COMPREHENSIVE ANNUAL FINANCIAL REPORT

For the Fiscal Year Ended June 30, 2016

2016

Missouri Department of Transportation and
Highway Patrol Employees' Retirement System
A Component Unit of the State of Missouri

MPERS
Serving those who keep us safe.

Scott Simon, Executive Director
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MoDOT and Patrol Employees' Retirement System

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“The secret to getting ahead is getting started.”

-Mark Twain

Great American author and lecturer

Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

presented to

Missouri Department of Transportation and Highway Patrol Employees' Retirement System

For its Comprehensive Annual Financial Report for the Fiscal Year Ended

June 30, 2015

Executive Director/CEO

Public Pension Coordinating Council

Public Pension Standards Award for Funding and Administration 2016

presented to

MoDOT and Patrol Employees' Retirement System

In Recognition of meeting professional standards for plan funding and administration as set forth in the Public Pension Standards.

Presented by the Public Pension Coordinating Council, a confederation of

National Association of State Retirement Administrators (NASRA)
National Conference on public Employee Retiremnt Systems (NCPERS)
National Council on Teacher Retirement (NCTR)

Alan H. Winkle

Alan H. Winkle
Program Administrator

Serving those who keep us safe.

MoDOT & Patrol Employees' Retirement System

October 21, 2016

To the Board of Trustees and System Members:

We are pleased to provide this Comprehensive Annual Financial Report (CAFR), of the Missouri Department of Transportation and Highway Patrol Employees' Retirement System (MPERS), for the fiscal year ended June 30, 2016. This report is intended to provide MPERS' stakeholders with a thorough review of the System's operations for the past fiscal year. The material presented in this report has been prepared in a manner intended to be useful and informative to MPERS' members, the management of the Missouri Department of Transportation (MoDOT), the Missouri State Highway Patrol (MSHP), and the elected officials of the state of Missouri.

MPERS is a defined benefit pension plan providing lifetime retirement benefits to eligible MoDOT and MSHP employees. The monthly retirement and survivor benefits provided by MPERS are a valuable source of retirement income for the members we serve. These benefits, when combined with social security and personal savings, provide the basic foundation for our members to retire with dignity.

The average monthly benefit of a new MPERS retiree in FY2016, retiring directly from active status, is $2,482, which equates to $29,784 per year. Given the increasing cost of living, this amount alone will not provide a life of luxury for the retiree. However, this monthly benefit and those provided by other traditional pension plans have a significant impact that reaches beyond the retirees served. Over the past 10 years alone, MPERS has paid over $2.1 billion in benefit payments to its members. Nearly 95% of these members, retirees and beneficiaries reside in Missouri; reinvesting their retirement dollars in housing, goods and services. In turn, the local economies benefit from these expenditures, which help to fuel the state's overall economy. It is easy to see that defined benefit pensions have a long-term positive impact on our economy and the lives of our members.

Report Contents and Structure:
This CAFR is designed to comply with the statutory reporting requirements stipulated in Sections 104.190, 104.1006 and 105.661 of the Revised Statutes of Missouri (RSMo.), as amended.

To the best of our knowledge and belief, the information presented is accurate in all material respects and is reported in a manner designed to fairly present the financial position of the fund. Some amounts included in the financial statements and elsewhere may be based on estimates and judgments. These estimates and judgments were products of the best business practices available. The accounting policies followed in preparing the basic financial statements conform with U.S. generally accepted accounting principles. Financial information presented throughout the CAFR is consistent with information displayed in the basic financial statements.

The MPERS Board of Trustees (Board) is ultimately responsible for the CAFR and the basic financial statements. MPERS' Executive Director and staff prepare the information contained in the CAFR and the financial statements to assist the Board in fulfilling its statutory duty.

Systems of internal controls and supporting procedures are maintained to provide assurances that transactions are authorized, assets are safeguarded and proper records are maintained. These controls include standards in the hiring and training of employees, the establishment of an organizational structure and the communication of policies and guidelines throughout the organization. Inherent limitations exist in all control systems. No evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud have been detected. The objective of internal controls is to provide reasonable assurance the financial statements are free of any material misstatements, recognizing that the cost of a control should not exceed the benefits to be derived.

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Letter of Transmittal

In accordance with Section 104.190, RSMo., as amended, an independent auditing firm, Williams-Keepers, LLC, has audited the financial statements included in this report and has issued an unqualified opinion (i.e., no audit findings on MPERS' financial statements). The opinion letter of Williams-Keepers, LLC is presented in the Financial Section of this CAFR. Management's Discussion and Analysis (MD & A) immediately follows the Independent Auditors' Report and provides a narrative introduction, overview and analysis of the basic financial statements. Management's Discussion and Analysis complements this letter of transmittal.

Background Information:
MPERS was established by Senate Bill 66 in the 68th General Assembly. Under this legislation, employees of MoDOT and the MSHP became members of the retirement system on September 1, 1955. Effective October 1, 1955, the System accepted 109 retirements.

The plan provisions have changed many times over the years. The System offers not only enhanced retirement and disability benefits, but also benefits for survivors of active and retired members, benefits for vested former members and death benefits.

Our 11-member Board is responsible for the oversight of MPERS. The Trustees serve as fiduciaries to the members and are responsible for selecting and retaining competent management. The Trustees and management jointly establish sound policies and objectives, monitor operations for compliance and oversee performance.

As an instrumentality of the state, MPERS is considered a component unit of the state of Missouri for financial reporting purposes and, as such, the financial statements in this report are also included in the State of Missouri's Comprehensive Annual Financial Report.

Fiscal Year 2016 Highlights:
Risk management has long been a primary responsibility for MPERS. In 2016, we found ourselves doubling our efforts in this area to promote our good stewardship duties to our members and stakeholders.

For some time, MPERS has maintained a "disruptive event response" intended to carry on a few key tasks (i.e., issue benefit payments) in the event we were unable to complete them at our normal operating location. This year MPERS completed a detailed Disaster Recovery Plan providing a comprehensive plan that would help sustain operations during a variety of situations that found staff and/or the operating facility dysfunctional and unable to perform key tasks. This plan provides a comprehensive course of action for staff to help organize and sustain key tasks during what would undoubtedly be a tenuous circumstance. The key result being, few, if any, noticeable shortfalls from a member's perspective.

Protecting member information has always been a key risk management responsibility. Given the prevalence of data breeches in today's world, we made the decision to reinforce the tools associated with electronic access to member information. Unfortunately, utilizing tools to protect member data often comes at the expense of convenient member access to their very own information. A few of these tools, most noted as best practices, were implemented over the last year. Password expiration, password strength indicators and contact when member records are updated electronically are the primary changes that members will see while utilizing our secure website to conduct their business with MPERS.

Late in the fiscal year, MPERS added another modern tool to facilitate communication with our members. Webinars have become a routine way for organizations to conduct meetings, deliver presentations and correspond when geographic or other hurdles limit accessibility. MPERS members cover every county which presents an accessibility challenge for members wishing to attend educational seminars or to have personal, face-to-face counseling. Webinars provide an efficient means for staff to connect live with members located essentially anywhere and to record the events for members to view at a later date and at their convenience. We are particularly proud of this enhancement given that we do not have dedicated staff to organize, create and produce these events. Our diligent staff recognizes the power these productions represent to our members and make the extra effort to create, organize, produce, and distribute key information to the membership. Look for more of these webinars in the future.

The Governmental Accounting Standards Board (GASB) sets forth the standards for state and local governmental accounting and financial reporting. GASB revised those standards through the passage of GASB Statement 72. This Statement addresses the accounting and financial reporting issues related to fair value measurements. More specifically, for the assets held in trust by MPERS, the investment section of this report will now include a designation created by this statement that labels each asset as one that is either commonly traded in markets providing daily value or traded less often with less than daily valuations, or somewhere in between those two points. This does not change the investment program or strategy utilized by MPERS. It simply expands the information provided through our annual report.

Last but certainly not least, is the recruitment of a new assistant executive director with an extensive audit background. This audit background will place an emphasis on all of our risk management duties to not only be sure we are diligent with our work but also make us more efficient. Much of this attention to detail will go unnoticed by those outside of the organization but rest assured this added oversight will only enhance the good stewardship responsibilities we have to our members and stakeholders.

Actuarial Funding Status:
The funding objective of MPERS is to meet future benefit obligations of retirees and beneficiaries through investment earnings and contributions that remain approximately level as a percent of member payroll. Historical information relating to this objective is presented in the Schedule of Funding Progress in the Actuarial Section of this report. During the year ended June 30, 2016, the funded ratio of MPERS, which covers 18,529 participants, increased from 52.9% to 55.5%, primarily the result of favorable investment market experience in previous years and extra employer contributions connected to the contribution rate stabilization reserve fund created a few years ago.

Each year an independent actuarial firm conducts a valuation to determine the actuarial soundness of the Plan, based on its long-term obligations and the sufficiency of current contribution levels to fund the liabilities over a reasonable time frame. In our most recent valuation, dated June 30, 2016, our actuary concluded that the System continues to be financed in accordance with actuarial principles of level percent of payroll financing. This statement is based upon the fact that the employers are contributing to the System based upon actuarially determined rates and presumes a continuation of payment of actuarially determined contributions. Additional information regarding the financial condition of the System can be found in the Actuarial Section of this report.

In an effort to address the System's underfunding situation, in September 2006, the Board adopted a permanent funding policy that was intended to improve MPERS' funded status over time.

The permanent funding policy provided:
- The total contribution is based on the Plan's normal cost plus a 29-year amortization period for MPERS' unfunded actuarial accrued liabilities. The financing period is a closed period starting July 1, 2007.

On September 17, 2009, after the Great Recession, the Board adopted the following temporary accelerated funding policy:
- The total contribution is based on the Plan's normal cost plus a 15-year amortization period for unfunded retiree liabilities and a 30-year amortization period for other unfunded liabilities. Both amortization periods are closed periods starting July 1, 2010.
- The temporary accelerated funding policy will remain in effect until such time as the retiree liability becomes 100% funded or the permanent funding policy produces a higher contribution rate.

As of June 30, 2016, the permanent funding policy is at a closed amortization period of 19 years and the temporary accelerated funding policy is at a closed amortization period of 8 years for unfunded retiree liabilities and 23 years for other unfunded liabilities.

Investment Activities:
State statutes require the System to make investments using the same care, skill and diligence that a prudent person acting in a similar capacity would use. In fulfilling this obligation, the Board has established a formal investment policy to clearly define the roles and responsibilities of the Board, staff and consultants, and to ensure that System assets are invested in a diversified portfolio following prudent investment standards. The Board determines the broad asset allocation policies and return objectives of the Plan. To implement and execute these policies, the Board retains investment staff, consultants, a master custodian, and other advisors.

As of June 30, 2016, MPERS' investment portfolio had a total market value of $1.983 billion, representing a return of 1.01% for the fiscal year. The portfolio continues to perform very well versus the peer universe. Relative to our peer group, the 1.01% return for FY2016 ranked MPERS in the 34th percentile, outpacing 66% of other public funds within the universe. The trailing three-year and five-year performance of 8.19% and 8.09%, respectively, ranks MPERS in the top 1% and 2%, respectively, of the peer universe. The trailing 10-year performance of 5.82% ranks MPERS in the top 27% of the universe.

Awards:
The Government Finance Officer Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to MPERS for its FY2015 CAFR. This was the 11th consecutive year that MPERS has achieved 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 CAFR. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year. We believe that our current CAFR continues to meet the program's requirements, and therefore, we are submitting this report to GFOA to determine its eligibility for another certificate.

MPERS also received the Public Pension Coordinating Council (PPCC), Public Pension Standards Award, in recognition of meeting professional standards for plan design and administration. This is the 12th consecutive year MPERS received the Council's award. 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).

Acknowledgements and Distribution:
This report, prepared by the MPERS' executive director and staff, is intended to provide comprehensive and reliable information about the System, to demonstrate compliance with legal provisions and to allow for the evaluation of responsible stewardship of the System's funds.

Copies of this report are provided to the Governor, the State Auditor and the Joint Committee on Public Employee Retirement. It is also distributed to all MoDOT divisions, district offices, MSHP general headquarters, and troop headquarters. These offices form the link between MPERS and its members, and their cooperation contributes significantly to the success of MPERS. We hope all readers of this report find it informative and useful. Additional copies will be furnished upon request. An electronic version of this report is available on the MPERS' website at **www.mpers.org.**

We express our gratitude to the members of the Board, the staff, the consultants, and the many people who have worked so diligently to assure the continued successful operation of MPERS. The steady, monthly benefit payments offered by defined benefit plans, like MPERS, provide peace of mind and security for retirees and their families. For over 60 years, MPERS has been committed to providing a foundation for financial security to plan participants through the delivery of quality benefits, exceptional member service and professional plan administration.

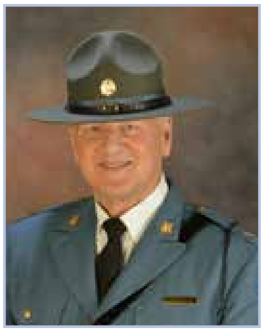
Respectfully submitted,

Scott Simon
Executive Director

Colonel J. Bret Johnson
Board Chairman

Board of Trustees

MPERS is governed by a Board of Trustees. As set out in Section 104.160 of the Revised Statutes of Missouri (RSMo.), the Board is comprised of eleven members:



Colonel J. Bret Johnson

Board Chair
Superintendent of the Missouri State Highway Patrol
Ex-Officio Member

Sue Cox

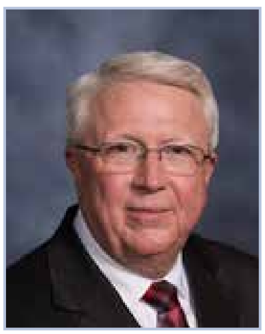
Board Vice Chair
MoDOT Retiree Representative
Elected by Retired Members of MoDOT
Term Expires 7-1-2018

John Briscoe

Commission Member
Highways & Transportation Commission
Term Expires 3-1-2021

Patrick McKenna

Director of the Missouri Department of Transportation
Ex-Officio Member



Michael B. Pace

Commission Member
Highways & Transportation Commissioner
Term Expires 7-1-2019

Representative Shawn Rhoads

State Representative
District 154
Appointed by the Speaker of the House

Senator Dave Schatz

State Senator
District 26
Appointed by President Pro-Tem of the Senate

William "Bill" Seibert

MSHP Retiree Representative
Elected by Retired Members of MSHP
Term Expires 7-1-2018

Major Kemp Shoun

MSHP Employees' Representative
Elected by MSHP Employees
Term Expires 7-1-2018

Gregg Smith

Commission Member
Highways & Transportation Commissioner
Term Expires 3-1-2019

Todd Tyler

MoDOT Employees' Representative
Elected by MoDOT Employees
Term Expires 7-1-2018

MPERS
Serving those who keep us safe.

Administrative Organization

Executive Team

Greta Bassett-Seymour-General Counsel, Larry Krummen-Chief Investment Officer, Scott Simon-Executive Director, Greg Beck-Assistant Executive Director, Jennifer Even–Chief Financial Officer

Our Mission is to provide a foundation for financial security to plan participants by delivering quality benefits and exceptional member service through professional plan administration and prudent management of assets, at a reasonable cost to the taxpayers of Missouri.

Administrative Organization

Director's Office

The Director's Office staff provides executive oversight for the System which includes, but is not limited to administrative support in the areas of legislation, stakeholder communications, operations, benefits, risk management, and investments. The Director's Office is also responsible for providing the Board with information and reports on the activities of the System.

Financial Services

The Financial Services section is responsible for maintaining all the financial records of MPERS. The chief financial officer (CFO) interacts with the investment custodian, the auditors, the depository bank, Missouri's Department of Revenue, and the Internal Revenue Service. In addition, the CFO assists the chief investment officer in tracking and predicting target cash balances, participates in annual budget development, prepares monthly budget-to-actual reports, and calculates monthly premium payments to the long-term disability insurer. The CFO also processes MPERS' semi-monthly office payrolls, reconciles monthly benefit payments and contributions/payrolls posted, and reconciles investment activity.

Investments

The Investments section staff works closely with the general investment consultant to manage the investment portfolio and provide consulting services to the Board and the executive director. This includes, but is not limited to: (a) formulating investment policy and asset recommendations, (b) sourcing, selecting, monitoring, and evaluating external investment advisors, (c) measuring and reporting investment performance, (d) conducting market research on political, financial, and economic developments that may affect the System, and (e) serving as a liaison to the investment community.

Legal Services

The Legal Services section advises the executive director and Board on legal matters, reviews and approves investment and other contracts for MPERS, advises staff on the application of state and federal statutes affecting the administration of plan benefits, responds to requests from members and their attorneys related to plan benefits, engages in or oversees litigation affecting MPERS, and assists in developing policies, rules, and legislation impacting MPERS' operations or the administration of plan benefits.

Member Services

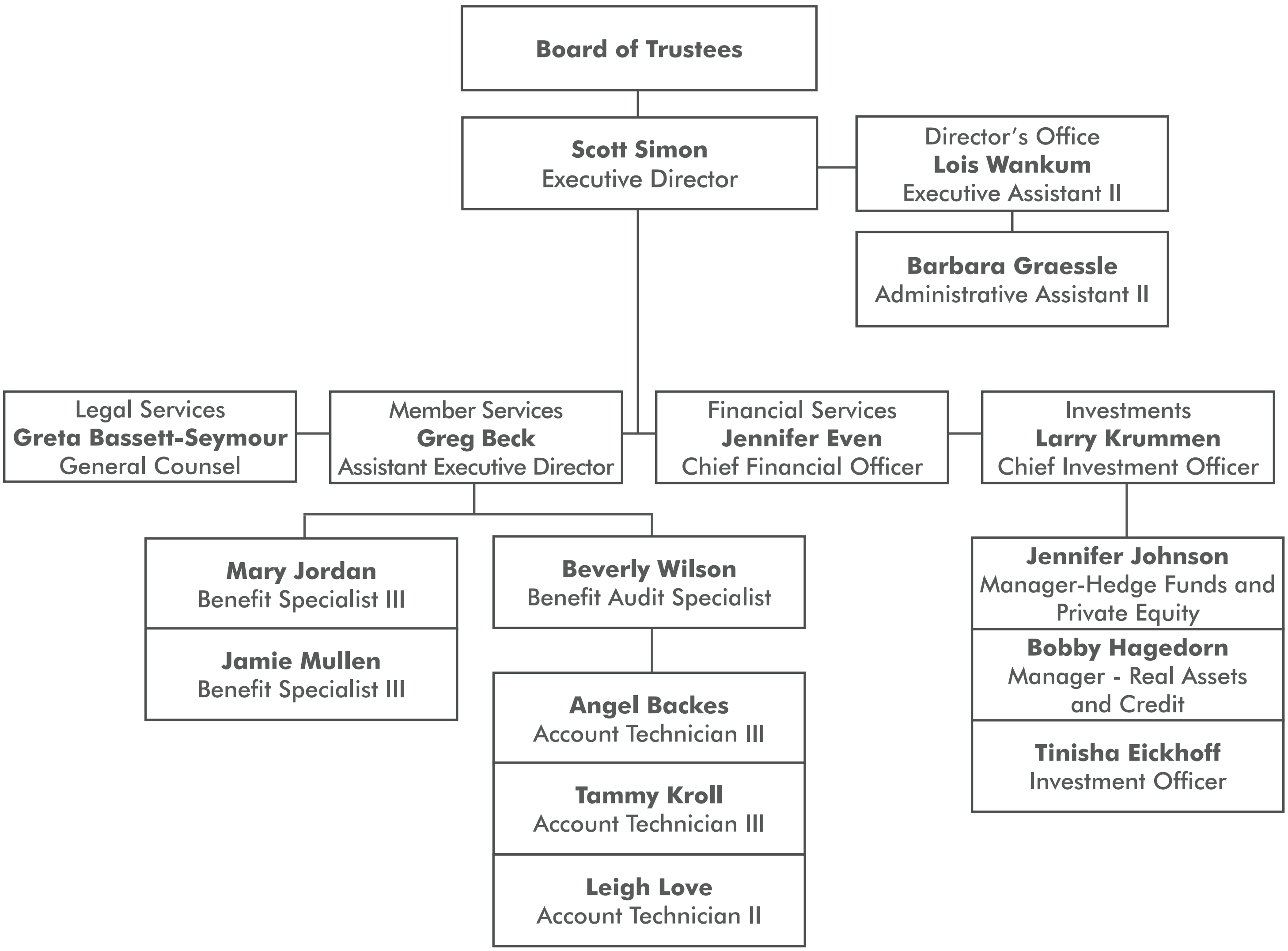
The Member Services section consists of two units devoted to serving member needs.

The Benefits Unit is responsible for contact with the membership regarding the benefit programs administered by MPERS, which include retirement and disability. The benefit staff is responsible for preparing and delivering the pre-retirement and benefit basics seminars in addition to assisting with the development of member communication material. The benefit staff is the main point of contact with members who have questions about their retirement.

The Payroll Unit is responsible for establishing and maintaining all membership records including: (a) maintaining member data on the pension administration system, (b) verifying retirement calculations, (c) balancing payroll deductions, (d) verifying SAM II data against exception reports, and (e) entering payroll, service, and leave data into the System's computerized database. Payroll Unit staff will also create and publish communication materials, assist with pre-retirement seminars, provide data to the actuary, as well as reviewing member records for accuracy and completeness.

Administrative Organization

The executive director of MPERS has charge of the offices and records of the System and hires such employees deemed necessary, subject to the approval of the Board of Trustees. The System employs sixteen full-time staff.



Professional Services

The following firms were retained at fiscal year-end by the Board of Trustees to serve in professional capacities or provide consultant services. Please refer to pages 47 and 48 in the Investment Section for the Schedule of Investment Expenses and Brokerage Commissions for the investment professionals.

Actuary

Gabriel, Roeder, Smith & Company
Southfield, Michigan

Auditor

Williams-Keepers, LLC
Jefferson City, Missouri

Investment Consultant

New England Pension
Consultants (NEPC)
Cambridge, Massachusetts

Information Technology

Levi, Ray & Shoup, Inc.
Springfield, Illinois

Huber & Associates
Jefferson City, Missouri

Legislative Consultant

Michael G. Winter Consultants, LLC
Jefferson City, Missouri

Master Trustee/Custodian

The Northern Trust Company
Chicago, Illinois

Risk Management/Insurance Consultant

Charlesworth Benefits
Overland Park, Kansas

Long-Term Disability Insurer

The Standard Insurance Company
Portland, Oregon

Professional Services

Investment Managers

Aberdeen Asset Management	Philadelphia, Pennsylvania
ABRY Partners	Boston, Massachusetts
Acadian Asset Management	Boston, Massachusetts
AEW Partners	Boston, Massachusetts
Albourne America	San Francisco, California
Alyeska Investment Group	Chicago, Illinois
American Infrastructure MLP	Foster City, California
Anchorage Capital Group	New York, New York
Apollo Aviation Group	New York, New York
Apollo Real Estate	Miami, Florida
Ares Management	New York, New York
Audax Group	Boston, Massachusetts
Barclays Global Investors	San Francisco, California
BlueCrest Capital Management	St. Peter Port, Guernsey
Blue Road Capital	New York, New York
Brevan Howard	New York, New York
Bridgewater Associates	Westport, Connecticut
BTG Pactual	Atlanta, Georgia
Capital Partners	Norwalk, Connecticut
CarVal Investors (CVI)	Minnetonka, Minnesota
CBRE Investors	Baltimore, Maryland
Cevian Capital Limited	Jersy, Channel Islands
CenterSquare Investment Management (formally Urdang)	Plymouth Meeting, Pennsylvania
Clarion Partners	Jersy, Channel Islands
Colony Capital	Los Angeles, California
Deephaven Capital Management	Minnetonka, Minnesota
EIF Management	Needham, Massachusetts
Energy & Mineral Group	Houston, Texas
Enhanced Investment Technologies (INTECH)	Palm Beach Gardens, Florida
GMO	Boston, Massachusetts
Golden Sciens Marine Investments	New York, New York
Golub Capital	New York, New York
Grove Street Advisors	Wellesley, Massachusetts
Gryphon	Toronto, Canada
GSO Capital Partners	New York, New York
Kennedy Capital	St. Louis, Missouri
Koppenberg	New York, New York
KPS	New York, New York
Luxor Capital	New York, New York
M&G Investments	London, United Kingdom
Metacapital Management	New York, New York
Millennium Management	New York, New York
Monomoy Capital Partners	New York, New York
Natural Gas Partners	Houston, Texas
Ned Davis	Venice, Florida
Northern Shipping	Stamford, Connecticut
Och-Ziff Real Estate	New York, New York
OCP Asia	Singapore
Opengate Capital Partners	Los Angeles, California
Orion Mine Finance Group	New York, New York
Octagon Credit Investors	New York, New York
Ospraie Management	New York, New York
Parametrics	Minneapolis, Minnesota
Partner Fund Management	San Francisco, California
Pfingsten Partners	Chicago, Illinois
Pinnacle Associates	New York, New York
Principal Global Investors	Des Moines, Iowa
RK Capital Management	Denver, Colorado
Ridgewood Energy	Montvale, New Jersey
Shore Capital Partners	Chicago, Illinois
Shoreline Capital	Guangzhou, China
Silchester International Investors Limited	New York, New York
Stark Investments (Shepherd)	Milwaukee, Wisconsin
Taconic Capital Advisors	New York, New York
The Northern Trust Company	Chicago, Illinois
Timberland Investment Resources	Atlanta, Georgia
Torchlight Investors	New York, New York
Tortoise Capital Advisors	Leawood, Kansas
Tristan Capital Partners	London, United Kingdom
ValueAct Capital	San Francisco, California
Vectis Healthcare	Boston, Massachusetts

Notes

Financial Section

"The goal isn't more money, the goal is living life on your own terms."

-Chris Brogan

Speaker, author, and marketing consultant

WILLIAMS KEEPERS LLC
CERTIFIED PUBLIC ACCOUNTANTS & CONSULTANTS

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INDEPENDENT AUDITORS' REPORT

The Board of Trustees
Missouri Department of Transportation and
Highway Patrol Employees' Retirement System

Report on the Financial Statements

We have audited the accompanying statement of fiduciary net position of the Missouri Department of Transportation and Highway Patrol Employees' Retirement System (the System), as of June 30, 2016, and the related statement of changes in fiduciary net position for the year then ended, and the related notes to the financial statements, which collectively comprise the System's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

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

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with U.S. generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

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

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

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of the System at June 30, 2016, and the changes in fiduciary net position for the year then ended, in conformity with U.S. generally accepted accounting principles.

Other Matters

Required Supplementary Information

U.S. generally accepted accounting principles require that the management's discussion and analysis on pages 3 through 6 and the schedules of employers' net pension liability, changes in the employers' net pension liability, employers' contributions, investment returns, OPEB funding progress, and related notes on pages 27 through 29 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, 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 U.S. generally accepted auditing standards, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the System's financial statements as a whole. The introductory, investment, actuarial and statistical sections and the additional information presented on pages 36 through 38 are presented for purposes of additional analysis and are not a required part of the financial statements.

The additional information presented on pages 30 through 32 is the responsibility of management and was derived from and relate directly to the underlying accounting and other records used to prepare the financial statements. The additional information presented on pages 30 through 32 has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with U.S. generally accepted auditing standards. In our opinion, the additional information presented on pages 30 through 32 is fairly stated in all material respects in relation to the basic financial statements as a whole.

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

Williams-Keepers LLC

November 8, 2016

Management's Discussion and Analysis

The management of the Missouri Department of Transportation and Highway Patrol Employees' Retirement System (the System, or MPERS) provides this discussion and analysis of the System's financial performance for the fiscal year ended June 30, 2016. While this discussion is intended to summarize the financial status of MPERS, readers should consider this information in conjunction with the information that is furnished in the more detailed financial statements and corresponding notes.

DESCRIPTION OF BASIC FINANCIAL STATEMENTS

As required by the Governmental Accounting Standards Board (GASB) accounting standards, this financial report consists of Management's Discussion and Analysis (this section), the basic financial statements (including notes to the basic financial statements), and other required supplementary information.

Financial Statements report information about MPERS, using accounting methods similar to those used by private-sector companies, by using the economic resources measurement focus and accrual basis of accounting. These statements provide both long-term and short-term information about the System's overall financial status. These statements follow this Management's Discussion and Analysis section:

- The *Statement of Fiduciary Net Position* includes all the System's assets and liabilities, with the difference between the two reported as net position.
- The *Statement of Changes in Fiduciary Net Position* accounts for all the current year's additions (income) and deductions (expenses), regardless of when cash is received or paid.

Notes to the Financial Statements are included following the financial statements. The notes to the financial statements provide additional information that is essential for a full understanding of the data provided in the financial statements.

Required Supplementary Information follows the notes and further supports the information in the financial statements.

ANALYSIS OF FINANCIAL POSITION AND RESULTS OF OPERATIONS

Overall, the financial position of MPERS weakened by $17 million, reported as the "net decrease." This is primarily a result of lower than expected investment returns for the year ended June 30, 2016. Even with this net decrease in net position restricted for pensions in FY2016, the funded status of the plan showed an increase of 2.6%, primarily due to actuarial gains and MPERS' accelerated funding policy.

The following schedules present summarized comparative data from the System's financial statements for each of the fiscal years ended June 30, 2016 and 2015. Following each schedule is a brief summary providing explanation and analyses of the major reasons for changes in the condensed financial statements.

Summarized Comparative Statements of Fiduciary Net Position

	As of June 30, 2016	As of June 30, 2015	% Change 2016/2015
Cash and Receivables	$ 20,195,007	$ 23,606,579	-14
Investments	1,982,820,836	1,991,396,397	0
Invested Securities Lending Collateral	51,560,512	80,780,418	-36
Capital Assets	1,569,100	1,921,467	-18
Other Assets	0	6,366	-100
Total Assets	2,056,145,455	2,097,711,227	-2
Accounts Payable	10,668,117	3,994,860	167
OPEB Obligation	680,169	643,809	6
Securities Lending Collateral	52,723,223	83,705,424	-37
Total Liabilities	64,071,509	88,344,093	-27
Net Position	**$ 1,992,073,946**	**$2,009,367,134**	**-1**

The decrease in cash and receivables is primarily attributable to lower investment sales receivables as of June 30, 2016. Some fluctuations in this area are normal, based on investment activity.

The System's investments represent the main component of total assets. These investments include holdings of stock, government-sponsored enterprises, bonds, mortgages, real estate, timber, hedge funds, securities lending collateral, limited partnerships, and other fixed income investments. The decrease in fair value of investments as of June 30, 2016 is primarily due to the payment of benefits that exceeded the receipt of employer contributions for the fiscal year, offset by the FY2016 investment return of 1.01% as calculated on a time-weighted rate of return methodology.

Capital assets decreased in FY2016 due to depreciation of existing assets and only minimal purchases of new equipment during the year.

The increase in accounts payable for FY2016 is primarily attributable to higher investment purchases payable. Some fluctuations in this area are normal, based on investment activity.

The OPEB obligation liability of $680,169 at June 30, 2016 and $643,809 at June 30, 2015 reflects the System's provision of post-employment health care benefits through its participation in the MoDOT and MSHP Medical and Life Insurance Plan. This plan is an internal service fund of the Missouri Department of Transportation (MoDOT); therefore, assets have not been set aside. With this, the increase from FY2015 to FY2016 is expected.

The largest component of liabilities is securities lending collateral. This represents the amount owed for collateral to be returned as the result of securities lent. The decrease in securities lending collateral liability from FY2015 to FY2016 is due to the decrease in the fair value of investments and fewer securities being utilized for lending. The corresponding securities lending collateral asset is valued at a lower amount at June 30, 2016 due to the market value of the securities on loan being less than the par value.

The System's total net position was $1.992 billion at June 30, 2016, a $17 million decrease from the $2.009 billion at June 30, 2015. This is an offset to the increase of the previous year, when net position increased $52 million from the June 30, 2014 amount of $1.957 billion to the June 30, 2015 amount of $2.009 billion.

Summarized Comparative Statements of Changes in Fiduciary Net Position

	As of June 30, 2016	As of June 30, 2015	% Change 2016/2015
Contributions	$ 205,821,588	$ 205,047,170	0
Net Investment Income	21,432,090	92,645,423	-77
Other Income	5	148	-97
Net Additions	227,253,683	297,692,741	-24
Benefits	240,176,011	241,714,876	-1
Administrative Expenses	4,370,860	4,066,944	7
Total Deductions	244,546,871	245,781,820	-1
Net Increase (Decrease)	(17,293,188)	51,910,921	-133
Net Position-Beginning	2,009,367,134	1,957,456,213	3
Net Position-Ending	**$ 1,992,073,946**	**$2,009,367,134**	**-1**

The main component of the changes in contributions to MPERS is employer contributions. In FY2016 the contribution rate for the non-uniformed Highway Patrol and MoDOT decreased by 0.71% and the contribution rate for the uniformed Highway Patrol decreased by 0.43% from the FY2015 rates. This slight decrease in rates kept contributions consistent with the prior year.

Net investment income, a primary component of plan additions, resulted in income of $21 million for FY2016. The income represented a 1.01% return for the fiscal year ended June 30, 2016. In comparison, the FY2015 gain of over $92 million represented an investment return of 6.62%. Annual fluctuations within the broad investment markets are outside of the control of the System and are expected to fluctuate from year to year. The Board of Trustees has approved a diversified asset allocation that, over long periods of time, is expected to realize the assumed actuarial rate of investment return of 7.75%.

Benefits decreased due to fewer retirements in FY2016 and of those retirements, fewer individuals electing BackDROP, which provides a partial lump sum payment option.

Administrative expenses increased in FY2016 due to career progression for achieving professional designations, employee education assistance and a pay-out of accrued leave at retirement.

CURRENTLY KNOWN FACTS AND RECENT EVENTS

Based on the June 30, 2015 actuarial valuation, the Board of Trustees approved a change in the required state contribution rate, effective July 1, 2016. The rate applied to non-uniformed payroll (MoDOT, civilian patrol, and MPERS) will decrease slightly from 58.05% to 58.00%. The rate applied to uniformed patrol payroll will increase from 57.76% to 58.00%. The decrease in the non-uniformed rate is primarily due to positive investment returns. The increase in the uniformed rate is primarily due to liability experience losses.

Based on the June 30, 2016 actuarial valuation, the Board of Trustees approved no change in the required state contribution, effective July 1, 2017. The rate applied to both non-uniformed payroll (MoDOT, civilian patrol and MPERS) and uniformed patrol payroll will stay at 58.00%.

CONTACTING THE RETIREMENT SYSTEM'S MANAGEMENT

This financial report is designed to provide a general overview of the System's finances. Questions about this report or requests for additional financial information should be sent to:

MoDOT and Patrol Employees' Retirement System
PO Box 1930
Jefferson City, MO 65102-1930
mpers@mpers.org

Statement of Fiduciary Net Position

As of June 30, 2016

ASSETS:	
Cash	$ 492,832
Receivables	
Contributions	8,526,185
Accrued Interest and Income	6,406,558
Investment Sales	4,733,058
Other	36,374
Total Receivables	19,702,175
Investments, at Fair Value	
Stocks and Rights/Warrants	389,770,000
Government Obligations	193,263,285
Corporate Bonds	15,073,506
Real Estate	211,308,244
Mortgages and Asset-Backed Securities	260,915,613
Hedge Funds	155,893,985
Short-Term Investments	128,659,065
Limited Partnerships	627,937,138
Total Investments	1,982,820,836
Invested Securities Lending Collateral	51,560,512
Net Investment in Capital Assets	
Land	84,000
Building	581,619
Furniture, Equipment and Software	3,517,189
Accumulated Depreciation	(2,613,708)
Net Investment in Capital Assets	1,569,100
TOTAL ASSETS	**$2,056,145,455**
LIABILITIES:	
Accounts Payable	1,755,294
OPEB Obligation	680,169
Security Lending Collateral	52,723,223
Investment Purchases	8,912,823
TOTAL LIABILITIES	**$ 64,071,509**
NET POSITION RESTRICTED FOR PENSIONS	**$1,992,073,946**

See accompanying Notes to the Financial Statements.

Statement of Changes in Fiduciary Net Position

For the Year Ended June 30, 2016

ADDITIONS:	
Contributions-Employer	$ 199,609,396
Contributions-Employee	2,503,824
Contributions-Service Transfers from Other System	2,729,679
Contributions-Other	978,689
Total Contributions	205,821,588
Investment Income from Investing Activities	
Net (Depreciation) in Fair Value of Investments	(10,145,015)
Interest and Dividends	55,077,632
Less: Investment Expenses	23,703,885
Net Investment Income	21,228,732
Income from Securities Lending Activities	
Securities Lending Gross Income	369,159
Less: Securities Lending Expenses (Income), net	165,801
Net Income from Securities Lending Activities	203,358
Other Income	5
NET ADDITIONS	**$ 227,253,683**
DEDUCTIONS:	
Monthly Benefits	
Retiree and Survivor Annuity Benefits	224,098,038
BackDROP Payments	10,677,166
Disability Benefits	2,461,250
Death Benefits	820,000
Service Transfer Payments	1,921,451
Employee Contribution Refunds	198,106
Administrative Expenses	4,370,860
TOTAL DEDUCTIONS	**$ 244,546,871**
NET (DECREASE)	(17,293,188)
NET POSITION RESTRICTED FOR PENSIONS	
Beginning of Year	**2,009,367,134**
End of Year	**$1,992,073,946**

See accompanying Notes to the Financial Statements.

Notes to the Financial Statements
For the Year Ended June 30, 2016

NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

As established under Section 104.020 of the Revised Statutes of Missouri (RSMo.), the Missouri Department of Transportation and Highway Patrol Employees' Retirement System (MPERS) is a body corporate and an instrumentality of the State of Missouri (State). Due to the nature of MPERS' reliance on funding from the Missouri Department of Transportation (MoDOT) and the Missouri State Highway Patrol (MSHP) and control of the overall plan document by the legislative and executive branches of state government, MPERS is considered a part of the State of Missouri financial reporting entity and is included in the State's financial reports as a component unit shown as a pension trust fund.

Note 1 (a) - Basis of Accounting

The financial statements were prepared using the accrual basis of accounting. Contributions are due to MPERS when employee services have been performed and paid. Contributions are recognized as revenues when due, pursuant to statutory requirements. Benefits are recognized when due and payable and expenses are recorded when the corresponding obligations are incurred. Dividend income is recognized when dividends are declared. Interest income is recognized when earned.

The Governmental Accounting Standards Board (GASB) approved a new accounting and reporting standard, GASB Statement 72, Fair Value Measurement and Application. GASB 72 applies to any and all governmental entities and is effective for fiscal years beginning after June 15, 2015.

GASB 72 addresses accounting and reporting issues related to fair value measurements. This statement requires disclosures to be made about fair value measurements, the level of fair value hierarchy, and valuation techniques. Comprehensive footnote disclosure regarding this statement is presented in Note 3 (f).

Note 1 (b) - Method Used to Value Investments

Investments are reported at fair value on a trade date basis. Bonds and stocks traded on a national or international exchange are valued at the reported sales price at current exchange rates. Mortgages are valued on the basis of future principal and interest payments and are discounted at prevailing interest rates for similar instruments. The fair value of real estate and timber investments are based on net asset value estimates provided by the general partners' administrators or portfolio managers, which are compared to independent appraisals. Investments that do not have an established market are reported at estimated fair value. The fair value of some of the hedge fund portfolios and partnership portfolios are based on valuations of the underlying assets as reported by the general partner or portfolio manager.

Note 1 (c) - Net Investment in Capital Assets

MPERS capitalizes assets with an expected useful life greater than one year and a cost greater than $1,000. Capital assets are depreciated on the straight-line method over the estimated useful lives of the related assets. The estimated useful lives are as follows:

Furniture, Equipment and Software	3 – 10 years
Building and Improvements	30 years

Note 1 (d) - Use of 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 reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

NOTE 2 – PLAN DESCRIPTIONS AND CONTRIBUTION INFORMATION

MPERS is a body corporate and an instrumentality of the state as a multiple-employer, public employee retirement system with one plan that has three benefit structures known as the Closed Plan, the Year 2000 Plan, and the Year 2000 Plan-2011 Tier. The plan provides retirement, survivor, and disability benefits for employees of MoDOT, MSHP, and MPERS. The plan is administered in accordance with the requirements of a cost sharing, multiple-employer, public employee retirement plan under the Revised Statutes of Missouri. In MPERS are vested the powers and duties specified in sections 104.010 to 104.312, 104.601 to 104.805, and 104.1003 to 104.1093, 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 outlined pursuant to these sections. Responsibility for the operation and administration of the System is vested in the Board of Trustees, which consists of eleven members, four elected by the active and retired plan members, three Highway and Transportation Commissioners, a State Senator appointed by the President Pro-Tem of the Senate, a State Representative appointed by the Speaker of the House, and the Director of the MoDOT and Superintendent of the MSHP who serve as ex-officio members. Detailed information regarding contributions can be found in Note 5.

Generally, all covered employees hired before July 1, 2000, are eligible for membership in the Closed Plan. All covered employees hired on or after July 1, 2000, and before January 1, 2011, are eligible for membership in the Year 2000 Plan. All covered employees hired on or after January 1, 2011, are eligible for membership in the Year 2000 Plan's 2011 Tier.

Membership in the Closed Plan, Year 2000 Plan, and 2011 Tier as of June 30, 2016

	Closed	Year 2000	2011 Tier	Total
Retirees, Beneficiaries, and Disabilities Currently Receiving Benefits	5,040	3,687	0	8,727
Terminated Employees Entitled to But Not Yet Receiving Benefits	1,509	820	0	2,329
Active Employees				
Vested	2,864	2,552	0	5,416
Non-Vested	2	92	1,963	2,057
Total Membership	**9,415**	**7,151**	**1,963**	**18,529**

Closed Plan Description

Employees covered by the Closed Plan are fully vested for benefits upon receiving 5 years of creditable service. Under the Closed Plan, MoDOT and civilian employees may retire with full benefits upon the earliest of attaining:

- Age 65 with 4 or more years of creditable service (active);
- Age 65 with 5 or more years of creditable service (terminated & vested);
- Age 60 with 15 or more years of creditable service (active or terminated & vested); or
- "Rule of 80" – at least age 48 with sum of member's age and service equaling 80 or more (active or terminated & vested).

The following provisions apply for uniformed patrol members of the Closed Plan:

- Age 55 with 4 or more years of creditable service (active);
- Age 55 with 5 or more years of creditable service (terminated & vested);
- "Rule of 80" – at least age 48 with sum of member's age and service equaling 80 or more (active or terminated & vested); or
- Mandatory retirement at age 60 (active).

All non-uniformed members may retire early, with reduced benefits, at age 55 with at least 10 years of creditable service.

The base benefit in the Closed Plan is equal to 1.6% multiplied by the final average pay multiplied by years of creditable service. For members of the uniformed patrol, the base benefit is calculated by applying the same formula, then multiplying the product by 1.333333.

Retired uniformed members will receive an additional benefit of $90 per month, plus cost-of-living adjustments (COLAs), until attainment of age 65. This payment, however, is reduced by any amount earned during gainful employment. This benefit is not available to uniformed members hired after January 1, 1995, or to vested deferred members.

For members employed prior to August 28, 1997, COLAs are provided annually based on 80% of the increase in the consumer price index for all urban consumers for the United States (CPI-U). The minimum rate is 4% and the maximum rate is 5%, until the cumulative amount of COLAs equals 65% of the original benefit. Thereafter, the 4% minimum rate is eliminated and the annual COLA rate will be equal to 80% of the increase in the CPI-U (annual maximum of 5%). For members employed on or after August 28, 1997, COLAs are provided annually based on 80% of the increase in the CPI-U, up to a maximum rate of 5%.

The BackDROP is a payment option that is available to eligible members upon retirement. This option provides for a benefit to be calculated as if the member elected to retire at a previous date. If the BackDROP is elected, the monthly benefit payable on the actual retirement date is based on the benefit that would have been received by the member had he/she left employment and retired on the BackDROP date. In addition, the member will receive a lump sum payment equal to 90% of the life income annuity amount the member would have received during the BackDROP period. This lump sum amount includes any COLAs and other benefit increases; also, credit will be received for the unused sick leave balance as of the date of retirement.

The life income annuity payment option (which contains no provision for survivorship) and the life income with 60 or 120 month guaranteed payment options are available to all members. Joint and 50% or 100% survivor options are available if married at the time of retirement. In the Closed Plan, the reduction for the joint & 100% survivor option is based on the difference between the age of the member and the survivor. There is no reduction for the joint and 50% survivor option.

If a reduced joint and survivor option is chosen at the time of retirement and the spouse precedes the member in death, the benefit will revert back (pop-up) to a normal annuity, upon appropriate notification to MPERS.

Members may name a new spouse as beneficiary if:
- They were single at retirement and since married;
- They elected a spouse option at the time of retirement, the spouse preceded the member in death, and then a remarriage occurred.

The member has 1 year from the date of marriage to re-elect a payment option and name a new spouse.

All members who retire from active employment or long-term disability, or begin receiving normal or work-related disability benefits, on or after September 28, 1985, are provided a $5,000 death benefit payable to designated beneficiaries.

Year 2000 Plan Description
Employees covered by the Year 2000 Plan are fully vested for benefits upon earning 5 years of creditable service. Under the Year 2000 Plan, MoDOT and civilian employees may retire with full benefits upon the earliest of attaining:
- Age 62 and with 5 or more years of creditable service (active or terminated & vested);
- "Rule of 80" – at least age 48 with sum of member's age and service equaling 80 or more (active).

The following provisions apply for uniformed patrol members of the Year 2000 Plan:
- "Rule of 80" – at least age 48 with sum of member's age and service equaling 80 or more (active);
- Mandatory retirement at age 60 (active only).

All members may retire early with reduced benefits at age 57 with at least 5 years of creditable service.

The base benefit in the Year 2000 Plan is equal to 1.7% multiplied by the final average pay multiplied by years of creditable service. Members retiring under the Rule of 80, and uniform patrol members retiring at the mandatory retirement age (currently 60), receive an additional temporary benefit until age 62. The temporary benefit is equivalent to 0.8% multiplied by final average pay multiplied by years of creditable service.

COLAs are provided annually based on 80% of the increase in the CPI-U, up to a maximum rate of 5%.

The BackDROP is a payment option that may be available to members upon retirement. This option provides for a monthly benefit to be calculated as if the member elected to retire at a previous date. If the BackDROP is elected, the monthly benefit payable on the actual retirement date is based on the benefit that would have been received by the member had he/she left employment and retired on the BackDROP date. In addition, the member will receive a lump sum payment equal to 90% of the life income annuity amount the member would have received during the BackDROP period. This lump sum amount includes any temporary benefits, COLAs and other benefit increases; also, credit will be received for the unused sick leave balance as of the date of retirement.

The life income annuity payment option (with no provision for survivorship) and the life income with 120 or 180 months guaranteed payment options are available to all members. Joint and 50% or 100% survivorship options are available if married at the time of retirement. The reduction for the joint and 50% or 100% survivor options is based on the member's age at retirement, as well as the age difference between the member and the survivor.

If a reduced joint and survivor option is chosen at the time of retirement and the spouse precedes the member in death, the benefit will revert back (pop-up) to a normal annuity , upon appropriate notification to MPERS.

Members may name a new spouse for survivor benefits if:
- They were single at retirement and since married;
- They elected a spouse option at the time of retirement, the spouse preceded the member in death, and then a remarriage occurred.

The member has 1 year from the date of marriage to re-elect the payment option and name a new spouse.

All members who retire from active employment or long-term disability, or begin receiving work-related disability benefits, on or after July 1, 2000, are provided a $5,000 death benefit payable to designated beneficiaries.

Year 2000 Plan-2011 Tier Description

Employees covered by the 2011 Tier are fully vested for benefits upon earning 10 years of creditable service. Under the 2011 Tier, MoDOT and civilian employees may retire with full benefits upon the earliest of attaining:
- Age 67 and with 10 or more years of creditable service (active or terminated & vested);
- "Rule of 90" – at least age 55 with sum of member's age and service equaling 90 or more (active only).

Active MoDOT and civilian employees may retire early with reduced benefits at age 62 with at least 10 years of creditable service.

The following provisions apply for uniformed patrol members of the 2011 Tier:
- Age 55 and with 10 or more years of creditable service (active only);
- Mandatory retirement at age 60 with no minimum service amount (active only).

Terminated and vested uniformed patrol employees may retire at age 67 with 10 or more years of creditable service.

The base benefit in the 2011 Tier is equal to 1.7% multiplied by the final average pay multiplied by years of creditable service. Members retiring under the Rule of 90, and uniform patrol members retiring at the mandatory retirement age (currently 60) or at age 55 with 10 years of creditable service, receive an additional temporary benefit until age 62. The temporary benefit is equivalent to 0.8% multiplied by final average pay multiplied by years of creditable service.

COLAs are provided annually based on 80% of the change in the CPI-U, up to a maximum rate of 5%.

The life income annuity payment option (with no provision for survivorship) and the life income with 120 or 180 months guaranteed payment options are available to all members. Joint and 50% or 100% survivorship options are available if married at the time of retirement. The reduction for the joint and 50% or 100% survivor options is based on the member's age at retirement, as well as the age difference between the member and the survivor.

If a reduced joint and survivor option is chosen at the time of retirement and the spouse precedes the member in death, the benefit will revert back (pop-up) to a normal annuity, upon appropriate notification to MPERS.

Members may name a new spouse for survivor benefits if:
- They were single at retirement and since married;
- They elected a spouse option at the time of retirement, the spouse preceded the member in death, and then a remarriage occurred.

The member has 1 year from the date of marriage to re-elect the payment option and name a new spouse.

All members who retire from active employment or long-term disability, or begin receiving work-related disability benefits, on or after January 1, 2011, are provided a $5,000 death benefit payable to designated beneficiaries.

Contributions

Beginning January 1, 2011, employee contributions of 4% of gross pay are required for those covered by the Year 2000 Plan-2011 Tier.

Employer contributions are determined through annual actuarial valuations. Administrative expenses are financed through contributions from participating employers and investment earnings.

Participating employers are required to make contributions to the plan based on the actuarially determined rate. Prior to August 13, 1976, contributions by all plan members were required. Accumulated employee contributions made prior to that time, plus interest, were refunded to applicable members. Maximum contribution rates were eliminated August 13, 1976. Detailed information regarding contributions can be found in Note 5.

NOTE 3 – DEPOSITS AND INVESTMENTS

The Board of Trustees has established policies and procedures by which funds are invested. Section 104.150, RSMo. provides the authority for the Board to invest MPERS funds. Plan assets are invested in a diversified portfolio following prudent standards for preservation of capital, with the goal of achieving the highest possible rate of return consistent with MPERS' tolerance for risk. The Board of Trustees establishes MPERS' asset allocation policy, and may amend the policy. The following is MPERS current asset allocation policy:

Asset Class	Target Allocation
Global Equity	30%
Private Equity	15%
Fixed Income	25%
Real Assets	5%
Real Estate	10%
Hedge Funds	15%
Cash	0%

Note 3 (a) - Deposit and Investment Risk Policies

Concentration of Credit Risk

Concentration of credit risk is the risk of loss attributed to the magnitude of the System's investment in a single issuer. Within the traditional asset classes (equities and fixed income), the consultant will aggregate exposures across asset classes to create measures of concentration including industries, countries and security issuer for Investment staff review.

Investment Custodial Credit Risk

Custodial credit risk is an investment risk that, in the event of the failure of the counterparty to a transaction, the System will not be able to recover the value of its investment or the collateral securities that are in the possession of an outside party. Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in the name of the System, and are held by either: a) the counterparty or b) the counterparty's trust department or agent but not in the System's name. It is the policy of the System to require that all investments be clearly marked as to ownership and, to the extent possible, shall be registered in the name of the System.

Cash Deposit Custodial Credit Risk

Cash deposit custodial credit risk is the risk that, in the event of the failure of depository financial institution, the System will not be able to recover deposits or will not be able to recover collateral securities that are in the possession of an outside party. Missouri state law requires that all public funds must be collateralized with acceptable securities having market values of at least 100% of the amount of funds on deposit (less any amount covered by FDIC insurance).

Market Risk

Market risk is the risk that the fair value of an investment will be adversely impacted due to a change in value of the underlying market. The three primary market risks prevalent in the System's investment portfolio are equity prices, interest rates, and foreign currencies. Equity risk is the risk that stock prices fall and/or the volatility in the equity market increases. Interest rate risk is the risk that fixed income securities (or any investment primarily valued on a yield basis) will drop in value due to an increase in interest rates. 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 System protects the portfolio against market risks by adopting a diversified asset allocation that limits the amount of exposure to each underlying market risk. Market risks are also controlled by monitoring the types, amounts, and degree of risk that each investment manager takes for their specific mandate.

Investment Credit Risk

Investment credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. Unless authorized under a separate Investment Management Agreement or operating agreement, it is the policy of the System to limit fixed income managers to purchasing securities that possess a minimum credit rating of "Baa" by Moody's and "BBB" by Standard & Poor's. Issues subsequently downgraded below these ratings must be brought to the attention of the Chief Investment Officer. Where counterparty risk is present, the System's investment managers seek to control credit risk through counterparty credit evaluations and approvals, counterparty credit limits and exposure monitoring procedures.

Note 3 (b) - Cash Deposits

Cash balances include short-term securities held by the custodial bank to meet future obligations and operating balances held by the depository bank. As of June 30, 2016 MPERS had a carrying amount of deposits of ($239,341), and a bank balance of $15. The FDIC covered the bank balances. To maximize investment income, cash is invested in overnight repurchase agreements, thus causing the negative cash amounts disclosed above. The balances in these repurchase agreements at June 30, 2016 was $732,173. As of June 30, 2016 no investments were held as repurchase agreements that were uninsured or unregistered, with securities held by the counterparty or by its trust department or agent but not in MPERS' name.

Note 3 (c) – Concentrations
No investments in any one organization (other than those issued or sponsored by the U.S. government and those in pooled investments) represent 5% of plan net position.

Note 3 (d) – Rate of Return
For the years ended June 30, 2016 the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 1.01%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Note 3 (e) – Investments
The following table shows MPERS' investments by type.

Summary of Investments by Type at June 30, 2016

	Carrying Amount	Fair Value
Government Obligations	$176,034,794	$193,263,285
Corporate Bonds	14,639,836	15,073,506
Stock and Rights/Warrants	307,683,227	389,770,000
Real Estate	189,502,775	211,308,244
Mortgages & Asset-Backed Securities	266,297,511	260,915,613
Hedge Funds	137,161,208	155,893,985
Limited Partnerships	592,666,416	627,937,138
Short-Term Investments	129,386,494	129,391,238
Securities Lending Collateral	51,560,512	51,560,512
Total Investments	**$1,864,932,773**	2,035,113,521
Reconciliation to Statement of Fiduciary Net Position:		
Less: Repurchase Agreements		(732,173)
Less: Securities Lending Collateral		(51,560,512)
Investments per Statement of Fiduciary Net Position		**$1,982,820,836**

Certain investments are not listed on national exchanges, over-the-counter markets, nor do they have quoted market prices. Their valuation is based on the most current net asset values, independent appraisals, and/or good faith estimates of the investment's fair value provided by the general partner or portfolio manager, cash flow adjusted through fiscal year end. The estimated fair value of these investments may differ significantly from values that would have been used had a ready market existed. The following investments were priced using those methods and comprised 50% of the total fair value of the System's investments as of June 30, 2016:

Real Estate	$211,308,244
Hedge Funds	155,893,985
Limited Partnerships	627,937,138
	$995,139,367

Note 3 (f) – Fair Value Measurements
MPERS categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles in accordance with GASB 72. The hierarchy is based on the valuation inputs used to measure the fair value of the asset and give 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: Values derived from valuation techniques in which significant inputs are unobservable.

Investments Measured at Fair Value, June 30, 2016

Investments by Fair Value Level	Fair Value	Level 1	Level 2	Level 3
Debt Securities				
Collateralized debt obligations	$ 141,878,429	$ 0	$ 55,178,144	$ 86,700,285
Commercial mortgage-backed securities	67,615,054	0	9,792,196	57,822,859
Corporate Bonds	8,075,097	0	8,075,097	0
Government commercial mortgage-backed securities	7,080,970	0	0	7,080,970
Government mortgage-backed securities	57,483,954	0	31,274,870	26,209,084
Municapal Bonds	112,892,111	0	48,678,797	64,213,314
U.S. Government Agencies	40,779,342	0	40,779,342	0
U.S. Treasury securities	37,158,715	0	37,158,715	0
Total Debt Securities	472,963,673	0	230,937,162	242,026,511
Equity Securities				
Consumer Discretionary	16,978,581	16,978,581	0	0
Conumer Staples	6,633,251	6,621,231	0	12,020
Enery	67,581,281	67,581,281	0	0
Equity Other	19,830,383	19,830,383	0	0
Financials	31,146,749	31,146,749	0	0
Health Care	9,122,032	9,122,032	0	0
Industrials	10,677,403	10,677,403	0	0
Information Technology	18,328,810	18,289,887	38,923	0
Materials	3,267,337	3,267,337	0	0
Telecommunication Services	2,908,187	2,908,187	0	0
Utilities	2,406,428	2,406,428	0	0
Total Equity Securities	188,880,441	188,829,498	38,923	12,020
Private Markets				
Private Equity	348,785,990	0	0	348,785,990
Real Estate	219,041,442	0	0	219,041,442
Real Assets	148,141,065	0	0	148,141,065
Opportunistic Debt	125,457,604	0	0	125,457,604
Total Private Markets	841,426,101	0	0	841,426,101
Investment Derivative Instruments				
Equity Futures	2,079,715	2,079,715	0	0
Equity Swaps	(909,425)	0	(909,425)	0
FX Forwards (assets)	322,967	0	322,967	0
FX Forwards (liabilities)	(31)	0	(31)	0
Total Investment Derivative Instruments	1,493,226	2,079,715	(586,489)	0
Total Investments by Fair Value Level	1,504,763,440	**$190,909,213**	**$230,389,596**	**$1,083,464,631**
Investments Exempt from Fair Value Hierarchy				
Short-term securities	122,520,259			
Total Investments Exempt	122,520,259			
Investments Measured at Net Asset Value				
Equity Long/Short	33,717,440			
Multi-Strategy	21,035,203			
In Liquidation	762,727			
Commodity Trading Advisors	20,750,222			
Activist Equity	22,308,494			
Event	8,931,627			
Fundamental Equity Market Neutral	14,242,397			
Global Asset Allocation	15,655,289			
Structured Credit -Relative Value	10,925,108			
Global Macro	7,428,062			
Commingled International Equity Funds	201,948,840			
Total Investments Measured at Net Asset Value	357,705,409			
Total Investments	**$ 1,984,989,108**			
Reconciliation to Statement of Fiduciary Net Position				
Total Investments Measured at Fair Value and Derivatives	$ 1,984,989,108			
Investment Sales Receivable	(4,733,058)			
Investment Purshases Payable	8,912,823			
Accrued Interest and Income	(6,406,558)			
Accrued Expenses	58,521			
Total Investments per Statement of Fiduciary Net Position	**$1,982,820,836**			

Investments listed as level 1 include equity securities and futures contracts where the price comes from an exchange.

Investments listed as level 2 include debt securities where an independent pricing evaluator had direct observable information including: trading volume, multiple sources of market data and benchmark spreads. FX forwards are included due to the valuation coming from observable forward rates on the underlying currencies. The equity index swap is included because the valuation inputs include an observable interest rate and the underlying index.

Investments listed as level 3 include debt securities where an independent pricing evaluator did not have direct observable information and had limited market information for comparable securities. Significant inputs used in the valuation are not available aside from the evaluator providing the price. Direct investments in private equity, real estate, credit, and real assets are included because the valuation techniques utilize discounted cash flows or other non-observable market information by manager.

Investments Measured at Net Asset Value, June 30, 2016

Investments by Fair Value Level	Fair Value	Unfunded Commitments	Redemption Frequency (If Currently Eligible)	Redemption Notice Period
Hedge Fund				
Equity Long/Short	$ 33,717,440	$ 0	Quarterly	45-60 Days
Multi-Strategy	21,035,203	0	Quarterly	60-90 Days
In Liquidation	762,727	0	n/a	n/a
Commodity Trading Advisors	20,750,222	0	Monthly	30 Days
Activist Equity	22,308,494	0	Yearly, Every 3 Years	90 Days
Event	8,931,627	0	Monthly	90 Days
Fundamental Equity Market Neutral	14,242,397	0	Monthly	90 Days
Global Asset Allocation	15,655,289	0	Monthly	5 Days
Structured Credit - Relative Value	10,925,108	0	Quarterly	60 Days
Global Macro	7,428,062	0	Quarterly	90 Days
Total Hedge Fund	155,756,569	0		
Commingled International Equity Funds	51,553,081	0	Daily	30 Days
Commingled International Equity Funds	150,395,759	0	Monthly	5-10 Days
Total Commingled International Equity Funds	201,948,840	0		
Total Investments at Net Asset Value	**$357,705,409**	**$ 0**		
Private Markets				
Private Equity	$ 348,785,990	$117,761,399		
Real Estate	219,041,442	61,654,503		
Real Assets	148,141,065	63,499,033		
Opportunistic Debt	125,457,604	98,962,258		
Total Private Markets	$ 841,426,101	$341,877,193		

Hedge Funds

Equity Long/Short: Consisting of three funds, this strategy invests in both long and short in U.S. and global equity securities, with a goal of adding growth and minimizing market exposure. Due to contractual lock-up restrictions, the value of these investments is eligible for redemption in the next six to nine months.

Multi-Strategy: The four funds that make up this group aim to pursue varying strategies in order to diversify risks and reduce volatility. Due to contractual lock-up restrictions, the value of these investments is eligible for redemption in the next six to nine months.

Hedge Funds in Liquidation: MPERS currently has a small investment in three hedge funds that are in liquidation. These funds have closed and MPERS is awaiting the sale of final assets.

Commodity Trading Advisors: Consisting of two funds, one fund focuses on a systematic strategy that follows medium-term trends, while the second focuses on more short-term trading and tends to be counter-trend. The value of these investments is eligible for redemption in the next two months.

Activist: Consisting of two funds, this strategy focuses on obtaining publicly traded shares of companies and effecting changes within the companies that it owns whether that be value creation through operational, financial or corporate governance changes. One fund's focus is on North American companies and the other fund's focus is on European and Nordic companies. Due to contractual lock-up restrictions and the necessity for activist managers to retain capital in order to realize the desired company changes, 50% of this strategy's investments are eligible for redemption on a rolling three-year basis. The remaining 50% are eligible for redemption on a rolling one-year basis.

Event Driven: Consisting of one fund, this strategy seeks to gain an advantage from pricing inefficiencies that may occur at the onset or aftermath of a merger, corporate action or related event. Due to contractual lock-up restrictions, the value of these investments is eligible for redemption in the next four months.

Fundamental Equity Market Neutral: Consisting of one fund, this strategy invests in both long/short equities capturing price differences and seeks to maintain a neutral exposure to the market by having no sector, industry, market capitalization, or country biases. Due to contractual lock-up restrictions, the value of these investments is eligible for redemption in the next four months.

Global Asset Allocation: Consisting of one fund, this strategy is highly diversified and uses fundamental research to developing systematic rules for trading positions. Due to contractual lock-up restrictions, the value of these investments is eligible for redemption in the next four months.

Relative Value Hedge Funds: Consisting of one fund, this strategy's main focus is to benefit from valuation discrepancies that may be present in related financial instruments by simultaneously purchasing or selling these instruments. Due to contractual lock-up restrictions, all funds are eligible for redemption within the next six months.

Global Macro: Consisting of one fund, this strategy focuses on capturing inefficiencies in the market that exist as a result of interest rate differences and foreign exchange rate differences. The fund trades a highly diversified portfolio using a range of assets. Due to contractual lock-up restrictions, the value of these investments is eligible for redemption in the next four months.

Commingled International Equity Funds

MPERS invests in four international equity funds that are considered to be commingled in nature. Due to contractual lock-up restrictions, 70% of this capital is eligible for redemption in one month; the remaining 30% has daily liquidity.

Private Markets

Private equity, real estate, real assets and opportunistic debt are the four asset classes that fall into the category of private market funds. These funds invest in the equity or debt of private companies.

Private Equity: The private equity portfolio includes 11 direct fund investments and two fund of fund investments. These funds invest in private companies adding value through operational or industry expertise and vast networks. The majority of the private equity allocation is in buyout funds with a smaller portion in venture capital funds. These funds are not eligible for redemption. Distributions are received as underlying investments within the funds are liquidated, which on average can occur over the span of six to ten years.

Real Estate: The real estate portfolio consists of 19 real estate funds. The noncore real estate book includes 16 real estate funds and invests in value-add or opportunistic strategies. These funds are not eligible for redemption. Distributions are received as underlying investments within the funds are liquidated, which on average can occur over the span of six to ten years. The remaining three investments are in core real estate funds. These funds are open-ended and are eligible for redemption on a daily basis.

Real Assets: The real asset portfolio contains 18 funds that invest in private energy, mining and shipping companies. The timber portfolio, which includes both ownership in timber funds and direct timber investments, is also within the real assets portfolio. These funds are not eligible for redemption. Distributions are received as underlying investments within the funds are liquidated, which on average can occur over the span of six to ten years.

Opportunistic Debt: The opportunistic debt portfolio, comprised of 20 funds, invests mainly in U.S. private credit providing financing to private companies. These funds are not eligible for redemption. Distributions are received as underlying investments within the funds are liquidated, which on average can occur over the span of three to five years.

Note 3 (g) – Investment Interest Rate Risk

The following table summarizes the maturities of government obligations, corporate bonds, convertible corporate bonds, mortgages, and asset-backed securities which are exposed to interest rate risk.

Summary of Weighted Average Maturities at June 30, 2016

Investment Type	Fair Value	Investment Maturities (in years)			
		less than 1	1 - 5	6 - 10	more than 10
Asset-Backed Securities	$142,508,044	$ 0	$ 9,669,100	$ 74,785,810	$ 58,053,134
Commercial Mortgage-Backed Securities	46,951,848	0	1,423,267	0	45,528,581
Corporate Bonds	15,073,506	1,565,876	0	2,946,312	10,561,318
Government Agencies	54,761,733	0	1,295,360	3,673,153	49,793,220
Government Bonds	12,509,745	0	0	0	12,509,745
Government Mortgage-Backed Securities	42,438,635	0	0	2,876,621	39,562,014
Government-issued Commercial Mortgage-Backed	6,893,018	214,104	1,506,692	0	5,172,222
Index Linked Govt Bonds	24,384,853	0	16,375,046	8,009,807	0
Municipal/Provincial Bonds	102,162,022	0	2,508,710	11,607,034	88,046,278
Non-Govt Backed C.M.O.s	21,569,000	0	146,367	0	21,422,633
Short Term Bills and Notes	6,797,169	6,797,169	0	0	0
Grand Total	**$476,049,573**	$8,577,149	$32,924,542	$103,898,737	$330,649,145

Note 3 (h) – Investment Credit Ratings

The following table summarizes the credit ratings of the government obligations, corporate bonds, mortgages, and asset-backed securities.

Summary of Credit Ratings at June 30, 2016

Investment Type	Quality Rating	Fair Value
Asset-Backed Securities	AAA	$ 49,563,957
Asset-Backed Securities	AA	31,596,084
Asset-Backed Securities	A	7,624,874
Asset-Backed Securities	BB	3,736,600
Asset-Backed Securities	B	1,521,283
Asset-Backed Securities	not rated	48,465,246
Commercial Mortgage-Backed Securities	AAA	3,735,932
Commercial Mortgage-Backed Securities	BBB	2,692,537
Commercial Mortgage-Backed Securities	BB	544,258
Commercial Mortgage-Backed Securities	B	10,229,003
Commercial Mortgage-Backed Securities	CCC	4,141,597
Commercial Mortgage-Backed Securities	D	1,076,236
Commercial Mortgage-Backed Securities	not rated	23,244,051
Commercial Mortgage-Backed Securities	us gov guar	1,288,234
Corporate Bonds	AAA	2,946,312
Corporate Bonds	AA	2,735,196
Corporate Bonds	BBB	213,525
Corporate Bonds	not rated	9,178,473
Government Agencies	AA	52,516,533
Government Agencies	us gov guar	2,245,200
Government Bonds	us gov guar	12,509,745
Government Mortgage-Backed Securities	not rated	4,954,187
Government Mortgage-Backed Securities	us gov guar	37,484,448
Govt issue Commercial Mortgage-Backed Securities	AAA	214,104
Govt issue Commercial Mortgage-Backed Securities	us gov guar	6,678,914
Index Linked Government Bonds	us gov guar	24,384,853
Municipal/Provincial Bonds	AAA	22,091,858
Municipal/Provincial Bonds	AA	72,246,243
Municipal/Provincial Bonds	A	322,621
Municipal/Provincial Bonds	not rated	7,501,300
Non-Government Backed C.M.O.s	AA	430,996
Non-Government Backed C.M.O.s	A	1,085,895
Non-Government Backed C.M.O.s	BBB	344,616
Non-Government Backed C.M.O.s	BB	141,330
Non-Government Backed C.M.O.s	B	603,609
Non-Government Backed C.M.O.s	CCC	1,219,705
Non-Government Backed C.M.O.s	CC	172,970
Non-Government Backed C.M.O.s	D	8,926,201
Non-Government Backed C.M.O.s	not rated	8,643,678
Short Term Bills and Notes	us gov guar	6,797,169
Total		**$476,049,573**

Note 3 (i) – Investment Foreign Currency Risk

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 MPERS' exposure to foreign currencies for all assets that are held in custody at the System's custodial bank. MPERS' has exposure to foreign currencies in other area 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.

Exposure to Foreign Currency Risk as of June 30, 2016

Foreign Currency	Equities	Real Estate/ Partnerships	Total
Australian Dollar	$ 1,408,944	$ 0	$ 1,408,944
British Pound Sterling	1,117,683	14,585,002	15,702,685
Euro	2,273,156	17,781,145	20,054,301
Japanese Yen	767,285	0	767,285
Total Exposure Risk	**$5,567,068**	**$32,366,147**	**$37,933,215**

Note 3 (j) – Securities Lending

In accordance with the Board of Trustees' investment policy, MPERS participates in a securities lending program. The Northern Trust Company administers the program. There are no restrictions on the amount of securities that may be lent.

Securities that may be loaned include U.S. government and agency securities, corporate equity, and fixed income securities. Collateral may include cash, U.S. government securities and irrevocable letters of credit. U.S. securities are loaned in exchange for collateral valued at 102% of the fair value of the securities, plus any accrued interest. Non-U.S. securities are loaned in exchange for collateral valued at 105% of the fair value of the securities, plus any accrued interest. On June 30, 2016, MPERS had no credit risk exposure to borrowers, since the amount of collateral exceeded the amount of the loans.

Non-cash collateral cannot be pledged or sold unless the borrower defaults. The average term of the System's loans was approximately 78 days as of June 30, 2016. Cash open collateral is invested in a short-term investment pool, which had an interest sensitivity of 30 days as of June 30, 2016. Cash collateral may also be invested separately in "term loans", in which case the investments match the loan term. These loans can be terminated on demand by either lender or borrower. There were no known violations of legal or contractual provisions, or borrower or lending agent default losses. There were no dividends or coupon payments owing on the securities lent. Securities lending earnings are credited on approximately the fifteenth day of the following month.

Indemnification deals with a situation in which a client's securities would not be returned due to the insolvency of a borrower and Northern Trust would fail to live up to its contractual responsibilities relating to the lending of those securities. Northern Trust's responsibilities include performing appropriate borrower and collateral investment credit analyses and demanding adequate types and levels of collateral.

The collateral held (including both cash collateral recognized in the Statement of Fiduciary Net Position and non-cash collateral) is as follows:

Collateral Held as of June 30, 2016

Investment Type	Total
Equities	$ 48,877,305
Government & government sponsored securities	3,845,928
	$52,723,233

Note 3 (k) – Derivatives

A derivative financial instrument is an investment whose value depends on the values of one or more underlying assets, financial indexes, or commodity prices. These investments include futures contracts, options contracts, and forward foreign currency exchange. Derivative financial instruments involve credit risk and market risk, as described in Note 3 (a), in varying levels.

Through MPERS' external managers, MPERS holds investments in futures contracts, swap contracts, options contracts, and forward foreign currency exchange contracts. MPERS enters futures and swaps contracts to gain exposure to certain markets and enters into forward foreign exchange contracts primarily to hedge foreign currency exposure.

The notional value related to these derivative instruments are generally not recorded on the financial statements; however, the change in fair value of these instruments is incorporated in performance. The notional/fair value of $169,556,349 for the various contracts in MPERS' portfolio as of June 30, 2016, is recorded in investments on the Statement of Fiduciary Net Position. The change in fair value of $5,366,682 for the year ended June 30, 2016, is recorded in investment income on the Statement of Changes in Fiduciary Net Position.

Investment Derivatives as of June 30, 2016

Type	Classification	Notional/ Fair Value	Unrealized Gain (Loss)
Futures Contracts	Investments, at fair value	$171,676,807	$5,803,902
Swap Contracts	Investments, at fair value	22,543,212	(761,530)
Rights/Warrants	Investments, at fair value	12,020	0
Foreign Currency Forward Contracts	Investments, at fair value	(24,675,690)	324,310
		$169,556,349	**$5,366,682**

Through the use of derivatives, MPERS is exposed to risk that the counterparties involved in the contracts are unable to meet the terms of their obligation. MPERS' investment managers seek to control this risk through counterparty credit evaluations and approvals, counterparty credit limits, and exposure monitoring procedures. MPERS anticipates the counterparties will be able to satisfy their obligations under the contracts. The associated counterparty's credit rating is an A-.

NOTE 4 – RECEIVABLES

Receivables as of June 30, 2016

Type	Total
Contributions-MoDOT	$ 5,224,282
Contributions-MSHP Non-Uniformed	1,161,624
Contributions-MSHP Uniformed	1,972,326
Contributions-Retirement System	167,953
Commission Recapture	169
Securities Lending	36,205
Investment Interest & Income	6,406,558
Investment Sales	4,733,058
	$19,702,175

NOTE 5 – CONTRIBUTIONS

MoDOT, MSHP, and MPERS make contributions to the System, as do employees covered under the Year 2000 Plan-2011 Tier. MPERS permanent funding policy provides for actuarially determined employer contributions using the entry-age normal cost method on a closed group basis (consisting of normal cost and amortization of any unfunded accrued liabilities over a 30-year period, beginning July 1, 2006). (The objective is to reduce the period by one year each year.) A temporary accelerated policy has been adopted where the total contribution is based on entry-age normal cost plus a 15-year amortization period for unfunded retiree liabilities and a 30-year amortization period for other unfunded liabilities. Both amortization periods are closed periods starting July 1, 2010. This temporary accelerated policy was adopted by the MPERS' Board of Trustees on September 17, 2009, and will remain in effect until such time as the retiree liability becomes 100% funded or the permanent policy produces a higher contribution rate. Actuarially determined rates, expressed as percentages of annual covered payroll, provide for amounts sufficient to fund those benefits designated by state statute to be funded in advance. Actuarial assumptions used to compute contribution requirements are the same as those used to compute the pension benefit obligation. The employee contribution rate for members of the Year 2000 Plan-2011 Tier is set by statute.

Required employer contributions totaling $199,609,396 for fiscal year 2016, represent funding of normal costs and amortization of the unfunded accrued liability. Actual contributions made were 100% of required contributions. Contribution rates as determined by the System's actuary for the year ended June 30, 2016, are shown in the following table. The Board established actual rates to be the same as the actuarially determined rates.

Contribution Rates

MoDOT, MPERS & Civilian Patrol	Uniformed Patrol	2011 Tier Employee
58.05%	57.76%	4.00%

At the September 26, 2014 Board meeting, the Board adopted the use of a contribution rate stabilization reserve that would result in an MPERS employer contribution rate similar to the fiscal year 2015 rates. The reserve is intended to keep the contribution relatively level over time and may be used if the market experiences a downturn in the future. The Board further adopted (in February 2015) that the employer contribution rate would not fall below 58% unless 1) the fund became fully funded or 2) the contribution stabilization reserve reached $250 million. The balance of the reserve as of June 30, 2016, was $188,315,769.

NOTE 6 – DEFERRED RETIREMENT OPTION PROGRAM

MPERS currently provides a BackDROP option. This is an election made at the time of actual retirement. In effect, it provides members an option to elect to receive a portion of their benefits as cash. Since the election is not made until the member actually retires, the option is not treated as a DROP provision in accordance with generally accepted accounting principles.

NOTE 7 – NET PENSION LIABILITY OF EMPLOYERS

The components of the net pension liability of the employers at June 30, 2016, were as follows:

Total pension liability	$3,761,733,004
Plan fiduciary net position	(1,992,073,946)
Employers' net pension liability	$1,769,659,058

Plan fiduciary net position as a percentage of the total pension liability	52.96%
Covered Employee Payroll	$344,635,441

Employers' net pension liability as a percentage of covered employee payroll	513.49%

Actuarial Assumptions
The total pension liability amounts were determined by actuarial valuations as of June 30, 2016, using the following actuarial assumptions, applied to all prior periods included in the measurement:

Inflation	3.0%
Salary Increases	3.5% to 11%
Investment Rate of Return	7.75%

The mortality tables, for post-retirement mortality, used in evaluating allowances to be paid to non-disabled pensioners were the R-P 2000 Combined Healthy Mortality Tables projected 16 years and set back 1 year for males and females. Pre-retirement mortality used was 70% for males and 50% for females of the post-retirement tables set back 1 year for males and set back 1 year for females. Disabled pension mortality was based on PBGC Disabled Mortality Tables. The healthy mortality tables include a margin for mortality improvement. The margin is in the 16-year projection. The disabled mortality tables do not include a margin for mortality improvement.

The long-term (30 year) expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges 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 real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return were adopted by the plan's trustees after considering input from the plan's investment consultants and actuary. These estimates for each major asset class included in MPERS' target asset allocation as of June 30, 2016, (see NOTE 3) are summarized in the following table:

Asset Class	Long-Term Expected Real Rate of Return
Global Equity	4.80%
Private Equity	6.50%
Fixed Income	0.50%
Real Assets	4.75%
Real Estate	2.75%
Hedge Funds	2.75%

Discount Rate
A single discount rate of 7.75% was used to measure the total pension liability. This single discount rate was based on the expected rate of return on pension plan investments of 7.75%. The projection of cash flows used to determine this single discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. The employers pay the same contribution rate for each employee regardless of the plan the employee was hired under. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Regarding the sensitivity of the net pension liability to changes in the single discount rate, the following presents the plan's net pension liability, calculated using a single discount rate of 7.75%, as well as what the plan's net pension liability would be if it were calculated using a single discount rate that is 1-percentage-point lower or 1-percentage-point higher:

Current Single Discount

	1% Decrease 6.75%	Rate Assumption 7.75%	1% Increase 8.75%
2016 Net Pension Liability	$2,210,589,058	$1,769,659,058	$1,401,144,062

NOTE 8 – EMPLOYER PROPORTIONATE SHARE

MPERS, as the administrative agent for the pension system, is also an employer of the pension system. The administrative expenses of the pension system are included in the deductions to the pension system's fiduciary net position. While the employer contributions of the other participating employers are funded from outside revenue sources, the employer contributions of MPERS are funded from sources already recognized as revenues, such as earnings on plan investments or contributions paid by the other participating employers. Attempting to allocate a portion of the net pension liability to MPERS as an employer would result in an allocation of the net pension liability to the other participating employers. Accordingly, MPERS excludes its contributions from the employer proportionate share calculation for the reporting of a net pension liability, by assigning itself a proportionate share of 0%. This exclusion in essence shifts the portion of the net pension liability that would accrue to MPERS to the other participating employers.

NOTE 9 – PERSONAL SERVICES AND RETIREMENT PLAN

MPERS employed 16 full-time employees on June 30, 2016. Ten former MPERS employees have retired. Full-time employees are members of the System (see Note 8). For these employees, MPERS accrued 58.05% of payroll during FY2016, amounting to $996,378. The amounts for F20Y16 and the three preceding years are shown below. These amounts are recorded as both a contribution and administrative expense. Information regarding the retirement plans can be found in Notes 2 and 5.

Net Obligations

Year Ended June 30	Annual Contribution Accrual	
	Percent	Dollars
2013	50.92%	$562,535
2014	54.25%	739,002
2015	58.76%	907,064
2016	58.05%	996,378

NOTE 10 – OTHER POST-EMPLOYMENT BENEFITS (OPEB)

In addition to the retirement benefits described previously, MPERS provides a portion of health care insurance through the MoDOT and MSHP Medical and Life Insurance Plan (Insurance Plan) in accordance with Missouri State statutes. The Insurance Plan is considered an agent multiple-employer defined benefit plan administered by MoDOT. Medical insurance benefits are established by the Insurance Plan's Board of Trustees and are approved by the Missouri Highways and Transportation Commission. Benefits include general inpatient and outpatient medical services; mental, nervous and substance abuse care; and prescriptions. Eligible members are employees who retired from the System with a minimum of 5 years of service and who participate in the Insurance Plan. MoDOT issues a publicly available financial report that includes financial statements and required supplementary information for the Insurance Plan. Requests for this report should be addressed to MoDOT, Controller's Division, P.O. Box 270, Jefferson City, MO 65102.

Employer and member contributions are established by the Insurance Plan's Board of Trustees and are approved by the Missouri Highways and Transportation Commission. Premiums vary by coverage categories, which include retirees, certain disabled employees, spouses, certain dependents, and survivors of deceased employees and retirees. Member and employer required contribution rates average approximately 31.7% and 68.3%, respectively. The Insurance Plan is financed on a pay-as-you-go basis and is an internal service fund of MoDOT.

MoDOT's actuarial valuations for the Insurance Plan are performed biennially. The July 1, 2015 actuarial valuation was used for the FY2016 financial statements.

For this period the annual required contribution (ARC) is equal to the annual OPEB cost. MPERS contributed $45,293 in FY2016 (49.38% of the ARC), including implicit rate subsidies. Although funding is not related to payroll amounts, an equivalent ARC rate would be 5.25% of annual covered payroll of $1,744,734 for FY2016. MPERS' share of the net OPEB obligation was $680,169 at June 30, 2016. MPERS' share of the changes in the Insurance Plan's net OPEB obligation is shown as follows:

OPEB Cost and Obligation for the Year Ended June 30, 2016

Type	Total
Normal Cost	$ 37,661
Amortization Payment	50,520
Interest	29,279
Adjustment to ARC	(35,807)
Annual OPEB Cost	81,653
Contributions	(45,293)
Increase in Net OPEB Obligation	36,360
Net OPEB Obligation - Beginning of Year	643,809
Net OPEB Obligation - End of Year	$680,169
% of Annual OPEB Cost Contributed	55.5%

Because the Insurance Plan is an internal service fund of MoDOT, the Insurance Plan's assets have not been set aside. Because of this, there is no actuarial value of assets, so the entire actuarial accrued liability (AAL) is unfunded. Based on an actuarial report dated July 1, 2015, MPERS' portion of the AAL is $908,347, which is equal to MPERS' portion of the unfunded actuarial accrued liability (UAAL), as shown below.

Actuarial Accrued Liability

Actuarial Accrued Liability	$908,347
Actuarial Value of Assets	0
Unfunded Actuarial Accrued Liability (UAAL)	$908,347
Funded Ratio (Actuarial Value of Plan Assets/AAL)	0%
Covered Payroll	$1,744,734
UAAL as a Percentage of Covered Payroll	52%

Actuarial valuations of an ongoing plan reflect long-term perspective and involve estimates of the value of reported amounts and assumptions about the probability of occurrence of events far into the future. Examples include assumptions about future employment, mortality, and the healthcare cost trend. These calculations are subject to continual revision as actual results are compared to past expectations and new estimates are made about the future. A schedule of funding progress is presented as required supplementary information following the notes to the financial statements. The schedule of funding progress represents multi-year trend information about whether the actuarial value of plan assets is increasing or decreasing relative to the AAL for benefits.

Projections of benefits for financial reporting purposes are based on the substantive plan (the plan as understood by the employers and plan members) and include the types of benefits provided at the time of each valuation and the historical pattern of sharing of benefit costs between the employers and plan members to that point. The actuarial methods and assumptions used include techniques that are designed to reduce short-term volatility in actuarial accrued liabilities and the actuarial value of assets, consistent with the long-term perspective of the calculations. The actuarial methods and assumptions utilized in the valuation are shown on the following table.

Actuarial Methods and Assumptions

Actuarial Cost Method	Projected Unit Credit
UAAL Amortization Method	Level Dollar Amount
UAAL Amortization Period	30 Years
UAAL Amortization Approach	Open
Investment Return (Discount) Rate	4.0%
Healthcare Cost Trend Rate	7%, Decreasing To 4.5% in 2025
Admin Expense Trend (Inflation) Rate	4.0%

NOTE 11 – CAPITAL ASSETS

Summary of Changes in Capital Assets

	6/30/2015 Balance	Additions	Deletions/ Retirements	6/30/2016 Balance
Land	$ 84,000	$ 0	$0	$ 84,000
Buildings	581,619	0	0	581,619
Furniture, Equipment and Software	3,508,917	8,272	0	3,517,189
Less: Accumulated Depreciation	(2,253,069)	(360,639)	0	(2,613,708)
Total	**$1,921,467**	**($352,367)**	**$0**	**$1,569,100**

NOTE 12 – RISK MANAGEMENT

MPERS is exposed to various risks of loss related to natural disasters, asset theft or damage, errors and omissions, torts, and employee injuries.

MPERS has purchased commercial insurance related to capital asset loss and damage. Ancillary coverage provided through the property policy includes coverage for accounts receivable, loss of money and securities, employee dishonesty, and forgery and alterations. MPERS carries a $2 million umbrella liability policy. MPERS has coverage through Missouri Highway and Transportation Commission's Self-Insurance Fund related to workers' compensation. MPERS' has also purchased an executive risk insurance package that includes directors and officers liability ($1 million aggregate coverage), employment practices liability ($1 million aggregate coverage) and fiduciary liability coverage ($5 million aggregate coverage). These coverages are inclusive of legal defense costs and each policy carries a $25,000 deductible. The State's Legal Expense Fund covers all state employees and officers, and MPERS has purchased surety bonds for the executive director and staff. Settlements have not exceeded coverages for each of the past three fiscal years.

MPERS has a disaster recovery plan that provides for continued computer operations at a remote location should the retirement office be unavailable for normal operations

Required Supplementary Information

Schedule Of The Employers' Net Pension Liability
As of June 30,

	2016	2015	2014	2013
Total Pension Liability	$ 3,761,733,004	$ 3,715,845,651	$ 3,650,241,741	$ 3,583,975,559
Plan Fiduciary Net Position	1,992,073,946	2,009,367,134	1,957,456,213	1,685,732,710
Employers' Net Pension Liability	**$ 1,769,659,058**	**$ 1,706,478,517**	**$ 1,692,785,528**	**$ 1,898,242,849**
Plan Fiduciary Net Position as a % of Total Pension Liability	52.96%	54.08%	53.63%	47.04%
Covered Employee Payroll	$ 344,635,441	$ 342,264,593	$ 336,590,797	$ 323,205,767
Employers' Net Pension Liability as a % of Employee Covered Payroll	513.49%	498.58%	502.92%	587.32%

Note: These schedules are intended to present information for 10 years, but may be built prospectively. Additional years will be displayed as they become available.

Schedule Of Changes In The Employers' Net Pension Liability
Year ended June 30,

	2016	2015	2014	2013
Total Pension Liability				
Service Cost	$ 45,441,305	$ 45,358,095	$ 44,739,603	$ 44,446,279
Interest on the Total Pension Liability	280,432,068	275,284,910	270,525,608	265,339,848
Difference Between Expected and Actual Experience	(39,810,009)	(13,324,219)	(17,614,321)	(13,690,794)
Assumption Change	0	0	0	204,396,180
Benefit Payments	(236,488,629)	(236,905,323)	(227,958,108)	(220,623,394)
Refunds	(198,106)	(107,395)	(18,686)	(29,300)
Disability Premiums	(1,567,825)	(1,554,676)	(1,531,578)	(1,512,685)
Transfers to Other Retirement Systems	(1,921,451)	(3,147,482)	(1,876,336)	(629,246)
Net Change in Total Pension Liability	**45,887,353**	**65,603,910**	**66,266,182**	**277,696,888**
Total Pension Liability - Beginning	**3,715,845,651**	**3,650,241,741**	**3,583,975,559**	**3,306,278,671**
Total Pension Liability - Ending (a)	**$3,761,733,004**	**$3,715,845,651**	**$3,650,241,741**	**$3,583,975,559**
Plan Fiduciary Net Position				
Contributions - Employer	$ 199,609,396	$ 200,638,571	$ 183,353,841	$ 170,836,117
Contributions - Employee	3,482,513	3,294,162	2,260,563	1,139,450
Pension Plan Net Investment Income	21,432,095	92,645,571	319,445,780	198,141,088
Benefit Payments	(236,488,629)	(236,905,323)	(227,958,108)	(220,619,035)
Refunds	(198,106)	(107,395)	(18,686)	(29,300)
Disabilty Premiums	(1,567,825)	(1,554,676)	(1,531,578)	(1,512,685)
Pension Plan Administrative Expense	(4,370,860)	(4,066,944)	(3,736,355)	(2,997,225)
Net Transfers	808,228	(2,033,045)	(91,954)	(629,246)
Net Change in Plan Fiduciary Net Position	**(17,293,188)**	**51,910,921**	**271,723,503**	**144,329,164**
Plan Fiduciary Net Position - Beginning	**2,009,367,134**	**1,957,456,213**	**1,685,732,710**	**1,541,403,546**
Plan Fiduciary Net Position - Ending (b)	**$1,992,073,946**	**$2,009,367,134**	**$1,957,456,213**	**$1,685,732,710**
Employers' Net Pension Liability - Ending (a) - (b)	**$1,769,659,058**	**$1,706,478,517**	**$1,692,785,528**	**$1,898,242,849**

Note: These schedules are intended to present information for 10 years, but may be built prospectively. Additional years will be displayed as they become available.

Required Supplementary Information

Schedule Of Employers Contributions

Last 10 Fiscal Years

	Actuarially Determined Contributions	Actual Contributions	Contribution Deficiency (Excess)	Covered Employee Payroll	Contributions as a Percentage of Employee Covered Payroll
2007	$121,243,361	$121,243,361	$0	$372,140,457	32.58%
2008	123,323,265	123,323,265	0	375,527,604	32.84
2009	122,613,975	122,613,975	0	379,140,306	32.34
2010	124,052,534	124,052,534	0	376,258,823	32.97
2011	149,952,750	149,952,750	0	363,345,651	41.27
2012	164,884,467	164,884,467	0	344,514,139	47.86
2013	170,836,117	170,836,117	0	329,863,134	51.79
2014	183,353,841	183,353,841	0	336,799,855	54.44
2015	200,638,571	200,638,571	0	342,211,446	58.63
2016	199,609,396	199,609,396	0	344,154,131	58.00

Schedule Of Investment Returns

Last 10 Fiscal Years

Fiscal Year Ended June 30	Annual Money-Weighted Rate of Return
2007	17.87%
2008	-2.29%
2009	-24.88%
2010	12.72%
2011	21.57%
2012	2.80%
2013	13.37%
2014	17.58%
2015	6.62%
2016	1.02%

Notes To Required Supplementary Information

The information presented in the required supplementary schedules was determined as part of the actuarial valuation at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation Date .... June 30, 2016
Actuarial Cost Method .... Entry Age
Amortized Method .... Level Percentage of Payroll, Closed
Remaining Amortization Period .... 16 Years (single equivalent period)
Asset Valuation Method .... 3-Year Smoothed Market: 20% Corridor
Inflation .... 3.5% (price inflation)
Actuarial Assumptions:
- Investment Rate of Return 7.75%
- Projected Salary Increase .... 3.5% to 11% (including 3.5% wage inflation)
- Cost-of-Living Adjustments .... 2.4% Compound

Other Post-Employment Benefit (OPEB) Plan Schedule of Funding Progress for MoDOT and MSHP Medical and Life Insurance Plan

Year Ended June 30	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)
2008	$0	$1,178,303	$1,178,303	0%
2010[1]	0	1,036,681	1,036,681	0%
2012	0	1,048,333	1,048,333	0%
2014	0	857,676	857,676	0%
2016	0	908,347	908,347	0%

[1] *New assumptions adopted*

Actuarial valuations are performed biennially. The July 1, 2015 actuarial valuation was used for FY2016 financial statements, the July 1, 2013 actuarial valuation was used for FY2015 and FY2014 financial statements, the July 1, 2011 actuarial valuation was used for FY2012 and FY13 financial statements, the July 1, 2009 actuarial valuation was used for FY2010 and FY2011 financial statements, and the July 1, 2007 actuarial valuation was used for FY2008 and FY2009 financial statements. This reporting requirement is being implemented prospectively, as prior years' data is not available.

Because this plan is an internal service fund of MoDOT, assets have not been set aside. Therefore, there is no actuarial value of assets. This results in a calculated funded ratio of zero percent.

Notes to the OPEB Schedule of Funding Progress

The information presented in the required supplementary schedule was determined as part of the actuarial valuation at the date indicated. Additional information as of the latest actuarial valuation follows:

Valuation Date .... July 1, 2015
Actuarial Cost Method .... Projected Unit Credit
UAAL Amortization Method .... Level Dollar Amount
UAAL Amortization Period .... 30 Years
UAAL Amortization Approach .... Open
Investment Return (discount) Rate 4.0%
Healthcare Cost Trend Rate .... 7.0%, Decreasing to 4.5% in 2025
Admin Expense Trend (Inflation) Rate 4.0%

Schedule Of Administrative Expenses

For the Year Ended June 30, 2016

Personal Services:	
Salary Expense	$ 1,744,734
Employee Benefit Expense	1,357,290
Total Personal Services	**$3,102,024**
Professional Services:	
Actuarial Services	98,888
Audit Services	48,840
Disability Administrative Services	13,504
Legislative Consultant	30,000
Investment Special Consulting	11,486
Insurance Consultant	6,000
Other Consultant Fees	4,559
Fiduciary Insurance	76,618
IT Hosting and Support	309,669
Other	4,291
Total Professional Services	**$ 603,855**
Miscellaneous:	
Depreciation	360,639
Meetings/Travel/Education	105,663
Equipment/Supplies	51,275
Printing/Postage	34,534
Bank Service Charge	8,801
Building Expenses	46,917
Other	57,152
Total Miscellaneous	**$ 664,981**
Total Administrative Expenses	**$4,370,860**

Schedule Of Investment Expenses

For the Year Ended June 30, 2016

Investment Income Expenses:	
Management and Performance Fees	
Global Equity	$ 2,808,173
Fixed Income Core	142,170
Opportunistic Debt	2,007,229
Real Estate	8,397,610
Private Equity	3,159,368
Real Assets	885,006
Hedge Funds	4,316,966
Cash	510,000
Total Management and Performance Fees	**$22,226,522**
Investment Custodial Fee	53,679
Performance Management	164,208
General Consultant (monitoring) Fee	318,871
Other Investment Expenses	940,605
Total Investment Income Expenses	**$23,703,885**
Securities Lending Expenses:	
Borrower Rebates (Refunds)	$ 77,831
Bank Fees	87,969
Total Securities Lending Expenses	**$ 165,801**

Schedule Of Consultant And Professional Expenses

For the Year Ended June 30, 2016

Professional/Consultant	Nature of Service	
Levi, Ray & Shoup, Inc.	Information Technology	$250,394
Gabriel, Roeder, Smith & Co.	Actuarial	98,888
Alliant Insurance Services, Inc.	Fiduciary Insurance	69,684
Williams-Keepers, LLC	Financial Audit	48,840
Huber & Associates	Information Technology	44,085
Michael G. Winter Consultants, LLC	Legislative Consulting	30,000
Sikich, LLP	Information Technology	15,190
The Standard Insurance Co.	Disability Administration	13,504
ISI Group, Inc.	Market Research	11,486
Charlesworth Benefits	Risk Management Consulting	6,000
Alliant Insurance Services, Inc.	Director's & Officer's Insurance	5,816
Thompson Coburn, LLP	Legal Consulting	4,559
Pension Benefit Information	Death Audit Services	2,628
MO Dept. of Health & Senior Services	Death Audit Services	1,518
Alliant Insurance Services, Inc.	Employee Crime Bond	1,118
The Berwyn Group	Death Audit Services	145
Total Operating Consultant and Professional Expenses		**$603,855**
New England Pension Consultants	General Consulting/Monitoring	$318,871
The Northern Trust Company	Performance Management	164,208
The Northern Trust Company	Investment Custodian	53,679
Total Investment Consultant and Professional Expenses		**$536,758**

Investment Section

"An investment in knowledge always pays the best interest."

-Benjamin Franklin

Leading author, printer, political theorist, politician, freemason, postmaster, scientist, inventor, civic activist, statesman, and diplomat

MoDOT & Patrol Employees' Retirement System

October 5, 2016

To the Board of Trustees and System Members:

It is my pleasure to provide you with the investment section of this year's Comprehensive Annual Financial Report (CAFR). My letter provides an overview of the investment portfolio's performance over the past year and our view of the investment market in the years to come.

Fiscal year 2016 was a challenging year for MPERS' investment portfolio, as a slowing global economy sent oil and gas markets down over 40% and global equity markets down 3.7% for the year. It was another year where MPERS' efforts to diversify the portfolio paid off, as the investment portfolio was able to navigate the difficult market and generate a positive 1.01% return for the year, net of all management fees and based on time-weighted rates of return and market valuations. Despite underperforming the policy index return of 1.85%, MPERS' performance ranked in top 34% of the public fund peer universe and longer term performance remains very strong. MPERS' three, five, and ten year returns rank in the 1st, 2nd and 27th percentile, respectively. The ten year return is even more impressive given the fact that MPERS' portfolio has a lower risk profile than 74% of the peer group (with risk measured by standard deviation of returns).

The individual asset classes delivered a wide range of returns for the year, led by the real estate portfolio with a 10.62% return and the fixed income portfolio with a 7.55% return. The private equity portfolio also continued to mature and delivered a positive return of 4.86%. The global equity, hedge fund, and real assets portfolios all generated negative returns, with real assets representing the worst asset class with a -8.69% return. The performance of the real assets portfolio was the primary source of underperformance to MPERS' policy index, as the sector contributed over 1% of underperformance at the total fund level (while the total fund underperformed the policy index by 0.84%). Overall, we were actually pleased with how well the real assets portfolio held up in such a difficult environment, and we believe the sector is positioned for better performance going forward.

Hedge funds were another asset class that didn't perform up to expectations over the past year, as the industry struggles to adapt to the changing regulatory and political environment. Unlike real assets, we believe the weakness in hedge funds is more structural in nature and better risk-adjusted investments exist elsewhere in the portfolio. Recognizing the difficult market environment for hedge funds, in June of 2016 the Board approved a recommendation to reduce the targeted asset allocation from 15% to 10% of assets. The reduction in hedge funds will be offset by increasing the targeted allocation to real assets and opportunistic debt to 7.5% each (both currently have 5% targets). As part of the change, the opportunistic debt allocation will be carved out and reported as a separate asset class rather than a subset of the broader fixed income allocation. The changes will become effective January 1, 2017.

Board of Trustees and System Members
October 5, 2016
Page 2

While MPERS' fiscal year return fell short of the actuarial target of 7.75%, MPERS' longer-term performance was strong enough to allow an additional $47 million investment into the recently established contribution stabilization fund. The reserve fund now has a balance of $188 million, which will be used to offset years when experience falls short of our actuarial goals. I commend the Board for their foresight in creating this fund, as it demonstrates a true alignment of interest with our members and will provide stability to our employers' contribution rates as we navigate this difficult investment climate.

As we look ahead to fiscal year 2017, financial markets seem eerily similar to the start of last year. Equity valuations remain near the high end of historical ranges, and the global economy has yet to demonstrate the ability to grow without the constant support of government stimulus. The global economy will have to find new sources of growth to send equity markets higher from current levels. To make matters worse, the one place to hide in recent years, namely government bonds, is looking risky as well. With government bonds yielding between 1 ½ and 2 ½ percent, and the Federal Reserve debating how much – not whether or not – to raise interest rates, long-term government bonds can no longer be viewed as a safe haven (albeit with a different set of risks relative to equity markets). Balancing the need to diversify the portfolio, along with the need to generate consistent positive returns, is going to be a very difficult task in the years ahead. The restructuring efforts of years past should help the portfolio produce consistent returns across a wide range of economic scenarios – not just when the stock market is rising – but the markets seem destined to deliver modest returns in the years ahead. All of this reinforces the need to be realistic about our return prospects, protect the corpus of the fund, and do everything under our control to deliver solid risk-adjusted returns for our members.

Thank you for the opportunity to serve as your Chief Investment Officer, and I hope you enjoy this year's annual report.

Sincerely,

Larry Krummen, CFA

NEPC, LLC

KEVIN M. LEONARD
PARTNER

September 2016

The Board of Trustees
MoDOT & Patrol Employees' Retirement System
PO Box 1930
Jefferson City, MO 65102

Dear Board Members:

In our role as the general investment consultant, we assist the Board in several manners: determining and executing the overall asset allocation strategy of the Plan; advising on the investment policy of the Plan; facilitating investment manager searches (both traditional and alternative asset classes); conducting custodial service searches; providing ongoing performance evaluation for each individual investment manager and the overall investment portfolio; as well as providing pertinent education to the Board.

MPERS' objective is to provide service, disability, death and vested retirement benefits to members and their beneficiaries. To ensure a solid foundation for the future of the System, MPERS has developed an investment program designed to achieve the actuarially assumed rate of return over the long term, while prudently managing the risk of the portfolio. The pension plan is required to satisfy the need to pay accumulated/earned retirement benefits today, while at the same time be prepared for "uncertain" future benefits. This balancing of short-term versus long-term needs is a key tenant in the overall construction of the portfolio. To facilitate this balance, the Board has adopted a diversified asset allocation structure. Our goal is to diversify the System's assets within the traditional and non-traditional asset classes to reduce volatility, achieve above market returns, and to better protect the portfolio against difficult market conditions.

MPERS Fiscal Year 2016 Performance and Key Initiatives

For the fiscal-year-ending June 30, 2016, the MPERS Total Plan returned 1.0% on a net-of-fees basis. For the fiscal-year-ending June 30, 2016, relative to the peer group comparison (InvestorForce Public Fund Universe), MPERS ranked in the 34th percentile (1st percentile being the highest, 100th percentile being the lowest), outpacing 66% of other public funds within the universe. For the fiscal year, total Plan performance (relative to peer group) was driven by strong absolute and relative returns within the Fund's fixed income portfolio and strong absolute returns within the real estate portfolio. On a relative basis, the private equity portfolio also contributed to performance.

During Fiscal Year 2016, key initiatives accomplished included:

- Conducted a comprehensive review of the Plan's asset allocation in concert with NEPC's 2016 Client Actions and Asset Class Assumptions.
  - As part of the review, NEPC and Staff evaluated the Plan's existing asset allocation and discussed any potential changes to its current structure.
    - Based on the review and discussions, NEPC and Staff recommended the target allocation to hedge funds be lowered from 15% to 10% and the target allocations to real assets and opportunistic debt be increased from 5.0% to 7.5%, respectively.
    - The adoption of the changes, which will not take effect until FY2017, increases the expected 5-7 year return of the portfolio from 6.8% to 6.9%.

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- The adoption of the changes does not have a meaningful impact on the liquidity profile as the actual allocation (6/30/16) of the three asset classes is in line with the new targets.
    - hedge fund allocation is 7.8% versus 10%
    - opportunistic debt allocation is 8.4% versus 7.5%
    - real assets allocation is 7.48% versus 7.5%
- A liquidity study was conducted as part of the asset allocation review.
    - The results of the liquidity study reaffirmed that the Plan's liquidity remains healthy enough to support the current allocation to alternative investments, but certain economic environments may change the liquidity profile of the Plan meaningfully.

- Continued work on the alternative investment portfolio.
    - A private market pacing plan was conducted for the opportunistic debt, private equity, real assets, and real estate portfolios. Each pacing plan provided a recommended commitment amount for upcoming vintage years and allocations to specific strategy types.
    - New strategies/managers were hired within the opportunistic debt, private equity, real assets, and real estate portfolios

As the asset allocation strategy evolves year-after-year, diversification and risk mitigation will continue to be the pillars of MPERS' asset allocation structure.

NEPC, LLC appreciates the opportunity to serve as your consultant. It is a pleasure to work with MPERS and we look forward to continuing our relationship for the benefit of the Board, Staff, and most importantly, the members of the System.

Sincerely,

Kevin M. Leonard
Partner

Investment Activity Overview

Summary of Investment Policy

The primary objective of the Missouri Department of Transportation and Highway Patrol Employees' Retirement System (MPERS) is to provide active and retired employees with the retirement benefits provided under Missouri law. The investment portfolio is constructed to generate a total return that, when added to employer contributions, is sufficient to meet these benefit obligations. Following prudent standards for preservation of capital, the goal is to achieve the highest possible rate of return consistent with the plan's tolerance for risk as determined by the Board of Trustees in its role as fiduciary. The Board has adopted a set of guiding principles to fulfill their fiduciary duty:

a. Preserve the long-term corpus of the fund.
b. Maximize total return within prudent risk parameters.
c. Act in the exclusive interest of the members of the system.

Risk awareness and risk management is essential to any organization. MPERS' investment policy is the starting point of our risk and investment management process. Through the investment policy, the Board defines the desired goals and outcomes of the investment program, including provisions that:

- Define the assumed rate of return for the portfolio (currently 7.75%).
- Establish an asset allocation that is expected to both meet the assumed rate of return while minimizing the impact of the fund's volatility to contribution rates.
- Define the approved asset classes and investment strategies.
- Delegate the day to day management of the investment portfolio to MPERS' staff and external asset managers.
- Establish a range of asset class allocations from which the CIO can operate.
- Establish procedures for hiring and terminating investment managers.
- Establish on-going due diligence requirements for existing managers.

Throughout the investment policy, two key investment beliefs stand out that govern the daily management of the investment portfolio:

a. Diversification is critical because the future is unknown.
b. Flexibility in investment policy implementation is critical because various asset classes will be in or out of favor at different points in the economic cycle.

To ensure the fund is operating within the risk parameters established in the investment policy, staff monitors the performance of the fund relative to MPERS' policy index. The policy index is the return that would be generated if MPERS' portfolio were invested passively across the targeted asset allocation. MPERS' investment staff strive to achieve returns that are equal to or greater than the policy index, while taking equal or less risk relative to the policy index (with risk defined by standard deviations of return). The table below shows how MPERS' portfolio compares to both the policy index and the median fund in MPERS' public fund peer universe as well as to commonly used risk measures.

Total Portfolio – Statistical Performance Portfolio Characteristics	**1-Year**	**3-Year**	**5-Year**	**10-Year**
Annualized Total Plan Return	1.01%	8.19%	8.10%	5.77%
Annualized Policy Benchmark Return	*1.85%*	*7.05%*	*6.83%*	*5.86%*
Annualized Peer Median Return	*0.40%*	*6.00%*	*6.00%*	*5.30%*
Total Plan Standard Deviation	4.44	4.14	4.65	8.11
Policy Benchmark Standard Deviation	*5.15*	*4.30*	*4.97*	*7.76*
Peer Median Standard Deviation	*8.50*	*6.80*	*7.50*	*9.50*
Total Plan Sharpe Ratio	0.20	1.96	1.73	0.59
Policy Benchmark Sharpe Ratio	*0.33*	*1.62*	*1.36*	*0.63*
Peer Median Sharpe Ratio	*0.00*	*0.90*	*0.80*	*0.50*
Correlation to Policy Benchmark	0.83	0.79	0.83	0.94

**As compared to the total fund policy benchmark*

1. *Standard Deviation* measures historical volatility and specifically measures the dispersion of a set of data points (ie: monthly returns) from their mean. If the data points are further from the mean, the standard deviation is higher.
2. *Sharpe Ratio* measures historical volatility and specially measures the dispersion of a set of data points (ie: monthly returns) from their mean. If the data points are further from the mean, the standard deviation is higher.
3. Correlation measures how the Fund's portfolio and the policy benchmark moves are related and if both are reacted to market forces in the same manner. The System's portfolio have a correlation of less than 1 indicating that while it will typically move in the same direction as the policy benchmark, it will not move in lockstep with the total policy benchmark.

Investment Activity Overview

When evaluating these results, it's important to note that MPERS' policy index is comprised of a mix of asset classes, including several alternative asset classes with benchmarks that are not investable (notably private equity with its S&P 500 + 3% illiquidity benchmark, and real assets with its CPI + 4% real return benchmark). MPERS also evaluates investment performance on a net of fees basis, while acknowledging that most asset class benchmarks report performance on a gross of fees basis. Management fees represent a significant hurdle for staff to overcome when comparing results to MPERS' policy index, which is demonstrated by how well MPERS' policy index has performed relative to the broader public fund peer universe. MPERS' strong risk adjusted performance gives the Board confidence they have adopted a prudent investment strategy that is fulfilling their role as fiduciary to the System.

Fair Value of Investments

As of June 30, 2016, MPERS' investment portfolio had a total fair value of $1.985 billion, representing a decrease of $19 million from fiscal year-end 2015. Over the course of the year, an additional $39 million was transferred out of the fund to meet benefit payments and other obligations. When viewed together, the net decrease to the portfolio from investment activity equated to $20 million.

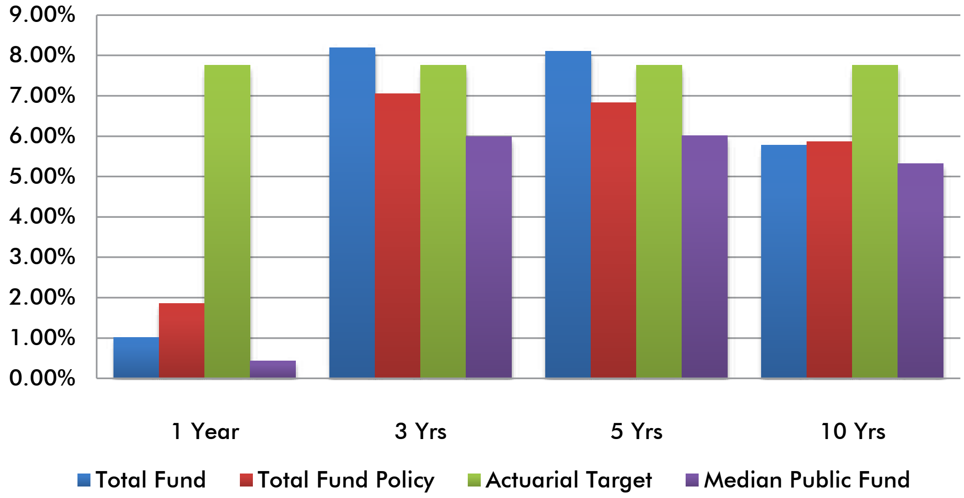
Investment Performance

Fiscal year 2016 was a challenging year for MPERS' investment portfolio from both a total return and a relative return perspective. The fund generated a 1.01% return for the year, net of all management fees and based on time-weighted rates of return and market valuations. The individual asset classes delivered a wide range of returns for the year, led by the real estate portfolio with a 10.62% return and the fixed income portfolio with a 7.55% return. The private equity portfolio delivered a positive return of 4.86%. The global equity, hedge fund, and real assets portfolios all generated negative returns, with real assets representing the worst asset class with a -8.69% return. The performance across the major asset classes (and their respective benchmarks) is listed below.

Investment Performance (including Benchmarks)	**1-Year**	**3-Year**	**5-Year**	**10-Year**
Total Fund	1.01%	8.19%	8.10%	5.77%
Policy Benchmark	*1.85*	*7.05*	*6.83*	*5.86*
Peer Universe Ranking (%)	*34*	*1*	*2*	*27*
Global Equity	-4.33	6.58	7.05	4.98
MSCI ACWI	*-3.73*	*6.03*	*5.38*	*4.26*
Private Equity	4.86	14.56	12.29	6.98
S&P 500 + 3%	*4.83*	*15.15*	*14.90*	*9.65*
Fixed Income	7.55	7.38	7.38	6.49
Barclays US Universal	*5.82*	*4.20*	*4.01*	*5.30*
Real Estate	10.62	13.57	12.65	5.69
NFI-ODCE	*11.24*	*12.08*	*11.70*	*4.98*
Real Assets	-8.69	3.49	n/a	n/a
CPI + 4%	*5.00*	*5.08*	*n/a*	*n/a*
Hedge Funds	-8.49	1.67	2.84	n/a
HFRI Fund of Funds	*-5.42*	*1.91*	*1.63*	*n/a*

When evaluating performance, the Board of Trustees looks at three primary performance objectives: a) to meet or exceed the actuarial assumed rate of return of 7.75% over long periods of time, b) to outperform a policy benchmark that represents the return that could be achieved by investing passively in the broad markets in the same percentages to MPERS' target asset allocation, and c) to rank at or above the public fund peer group's median investment return.

Investment Activity Overview



While MPERS' one year return fell short of the actuarial target, MPERS' three and five year performance remains safely above the actuarial target. The ten year results remain below the 7.75% target as it reflects the poor market performance during the financial crisis of 2008 and 2009. While underperforming the policy benchmark for the one year period, the fund continues to perform well relative to policy benchmarks over longer time horizons. Performance relative to the public fund peer universe remains very strong, with the three and five year returns ranking in the top 1st and 2nd percentile, respectively.

Asset Allocation Overview

There were no revisions to MPERS' asset allocation targets in fiscal year 2016. The Board did approve a change in June of 2016 that will ultimately lower the target allocation to hedge funds to 10%, but that change will become effective on January 1, 2017. The reduction in hedge funds will be offset by increasing the targeted allocation to real assets and opportunistic debt to 7.5% each (both currently have 5% targets, with opportunistic debt sitting within the broader fixed income allocation). As part of the move, the opportunistic debt will be carved out and reported as a separate asset class instead of rolled under the broader fixed income allocation.

As of June 30, 2016, all of the sub-asset class allocations were within the acceptable ranges established by MPERS' investment policy. The Board approved a temporary exception to allow the hedge fund portfolio to drop under the 10% minimum range, given the upcoming asset allocation change that becomes effective January 1, 2017. Any deviance relative to the target allocation represents a conscious decision based on the investment staff's view of the market. The chart below lists the target and actual asset allocation as of June 30, 2016, followed by commentary on each of the underlying asset classes.

Asset Class	FY2016 Target Allocation	Ending FY2016 Allocation
Global Equity	**30%**	**28.99%**
Private Equity	**15%**	**17.57%**
Fixed Income	**25%**	**23.01%**
Real Assets	**5%**	**7.48%**
Real Estate	**10%**	**12.54%**
Hedge Funds	**15%**	**7.83%**
Cash	**0%**	**2.57%**

Investment Activity Overview

Global Equity:

MPERS began the year with a 29.66% allocation to global equities, representing a slight underweight versus the targeted allocation of 30%. We maintained the underweight throughout fiscal year 2016, but made a number of re-balancing moves throughout the year to reflect the changing market conditions across geographic regions and strategies. Earlier in fiscal year 2016, we reduced our exposure to a market weight to emerging markets and increased our allocations to large cap domestic equities and master limited partnerships (MLPs). We finished the year with 28.99% in Global Equities.

We continue to reduce the active management risk throughout the equity portfolio and move towards a passive strategy utilizing derivatives, with the goal of generating a modest amount of alpha through our internal cash collateral management. Publicly traded equity markets are very efficient, and the passive benchmarks are often difficult to outperform on a net of fees basis. For this reason, we believe MPERS is better served by taking active management risk in the areas of the portfolio where managers have demonstrated better ability to outperform their passive benchmarks, such as the alternative asset classes.

In terms of performance, equity markets got off to a rough start in fiscal year 2016, as concerns over an economic slowdown in China sent global equities down nearly 9% in the third quarter of 2015. Commodities and emerging market equities were hit especially hard, dropping roughly 15% and 20%, respectively. The volatility subsided in the fourth quarter of 2015, as strong corporate earnings and better economic reports sent markets higher, but volatility picked up in the first quarter of 2016 as the continuous drop in oil prices and concerns of slowing global growth continued to drag markets lower. Equity markets bottomed in February 2016, and then steadily rebounded to recover most of the year's losses until Britain unexpectedly voted to leave the European Union on June 23, 2016 - just five business days prior to fiscal year end. The surprise vote once again sent markets downward, costing the S&P all its gains from the year and sending international markets deeper into negative territory. Overall, MPERS' global equity portfolio returned a -4.33% in fiscal year 2016, relative to the benchmark return of -3.73%. The majority of the underperformance relative to the benchmark was due to MPERS exposure to MLPs, which ended the year down over 15% due to falling oil and gas prices. We continue to believe that MLPs are attractive relative to broad equity markets, given dividend yields of over 6%.

Fixed Income:

MPERS' remained underweight to the targeted fixed income allocation of 25% throughout the entire year, starting the year with a 22.35% allocation and ending with a 23.01% allocation. The volatile equity markets and concerns over falling growth around the globe sent interest rates spiraling lower throughout most of fiscal year 2016. Credit-oriented strategies did not fare nearly as well, especially anything with exposure to the oil and gas markets. We were very pleased with how well the fixed income portfolio performed in this environment, as the portfolio generated a 7.55% return versus the index return of 5.82%. MPERS' internal fixed income portfolios were the best performing strategies for the year, led by MPERS' internal long duration portfolio which generated a 14.22% return for the year. In a year when 10 year Treasury dropped from roughly 2.5% to 1.45%, and 30 year Treasury yields dropped from 3.25% to 2.25%, this should come as no surprise. Despite their difficulties in fiscal year 2016, we continue to favor credit-oriented strategies within the fixed income allocation, but are also mindful that MPERS' long duration portfolio represents the best diversifier in a falling growth environment.

The opportunistic debt sector remains attractive from a relative value perspective, and fiscal year 2016 was another active vintage year for new commitments in that space. The changing regulatory environment continues to put pressure on the balance sheets of traditional lenders, which creates an opportunity for institutional investors to step in and "fill the void" left by traditional lenders. Recognizing the attractive investment climate, in June of 2016 the Board of Trustees approved the recommendation to increase the opportunistic debt portfolio from a 5% target to a revised 7.5%, and breakout the strategy into a separate asset class (as opposed to a portion of the fixed income portfolio). The change will be effective January 1, 2017, but will have minimal impact on future investment activity in the sector, as we finished the year with 8.4% of assets invested in opportunistic debt strategies. New commitments during fiscal year 2016 include funding an existing manager who was back in the market with a mezzanine debt strategy, funding another existing manager who launched a new distressed debt fund, and yet another existing manager who raised a subsequent lending strategy focused on the shipping sector. We also backed a new manager relationship that raised capital to acquire secondary interests of distressed credit funds.

Another area that we spent a considerable amount of time reviewing was the collateralized loan obligation (CLO) market, which are structured products backed by portfolios of bank loans to private companies. Bank loans are floating rate products, and therefore do not have the interest rate risk associated with fixed rate securities. After reviewing a wide range of market participants, we invested $20 million into a senior CLO strategy (investment grade) within MPERS' core fixed income allocation and another $30 million into an opportunity CLO strategy (below investment grade) as part of MPERS' opportunistic debt portfolio. Collectively, we believe the investment was very well-timed and will represent a potential source of outperformance in the years to come.

Hedge Funds:

MPERS' remained considerably underweight to the targeted hedge fund allocation of 15% throughout the year, starting the year with a 12.14% allocation and ending with a 7.83% allocation. We continue to favor opportunities in real estate, real assets, and private equity relative to the hedge funds sector.

As we continued to reduce MPERS' hedge fund portfolio throughout the year, we terminated several managers including a global macro manager, two event driven managers, and a long/short equity manager. As the regulatory and political environment has become more complex, hedge funds have struggled to adapt and navigate the changing landscape. We believe that paying the high fees associated with hedge funds in this difficult return environment is not prudent. Recognizing the difficult market environment, in June of 2016 the Board approved a recommendation to reduce the targeted asset allocation from 15% to 10% of assets. The change is effective January 1, 2017.

The hedge fund portfolio generated a return of -8.49% during the fiscal year, which underperformed the benchmark return of –5.42%. Most of the underperformance can be attributed to a higher equity exposure through activist equity and event driven strategies. While this helped us in years past, it did not perform well last year. Two of the event driven managers were terminated in the prior year, but MPERS was required to exit the fund over the course of four quarters. Our significant underweight to the target allocation helped on a relative basis at the total fund policy level.

Real Assets:

The real assets portfolio had a challenging year as volatility in the energy markets continued for most of the year, with prices ultimately bottoming in January. Real assets generated a return of -8.69% versus a policy benchmark of 5.00%. The underperformance was driven by MPERS' energy focused funds which make up roughly 45% of the real assets portfolio. We were very pleased with how the portfolio held together in a year when oil and gas market prices plunged roughly 40% for the year. Despite the difficult performance in the energy sector, the allocation to real assets increased from 5.06% to 7.48% throughout fiscal year 2016, versus a policy target of 5%, as MPERS' active commitment pace in previous years allowed several of our managers to close several attractive new deals in the mining and energy sectors.

We continue to complement our energy exposure by adding investments in other areas of real assets. One of the largest initiatives on that front was taking a new approach to timber investments. We have begun leveraging new consultant relationships to source deals with unique structures or different approaches than the traditional timber portfolio model. We continue to view timber as an attractive and complementary strategy within the real assets portfolio given its attractive diversification qualities, low volatility and solid returns over the long-term. However, we felt many of these attributes are lost in the typical fund structure. In November of 2015, the Board approved a revised Timber and Natural Resources' policy that allows staff to be more creative and utilize a direct investment approach to source new relationships and evaluate deals. Using the new authority, we closed a large deal in early 2016 that will serve as a solid core holding in the timber portfolio for years to come. Several smaller, more unique deals closed shortly after fiscal year-end, and we continue to see a consistent flow of potential investments to review. We are excited about this new initiative in timber, and believe the other areas of our real asset portfolio (especially the energy focused strategies) are positioned for better performance going forward.

Real Estate:

MPERS' real estate portfolio has a target allocation of 10% of assets, and includes a mix of public and private equity strategies, along with tactical exposures to public and private debt strategies. We continue to find excellent relative value opportunities in real estate debt strategies, as traditional lenders (primarily banks) have exited the sector following the financial crisis. The real estate portfolio was our best performing asset class during the year, generating a 10.62% return in fiscal year 2016, although it underperformed the benchmark return of 11.24%. New commitments include two new investments with existing managers, one who launched a subsequent equity fund and another existing manager who was launching a new strategy we believed was attractive. We continue to be overweight real estate strategies on the view that core real estate will outperform traditional fixed income markets, and ended fiscal year 2016 with an 12.54% allocation. Falling interest rates coupled with the current income component of real estate returns have made the space particularly attractive. Fundamentals continue to show solid results, but we note that some areas of the market have shown the effects of new supply finally coming online after years of delays following the financial crisis. We continue to monitor these developments and will look for an opportunity to tactically allocate away from areas we feel are at risk and into areas we see better relative returns. We will also continue to monitor the interest rate environment as it can have major effects on real estate valuations, but for the time being we continue to view the strong fundamentals and current income as attractive relative to other areas of the portfolio.

Private Equity:

MPERS' private equity allocation remained overweight to the targeted allocation of 15% despite slightly decreasing from 18.74% to 17.57% of assets during the course of fiscal year 2016. The portfolio generated a 4.86% return for the year, slightly higher than the "public equity plus" benchmark (S&P 500 + 3%) which generated a 4.83% return. This benchmark has been difficult to outperform in recent years given the strength of public equity markets and the relative immaturity of MPERS' private equity portfolio. The portfolio continues to mature, and we remain optimistic that relative performance will continue to improve as the underlying portfolio companies mature and advance toward their ultimate exit strategy.

Fiscal year 2016 was the second consecutive year where distributions (from portfolio company sales) outpaced new capital calls, providing further evidence of the improving maturity of the private equity portfolio. We continue to cautiously, but actively, commit to new managers and strategies – favoring smaller, niche managers who are not "fishing in a crowded pond." These managers have a more repeatable strategy that is compelling even in the low return environment that we face today. New manager commitments during the year: a small U.S. focused manager that invests in small companies in the government contractor space and then grows their platform into a larger company that can integrate with large aerospace, intelligence or defense companies; an Asian manager focused on the emerging secondary market in South East Asia who then restructures, recapitalizes and provides capital for the next phase of growth opportunities; a U.S. based manager that focuses on financial technology companies who are in high demand given the new regulations attributable to Basel III and Dodd Frank: and a U.S. based manager who focuses on small to mid-size companies that are turnaround stories.

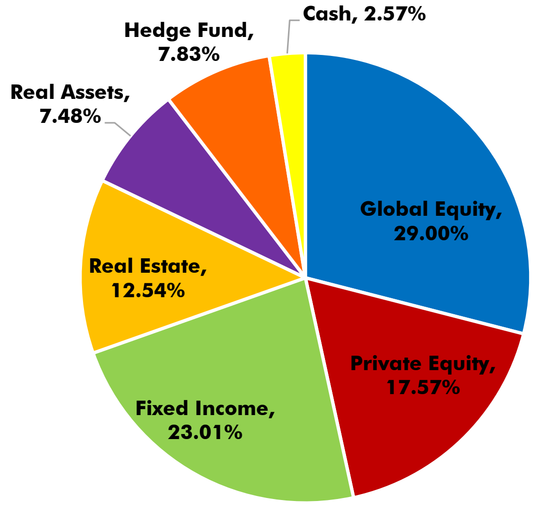
We continue to focus on building deeper relationships with our existing managers and the broader private equity community. We value strategies that offer excellent transparency into the underlying investments and strategies with attractive fee structures that still provide top tier performance. While there has certainly been a lot of criticism in the media recently about the fee structures associated with private equity investing, we can assure our members that when evaluating new managers, we are never afraid to walk away when their interests do not properly align with ours.

Looking Forward

As we look to fiscal year 2017, we see a similar environment with similar challenges that we noted going into fiscal year 2016. Last year, we warned that equity and credit valuations were at the high end of their historical ranges, and stressed the need to be realistic about return prospects going forward. The global equity markets responded by posting negative returns of nearly 4%, and MPERS' diversification helped grind out a positive 1% return for the fund. It remains to be seen if the global economy is strong enough to grow without further rounds of quantitative easing or other forms of government stimulus. The equity markets will need to find new sources of growth, in lieu of government stimulus, before moving meaningfully higher than current levels.

Last year also witnessed the first Federal Reserve interest rate hike since 2004, and fiscal year 2017 will likely see another round or two of rate hikes. With interest rates at historic low yields, and the Federal Reserve contemplating how much - versus whether or not - to raise interest rates, we see traditional fixed income markets as a high risk, low return strategy going forward. This represents a significant management challenge for MPERS' investment portfolio, as long duration Treasuries are typically the best diversifier in a falling growth and weak equity market environment. As we write this report, 30 year Treasury bonds are yielding 2.25%. For every dollar we invest at a 2.25% yield, you need to invest another dollar into a strategy yielding 13.25% in order to collectively earn the actuarial return target of 7.75%. Only a few risky, distressed markets offer returns approaching 13.25%, and compounding those returns over long periods of time is extremely difficult. Balancing the need to diversify the portfolio and protect the fund from the uncertain equity markets, along with the need to generate consistent returns approaching 8%, is going to be a very difficult task in the years ahead. All of this once again reinforces the need to be realistic about return prospects going forward.

Investment Summary



Amounts Reported by Management-Type Allocation

	06/30/2015				06/30/2016		
	Book Value	Fair Value	Acquisitions	Dispositions	Book Value	Fair Value	% of Fair Value
Global Equity	$ 466,516,446	$ 594,235,478	$180,138,346	$(146,386,107)	$ 500,268,685	$ 575,532,020	29.00%
Private Equity	330,140,012	375,442,842	73,521,100	(49,863,154)	353,797,958	348,785,990	17.57%
Fixed Income	410,911,991	447,873,258	171,282,242	(145,246,188)	436,948,045	456,656,835	23.01%
Real Estate	203,989,492	226,447,261	68,253,110	(75,519,271)	196,723,331	248,984,725	12.54%
Real Assets	91,756,083	101,447,940	38,378,681	(18,962,557)	111,172,207	148,461,085	7.48%
Hedge Funds	190,212,278	243,219,419	43,897,768	(13,119,453)	220,990,593	155,481,104	7.83%
Cash	15,102,905	15,103,031	400,343,622	(392,990,049)	22,456,478	51,087,298	2.57%
Total Investments	$1,708,629,207	$2,003,769,229	$975,814,869	$(842,086,779)	$1,842,357,297	$1,984,989,057	100.00%

Reconciliation to Statement of Plan Net Assets:	
Less Accrued Investment Interest and Income	(6,406,558)
Less Investment Sales Receivable	(4,733,058)
Plus Investment Purchases Payable	8,912,823
Currency Adjustment	58,572
	$1,982,820,836

Largest Investment Holdings

Largest Equity Securities

(Non-Commingled Funds)

Security	Fair Value	% of Total
WILLIAMS CO INC COM	$1,544,771	0.078%
LAM RESH CORP COM	1,538,298	0.077%
QORVO INC COM	1,461,350	0.074%
ROYAL CARIBBEAN CRUISES COM STK	1,302,710	0.066%
REGENERON PHARMACEUTICALS INC COM	1,257,228	0.063%
VALSPAR CORP COM	1,026,285	0.052%
LEVEL 3 COMMUNICATIONS INC COM NEW	975,889	0.049%
INTERXION HOLDING NV COM EUR0.10	881,432	0.044%
WELLTOWER INC COM	837,870	0.042%
DISCOVERY COMMUNICATIONS INC NEW COM SERC COM SER C	837,135	0.042%

Largest Fixed Income Securities

(Non-Commingled Funds)

Par Value	Security	Fair Value
$14,000,000	USA TREASURY NTS 1.125% TIPS 15/1/21 USD1000 01-15-2021	$16,375,046
10,000,000	FFCB DTD 2.93 04-27-2029	10,676,800
96,260,110	I/O GNMA 2013-H13 REMIC CL HI VAR RT DUE05-20-2063	10,568,301
10,000,000	PVTPL SLM STUD LN TR 2003-11 STUD LN BKDSECS 144A A-6 VAR RT DUE 12-15-25	9,569,240
7,250,000	TVA 6.235 BD DUE 07-15-2045 ONE-TIME OPTPUT PAY 7-15-2001 @ PAR LAST NOTF 1**PUT	8,532,452
9,600,000	EDUCATION LN ASSET BACKED TR I FLTG RT 4.25% 08-01-2043 REG	8,304,000
6,000,000	UNITED STATES TREAS BDS INDEX LINKED 1.75 DUE 01-15-2028 REG	8,009,807
6,534,858	SLM STUDENT LN TR 2008 9 STUDENT LOAN BKD NTS CL A FLTG 04-25-2023 REG	6,530,545
6,481,923	KENTUCKY HIGHER ED STUD LN CORP STUD LN REV FLTG RT .934 12-01-2031 BEO TAXABLE	6,294,725
7,140,000	CMO WACHOVIA BK COML MTG TR COML MTG PASS-TH DUE 12-15-2043 REG	6,173,608
6,356,653	SLM STUDENT LN TR 2012-2 STUDENT LN BKD NTS CL A FLTG 01-25-2029 REG	6,085,662
53,119,244	I/O GNMA 2013-H13 REMIC CL JI VAR RT DUE06-20-2063 REG	5,926,115
5,000,000	FFCB 3.89% DUE 06-01-2043	5,862,350
4,000,000	UNITED STATES TREAS BDS DTD 02/15/2006 4.5% DUE 02-15-2036 REG	5,761,564
5,500,000	CMO CR SUISSE COML MTG TR SER 2006-C4 SER 2006-C4 CL-AJ DUE 09-15-2039 REG	5,439,846
5,281,523	SLM STUDENT LN TR PVTPL SER 2004-8A CL A5 FLT RT DUE 04-25-2024	5,235,557
5,000,000	UNITED STATES OF AMER TREAS BONDS DTD 02/15/2015 2.5% DUE 02-15-2045 REG	5,205,665
5,000,000	FEDERAL HOME LN BKS CONS BD 3 11-15-2027	5,000,300
109,482,379	I/O GNMA 2012-H05 REMIC PASS THRU CTF CLAI VAR RT 03-20-2062	4,954,187
5,000,000	CMO LB UBS COML MTG TR 2007 C7 MTG PASS THRU CTF CL CL B DUE 09-15-2045 REG	4,686,480

Space and cost restrictions make it impractical to print the entire investment portfolio in this report. However, a portfolio listing is available for review in the office of the executive director of MPERS.

Schedule of Investment Expenses

	Fair Value of Assets Under Management at 6/30/2016	Fees Accrued During FY2016
Management and Performance Fees:		
Global Equity	$ 575,532,020	$ 2,808,173
Fixed Income Core	290,522,469	142,170
Opportunistic Debt	166,134,367	2,007,229
Real Estate	248,984,725	8,397,610
Private Equity	348,785,990	3,159,368
Real Assets	148,461,085	885,006
Hedge Funds	155,481,104	4,316,966
Cash	51,087,298	510,000
Total Management and Performance Fees	**$1,984,989,058**	**$22,226,522**
Investment Custodial Fee		53,679
Performance Management		164,208
General Consultant (monitoring) Fee		318,871
Other Investment Expenses		940,605
Total Investment Income Expenses		**$23,703,885**
Securities Lending Expenses:		
Borrower Rebates (Refunds)		$ 77,831
Bank Fees		87,970
Total Securities Lending Expenses (Income)		**$ 165,801**

Schedule of Brokerage Commissions

Brokerage Firm	Total Commission	Number of Shares	Commission Rate
JONESTRADING INST SERV	$11,529.40	706,124	$0.0163
NORTHERN TRUST CO	10,476.62	1,164,200	0.0090
DEUTSCHE BANK	8,669.70	7,175,284	0.0012
WM SMITH AND COMPANY	7,055.76	229,331	0.0308
WEEDEN AND & CO	5,726.55	261,152	0.0219
CANTOR FITZGERALD & CO	5,121.96	175,080	0.0293
BAYPOINT TRADING LLC	4,317.74	138,656	0.0311
KNIGHT	4,029.83	1,329,797	0.0030
CONVERGEX LLC	3,974.75	90,725	0.0438
ROSENBLATT SECURITIES LLC 501	3,176.00	157,370	0.0202
CITATION GROUP	2,926.50	66,250	0.0442
KEEFE BRUYETTE AND WOODS INC.	2,752.35	74,482	0.0370
CAP INSTITUTIONAL SERVICES INC	2,744.87	92,597	0.0296
BNY ESI SECURITIES CO.	2,689.75	59,675	0.0451
INSTINET	2,267.29	138,838	0.0163
MORGAN STANLEY & CO INC. NEW YORK	1,902.44	3,809,921	0.0005
SG COWEN AND COMPANY	1,786.56	481,099	0.0037
CITIGROUP	1,653.31	6,066,710	0.0003
JEFFERIES & COMPANY	1,399.44	103,422	0.0135
IMPERIAL CAPITAL LLC	1,345.58	55,691	0.0242
RAYMOND JAMES	1,274.74	61,637	0.0207
MERRILL LYNCH	1,113.53	16,914,876	0.0001
ISI GROUP INC.	1,085.15	113,805	0.0095
GUZMAN AND COMPANY	1,072.48	62,700	0.0171
MKM PARTNERS	1,035.00	38,343	0.0270
KEMPEN AND CO N.V.	1,033.83	32,301	0.0320
OTHER (66 firms less than $1,000 each)	18,763.00	116,222,898	0.0002
Total	**$ 110,924**	**155,822,964**	
Average Commission Rates			**$0.0007**

Notes

Actuarial Section

"A goal without a plan is just a wish."

-Antoine de Saint-Exupery

French writer, poet, aristocrat, journalist, and pioneering author

GRS

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September 16, 2016

The Retirement Board
Missouri Department of Transportation
and Highway Patrol Employees' Retirement System
1913 William Street
Jefferson City, Missouri 65102-1930

Ladies and Gentlemen:

This report was prepared at the request of the Board and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report. This report should not be relied on for any purpose other than the purpose described.

The basic financial objective of the Missouri Department of Transportation and Highway Patrol Employees' Retirement System (MPERS) is to establish and receive contributions which:

(1) when expressed in terms of percents of active member payroll, will remain approximately level from generation to generation of Missouri citizens, and

(2) when combined with present assets and future investment returns, will be sufficient to meet the present and future financial obligations of MPERS.

In order to measure progress toward this fundamental objective, MPERS has annual actuarial valuations performed. The valuations (i) measure present financial position, and (ii) establish contribution rates that provide for the current cost and level percent-of-payroll amortization of unfunded actuarial liabilities over a reasonable period. An actuarial valuation was performed based upon benefit conditions, data and assumptions as of June 30, 2016. This valuation indicates that contribution rates for the period beginning July 1, 2017 that are at least equal to the calculated contributions rates will meet the Board's financial objective. The calculated contribution rates are 58.00% of payroll for the 6,187 Non-Uniformed employees and 58.00% of payroll for the 1,254 Uniformed patrol employees.

The plan administrative staff provides the actuary with data for the actuarial valuation. The actuary relies on the data after reviewing it for internal and year to year consistency. Member data was not audited by the actuary. The actuary summarizes and tabulates population data in order to analyze longer term trends. We are not responsible for the accuracy or completeness of the data provided by MPERS.

The Retirement Board
September 16, 2016
Page 2

Gabriel, Roeder, Smith & Company was responsible for the following schedules found in the Actuarial Section:

- Summary of Actuarial Assumptions and Methods
  - Probabilities of Separation From Active Employment
  - Individual Salary Increases
  - Joint Life Retirement Values
  - Probabilities of Retirement for Members
  - Probabilities of Disability for Members
- Summary of Member Data Included in Valuations
- Active Members by Attained Age and Years of Service
- Schedule of Active Member Valuation Data
- Solvency Test
- Derivation of Financial Experience
- Schedule of Retirees and Beneficiaries Added and Removed
- Summary of Plan Provisions
- Legislative Changes

Gabriel, Roeder, Smith & Company was responsible for the following schedules found in the Financial Section:

- Schedule of Changes in the Employer's Net Pension Liability
- Schedule of Employer's Net Pension Liability
- Schedule of Employer Contributions
- Schedule of the Actuarially Determined Contributions

Actuarial valuations are based upon assumptions regarding future activity in specific risk areas including the rates of investment return and payroll growth, eligibility for the various classes of benefits, and longevity among retired lives. These assumptions are adopted by the Board. The assumptions and the methods comply with the requirements of the Governmental Accounting Standards Board. Each actuarial valuation takes into account all prior differences between actual and assumed experience in each risk area and adjusts the contribution rates as needed. Actuarial methods and assumptions were adopted by the Board pursuant to the June 30, 2012 Experience Study. Gabriel, Roeder, Smith & Company has produced the following reports as of June 30, 2016:

- Annual Actuarial Valuation Report
- GASB Nos. 67 and 68 Valuation Report

In order to gain a full understanding of the condition of this plan, these reports should be read in their entirety.

The Retirement Board
September 16, 2016
Page 3

To the best of our knowledge, the report is complete and accurate and was made in accordance with standards of practice promulgated by the Actuarial Standards Board. The actuarial assumptions used for the valuation produce results which, individually and in the aggregate, are reasonable.

The employer contributions determined in this report are based on Board funding policy. This policy is discussed on page 6 of the annual actuarial valuation report. We commend the Board for its aggressive monitoring and updating of the funding policy over the recent past. However, continued employer contributions at the current level do not guarantee benefit security. We therefore encourage the Board to continue to routinely monitor and update its funding policy and to continue to consider benefit security when doing so.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in 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.

This report has been prepared by individuals who have substantial experience valuing public employee retirement systems. Heidi Barry is a Member of the American Academy of Actuaries (MAAA) and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

The signing individuals are independent of the plan sponsor.

Based upon the valuation results, it is our opinion that the Missouri Department of Transportation and Highway Patrol Employees' Retirement System continues to operate in accordance with actuarial principles of level percent-of-payroll financing. It is important to the well-being of the System that it continues to receive contributions at the actuarially determined levels. It is also important to continue to monitor both the total funded status and the funded status of the retiree liabilities to ensure that the funding policy is consistent with the expected life span of the respective unfunded obligation.

Respectfully submitted,

Heidi G Barry

Heidi G. Barry, ASA, MAAA

Kenneth G. Alberts

Kenneth G. Alberts

Summary of Actuarial Methods and Assumptions

Valuation Date:	June 30, 2016
Actuarial Cost Method:	Entry Age
Amortized Method:	Closed, level percent of payroll
Remaining Amortization Period:	16 years (single equivalent period)
Asset Valuation Method:	3-year smoothing
Actuarial Assumptions:	
Investment Rate of Return:	7.75%
Projected Salary Increase:	3.50% to 11.00%
Cost-of-Living Adjustments:	2.40% Compound
Includes Wage Inflation at:	3.50%

An actuarial valuation is based upon an actuarial cost method, an asset valuation method, and actuarial assumptions. These methods and assumptions are chosen by the Board of Trustees after consultation with the Actuary and other advisors.

The actuarial cost method is called the Entry Age Actuarial Cost Method. This method is consistent with the Board's level percent of payroll funding objective. With this method, the level percent of payroll is determined that will fund a member's retirement benefit over the member's entire working lifetime, from date of hire (Entry Age) to date of exit from the active member population. Differences in the past between assumed and actual experience become part of unfunded actuarial accrued liabilities and are amortized with level percent of payroll contributions. This cost method was first used in the June 30, 1999 valuation.

The asset valuation method is a three-year smoothed market value method in which assumed investment return is recognized immediately each year and differences between actual and assumed investment return are phased-in over a closed three-year period. This asset valuation method is intended to give recognition to the long term accuracy of market values while filtering out and dampening short term market swings. This method was first used in the June 30, 1999 valuation.

The actuarial assumptions used in producing the valuation fall into two broad classes: economic assumptions, and demographic assumptions. Economic assumptions refer to long term rates of investment return, wage growth, covered population growth, and inflation. Demographic assumptions refer to retirement rates, turnover rates, disability rates, merit and seniority pay increases, and mortality rates. The current assumptions are based upon a 2007-2012 study of experience of the MPERS. The assumptions are reviewed from time to time to keep them reasonably current with expected experience.

Economic Assumptions

The investment return rate used in making the valuation was 7.75% per year, compounded annually (net after administrative expenses). This rate of return is not the assumed real rate of return. The real rate of return over wage inflation is defined to be the portion of investment return which is more than the wage inflation rate. Considering wage inflation recognition of 3.50%, the 7.75% rate translates to an assumed real rate of return over wage inflation of 4.25%. This rate was first used for the June 30, 2013 valuation.

Pay increase assumptions for individual active members are shown on the Salary Increase Assumptions table. Part of the assumption for each age is for a merit and/or seniority increase, and the other 3.50% recognizes wage inflation. These rates were first used for the June 30, 2013 valuation.

Summary of Actuarial Methods and Assumptions

Price Inflation is assumed to be 3.00%. This results in a 2.4% annual COLA assumption. It is assumed that the 2.4% COLA will always be paid.

The Active Member Group size is assumed to remain constant at its present level.

The active member payroll all members is assumed to increase 3.50% annually.

Non Economic Assumptions

The mortality table used to measure retired life mortality was the RP-2000 Combined Healthy Mortality Tables projected 16 years and set back 1 year for males and females. Related values are shown on Joint Life Retirement Values table. This table was first used for the June 30, 2013 valuation. Disabled pension mortality was based on PBGC Disabled Mortality tables. The healthy mortality tables include a margin for mortality improvement. The margin is in the 16-year projection. The disabled mortality tables do not include a margin for mortality improvement.

The probabilities of retirement for members eligible to retire are shown on the Rates of Retirement table. The rates for full retirement were first used in the June 30, 2013 valuation. The rates for reduced retirement were first used in the June 30, 2013 valuation. Upon retirement, members are assumed to pick the BackDROP period that when combined with the remaining annuity produces the highest liability.

The probabilities of disability for members eligible to retire are shown on Rates of Disability table. The rates for disability were first used in the June 30, 2013 valuation.

The probabilities of withdrawal from service, death in service and disability are shown for sample ages on the Probabilities of Separation tables. The death-in-service and disability rates were first used in the June 30, 2013 valuation. The withdrawal rates were first used in the June 30, 2013 valuation.

The data about persons now covered and about present assets was furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the Actuary. Data was furnished as of May 31 and assumed to be statistically equivalent to June 30.

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (MAAA).

Probabilities of Separation From Active Employment
Less Than 5 Years of Service

	MoDOT, Civilian Patrol and MPERS		Uniformed Patrol	
Service	Male	Female	Male	Female
0-1	30.00%	20.00%	10.00%	10.00%
1-2	16.00	14.00	7.00	7.00
2-3	9.00	11.00	3.25	3.25
3-4	7.00	9.00	3.00	3.00
4-5	5.50	5.00	2.75	2.75

Probabilities of Separation From Active Employment
More Than 5 Years of Service

	MoDOT, Civilian Patrol and MPERS		Uniformed Patrol	
Age	Male	Female	Male	Female
25	5.75%	5.10%	2.70%	2.70%
30	5.12	5.10	2.70	2.70
35	4.12	4.59	1.91	1.91
40	3.21	3.74	1.13	1.13
45	2.41	2.89	0.79	0.79
50	1.76	2.04	0.46	0.46
55	1.29	1.19	0.23	0.23
60	1.04	0.34	0.17	0.17

Salary Increase Assumptions
For an Individual Member

Age Based Salary Scale

Age	MoDOT, Civilian Patrol and MPERS Merit & Seniority	MoDOT, Civilian Patrol and MPERS Base (Economic)	MoDOT, Civilian Patrol and MPERS Increase Next Year	Uniformed Patrol Merit & Seniority	Uniformed Patrol Base (Economic)	Uniformed Patrol Increase Next Year
20	4.40%	3.50%	7.90%	6.00%	3.50%	9.50%
25	3.18	3.50	6.68	4.25	3.50	7.75
30	2.59	3.50	6.09	2.48	3.50	5.98
35	2.09	3.50	5.59	1.54	3.50	5.04
40	1.44	3.50	4.94	1.09	3.50	4.59
45	0.68	3.50	4.18	0.71	3.50	4.21
50	0.12	3.50	3.62	0.45	3.50	3.95
55	0.00	3.50	3.50	0.29	3.50	3.79
60	0.00	3.50	3.50	0.23	3.50	3.73

Service Based Salary Scale

MoDOT, Civilian Patrol and MPERS
% Merit Increases in Salaries Next Year*

Service Index	Rate
1	8.0%
2	7.0%
3	4.5%
4	4.0%

Uniformed Patrol
% Merit Increases in Salaries Next Year*

Service Index	Rate
1	10.0%
2	10.0%

**For Non-Uniformed members with 4 or less years of service and Uniformed members with 2 or less years of service, the service based table overwrites the age based table above.*

Joint Life Retirement Values
(7.75% Interest)

Sample Attained Ages	Present Value of $1 Monthly for Life Men	Present Value of $1 Monthly for Life Women	Percent Dying Next Year Men	Percent Dying Next Year Women	Future Life Expectancy (years) Men	Future Life Expectancy (years) Women
50	$147.46	$147.37	.1516%	.1159%	33.34	35.39
55	142.23	142.00	.2313%	.2064%	28.61	30.63
60	135.19	134.87	.4593%	.4099%	24.03	26.02
65	126.18	125.80	.9002%	.7955%	19.69	21.67
70	115.18	114.73	1.5803%	1.3715%	15.71	17.66
75	101.84	101.56	2.6618%	2.2752%	12.07	14.01
80	86.45	86.42	4.8531%	3.7094%	8.86	10.73

The present values shown above are for illustrative purposes only and include a 50% survivor benefit but do not include the value of future post-retirement increases. Males are assumed to be 3 years older than their spouses.

Percent of Eligible Active Members Retiring Next Year (Rates of Retirement)

Closed and Year 2000 Plans

	MoDOT, Civilian Patrol and MPERS				Uniformed Patrol	
	Male		Female		Male	Female
Age	Normal	Early	Normal	Early	Normal	
50	30.00%	0.00%	25.00%	0.00 %	35.00%	35.00%
55	27.00	3.00	32.00	3.00	20.00	20.00
60	19.00	8.00	22.00	6.00	100.00	100.00
65	35.00	0.00	35.00	0.00	100.00	100.00
70	40.00	0.00	50.00	0.00	100.00	100.00

Year 2000 Plan – 2011 Tier

	MoDOT, Civilian Patrol and MPERS Normal		Uniformed Patrol	
Age	Age & Service	Rule of 90	Early	Normal
55	0.00%	30.00%	0.00%	30.00%
60	0.00	30.00	0.00	100.00
65	0.00	30.00	10.00	100.00
70	100.00	100.00	0.00	100.00

Percent of Members Becoming Disabled at the Indicated Age (Rates of Disability)

	MoDOT, Civilian Patrol and MPERS		Uniformed Patrol	
Age	Male	Female	Male	Female
25	0.04%	0.07%	0.01%	0.01%
30	0.09	0.08	0.02	0.02
35	0.13	0.13	0.02	0.02
40	0.17	0.17	0.05	0.05
45	0.23	0.36	0.09	0.09
50	0.33	0.55	0.19	0.19
55	0.62	0.74	0.35	0.35
60	1.12	0.90	0.58	0.58

Summary of Funding and Contributions

Schedule of Funding Progress

Year Ended June 30	Actuarial Asset Value	Accrued Liability – Entry Age	Unfunded Accrued Liability (UAAL)	Funded Ratio	Actuarial Covered Payroll(1)	UAAL as a Percentage of Covered Payroll
2007(2)	$1,685,807,004	$2,897,267,409	$1,211,460,405	58.19%	$365,012,472	331.90%
2008	1,783,902,280	3,019,633,781	1,235,731,501	59.08%	375,600,448	329.00%
2009	1,471,496,660	3,113,393,645	1,641,896,985	47.26%	379,590,273	432.54%
2010(2)	1,375,844,573	3,258,866,925	1,883,022,352	42.22%	378,063,006	498.07%
2011	1,427,290,718	3,297,589,869	1,870,299,151	43.28%	362,654,376	515.72%
2012(2)	1,531,033,613	3,306,278,671	1,775,245,058	46.31%	341,637,559	519.63%
2013(2)	1,657,402,393	3,583,975,559	1,926,573,166	46.24%	329,481,506	584.73%
2014	1,795,264,291	3,650,241,741	1,854,977,450	49.18%	336,590,797	551.11%
2015	1,967,001,509	3,715,845,651	1,748,844,142	52.94%	342,264,593	510.96%
2016	2,086,654,348	3,761,733,004	1,675,078,656	55.47%	344,275,147	486.55%

(1) Values are estimated from contribution rate and amount.
(2) New assumptions and/or methods adopted.

See Note 5 of Notes to the Financial Statement in the Financial Section for Funding policy information.

Member and Employer Contribution Rates

Year Ended June 30	Employer Contributions All Benefit Structures: Uniformed Patrol Group	Employer Contributions All Benefit Structures: Non-Uniformed Group	Member Contributions 2011 Tier All Groups
2007	44.28%	31.10%	4.00%
2008	42.64%	31.04%	4.00%
2009	40.22%	30.72%	4.00%
2010	39.95%	31.40%	4.00%
2011	49.53%	39.46%	4.00%
2012	58.63%	45.45%	4.00%
2013	55.03%	50.92%	4.00%
2014	55.23%	54.25%	4.00%
2015	58.19%	58.76%	4.00%
2016	57.76%	58.05%	4.00%

See Required Supplementary Information, Schedule of Employers' Contributions for more information.

Summary of Member Data Included In Valuations

	Non-Uniformed Civilian Patrol	Non-Uniformed MoDOT and MPERS	Non-Uniformed Total	Uniformed Patrol	Grand Total
Active Members					
Closed Plan	358	1,916	2,274	601	2,875
Year 2000 Plan (also closed)	457	1,800	2,257	395	2,652
Year 2000 Plan - 2011 Tier (open)	333	1,323	1,656	258	1,914
Total Active Members	1,148	5,039	6,187	1,254	7,441
Total Active Members Prior Year	1,115	4,999	6,114	1,244	7,358
Retiree - Regular Pensioners					
Closed Plan	471	3,541	4,012	898	4,910
Year 2000 Plan (also closed)	526	3,090	3,616	4	3,620
Year 2000 Plan - 2011 Tier (open)	0	0	0	0	0
Total Regular Pensioners	997	6,631	7,628	902	8,530
Self Insured Disability Pensioners	3	50	53	3	56
Fully Insured Disability Pensioners	12	82	94	4	98
Terminated Vested Members	242	1,927	2,169	165	2,334
Total	**2,402**	**13,729**	**16,131**	**2,328**	**18,459**
Active Member Valuation Payroll	$46,345,740	$210,473,695	$256,819,435	$82,979,944	$339,799,379
Active Member Valuation Payroll Prior Year	$44,500,074	$207,314,457	$251,814,531	$82,586,449	$334,400,980
Unfunded Actuarial Accrued Liability	N/A	N/A	$1,251,609,457	$423,469,199	$1,675,078,656

Member data for actuarial valuation is as of May 31, 2016

Active Members By Attained Age and Years of Service

MoDOT and MPERS

Closed Plan

Attained Age	Counted by Complete Years of Service to Valuation Date 0-4	5-9	10-14	15-19	20-24	25-29	30+	Totals No.	Valuation Payroll
Under 20	-	-	-	-	-	-	-	0	$ 0
20-24	-	-	-	-	-	-	-	0	0
25-29	-	-	-	-	-	-	-	0	0
30-34	-	-	-	-	-	-	-	0	0
35-39	-	-	-	88	3	-	-	91	4,001,386
40-44	-	-	1	150	105	1	-	257	12,740,725
45-49	-	3	5	147	251	98	4	508	25,915,256
50-54	-	2	-	106	167	161	88	524	27,025,475
55-59	-	-	-	107	125	57	93	382	18,844,096
60-64	-	-	-	39	46	22	26	133	6,228,369
65-69	-	-	-	8	1	2	7	18	1,018,994
70+	-	-	-	-	1	1	1	3	154,815
Totals	**0**	**5**	**6**	**645**	**699**	**342**	**219**	**1,916**	**$95,929,116**

Average Age **50.5 years**
Average Service **22.7 years**
Average Pay **$50,067**

Year 2000 Plan

Attained Age	Counted by Complete Years of Service to Valuation Date 0-4	5-9	10-14	15-19	20-24	25-29	30+	Totals No.	Valuation Payroll
Under 20	-	-	-	-	-	-	-	0	$ 0
20-24	-	-	-	-	-	-	-	0	0
25-29	5	41	3	-	-	-	-	49	1,803,489
30-34	8	145	98	2	-	-	-	253	10,846,685
35-39	11	101	193	51	-	-	-	356	15,345,116
40-44	12	104	125	54	-	-	-	295	11,941,614
45-49	9	89	123	35	-	-	-	256	9,873,514
50-54	5	76	112	50	-	-	-	243	9,414,749
55-59	11	73	103	41	2	1	-	231	8,915,029
60-64	3	30	57	16	1	-	-	107	4,099,672
65-69	-	4	5	-	-	-	-	9	352,244
70+	-	1	-	-	-	-	-	1	31,385
Totals	**64**	**664**	**819**	**249**	**3**	**1**	**0**	**1,800**	**$72,623,497**

Average Age **44.5 years**
Average Service **10.9 years**
Average Pay **$40,346**

Member data for actuarial valuation is as of May 31, 2016.

Active Members By Attained Age and Years of Service

MoDOT and MPERS

Year 2000 Plan - 2011 Tier

Attained Age	Counted by Complete Years of Service to Valuation Date: 0-4	5-9	10-14	15-19	20-24	25-29	30+	Totals: No.	Totals: Valuation Payroll
Under 20	2	-	-	-	-	-	-	2	$ 30,858
20-24	169	-	-	-	-	-	-	169	4,898,996
25-29	313	2	-	-	-	-	-	315	10,720,557
30-34	226	2	-	-	-	-	-	228	7,184,986
35-39	156	-	-	-	-	-	-	156	4,780,947
40-44	122	1	-	-	-	-	-	123	3,877,277
45-49	113	2	-	-	-	-	-	115	3,510,124
50-54	104	-	-	-	-	-	-	104	3,306,591
55-59	81	-	-	-	-	-	-	81	2,547,813
60-64	22	-	-	-	-	-	-	22	772,452
65-69	7	-	-	-	-	-	-	7	261,364
70+	1	-	-	-	-	-	-	1	29,117
Totals	1,316	7	0	0	0	0	0	1,323	$41,921,082

Average Age	**36.1 years**
Average Service	**1.7 years**
Average Pay	**$31,686**

Member data for actuarial valuation is as of May 31, 2016.

Active Members By Attained Age and Years of Service

Uniformed Patrol

Closed Plan

Attained Age	Counted by Complete Years of Service to Valuation Date 0-4	5-9	10-14	15-19	20-24	25-29	30+	Totals No.	Valuation Payroll
Under 20	-	-	-	-	-	-	-	0	$ 0
20-24	-	-	-	-	-	-	-	0	0
25-29	-	-	-	-	-	-	-	0	0
30-34	-	-	-	-	-	-	-	0	0
35-39	-	1	-	14	-	-	-	15	1,093,625
40-44	-	-	1	85	50	-	-	136	10,535,927
45-49	1	-	1	47	159	26	-	234	18,485,616
50-54	-	-	-	11	53	76	21	161	13,041,844
55-59	-	-	-	1	9	22	21	53	4,375,184
60-64	-	-	-	-	1	1	-	2	166,080
65-69	-	-	-	-	-	-	-	0	0
70+	-	-	-	-	-	-	-	0	0
Totals	**1**	**1**	**2**	**158**	**272**	**125**	**42**	**601**	**$47,698,276**

Average Age	**47.9 years**
Average Service	**22.8 years**
Average Pay	**$79,365**

Year 2000 Plan

Attained Age	Counted by Complete Years of Service to Valuation Date 0-4	5-9	10-14	15-19	20-24	25-29	30+	Totals No.	Valuation Payroll
Under 20	-	-	-	-	-	-	-	0	$ 0
20-24	-	-	-	-	-	-	-	0	0
25-29	2	37	-	-	-	-	-	39	2,026,590
30-34	-	86	30	-	-	-	-	116	6,562,491
35-39	-	32	92	17	-	-	-	141	8,917,342
40-44	-	12	42	17	-	-	-	71	4,300,399
45-49	-	5	9	6	-	-	-	20	1,225,135
50-54	-	2	4	1	-	-	-	7	364,094
55-59	-	-	-	-	1	-	-	1	71,077
60-64	-	-	-	-	-	-	-	0	0
65-69	-	-	-	-	-	-	-	0	0
70+	-	-	-	-	-	-	-	0	0
Totals	**2**	**174**	**177**	**41**	**1**	**0**	**0**	**395**	**$23,467,128**

Average Age	**36.3 years**
Average Service	**10.7 years**
Average Pay	**$59,410**

Member data for actuarial valuation is as of May 31, 2016.

Active Members By Attained Age and Years of Service

Uniformed Patrol

Year 2000 Plan - 2011 Tier

Attained Age	Counted by Complete Years of Service to Valuation Date 0-4	5-9	10-14	15-19	20-24	25-29	30+	Totals No.	Valuation Payroll
Under 20	-	-	-	-	-	-	-	0	$ 0
20-24	41	-	-	-	-	-	-	41	1,747,831
25-29	107	31	-	-	-	-	-	138	6,392,814
30-34	38	13	-	-	-	-	-	51	2,408,919
35-39	12	6	-	-	-	-	-	18	818,070
40-44	4	1	-	-	-	-	-	5	222,902
45-49	3	1	-	-	-	-	-	4	177,184
50-54	1	-	-	-	-	-	-	1	46,820
55-59	-	-	-	-	-	-	-	0	0
60-64	-	-	-	-	-	-	-	0	0
65-69	-	-	-	-	-	-	-	0	0
70+	-	-	-	-	-	-	-	0	0
Totals	**206**	**52**	**0**	**0**	**0**	**0**	**0**	**258**	**$11,814,540**

Average Age	**28.7 years**
Average Service	**3.0 years**
Average Pay	**$45,793**

Member data for actuarial valuation is as of May 31, 2016.

Active Members By Attained Age and Years of Service

Civilian Patrol

Closed Plan

Attained Age	Counted by Complete Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30+	No.	Valuation Payroll
Under 20	-	-	-	-	-	-	-	0	$ 0
20-24	-	-	-	-	-	-	-	0	0
25-29	-	-	-	-	-	-	-	0	0
30-34	-	-	-	-	-	-	-	0	0
35-39	-	-	1	12	1	-	-	14	597,916
40-44	-	-	-	24	17	-	-	41	2,045,836
45-49	-	-	3	28	32	15	1	79	3,850,335
50-54	1	-	3	22	33	23	21	103	4,921,198
55-59	-	1	1	16	23	17	18	76	3,445,594
60-64	-	-	-	11	10	6	8	35	1,678,095
65-69	-	-	-	2	5	-	1	8	305,830
70+	-	-	-	-	2	-	-	2	69,998
Totals	**1**	**1**	**8**	**115**	**123**	**61**	**49**	**358**	**$16,914,802**

Average Age	**51.7 years**
Average Service	**23.0 years**
Average Pay	**$47,248**

Year 2000 Plan

Attained Age	Counted by Complete Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30+	No.	Valuation Payroll
Under 20	-	-	-	-	-	-	-	0	$ 0
20-24	-	-	-	-	-	-	-	0	0
25-29	4	11	-	-	-	-	-	15	599,100
30-34	1	53	19	-	-	-	-	73	3,130,380
35-39	6	34	50	9	-	-	-	99	4,572,556
40-44	4	20	24	10	-	-	-	58	2,493,249
45-49	4	21	35	4	1	-	-	65	2,600,277
50-54	2	26	23	11	1	-	-	63	2,573,975
55-59	1	15	25	4	-	-	-	45	1,774,382
60-64	2	13	9	6	-	-	-	30	1,031,227
65-69	-	1	4	1	-	-	-	6	233,137
70+	-	1	2	-	-	-	-	3	76,639
Totals	**24**	**195**	**191**	**45**	**2**	**0**	**0**	**457**	**$19,084,922**

Average Age	**44.1 years**
Average Service	**10.3 years**
Average Pay	**$41,761**

Member data for actuarial valuation is as of May 31, 2016.

Active Members By Attained Age and Years of Service

Civilian Patrol

Year 2000 Plan - 2011 Tier

Attained Age	Counted by Complete Years of Service to Valuation Date: 0-4	5-9	10-14	15-19	20-24	25-29	30+	Totals: No.	Totals: Valuation Payroll
Under 20	-	-	-	-	-	-	-	0	$ 0
20-24	32	-	-	-	-	-	-	32	838,261
25-29	87	3	-	-	-	-	-	90	3,016,887
30-34	43	9	-	-	-	-	-	52	1,855,577
35-39	22	3	-	-	-	-	-	25	815,349
40-44	25	3	-	-	-	-	-	28	856,726
45-49	32	3	-	-	-	-	-	35	1,042,978
50-54	29	2	-	-	-	-	-	31	822,967
55-59	21	1	-	-	-	-	-	22	578,602
60-64	13	1	-	-	-	-	-	14	385,345
65-69	3	1	-	-	-	-	-	4	133,324
70+	-	-	-	-	-	-	-	0	0
Totals	**307**	**26**	**0**	**0**	**0**	**0**	**0**	**333**	**$10,346,016**

Average Age	**37.6 years**
Average Service	**2.4 years**
Average Pay	**$31,069**

Member data for actuarial valuation is as of May 31, 2016.

Schedule of Active Member Valuation Data

Actuarial Valuation for June 30,	Number of Participating Employers	Number of Active Members	Covered Payroll	Average Pay	Percent Change in Average Pay from Prior Year
2007	3	8,640	$360,842,421	$41,764	8.2%
2008	3	8,599	369,424,653	42,961	2.9%
2009	3	8,784	377,652,245	42,993	0.1%
2010	3	8,457	369,911,252	43,740	1.7%
2011	3	8,231	361,639,001	43,936	0.4%
2012	3	7,458	329,293,168	44,153	0.5%
2013	3	7,319	323,205,767	44,160	0.0%
2014	3	7,390	332,085,689	44,937	1.8%
2015	3	7,358	334,400,980	45,447	1.1%
2016	3	7,441	339,799,379	45,666	0.5%
				Ten-Year Average	**1.7%**

Member data for actuarial valuation is as of May 31, 2016.

Solvency Test

The MPERS funding objective is to meet long term benefit promises through contributions that remain approximately level from year to year as a percent of member payroll. If the contributions to the System are level in concept and soundly executed, the System will *pay all promised benefits when due – the ultimate test of financial soundness.*

A *solvency test* is one means of checking a system's progress under its funding program. In a solvency test for a non-contributory plan, the plan's present assets (cash and investments) are compared with: 1) The liabilities for future benefits to present retired lives and 2) The liabilities for service already rendered by members. In a system that has been following the discipline of level percent of payroll financing, the liabilities for future benefits to present retired lives (liability 1) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by members (liability 2) will be partially covered by the remainder of present assets. The larger the funded portion of liability 2, the stronger the condition of the system. The schedule below illustrates the history of liability 2 of the System.

Valuation Date June 30	(1) Member Contributions	(2) Retirees and Beneficiaries	(3) Active and Inactive Members	Present Valuation Assets	Portion of Present Values Covered by Present Assets			
					(1)	(2)	(3)	Total
	------------------------	*Millions*	------------------------					
1999	0	$1,132	$ 921	$1,243	100%	100%	12%	61%
2000	0	1,238	951	1,423	100%	100%	19%	65%
2001	0	1,375	926	1,521	100%	100%	16%	66%
2002*	0	1,470	888	1,451	100%	99%	0%	62%
2003	0	1,555	863	1,364	100%	88%	0%	56%
2004	0	1,626	867	1,332	100%	82%	0%	53%
2005	0	1,669	958	1,417	100%	85%	0%	54%
2006	0	1,734	1,007	1,521	100%	88%	0%	56%
2007	0	1,810	1,087	1,686	100%	93%	0%	58%
2008	0	1,873	1,147	1,784	100%	95%	0%	59%
2009	0	1,947	1,166	1,471	100%	76%	0%	47%
2010*	0	2,034	1,225	1,376	100%	68%	0%	42%
2011	0	2,045	1,253	1,427	100%	70%	0%	43%
2012*	0	2,133	1,173	1,531	100%	72%	0%	46%
2013*	1	2,333	1,250	1,657	100%	71%	0%	46%
2014	2	2,384	1,264	1,795	100%	75%	0%	49%
2015	3	2,444	1,269	1,967	100%	80%	0%	53%
2016	5	2,470	1,287	2,087	100%	84%	0%	55%

* *New assumptions and/or methods adopted.*

Derivation of Financial Experience

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 sizeable year-to-year variations from assumed experience are common. Detail on the derivation of the experience gain (loss) is shown below.

UAAL Beginning of Year (at July 1)	$1,748,844,142
Normal Cost	49,386,902
Contributions	(205,821,588)
Interest	129,473,577
Net Change in LTD Assets	-
Expected UAAL Before Any Changes	1,721,883,033
Effect of Data Improvements*	(5,762,319)
Effect of Changes in Assumptions & Methods	-
Effect of Adjustment	-
Expected UAAL After Changes	1,716,120,714
End of Year UAAL (at June 30)	1,675,078,656
Gain/(Loss) for Year	$41,042,058
Gain/(Loss) as a percent of actuarial accrued liabilities at start of year ($3,715.8 million)	1.1%

**Result of receiving disability information on retired members who are at or past normal retirement age.*

Valuation Date June 30	Experience Gain (Loss) as % of Beginning Accrued Liability
1999	(7.7)%
2000	(0.1)%
2001	(9.3)%
2002	(4.5)%
2003	(5.2)%
2004	(2.9)%
2005	(1.5)%
2006	1.4%
2007	1.1%
2008	(0.2)%
2009	(12.6)%
2010	(3.8)%
2011	2.2%
2012	3.2%
2013	2.1%
2014	2.1%
2015	2.4%
2016	**1.1%**

Schedule of Retirees and Beneficiaries Added and Removed

Valuation Date	Added to Rolls: Number	Added to Rolls: Annual Allowances	Removed from Rolls: Number	Removed from Rolls: Annual Allowances	Rolls End of Year: Number	Rolls End of Year: Annual Allowances	Average Annual Allowances	% Increase in Annual Allowance	% Increase in Average Annual Allowance
FY2016									
Retirees	300	$3,820,071	193	$3,032,208	6,690	$187,571,039	$28,038	2.31%	0.68%
Beneficiaries	129	1,205,294	121	889,494	1,882	33,100,896	17,588	3.18%	2.74%
Disabilities	20	0	29	5,787	155	905,306	5,841	0.21%	6.05%
FY2015									
Retirees	406	$4,669,565	188	$2,712,395	6,583	$183,337,549	$27,850	2.61%	-0.79%
Beneficiaries	113	1,290,336	139	900,991	1,874	32,080,172	17,119	2.65%	4.07%
Disabilities	21	0	30	22,387	164	903,386	5,508	-3.43%	1.87%
FY2014									
Retirees	307	$4,434,888	176	$2,317,420	6,365	$178,670,075	$28,071	3.54%	1.41%
Beneficiaries	112	1,163,441	126	863,108	1,900	31,253,184	16,449	3.91%	4.68%
Disabilities	19	6,760	25	19,831	173	935,492	5,407	3.41%	6.40%
FY2013									
Retirees	395	$5,001,943	174	$2,761,791	6,234	$172,564,478	$27,681	4.56%	0.85%
Beneficiaries	130	1,349,835	96	717,434	1,914	30,077,515	15,714	6.79%	5.00%
Disabilities	27	0	23	6,788	179	904,683	5,082	-1.88%	-3.00%
FY2012									
Retirees	413	$5,988,784	171	$2,119,116	6,013	$165,042,751	$27,448	4.10%	-0.09%
Beneficiaries	130	1,206,259	105	610,931	1,880	28,166,374	14,966	5.20%	3.69%
Disabilities	34	0	25	16,712	175	922,027	5,239	0.39%	-5.31%
FY2011									
Retirees	311	$3,955,409	146	$2,406,006	5,771	$158,543,113	$27,472	0.74%	-2.14%
Beneficiaries	102	891,718	109	710,880	1,855	26,772,995	14,433	-1.17%	-0.79%
Disabilities	38	0	14	10,399	166	918,403	5,533	1.69%	-13.00%
FY2010									
Retirees	272	$3,218,890	137	$3,252,182	5,606	$157,380,575	$28,074	3.29%	0.80%
Beneficiaries	103	930,442	104	625,292	1,862	27,089,491	14,549	5.79%	5.85%
Disabilities	21	0	25	73,638	142	903,107	6,360	-40.95%	-39.29%
FY2009									
Retirees	292	$4,125,644	178	$2,136,578	5,471	$152,372,034	$27,851	4.49%	2.31%
Beneficiaries	138	1,134,755	108	622,167	1,863	25,606,266	13,745	7.80%	6.07%
Disabilities	19	0	28	71,381	146	1,529,412	10,475	-11.67%	-6.23%
FY2008									
Retirees	331	$3,940,198	151	$1,202,185	5,357	$145,826,691	$27,222	4.97%	1.45%
Beneficiaries	113	763,176	92	437,560	1,833	23,753,030	12,959	6.59%	5.37%
Disabilities	21	54,465	32	57,913	155	1,731,521	11,171	-22.63%	-17.14%
FY2007									
Retirees	310	$3,052,533	157	$1,373,300	5,177	$138,917,326	$26,834	4.87%	1.77%
Beneficiaries	131	51,253	112	617,163	1,812	22,283,555	12,298	8.09%	6.96%
Disabilities	36	0	24	116,307	166	2,237,892	13,481	38.31%	28.31%

**New disabilities are covered / paid by the Standard Insurance Co.*
Data of this chart is as of June 30, 2016.

Summary of Plan Provisions *

Comparison of the Closed Plan, the Year 2000 Plan, and the Year 2000 Plan - 2011 Tier
For the Year Ended June 30, 2016

Plan Provision	Closed Plan	Year 2000 Plan	Year 2000 Plan - 2011 Tier
Membership Eligibility	• Members who work in a position normally requiring at least 1,040 hours of work a year.	• Members hired for the first time on or after July 1, 2000, in a position normally requiring at least 1,040 hours of work a year. • Members who left state employment prior to becoming vested and return to work on or after July 1, 2000, in a position normally requiring at least 1,040 hours of work a year.	• Members hired for the first time on or after January 1, 2011, in a position normally requiring at least 1,040 hours of work a year. • Members who have never worked for a state agency covered by MPERS or MOSERS prior to January 1, 2011.
Normal Retirement Eligibility	• Age 65 & active with 4 years of service. • Age 65 with 5 years of service. • Age 60 with 15 years of service. • "Rule of 80"/minimum age 48. Uniformed Members Only: • Age 55 & active with 4 years of service. • Age 55 with 5 years of service. • "Rule of 80"/minimum age 48. • Age 60 & active – mandatory, no minimum service.	• Age 62 with 5 years of service. • "Rule of 80"/minimum age 48. Uniformed Members Only: • "Rule of 80"/minimum age 48. • Age 60 & active - mandatory with, no minimum service	• Age 67 with 10 years of service. • "Rule of 90"/minimum age 55. Uniformed Members Only: • Age 55 & active with 10 years of creditable service. • Age 60 & active - mandatory, no minimum service.
Early (Reduced) Retirement Eligibility	• Age 55 with 10 years creditable service.	• Age 57 with 5 years creditable service.	• Age 62 & active with 10 years of creditable service. (active only)
Benefit Life Benefit	1.6% x FAP** x service (Base benefit is increased by 33 1/3% for uniformed patrol members only.)	1.7% x FAP** x service	1.7% x FAP** x service
Temporary Benefit	Not available.	0.8% x FAP** x service Until age 62, only if retiring under "Rule of 80".	0.8% x FAP** x service Until age 62, only if retiring under "Rule of 90".
Special Benefit	Uniformed Members Only: $90/mo payable until age 65, offset by any amount earned from gainful employment. (does not apply if hired on or after January 1, 1995)	Uniformed Members Only: Until age 62, if retiring under "Rule of 80" or at mandatory age 60.	Uniformed Members Only: Until age 62, if retiring under either normal retirement eligibility provision.
Vesting	5 years of service.	5 years of service.	10 years of service.
COLA (Cost-of-Living Allowance)	• If hired before August 28, 1997, annual COLA is a minimum of 4%, maximum 5%, based on 80% of the increase in the CPI-U over the previous year, up to a maximum of 65% of original benefit. • After 65% cap is reached, annual COLA increase will be equal to 80% of the change in the CPI-U, with a maximum of 5%. • If hired on or after August 28, 1997, annual COLA is equal to 80% of the change in the CPI-U with a maximum rate of 5%.	• Annual COLA is equal to 80% of the change in the CPI-U with a maximum rate of 5%.	• Annual COLA is equal to 80% of the change in the CPI-U with a maximum rate of 5%.

Summary of Plan Provisions *

Comparison of the Closed Plan, the Year 2000 Plan, and the Year 2000 Plan - 2011 Tier
For the Year Ended June 30, 2016

Plan Provision	Closed Plan	Year 2000 Plan	Year 2000 Plan - 2011 Tier
Survivor Benefit (Death before retirement) Non Duty-Related Death	• Survivor benefit to eligible spouse calculated using the Joint & 100% survivor option or 80% of the member's life income annuity paid to eligible children under age 21. • If at least 3, but less than 5, years of service the survivor benefit is calculated using 25% of the member's base benefit calculated as if the member retired on their date of death.	• Survivor benefit to eligible spouse calculated using the Joint & 100% survivor option or 80% of the member's life income annuity paid to eligible children under age 21.	• Survivor benefit to eligible spouse calculated using the Joint & 100% survivor option or 80% of the member's life income annuity paid to eligible children under age 21.
Duty-Related Death	• Survivor benefit to eligible spouse or children no less than 50% of final average pay (no minimum service requirement).	• Survivor benefit to eligible spouse or children no less than 50% of final average pay (no minimum service requirement).	• Survivor benefit to eligible spouse or children no less than 50% of final average pay (no minimum service requirement).
Optional Forms of Payment	Payment options include: • Life Income Annuity • Unreduced Joint & 50% Survivor • Joint & 100% Survivor • 60 or 120 Guaranteed Payments • BackDROP	Payment options include: • Life Income Annuity • Joint & 50% Survivor • Joint & 100% Survivor • 120 or 180 Guaranteed Payments • BackDROP	Payment options include: • Life Income Annuity • Joint & 50% Survivor • Joint & 100% Survivor • 120 or 180 Guaranteed Payments
Disability	Long-Term Disability and Work-Related Disability	Long-Term Disability and Work-Related Disability	Long-Term Disability and Work-Related Disability
Employee Contributions	Non-contributory	Non-contributory	4% of Gross Pay

**This summary describes the plan provisions of the Revised Statutes of Missouri (RSMo.), as amended, that governed the programs, which MPERS administered during the period covered by this report. It does not overrule any applicable statute or administrative rule and, in the event of a conflict, the applicable statute or rule would apply. The Year 2000 Plan was effective July 1, 2000 and the Year 2000 Plan – 2011 Tier was effective January 1, 2011. A complete summary is available at the MPERS office.*

***Final Average Pay – average of highest 36 consecutive months of pay.*

See Note 2 of Notes to the Financial Statements for more information.

Legislative Changes

During the 2016 Legislative Session, no MPERS-related bills were signed into law.

Notes

Statistical Section

"Never stop investing never stop improving never stop doing something new."

-Bob Parsons

American entrepenuer, philantropist, and founder of GoDaddy.com and other companies

Statistical Summary

Changes in Net Position

The chart on page 76 details a 10-year history of the additions (revenues) and deductions (expenses) of MPERS.

The chart on page 77 details a 10-year history of benefit payments by type.

Plan Membership

Overall, MPERS' membership increased by 235. Retired members and their beneficiaries increased by 106, terminated-vested members increased by 29, and active members increased by 100.

The charts beginning on page 79 detail the number of retired members by type of benefit and the average monthly benefit payments.

Other charts and graphs in this section detail demographic information concerning our members and employers.

All non-accounting data in this section was derived from internal sources and the annual actuarial valuation reports. Member data may differ between some schedules since the valuations are performed using data as of May 31 each year.

Changes in Net Position

MoDOT and Patrol Employees' Retirement System
Changes in Net Position, Last Ten Fiscal Years

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Additions										
Employer Contributions	$121,264,532	$123,335,151	$122,599,301	$124,052,534	$150,022,169	$164,880,140	$170,836,117	$183,353,841	$200,638,571	$199,609,396
Employee Contributions (1)	0	0	0	0	45,361	202,843	503,550	1,282,379	2,086,000	2,503,824
Transfers from Other Systems (2)	0	0	0	0	17,609,276	264,954	1,727,834	1,784,382	1,114,437	2,729,679
Other Contributions	529,926	1,192,527	444,000	424,172	453,984	908,898	635,900	978,184	1,208,162	978,689
Net Investment Income	283,549,424	(42,915,886)	(426,265,311)	166,307,054	279,612,052	42,091,564	198,139,438	319,445,655	92,645,423	21,432,090
Other Income	31,580	31,546	33,571	33,145	33,141	13,760	1,650	125	148	5
Total Additions to Fiduciary Net Position	405,375,462	81,643,338	(303,188,439)	290,816,905	447,775,983	208,362,159	371,844,489	506,844,566	297,692,741	227,253,683
Deductions										
Benefit Payments	175,970,479	185,801,362	192,013,250	196,721,274	202,153,768	219,704,320	224,518,100	231,384,708	241,714,876	240,176,011
Administrative Expenses	2,120,764	2,371,215	2,339,501	2,512,181	2,658,849	2,934,969	2,997,225	3,736,355	4,066,944	4,370,860
Total Deductions from Fiduciary Net Position	178,091,243	188,172,577	194,352,751	199,233,455	204,812,617	222,639,289	227,515,325	235,121,063	245,781,820	244,546,871
Change in Net Position	**$227,284,219**	**$(106,529,239)**	**$(497,541,190)**	**$91,583,450**	**$242,963,366**	**$(14,277,130)**	**$144,329,164**	**$271,723,503**	**$51,910,921**	**$17,293,188**

(1) Employee contributions began January 1, 2011 for members in the Year 2000 Plan - 2011 Tier.

(2) 2004 transfer from MOSERS for Highway Safety employees and 2011 transfer from MOSERS for Water Patrol employees.

Benefit Payments By Type

MoDOT and Patrol Employees' Retirement System
Benefit Payments by Type, Last Ten Fiscal Years

Type of Benefit	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Age and Service Benefits:										
Retiree and Survivor Annuity Payments	$159,145,368	$167,654,271	$175,588,494	$183,103,253	$188,171,369	$195,964,396	$205,617,640	$212,840,210	$218,827,986	$224,098,038
BackDROP Payments	13,177,432	14,631,932	12,859,452	10,358,181	10,792,932	18,138,891	13,426,923	13,438,730	16,366,338	10,677,166
Disability Benefits:										
Long-Term Disability	288,908	223,501	179,239	137,624	101,875	85,240	79,964	79,184	76,061	66,389
Work-Related Disability	703,159	728,507	692,043	664,469	648,320	668,821	691,227	774,541	716,047	718,009
Normal Disability	220,490	207,417	186,349	163,485	167,427	166,140	138,281	121,872	108,891	109,027
Insured Disability	1,905,122	1,835,734	1,847,673	1,759,262	1,696,845	1,592,517	1,512,685	1,531,578	1,554,676	1,567,825
Death Benefits	530,000	520,000	660,000	535,000	575,000	675,000	665,000	703,571	810,000	820,000
Service Transfer Payments[2]	0	0	0	0	0	2,410,526	2,357,080	1,876,336	3,147,482	1,921,451
Employee Contribution Refunds[1]	0	0	0	0	0	2,789	29,300	18,686	107,395	198,106
Total Benefits	**$175,970,479**	**$185,801,362**	**$192,013,250**	**$196,721,274**	**$202,153,768**	**$219,704,320**	**$224,518,100**	**$231,384,708**	**$241,714,876**	**$240,176,011**

(1) Employee contributions began January 1, 2011 for members in the Year 2000 Plan - 2011 Tier.
(2) Reciprocal transfer legislation enacted effective August 28, 2011.

Schedule of Budgeted and Actual Operating Expenditures

For the Year Ended June 30, 2016

	Annual Budget	Actual Year End	Actual % Spent	Budget Variance Favorable (Unfavorable)
Administrative Expenses				
Salary/Benefits	$ 1,707,287	$ 1,628,518	95.4%	$ 78,769
Professional Services	331,350	294,950	89.0%	36,400
Meetings/Travel/Education	42,752	27,561	64.5%	15,191
Member Education	22,650	19,452	85.9%	3,198
Office Supplies	7,000	3,923	56.0%	3,077
Printing/Postage	49,350	34,535	70.0%	14,815
Membership Dues/Subscriptions	12,317	10,796	87.7%	1,521
Utilities	43,420	38,752	89.2%	4,668
Building Expenses/Maintenance	44,220	46,918	106.1%	(2,698)
Rental/Lease	9,150	8,640	94.4%	510
Equipment/Furniture	7,400	7,916	107.0%	(516)
Information Technology	289,215	313,976	108.6%	(24,761)
Administrative Sub-total	$ 2,566,111	$ 2,435,937	94.9%	$ 130,174
Investment Expenses				
Salary/Benefits	1,468,584	1,437,147	97.9%	31,437
Investment Services	350,000	330,357	94.4%	19,643
Meetings/Travel/Education	61,025	58,191	95.4%	2,834
Direct Operating Expenses	39,000	39,371	101.0%	(371)
Investment Sub-total	$ 1,918,609	$ 1,865,066	97.2%	$ 53,543
TOTALS	**$4,484,720**	**$4,301,003**	**95.9%**	**$183,717**

Reconciliation to Statement of Changes in Fiduciary Net Position, Administrative Expenses:

Total Administrative Expenses	$4,370,860
Investment General Consultant	318,871
Depreciation Expense	(360,639)
OPEB Expense	(36,360)
Capitalized Equipment Costs	8,272
	$4,301,003

Schedule of Retired Members By Type of Benefit

All Members*

Amount of Monthly Benefit	Type of Benefit: Retirement Normal	Retirement Early	Disability Normal	Disability Work-Related	Disability Long-Term	Survivor	Total Recipients
1 - 200	30	91	3	24	75	97	320
201 - 400	168	192	3	0	5	181	549
401 - 600	171	160	1	0	5	172	509
601 - 800	170	100	1	1	1	191	464
801 - 1000	175	47	3	1	1	157	384
1001 - 1200	245	30	1	1	0	143	420
1201 - 1400	341	17	0	2	1	135	496
1401 - 1600	435	9	1	1	0	111	557
1601 - 1800	405	5	1	3	0	87	501
1801 - 2000	417	3	0	5	0	79	504
2001 - 2200	372	2	0	5	0	79	458
2201 - 2400	308	2	0	3	0	75	388
2401 - 2600	316	0	0	1	0	47	364
2601 - 2800	286	0	0	2	0	52	340
2801 - 3000	290	1	0	1	0	52	344
> 3000	1,900	2	0	3	0	224	2,129
TOTALS	**6,029**	**661**	**14**	**53**	**88**	**1,882**	**8,727**

* This chart includes ten retirement system staff retirees

MoDOT

Amount of Monthly Benefit	Type of Benefit: Retirement Normal	Retirement Early	Disability Normal	Disability Work-Related	Disability Long-Term	Survivor	Total Recipients
1 - 200	21	69	3	20	63	90	266
201 - 400	123	158	3	0	4	162	450
401 - 600	116	133	1	0	4	150	404
601 - 800	127	89	1	1	1	172	391
801 - 1000	122	40	3	1	1	134	301
1001 - 1200	200	24	1	1	0	126	352
1201 - 1400	286	15	0	2	1	121	425
1401 - 1600	368	9	1	1	0	88	467
1601 - 1800	344	5	1	3	0	72	425
1801 - 2000	359	3	0	5	0	69	436
2001 - 2200	314	2	0	4	0	63	383
2201 - 2400	263	2	0	2	0	55	322
2401 - 2600	268	0	0	0	0	32	300
2601 - 2800	254	0	0	2	0	29	285
2801 - 3000	242	1	0	1	0	31	275
> 3000	1,131	1	0	2	0	171	1,305
TOTALS	**4,538**	**551**	**14**	**45**	**74**	**1,565**	**6.787**

Schedule of Retired Members By Type of Benefit

Uniformed Patrol

Amount of Monthly Benefit	Retirement Normal	Retirement Early	Disability Normal	Disability Work-Related	Disability Long-Term	Survivor	Total Recipients
1 - 200	1	0	0	3	1	1	6
201 - 400	3	0	0	0	0	4	7
401 - 600	11	0	0	0	0	5	16
601 - 800	9	0	0	0	0	2	11
801 - 1000	10	0	0	0	0	10	20
1001 - 1200	3	0	0	0	0	1	4
1201 - 1400	5	0	0	0	0	4	9
1401 - 1600	1	0	0	0	0	11	12
1601 - 1800	2	0	0	0	0	8	10
1801 - 2000	1	0	0	0	0	5	6
2001 - 2200	3	0	0	1	0	12	16
2201 - 2400	3	0	0	1	0	17	21
2401 - 2600	5	0	0	0	0	13	18
2601 - 2800	0	0	0	0	0	21	21
2801 - 3000	3	0	0	0	0	20	23
> 3000	667	0	0	1	0	48	716
TOTALS	**727**	**0**	**0**	**6**	**1**	**182**	**916**

Civilian Patrol

Amount of Monthly Benefit	Retirement Normal	Retirement Early	Disability Normal	Disability Work-Related	Disability Long-Term	Survivor	Total Recipients
1 - 200	7	22	0	1	11	6	47
201 - 400	42	34	0	0	1	15	92
401 - 600	44	27	0	0	1	17	89
601 - 800	34	11	0	0	0	17	62
801 - 1000	43	7	0	0	0	13	63
1001 - 1200	42	6	0	0	0	16	64
1201 - 1400	49	2	0	0	0	10	61
1401 - 1600	66	0	0	0	0	12	78
1601 - 1800	59	0	0	0	0	7	66
1801 - 2000	56	0	0	0	0	5	61
2001 - 2200	55	0	0	0	0	4	59
2201 - 2400	42	0	0	0	0	3	45
2401 - 2600	43	0	0	1	0	2	46
2601 - 2800	32	0	0	0	0	2	34
2801 - 3000	45	0	0	0	0	1	46
> 3000	96	0	0	0	0	5	101
TOTALS	**755**	**109**	**0**	**2**	**13**	**135**	**1,014**

Schedule of Average Monthly Benefit Payments

MoDOT

By Years of Service

Retired In Fiscal Year		0 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41+
2007	**Average Benefit**	**$299**	**612**	**961**	**1,354**	**2,333**	**2,538**	**2,909**	**3,533**
2007	Average FAP	$2,120	2,473	2,339	2,887	3,359	3,636	4,093	4,031
2007	**Current Retirees**	**21**	**23**	**17**	**28**	**64**	**36**	**13**	**6**
2008	**Average Benefit**	**$292**	**534**	**1,058**	**1,492**	**2,347**	**2,724**	**2,219**	**3,594**
2008	Average FAP	$2,271	2,401	2,991	3,392	3,438	3,917	3,513	4,463
2008	**Current Retirees**	**25**	**27**	**25**	**35**	**56**	**50**	**18**	**5**
2009	**Average Benefit**	**$316**	**687**	**1,107**	**1,542**	**2,338**	**2,579**	**2,681**	**3,677**
2009	Average FAP	$2,494	2,922	3,292	3,499	3,523	3,672	3,920	4,539
2009	**Current Retirees**	**27**	**17**	**15**	**38**	**42**	**44**	**16**	**5**
2010	**Average Benefit**	**$294**	**589**	**1,250**	**1,609**	**2,524**	**2,937**	**2,851**	**3,522**
2010	Average FAP	$2,319	2,511	3,356	3,511	3,643	3,953	4,015	4,008
2010	**Current Retirees**	**24**	**23**	**16**	**38**	**60**	**41**	**3**	**3**
2011	**Average Benefit**	**$329**	**615**	**1,052**	**1,821**	**2,804**	**3,144**	**3,232**	**4,249**
2011	Average FAP	$2,663	2,659	3,135	3,579	3,939	3,932	3,863	4,167
2011	**Current Retirees**	**21**	**35**	**23**	**42**	**65**	**35**	**6**	**3**
2012	**Average Benefit**	**$412**	**529**	**1,082**	**1,700**	**2,963**	**3,312**	**2,727**	**0**
2012	Average FAP	$2,945	2,769	3,434	3,495	4,224	4,272	3,785	0
2012	**Current Retirees**	**36**	**23**	**38**	**60**	**105**	**56**	**4**	**0**
2013	**Average Benefit**	**$295**	**589**	**1,183**	**1,773**	**2,991**	**3,130**	**4,880**	**2,556**
2013	Average FAP	$2,627	2,932	3,538	3,824	4,345	3,982	5,516	2,802
2013	**Current Retirees**	**34**	**36**	**45**	**67**	**98**	**27**	**2**	**1**
2014	**Average Benefit**	**$300**	**655**	**1,125**	**1,880**	**3,098**	**3,592**	**2,593**	**0**
2014	Average FAP	$2,449	3,040	3,420	3,851	4,508	4,606	3,781	0
2014	**Current Retirees**	**27**	**26**	**21**	**43**	**75**	**14**	**2**	**0**
2015	**Average Benefit**	**$314**	**614**	**1,066**	**1,771**	**2,915**	**3,481**	**3,469**	**0**
2015	Average FAP	$2,622	3,033	3,434	3,605	4,333	4,659	4,286	0
2015	**Current Retirees**	**54**	**60**	**39**	**50**	**79**	**19**	**2**	**0**
2016	**Average Benefit**	**$322**	**479**	**811**	**1,799**	**2,833**	**3,322**	**3,658**	**0**
2016	Average FAP	$2,817	2,721	2,889	3,724	4,304	4,727	5,147	0
2016	**Current Retirees**	**33**	**26**	**24**	**49**	**82**	**14**	**2**	**0**

FAP = Final Average Pay

Schedule of Average Monthly Benefit Payments

Uniformed Patrol

By Years of Service

Retired In Fiscal Year		0-10	11-15	16-20	21-25	26-30	31-35	36-40	41+
2007	**Average Benefit**	**$725**	**920**	**1,215**	**0**	**4,488**	**5,768**	**6,333**	**0**
2007	Average FAP	$2,292	2,260	2,475	0	5,287	5,761	5,436	0
2007	**Current Retirees**	**1**	**3**	**1**	**0**	**5**	**12**	**4**	**0**
2008	**Average Benefit**	**$589**	**0**	**2,260**	**0**	**5,230**	**5,393**	**5,924**	**0**
2008	Average FAP	$1,898	0	3,969	0	6,098	5,303	5,575	0
2008	**Current Retirees**	**1**	**0**	**1**	**0**	**5**	**9**	**3**	**0**
2009	**Average Benefit**	**$0**	**877**	**0**	**2,483**	**5,159**	**5,342**	**5,848**	**7,288**
2009	Average FAP	$0	2,557	0	3,711	6,140	5,832	5,565	5,974
2009	**Current Retirees**	**0**	**1**	**0**	**2**	**6**	**16**	**6**	**1**
2010	**Average Benefit**	**$0**	**1,069**	**1,462**	**0**	**4,770**	**6,447**	**6,931**	**0**
2010	Average FAP	$0	2,749	3,072	0	5,625	6,668	7,201	0
2010	**Current Retirees**	**0**	**3**	**1**	**0**	**7**	**8**	**2**	**0**
2011	**Average Benefit**	**$597**	**1,086**	**0**	**2,709**	**4,788**	**6,058**	**7,342**	**0**
2011	Average FAP	$2,245	3,051	0	4,595	6,107	6,366	6,746	0
2011	**Current Retirees**	**1**	**2**	**0**	**2**	**9**	**8**	**1**	**0**
2012	**Average Benefit**	**$0**	**681**	**0**	**3,015**	**4,658**	**5,867**	**0**	**0**
2012	Average FAP	$0	2,463	0	4,521	6,012	6,439	0	0
2012	**Current Retirees**	**0**	**1**	**0**	**2**	**9**	**17**	**0**	**0**
2013	**Average Benefit**	**$564**	**0**	**1,563**	**3,970**	**4,866**	**5,616**	**7,437**	**0**
2013	Average FAP	$2,316	0	3,917	6,507	6,473	6,505	7,510	0
2013	**Current Retirees**	**1**	**0**	**2**	**2**	**9**	**8**	**1**	**0**
2014	**Average Benefit**	**$440**	**0**	**0**	**3,508**	**4,777**	**5,828**	**6,616**	**0**
2014	Average FAP	$2,503	0	0	6,070	6,528	6,580	6,237	0
2014	**Current Retirees**	**5**	**0**	**0**	**1**	**24**	**11**	**1**	**0**
2015	**Average Benefit**	**$704**	**1,379**	**0**	**3,716**	**4,771**	**5,923**	**0**	**0**
2015	Average FAP	$3,119	4,458	0	6,736	6,655	6,951	0	0
2015	**Current Retirees**	**1**	**1**	**0**	**2**	**20**	**10**	**0**	**0**
2016	**Average Benefit**	**$277**	**940**	**0**	**3,669**	**4,422**	**5,606**	**0**	**0**
2016	Average FAP	$2,599	3,804	0	6,405	6,607	7,039	0	0
2016	**Current Retirees**	**1**	**1**	**0**	**4**	**13**	**4**	**0**	**0**

FAP = Final Average Pay

Schedule of Average Monthly Benefit Payments

Civilian Patrol

By Years of Service

Retired In Fiscal Year		0-10	11-15	16-20	21-25	26-30	31-35	36-40	41+
2007	**Average Benefit**	**$329**	**565**	**691**	**1,107**	**2,207**	**2,210**	**1,792**	**0**
2007	Average FAP	$1,853	1,924	2,082	2,491	3,600	3,023	2,868	0
2007	**Current Retirees**	**5**	**5**	**5**	**6**	**8**	**13**	**2**	**0**
2008	**Average Benefit**	**$269**	**646**	**882**	**1,233**	**1,583**	**2,642**	**4,172**	**0**
2008	Average FAP	$2,186	2,736	2,469	2,658	2,753	3,796	4,151	0
2008	**Current Retirees**	**6**	**6**	**6**	**5**	**8**	**11**	**1**	**0**
2009	**Average Benefit**	**$228**	**376**	**671**	**0**	**2,548**	**2,499**	**1,867**	**2,586**
2009	Average FAP	$2,090	1,874	2,135	0	3,690	3,369	2,865	2,679
2009	**Current Retirees**	**4**	**6**	**3**	**0**	**11**	**8**	**3**	**2**
2010	**Average Benefit**	**$265**	**482**	**1,167**	**1,272**	**2,684**	**1,968**	**3,974**	**0**
2010	Average FAP	$2,141	2,124	3,091	2,654	4,106	3,188	5,179	0
2010	**Current Retirees**	**7**	**3**	**5**	**8**	**5**	**3**	**2**	**0**
2011	**Average Benefit**	**$324**	**550**	**874**	**1,802**	**2,801**	**2,947**	**0**	**0**
2011	Average FAP	$2,526	2,358	2,469	3,496	4,034	3,843	0	0
2011	**Current Retirees**	**4**	**7**	**6**	**11**	**14**	**8**	**0**	**0**
2012	**Average Benefit**	**$280**	**475**	**1,224**	**1,565**	**2,501**	**2,623**	**0**	**0**
2012	Average FAP	$2,133	2,296	3,501	3,115	3,690	3,458	0	0
2012	**Current Retirees**	**7**	**5**	**4**	**8**	**16**	**6**	**0**	**0**
2013	**Average Benefit**	**$320**	**523**	**990**	**1,735**	**2,403**	**2,912**	**0**	**0**
2013	Average FAP	$2,723	2,551	2,888	3,498	3,359	4,003	0	0
2013	**Current Retirees**	**13**	**9**	**7**	**10**	**9**	**6**	**0**	**0**
2014	**Average Benefit**	**$296**	**553**	**869**	**1,712**	**2,393**	**2,522**	**0**	**0**
2014	Average FAP	$2,319	2,803	2,511	3,580	3,792	3,105	0	0
2014	**Current Retirees**	**9**	**12**	**7**	**7**	**13**	**3**	**0**	**0**
2015	**Average Benefit**	**$295**	**572**	**940**	**1,749**	**2,222**	**3,614**	**0**	**0**
2015	Average FAP	$2,342	2,568	2,981	3,504	3,716	4,911	0	0
2015	**Current Retirees**	**12**	**12**	**9**	**12**	**14**	**6**	**0**	**0**
2016	**Average Benefit**	**$208**	**554**	**1,071**	**1,928**	**2,306**	**4,369**	**0**	**0**
2016	Average FAP	$2,468	2,629	2,989	3,532	3,820	5,718	0	0
2016	**Current Retirees**	**7**	**9**	**5**	**8**	**15**	**1**	**0**	**0**

FAP = Final Average Pay

Schedule of Average Monthly Benefit Payments

MPERS

By Years of Service

Retired In Fiscal Year		0-10	11-15	16-20	21-25	26-30	31-35	36-40	41+
2007	**Average Benefit**	**$0**	**0**	**1,297**	**0**	**0**	**0**	**0**	**0**
2007	Average FAP	$0	0	3,081	0	0	0	0	0
2007	**Current Retirees**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**
2009	**Average Benefit**	**$0**	**0**	**0**	**0**	**0**	**3,043**	**0**	**8,727**
2009	Average FAP	$0	0	0	0	0	5,922	0	9,989
2009	**Current Retirees**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**
2012	**Average Benefit**	**$0**	**0**	**0**	**0**	**4,759**	**0**	**0**	**0**
2012	Average FAP	$0	0	0	0	7,087	0	0	0
2012	**Current Retirees**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**
2013	**Average Benefit**	**$0**	**0**	**0**	**0**	**0**	**9,888**	**0**	**0**
2013	Average FAP	$0	0	0	0	0	11,108	0	0
2013	**Current Retirees**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**
2015	**Average Benefit**	**$0**	**0**	**0**	**0**	**0**	**4,235**	**0**	**0**
2015	Average FAP	$0	0	0	0	0	4,764	0	0
2015	**Current Retirees**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**
2016	**Average Benefit**	**$0**	**0**	**0**	**3,148**	**0**	**0**	**0**	**0**
2016	Average FAP	$0	0	0	9,414	0	0	0	0
2016	**Current Retirees**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**

Note: There were no retirements during the years not shown above.
FAP = Final Average Pay

Active Member Data

Schedule of Participating Employers

	MoDOT		Patrol		MPERS		Total	
	Employees	%	Employees	%	Employees	%	Employees	%
2007	6,459	74.76	2,168	25.10	12	0.14	8,639	100
2008	6,376	74.30	2,192	25.55	13	0.15	8,581	100
2009	6,601	74.90	2,199	24.95	13	0.15	8,813	100
2010	6,164	73.21	2,243	26.64	13	0.15	8,420	100
2011	5,796	71.03	2,350	28.80	14	0.17	8,160	100
2012	5,093	68.42	2,337	31.39	14	0.19	7,444	100
2013	4,985	67.95	2,336	31.84	15	0.21	7,336	100
2014	5,041	67.98	2,357	31.79	17	0.23	7,415	100
2015	4,993	67.72	2,364	32.06	16	0.22	7,373	100
2016	5,059	67.70	2,398	32.09	16	0.21	7,473	100

Data for this chart is as of June 30, 2016.

Active Member Data
For the Year Ended June 30, 2016

By Age

Closed Plan

Age	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
< 21	0	0	0	0	0
21 - 25	0	0	0	0	0
26 - 30	0	0	0	0	0
31 - 35	10	7	1	1	1
36 - 40	213	152	22	39	0
41 - 45	554	330	50	172	2
46 - 50	837	512	92	229	4
51 - 55	737	506	95	136	0
56 - 60	392	307	63	22	0
61 - 65	110	81	29	0	0
66+	13	7	6	0	0
Total	**2,866**	**1,902**	**358**	**599**	**7**
Average Age		**49**	**51**	**47**	**44**

Year 2000 Plan

Age	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
< 21	0	0	0	0	0
21 - 25	2	1	1	0	0
26 - 30	207	102	31	74	0
31 - 35	517	300	90	126	1
36 - 40	546	345	82	118	1
41 - 45	399	286	53	59	1
46 - 50	315	233	68	13	1
51 - 55	327	265	58	3	1
56 - 60	231	187	43	1	0
61 - 65	89	69	20	0	0
66+	11	5	6	0	0
Total	**2,644**	**1,793**	**452**	**394**	**5**
Average Age		**44**	**43**	**35**	**42**

Year 2000 Plan - 2011 Tier

Age	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
< 21	29	28	1	0	0
21 < 21	30	26	4	0	0
21 - 25	411	277	59	75	0
26 - 30	506	293	86	126	1
31 - 35	281	209	38	33	1
36 - 40	180	139	26	15	0
41 - 45	162	127	30	4	1
46 - 50	148	111	34	3	0
51 - 55	123	95	27	0	1
56 - 60	91	70	21	0	0
61 - 65	26	12	14	0	0
66+	5	5	0	0	0
Total	**1,963**	**1,364**	**339**	**256**	**4**
Average Age		**35**	**36**	**28**	**39**

Active Member Data

For the Year Ended June 30, 2016

By Years of Service

Closed Plan

Years of Service	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
< 01	0	0	0	0	0
01 - 05	3	0	1	2	0
06 - 10	9	7	2	0	0
11 - 15	18	9	7	2	0
16 - 20	1,173	796	145	229	3
21 - 25	936	626	103	205	2
26 - 30	508	313	59	134	2
31 - 35	174	119	30	25	0
36 - 40	37	26	9	2	0
41 - 45	7	6	1	0	0
46+	1	0	1	0	0
Total	**2,866**	**1,902**	**358**	**599**	**7**
Average Service		**22**	**23**	**22**	**22**

Year 2000 Plan

Years of Service	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
< 01	25	16	9	0	0
01 - 05	137	98	30	9	0
06 - 10	1,203	783	222	195	3
11 - 15	1,227	861	177	187	2
16 - 20	48	33	13	2	0
21 - 25	3	1	1	1	0
26 - 30	1	1	0	0	0
31 - 35	0	0	0	0	0
36 - 40	0	0	0	0	0
41 - 45	0	0	0	0	0
46+	0	0	0	0	0
Total	**2,644**	**1,793**	**452**	**394**	**5**
Average Service		**10**	**10**	**10**	**10**

Year 2000 Plan - 2011 Tier

Years of Service	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
< 01	581	469	91	21	0
01 - 05	1,382	895	248	235	4
06 - 10	0	0	0	0	0
11 - 15	0	0	0	0	0
16 - 20	0	0	0	0	0
21 - 25	0	0	0	0	0
26 - 30	0	0	0	0	0
31 - 35	0	0	0	0	0
36 - 40	0	0	0	0	0
41 - 45	0	0	0	0	0
46+	0	0	0	0	0
Total	**1,963**	**1,364**	**339**	**256**	**4**
Average Service		**1**	**2**	**2**	**3**

Terminated Vested Member Data
For the Year Ended June 30, 2016

By Age

Closed Plan

Age	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
< 21	0	0	0	0	0
21 - 25	0	0	0	0	0
26 - 30	0	0	0	0	0
31 - 35	6	6	0	0	0
36 - 40	93	72	15	5	1
41 - 45	302	226	31	45	0
46 - 50	420	325	39	56	0
51 - 55	439	363	46	30	0
56 - 60	213	190	23	0	0
61 - 65	34	32	2	0	0
66+	2	2	0	0	0
Total	**1,509**	**1,216**	**156**	**136**	**1**
Average Age	**0**	**49**	**49**	**47**	**39**

Year 2000 Plan

Age	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
< 21	0	0	0	0	0
21 - 25	0	0	0	0	0
26 - 30	46	35	8	3	0
31 - 35	159	129	22	7	1
36 - 40	200	166	21	13	0
41 - 45	170	146	19	5	0
46 - 50	108	101	5	2	0
51 - 55	95	83	11	1	0
56 - 60	34	30	4	0	0
61 - 65	8	8	0	0	0
66+	0	0	0	0	0
Total	**820**	**698**	**90**	**31**	**1**
Average Age	**0**	**42**	**40**	**37**	**34**

Year 2000 Plan - 2011 Tier

Age	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
< 21	0	0	0	0	0
21 - 25	0	0	0	0	0
26 - 30	0	0	0	0	0
31 - 35	0	0	0	0	0
36 - 40	0	0	0	0	0
41 - 45	0	0	0	0	0
46 - 50	0	0	0	0	0
51 - 55	0	0	0	0	0
56 - 60	0	0	0	0	0
61 - 65	0	0	0	0	0
66+	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**
Average Age	**0**	**0**	**0**	**0**	**0**

Terminated Vested Member Data
For the Year Ended June 30, 2016

By Years of Service

Closed Plan

Years of Service	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
< 01	0	0	0	0	0
01 - 05	193	148	22	23	0
06 - 10	653	508	68	76	1
11 - 15	400	328	45	27	0
16 - 20	200	177	14	9	0
21 - 25	59	52	7	0	0
26 - 30	4	3	0	1	0
31 - 35	0	0	0	0	0
36 - 40	0	0	0	0	0
41 - 45	0	0	0	0	0
46+	0	0	0	0	0
Total	**1,509**	**1,216**	**156**	**136**	**1**
Average Service		**11**	**10**	**9**	**8**

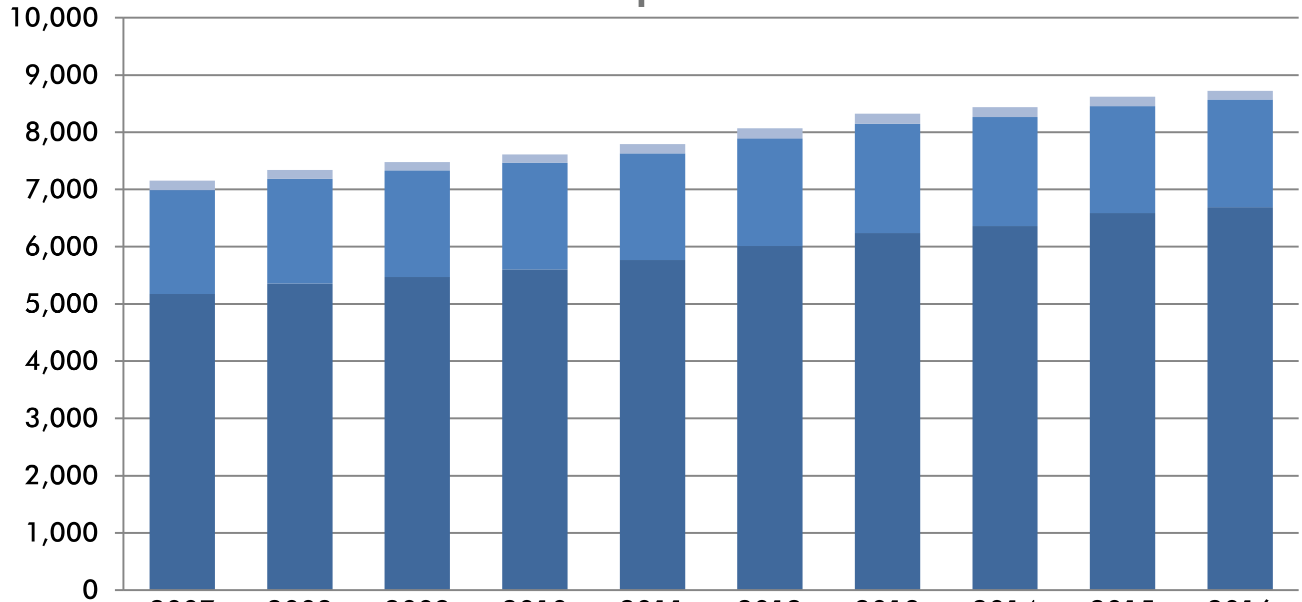
Year 2000 Plan

Years of Service	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
< 01	0	0	0	0	0
01 - 05	166	137	24	4	1
06 - 10	541	468	51	22	0
11 - 15	110	90	15	5	0
16 - 20	3	3	0	0	0
21 - 25	0	0	0	0	0
26 - 30	0	0	0	0	0
31 - 35	0	0	0	0	0
36 - 40	0	0	0	0	0
41 - 45	0	0	0	0	0
46+	0	0	0	0	0
Total	**820**	**698**	**90**	**31**	**1**
Average Service		**8**	**8**	**8**	**5**

Year 2000 Plan - 2011 Tier

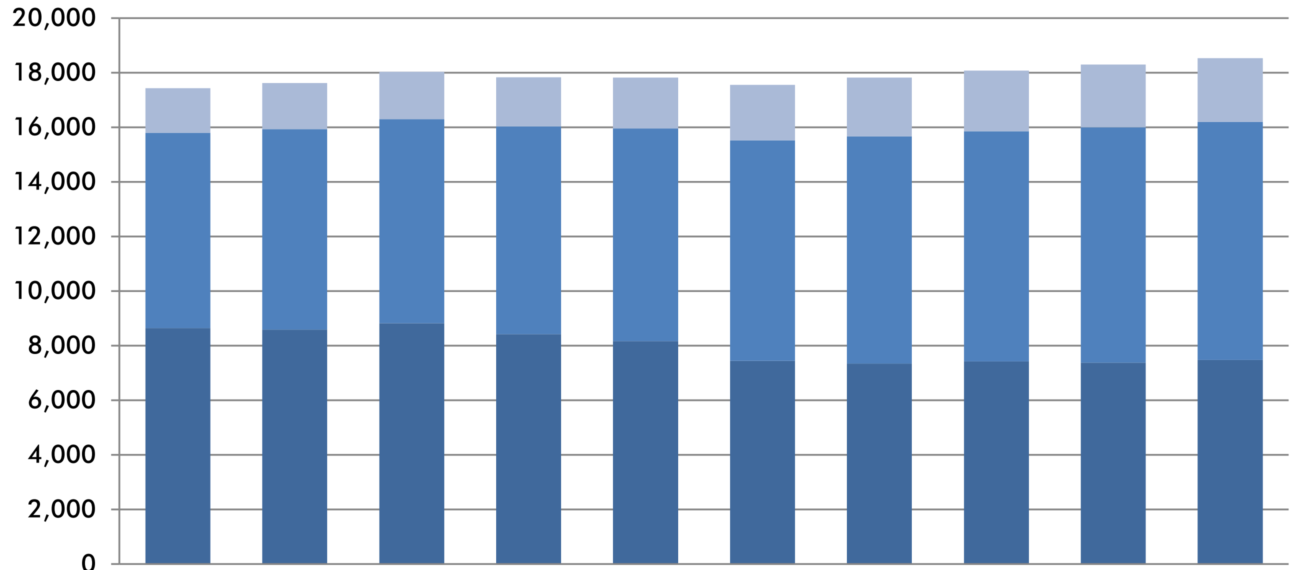
Years of Service	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
< 01	0	0	0	0	0
01 - 05	0	0	0	0	0
06 - 10	0	0	0	0	0
11 - 15	0	0	0	0	0
16 - 20	0	0	0	0	0
21 - 25	0	0	0	0	0
26 - 30	0	0	0	0	0
31 - 35	0	0	0	0	0
36 - 40	0	0	0	0	0
41 - 45	0	0	0	0	0
46+	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**
Average Service		**0**	**0**	**0**	**0**

Benefit Recipients



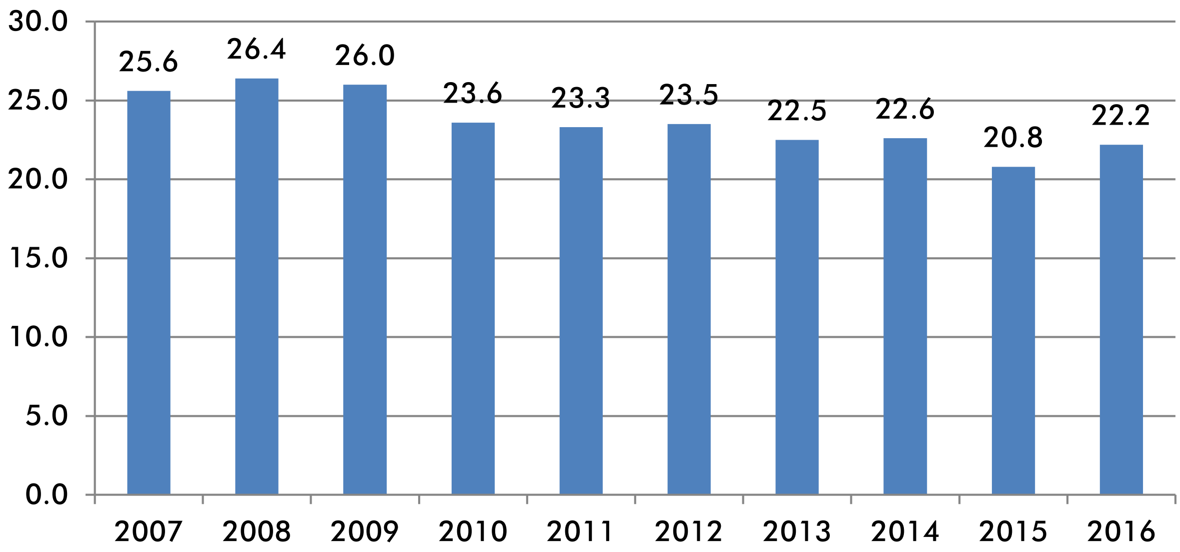
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Disabilities	166	155	146	142	166	175	178	173	164	155
Survivors	1,812	1,833	1,863	1,862	1,855	1,880	1,914	1,900	1,874	1,882
Retirees	5,177	5,357	5,471	5,606	5,771	6,013	6,234	6,365	6,583	6,690

Membership Distribution

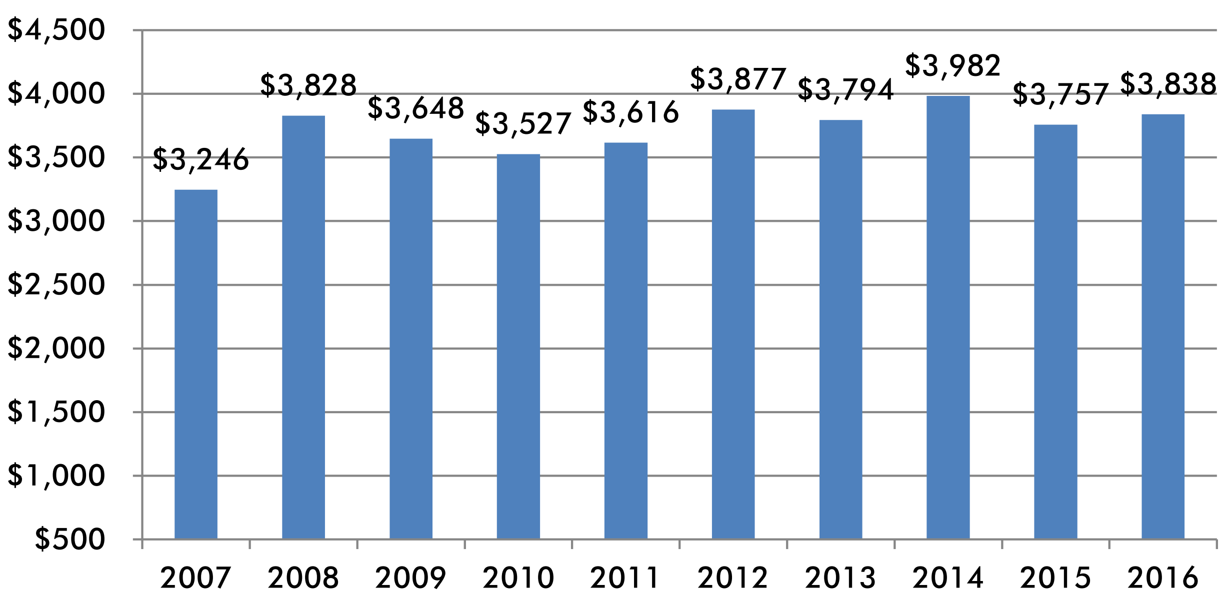


	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Term Vested Members	1,634	1,689	1,737	1,799	1,864	2,038	2,153	2,222	2,300	2,329
Benefit Recipients	7,155	7,345	7,480	7,610	7,792	8,068	8,326	8,438	8,621	8,727
Active Members	8,639	8,581	8,813	8,420	8,160	7,444	7,336	7,415	7,373	7,473

Average Years of Service for New Retirees

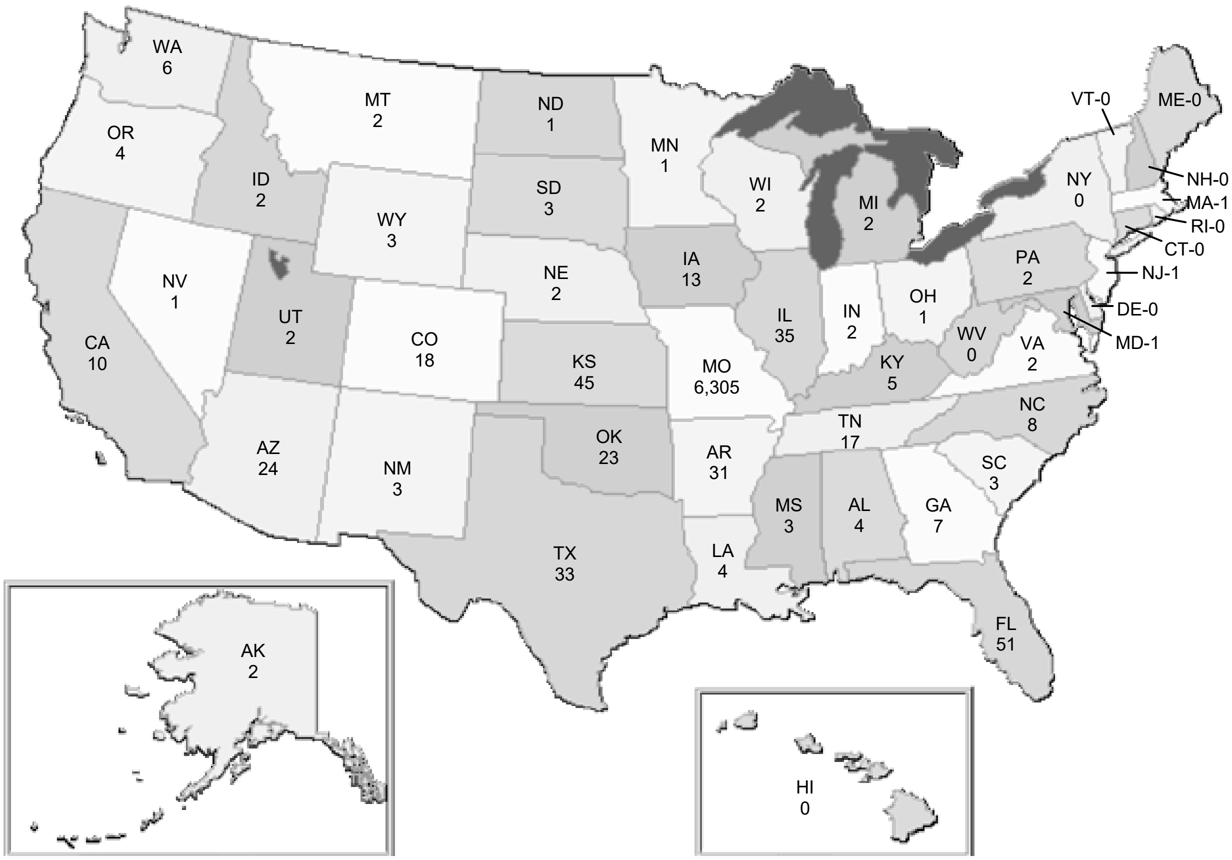


Final Average Pay for New Retirees



Location of MPERS Retirees
For the Year Ended June 30, 2016

This map represents the demographic distribution of retirees by state.



1 Retiree resides in Australia
1 Retiree resides in Bolivia
1 Retiree resides in Great Britain
1 Retiree resides in India

Notes

Notes