>	<ul style="list-style-type: none"> <li>• Actively employed in an eligible state position resulting in membership in MOSERS.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Optional life insurance</b> Additional life insurance may be purchased in a flat amount in multiples of \$10,000 not to exceed the maximum (lesser of six times annual salary or \$800,000). Spouse coverage may be purchased in multiples of \$10,000 up to a maximum of \$100,000; however, the amount of spouse coverage cannot exceed the amount of optional life insurance coverage the member has purchased. Coverage for children is available in a flat amount of \$10,000 per child.</li> </ul>	<ul style="list-style-type: none"> <li>• Actively employed in an eligible state position resulting in membership in MOSERS.</li> </ul>

\* Terminating employees may port or convert coverage up to the amount they had as an active employee at individual rates. Not available to employees of the Department of Conservation and universities except Lincoln University and State Technical College of Missouri.

### Retired Members

Plan Provision	Requirement
<ul style="list-style-type: none"> <li>• <b>Basic life insurance at retirement</b> \$5,000 basic life insurance during retirement.</li> </ul>	<ul style="list-style-type: none"> <li>• Must retire directly from active employment.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Optional life insurance at retirement (MSEP)</b> A member may retain up to the lesser of \$60,000 or the amount of optional life insurance coverage held at the time of retirement at the group rate and may convert any remaining basic and optional life insurance at individual rates. Coverage for spouse ends at member's retirement and may be converted at individual rates.</li> </ul>	<ul style="list-style-type: none"> <li>• Must retire directly from active employment.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Optional life insurance at retirement (MSEP 2000)</b> Under "Rule of 80", a member may retain the current amount of coverage prior to retirement until age 62, at which time coverage is reduced to \$60,000, and may convert any remaining basic and optional life insurance at individual rates. Coverage for spouse ends at member's retirement and may be converted at individual rates.</li> </ul>	<ul style="list-style-type: none"> <li>• Must retire directly from active employment.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Optional life insurance at retirement (MSEP 2011)</b> Under "Rule of 90", a member may retain the current amount of coverage prior to retirement until age 62, at which time coverage is reduced to \$60,000, and may convert any remaining basic and optional life insurance at individual rates. Coverage for spouse ends at member's retirement and may be converted at individual rates.</li> </ul>	<ul style="list-style-type: none"> <li>• Must retire directly from active employment.</li> </ul>

Note: Insured employees may port or convert their life insurance and their dependent life insurance when their coverage has been reduced or terminated if they meet certain qualifications.



## Long-Term Disability (LTD) Insurance Plans

June 30, 2024

MOSERS administers the LTD Plan for eligible state employees who become disabled during active employment.

### Active Members

Classification	Requirement
<ul style="list-style-type: none"> <li><b>General state employees, legislators, and elected state officials</b> Members of MOSERS in a position normally requiring at least 1,040 hours of work per year are covered under the LTD plan, unless they work for a state agency which has its own LTD plan.</li> </ul>	<ul style="list-style-type: none"> <li>Eligible participants receive 60% of their compensation minus primary Social Security, Workers' Compensation, and employer provided income. Benefits commence after 90 days of disability or when sick leave benefits are no longer payable, whichever occurs last. LTD benefits cease upon the earliest of (i) when disability ends, (ii) when the member is first eligible for normal retirement benefits or is receiving early retirement benefits, (iii) upon a member's death, (iv) the date benefits become payable under any other group long-term disability insurance plan, or (v) the date the member fails to provide proof of continued disability and entitlement to LTD benefits. In addition to any of the reasons listed above, LTD monthly benefits for legislators and statewide elected officials will end when the total credited service accrued as a legislator or a statewide elected official, either through active employment and/or while on long-term disability, equals the corresponding constitutional service limitations (i.e., term limits).</li> </ul>
<ul style="list-style-type: none"> <li><b>Water patrol</b></li> </ul>	<ul style="list-style-type: none"> <li>Uniformed members who are eligible for statutory occupational disability receive benefits equal to 50% of compensation with no offset for Social Security at the time of disability. For nonoccupational disabilities, eligible participants receive the same benefit as general employees.</li> </ul>
<ul style="list-style-type: none"> <li><b>Judges</b></li> </ul>	<ul style="list-style-type: none"> <li>In addition to the disability benefits provided to general employees, judges may receive benefits under the state constitution. Participants may receive 50% of salary until the current term expires.</li> </ul>

## Changes in Plan Provisions

The 2024 legislative session ended on May 17. There was one bill that directly impacted MOSERS.

**House Bill 2005** - The General Assembly appropriated more than \$776 million in House Bill 2005 to the Office of Administration to pay the required employer contribution rate for state fiscal year 2025. The employer contribution rate was calculated in the annual actuarial valuations performed by MOSERS' retained actuarial professionals and certified by the MOSERS Board of Trustees at its September 2023 meeting. House Bill 2005 was vetoed in part by the Governor on June 28, 2024; however, the MOSERS-related provisions were unaffected.

## Actuarial Present Values

June 30, 2024

### MSEP

Actuarial Present Value June 30, 2024	Actuarial Present Value	Portion Covered by Future Normal Cost Contributions	Actuarial Accrued Liabilities
<b>Active members</b>			
Service retirement benefits based on services rendered before and likely to be rendered after valuation date	\$ 6,215,786,915	\$ 846,573,745	\$ 5,369,213,170
Disability benefits likely to be paid to present active members who become totally and permanently disabled	125,707,804	72,736,892	52,970,912
Survivor benefits likely to be paid to widows/widowers and children of present active members who die before retiring	73,658,159	22,420,795	51,237,364
Separation benefits likely to be paid to present active members	464,266,450	360,259,492	104,006,958
<b>Active member totals</b>	<b>\$ 6,879,419,328</b>	<b>\$ 1,301,990,924</b>	<b>5,577,428,404</b>
<b>Members on leave of absence &amp; LTD</b>			
Service retirement benefits based on services rendered before the valuation date			60,334,807
<b>Inactive-vested members</b>			
Service retirement benefits based on services rendered before the valuation date			874,953,241
<b>Retired lives</b>			10,354,611,684
<b>Pending refunds</b>			47,700,251
<b>Total actuarial accrued liability</b>			<b>16,915,028,387</b>
<b>Less: actuarial value of assets</b>			<b>9,355,757,779</b>
<b>Unfunded actuarial accrued liability</b>			<b>\$ 7,559,270,608</b>
<b>Funded ratio</b>			<b>55.3%</b>

## Actuarial Present Values

June 30, 2024

### Judicial Plan

Actuarial Present Value June 30, 2024	Actuarial Present Value	Portion Covered by Future Normal Cost Contributions	Actuarial Accrued Liabilities
<b>Active members</b>			
Service retirement benefits based on services rendered before and likely to be rendered after valuation date	\$ 245,393,638	\$ 87,970,823	\$ 157,422,815
Survivor benefits likely to be paid to widows/widowers and children of present active members who die before retiring	4,877,721	3,633,366	1,244,355
Separation benefits likely to be paid to present active members	18,581,837	16,340,070	2,241,767
<b>Active member totals</b>	\$ 268,853,196	\$ 107,944,259	160,908,937
<b>Inactive-vested members</b>			11,942,183
<b>Retired lives</b>			502,184,361
<b>Total actuarial accrued liability</b>			675,035,481
<b>Less: actuarial value of assets</b>			209,090,000
<b>Unfunded actuarial accrued liability</b>			\$ 465,945,481
<b>Funded ratio</b>			31.0%



# STATISTICAL Section

We analyze and leverage data to help us create a personalized and relevant experience for every member of the System.  
Valuable insight worth sharing.



## Overview

The *Statistical Section* presents detailed information as a context for understanding what the information in the *Financial Statements*, note disclosures, and *Required Supplementary Information* says about MOSERS' overall financial health.

### Financial Trends Information

- *Changes in Fiduciary Net Position* – This schedule presents financial trend information for the most recent ten fiscal years.
- *Deductions from Net Position for Benefits and Refunds by Type* – This information is intended to help the reader assess how benefit payments have changed over time.
- *Valuation Assets (Smoothed Fair Value) vs. Pension Liabilities* – This information is intended to help the reader assess how MOSERS' funded status has changed over time.

### Revenues Information

- *Required Employer Contribution Rates as a Percent of Payroll* – This information is intended to help the reader assess how MOSERS' contribution requirements have changed over time.

### Operating & Economic Information

- *Membership in Retirement Plans* – This information is intended to help the reader assess how MOSERS' membership has changed over time.
- *Distribution of Benefit Recipients by Location* – This information is intended to help the reader evaluate where MOSERS distributes annuity payments.
- *Benefit Recipients by Type of Retirement and Option Elected* – This information is intended to help the reader understand the stratification of benefit payments by amount and elected option.
- *Benefits Tabulated by Type of Benefit and by Option* – This information is intended to help the reader understand the actuarially determined annual and average monthly benefit amounts by benefit type and option.
- *Average Monthly Benefit Amounts* – This information is intended to help the reader evaluate how benefit payments have changed over time. Figures have been stratified based on years of credited service.
- *Retirees and Beneficiaries Tabulated by Fiscal Year of Retirement* – This information is intended to help the reader understand how long current retirees have been in retirement.
- *Benefits Tabulated by Attained Ages of Benefit Recipients* – This information is intended to help the reader understand the actuarially determined annual and average monthly benefit amounts by type of recipient, and age of recipient.
- *Principal Participating Employers* – This information is intended to help the reader understand MOSERS' most significant sources of contribution revenue, and how it has changed over time.

## Changes in Fiduciary Net Position

Last Ten Fiscal Years

	2024	2023	2022	2021	2020
<b>MSEP</b>					
<i>Additions</i>					
Employer contributions	\$ 671,523,865	\$ 582,381,146	\$ 471,302,256	\$ 463,293,368	\$ 436,895,653
Additional state contribution	0	500,000,000	0	0	0
Employee contributions	58,710,640	48,487,731	39,809,873	37,571,263	35,141,960
Member service purchases	1,063,108	1,591,102	2,119,195	1,520,330	1,388,992
Service transfers in	4,220,333	3,573,592	3,494,626	2,298,914	2,664,796
Prepaid employer contributions discount	(1,620,792)	(1,719,767)	0	0	0
Investment income (net of expenses)	556,669,632	177,598,790	(816,407,543)	2,032,991,086	400,354,303
Other	1,025	646	5,852	80,121	133,952
Total additions to plan net position	1,290,567,811	1,311,913,240	(299,675,741)	2,537,755,082	876,579,656
<i>Deductions</i>					
Benefit payments	1,021,200,064	979,142,541	949,501,630	911,424,269	864,807,554
Contribution refunds	9,518,285	7,981,346	8,417,124	5,894,157	5,224,489
Service transfers out	7,111,722	4,426,152	4,672,072	2,520,166	3,784,195
Administrative expenses	11,885,804	10,984,550	9,248,916	8,816,943	8,398,164
Total deductions from plan net position	1,049,715,875	1,002,534,589	971,839,742	928,655,535	882,214,402
<b>Change in net position</b>	<b>\$ 240,851,936</b>	<b>\$ 309,378,651</b>	<b>\$ (1,271,515,483)</b>	<b>\$ 1,609,099,547</b>	<b>\$ (5,634,746)</b>
<b>Judicial Plan</b>					
<i>Additions</i>					
Employer contributions	\$ 40,748,235	\$ 39,064,758	\$ 39,228,848	\$ 39,996,509	\$ 39,174,515
Employee contributions	2,029,670	1,746,913	1,550,712	1,448,428	1,314,570
Investment income (net of expenses)	12,647,192	4,165,663	(18,801,946)	44,049,707	8,162,709
Other	3	0	0	0	0
Total additions to plan net position	55,425,100	44,977,334	21,977,614	85,494,644	48,651,794
<i>Deductions</i>					
Benefit payments	48,947,605	45,108,589	42,513,238	41,625,546	39,622,268
Contribution refunds	31,249	0	17,140	0	0
Administrative expenses	99,460	91,076	79,492	75,822	74,450
Total deductions from plan net position	49,078,314	45,199,665	42,609,870	41,701,368	39,696,718
<b>Change in net position</b>	<b>\$ 6,346,786</b>	<b>\$ (222,331)</b>	<b>\$ (20,632,256)</b>	<b>\$ 43,793,276</b>	<b>\$ 8,955,076</b>
<b>Insurance Activities</b>					
<i>Additions</i>					
Premium receipts	\$ 34,621,652	\$ 31,755,533	\$ 29,924,611	\$ 31,609,219	\$ 32,582,558
Investment income	203,253	87,335	4,258	1,869	46,539
Miscellaneous income	480,120	480,120	480,120	480,074	484,075
Total operating revenues	35,305,025	32,322,988	30,408,989	32,091,162	33,113,172
<i>Deductions</i>					
Premium disbursements	34,574,075	31,737,102	29,896,004	31,597,820	32,549,567
Premium refunds	47,577	18,370	28,608	11,401	32,991
Administrative expenses	480,120	480,119	480,122	480,120	480,120
Total deductions from net position	35,101,772	32,235,591	30,404,734	32,089,341	33,062,678
<b>Change in net position</b>	<b>\$ 203,253</b>	<b>\$ 87,397</b>	<b>\$ 4,255</b>	<b>\$ 1,821</b>	<b>\$ 50,494</b>

Changes in Fiduciary Net Position continued on following page



## Changes in Fiduciary Net Position (continued)

Last Ten Fiscal Years

	2019	2018	2017	2016	2015
<b>MSEP</b>					
<i>Additions</i>					
Employer contributions	\$ 394,150,042	\$ 379,557,962	\$ 335,217,422	\$ 329,957,369	\$ 329,752,832
Additional state contribution	0	0	0	0	0
Employee contributions	31,286,632	28,303,993	25,439,343	21,684,920	18,099,455
Member service purchases	1,293,774	2,020,720	1,691,046	2,815,749	1,859,005
Service transfers in	2,592,737	3,297,251	3,977,803	2,107,873	3,575,815
Prepaid employer contributions discount	0	0	0	0	0
Investment income (net of expenses)	313,159,178	578,883,501	272,073,643	1,194,422	(237,603,530)
Other	496,898	538,600	522,025	545,847	533,001
<b>Total additions to plan net position</b>	<b>742,979,261</b>	<b>992,602,027</b>	<b>638,921,282</b>	<b>358,306,180</b>	<b>116,216,578</b>
<i>Deductions</i>					
Benefit payments	842,813,907	879,148,738	787,300,328	750,440,412	723,994,041
Contribution refunds	6,006,484	5,502,698	4,820,737	3,798,199	2,479,264
Service transfers out	3,001,189	2,060,037	1,843,792	3,071,892	1,792,495
Administrative expenses	9,200,826	10,024,178	8,759,341	8,489,375	8,077,692
<b>Total deductions from plan net position</b>	<b>861,022,406</b>	<b>896,735,651</b>	<b>802,724,198</b>	<b>765,799,878</b>	<b>736,343,492</b>
<b>Change in net position</b>	<b>\$ (118,043,145)</b>	<b>\$ 95,866,376</b>	<b>\$ (163,802,916)</b>	<b>\$ (407,493,698)</b>	<b>\$ (620,126,914)</b>
<b>Judicial Plan</b>					
<i>Additions</i>					
Employer contributions	\$ 38,604,668	\$ 36,892,203	\$ 34,246,826	\$ 33,642,497	\$ 32,696,686
Employee contributions	1,138,101	902,320	786,745	661,206	488,193
Investment income (net of expenses)	6,051,941	10,727,603	4,671,168	19,273	(3,618,469)
Other	3,895	9,981	8,963	8,808	8,117
<b>Total additions to plan net position</b>	<b>45,798,605</b>	<b>48,532,107</b>	<b>39,713,702</b>	<b>34,331,784</b>	<b>29,574,527</b>
<i>Deductions</i>					
Benefit payments	37,585,484	35,651,489	33,979,837	32,979,706	31,245,906
Contribution refunds	7,565	5,760	4,888	10,008	0
Administrative expenses	72,141	185,763	150,387	136,983	123,015
<b>Total deductions from plan net position</b>	<b>37,665,190</b>	<b>35,843,012</b>	<b>34,135,112</b>	<b>33,126,697</b>	<b>31,368,921</b>
<b>Change in net position</b>	<b>\$ 8,133,415</b>	<b>\$ 12,689,095</b>	<b>\$ 5,578,590</b>	<b>\$ 1,205,087</b>	<b>\$ (1,794,394)</b>
<b>Insurance Activities</b>					
<i>Additions</i>					
Premium receipts	\$ 31,342,778	\$ 31,119,232	\$ 28,779,398	\$ 30,360,162	\$ 30,177,918
Investment income	121,298	79,389	33,984	15,207	9,749
Miscellaneous income	494,722	480,120	480,120	480,120	(519,880)
<b>Total operating revenues</b>	<b>31,958,798</b>	<b>31,678,741</b>	<b>29,293,502</b>	<b>30,855,489</b>	<b>29,667,787</b>
<i>Deductions</i>					
Premium disbursements	31,325,399	31,100,612	28,769,588	30,328,802	30,157,271
Premium refunds	17,379	14,211	9,810	31,360	20,646
Administrative expenses	501,018	526,023	532,169	550,843	516,782
<b>Total deductions from net position</b>	<b>31,843,796</b>	<b>31,640,846</b>	<b>29,311,567</b>	<b>30,911,005</b>	<b>30,694,699</b>
<b>Change in net position</b>	<b>\$ 115,002</b>	<b>\$ 37,895</b>	<b>\$ (18,065)</b>	<b>\$ (55,516)</b>	<b>\$ (1,026,912)</b>

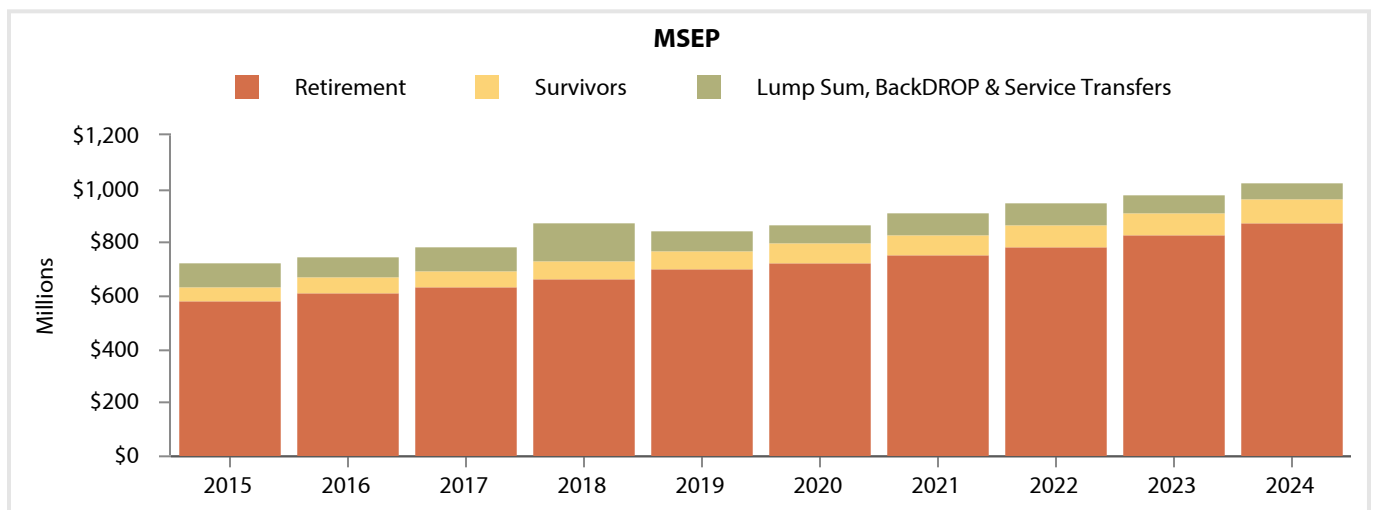
## Deductions from Net Position for Benefits and Refunds by Type

Last Ten Fiscal Years

### MSEP

Type of benefit	2015	2016	2017	2018	2019
Retirement	\$ 586,597,187	\$ 615,708,229	\$ 640,637,749	\$ 670,663,932	\$ 703,117,097
Survivors	52,940,062	56,495,787	59,628,687	63,081,129	66,493,496
Disability	16,857	15,470	14,821	5,223	2,260
Lump-sum	57,525	267,198	123,005	61,041,258	318,656
BackDROP	84,382,410	77,953,728	86,896,066	84,357,196	72,882,398
Service transfers	1,792,495	3,071,892	1,843,792	2,060,037	3,001,189
<b>Total benefits</b>	<b>\$ 725,786,536</b>	<b>\$ 753,512,304</b>	<b>\$ 789,144,120</b>	<b>\$ 881,208,775</b>	<b>\$ 845,815,096</b>
Refunds - separation of service	\$ 2,435,771	\$ 3,750,757	\$ 4,777,245	\$ 5,396,418	\$ 5,930,152
Refunds - death	43,493	47,442	43,492	106,280	76,332
<b>Total contribution refunds</b>	<b>\$ 2,479,264</b>	<b>\$ 3,798,199</b>	<b>\$ 4,820,737</b>	<b>\$ 5,502,698</b>	<b>\$ 6,006,484</b>

Type of benefit	2020	2021	2022	2023	2024
Retirement	\$ 730,310,371	\$ 757,076,179	\$ 789,168,797	\$ 831,847,718	\$ 879,045,686
Survivors	70,583,387	74,890,437	79,635,271	85,388,069	90,878,853
Disability	2,300	2,328	1,171	0	0
Lump-sum	245,297	92,059	695,778	72,129	173,569
BackDROP	63,666,199	79,363,265	80,000,613	61,834,625	51,101,956
Service transfers	3,784,195	2,520,166	4,672,072	4,426,152	7,111,722
<b>Total benefits</b>	<b>\$ 868,591,749</b>	<b>\$ 913,944,434</b>	<b>\$ 954,173,702</b>	<b>\$ 983,568,693</b>	<b>\$ 1,028,311,786</b>
Refunds - separation of service	\$ 5,143,987	\$ 5,704,491	\$ 8,257,062	\$ 7,687,393	\$ 9,347,217
Refunds - death	80,502	189,666	160,062	293,953	171,068
<b>Total contribution refunds</b>	<b>\$ 5,224,489</b>	<b>\$ 5,894,157</b>	<b>\$ 8,417,124</b>	<b>\$ 7,981,346</b>	<b>\$ 9,518,285</b>



Source: MOSERS' financial records

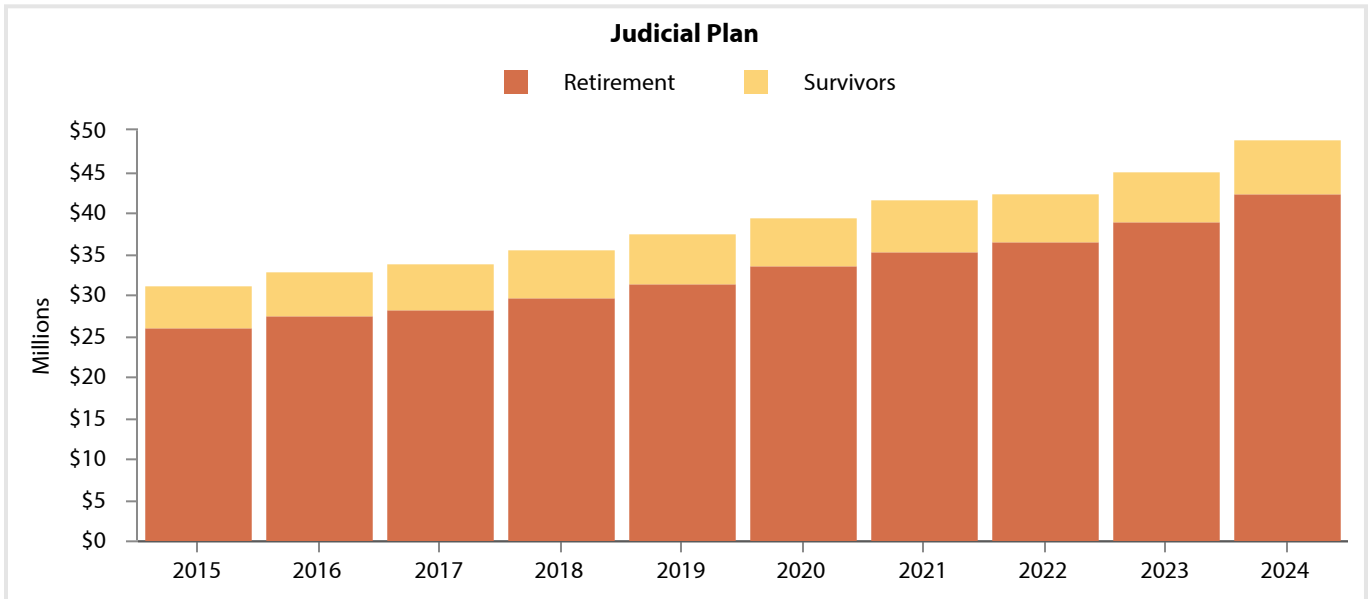
## Deductions from Net Position for Benefits and Refunds by Type (continued)

Last Ten Fiscal Years

### Judicial Plan

Type of benefit	2015	2016	2017	2018	2019
Retirement	\$ 26,181,505	\$ 27,641,108	\$ 28,304,733	\$ 29,655,995	\$ 31,463,475
Survivors	5,064,400	5,338,598	5,675,104	5,995,494	6,122,009
Total benefits	\$ 31,245,905	\$ 32,979,706	\$ 33,979,837	\$ 35,651,489	\$ 37,585,484
Refunds - separation of service	\$ 0	\$ 10,008	\$ 4,888	\$ 5,760	\$ 7,565
Refunds - death	0	0	0	0	0
Total contribution refunds	\$ 0	\$ 10,008	\$ 4,888	\$ 5,760	\$ 7,565

Type of benefit	2020	2021	2022	2023	2024
Retirement	\$ 33,577,616	\$ 35,487,401	\$ 36,654,586	\$ 38,962,752	\$ 42,466,064
Survivors	6,044,652	6,138,145	5,858,652	6,145,837	6,481,541
Total benefits	\$ 39,622,268	\$ 41,625,546	\$ 42,513,238	\$ 45,108,589	\$ 48,947,605
Refunds - separation of service	\$ 0	\$ 0	\$ 17,140	\$ 0	\$ 0
Refunds - death	0	0	0	0	31,249
Total contribution refunds	\$ 0	\$ 0	\$ 17,140	\$ 0	\$ 31,249



Source: MOSERS' financial records

Pension Trust Funds

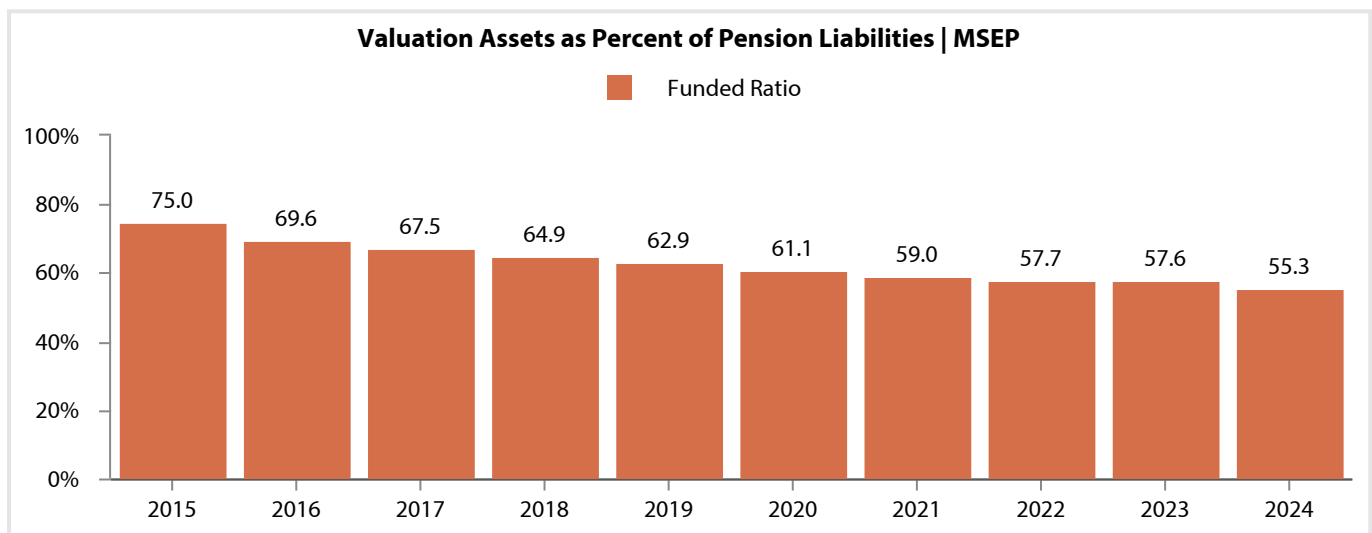
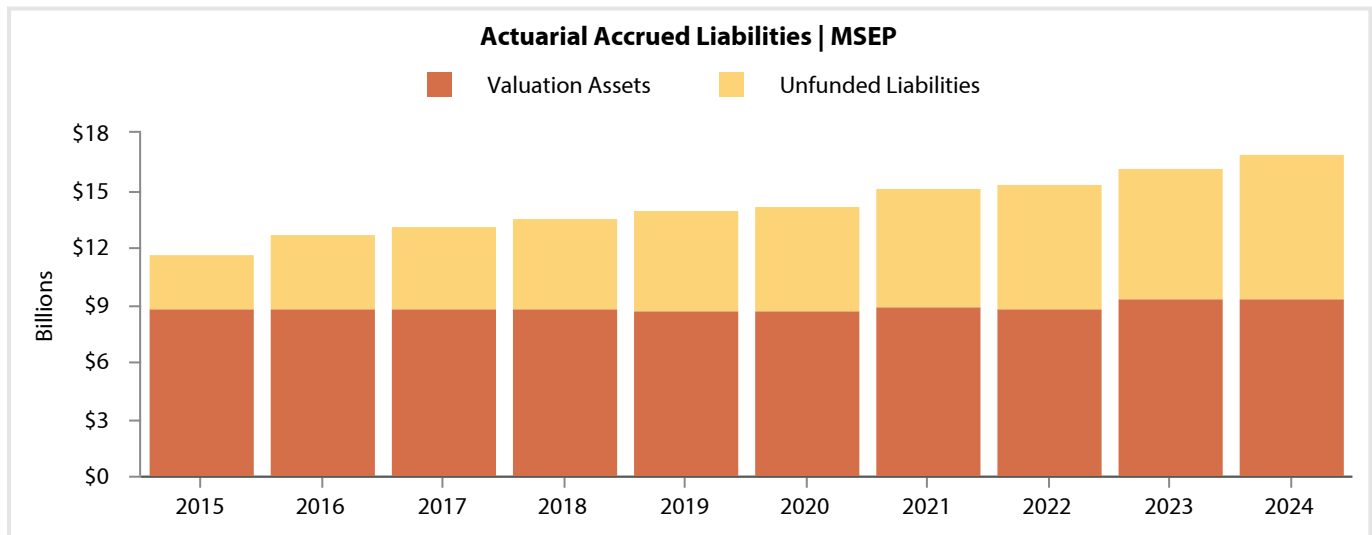
**Valuation Assets (Smoothed Fair Value) vs. Pension Liabilities**

Last Ten Fiscal Years

**MSEP**

Dollars in Billions

Fiscal Year	Valuation Assets	Unfunded Liabilities	Accrued Liabilities	Funded Ratio
2015	\$8.7925	\$2.9351	\$11.7276	75.0%
2016	8.8781	3.8731	12.7512	69.6
2017	8.8724	4.2799	13.1523	67.5
2018	8.8304	4.7824	13.6128	64.9
2019	8.7824	5.1752	13.9576	62.9
2020	8.7112	5.5472	14.2584	61.1
2021	8.9093	6.2014	15.1106	59.0
2022	8.8943	6.5147	15.4090	57.7
2023	9.3312	6.8596	16.1908	57.6
2024	9.3558	7.5593	16.9150	55.3



Source: MOSERS' MSEP Actuarial Valuation Reports, most recent 10 years

Pension Trust Funds

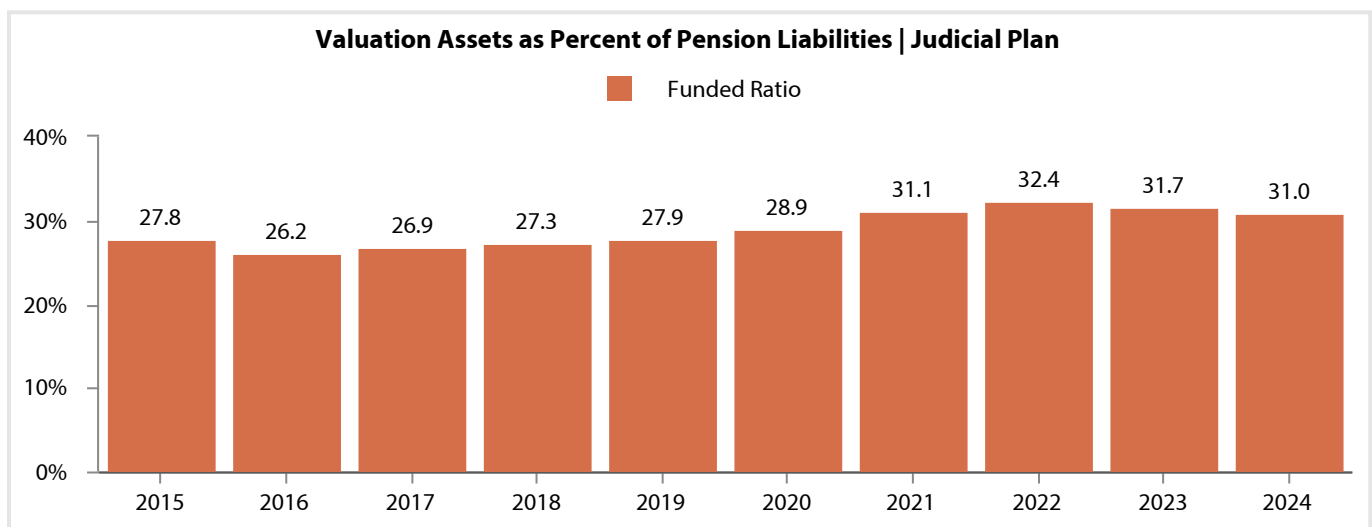
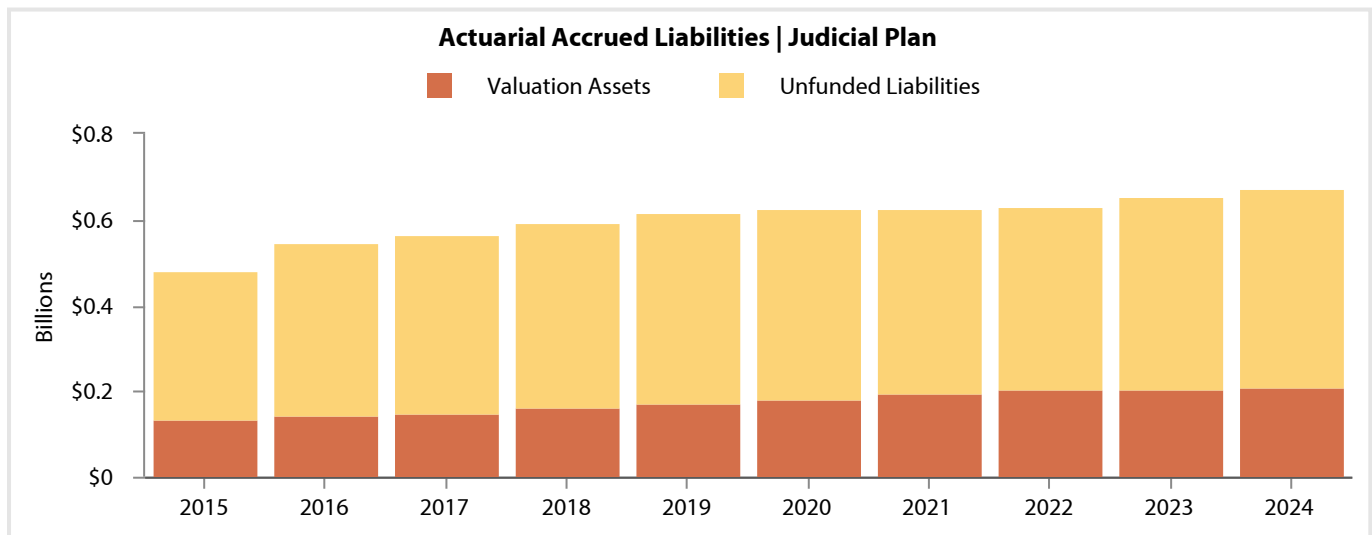
**Valuation Assets (Smoothed Fair Value) vs. Pension Liabilities (continued)**

Last Ten Fiscal Years

**Judicial Plan**

Dollars in Billions

Fiscal Year	Valuation Assets	Unfunded Liabilities	Accrued Liabilities	Funded Ratio
2015	\$0.1343	\$0.3486	\$0.4830	27.8%
2016	0.1435	0.4042	0.5476	26.2
2017	0.1518	0.4126	0.5644	26.9
2018	0.1621	0.4317	0.5938	27.3
2019	0.1722	0.4453	0.6175	27.9
2020	0.1807	0.4441	0.6248	28.9
2021	0.1950	0.4313	0.6263	31.1
2022	0.2040	0.4260	0.6300	32.4
2023	0.2071	0.4472	0.6542	31.7
2024	0.2091	0.4659	0.6750	31.0



Source: MOSERS' Judicial Plan Actuarial Valuation Reports, most recent 10 years

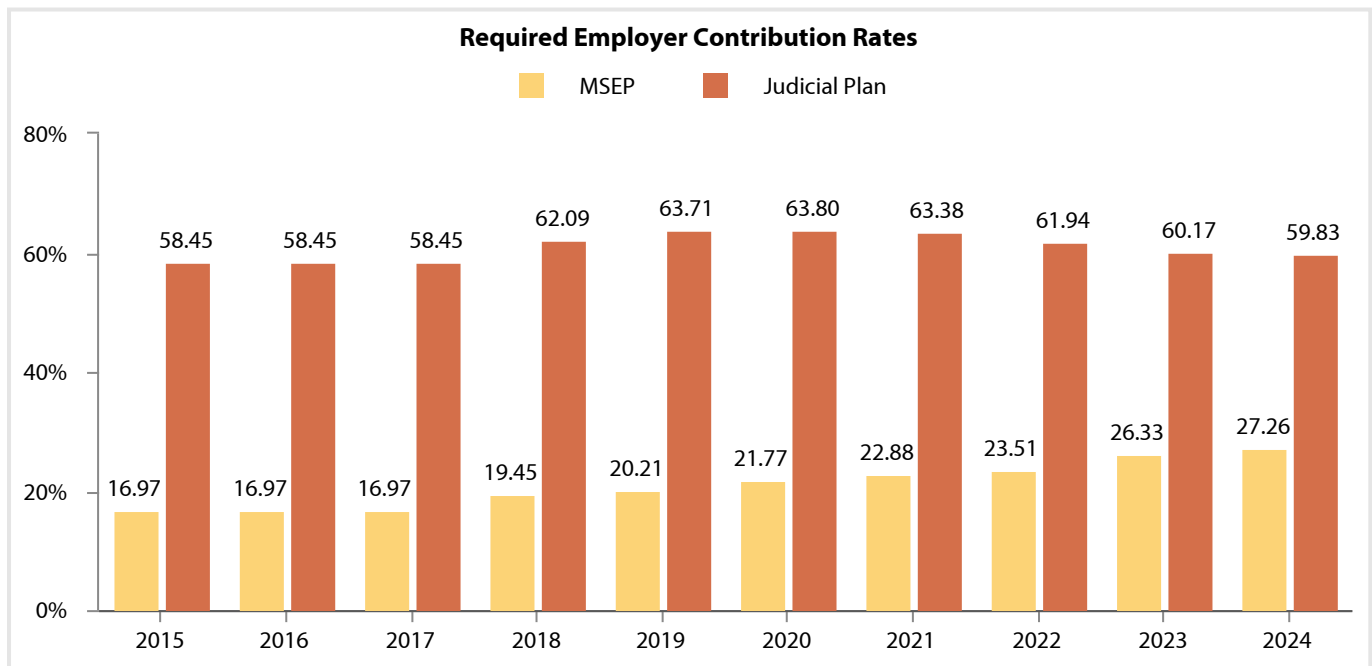
Pension Trust Funds

**Required Employer Contribution Rates as a Percent of Payroll**

Last Ten Fiscal Years

Fiscal Year	MSEP	Judicial
2015	16.97%	58.45%
2016	16.97	58.45
2017	16.97	58.45
2018	19.45	62.09
2019	20.21	63.71
2020	21.77	63.80
2021	22.88	63.38
2022	23.51	61.94
2023	26.33	60.17
2024	27.26	59.83

Note: In addition to the employer contribution rates, MOSERS also receives a fixed 4% employee contribution from MSEP 2011 and Judicial Plan 2011 members. Beginning in fiscal year 2023, the employers were given the option to prepay contributions at certain times during the year and receive an actuarially determined present value discount based on MOSERS’ investment return assumption. Amounts are before any prepaid discounts.



Source: MOSERS’ MSEP and Judicial Plan Actuarial Valuation Reports, most recent 10 years

## Membership in Retirement Plans

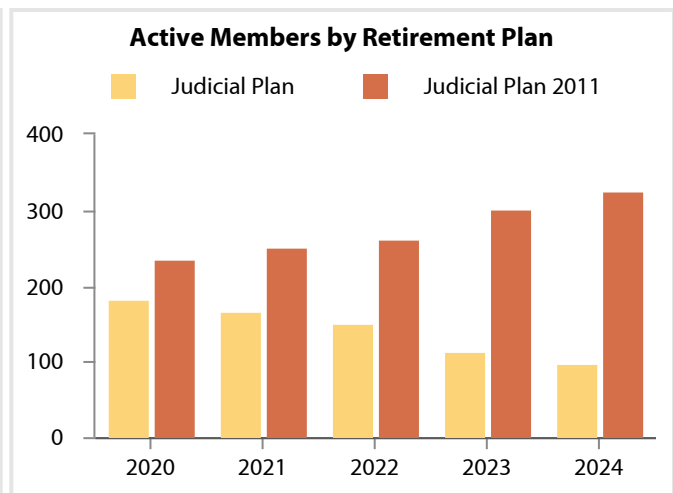
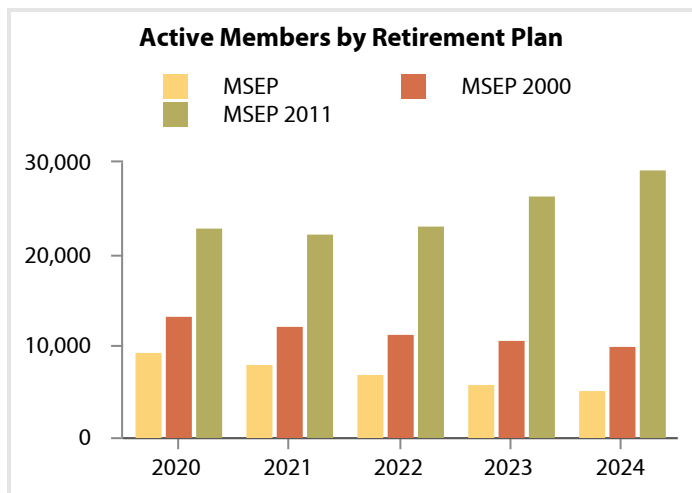
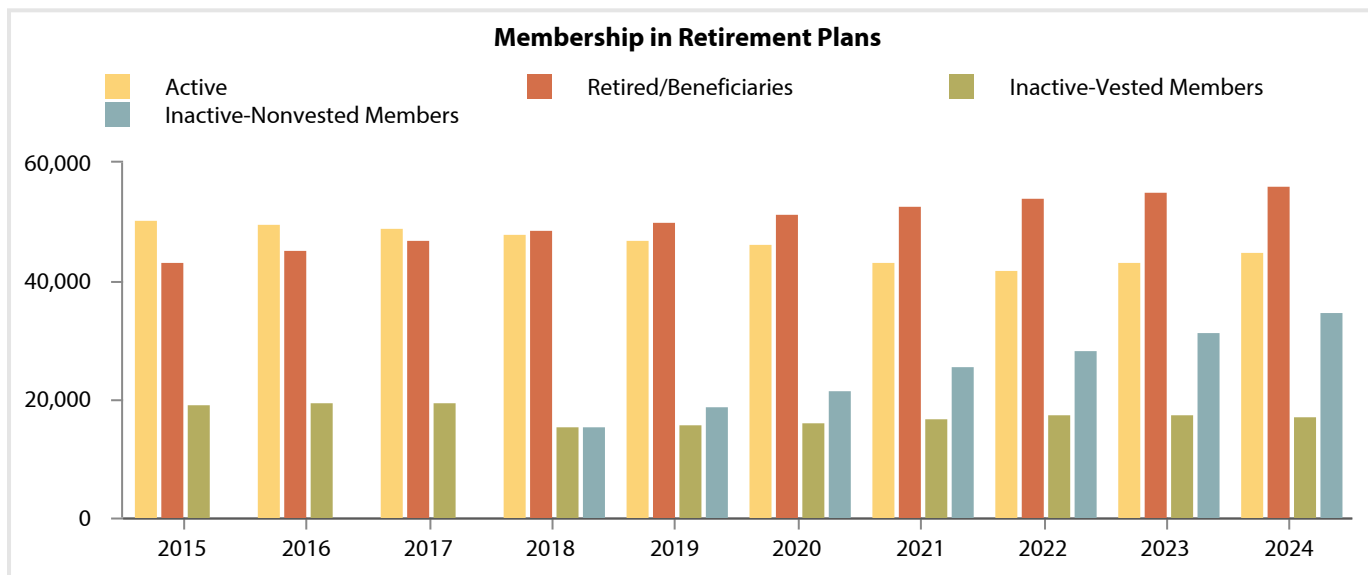
Last Ten Fiscal Years

### MSEP & Judicial Plans Combined

Fiscal Year	Active Members	Retirees and Beneficiaries	Inactive-Vested Members*	Inactive-Nonvested Members**	Totals
2015	50,385	43,503	19,319		113,207
2016	49,872	45,368	19,538		114,778
2017	49,320	47,119	19,603		116,042
2018	48,221	48,776	15,502		128,118
2019	47,278	50,281	16,052	18,852	132,463
2020	46,417	51,447	16,335	21,735	135,934
2021	43,247	52,830	16,986	25,613	138,676
2022	42,010	54,244	17,465	28,444	142,163
2023	43,503	55,328	17,683	31,575	148,089
2024	45,104	56,205	17,371	34,969	153,649

\* Excludes members on leave of absence and long-term disability.

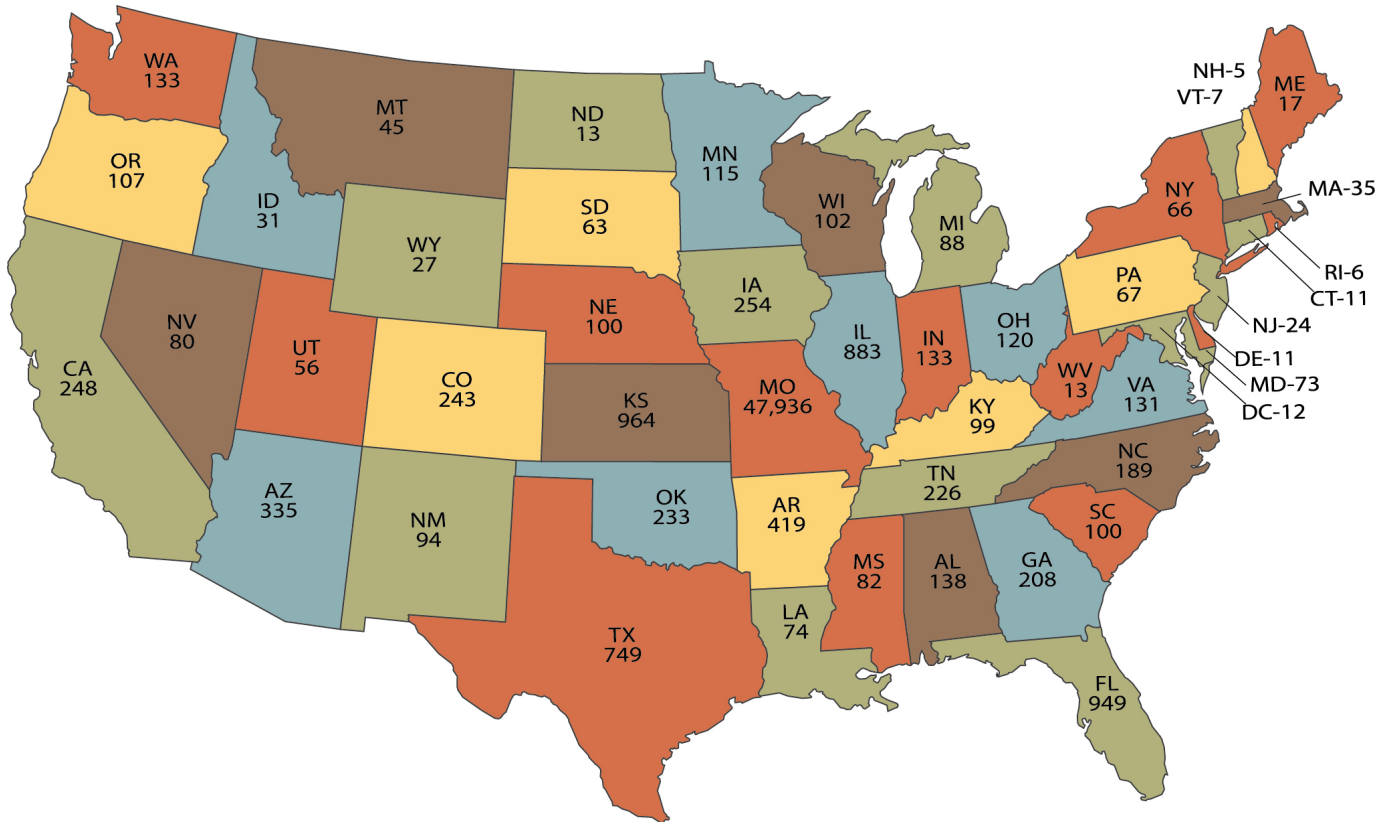
\*\* Inactive-nonvested members of the MSEP 2011 who have not requested a refund of their contributions are now being included in the membership data.



Source: MOSERS' MSEP and Judicial Plan Actuarial Valuation Reports, most recent 10 years

## Distribution of Benefit Recipients by Location

June 30, 2024



### Benefit Recipients Outside the Continental United States

24 Alaska	1 Ecuador	1 Northern Mariana Islands
13 Hawaii	2 Guam	2 Puerto Rico
3 APO	1 Germany	2 Philippines
1 Argentina	1 Hong Kong	1 Spain
2 Australia	1 Israel	1 Sweden
1 Belgium	3 Italy	1 Switzerland
14 Canada	1 Latvia	2 Thailand
1 Costa Rica	1 Mexico	4 United Kingdom
1 Czech Republic	1 Marshall Islands	5 Virgin Islands

Source: MOSERS' Pension Administration System



## Benefit Recipients by Type of Retirement and Option Elected

June 30, 2024

### MSEP

Amount of Monthly Benefit	Number of Benefit Recipients	Type of Retirement			
		Normal Retirement	Early Retirement	Survivor of Active	Survivor of Retired
1-500	13,273	5,892	5,503	587	1,291
501-1000	11,335	6,926	2,592	517	1,300
1001-1500	9,660	7,912	723	276	749
1501-2000	7,247	6,454	205	160	428
2001-2500	5,001	4,599	69	76	257
2501-3000	3,187	2,944	39	44	160
3001-3500	2,018	1,848	12	35	123
3501-4000	1,231	1,138	13	15	65
Over 4000	2,627	2,358	9	39	221
<b>Total</b>	<b>55,579</b>	<b>40,071</b>	<b>9,165</b>	<b>1,749</b>	<b>4,594</b>

Amount of Monthly Benefit	Option Elected							
	1	2	3	4	5	6	7	8
1-500	32	545	564	1,627	0	3,060	58	7,387
501-1000	37	309	256	2,370	1	2,515	22	5,825
1001-1500	31	170	119	2,314	0	2,328	3	4,695
1501-2000	17	115	69	1,779	0	1,584	3	3,680
2001-2500	5	61	33	1,285	0	1,135	1	2,481
2501-3000	11	27	14	858	0	769	0	1,508
3001-3500	3	14	9	544	0	547	0	901
3501-4000	1	12	2	334	0	340	0	542
Over 4000	9	18	8	798	0	902	0	892
<b>Total</b>	<b>146</b>	<b>1,271</b>	<b>1,074</b>	<b>11,909</b>	<b>1</b>	<b>13,180</b>	<b>87</b>	<b>27,911</b>

#### Option Elected

- 1 - Life Income with 60 Guaranteed Payments
- 2 - Life Income with 120 Guaranteed Payments
- 3 - Life Income with 180 Guaranteed Payments
- 4 - Joint & 50% Survivor
- 5 - Joint & 75% Survivor
- 6 - Joint & 100% Survivor
- 7 - Automatic Minor Survivor
- 8 - No Survivor Option (includes pop-ups)

Source: MOSERS' MSEP Plan Actuarial Valuation Report as of June 30, 2024

## Benefit Recipients by Type of Retirement and Option Elected (continued)

June 30, 2024

### Judicial Plan

Amount of Monthly Benefit	Number of Benefit Recipients	Type of Retirement			
		Normal Retirement	Early Retirement	Survivor of Active	Survivor of Retired
1-500	7	0	3	0	4
501-1000	9	0	7	0	2
1001-1500	8	0	5	1	2
1501-2000	10	0	7	1	2
2001-2500	9	0	4	2	3
2501-3000	17	0	6	3	8
3001-3500	34	0	9	12	13
3501-4000	46	0	10	7	29
Over 4000	486	394	33	7	52
<b>Total</b>	<b>626</b>	<b>394</b>	<b>84</b>	<b>33</b>	<b>115</b>

Amount of Monthly Benefit	Option Elected							
	1	2	3	4	5	6	7	8
1-500	0	0	0	7	0	0	0	0
501-1000	0	0	0	9	0	0	0	0
1001-1500	0	0	0	5	0	1	0	2
1501-2000	0	0	0	10	0	0	0	0
2001-2500	0	0	0	9	0	0	0	0
2501-3000	0	0	0	17	0	0	0	0
3001-3500	0	0	0	28	0	1	1	4
3501-4000	0	0	0	46	0	0	0	0
Over 4000	0	0	1	476	0	3	1	5
<b>Total</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>607</b>	<b>0</b>	<b>5</b>	<b>2</b>	<b>11</b>

#### Option Elected

- 1 - Life Income with 60 Guaranteed Payments
- 2 - Life Income with 120 Guaranteed Payments
- 3 - Life Income with 180 Guaranteed Payments
- 4 - Joint & 50% Survivor
- 5 - Joint & 75% Survivor
- 6 - Joint & 100% Survivor
- 7 - Automatic Minor Survivor
- 8 - No Survivor Option (includes pop-ups)

Source: MOSERS' Judicial Plan Actuarial Valuation Report as of June 30, 2024

## Benefits Tabulated by Type of Benefit and by Option

June 30, 2024

### MSEP Combined

Type of Benefit	Number	Annual Benefits	Average Annual Benefits
<b>Service retirement</b>			
Life income annuity	27,890	\$ 455,706,720	\$ 16,339
Joint & 50% survivor	9,762	226,247,508	23,176
Joint & 100% survivor	9,390	187,598,544	19,979
Life income with 60 guaranteed payments	145	2,641,632	18,218
Life income with 120 guaranteed payments	1,171	13,244,604	11,311
Life income with 180 guaranteed payments	878	8,224,128	9,367
Survivor beneficiary	4,594	70,622,436	15,373
<b>Total</b>	<b>53,830</b>	<b>964,285,572</b>	<b>17,914</b>
<b>Death-in-service</b>	<b>1,749</b>	<b>22,240,860</b>	<b>12,716</b>
<b>Grand totals</b>	<b>55,579</b>	<b>\$ 986,526,432</b>	<b>17,750</b>

### Judicial Plan Combined

Type of Benefit	Number	Annual Benefits	Average Annual Benefits
<b>Service retirement</b>			
Life income annuity	7	\$ 453,096	\$ 64,728
Joint & 50% survivor	466	42,316,188	90,807
Joint & 100% survivor	5	234,828	46,966
Survivor beneficiary	115	5,209,608	45,301
<b>Total</b>	<b>593</b>	<b>48,213,720</b>	<b>81,305</b>
<b>Death-in-service</b>	<b>33</b>	<b>1,345,944</b>	<b>40,786</b>
<b>Grand totals</b>	<b>626</b>	<b>\$ 49,559,664</b>	<b>79,169</b>

Source: MOSERS' MSEP and Judicial Plan Actuarial Valuation Reports as of June 30, 2024

## Benefits Tabulated by Type of Benefit and by Option (continued)

June 30, 2024

### MSEP (Closed Plan)

Type of Benefit	Number	Annual Benefits	Average Annual Benefits
<b>Service retirement</b>			
Life income annuity	5,631	\$ 110,277,516	\$ 19,584
Unreduced joint & 50% survivor	4,776	117,138,744	24,527
Joint & 100% survivor	3,056	81,508,188	26,672
Life income with 60 guaranteed payments	134	2,458,836	18,350
Life income with 120 guaranteed payments	170	2,457,528	14,456
Survivor beneficiary	2,755	49,942,092	18,128
<b>Total</b>	<b>16,522</b>	<b>363,782,904</b>	<b>22,018</b>
<b>Death-in-service</b>	<b>1,311</b>	<b>19,365,948</b>	<b>14,772</b>
<b>Grand totals</b>	<b>17,833</b>	<b>\$ 383,148,852</b>	<b>21,485</b>

### MSEP 2000

Type of Benefit	Number	Annual Benefits	Average Annual Benefits
<b>Service retirement</b>			
Life income annuity	21,746	\$ 342,814,092	\$ 15,764
Joint & 50% survivor	4,917	108,755,124	22,118
Joint & 100% survivor	6,144	105,144,456	17,113
Life income with 60 guaranteed payments	11	182,796	16,618
Life income with 120 guaranteed payments	969	10,624,344	10,964
Life income with 180 guaranteed payments	834	8,030,976	9,629
Survivor beneficiary	1,827	20,638,584	11,296
<b>Total</b>	<b>36,448</b>	<b>596,190,372</b>	<b>16,357</b>
<b>Death-in-service</b>	<b>392</b>	<b>2,650,500</b>	<b>6,761</b>
<b>Grand totals</b>	<b>36,840</b>	<b>\$ 598,840,872</b>	<b>16,255</b>

### MSEP 2011

Type of Benefit	Number	Annual Benefits	Average Annual Benefits
<b>Service retirement</b>			
Life income annuity	513	\$ 2,615,112	\$ 5,098
Joint & 50% survivor	69	353,640	5,125
Joint & 100% survivor	190	945,900	4,978
Life income with 120 guaranteed payments	32	162,732	5,085
Life income with 180 guaranteed payments	44	193,152	4,390
Survivor beneficiary	12	41,760	3,480
<b>Total</b>	<b>860</b>	<b>4,312,296</b>	<b>5,014</b>
<b>Death-in-service</b>	<b>46</b>	<b>224,412</b>	<b>4,879</b>
<b>Grand totals</b>	<b>906</b>	<b>\$ 4,536,708</b>	<b>5,007</b>

## Benefits Tabulated by Type of Benefit and by Option (continued)

June 30, 2024

### Judicial Plan

Type of Benefit	Number	Annual Benefits	Average Annual Benefits
<b>Service retirement</b>			
Life income annuity	2	\$ 185,652	\$ 92,826
Joint & 50% survivor	462	42,110,004	91,147
Survivor beneficiary	114	5,139,276	45,081
Total	578	47,434,932	82,067
<b>Death-in-service</b>	29	1,200,624	41,401
<b>Grand totals</b>	607	\$ 48,635,556	80,124

### Judicial Plan 2011

Type of Benefit	Number	Annual Benefits	Average Annual Benefits
<b>Service retirement</b>			
Life income annuity	5	\$ 267,444	\$ 53,489
Joint & 50% survivor	4	206,184	51,546
Joint & 100% survivor	5	234,828	46,966
Survivor beneficiary	1	70,332	70,332
Total	15	778,788	51,919
<b>Death-in-service</b>	4	145,320	36,330
<b>Grand totals</b>	19	\$ 924,108	48,637

Source: MOSERS' MSEP and Judicial Plan Actuarial Valuation Reports as of June 30, 2024

## Average Monthly Benefit Amounts

Last Ten Fiscal Years

### MSEP

Members Retiring During Fiscal Year		Years Credited Service by Category							All Members
		<5	5-10	11-15	16-20	21-25	26-30	31+	
2015	Average monthly benefit	\$ 219	\$ 315	\$ 522	\$ 801	\$ 1,268	\$ 1,723	\$ 2,217	\$ 999
	Average final salary	\$ 5,058	\$ 2,596	\$ 2,624	\$ 2,954	\$ 3,416	\$ 3,729	\$ 4,016	\$ 3,119
	Number of retirees	6	644	519	437	450	487	250	2,793
2016	Average monthly benefit	\$ 151	\$ 307	\$ 506	\$ 819	\$ 1,300	\$ 1,838	\$ 2,360	\$ 1,016
	Average final salary	\$ 3,284	\$ 2,623	\$ 2,600	\$ 3,020	\$ 3,445	\$ 3,968	\$ 4,204	\$ 3,175
	Number of retirees	6	611	502	430	505	423	215	2,692
2017	Average monthly benefit	\$ 309	\$ 339	\$ 562	\$ 946	\$ 1,365	\$ 1,860	\$ 2,391	\$ 1,116
	Average final salary	\$ 4,658	\$ 2,731	\$ 2,849	\$ 3,426	\$ 3,641	\$ 4,030	\$ 4,291	\$ 3,406
	Number of retirees	9	518	508	459	440	477	239	2,650
2018	Average monthly benefit	\$ 402	\$ 338	\$ 584	\$ 922	\$ 1,420	\$ 1,887	\$ 2,511	\$ 1,148
	Average final salary	\$ 5,977	\$ 2,815	\$ 2,899	\$ 3,323	\$ 3,802	\$ 4,096	\$ 4,538	\$ 3,488
	Number of retirees	7	523	475	486	520	515	208	2,734
2019	Average monthly benefit	\$ 198	\$ 369	\$ 609	\$ 886	\$ 1,356	\$ 1,840	\$ 2,321	\$ 1,131
	Average final salary	\$ 5,081	\$ 2,907	\$ 2,900	\$ 3,076	\$ 3,637	\$ 3,978	\$ 4,206	\$ 3,390
	Number of retirees	3	484	388	409	456	428	225	2,393
2020	Average monthly benefit	\$ 270	\$ 321	\$ 602	\$ 901	\$ 1,375	\$ 1,822	\$ 2,391	\$ 1,110
	Average final salary	\$ 5,379	\$ 2,677	\$ 3,012	\$ 3,149	\$ 3,707	\$ 3,967	\$ 4,329	\$ 3,390
	Number of retirees	8	475	378	378	447	441	172	2,299
2021	Average monthly benefit	\$ 526	\$ 353	\$ 624	\$ 966	\$ 1,420	\$ 1,952	\$ 2,554	\$ 1,195
	Average final salary	\$ 5,705	\$ 2,763	\$ 3,054	\$ 3,337	\$ 3,798	\$ 4,257	\$ 4,651	\$ 3,561
	Number of retirees	9	481	456	390	568	464	207	2,575
2022	Average monthly benefit	\$ 330	\$ 332	\$ 630	\$ 987	\$ 1,418	\$ 1,934	\$ 2,556	\$ 1,197
	Average final salary	\$ 5,506	\$ 2,822	\$ 3,123	\$ 3,448	\$ 3,772	\$ 4,201	\$ 4,634	\$ 3,584
	Number of retirees	7	576	414	398	579	532	222	2,728
2023	Average monthly benefit	\$ 415	\$ 321	\$ 602	\$ 983	\$ 1,340	\$ 1,970	\$ 2,545	\$ 1,150
	Average final salary	\$ 7,077	\$ 2,857	\$ 3,157	\$ 3,648	\$ 3,773	\$ 4,481	\$ 4,838	\$ 3,679
	Number of retirees	9	527	395	357	485	447	187	2,407
2024	Average monthly benefit	\$ 330	\$ 318	\$ 599	\$ 973	\$ 1,470	\$ 1,999	\$ 2,550	\$ 1,164
	Average final salary	\$ 5,898	\$ 2,875	\$ 3,201	\$ 3,615	\$ 4,100	\$ 4,551	\$ 4,883	\$ 3,748
	Number of retirees	9	514	352	314	389	424	165	2,167
Ten Years Ended June 30, 2024									
	Average monthly benefit	\$ 333	\$ 330	\$ 580	\$ 915	\$ 1,374	\$ 1,882	\$ 2,431	\$ 1,121
	Average final average salary	\$ 5,462	\$ 2,761	\$ 2,921	\$ 3,286	\$ 3,707	\$ 4,123	\$ 4,435	\$ 3,446
	Number of retirees	73	5,353	4,387	4,058	4,839	4,638	2,090	25,438

Note: COLA increases and temporary benefits payable under MSEP 2000 until age 62 are excluded from the above for comparison purposes.

Source: FY23 and later from MOSERS' MSEP Actuarial Valuation Report; prior to FY23 from MOSERS' Pension Administration System

## Average Monthly Benefit Amounts (continued)

Last Ten Fiscal Years

### General Employees in the MSEP\*

Members Retiring During Fiscal Year		Years Credited Service by Category							All Members
		<5	5-10	11-15	16-20	21-25	26-30	31+	
2015	Average monthly benefit	\$ 219	\$ 301	\$ 517	\$ 786	\$ 1,268	\$ 1,723	\$ 2,208	\$ 994
	Average final salary	\$ 5,058	\$ 2,581	\$ 2,623	\$ 2,947	\$ 3,416	\$ 3,729	\$ 4,007	\$ 3,116
	Number of retirees	6	633	517	433	450	487	249	2,775
2016	Average monthly benefit	\$ 151	\$ 297	\$ 506	\$ 819	\$ 1,285	\$ 1,838	\$ 2,343	\$ 1,011
	Average final salary	\$ 3,284	\$ 2,617	\$ 2,600	\$ 3,020	\$ 3,420	\$ 3,968	\$ 4,184	\$ 3,168
	Number of retirees	6	603	502	430	502	423	213	2,679
2017	Average monthly benefit	\$ 230	\$ 313	\$ 551	\$ 934	\$ 1,355	\$ 1,853	\$ 2,379	\$ 1,109
	Average final salary	\$ 5,026	\$ 2,710	\$ 2,839	\$ 3,414	\$ 3,624	\$ 4,016	\$ 4,265	\$ 3,395
	Number of retirees	6	500	504	456	439	476	238	2,619
2018	Average monthly benefit	\$ 220	\$ 329	\$ 577	\$ 921	\$ 1,397	\$ 1,887	\$ 2,511	\$ 1,142
	Average final salary	\$ 5,477	\$ 2,813	\$ 2,889	\$ 3,321	\$ 3,762	\$ 4,096	\$ 4,538	\$ 3,477
	Number of retirees	6	517	474	485	517	515	208	2,722
2019	Average monthly benefit	\$ 198	\$ 340	\$ 594	\$ 868	\$ 1,345	\$ 1,840	\$ 2,321	\$ 1,126
	Average final salary	\$ 5,081	\$ 2,903	\$ 2,885	\$ 3,077	\$ 3,624	\$ 3,978	\$ 4,206	\$ 3,390
	Number of retirees	3	463	384	403	454	428	225	2,360
2020	Average monthly benefit	\$ 237	\$ 307	\$ 597	\$ 901	\$ 1,360	\$ 1,814	\$ 2,391	\$ 1,105
	Average final salary	\$ 5,720	\$ 2,658	\$ 3,012	\$ 3,149	\$ 3,682	\$ 3,952	\$ 4,329	\$ 3,381
	Number of retirees	7	468	376	378	445	440	172	2,286
2021	Average monthly benefit	\$ 467	\$ 319	\$ 616	\$ 958	\$ 1,413	\$ 1,946	\$ 2,542	\$ 1,191
	Average final salary	\$ 5,797	\$ 2,747	\$ 3,055	\$ 3,340	\$ 3,787	\$ 4,245	\$ 4,636	\$ 3,560
	Number of retirees	8	457	452	387	567	463	206	2,540
2022	Average monthly benefit	\$ 300	\$ 326	\$ 627	\$ 987	\$ 1,418	\$ 1,928	\$ 2,556	\$ 1,196
	Average final salary	\$ 5,912	\$ 2,820	\$ 3,123	\$ 3,448	\$ 3,772	\$ 4,189	\$ 4,634	\$ 3,583
	Number of retirees	6	571	413	398	579	531	222	2,720
2023	Average monthly benefit	\$ 313	\$ 302	\$ 575	\$ 976	\$ 1,340	\$ 1,970	\$ 2,545	\$ 1,148
	Average final salary	\$ 7,534	\$ 2,840	\$ 3,146	\$ 3,651	\$ 3,773	\$ 4,481	\$ 4,838	\$ 3,679
	Number of retirees	7	514	386	355	485	447	187	2,381
2024	Average monthly benefit	\$ 344	\$ 302	\$ 586	\$ 964	\$ 1,466	\$ 1,999	\$ 2,531	\$ 1,159
	Average final salary	\$ 6,536	\$ 2,854	\$ 3,189	\$ 3,601	\$ 4,096	\$ 4,551	\$ 4,845	\$ 3,740
	Number of retirees	7	506	349	313	388	424	164	2,151
Ten Years Ended June 30, 2024									
	Average monthly benefit	\$ 279	\$ 313	\$ 571	\$ 908	\$ 1,365	\$ 1,879	\$ 2,425	\$ 1,116
	Average final average salary	\$ 5,624	\$ 2,748	\$ 2,915	\$ 3,284	\$ 3,693	\$ 4,117	\$ 4,425	\$ 3,440
	Number of retirees	62	5,232	4,357	4,038	4,826	4,634	2,084	25,233

\* Excludes legislators, elected officials, water patrol, and administrative law judges.

Note: COLA increases and temporary benefits payable under MSEP 2000 until age 62 are excluded from the above for comparison purposes.

Source: FY23 and later from MOSERS' MSEP Actuarial Valuation Report; prior to FY23 from MOSERS' Pension Administration System

## Average Monthly Benefit Amounts (continued)

Last Ten Fiscal Years

### Legislators in the MSEP

Members Retiring During Fiscal Year		Years Credited Service by Category							All Members
		<5	5-10	11-15	16-20	21-25	26-30	31+	
2015	Average monthly benefit	\$ 0	\$ 977	\$ 1,735	\$ 2,162	\$ 0	\$ 0	\$ 0	\$ 1,315
	Average final salary	\$ 0	\$ 2,993	\$ 2,993	\$ 2,993	\$ 0	\$ 0	\$ 0	\$ 2,993
	Number of retirees	0	10	2	3	0	0	0	15
2016	Average monthly benefit	\$ 0	\$ 1,048	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 1,048
	Average final salary	\$ 0	\$ 2,993	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 2,993
	Number of retirees	0	7	0	0	0	0	0	7
2017	Average monthly benefit	\$ 499	\$ 954	\$ 1,580	\$ 1,995	\$ 0	\$ 0	\$ 0	\$ 1,041
	Average final salary	\$ 2,993	\$ 2,993	\$ 2,993	\$ 2,993	\$ 0	\$ 0	\$ 0	\$ 2,993
	Number of retirees	2	17	3	1	0	0	0	23
2018	Average monthly benefit	\$ 0	\$ 1,122	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 1,122
	Average final salary	\$ 0	\$ 2,993	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 2,993
	Number of retirees	0	6	0	0	0	0	0	6
2019	Average monthly benefit	\$ 0	\$ 1,017	\$ 1,496	\$ 2,117	\$ 2,744	\$ 0	\$ 0	\$ 1,327
	Average final salary	\$ 0	\$ 2,993	\$ 2,993	\$ 2,993	\$ 2,993	\$ 0	\$ 0	\$ 2,993
	Number of retirees	0	21	2	6	1	0	0	30
2020	Average monthly benefit	\$ 499	\$ 956	\$ 1,621	\$ 0	\$ 0	\$ 0	\$ 0	\$ 1,053
	Average final salary	\$ 2,993	\$ 2,993	\$ 2,993	\$ 0	\$ 0	\$ 0	\$ 0	\$ 2,993
	Number of retirees	1	6	2	0	0	0	0	9
2021	Average monthly benefit	\$ 0	\$ 984	\$ 1,507	\$ 1,995	\$ 0	\$ 0	\$ 0	\$ 1,155
	Average final salary	\$ 0	\$ 2,993	\$ 2,993	\$ 2,993	\$ 0	\$ 0	\$ 0	\$ 2,993
	Number of retirees	0	23	4	3	0	0	0	30
2022	Average monthly benefit	\$ 511	\$ 964	\$ 1,864	\$ 0	\$ 0	\$ 0	\$ 0	\$ 1,028
	Average final salary	\$ 3,068	\$ 3,068	\$ 3,068	\$ 0	\$ 0	\$ 0	\$ 0	\$ 3,068
	Number of retirees	1	5	1	0	0	0	0	7
2023	Average monthly benefit	\$ 511	\$ 900	\$ 1,487	\$ 2,314	\$ 0	\$ 0	\$ 0	\$ 1,224
	Average final salary	\$ 3,142	\$ 3,142	\$ 3,142	\$ 3,142	\$ 0	\$ 0	\$ 0	\$ 3,142
	Number of retirees	1	11	8	2	0	0	0	22
2024	Average monthly benefit	\$ 447	\$ 960	\$ 1,565	\$ 0	\$ 0	\$ 0	\$ 0	\$ 1,047
	Average final salary	\$ 3,272	\$ 3,272	\$ 3,272	\$ 0	\$ 0	\$ 0	\$ 0	\$ 3,272
	Number of retirees	1	5	2	0	0	0	0	8
Ten Years Ended June 30, 2024									
	Average monthly benefit	\$ 494	\$ 985	\$ 1,557	\$ 2,120	\$ 2,744	\$ 0	\$ 0	\$ 1,173
	Average final average salary	\$ 3,077	\$ 3,024	\$ 3,069	\$ 3,013	\$ 2,993	\$ 0	\$ 0	\$ 3,031
	Number of retirees	6	111	24	15	1	0	0	157

Note: COLA increases are excluded from the above for comparison purposes.

Source: FY23 and later from MOSERS' MSEP Actuarial Valuation Report; prior to FY23 from MOSERS' Pension Administration System



## Average Monthly Benefit Amounts (continued)

Last Ten Fiscal Years

### Elected Officials in the MSEP

Members Retiring During Fiscal Year		Years Credited Service by Category							All Members
		<5	5-10	11-15	16-20	21-25	26-30	31+	
2015	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Number of retirees	0	0	0	0	0	0	0	0
2016	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Number of retirees	0	0	0	0	0	0	0	0
2017	Average monthly benefit	\$ 0	\$ 2,993	\$ 3,099	\$ 0	\$ 5,576	\$ 0	\$ 0	\$ 3,889
	Average final salary	\$ 0	\$ 8,979	\$ 7,207	\$ 0	\$ 11,152	\$ 0	\$ 0	\$ 9,113
	Number of retirees	0	1	1	0	1	0	0	3
2018	Average monthly benefit	\$ 1,496	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 1,496
	Average final salary	\$ 8,979	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 8,979
	Number of retirees	1	0	0	0	0	0	0	1
2019	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Number of retirees	0	0	0	0	0	0	0	0
2020	Average monthly benefit	\$ 0	\$ 3,234	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 3,234
	Average final salary	\$ 0	\$ 9,703	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 9,703
	Number of retirees	0	1	0	0	0	0	0	1
2021	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Number of retirees	0	0	0	0	0	0	0	0
2022	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Number of retirees	0	0	0	0	0	0	0	0
2023	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Number of retirees	0	0	0	0	0	0	0	0
2024	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Number of retirees	0	0	0	0	0	0	0	0
Ten Years Ended June 30, 2024									
Average monthly benefit		\$ 1,496	\$ 3,114	\$ 3,099	\$ 0	\$ 5,576	\$ 0	\$ 0	\$ 3,279
Average final average salary		\$ 8,979	\$ 9,341	\$ 7,207	\$ 0	\$ 11,152	\$ 0	\$ 0	\$ 9,204
Number of retirees		1	2	1	0	1	0	0	5

Note: COLA increases are excluded from the above for comparison purposes.

Source: FY23 and later from MOSERS' MSEP Actuarial Valuation Report; prior to FY23 from MOSERS' Pension Administration System

## Average Monthly Benefit Amounts (continued)

Last Ten Fiscal Years

### Uniformed Water Patrol in the MSEP

Members Retiring During Fiscal Year		Years Credited Service by Category							All Members
		<5	5-10	11-15	16-20	21-25	26-30	31+	
2015	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 4,539	\$ 4,539
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 6,321	\$ 6,321
	Number of retirees	0	0	0	0	0	0	1	1
2016	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 4,221	\$ 4,221
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 6,375	\$ 6,375
	Number of retirees	0	0	0	0	0	0	2	2
2017	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 1,079	\$ 0	\$ 0	\$ 0	\$ 1,079
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 2,846	\$ 0	\$ 0	\$ 0	\$ 2,846
	Number of retirees	0	0	0	1	0	0	0	1
2018	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 1,492	\$ 0	\$ 0	\$ 0	\$ 1,492
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 4,347	\$ 0	\$ 0	\$ 0	\$ 4,347
	Number of retirees	0	0	0	1	0	0	0	1
2019	Average monthly benefit	\$ 0	\$ 0	\$ 671	\$ 0	\$ 0	\$ 0	\$ 0	\$ 671
	Average final salary	\$ 0	\$ 0	\$ 2,659	\$ 0	\$ 0	\$ 0	\$ 0	\$ 2,659
	Number of retirees	0	0	1	0	0	0	0	1
2020	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Number of retirees	0	0	0	0	0	0	0	0
2021	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 5,026	\$ 5,026
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 7,809	\$ 7,809
	Number of retirees	0	0	0	0	0	0	1	1
2022	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Number of retirees	0	0	0	0	0	0	0	0
2023	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Number of retirees	0	0	0	0	0	0	0	0
2024	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 0	\$ 2,927	\$ 0	\$ 0	\$ 2,927
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 0	\$ 5,716	\$ 0	\$ 0	\$ 5,716
	Number of retirees	0	0	0	0	1	0	0	1
Ten Years Ended June 30, 2024									
	Average monthly benefit	\$ 0	\$ 0	\$ 671	\$ 1,286	\$ 2,927	\$ 0	\$ 4,502	\$ 3,022
	Average final average salary	\$ 0	\$ 0	\$ 2,659	\$ 7,193	\$ 5,716	\$ 0	\$ 26,880	\$ 37,447
	Number of retirees	0	0	1	2	1	0	4	8

Note: COLA increases and temporary benefits payable under MSEP 2000 until age 62 are excluded from the above for comparison purposes.

Source: FY23 and later from MOSERS' MSEP Actuarial Valuation Report; prior to FY23 from MOSERS' Pension Administration System

## Average Monthly Benefit Amounts (continued)

Last Ten Fiscal Years

### Administrative Law Judges and Legal Advisors in the MSEP

Members Retiring During Fiscal Year		Years Credited Service by Category							All Members
		<5	5-10	11-15	16-20	21-25	26-30	31+	
2015	Average monthly benefit	\$ 0	\$ 2,259	\$ 0	\$ 3,012	\$ 0	\$ 0	\$ 0	\$ 2,636
	Average final salary	\$ 0	\$ 7,936	\$ 0	\$ 6,023	\$ 0	\$ 0	\$ 0	\$ 6,980
	Number of retirees	0	1	0	1	0	0	0	2
2016	Average monthly benefit	\$ 0	\$ 853	\$ 0	\$ 0	\$ 3,811	\$ 0	\$ 0	\$ 3,072
	Average final salary	\$ 0	\$ 3,508	\$ 0	\$ 0	\$ 7,623	\$ 0	\$ 0	\$ 6,594
	Number of retirees	0	1	0	0	3	0	0	4
2017	Average monthly benefit	\$ 401	\$ 0	\$ 0	\$ 5,065	\$ 0	\$ 5,298	\$ 5,273	\$ 4,009
	Average final salary	\$ 5,777	\$ 0	\$ 0	\$ 10,129	\$ 0	\$ 10,596	\$ 10,546	\$ 9,262
	Number of retirees	1	0	0	1	0	1	1	4
2018	Average monthly benefit	\$ 0	\$ 0	\$ 3,860	\$ 0	\$ 5,313	\$ 0	\$ 0	\$ 4,950
	Average final salary	\$ 0	\$ 0	\$ 7,720	\$ 0	\$ 10,625	\$ 0	\$ 0	\$ 9,899
	Number of retirees	0	0	1	0	3	0	0	4
2019	Average monthly benefit	\$ 0	\$ 0	\$ 4,353	\$ 0	\$ 5,115	\$ 0	\$ 0	\$ 4,734
	Average final salary	\$ 0	\$ 0	\$ 8,707	\$ 0	\$ 10,230	\$ 0	\$ 0	\$ 9,469
	Number of retirees	0	0	1	0	1	0	0	2
2020	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 0	\$ 4,630	\$ 5,323	\$ 0	\$ 4,861
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 0	\$ 9,260	\$ 10,647	\$ 0	\$ 9,722
	Number of retirees	0	0	0	0	2	1	0	3
2021	Average monthly benefit	\$ 1,001	\$ 1,559	\$ 0	\$ 0	\$ 5,115	\$ 4,926	\$ 0	\$ 3,150
	Average final salary	\$ 4,969	\$ 4,828	\$ 0	\$ 0	\$ 10,230	\$ 9,851	\$ 0	\$ 7,470
	Number of retirees	1	1	0	0	1	1	0	4
2022	Average monthly benefit	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 5,323	\$ 0	\$ 5,323
	Average final salary	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 10,647	\$ 0	\$ 10,647
	Number of retirees	0	0	0	0	0	1	0	1
2023	Average monthly benefit	\$ 1,030	\$ 1,913	\$ 3,750	\$ 0	\$ 0	\$ 0	\$ 0	\$ 2,152
	Average final salary	\$ 7,808	\$ 5,708	\$ 7,500	\$ 0	\$ 0	\$ 0	\$ 0	\$ 6,681
	Number of retirees	1	2	1	0	0	0	0	4
2024	Average monthly benefit	\$ 113	\$ 1,995	\$ 3,075	\$ 3,878	\$ 0	\$ 0	\$ 5,553	\$ 2,658
	Average final salary	\$ 4,058	\$ 5,784	\$ 7,200	\$ 7,756	\$ 0	\$ 0	\$ 11,105	\$ 6,782
	Number of retirees	1	3	1	1	0	0	1	7
Ten Years Ended June 30, 2024									
Average monthly benefit		\$ 636	\$ 1,810	\$ 3,760	\$ 3,985	\$ 4,686	\$ 5,218	\$ 5,413	\$ 3,502
Average final average salary		\$ 5,653	\$ 5,630	\$ 7,782	\$ 7,969	\$ 9,372	\$ 10,435	\$ 10,826	\$ 7,995
Number of retirees		4	8	4	3	10	4	2	35

Note: COLA increases are excluded from the above for comparison purposes.

Source: FY23 and later from MOSERS' MSEP Actuarial Valuation Report; prior to FY23 from MOSERS' Pension Administration System

## Average Monthly Benefit Amounts (continued)

Last Ten Fiscal Years

### Judicial Plan

Members Retiring During Fiscal Year		Years Credited Service by Category							All Members
		<5	5-10	11-15	16-20	21-25	26-30	31+	
2015	Average monthly benefit	\$ 1,114	\$ 3,140	\$ 5,572	\$ 5,572	\$ 5,970	\$ 5,572	\$ 5,848	\$ 5,392
	Average final salary	\$ 11,143	\$ 9,419	\$ 11,143	\$ 11,143	\$ 11,940	\$ 11,143	\$ 11,697	\$ 11,253
	Number of retirees	1	3	7	10	7	4	7	39
2016	Average monthly benefit	\$ 0	\$ 4,193	\$ 5,575	\$ 5,452	\$ 6,166	\$ 5,844	\$ 0	\$ 5,545
	Average final salary	\$ 0	\$ 11,688	\$ 11,503	\$ 10,903	\$ 12,332	\$ 11,688	\$ 0	\$ 11,569
	Number of retirees	0	2	3	5	4	2	0	16
2017	Average monthly benefit	\$ 602	\$ 4,487	\$ 5,506	\$ 6,054	\$ 5,878	\$ 6,178	\$ 5,931	\$ 5,293
	Average final salary	\$ 8,136	\$ 11,696	\$ 11,367	\$ 12,108	\$ 11,756	\$ 12,355	\$ 11,861	\$ 11,574
	Number of retirees	2	3	2	4	6	4	2	23
2018	Average monthly benefit	\$ 0	\$ 4,549	\$ 5,525	\$ 6,114	\$ 5,989	\$ 6,238	\$ 6,365	\$ 5,955
	Average final salary	\$ 0	\$ 12,477	\$ 11,947	\$ 12,227	\$ 11,978	\$ 12,477	\$ 12,730	\$ 12,259
	Number of retirees	0	1	4	4	4	4	3	20
2019	Average monthly benefit	\$ 603	\$ 0	\$ 5,658	\$ 6,025	\$ 6,037	\$ 6,074	\$ 6,074	\$ 5,653
	Average final salary	\$ 9,520	\$ 0	\$ 11,371	\$ 12,051	\$ 12,075	\$ 12,147	\$ 12,147	\$ 11,758
	Number of retirees	2	0	10	13	7	2	4	38
2020	Average monthly benefit	\$ 0	\$ 3,163	\$ 5,389	\$ 6,415	\$ 6,237	\$ 6,256	\$ 6,415	\$ 5,875
	Average final salary	\$ 0	\$ 12,653	\$ 10,927	\$ 12,830	\$ 12,501	\$ 12,511	\$ 12,830	\$ 12,132
	Number of retirees	0	1	5	1	7	4	1	19
2021	Average monthly benefit	\$ 633	\$ 4,525	\$ 5,961	\$ 6,229	\$ 6,319	\$ 7,049	\$ 6,672	\$ 6,017
	Average final salary	\$ 12,653	\$ 13,164	\$ 11,923	\$ 12,457	\$ 12,638	\$ 14,099	\$ 13,345	\$ 12,738
	Number of retirees	1	1	5	7	2	3	3	22
2022	Average monthly benefit	\$ 0	\$ 2,710	\$ 6,218	\$ 6,469	\$ 6,729	\$ 6,606	\$ 6,616	\$ 6,173
	Average final salary	\$ 0	\$ 9,374	\$ 12,736	\$ 12,937	\$ 13,459	\$ 13,211	\$ 13,233	\$ 12,779
	Number of retirees	0	2	4	3	5	3	4	21
2023	Average monthly benefit	\$ 0	\$ 0	\$ 6,162	\$ 6,498	\$ 6,360	\$ 6,614	\$ 6,388	\$ 6,443
	Average final salary	\$ 0	\$ 0	\$ 12,652	\$ 12,996	\$ 12,720	\$ 13,045	\$ 12,775	\$ 12,893
	Number of retirees	0	0	7	12	5	11	3	38
2024	Average monthly benefit	\$ 0	\$ 3,429	\$ 6,651	\$ 6,935	\$ 6,280	\$ 7,098	\$ 7,348	\$ 6,316
	Average final salary	\$ 0	\$ 12,195	\$ 14,009	\$ 13,870	\$ 12,558	\$ 14,196	\$ 14,696	\$ 13,682
	Number of retirees	0	4	4	2	3	5	5	23
Ten Years Ended June 30, 2024									
	Average monthly benefit	\$ 693	\$ 3,685	\$ 5,819	\$ 6,086	\$ 6,170	\$ 6,429	\$ 6,406	\$ 5,863
	Average final average salary	\$ 9,851	\$ 11,326	\$ 11,893	\$ 12,172	\$ 12,345	\$ 12,810	\$ 12,812	\$ 12,223
	Number of retirees	6	17	51	61	50	42	32	259

Note: COLA increases are excluded from the above for comparison purposes.

Source: FY23 and later from MOSERS' Judicial Plan Actuarial Valuation Reports; prior to FY23 from MOSERS' Pension Administration System

## Retirees and Beneficiaries Tabulated by Fiscal Year of Retirement

As of June 30, 2024

### MSEP

Fiscal Year of Retirement	Number	Total Annual Benefit	Average Monthly Benefit
1984 and prior	27	\$ 196,707	\$ 607
1985	18	150,254	696
1986	22	193,141	732
1987	32	385,095	1,003
1988	35	633,878	1,509
1989	55	1,110,766	1,683
1990	51	862,197	1,409
1991	82	1,763,569	1,792
1992	121	2,416,717	1,664
1993	162	3,589,168	1,846
1994	180	3,810,715	1,764
1995	272	5,781,722	1,771
1996	325	7,450,828	1,910
1997	361	8,227,931	1,899
1998	454	11,129,766	2,043
1999	575	13,705,952	1,986
2000	644	15,087,199	1,952
2001	1,477	33,926,403	1,914
2002	1,047	21,008,811	1,672
2003	1,194	24,873,843	1,736
2004	1,675	32,957,133	1,640
2005	1,178	21,314,560	1,508
2006	1,370	23,236,016	1,413
2007	1,652	29,096,054	1,468
2008	1,698	28,683,581	1,408
2009	1,786	30,859,881	1,440
2010	1,895	31,239,689	1,374
2011	2,446	42,059,898	1,433
2012	2,292	36,458,834	1,326
2013	2,424	36,977,329	1,271
2014	2,427	37,871,465	1,300
2015	2,750	43,881,036	1,330
2016	2,761	44,770,562	1,351
2017	2,718	48,455,722	1,486
2018	2,867	50,744,044	1,475
2019	2,619	46,537,720	1,481
2020	2,598	44,191,634	1,417
2021	2,971	53,428,348	1,499
2022	3,199	57,213,128	1,490
2023	2,749	49,819,824	1,510
2024	2,370	40,425,312	1,421
	55,579	\$ 986,526,432	\$ 1,479

Source: MOSERS' MSEP Actuarial Valuation Report as of June 30, 2024

## Retirees and Beneficiaries Tabulated by Fiscal Year of Retirement (continued)

As of June 30, 2024

### Judicial Plan

Fiscal Year of Retirement	Number	Total Annual Benefit	Average Monthly Benefit
1984 and prior	3	\$ 62,796	\$ 1,744
1985	0	0	0
1986	0	0	0
1987	4	211,939	4,415
1988	0	0	0
1989	1	33,552	2,796
1990	2	74,674	3,111
1991	5	250,024	4,167
1992	1	96,905	8,075
1993	1	8,952	746
1994	2	104,328	4,347
1995	5	371,112	6,185
1996	3	186,252	5,174
1997	3	171,324	4,759
1998	6	416,580	5,786
1999	7	464,748	5,533
2000	5	422,736	7,046
2001	13	1,308,804	8,390
2002	11	1,067,167	8,085
2003	11	941,328	7,131
2004	11	904,440	6,852
2005	11	1,145,028	8,674
2006	10	440,898	3,674
2007	37	3,075,852	6,928
2008	20	1,666,801	6,945
2009	27	1,849,061	5,707
2010	10	807,480	6,729
2011	28	2,128,479	6,335
2012	14	847,556	5,045
2013	26	2,104,704	6,746
2014	20	1,407,702	5,865
2015	46	4,115,112	7,455
2016	19	1,553,679	6,814
2017	27	2,124,898	6,558
2018	30	2,680,768	7,447
2019	43	3,607,732	6,992
2020	25	1,998,900	6,663
2021	30	2,247,421	6,243
2022	33	2,472,350	6,243
2023	47	3,851,498	6,829
2024	29	2,336,084	6,713
	626	\$ 49,559,664	\$ 6,597

Source: MOSERS' Judicial Plan Actuarial Valuation Report as of June 30, 2024

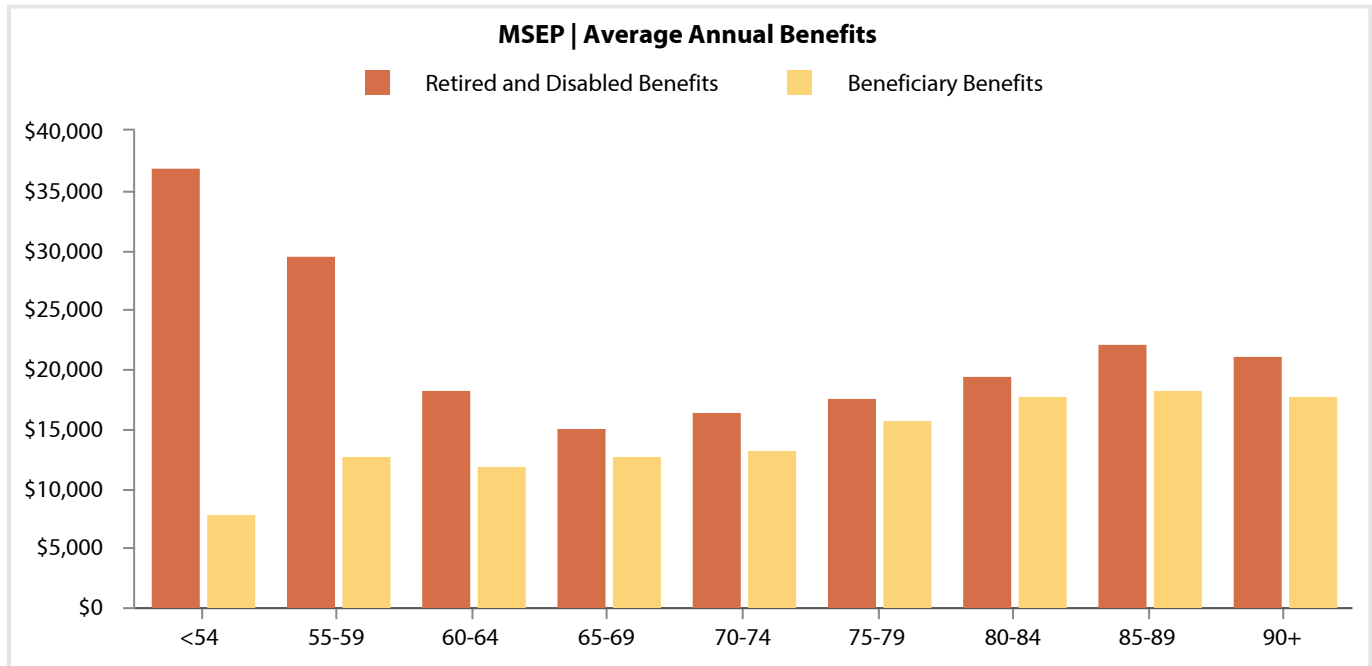
## Benefits Tabulated by Attained Ages of Benefit Recipients

As of June 30, 2024

### MSEP

Attained Ages	Retired and Disabled		Beneficiaries		Totals	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
<54	471	\$ 17,443,176	533	\$ 4,205,364	1,004	\$ 21,648,540
55-59	2,564	75,887,352	296	3,770,268	2,860	79,657,620
60-64	7,317	134,614,980	512	6,101,760	7,829	140,716,740
65-69	11,467	174,294,648	762	9,754,368	12,229	184,049,016
70-74	11,603	191,425,608	1,023	13,605,012	12,626	205,030,620
75-79	8,552	151,448,244	1,090	17,129,400	9,642	168,577,644
80-84	4,300	83,746,548	921	16,430,652	5,221	100,177,200
85-89	2,008	44,596,368	693	12,751,608	2,701	57,347,976
90+	954	20,206,212	513	9,114,864	1,467	29,321,076
<b>Totals</b>	<b>49,236</b>	<b>\$ 893,663,136</b>	<b>6,343</b>	<b>\$ 92,863,296</b>	<b>55,579</b>	<b>\$ 986,526,432</b>

Average age at retirement: 61.3 years • Average age now: 71.9 years



Average annual benefit: \$18,151 retired and disabled • \$14,640 beneficiaries

Source: MOSERS' MSEP Actuarial Valuation Report as of June 30, 2024

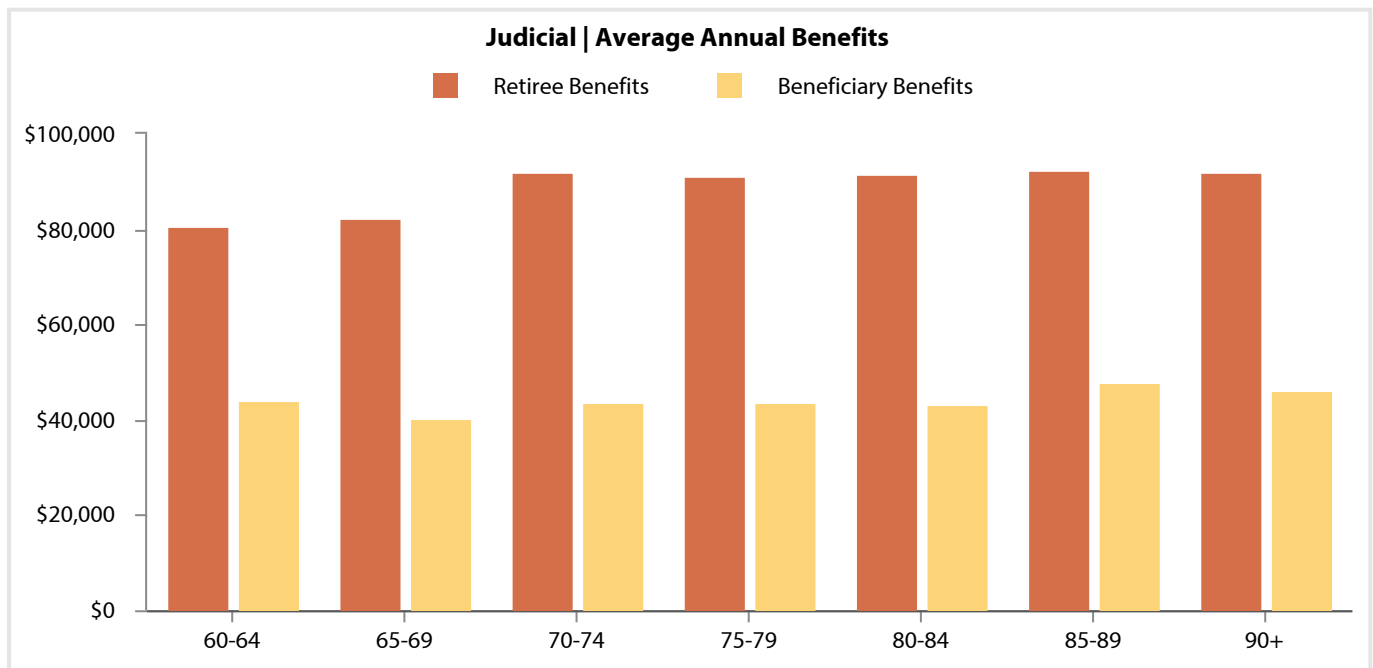
## Benefits Tabulated by Attained Ages of Benefit Recipients (continued)

As of June 30, 2024

### Judicial Plan

Attained Ages	Retirees		Beneficiaries		Totals	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
60-64	29	\$ 2,336,784	6	\$ 265,164	35	\$ 2,601,948
65-69	55	4,525,092	19	769,668	74	5,294,760
70-74	144	13,279,836	17	741,732	161	14,021,568
75-79	137	12,482,748	29	1,270,824	166	13,753,572
80-84	62	5,671,068	29	1,253,412	91	6,924,480
85-89	30	2,773,116	22	1,054,512	52	3,827,628
90+	21	1,935,468	26	1,200,240	47	3,135,708
<b>Totals</b>	<b>478</b>	<b>\$ 43,004,112</b>	<b>148</b>	<b>\$ 6,555,552</b>	<b>626</b>	<b>\$ 49,559,664</b>

Average age at retirement: 67.7 years • Average age now: 76.8 years



Average annual benefit: \$89,967 retirees • \$44,294 beneficiaries

Source: MOSERS' Judicial Plan Actuarial Valuation Report as of June 30, 2024



## Principal Participating Employers

Current Year and Nine Years Ago

Participating Employer	2024			2015		
	Covered Employees	Rank	Percent of Membership	Covered Employees	Rank	Percent of Membership
State of Missouri	39,424	1	87.2%	43,610	1	86.6%
Missouri State University	1,777	2	3.9	1,877	2	3.7
University of Central Missouri	864	3	1.9	1,094	3	2.2
Southeast Missouri State University	702	4	1.6	935	4	1.9
Northwest Missouri State University	577	5	1.3	567	6	1.1
Truman State University	458	6	1.0	625	5	1.2
Missouri Southern State University	328	7	0.7	427	7	0.8
Lincoln University	293	8	0.6	381	9	0.8
Missouri Western State University	292	9	0.6	399	8	0.8
State Technical College of Missouri	219	10	0.5	169	10	0.3
All others	317		0.7	301		0.6
<b>Total</b>	<b>45,251</b>		<b>100.0%</b>	<b>50,385</b>		<b>100.0%</b>

Source: MOSERS' Pension Administration System



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