Comprehensive Annual Financial Report

For the Fiscal Year Ended June 30, 2017

Minnesota State Retirement System
Pension Trust Funds of the State of Minnesota

Traveling. Volunteering. Enjoying the outdoors. Or just spending time with the grandkids. Whatever your retirement dream is, MSRS is committed to fulfilling its mission to you. We want you to experience ***your dreams, your way***.

Minnesota State Retirement System

Pension Trust Funds of the State of Minnesota

Erin Leonard
Executive Director

Comprehensive Annual Financial Report

For the Fiscal Year Ended June 30, 2017

Prepared by MSRS Finance and Executive Division Staff

Retirement Systems of Minnesota Building
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Member of the Government Finance Officers Association of the United States and Canada

Table of Contents

Introductory Section

Financial Section

Investment Section

Actuarial Section

Statistical Section

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Introductory Section

MSRS 2017 Comprehensive Annual Financial Report

Minnesota State Retirement System
Your Foundation for Retirement

Achievement Awards

GFOA
Government
Finance Officers
Association

The Government Finance Officers Association (GFOA) recognizes public retirement systems that meet its rigorous reporting standards with its annual Certificate of Achievement for Excellence in Financial Reporting. It is the highest form of recognition for accounting and financial reporting in the public pension sector. MSRS received this award for our 2016 Comprehensive Annual Financial Report.

PPCC
Public Pension
Coordinating
Council

The Public Pension Coordinating Council (PPCC) recently recognized MSRS for meeting its professional standards for the administration of public retirement systems.

Board Chairperson's Report

MSRS Minnesota State Retirement System
MNDCP Minnesota Deferred Compensation Plan
HCSP Health Care Savings Plan

December 22, 2017

Dear Members, Benefit Recipients, and Employers:

Fiscal year 2017 continued to present unique challenges for the Minnesota State Retirement System (MSRS). We experienced higher than expected investment returns which generally has a positive impact on the retirement plans' funding status. However, our recommended legislation that aimed to provide stable, sustainable and secure pension funds for all of our current and future benefit recipients was unsuccessful in 2017, just as it was in 2016.

Working to ensure a secure retirement for its members, the Board recommended "shared sacrifice" legislation in both the 2016 and 2017 legislative sessions. The proposed legislation in 2017 was aimed at increasing funding requirements to offset increasing pension liabilities and costs due to increases in member life expectancy, and lowering our investment return assumption to a more conservative rate. Unfortunately, the recommended legislation was not passed in the package as proposed in 2017, leading to a need to address additional pension liabilities in future years.

Despite the setbacks, as of July 1, 2017, MSRS' largest retirement plan, the General Employees Retirement Plan, was 86.05 percent funded (based on the market value of assets). The plan's funding status increased by 7.66 percent since July 1, 2016, due largely to a 15.10 percent investment return in fiscal year 2017.

MSRS' fiduciary net position as of June 30, 2017, totaling $22.3 billion, increased approximately 11.14 percent from the prior year. Total assets of $23.9 billion grew 8.39 percent, while total liabilities decreased by $385 thousand, or 19.28 percent, from June 30, 2016. The Board monitors MSRS' financial position on an ongoing basis. Even in a year where the MSRS fiduciary net position increases, the Board continues to take proactive measures to ensure that MSRS provides financially secure retirement plans to pay promised retirement benefits now and in the future.

The MSRS Board of Directors continues to monitor funding status and contribution deficiency rates and will take appropriate action to ensure the financial security of the retirement funds. On November 16, 2017, the board reaffirmed its support of legislative initiatives to proactively address the additional pension liabilities for the General Employees Retirement Fund, State Patrol Retirement Fund and the Correctional Employees Retirement Fund in the 2018 legislative session.

The Board remains committed to being a leader in public pension plan policy. We strive to fulfill our fiduciary duty to provide a secure retirement plan for you, and we truly appreciate your continued support.

Sincerely,

Mary Benner

Mary Benner, Chair
Board of Directors

Letter of Transmittal

MSRS Minnesota State Retirement System
MNDCP Minnesota Deferred Compensation Plan
HCSP Health Care Savings Plan

December 22, 2017

Board of Directors
Minnesota State Retirement System
60 Empire Drive, Suite 300
St. Paul, MN 55103-3000

Dear Directors:

We are pleased to present this Comprehensive Annual Financial Report (CAFR) for the Minnesota State Retirement System (MSRS) for the fiscal year ended June 30, 2017, our 88th year of operation. The theme of this year's report is *Your Dreams. Your Way.* The photos throughout this CAFR represent what retirement may be for our members. From spending time with family and friends, enjoying the outdoors, traveling, or anything else that may interest our retirees, the MSRS Board of Directors and MSRS staff are committed to fulfilling its mission to them. We would like to thank the Board of Directors for your continued dedication to create funding policies that aim to preserve our defined benefits plans. Your commitment in advancing initiatives to administer financially secure retirement plans, a tax-free health savings plan, and a low-cost deferred compensation plan allows our members to achieve their retirement dreams.

Report Contents and Structure

This CAFR is designed to meet the reporting requirements of Minnesota Statutes 356.20. The preparation of this report, including the financial statements contained within, is the result of a collaborative effort of the MSRS Executive Director and MSRS' Finance Division staff under the direction of its Chief Financial Officer.

Ultimate responsibility for the integrity of the data presented within this report and the fair presentation of the financial statements, in all material respects, lies with MSRS management. The MSRS Board of Directors provides an oversight role, and is assisted in this responsibility by its four-person Audit Committee. The Audit Committee has the responsibility to oversee the adequacy and effectiveness of MSRS' system of internal controls, including controls over financial reporting.

MSRS management is responsible for establishing and maintaining a system of internal controls over financial reporting. The objective of this internal control framework is to provide reasonable, not absolute, assurance that assets are safeguarded against loss or unauthorized disposition, financial records and reports are reliable, and MSRS has complied with all finance-related legal provisions. The concept of reasonable assurance recognizes the relationship between the cost of an internal control and the benefit likely to be derived, based on management's judgment. Management asserts, to the best of its knowledge and belief, that the internal controls over financial reporting are operating effectively as of June 30, 2017, to meet the purpose for which they were intended.

Inherent limitations exist in the effectiveness of any internal control system, including the possibility of human error, faulty decision making, fraud, or management overriding the system. Accordingly, even a well-conceived and operating internal control system may not prevent or detect misstatements in the preparation of financial statements. Also, any projection of the evaluation of the effectiveness of internal controls to a future period is subject to risk that controls may become inadequate due to changing business conditions, or that the degree of MSRS compliance with established policies and procedures has deteriorated.

State law permits the Office of the Legislative Auditor (OLA), a professional, nonpartisan office in the legislative branch of Minnesota state government, to audit the financial statements and related note disclosures contained in this report. The OLA completed this audit in accordance with auditing standards generally accepted in the United States, and the standards applicable to financial audits contained in Government Auditing Standards. The OLA also reviewed the adequacy of our internal controls over financial reporting and compliance with certain legal provisions. The Legislative Auditor's opinion letters, the *Independent Auditor's Report*, are presented in the *Financial Section* of this CAFR. The auditors reported no material weaknesses in our internal controls.

The *Financial Section* of this report also contains *Management's Discussion and Analysis*. This narrative, found on pages 46-55, presents financial highlights and an overview of MSRS' financial statements for fiscal year 2017, along with an analysis of MSRS' defined benefit and defined contribution retirement funds. This letter of transmittal complements *Management's Discussion and Analysis* and these items should be read in conjunction.

MSRS' financial activities are also reflected in the pension trust fund financial statements included in the Fiduciary Funds section of the State of Minnesota's Comprehensive Annual Financial Report. This report is available online at http://www.mn.gov/mmb/accounting/reports.

About MSRS Funds

MSRS administers five defined benefit and four defined contribution funds, which are identified below. The fiduciary net position (total assets minus total liabilities to vendors, bondholders, and other parties) of these funds that is reserved for payments of pension benefits totaled more than $22 billion as of June 30, 2017.

Defined Benefit Funds

- State Employees Retirement Fund, which includes General Plan employees and three special groups: Minnesota Department of Transportation pilots, deputy state fire marshals, and Military Affairs personnel;
- State Patrol Retirement Fund;
- Correctional Employees Retirement Fund;
- Judges Retirement Fund; and
- Legislators Retirement Fund, which includes members of the Legislators and Elective State Officers Retirement Plans.

Defined Contribution Funds

- Minnesota Deferred Compensation Fund;
- Unclassified Employees Retirement Fund;
- Health Care Savings Fund; and
- Supplemental Retirement Fund for Hennepin County.

For the defined benefit funds, MSRS serves approximately 56,400 active employees from 14 employer and component units, almost 44,200 benefit recipients, and over 28,700 members who are no longer contributing, but are eligible for either future monthly benefits or a lump-sum distribution. The fiduciary net position for these funds is over $14 billion as of June 30, 2017.

Alternatively, for the defined contribution funds, member participation and financial position as of June 30, 2017, varied significantly among the funds. MSRS serves approximately 86,200 participants in the Minnesota Deferred Compensation Fund with a fiduciary net position totaling $6.5 billion. Around 114,700 members participate in the Health Care Savings Fund with a fiduciary net position of nearly $951 million. Over 3,200 members participate in the Unclassified Employees Retirement Fund with a fiduciary net position of nearly $305 million. Over 1,300 members participate in the Supplemental Retirement Fund for Hennepin County with a fiduciary net position of approximately $153 million.

Continued on next page

Letter of Transmittal

Major Initiatives

Fiscal year 2017 accomplishments included the completion of some significant initiatives as well as numerous other projects that contributed to MSRS being a more efficient and financially secure retirement system. The year also included MSRS embarking on new projects aimed at moving MSRS even closer to achieving its business process improvement goals. These major initiatives are highlighted in the bullets on the next few pages.

- **Aurora System Hosting Project.** The hosting migration project was a major effort to move Aurora, the MSRS participant management system, and related applications from its former host, MN.IT, to IBM Cloud Managed Services. Since early 2015, MSRS had been busy planning the migration steps, preparing our applications for their new home at IBM, configuring the new IBM systems to accept our applications, and creating suites of tests to ensure each part of the move was successful. The move to IBM was completed in December. The migration allows MSRS to enjoy significant cost savings, greater stability in Aurora and all its related applications, and system redundancy to ensure continuity of operations.

- **Eddy Award.** In March, MSRS received a nationally recognized Eddy Award for its "Simon" communications campaign used during the recordkeeper conversion of our defined contribution plans in 2015. Each year, *Pensions and Investments* magazine honors public, corporate, and non-profit defined contribution plans throughout the country for best practices in education and communication. The judges said the MSRS materials were designed to emphasize simplicity and confidence in the change. MSRS strives to provide our members with timely and relevant communications, and this award affirms that commitment.

- **Microsoft Dynamics GP**. In April, MSRS implemented a new accounting system, Microsoft Dynamics GP. Prior to implementation, the MSRS Finance Department used numerous systems in order to complete standard accounting, budgeting, and financial reporting functions. Microsoft Dynamics GP has been interfaced with other MSRS and statewide systems and allows the MSRS Finance Department to use a single point of entry for accounting and budget activity. The system also has vast reporting capacities which were previously unavailable.

- **GovDelivery.** GovDelivery is a digital communications platform that helps governments inform and engage its stakeholders via email, text messaging and social media. MSRS began using GovDelivery with employers and began the process for participant engagement use in fiscal year 2017. GovDelivery provides MSRS a new technology to effectively communicate with our stakeholders as we move towards a greater use of paperless communications.

- **Lower Investment Fees.** MSRS worked diligently in fiscal year 2016 to make investment option changes to lower member fees in its Minnesota Deferred Compensation Plan, and those changes took effect in fiscal year 2017. In September 2016, the Vanguard Dividend Growth Fund replaced the Janus Twenty Fund. The Vanguard Dividend Growth Fund has significantly lower fees, 0.33 percent at the beginning of the fiscal year, versus 0.82 percent for the Janus Twenty Fund. Also, effective in November 2016, the Fidelity Diversified International Fund was changed to a lower-cost investment of the same fund. Instead of offering the Fidelity Diversified International Fund as a mutual fund, it is now offered as a Collective Investment Trust called the Fidelity Diversified International Commingled Pool. The change reduced fees for this fund from 1.00 percent to 0.58 percent as of November 2016. Finally, the T. Rowe Price Small Cap Stock Fund is now offered as a lower-cost institutional share class fund. The change reduced fees for this fund from 0.90 percent to 0.67 percent as of November 2016.

- **Other notable MSRS accomplishments during fiscal year 2017 include:**
  - Business continuity improvements, including the completion of a live failover test at our alternate locations.
  - Improved MSRS defined benefit Account Online operation and security.
  - Completion of Strengths Based team engagement meetings.
  - Favorable Internal Revenue Service determination letters for our four largest defined benefit plans and the Unclassified Employees Retirement Plan. These letters provide assurance that the retirement plans remain qualified and eligible for tax benefits.

MSRS fiscal year 2018 goals continue to focus in three primary areas: technology, staff development, and participant services. In addition, MSRS plans to perform strategic planning in fiscal year 2018.

Continued technology improvements will enable MSRS to enhance usability and security of our systems for staff and our members during the coming year. This will include improving the user experience of MSRS Account Online, including single sign-on and multifactor authentication. The MSRS Finance Team will streamline the CAFR documentation and publishing process by using a cloud-based software tool. We also plan to complete our comprehensive security plan and enhance our data center. MSRS recognizes that technology is changing at a rapid pace, so the hiring of a Chief Information Officer in fiscal year 2018 will further strengthen the leadership of MSRS.

Finalizing a staff training curriculum is a goal for the upcoming fiscal year. This includes continuing to build upon Strengths Based training with team engagement. Other staff development initiatives include completing Diversity and Cultural Competency training and development, implementing a comprehensive onboarding process, continuing to test and update ongoing business continuity plans, and training staff on their responsibilities in the event of a business interruption.

In fiscal year 2018, MSRS will focus on improving our participant services by launching a newly designed website to enhance the user experience, including web-based tools for each MSRS plan. The GovDelivery rollout will continue, improving communication and engaging our participants. MSRS will also formulate and implement a comprehensive records retention policy. MSRS continues to make improvements based on participant feedback, striving to make information readily available so participants can make informed decisions about their retirements.

An additional goal for MSRS in fiscal year 2018 is to perform strategic planning. The purpose of the strategic plan is to establish long range goals, set priorities, strengthen operations, and measure performance.

Financial Information

Accounting System and Reports

MSRS prepares its financial statements in accordance with generally accepted accounting principles promulgated by GASB. Transactions are reported on the accrual basis of accounting. Contributions from employers and members are recognized as revenue when earned. Expenses are recorded when corresponding liabilities are incurred, regardless of when payment is made. Most financial transactions are processed through our accounting system, Microsoft Dynamics GP, and interfaced with the Statewide Integrated Financial Tools system under the oversight of the department of Minnesota Management and Budget.

Financial Summary

The schedule on the following page is a comparative summary of total additions and total deductions that determine the change in fiduciary net position for MSRS' defined benefit and defined contribution funds for the fiscal years ended June 30, 2017 and 2016. Total additions represent employee and employer contributions and net investment income. Total deductions include annuity payments, refunds, health care reimbursements, ongoing deferred compensation and other defined contribution plan withdrawals, and administrative expenses. With a 15.10 percent investment gain in fiscal year 2017, MSRS realized an increase of over $2.2 billion in the fiduciary net position for all MSRS pension trust funds for fiscal year 2017. This amount includes an increase of almost $1.5 billion for MSRS' defined benefit funds and an increase of more than $767 million for its defined contribution funds.

Continued on next page

Letter of Transmittal

Summary Statement of Changes in Fiduciary Net Position
All MSRS Pension Trust Funds

For the Fiscal Years Ended June 30, 2017 and 2016
(Dollars in thousands)

	Defined Benefit Funds		Defined Contribution Funds	
Source	FY 2017	FY 2016	FY 2017	FY 2016
Total Additions	$2,396,651	$410,935	$1,217,929	$462,596
Total Deductions	928,993	882,283	450,767	398,363
Net Increase (Decrease) in Net Position	$1,467,658	$(471,348)	$767,162	$64,233
Fiduciary Net Position - beginning of year	$12,918,513	$13,389,861	$7,144,133	$7,079,900
Fiduciary Net Position - end of year	**$14,386,171**	**$12,918,513**	**$7,911,295**	**$7,144,133**

Actuarial Valuations

MSRS contracted with Gabriel Roeder Smith & Company (GRS) of Minneapolis, Minnesota to perform two annual actuarial valuations for each MSRS defined benefit fund and to provide other actuarial consulting and advisory services during fiscal year 2017.

The first set of actuarial valuations is to determine actuarial valuation information necessary to prepare financial reports in compliance with GASB Statements No. 67 and Statement No. 68, including the computation of the net pension liability, pension income or expense, enhanced note disclosures, and expanded *Required Supplementary Information*. More detail regarding these financial reporting actuarial valuations may be found in the *Notes to the Financial Statements* in the *Financial Section* of this CAFR.

The second set of actuarial valuations is the traditional funding valuations. These valuations report funding progress, the required contribution rate, contribution sufficiency or deficiency levels, and other actuarial information necessary for monitoring each defined benefit retirement plan's funding status. The actuarial methods, assumptions, and funding status of MSRS' defined benefit retirement plans are detailed in the *Actuarial Section* of this report.

Retirement Plan Actuarial Position and Funding Status

The traditional funding actuarial valuations for each defined benefit fund measure current costs and contribution requirements to determine how much employers and members should contribute to maintain appropriate funding levels to pay future benefits. These traditional funding actuarial valuations also measure assets and actuarial accrued liabilities to determine the funding status for each defined benefit plan that MSRS administers. Improvement in the funding status leads to a larger ratio of assets to actuarial accrued liabilities, and a greater level of investment income potential. A high funded ratio gives members assurance that their pensions are financially secure, and that existing assets and projected investment earnings on those assets are sufficient to cover the liabilities for present and future annuities, survivor and disability benefits, refunds, and administrative expenses.

The schedule below highlights the actuarial value of assets, actuarial accrued liability, funded ratio and contribution deficiency (expressed as a percent of payroll except for Legislators Retirement Fund, which is expressed in dollars because it is a closed plan) for each defined benefit fund as of the latest actuarial valuation date, July 1, 2017.

Highlights of the 2017 Actuarial Valuations
(Dollars in thousands)

Defined Benefit Retirement Fund	Actuarial Value of Assets	Actuarial Accrued Liability	Funded Ratio	Contribution Deficiency
State Employees	$12,364,957	$14,509,150	85.22%	2.24%
State Patrol	685,077	880,846	77.77	5.33
Correctional Employees	1,013,173	1,414,443	71.63	6.45
Judges	183,361	348,976	52.54	1.97
Legislators [1]	0	227,700	0.0	$26,445

[1] The Legislators fund is closed to new hires and is funded on a pay-as-you-go basis by annual appropriations from the State's general fund. The deficiency is expressed as an annual dollar amount rather than a percent of payroll.

For the State Employees Retirement and Judges Retirement defined benefit funds, the contribution deficiency, determined on an actuarial value of assets basis as of the July 1, 2017, valuation date, decreased in comparison to the contribution deficiency as of July 1, 2016. This is primarily due to a 15.10 percent investment return in fiscal year 2017. Additionally, the deficiency in the Judges Retirement Fund decreased due to a new state contribution of $3 million in fiscal year 2017 and $6 million annually thereafter until the plan is fully funded. Finally, assumption changes, including updated actuarial equivalents to reflect current mortality and interest assumptions, and updated loading factors to account for members with Combined Service Annuities, reduced the contribution deficiency in the State Employees Retirement by 0.90 percent.

For the State Patrol Retirement and Correctional Employees defined benefit funds, the contribution deficiency, determined on an actuarial value of assets basis as of the July 1, 2017, valuation date, increased in comparison to the contribution deficiency as of July 1, 2016, even with a 15.10 percent investment return in fiscal year 2017. The increases were mainly attributed to assumption changes including updating mortality tables for increased member life expectancies in both plans. Additionally, the timeline for assumed post-retirement benefit increases was accelerated, increasing the deficiency for the State Patrol Retirement Fund.

The Legislators Retirement Fund is a closed plan, with few active, contributing members. Remaining assets in the plan were depleted in the year ending June 30, 2016, and benefits are paid on a pay-as-you-go basis by annual appropriations from the state's General Fund.

The Minnesota Legislature, along with the MSRS Board of Directors, reviews annual valuation reports of the actuarial funding status of the retirement systems. Current law for the General State Employees, Correctional Employees, and State Patrol Retirement Funds allows the MSRS Board of Directors to change employee and employer contribution rates to eliminate contribution deficiencies over time, unless the Legislative Commission on Pensions and Retirement denies or modifies any rate changes.

The board recommended legislation for the 2017 session aimed at increasing funding requirements to offset increasing pension liabilities and costs due to increases in member life expectancy and projected lower than expected investment returns. Proposed legislative initiatives for the General Plan included reducing future post-retirement benefit increases to a fixed rate, removal of current funding triggers in existing legislation, and increasing employee and employer contribution rates. The board also sought to reduce our actuarial investment return assumption from 8.00 percent to 7.50 percent. The recommended legislation did not become law in 2017, leading to additional pension liability increases to address in future years.

Continued on next page

Letter of Transmittal

The MSRS Board of Directors continues to monitor funding status and contribution deficiency rates and will take appropriate action, as necessary, to ensure the financial security of the retirement funds. On November 16, 2017, the board reaffirmed its intent to support legislative initiatives that proactively address the pension liabilities for the General Employees Retirement Fund, State Patrol Retirement Fund and the Correctional Employees Retirement Fund which are detailed in the *Board Chairperson's Report* in the *Introductory Section* of this CAFR.

Investment Results

In accordance with the Minnesota Constitution, the State Board of Investment (SBI) invests the assets of MSRS' funds. The Board includes Governor Mark Dayton, Attorney General Lori Swanson, Secretary of State Steve Simon, and State Auditor Rebecca Otto. For all investments under the SBI's management, the Board, the 17 member Investment Advisory Council (IAC) to the board (which includes the MSRS executive director), and the SBI staff are governed by the prudent person rule, and fiduciary standards detailed in Minnesota Statutes, Chapters 11A and 356A. The Board, in consultation with the IAC and the SBI staff, establishes asset allocation and other investment policies and guidelines, and conducts detailed investment analyses of the funds under its control.

MSRS does not own specific securities, but instead owns shares in various pools invested by the SBI. The Combined Funds, which represent all defined benefit pension assets under the SBI's control, reported a 15.10 percent gain (net of fees) for the 2017 fiscal year. Annualized over the latest ten-year period, the Combined Funds generated a 6.20 percent return (net of fees), outperforming a composite market index (weighted in manner that reflects the long-term asset allocation of the Combined Funds over the latest ten-year period as indicated in the following table) by 0.20 percentage points.

During fiscal year 2017, the combined funds domestic equities reported a 19.40 percent return (net of fees), performing better than its benchmark, the Russell 3000 Index, by 0.90 percentage points. The combined funds international equities reported a 20.20 percent gain (net of fees) for the 2017 fiscal year, lower than the Morgan Stanley Capital International All Country Index excluding USA for the fiscal year by 0.20 percentage points. The combined funds domestic bonds reported a return rate of 0.90 percent (net of fees) for fiscal year 2017, 1.20 percentage points higher than the Bloomberg Barclays U.S. Aggregate Index. Private markets returned a gain of 19.70 percent in fiscal year 2017.

Combined Funds Asset Mix and Market Indices

Investment Type	Market Indicator	Long-Term Policy Target
Domestic Equity	Russell 3000 Index	39%
International Equity	Morgan Stanley Capital International All Country World Index Ex-U.S.	19
Private Markets	Private Markets	20
Domestic Bonds	Bloomberg Barclays U.S. Aggregate Index	20
Cash	3-Month Treasury Bills	2
		100.0%

Please refer to the *Investment Section* for additional details on the investment results of MSRS' largest defined benefit retirement funds for fiscal year 2017.

Awards

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Minnesota State Retirement System for its comprehensive annual financial report for the fiscal year ended June 30, 2016. This was the eighth consecutive year that MSRS has achieved this prestigious award. In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized comprehensive annual financial report. 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 only. We believe that our current comprehensive annual financial report continues to meet the Certificate of Achievement Program's requirements and we are submitting it to the GFOA to determine its eligibility for another certificate.

We are also very pleased to report that MSRS received the Public Pension Coordinating Council's (PPCC) Public Pension Standards 2017 Award, in recognition of meeting professional standards for plan administration as set forth in the Public Pension Standards. These standards were developed by a coalition of three associations that represent public pension funds who cover the vast majority of public employees in the U.S. They are intended to reflect minimum expectations for public retirement systems management and administration, and serve as a benchmark by which all defined benefit public plans should be measured. The PPCC has offered this award program to public retirement systems for the past thirteen years. MSRS is proud to be a recipient of this award.

Membership Report

This report provides complete and reliable information on which management decisions may be based and through which compliance with statutory requirements may be assessed. It is reproduced, in its entirety, on MSRS' website at http://www.msrs.state.mn.us/financial-information. A summary of the CAFR will be published in the next issue of the *Messenger*, MSRS' newsletter.

Acknowledgements

As the MSRS Chief Financial Officer, I wish to express my sincere appreciation to the team who have partnered with me to produce this CAFR including: Financial Reporting and Risk Management Director, Cheryl Jahnke; Accounting Director, Joan Weber; Accounting Officer, Jason White; and the entire MSRS Finance Division. It was truly a great privilege to work with this team to complete our MSRS CAFR together.

I join the entire CAFR team in expressing our thanks to Maureen McIlhargey, an outside consultant, for her talents in designing this CAFR, and for her wonderful creative efforts.

Respectfully submitted,

Erin Leonard	Timothy Rekow, CPA
Executive Director	Chief Financial Officer

MSRS Board of Directors, Administrative Staff and Professional Consultants

As of June 30, 2017

Board of Directors

All board member positions are four-year terms, unless specified otherwise.

Mary Benner, Chair
Appointed by Governor
Term expires: January 7, 2019

Wesley Skoglund, Vice Chair
Elected Retiree Representative
Term expires: May 4, 2020

Tommy Bellfield
Appointed Representative for employees of Metropolitan Council's Transit Division
Term expires: at the discretion of the Executive Board for the Amalgamated Transit Union, Local 1005

Gabe Cornish
State Patrol Plan Representative
Appointed by Board to complete an elected member's term
Term expires: May 7, 2018

Myron Frans, Commissioner
Minnesota Management and Budget
Appointed by Governor
Term expires: January 7, 2019

Chester Jorgenson
Elected by General and Unclassified Plans Membership
Term expires: May 7, 2018

Michael Schweyen
Elected by General and Unclassified Plans Membership
Term expires: May 4, 2020

Dave Senf
Elected by General and Unclassified Plans Membership
Term expires: May 7, 2018

Michael Roelofs
Appointed by Governor
Term expires: January 4, 2021

Daniel R. Gorman
Correctional Plan Representative
Appointed by Board to complete an elected member's term
Term expires: May 4, 2020

Joseph Sullivan
Elected by General and Unclassified Plans Membership
Term expires: May 4, 2020

Key Administrative Staff

Executive Director:
Erin Leonard

Chief Financial Officer:
Timothy Rekow

Chief Benefits Officer - External:
Mark Manion

Chief Benefits Officer - Internal:
Linda Henderson

Professional Consultants

Actuary:
Gabriel Roeder Smith & Company

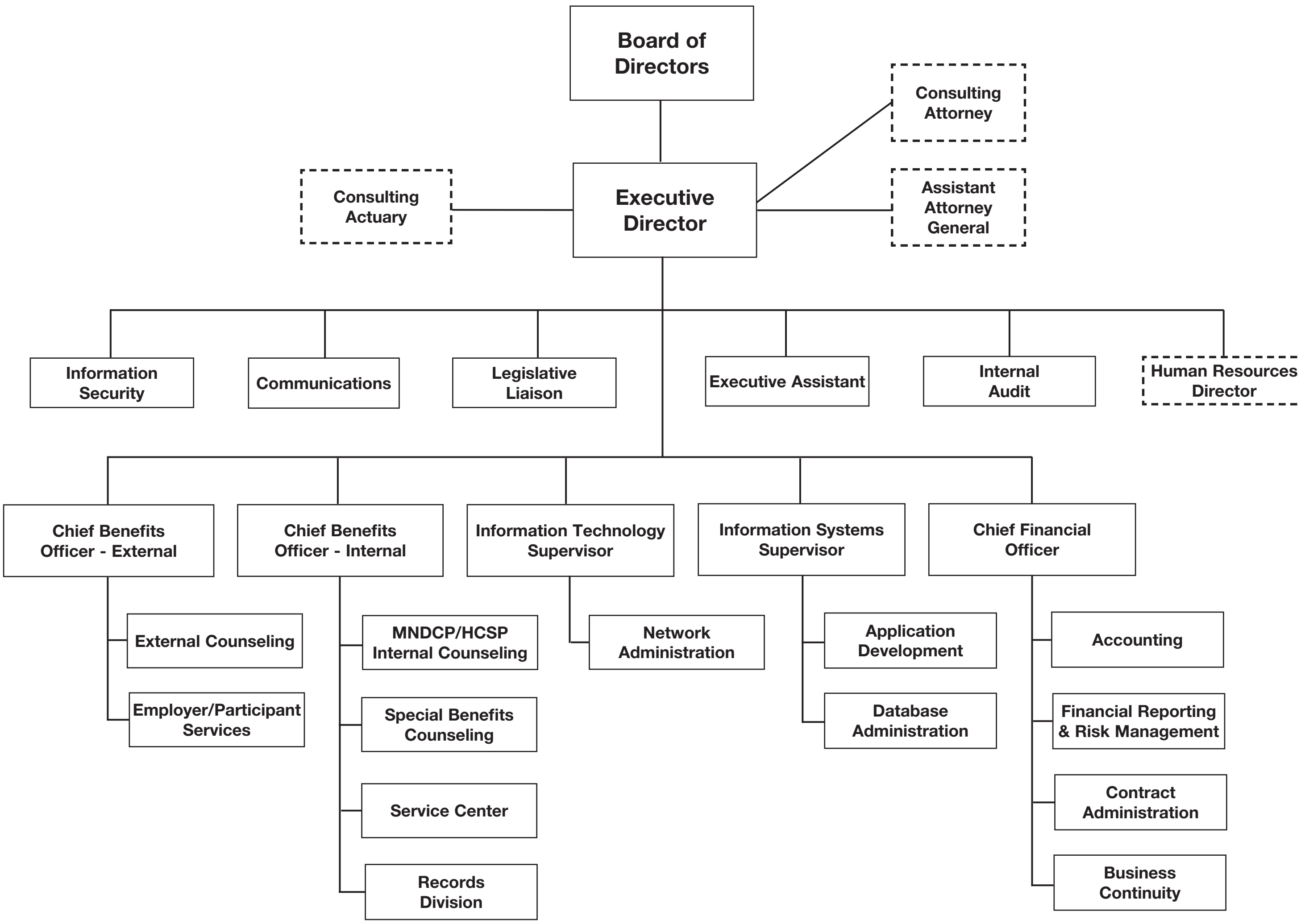
Legal Counsel:
Assistant Attorney General Ian Welsh

Medical Advisor:
MMRO - Managed Medical Review Organization

NOTE: MSRS invests its funds in various investment pools administered by the Minnesota State Board of Investment (SBI). The SBI retains various investment advisors whose fees are paid by the pool participants, including MSRS. A schedule of these advisors and MSRS' share of their fees is included on page 129 of the *Investment Section* of this CAFR.

Organization Chart

As of June 30, 2017



Mission Statement

To administer financially secure retirement plans, a tax-free health care savings plan, and a low-cost deferred compensation plan; ensure timely benefit payments; be proactive in public pension policies; and provide exemplary customer service, through a one-stop shopping source.

Summary of Plan Provisions
Defined Benefit Retirement Funds

The following is a summary of the major plan provisions for MSRS' defined benefit retirement plans. Within the General Employees Retirement Plan are three special groups: Military Affairs, Transportation Pilots, and Fire Marshals Retirement Plans. These special groups have the same plan provisions as the General Employees Retirement Plan, except as noted below.

Plan descriptions are not all inclusive. Descriptions provide general information only.

GENERAL EMPLOYEES	MILITARY AFFAIRS, TRANSPORTATION PILOTS, AND FIRE MARSHALS	STATE PATROL
STATUTORY OR LEGAL REFERENCES:		
Minn. Stat. §352.01 - 352.76	Minn. Stat. §352.85 - 352.87	Minn. Stat. §352B
COVERAGE:		
• Most state employees, University of Minnesota non-instructional employees, and selected metropolitan agency employees	• **Military Affairs:** Minnesota Department of Military Affairs personnel on active duty • **Transportation Pilots:** pilots and chief pilots employed by the Minnesota Department of Transportation who elected coverage before June 1, 2008. All pilots began employment after 2008, therefore this is a closed plan. • **Fire Marshals:** employees of the Department of Public Safety, State Fire Marshal Division, who are employed as deputy state fire marshal, fire, or arson investigator	• State troopers, conservation officers, and certain crime bureau and gambling enforcement agents

Effective July 1, 2013, the Elective State Officers Retirement Plan is a special group within the Legislators Retirement Fund. This special group has the same plan provisions as the Legislators Retirement Plan, except as noted below.

Plan provisions specific to MSRS' defined contribution plans follow this section.

CORRECTIONAL EMPLOYEES	JUDGES	LEGISLATORS	ELECTIVE STATE OFFICERS
STATUTORY OR LEGAL REFERENCES:			
Minn. Stat. §352.90 - 352.955	Minn. Stat. §490	Minn. Stat. §3A	Minn. Stat. §3A.17
COVERAGE:			
• Certain state employees who spend at least 75 percent working time in direct contact with inmates or patients at Minnesota Correctional Facilities, the state-operated forensic services program, or the Minnesota Sex Offender Program	• District, appellate and supreme court judges • Retirees include former municipal and county court judges • Members belong to either the Tier 1 or Tier 2 benefit program • Tier 1 includes judges first appointed or elected before July 1, 2013 • Tier 2 includes judges first appointed or elected after June 30, 2013 • A judge with less than five years of allowable service as of December 30, 2013, may make a one-time irrevocable election into the Tier 2 benefit program.	• Legislators first elected before July 1, 1997 • Effective July 1, 1997, newly-elected legislators are covered by the Unclassified Employees Retirement Plan.	• Constitutional Officers first elected prior to July 1, 1997, and who chose to retain coverage under this plan • Effective July 1, 1997, newly-elected constitutional officers are covered by the Unclassified Employees Retirement Plan. • All current constitutional officers were elected after July 1, 1997; therefore, this plan is closed.

Continued on next page

Summary of Plan Provisions
Defined Benefit Retirement Funds

GENERAL EMPLOYEES	MILITARY AFFAIRS, TRANSPORTATION PILOTS, AND FIRE MARSHALS	STATE PATROL
CONTRIBUTION RATES:		
• **Employee:** 5.5 percent of salary • **Employer:** 5.5 percent of salary • Employee contributions are "picked up" according to the provisions of Internal Revenue Code 414(h)	**Military Affairs:** • Employee: 7.1 percent of salary • Employer: 7.1 percent of salary **Transportation Pilots:** • Employee: 7.1 percent of salary • Employer: 7.1 percent of salary **Deputy Fire Marshals:** • Employee: 8.28 percent of salary • Employer: 9.70 percent of salary	• **Employee:** 14.4 percent of salary • **Employer:** 21.6 percent of salary • A supplemental state aid of $1 million is paid annually to the fund until both the Public Employees Retirement Association (PERA) Police and Fire Retirement Fund and the MSRS State Patrol Retirement Fund become 90 percent funded on a market value of assets basis. • Employee contributions are "picked up" according to the provisions of Internal Revenue Code 414(h)
VESTING:		
Members hired before July 1, 2010 • Three years of allowable service **Members hired after June 30, 2010:** • Five years of allowable service	• Same as General Employees	**Members hired before July 1, 2013:** • Three years of allowable service **Members hired after June 30, 2013:** • Ten years of allowable service

CORRECTIONAL EMPLOYEES	JUDGES	LEGISLATORS	ELECTIVE STATE OFFICERS
CONTRIBUTION RATES:			
• **Employee:** 9.1 percent of salary • **Employer:** 12.85 percent of salary • Employee contributions are “picked up” according to the provisions of Internal Revenue Code 414(h)	**Tier 1:** • Employee: 9.0 percent of salary • Employer: 22.5 percent of salary • Tier 1 employee contributions are redirected to the Unclassified Employees Retirement Plan after the member reaches the maximum retirement benefit limit. **Tier 2:** • Employee: 7.0 percent of salary • Employer: 22.5 percent of salary **Tier 1 and Tier 2**: • Employee contributions are “picked up” according to the provisions of Internal Revenue Code 414(h) • A supplemental state aid of $3 million was paid to the fund in fiscal year 2017. That aid will increase to $6 million annually beginning in fiscal year 2018 until fully funded.	• **Employee:** 9.0 percent of salary • **Employer:** funded by annual appropriation, as needed, from the State’s General Fund • Employee contributions are “picked up” according to the provisions of Internal Revenue Code 414(h)	• Plan is funded by annual appropriation from the State’s General Fund
VESTING:			
Members hired before July 1, 2010: • 100 percent vested after three years of allowable service **Members hired after June 30, 2010:** • Graded vesting applies, ranging from 50 percent vested after five years of allowable service to 100 percent vested after ten years of allowable service	• Five years of allowable service	• Six years of allowable service	• Same as Legislators

Continued on next page

Summary of Plan Provisions
Defined Benefit Retirement Funds

GENERAL EMPLOYEES	MILITARY AFFAIRS, TRANSPORTATION PILOTS, AND FIRE MARSHALS	STATE PATROL
RETIREMENT ELIGIBILITY:		
Vested employees hired before July 1, 1989: • Full retirement benefits at age 65 • Full retirement benefits if age plus years of service total 90 or more (Rule of 90) • Reduced benefits at age 55 • Reduced benefits at any age with 30 years of service **Vested employees hired after June 30, 1989:** • Full retirement benefits at the age eligible for full Social Security retirement benefits (but not later than age 66) • Reduced benefits at age 55	**For vested Military Affairs members:** • Full retirement benefits at age 60 **For vested Transportation Pilots:** • Full retirement benefits at age 62 **For vested Fire Marshals:** • Full retirement benefits at age 60	**For vested employees:** • Full retirement benefits at age 55 • Reduced retirement benefits at age 50
ANNUITY OPTIONS:		
Single-Life annuity: • Benefit for the life of the member only **50, 75, or 100 percent Joint-and-Survivor with a bounce-back feature:** • Monthly benefits for the life of the member, then benefits at the chosen percentage for the life of the survivor after the member death • Monthly benefits increase (bounce back) to the higher, single-life amount if the survivor dies before the member **15-Year Certain and Life Thereafter:** • Lifetime benefit for the member for a minimum of 15 years • If the member dies before he or she has received a benefit for 15 years, the named survivor receives a benefit for the balance of the 15 years.	• Same as General Employees	• Same as General Employees

CORRECTIONAL EMPLOYEES	JUDGES	LEGISLATORS	ELECTIVE STATE OFFICERS
RETIREMENT ELIGIBILITY:			
For vested employees: • Full retirement benefits at age 55 • Reduced retirement benefits at age 50	**For vested employees:** **Tier 1:** • Normal retirement age is 65; mandatory retirement is at age 70. **Tier 2:** • Normal retirement age is 66; mandatory retirement is at age 70. **Tier 1 and Tier 2:** • Reduced retirement benefits at age 60.	**For vested employees:** • Full retirement benefits at age 62 • Reduced retirement benefits at age 55	**For vested employees:** • Full retirement benefits at age 62 • Reduced retirement benefits at age 60
ANNUITY OPTIONS:			
• Same as General Employees	• Single-Life annuity • 50, 75, or 100 percent Joint-and-Survivor with the bounce-back feature • 50, 75, or 100 percent Joint-and-Survivor without the bounce-back feature (monthly benefits will remain the same if the survivor dies before the member) • 15-year Certain and Life Thereafter	• Single-Life annuity with automatic 50 percent survivor coverage • 100 percent Joint-and-Survivor with the bounce-back feature	• Single-Life annuity with automatic 50 percent survivor coverage

Continued on next page

Summary of Plan Provisions
Defined Benefit Retirement Funds

GENERAL EMPLOYEES	MILITARY AFFAIRS, TRANSPORTATION PILOTS, AND FIRE MARSHALS	STATE PATROL
BENEFIT FORMULA:		
Employees hired before July 1, 1989: • The benefit formula is the greater of: (a) 1.2 percent of a high-five average salary for the first 10 years of allowable service, plus 1.7 percent of high-five average salary for each subsequent year. Benefit is reduced for each month the member is under age 65 at the time of retirement, or reduced for each month the member is under age 62 with 30 years of allowable service. <u>OR</u> (b) 1.7 percent of high-five average salary for each year of allowable service. Benefit is reduced for each month the member is under age 65. • There is no reduction if the member's age plus years of allowable service total 90 or more (Rule of 90). **Employees hired after June 30, 1989:** • 1.7 percent of high-five average salary for each year of allowable service. Benefit is reduced for each month the member is under the normal retirement age. **For all benefit calculations:** • Salary includes wages or other periodic compensation, but excludes lump sum payments at separation, employer contributions to deferred compensation and tax sheltered annuity plans, and benevolent vacation and sick leave donation programs. • The high-five average salary is the average salary from the sixty successive month period with the highest gross salary.	• Same as General Employees	• 3.0 percent of high-five average salary for each year of allowable service up to 33 years. Contributions above the service cap are refunded at retirement. • Members with at least 28 years of service as of July 1, 2013, are not subject to the allowable service limit.

CORRECTIONAL EMPLOYEES	JUDGES	LEGISLATORS	ELECTIVE STATE OFFICERS
BENEFIT FORMULA:			
Employees hired before July 1, 2010: • 2.4 percent of high-five average salary for each year of allowable service **Employees hired after June 30, 2010:** • 2.2 percent of high-five average salary for each year of allowable service **For all benefit calculations:** • Members have the option of choosing an accelerated annuity to age 62 or 65, with an actuarially-adjusted benefit thereafter. This will provide a higher benefit until the chosen age, then a lower, permanent amount to cover the remaining retirement years.	**Tier 1 Benefit Program:** • 2.7 percent of high-five average salary for each year of allowable service prior to July 1, 1980, plus 3.2 percent of high-five average salary for each year of allowable service after June 30, 1980 • The maximum benefit is capped at 76.8 percent of the high-five average salary. **Tier 2 Benefit Program:** **Judges elected before July 1, 2013:** • 3.2 percent of high-five average salary for each year of allowable service prior to January 1, 2014, plus 2.5 percent of high-five average salary for each year of allowable service after December 31, 2013 **Judges elected after June 30, 2013:** • 2.5 percent of high-five average salary for each year of allowable service • No maximum benefit limit applies to Tier 2 members. **Tier 1 and Tier 2 Benefit Programs:** • The high-five average salary is determined using only the final ten years of employment.	**Legislators elected prior to January 1, 1979:** • 5.0 percent of high-five average salary for the first eight years of allowable service prior to January 1, 1979, plus 2.5 percent for subsequent years **Legislators elected after December 31, 1978:** • 2.5 percent of high-five average salary	• 2.5 percent of high-five average salary

Continued on next page

Summary of Plan Provisions
Defined Benefit Retirement Funds

GENERAL EMPLOYEES	MILITARY AFFAIRS, TRANSPORTATION PILOTS, AND FIRE MARSHALS	STATE PATROL
POST-RETIREMENT BENEFIT INCREASES:		
• Benefit recipients receive annual 2.0 percent benefit increases on January 1. • Annual benefit increases will revert to 2.5 percent when the Plan's funded ratio reaches 90 percent or higher determined on a market value of assets (instead of an actuarial value of assets) basis for two consecutive years. • After receiving a 2.5 percent post-retirement benefit increase, annual post-retirement benefit increases will be reduced to 2.0 percent if the Plan's funded ratio falls to 85 percent or less determined on a market value of assets basis for two consecutive years, or to 80 percent or less for the most recent actuarial valuation. • Retirees who have been receiving a benefit for at least 12 full months as of June 30 of the calendar year immediately before the post-retirement benefit increase adjustment will receive the full increase. Members receiving benefits for at least one month, but less than 12 full months, will receive a pro rata increase.	• Same as General Employees	• Benefit recipients receive annual 1.0 percent benefit increases on January 1. • Annual benefit increases will revert to 1.5 percent when the Plan's funded ratio reaches 85 percent or higher determined on a market value of assets basis for two consecutive years. • After receiving a 1.5 percent post-retirement benefit increase, annual post-retirement benefit increases will be reduced to 1.0 percent if the Plan's funded ratio falls to 80 percent or less determined on a market value of assets basis for two consecutive years, or to 75 percent or less for the most recent actuarial valuation. • Annual benefit increases will revert to 2.5 percent when the Plan's funded ratio reaches 90 percent or higher determined on a market value of assets basis for two consecutive years.

CORRECTIONAL EMPLOYEES	JUDGES	LEGISLATORS	ELECTIVE STATE OFFICERS
POST-RETIREMENT BENEFIT INCREASES:			
• Same as General Employees	• Benefit recipients receive annual 1.75 percent benefit increases on January 1. • Annual benefit increases will revert to 2.0 percent when the Plan's funded ratio reaches 70 percent determined on a market value of assets basis for two consecutive years. • Annual benefit increases will revert to 2.5 percent when the Plan's funded ratio reaches 90 percent determined on a market value of assets basis for two consecutive years.	• Benefit recipients receive annual 2.0 percent benefit increases on January 1. • Annual benefit increases will revert to 2.5 percent when the funded ratio of the State Employee Retirement Fund reaches 90 percent determined on a market value of assets basis for two consecutive years. • After receiving a 2.5 percent post-retirement benefit increase, annual post-retirement benefit increases will be reduced to 2.0 percent if the funded ratio of the State Employee Retirement Fund falls to 85 percent or less determined on a market value of assets basis for two consecutive years, or to 80 percent or less for the most recent actuarial valuation.	• Same as Legislators

Continued on next page

Summary of Plan Provisions
Defined Benefit Retirement Funds

<table>
<tr><th>GENERAL EMPLOYEES</th><th>MILITARY AFFAIRS, TRANSPORTATION PILOTS, AND FIRE MARSHALS</th><th>STATE PATROL</th></tr>
<tr><td colspan="3">SURVIVOR BENEFITS:</td></tr>
<tr><td>• If a member dies while still an active employee, the spouse is eligible for a 100 percent survivor annuity or a refund if:
(a) The member was hired prior to July 1, 2010, and had at least three years of service at death,
<u>OR</u>
(b) The member was hired after June 30, 2010, and had at least five years of service at death.
• Dependent children are eligible for the monthly benefit until age 20 if there is no surviving spouse.</td><td>• Same as General Employees</td><td>• If a member dies while still an active employee, the spouse is eligible for 50 percent of the final average salary if:
(a) The member was hired before July 1, 2013, had three or more years of allowable service, and died before attaining age 55,
<u>OR</u>
(b) The member was hired after June 30, 2013, and had at least five years of allowable service.
• The spouse's benefit changes to a 100 percent Joint-and-Survivor annuity when the employee would have reached age 55.
• A dependent child's benefit is 10 percent of the member's final average salary plus $20 per month prorated among all dependent children.</td></tr>
<tr><td colspan="3">REFUNDS:</td></tr>
<tr><td>• When a member ends employment with the state, member contributions can be refunded. Refund will include 6.0 percent interest compounded daily until June 30, 2011, and 4.0 percent thereafter.</td><td>• Same as General Employees</td><td>• Same as General Employees</td></tr>
</table>

CORRECTIONAL EMPLOYEES	JUDGES	LEGISLATORS	ELECTIVE STATE OFFICERS
SURVIVOR BENEFITS:			
• Generally, the spouse of a vested employee is eligible for a 100 percent survivor annuity.	• If a member dies while still an active employee, the spouse is eligible for the larger of: (a) 25 percent of average salary **OR** (b) 60 percent of the normal retirement benefit, had the member retired at the date of death. • If a vested judge is 60 or over, the surviving spouse may elect to receive a 100 percent Joint-and-Survivor benefit.	• The spouse is eligible for 50 percent of the benefit if, upon death, the legislator was serving as a member, or was a former member with six years of service. The survivor benefit is computed as though the member were age 62 on date of death and is based on the member's allowable service or eight years, whichever is greater. • First child's benefit is 25 percent of the retirement benefit computed as for surviving spouse) with 12.5 percent of the retirement benefit for each additional child. • The maximum benefit payable to children and the spouse is 100 percent of the retirement benefit.	• Same as Legislators
REFUNDS:			
• Same as General Employees	• Same as General Employees	• Same as General Employees	• Same as General Employees

Continued on next page

Summary of Plan Provisions Defined Benefit Retirement Funds

GENERAL EMPLOYEES	MILITARY AFFAIRS, TRANSPORTATION PILOTS, AND FIRE MARSHALS	STATE PATROL
DISABILITY ELIGIBILITY AND BENEFIT CALCULATION:		
Disability Eligibility: • (a) At least three years of allowable service and meeting the definition of disability <u>OR</u> (b) At least five years of service if hired on or after June 30, 2010, and meeting the definition of disability. • Totally and permanently disabled is defined as the inability to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that has existed or is expected to continue for a period of at least one year. **Calculation:** • Disability benefits are calculated following the same formula as a regular retirement benefit.	**Disability Eligibility:** • At least three years of service and unable to perform duties **Calculation:** • **Military Affairs:** Benefit calculation follows the General Plan formula with no reduction • **Pilots:** 75 percent of salary for a maximum of five years • **Deputy Fire Marshals:** Minimum benefit is calculated as though the member had 20 years of service for a job-related disability, 15 years of service for a non job-related disability	**Disability Eligibility:** • **Job-related:** Unable to perform job duties as a direct result of a disability relating to an act of duty. There is no service time requirement. • **Regular (non job-related):** At least one year of service and unable to perform duties • **Both Regular and Job Related:** Member is reclassified from disabled to retired at age 55 (age 65 if disabled prior to July 1, 2015) **Calculation:** • **Job Related:** 60 percent of high-five average salary, plus 3 percent for each year beyond 20 years of allowable service • **Regular:** Normal State Patrol benefit based on salary and years of service. If disability occurs before 15 years of service, the benefit is calculated with a service credit of 15 years.

CORRECTIONAL EMPLOYEES	JUDGES	LEGISLATORS	ELECTIVE STATE OFFICERS

DISABILITY ELIGIBILITY AND BENEFIT CALCULATION:

CORRECTIONAL EMPLOYEES	JUDGES	LEGISLATORS	ELECTIVE STATE OFFICERS

Disability Eligibility:
• **Job-related:** The disability must result from an incident while performing duties of the job which present inherent dangers to the employee. There is no service time requirement
• **Regular (non job-related):**
  • For employees hired before July 1, 2009: one year of covered correctional service
  • For employees hired after June 30, 2009: employee must be vested
• **Both Regular and Job Related:** Member is reclassified from disabled to retired at age 55 (age 65 if disabled prior to July 1, 2009)
Calculation:
• **Job Related:** 50 percent of the average of the high-five average salary plus 2.4 percent (2.2 percent if hired after June 30, 2010) for each year beyond 20 years and ten months of allowable service
• **Regular:** Normal Correctional benefit based on salary and years of service. If hired before July 1, 2009, the benefit is calculated with a minimum of 15 years of service. If hired after June 30, 2009, there is no minimum benefit.
	Disability Eligibility:
	• Member is permanently unable to perform duties of a judge.
	Calculation:
	• Prior to commencement of disability benefits, the member will receive a continuation of full salary for one year, but not beyond age 70.
	• If disability continues after one year, disability benefits are equal to the normal retirement benefit or 25 percent of high-five average salary, whichever is larger. There is no early-retirement reduction applied.
		• None	• None

Continued on next page

Summary of Plan Provisions
Defined Contribution Retirement Funds

The following is a summary of the major plan provisions for MSRS' defined contribution retirement plans.

Plan provisions specific to MSRS' defined benefit plans begin on page 20 of this section.

Plan descriptions are not all inclusive. Descriptions provide general information only.

UNCLASSIFIED EMPLOYEES	HEALTH CARE SAVINGS
STATUTORY OR LEGAL REFERENCES:	
• Minn. Stat. §352D • Internal Revenue Code (IRC) Section 401(a) Plan • Internally administered by MSRS prior to July 1, 2009	• Minn. Stat. §352.98 • Plan document is available online at www.msrs.state.mn.us/pdf/HCSP-Plan.pdf • Created in 2001 through state legislation • The trust is exempt from federal income tax through Private Letter Ruling. • Internally administered by MSRS prior to July 1, 2009
COVERAGE:	
• Specified employees in unclassified positions	• Available to all public employees in the state of Minnesota • Negotiated by bargaining unit or personnel department
CONTRIBUTION RATES:	
• Employee: 5.5 percent of salary • Employer: 6.0 percent of salary	• Employee or negotiated employer funding criteria is bargained per labor contract • May include severance pay
BENEFITS:	
• Account balance (contributions and investment gains or losses) or annuity benefit withdrawal based on age and 6.0 percent interest assumption	• Account balance which must be used for qualifying health-related expenses • The annual maximum Health Care Savings Plan reimbursement limit is $30,000 for fiscal year 2017 for non-insurance premium, qualified health care expenses.
REFUNDS:	
• Account value	• None • After participant's death, legal dependents, or if none exist, beneficiaries, may use the remaining account balance for eligible healthcare reimbursements, as designated in the Internal Revenue Code. • Non-dependent beneficiary reimbursements are taxable.

MN DEFERRED COMPENSATION	HENNEPIN COUNTY SUPPLEMENTAL
STATUTORY OR LEGAL REFERENCES:	
• Minn. Stat. §352.965 - 352.97 • IRC Section 457(b) Plan • Plan document is available online at www.mndcplan.com/PlanDocument.htm	• Minn. Stat. §383B.46 - 383B.52 • Non-qualified Plan • Internally administered by MSRS from December 1, 2005 through July 1, 2009
COVERAGE:	
• Optional for all state employees and political subdivision employees	• Optional for employees of Hennepin County, Minnesota, who began employment prior to April 14, 1982
CONTRIBUTION RATES:	
• Member selected tax-deferred amount, with a $10 per pay period minimum • After-tax Roth contribution option is available for eligible employees. • Subject to annual calendar year 2017 IRS contribution limit of $18,000 for members under 50 years old, $24,000 for members over 50	• **Employee:** 1.0 percent of salary • **Employer:** 1.0 percent of salary
BENEFITS:	
• Account balance	• Account balance
REFUNDS:	
• None; After a member is eligible to take a withdrawal, withdrawal of the full value of an account is reflected as a refund on the *Statement of Changes in Fiduciary Net Position*.	• None; After a member is eligible to take a withdrawal, withdrawal of the full value of an account is reflected as a refund on the *Statement of Changes in Fiduciary Net Position.*

Continued on next page

Summary of Plan Provisions
Defined Contribution Retirement Funds

UNCLASSIFIED EMPLOYEES	HEALTH CARE SAVINGS
INVESTMENT OPTIONS:	
Supplemental Investment Fund (SIF) Investment Options: • Money Market Fund • Stable Value Fund • Bond Fund • Balanced Fund • U.S. Stock Index Fund • U.S. Stock Actively Managed Fund • Broad International Stock Fund	**Supplemental Investment Fund (SIF) Investment Options:** • Money Market Fund • Stable Value Fund • Bond Fund • Balanced Fund • U.S. Stock Index Fund • U.S. Stock Actively Managed Fund • Broad International Stock Fund
ADMINISTRATIVE FEES:	
• $2 per month for an account balance $10,000 or less • $4 per month for an account balance that is $10,000.01 to $30,000 • $6 per month for an account balance that is $30,000.01 to $90,000 • $8 per month for an account balance exceeding $90,000 • Plan fees only apply to contributions made after July 1, 1992. Prior to July 1, 1992, participants were charged a front-end fee.	• 0.65 percent of each participant's account balance, prorated and deducted from participant accounts on a monthly basis • Maximum annual fee: $140
WHEN USED / WITHDRAWAL EVENTS:	
• Termination of employment (lump-sum distribution) • Age 55 retirement with any length of service (monthly benefits)	• Termination of employment • After retirement • Upon receiving a disability retirement • Certain situations in which employees are rehired in a position with their previous public employer
WITHDRAWAL OPTIONS:	
• Single-Life Annuity • 50, 75, or 100 percent Joint-and-Survivor with a bounce-back feature • 15-Year Certain and Life Thereafter	• Reimbursements for qualified health care expenses

MN DEFERRED COMPENSATION	HENNEPIN COUNTY SUPPLEMENTAL
INVESTMENT OPTIONS:	
• Various retail mutual funds contracted by the Minnesota State Board of Investment (SBI) • Self-directed brokerage account through TD Ameritrade • The SBI Supplemental Investment Fund Stable Value Fund and Money Market Fund • Target Date Retirement Funds managed by State Street Global Advisors	**Supplemental Investment Fund (SIF) Investment Options:** • Money Market Fund • Stable Value Fund • Bond Fund • Balanced Fund • U.S. Stock Index Fund • U.S. Stock Actively Managed Fund • Broad International Stock Fund
ADMINISTRATIVE FEES:	
• 0.10 percent of participant's account balance, prorated and deducted from participant accounts on a monthly basis • Maximum annual fee: $125 • $30 annual fee for members opting to use the Self-directed brokerage account option through TD Ameritrade • Program fee charged on the managed account balance for participants who opt to use a professional account manager through the record keeper	• 0.05 percent of each participant's account balance, prorated and deducted from participant accounts on a monthly basis
WHEN USED / WITHDRAWAL EVENTS:	
• Termination of service or death • Unforeseeable emergency	• Termination of service or death • Retirement • Unforeseeable emergency
WITHDRAWAL OPTIONS:	
• Lump-sum or rollover to qualified financial institution • Ongoing withdrawals • Various annuities, including a fixed annuity provided through an insurance company • Combinations of the above options • Required minimum distributions begin in the year participant reaches age 70½.	• Lump-sum • Monthly withdrawals for five years • Annual withdrawals for five years

Continued on next page

Summary of Plan Provisions
Defined Contribution Retirement Funds

UNCLASSIFIED EMPLOYEES	HEALTH CARE SAVINGS
ANNUITY AND DISABILITY OPTIONS FOR EMPLOYEES ELECTING COVERAGE IN GENERAL EMPLOYEES RETIREMENT PLAN:	
• Employees appointed prior to July 1, 2010, may elect to transfer their Unclassified Plan service to the General Plan if they have ten or more years of service, or employees may select General Plan coverage in the first year of employment in the Unclassified Plan. • Employees appointed after June 30, 2010, may elect to be covered by the General Plan within seven years of their appointment.	• Not applicable

MN DEFERRED COMPENSATION	HENNEPIN COUNTY SUPPLEMENTAL
ANNUITY AND DISABILITY OPTIONS FOR EMPLOYEES ELECTING COVERAGE IN GENERAL EMPLOYEES RETIREMENT PLAN:	
• Not applicable	• Not applicable

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Financial Section

MSRS 2017 Comprehensive Annual Financial Report

MSRS Minnesota State Retirement System
Your Foundation for Retirement

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Independent Auditor's Report

OLA **OFFICE OF THE LEGISLATIVE AUDITOR**
STATE OF MINNESOTA • James Nobles, Legislative Auditor

Independent Auditor's Report

Members of the Board of Directors
Minnesota State Retirement System

Ms. Erin Leonard, Executive Director
Minnesota State Retirement System

Report on the Financial Statements

We have audited the accompanying financial statements of the Minnesota State Retirement System (MSRS), which included the statement of fiduciary net position as of June 30, 2017, the related statement of changes in fiduciary net position, and notes to the financial statements, as listed in the Financial Section of 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 accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal controls relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

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

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Independent Auditor's Report

Members of the Board of Trustees
Ms. Erin Leonard, Executive Director
Page 2

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Minnesota State Retirement System as of June 30, 2017, and the changes in financial position for the period then ended in conformity with accounting principles generally accepted in the United States of America.

Emphasis of Matter – GASB and Statutory Financial Requirements

Minnesota Statutes 2017, 356.20, require MSRS to include in its financial report information using funding-focused statutory assumptions and methodologies. For its fiscal year 2017 financial report, the funding-focused information differs from the GASB-based information primarily for the following reasons:

(1) The discount rates required by statute for funding purposes was significantly higher than the discount rates used for financial reporting purposes. The discount rate is the rate used to bring the projected benefit payments to the present value of those benefits (the pension liability). A higher discount rate results in a smaller pension liability.

(2) For funding purposes, statutes require investment gains and losses be recognized over a five-year period to "smooth" the volatility that can occur from year to year. For GASB financial reporting purposes, assets are valued at fair (market) value as of the end of the fiscal year.

Including funding-focused information was necessary for MSRS to comply with state law and had no effect on our audit opinion.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that Management's Discussion and Analysis and the other required supplementary information, as listed in the Financial Section of the Table of Contents, 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 Management's Discussion and Analysis and the other required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements.

We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information Included with the Financial Statements

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise MSRS's basic financial statements. The supporting schedules, including the Supplementary Schedules and GASB Statement No. 68 Supplemental Employer Schedules, in the Financial Section and the Introductory, Investment, Actuarial, and Statistical Sections, as listed in the Table of Contents, are presented for purposes of additional analysis and are not a required part of the basic financial statements.

Members of the Board of Trustees
Ms. Erin Leonard, Executive Director
Page 3

The supporting schedules, as listed in the Financial Section of the Table of Contents, are the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. The supporting schedules have been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the supporting schedules are 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.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have issued our report, also dated December 22, 2017, on our consideration of the Minnesota State Retirement System's internal controls over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, grant agreements, and other matters. The purpose of that report is to describe the scope of our testing of internal controls over financial reporting and compliance and the results of that testing and not to provide an opinion on the internal controls over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* and should be considered in assessing the results of our audit.

James R. Nobles
Legislative Auditor

Tracy Gebhard, CPA
Audit Director

December 22, 2017
Saint Paul, Minnesota

Management's Discussion and Analysis

We, the management of the Minnesota State Retirement System (MSRS), present this discussion and analysis of MSRS' financial activities for the fiscal year ended June 30, 2017. We encourage you to read the information contained in this narrative in conjunction with the Letter of Transmittal that begins on page 10, the financial statements with explanatory notes, and required supplementary information contained in this section of the Comprehensive Annual Financial Report (CAFR).

Financial Highlights

- Overall, MSRS' financial condition improved during fiscal year 2017. MSRS' fiduciary net position for all pension trust funds increased $2.23 billion, or 11.14 percent, from $20.06 billion as of June 30, 2016, to well over $22.29 billion as of June 30, 2017.

- Total additions to all MSRS pension trust funds increased over $2.74 billion, or 313.79 percent, during fiscal year 2017, from $873.53 million for fiscal year 2016 to over $3.61 billion for fiscal year 2017. This increase is primarily the result of a strong financial market performance in fiscal year 2017.

- For MSRS' defined benefit retirement funds, the investment rate of return, net of fees, for the state of Minnesota's Combined Funds, the investment pool of which MSRS owns a share, increased substantially, from negative .01 percent for fiscal year 2016 to 15.10 percent for fiscal year 2017. The 2017 investment performance was the highest since fiscal year 2011, when the Combined Funds returned 23.30 percent.

- For MSRS' defined contribution retirement funds, participants' fiscal year 2017 investment performance varied depending upon the types of assets held in their securities portfolio. The average fiscal year 2017 rates of return ranged from a low of a negative 0.40 percent for the Vanguard Total Bond Market Index to a high of 21.20 percent for the T. Rowe Price Small-Cap Stock fund.

- Total deductions from all MSRS pension trust funds increased over $99.11 million, or 7.74 percent, from just over $1.28 billion for fiscal year 2016 to just under $1.38 billion for fiscal year 2017. Almost half of the increase was due to defined benefit annuity payments, which increased $48.83 million, or 5.71 percent, resulting from annual post-retirement benefit increases of up to 2.00 percent and the growth in the number of retirees. Plan member refunds increased $18.16 million, or 7.03 percent. Transfers out of the Unclassified Retirement Fund into the State Employees Retirement Fund as a result of plan eligibility changes increased $27.03 million from fiscal year 2016 to fiscal year 2017, an increase of 131.96 percent. A corresponding transfer in is recognized in the total MSRS additions.

- Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68 actuarial valuation results indicated that on June 30, 2017, MSRS' governmental employers participating in MSRS' cost-sharing defined benefit retirement plans that compose the State Employees Retirement Fund, incurred a Net Pension Liability of almost $7.42 billion, a nearly $5 billion decrease from the Net Pension Liability of the previous year. As of this measurement date, the Fiduciary Net Position as a percentage of the Total Pension Liability was 62.73 percent, an improvement of 15.22 percent over the 47.51 percent ratio as of June 30, 2016. The decrease in Total Pension Liability is due, in large part, to the 15.10 percent investment return during the fiscal year, which resulted in an improvement in the single discount rate from 4.17 to 5.42 percent, and to a change in actuarial assumption for members with Combined Service Annuities.

- Investment returns also helped the funded status of each retirement fund according to the "funding" actuarial valuation reports. Some retirement funds, however, also implemented new actuarial assumptions as a result of recent experience studies, which negatively impacted funding status. On an actuarial basis, the State Employees Retirement Fund showed the most improvement in funding status because this fund implemented most of its new actuarial assumptions last year. The Correctional Employees and Judges Retirement Funds also showed improvement, though less due to the implementation of new assumptions in the current year. The State Patrol Retirement Fund showed a decrease in the funded ratio, because the implementation of new actuarial assumptions had more of an impact than the positive investment return. On an actuarial value of assets basis, MSRS' largest defined benefit retirement fund, the State Employees Retirement Fund, was 85.22 percent funded as of the July 1, 2017, actuarial valuation in comparison to 81.56 percent funded as of the July 1, 2016, actuarial valuation. On a market value of assets basis, this fund was 86.05 percent funded based on the 2017 actuarial valuation results; the funding status improved in comparison to the 78.39 percent funded ratio reported as of the July 1, 2016, actuarial valuation.

Overview of the Financial Statements

MSRS administers five defined benefit retirement funds and four defined contribution funds. The defined benefit funds include the State Employees, State Patrol, Correctional Employees, Judges, and Legislators Retirement Funds. The defined contribution funds include the Unclassified Employees Retirement, the Health Care Savings, the Minnesota Deferred Compensation, and the Hennepin County Supplemental Retirement Funds. All of these pension trust funds are fiduciary funds for governmental accounting and financial reporting purposes.

This CAFR includes two basic financial statements for MSRS' pension trust funds:

- The *Statement of Fiduciary Net Position*, found on pages 56-57, and
- The *Statement of Changes in Fiduciary Net Position*, found on pages 58-59.

Consistent with Minnesota Statutes, Chapter 356.20, the purpose of these financial statements, along with the accompanying *Notes to the Financial Statements* (found on pages 60-89) and *Required Supplementary Information* (found on pages 90-106), is to present the financial position and results of operations of MSRS' retirement funds to our membership, participating employers, and other financial statements users. This CAFR also provides readers with financial information in a format that is reasonably comparable to that of other public employee pension trust funds. These financial statements and explanatory notes are prepared in conformance with generally accepted governmental accounting principles, and are reported using the accrual basis of accounting.

The *Statement of Fiduciary Net Position* provides a snapshot of the financial resources and obligations for all of MSRS' pension trust funds on June 30, the last day of each fiscal year. The assets available and the liabilities owed are reported at fair value as of that date. The difference between the sum of total assets and the sum of total liabilities is net position restricted for pensions. This amount is available for payment of future pension benefits or other obligations. Comparisons of total assets, total liabilities, and net position restricted for pensions as of June 30, 2017 and 2016 are depicted in the table below.

Summary Statement of Fiduciary Net Position – All MSRS Pension Trust Funds
As of June 30, 2017 and 2016
(Dollars in thousands)

	FY 2017	FY 2016	Change	Percent Change
Total Assets	$23,907,657	$22,057,538	$1,850,119	8.39%
Total Liabilities	1,610,191	1,994,892	(384,701)	(19.28)
Net Position Restricted for Pensions	**$22,297,466**	**$20,062,646**	**$2,234,820**	**11.14%**

Total assets as of June 30, 2017, totaling almost $23.91 billion, increased $1.85 billion, or 8.39 percent, from the prior year. This growth can be attributed to high investment returns for fiscal year 2017, which resulted in net investment income for the year, net of fees, of almost $2.71 billion.

Total liabilities of $1.61 billion as of June 30, 2017, decreased almost $385 million, or 19.28 percent, from the prior year. This is due to a decrease of over $382 million in security lending cash collateral, a result of a migration towards non-cash collateral driven by changing regulatory requirements. A corresponding securities lending cash collateral asset is also recorded in the financial statements.

This fiscal year, the increase in the net position restricted for pensions was over $2.23 billion, or 11.14 percent. This increase was due to higher investment income resulting from the 15.10 percent investment return for fiscal year 2017. The investment return increased significantly in comparison to the fiscal year 2016 return of negative 0.01 percent.

MSRS had no deferred outflows or inflows of resources as of June 30, 2017.

Continued on next page

Management's Discussion and Analysis

The *Statement of Changes in Fiduciary Net Position* summarizes the financial transactions that occurred during the fiscal year. Additions include contributions, net investment income, and other revenue sources. Deductions include annuity benefit payments from our defined benefit retirement funds, ongoing withdrawals from our defined contribution retirement funds, refunds, and other administrative expenses.

Total additions by major source and total deductions by type for the fiscal years ended June 30, 2017 and 2016 are depicted below.

Summary Statement of Changes in Fiduciary Net Position – All MSRS Pension Trust Funds
For the Fiscal Years Ended June 30, 2017 and 2016
(Dollars in thousands)

	FY 2017	FY 2016	Change	Percent Change
Additions (by Major Source)				
Plan Member Contributions	$615,117	$565,908	$49,209	8.70%
Employer Contributions	223,761	212,441	11,320	5.33
Investment Income (Net)	2,706,513	58,774	2,647,739	4,504.95
Other	69,189	36,408	32,781	90.04
Total Additions	**$3,614,580**	**$873,531**	**$2,741,049**	**313.79%**
Deductions (by Type)				
Benefits, Withdrawals and Reimbursements	$1,025,414	$973,653	$51,761	5.32%
Refunds	276,425	258,270	18,155	7.03
Recordkeeper Expenses	4,338	4,163	175	4.20
Administrative Expenses	17,529	17,449	80	0.46
Other	56,054	27,111	28,943	106.76
Total Deductions	**$1,379,760**	**$1,280,646**	**$99,114**	**7.74%**
Net Increase (Decrease) in Net Position Restricted for Pensions	**$2,234,820**	**$(407,115)**	**$2,641,935**	**648.94%**

Total additions increased 313.79 percent, over $2.74 billion, to $3.61 billion, primarily due to the increase in net investment income during fiscal year 2017. Total plan member and employer contributions increased about $60.53 million, or 7.78 percent, for fiscal year 2017. This increase is mostly due to increases in active members in the four largest defined benefit retirement plans during fiscal year 2017.

Total deductions increased $99.11 million, or 7.74 percent, from just over $1.28 billion in fiscal year 2016 to just under $1.38 billion in fiscal year 2017. This change was largely due to an increase in annuity benefits, refunds, and transfers to other funds. Increases in annuity benefits are the result of post-retirement benefit increases and to the growth in the number of benefit recipients, from about 42,600 as of June 30, 2016, to nearly 44,200 as of June 30, 2017. On January 1, 2017, retirees in the State Employees, Correctional, and Legislators Retirement Funds received annual post-retirement benefit increases of 2.00 percent. Eligible members in the State Patrol Retirement Fund received a 1.00 percent annual post-retirement benefit increase, and retirees in the Judges Retirement Fund received a 1.75 percent annual post-retirement benefit increase. The Unclassified Employee and Minnesota Deferred Compensation plans transfers to other funds and refunds are variable and subject to member's individual decisions.

The *Notes to the Financial Statements* are an integral part of the financial statements. They provide additional information relevant to obtain a full understanding of the financial statements. The notes are divided into four sections. Each section is described below

1. Summary of Significant Accounting Policies - This section provides a summary of significant accounting policies, including the basis of financial statement presentation and accounting method applied in recording financial transactions, investment policies, and policies MSRS abides by in the valuation of assets, liabilities, revenue and expenses reported on the financial statements, where generally accepted accounting principles permit more than one approach.

2. Description of System and Plans - This section describes MSRS as an organization, and key membership, contribution, and benefit or distribution provisions for each of its retirement funds.

3. Detailed Notes on All Activities and Funds - This section elaborates on various investment-related risks, and provides computations for certain asset, liability, and transfer amounts reported on the financial statements.

4. Required Supplementary Information (RSI) -This section of the notes identifies required supplementary information that follows the basic financial statements and the notes to the financial statements.

   Required Supplementary Information consists of three schedules, listed below, and related notes:

   - *Schedule of Changes in the Employer Net Pension Liability and Related Ratios*
   - *Schedule of Employer Contributions*
   - *Schedule of Investment Returns*

These schedules are intended to show information for the most recent 10 years. However, for all but the *Schedule of Employer Contributions*, only the information for the past four years is presented. Additional yearly data will be displayed as it becomes available. The presentation of multi-year data is designed to provide some economic context regarding amounts reported in the financial statements, and to provide historical context for each pension plan's fiduciary net position related to the total pension liability. Significant assumptions used in the calculation of actuarially determined contributions and factors significantly affecting trends in the amounts reported are disclosed in the notes presented with each RSI schedule.

Supplementary schedules include the *Schedule of Administrative Expenses*, the *Summary Schedule of Commissions and Payments to Consultants*, and the *Schedule of Investment Expenses*. These schedules summarize the operating expenses MSRS incurred during fiscal year 2017 to administer its defined benefit and defined contribution retirement funds.

With the GASB Statements No. 67 and No. 68 implementation in fiscal year 2014, we added two new supplemental employer schedules to the *Financial Section* of this report: a *Schedule of Employer Allocations* for our cost-sharing pension plans (the State Employees and Correctional Employees Retirement Funds), and the *Schedule of Pension Amounts by Employer* for each defined benefit retirement fund. These schedules contain essential financial data, including net pension liability, deferred outflows and deferred inflows of resources, and pension income or pension expense for governmental employers participating in our defined benefit retirement plans to report in their own financial statements.

Continued on next page

Management's Discussion and Analysis

Financial Analysis of MSRS' Individual Funds

Each of MSRS' defined benefit and defined contribution retirement funds have some characteristics that are different from the others, such as membership served. The MSRS retirement funds also have some characteristics in common, such as shared investment pools. The following paragraphs highlight events or conditions that had a significant effect on each fund's financial position or results of operations during fiscal year 2017.

Analysis of the Defined Benefit Funds

The following two tables compare various performance measures to the previous fiscal year for each of the following defined benefit funds: the State Employees Retirement Fund, the State Patrol Retirement Fund, the Correctional Employees Retirement Fund and the Judges Retirement Fund. The Legislators Retirement Fund has been closed to new membership since July 1, 1997, and funding is primarily by annual state of Minnesota General Fund appropriations.

Summary Statement of Fiduciary Net Position – MSRS Pension Trust Funds
Defined Benefit Plans
For the Fiscal Years Ended June 30, 2017 and 2016
(Dollars in thousands)

	State Employees	State Patrol	Correctional Employees	Judges
Total Assets, as of 06/30/2017	$13,780,567	$763,143	$1,130,488	$204,217
Total Assets, as of 06/30/2016	12,820,470	719,490	1,028,049	189,377
Change in Total Assets	$960,097	$43,653	$102,439	$14,840
Percentage Change	7.49%	6.07%	9.96%	7.84%
Total Liabilities, as of 06/30/2017	$1,294,953	$71,544	$106,671	$19,076
Total Liabilities, as of 06/30/2016	1,597,405	89,498	128,457	23,472
Change in Total Liabilities	$(302,452)	$(17,954)	$(21,786)	$(4,396)
Percentage Change	(18.93)%	(20.06)%	(16.96)%	(18.73)%
Total Net Position Restricted for Pensions, as of 06/30/2017	$12,485,614	$691,599	$1,023,817	$185,141
Total Net Position Restricted for Pensions, as of 06/30/2016	11,223,065	629,992	899,592	165,905
Change in Net Position Restricted for Pensions	$1,262,549	$61,607	$124,225	$19,236
Percentage Change	11.25%	9.78%	13.81%	11.59%

Summary Statement of Changes in Fiduciary Net Position – MSRS Pension Trust Funds
Defined Benefit Plans
For the Fiscal Years Ended June 30, 2017 and 2016
(Dollars in thousands)

	State Employees	State Patrol	Correctional Employees	Judges
Total Additions, year ended 06/30/2017	$2,035,286	$120,380	$189,770	$42,419
Total Additions, year ended 06/30/2016	316,140	23,456	52,436	13,796
Change in Total Additions	$1,719,146	$96,924	$137,334	$28,623
Percentage Change	543.79%	413.22%	261.91%	207.47%
Total Deductions, year ended 06/30/2017	$772,737	$58,773	$65,545	$23,183
Total Deductions, year ended 06/30/2016	731,394	57,994	61,846	22,471
Change in Total Deductions	$41,343	$779	$3,699	$712
Percentage Change	5.65%	1.34%	5.98%	3.17%
Net Increase (Decrease) for the Fiscal Year ended 06/30/2017	$1,262,549	$61,607	$124,225	$19,236
Net Increase (Decrease) for the Fiscal Year ended 06/30/2016	(415,254)	(34,538)	(9,410)	(8,675)
Change in Net Increase (Decrease) of Net Position Restricted for Pensions	$1,677,803	$96,145	$133,635	$27,911
Percentage Change	404.04%	278.37%	1,420.14%	321.74%

State Employees Retirement Fund

Fiduciary Net Position Restricted for Pensions for the State Employees Retirement Fund, MSRS' largest defined benefit retirement fund, increased $1.26 billion, or 11.25 percent, to almost $12.49 billion as of June 30, 2017. The increase is the result of the strong investment return of 15.10 percent in the Combined Funds, which far outpaced the small increase in deductions during the fiscal year.

Total additions increased $1.72 billion, or 543.79 percent, to $2.04 billion, almost entirely due to an increase in investment income. Investment income grew from a negative $9.63 million to a positive $1.68 billion. Total plan member and employer contributions increased more modestly to $320.02 million, an increase of 4.92 percent over the previous year, due to an increase in active members.

Total deductions increased over $41.34 million to $772.74 million, an increase of 5.65 percent. The increase is due almost entirely to increased annuity benefit distributions, which rose 6.10 percent to $750.53 million. The increase is the result of growth in the number of retirees, survivors and disabled members (up 3.64 percent to 39,333 members) and payment of a 2.0 percent post-retirement benefit increase to retirees and other benefit recipients in January 2017.

Continued on next page

Management's Discussion and Analysis

State Patrol Retirement Fund

The Fiduciary Net Position Restricted for Pensions for the State Patrol Retirement Fund increased during fiscal year 2017 by over $61.61 million, or 9.78 percent, largely due to strong investment returns.

Total additions increased $96.92 million, or 413.22 percent, to $120.38 million. Investment income grew from a negative $774 thousand in fiscal year 2016 to a positive $93.08 million in fiscal year 2017. Employer and employee contributions increased by a total of $3.07 million, or 13.23 percent, during the fiscal year. The increase is partially due to a slight increase in active contributing members during the fiscal year, but mostly to an increase in contribution rates (1.0 percent for employees and 1.50 percent for employers) that took effect at the beginning of the fiscal year. Other income includes $1 million of supplemental state aid that will continue to be received annually until the fund and the Public Employees Retirement Association's Police and Fire Fund both reach a 90 percent funded ratio, determined on a market value of assets basis.

Total deductions increased $779 thousand, or 1.34 percent, to $58.77 million. The increase is the result of a change in annuity benefit distributions, which increased $865 thousand, or 1.50 percent, to $58.56 million due to the payment of a 1.0 percent post-retirement benefit increase to retirees and other benefit recipients in January 2017.

Correctional Employees Retirement Fund

The Fiduciary Net Position Restricted for Pensions for the Correctional Employees Retirement Fund increased $124.23 million, or 13.81 percent, to $1.02 billion. Like the other funds, strong investment returns accounted for the vast majority of this increase.

Total additions increased $137.33 million, or 261.91 percent, to $189.77 million. The increase from the previous year reflects the substantial investment income, $135.36 million in fiscal year 2017, up from a negative $195 thousand in fiscal year 2016. Payroll growth and 4,579 active contributing employees, an increase of 58 employees, or 1.28 percent, resulted in a slight increase in contributions during the fiscal year, up 3.38 percent to $54.41 million.

Total deductions increased $3.70 million, or 5.98 percent, to $65.55 million, largely due to annuity benefit distributions. Annuity benefits increased $4.18 million, or 7.07 percent, to $63.22 million due to growth in the number of benefit recipients and to the payment of a 2.0 percent post-retirement benefit increase to retirees and other benefit recipients in January 2017. Retiree, survivor and disabled member counts in fiscal year 2017 increased 5.69 percent to 3,084.

Judges Retirement Fund

Fiduciary Net Position Restricted for Pensions for the Judges Retirement Fund increased $19.24 million, or 11.59 percent, to $185.14 million due to the favorable investment performance during fiscal year 2017.

Total additions increased $28.62 million, or 207.47 percent, to $42.42 million. Investment income grew from a negative $186 thousand in fiscal year 2016 to a positive $24.73 million in fiscal year 2017. The Judges Fund also received an appropriation of $3 million from the State's General Fund, which accounted for most of the remaining increase in additions.

Total deductions increased $712 thousand, or 3.17 percent, to $23.18 million during fiscal year 2017 due to an increase in annuity benefits and refunds paid. Annuity benefits increased $407 thousand, or 1.82 percent, to $22.79 million for fiscal year 2017 due to payment of a 1.75 percent post-retirement benefit increase to retirees and other benefit recipients in January 2017. Additionally, refunds of $309 thousand were paid in the year, a 100 percent increase from the previous fiscal year, which saw no refunds.

Legislators Retirement Fund

Fiduciary Net Position Restricted for Pensions for the Legislators Retirement Fund increased slightly, from a negative $41 thousand as of June 30, 2016, to zero on June 30, 2017. The negative balance in 2016 was the result of timing differences between the allocation of administrative expenses between the MSRS defined benefit plans, and the determination of the balances to be transferred to the Legislators Retirement Fund via General Fund appropriation. All assets in the fund were depleted during fiscal year 2016. Benefit payments and administrative expenses are paid by contributions from the 19 remaining active members of the plan and by General Fund appropriation. The Legislators Fund consists of two retirement plans closed to new membership, so the depletion of assets was anticipated.

Total assets decreased $1.21 million, or 82.34 percent, to $259 thousand. Most of these funds are due back to the State's General Fund.

Total additions of $8.80 million for fiscal year 2017 are up $3.69 million, or 72.23 percent, from fiscal year 2016. Total additions consist of minimal plan member contributions of $80 thousand, and a General Fund appropriation of $8.72 million.

Total deductions increased $177 thousand, or 2.06 percent, to $8.76 million during fiscal year 2017. Annuity benefits increased $220 thousand, or 2.59 percent, due to payment of a 2.0 percent post-retirement benefit increase in January 2017. There were no refunds in fiscal year 2017, a decrease from the $40 thousand refund in 2016.

Analysis of the Defined Contribution Funds

MSRS administers four defined contribution retirement funds: the Unclassified Employees Retirement Fund, the Health Care Savings Fund, the Minnesota Deferred Compensation Fund, and the Supplemental Retirement Fund for Hennepin County. Each of these funds was affected by the same investment market conditions that impacted the MSRS defined benefit retirement funds. However, because individual members select their own investment options, comparisons of net participant's investment income between fiscal years 2017 and 2016 for each defined contribution fund are not meaningful.

For each of MSRS' defined contribution funds, the amount of securities lending collateral recognized as an asset and a liability on the Statement of Fiduciary Net Position as of June 30, 2017, decreased significantly in comparison to the amounts reported on June 30, 2016. This is due to the migration towards non-cash collateral driven by changing regulatory requirements.

Certain non-investment related financial activities of MSRS' defined contribution funds merit mention.

Unclassified Employees Retirement Fund

The fiduciary net position for the Unclassified Employees Retirement Fund decreased $183 thousand, .06 percent, to $304.59 million as of June 30, 2017. As in past years, the decrease was due to refunds and transfers out of the fund to the State Employees Retirement Fund of $51.58 million, which slightly outpaced the contributions and investment growth of $51.18 million. Plan refunds are variable and subject to member's individual decisions.

Health Care Savings Fund

For MSRS' fastest-growing plan, the Health Care Savings Fund, membership grew significantly during fiscal year 2017. Total participant counts increased 7,865, or 7.36 percent, to almost 115,000 participants as of June 30, 2017. Fiduciary Net Position Restricted for Pensions for the fund increased $123.82 million, or 14.97 percent, to $950.80 million as of June 30, 2017. Investment income of $65.08 million was a majority of the increase. Deductions remained relatively stable between fiscal year 2016 and 2017, with a total increase of $4.15 million, due largely to an additional $3.15 million in health care reimbursements during the year. The required federal tax to finance operations of the Patient-Centered Outcomes Research Institute increased from $225 thousand in fiscal year 2016 to $251 thousand in fiscal year 2017, an increase of 11.56 percent.

Minnesota Deferred Compensation Fund

Fiduciary Net Position Restricted for Pensions for the Minnesota Deferred Compensation Fund increased $634.37 million, or 10.81 percent, from almost $5.87 billion on June 30, 2016, to just over $6.50 billion as of June 30, 2017. While there was a 9.69 percent increase in refunds, from $232.99 million in fiscal year 2016 to $255.57 million in fiscal year 2017, investment income outpaced the deductions. Investment income increased from $55.18 million in fiscal year 2016 to $665.34 million in fiscal year 2017, an increase of 1,105.83 percent. Member contributions also increased, from $240.94 million in fiscal year 2016 to $270.67 in fiscal year 2017, a $29.73 million, or 12.34 percent increase.

Hennepin County Supplemental Retirement Fund

Fiduciary Net Position Restricted for Pensions for the Hennepin County Supplemental Retirement Fund increased $9.16 million in fiscal year 2017, or 6.37 percent, to $153 million. As with other plans, investment returns were the reason for the improvement, increasing $15.46 million, or 673.39 percent. Total deductions increased just over $1 million, or 12.50 percent, due to an increase in ongoing withdrawals and refund payments. Ongoing withdrawals increased $731 thousand and refunds increased $260 thousand. The number of actively contributing members declined by 49 participants, or 20.68 percent, during the fiscal year, which is reflected in a decrease in total member and employer contributions of $74 thousand, or 18.78 percent, to $320 thousand in fiscal year 2017.

Actuarial Valuation Results

Beginning in fiscal year 2015, MSRS' consulting actuaries conducted two actuarial valuations for each MSRS defined benefit retirement fund: one for traditional "funding" purposes, and the other for GASB-compliant "financial reporting" purposes. Each valuation type is performed using a different set of actuarial methods and assumptions. Results of each are highlighted in the following paragraphs.

Continued on next page

Management's Discussion and Analysis

GASB Statements No. 67 and No. 68 Actuarial Valuations

This is the fourth year since MSRS implemented new pension accounting and financial reporting standards authorized by the Governmental Accounting Standards Board (GASB). To comply with GASB Statement No. 67, *Financial Reporting for Pensions, an amendment of GASB Statement No. 25*, MSRS relied upon its consulting actuary to compute the total pension liability, net pension liability, pension income or expenses, and deferred outflows and deferred inflows of resources for each of its defined benefit retirement plans as of June 30, 2017. MSRS' participating governmental employers are required to report their respective shares of these amounts in their financial statements for fiscal years beginning after June 15, 2014, in compliance with GASB Statement No. 68, *Accounting and Financial Reporting for Pensions, an amendment of GASB Statement No. 27*.

For MSRS' largest cost sharing, multiple-employer defined benefit fund, the State Employees Retirement Fund, the June 30, 2017, GASB-compliant actuarial valuation report revealed a net pension liability of $7.42 billion, and a pension expense totaling $1.20 billion. This is a decrease from the net pension liability of the previous year due, in part, to a 15.10 percent investment return in the Combined Funds, and to a change in actuarial assumption. The State of Minnesota and its component units will recognize over 99 percent of the net pension liability and pension income in their financial statements for fiscal year 2017. As a result of this June 30, 2017, actuarial valuation, plan fiduciary net position as a percentage of the total pension liability was 62.73 percent, increasing 15.22 percent from the ratio of 47.51 percent reported as of June 30, 2016.

Additional information on the GASB-compliant actuarial valuation results for MSRS' defined benefit retirement funds can be found in the *Actuarial Section* of this report, beginning on page 169.

Funding Actuarial Valuations

The July 1, 2017, actuarial valuation results indicate the State Employees Retirement Fund was 85.22 percent funded, the State Patrol Retirement Fund was 77.77 percent funded, the Correctional Employees Retirement Fund was 71.63 percent funded, and the Judges Retirement Fund was 52.54 percent funded. These funded ratios are calculated using the actuarial value of assets.

State Employees Retirement Fund

For the State Employees Retirement Fund, the contribution deficiency decreased from 3.49 percent on June 30, 2016, to 2.24 percent on June 30, 2017. The improvement is due to the 15.10 percent investment return in fiscal year 2017, and to a change in actuarial assumption for members with Combined Service Annuities. Funding ratios on both an actuarial and a market value of assets basis also improved from the previous year.

State Patrol Retirement Fund

For the State Patrol Retirement Fund, the contribution deficiency increased from 3.08 percent on June 30, 2016, to 5.33 percent on June 30, 2017. The increase in the deficiency is due to changes in actuarial assumptions based on the most recent experience study, which outweighed the improvements resulting from investment returns. Assumption changes were numerous, and include members living longer, fewer early retirements, and an accelerated timeline for post-retirement benefit increases. The actuarial value of assets funding ratio decreased from 78.53 percent on June 30, 2016, to 77.77 percent on June 30, 2017, for the same reasons. On an actuarial value basis, gains or losses in asset value are smoothed over a five-year period, so a portion of the losses from the previous two years have been included in the actuarial value of assets, thereby affecting the funding ratio. On a market value of assets basis, which is not subject to gain/loss smoothing, the funding ratio increased from 75.55 percent on June 30, 2016, to 78.52 percent on June 30, 2017.

Correctional Employees Retirement Fund

For the Correctional Employees Retirement Fund, the contribution deficiency increased from 5.61 percent on June 30, 2016, to 6.45 percent on June 30, 2017. The actuarial value of assets funding ratio increased from 71.34 percent on June 30, 2016, to 71.63 percent on June 30, 2017, and the market value of assets funding ratio increased from 68.49 percent on June 30, 2016, to 72.38 percent on June 30, 2017. While this fund, like the State Patrol Retirement Fund, had similar actuarial assumption changes, the 15.10 percent investment return had more of an impact on the funding status.

Judges Retirement Fund

For the Judges Retirement Fund, the contribution deficiency decreased from 6.28 percent on June 30, 2016, to 1.97 percent on June 30, 2017. The decrease is due partly to the investment return, and partly to a new general fund appropriation of $3 million in fiscal year 2017. The appropriation will increase to $6 million annually in future fiscal years. The actuarial value of assets funding ratio increased from 52.07 percent on June 30, 2016, to 52.54 percent on June 30, 2017. Additionally, the market value of assets funding ratio increased from 50.07 percent on June 30, 2016, to 53.05 percent on June 30, 2017. Like the Correctional Employees Retirement Fund, the increases in both funding ratios are the result of the investment return having more impact than changes in actuarial assumptions.

Legislators Retirement Fund

The Legislators Retirement Fund is a closed plan, with few active, contributing members. Remaining assets in the plan were depleted in the fiscal year ending June 30, 2016, and benefits are paid on a pay-as-you-go basis by annual appropriations from the state's General Fund.

The MSRS Board of Directors continues to monitor funding status, contribution deficiency rates, economic conditions, and actuarial experience of all plans, and will take appropriate action, as necessary, to ensure the financial security of the retirement funds.

Additional information about the funding actuarial valuation results for each defined benefit fund can be found in the *Actuarial Section* of this report, beginning on page 134.

Request for Information

This financial report is intended to provide a general overview of MSRS' financial position as of June 30, 2017, and the results of financial activities for fiscal year 2017. If you have any questions or comments concerning the contents of this report, please contact Minnesota State Retirement System by mail at 60 Empire Drive, Suite 300, Saint Paul, MN 55103-3000, by telephone toll-free at 1-800-657-5757, or via e-mail at info@msrs.us.

Statement of Fiduciary Net Position

As of June 30, 2017

(Dollars in thousands)

	Defined Benefit Funds			
	State Employees	State Patrol	Correctional Employees	Judges
Assets				
Cash	$17,495	$1,088	$2,283	$616
Short-term investments	312,411	17,761	27,810	5,629
Total Cash & Short-term Investments	$329,906	$18,849	$30,093	$6,245
Receivables				
Member Contributions	$8,640	$541	$1,140	$60
Employer Contributions	8,695	811	1,609	169
Accrued Interest	0	0	0	0
Other Receivables	882	39	30	7
Due from Other Funds	5,727	0	1	0
Due from the State's General Fund	0	0	0	0
Total Receivables	$23,944	$1,391	$2,780	$236
Investments, at Fair Value				
Bond Fund	$2,412,541	$133,670	$197,493	$35,579
U.S. Stock Actively Managed	3,319,335	183,912	271,724	48,951
U.S. Stock Index Fund	2,061,572	114,224	168,763	30,403
Alternative Investment Pool	1,632,670	90,461	133,652	24,077
Broad International Stock Fund	2,697,645	149,467	220,832	39,783
Supplemental Investment Fund	0	0	0	0
Mutual Funds	0	0	0	0
Total Investments	$12,123,763	$671,734	$992,464	$178,793
Securities Lending Collateral	$1,284,498	$71,169	$105,151	$18,943
Capital Assets, Net of Depreciation				
Land	$88	$0	$0	$0
Building, Improvements, and Equipment	5,107	0	0	0
Equipment, Furniture, and Fixtures	418	0	0	0
Internally Generated Software	12,843	0	0	0
Total Capital Assets	$18,456	$0	$0	$0
Total Assets	**$13,780,567**	**$763,143**	**$1,130,488**	**$204,217**
Liabilities				
Accounts Payable	$4,284	$170	$254	$46
Compensated Absences	924	0	0	0
Securities Lending Collateral	1,284,498	71,169	105,151	18,943
Due to Other Funds	2	205	848	87
Due to the State's General Fund	0	0	0	0
Accrued OPEB Liability	135	0	0	0
Bonds Payable	4,014	0	0	0
Other Payables	1,096	0	418	0
Total Liabilities	**$1,294,953**	**$71,544**	**$106,671**	**$19,076**
Net Position Restricted for Pensions	**$12,485,614**	**$691,599**	**$1,023,817**	**$185,141**

The accompanying notes are an integral part of the financial statements.

	Defined Contribution Funds				
Legislators	Unclassified Employees	Health Care Savings Plan	MN Deferred Compensation	Hennepin County Supplemental	Totals
$259	$0	$0	$0	$0	$21,741
0	51	538	9,690	21	373,911
$259	$51	$538	$9,690	$21	$395,652
$0	$311	$8,581	$9,450	$1	$28,724
0	328	0	0	1	11,613
0	0	0	0	0	0
0	101	2,465	1,347	12	4,883
0	0	4	0	0	5,732
0	0	0	0	0	0
$0	$740	$11,050	$10,797	$14	$50,952
$0	$0	$0	$0	$0	$2,779,283
0	0	0	0	0	3,823,922
0	0	0	0	0	2,374,962
0	0	0	0	0	1,880,860
0	0	0	0	0	3,107,727
0	291,377	942,708	1,420,685	153,014	2,807,784
0	12,881	0	5,065,061	0	5,077,942
$0	$304,258	$942,708	$6,485,746	$153,014	$21,852,480
$0	$4,253	$13,183	$90,781	$2,139	$1,590,117
$0	$0	$0	$0	$0	$88
0	0	0	0	0	5,107
0	0	0	0	0	418
0	0	0	0	0	12,843
$0	$0	$0	$0	$0	$18,456
$259	**$309,302**	**$967,479**	**$6,597,014**	**$155,188**	**$23,907,657**
$2	$53	$827	$1,235	$36	$6,907
0	0	0	0	0	924
0	4,253	13,183	90,781	2,139	1,590,117
37	379	2,579	1,585	10	5,732
220	0	0	0	0	220
0	0	0	0	0	135
0	0	0	0	0	4,014
0	27	88	513	0	2,142
$259	**$4,712**	**$16,677**	**$94,114**	**$2,185**	**$1,610,191**
$0	**$304,590**	**$950,802**	**$6,502,900**	**$153,003**	**$22,297,466**

Statement of Changes in Fiduciary Net Position

For the Fiscal Year Ended June 30, 2017
(Dollars in thousands)

	Defined Benefit Funds			
	State Employees	State Patrol	Correctional Employees	Judges
Additions				
Contributions				
Plan Member Contributions	$161,670	$10,520	$22,648	$3,932
Employer Contributions	158,352	15,783	31,763	10,758
General Fund Contributions	0	0	0	3,000
Total Contributions	$320,022	$26,303	$54,411	$17,690
Investment Income				
Investment Income	$1,672,416	$93,350	$135,748	$24,801
Less Investment Expenses	12,932	721	1,050	192
Net Investment Income	$1,659,484	$92,629	$134,698	$24,609
Income from Securities Lending Activities:				
Securities Lending Income	$18,318	$1,015	$1,500	$270
Securities Lending Expenses:				
Borrower Rebates	$7,542	$418	$618	$111
Management Fees	2,698	149	221	39
Total Securities Lending Expenses	$10,240	$567	$839	$150
Net Income from Securities Lending Activities	$8,078	$448	$661	$120
Total Net Investment Income	$1,667,562	$93,077	$135,359	$24,729
Other Additions				
Transfers from Other Plans	$47,513	$0	$0	$0
Other Income	189	1,000	0	0
Total Other Additions	$47,702	$1,000	$0	$0
Total Additions	**$2,035,286**	**$120,380**	**$189,770**	**$42,419**
Deductions				
Annuity Benefits	$750,526	$58,560	$63,221	$22,785
Ongoing Withdrawals	0	0	0	0
Health Care Reimbursements	0	0	0	0
Refunds	11,576	5	1,466	309
Transfers to Other Plans	415	0	0	0
Recordkeeper Expenses	0	0	0	0
Administrative Expenses	10,165	208	856	89
Other Expenses	55	0	2	0
Total Deductions	**$772,737**	**$58,773**	**$65,545**	**$23,183**
Net Increase (Decrease) in Net Position	**$1,262,549**	**$61,607**	**$124,225**	**$19,236**
Net Position Restricted for Pensions				
Beginning of Year	**$11,223,065**	**$629,992**	**$899,592**	**$165,905**
End of Year	**$12,485,614**	**$691,599**	**$1,023,817**	**$185,141**

The accompanying notes are an integral part of the financial statements.

		Defined Contribution Funds				
Legislators		Unclassified Employees	Health Care Savings Plan	MN Deferred Compensation	Hennepin County Supplemental	Totals
$80		$6,635	$138,807	$270,665	$160	$615,117
0		6,945	0	0	160	223,761
8,716		0	0	0	0	11,716
$8,796		$13,580	$138,807	$270,665	$320	$850,594
$0		$37,748	$65,526	$668,385	$17,828	$2,715,802
0		179	556	3,828	90	19,548
$0		$37,569	$64,970	$664,557	$17,738	$2,696,254
$0		$79	$247	$1,698	$40	$23,167
$0		$33	$102	$703	$16	$9,543
0		10	31	212	5	3,365
$0		$43	$133	$915	$21	$12,908
$0		$36	$114	$783	$19	$10,259
$0		$37,605	$65,084	$665,340	$17,757	$2,706,513
$0		$415	$0	$0	$0	$47,928
0		208	4,220	3,839	89	9,545
$0		$623	$4,220	$3,839	$89	$57,473
$8,796		**$51,808**	**$208,111**	**$939,844**	**$18,166**	**$3,614,580**
$8,716		$0	$0	$0	$0	$903,808
0		0	0	41,524	5,396	46,920
0		0	74,686	0	0	74,686
0		4,068	0	255,567	3,434	276,425
0		47,513	0	0	0	47,928
0		55	2,497	1,756	30	4,338
39		148	2,559	3,444	21	17,529
0		207	4,554	3,183	125	8,126
$8,755		**$51,991**	**$84,296**	**$305,474**	**$9,006**	**$1,379,760**
$41		**$(183)**	**$123,815**	**$634,370**	**$9,160**	**$2,234,820**
$(41)		**$304,773**	**$826,987**	**$5,868,530**	**$143,843**	**$20,062,646**
$0		**$304,590**	**$950,802**	**$6,502,900**	**$153,003**	**$22,297,466**

Notes to the Financial Statements

These notes provide disclosures relevant to the basic financial statements on the preceding pages.

1. Summary of Significant Accounting Policies

A. Basis of Presentation and Basis of Accounting

Basis of Presentation

The accompanying financial statements were prepared in accordance with generally accepted accounting principles (GAAP). In doing so, the Minnesota State Retirement System (MSRS) adheres to accounting and financial reporting standards established by the Governmental Accounting Standards Board (GASB). GASB is the independent, not-for-profit, standards-setting organization and the official source of GAAP for state and local governmental entities in the United States of America.

MSRS' accounts are organized and presented on the basis of funds. All of the funds presented in the financial statements are fiduciary funds. These funds are classified as pension trust funds, and are maintained for the exclusive benefit of the members or their beneficiaries.

Basis of Accounting

The basis of accounting indicates the timing of transactions or events for recognition in the financial statements. MSRS' financial statements are reported using the accrual basis of accounting. Plan member contributions, employer contributions, and related receivables are recognized as revenues when due, pursuant to formal commitments and statutory requirements. Annuity benefits and refunds are recognized when due and payable in accordance with the terms of each plan. Administrative and other expenses, and the associated liabilities, are recognized when the liability is incurred.

Changes in Accounting Principles

There were no changes in accounting principles during fiscal year 2017.

B. Assets, Deferred Outflows of Resources, Liabilities, Deferred Inflows of Resources, and Net Position Restricted for Pensions

Cash and Cash Equivalents

For MSRS' defined benefit retirement funds, cash and cash equivalents include cash on deposit in the state's treasury, commingled with other state funds, and short-term investments. Cash on deposit consists of year-end receipts not yet processed as of the investment cutoff on June 30. Short-term investments, which the Minnesota State Board of Investment (SBI) staff manage, include U.S. Treasury issues, repurchase agreements, banker's acceptances, commercial paper, and certificates of deposit. For each MSRS defined contribution fund, cash equivalents represent the money market funds associated with a Plan Sponsor Account, or plan expense account. This is the account the recordkeeper uses to deposit monthly participant administrative fees and to pay authorized, allowable plan operating expenses.

Accounts Receivable

Accounts receivable represents plan member and employer contributions, calculated as a percentage of each employee's salary as specified in Minnesota Statutes, which is received after fiscal year-end for services rendered during the fiscal year. The statutory employee and employer contribution rates in effect for fiscal year 2017 for MSRS' retirement funds are shown in **Exhibit 1** on the following page.

Exhibit 1: Fiscal Year 2017 Employee and Employer Statutory Contribution Rates for MSRS Retirement Funds, Where Applicable

Retirement Fund	Employee Contribution Rate	Employer Contribution Rate
State Employees (General Plan)	5.50%	5.50%
State Patrol [(1)]	14.40	21.60
Correctional Employees	9.10	12.85
Judges - Tier 1 [(2)]	9.00	22.50
Judges - Tier 2 [(2)]	7.00	22.50
Legislators	9.00	Funded by appropriation from the State's General Fund
Unclassified Employees	5.50	6.00
Hennepin County Supplemental	1.00	1.00

[(1)] Excludes $1 million supplemental state contribution, which will be received on an annual basis until the State Patrol Retirement Fund and the Public Employees Retirement Association Police and Fire Retirement Fund both reach a 90 percent funded level on a market value of assets basis.

[(2)] Excludes general fund appropriation of $3 million in fiscal year 2017 and $6 million annually thereafter which will be received until the Judges Retirement Fund is fully funded.

For the defined contribution funds, accounts receivable also includes any plan administrative fees, determined as a percentage of each participant's account balance, which were earned during the fiscal year, but received after fiscal year-end. These fees are collected near the middle of the month, based on each participant's account balance on that day. They are used to pay for recordkeeping and custodial services, and to reimburse MSRS for expenses incurred to administer the plan. The fiscal year 2017 plan administrative fee rate structure for each defined contribution fund is shown in **Exhibit 2.**

Exhibit 2: Fiscal Year 2017 Plan Administrative Fee Schedule for MSRS Defined Contribution Retirement Funds

Defined Contribution Retirement Fund	Administrative Fee Rate Schedule
Unclassified Employees	• $2 per month for an account balance up to $10,000 • $4 per month for an account balance that is between $10,000.01 and $30,000 • $6 per month for an account balance that is between $30,000.01 and $90,000 • $8 per month for an account balance over $90,000
Health Care Savings	0.65% or 65 basis points of a participant's account balance ($140 annual maximum fee)
Minnesota Deferred Compensation	0.10% or 10 basis points of a participant's account balance ($125 annual maximum fee)
Hennepin County Supplemental	0.05% or 5 basis points of a participant's account balance

Continued on next page

Notes to the Financial Statements

Interfund Receivables, Payables, and Transfers

The purpose of interfund receivables and payables is to accrue interfund obligations that are outstanding as of the fiscal year-end date, June 30. Most of these balances are the result of our reallocation of administrative expenses, which is done annually. The only balance that may not be completely liquidated during the ensuing fiscal year is the interfund payable from the Unclassified Employees Retirement Fund to the State Employees Retirement Fund.

Interfund transfers are primarily the result of elective membership eligibility changes that have occurred during the fiscal year.

Due From/To The State's General Fund

The Legislators Retirement Fund is primarily funded on a pay-as-you-go basis with annual appropriations from the State's General Fund. These appropriations, reported as General Fund Contributions on the *Statement of Changes in Fiduciary Net Position*, are used to finance annuity benefits paid to retirees or their survivors, member refunds, and each retirement fund's share of MSRS' administrative expenses. The amount due from the State's General Fund as of fiscal year-end represents funds receivable to cover each fund's share of administrative expenses for the fiscal year. The amount due to the State's General Fund as of fiscal year-end represents the unused portion of the full appropriation that MSRS is obligated to return to the state.

Investments

The Minnesota State Board of Investment (SBI) is established by Article XI of the Minnesota Constitution to invest all state funds. The membership is made up of Minnesota's Governor (who is designated as chair of the Board), State Auditor, Secretary of State, and Attorney General. The legislature has also established a 17-member Investment Advisory Council (IAC) to advise the SBI and its staff on investment related matters. MSRS' Executive Director is a permanent member of the IAC.

Investment Policy

All investments undertaken by the SBI are governed by the prudent person rule and other standards codified in Minnesota Statutes, Chapter 11A and Chapter 356A.

Within the requirements defined by Minnesota Statutes, Section 11A.04, the SBI, with assistance of the SBI staff and the Investment Advisory Council, has the authority for establishing and amending investment policy decisions for all funds under its control. These investment policies specify investment objectives, risk tolerance, asset allocation, investment management structure, and specific performance standards for each investment fund. Studies that the SBI staff perform guide the ongoing management of the funds and are updated periodically.

Description of Significant Investment Policy Changes During the Year

A number of changes to Investment Policy were authorized at the June 2, 2016, meeting of the SBI Board.

- As a result of a 2016 Combined Funds Asset Liability Study conducted by an SBI investment consultant, the Board authorized changes related to the strategic asset allocation for fiscal year 2017.

Allocation through Fiscal Year 2016	
Domestic Equity	45%
International Equity	15
Private Markets [1] [2]	20
Domestic Bonds	18
Cash	2
Total	100%

[1] If a 20% allocation cannot be achieved, uncommitted is invested in Fixed Income.
[2] Reported as Alternative Assets in the Fiscal Year 2016 CAFR.

Fiscal Year 2017 Allocation	
Public Equity [1]	58%
Private Markets [2]	20
Domestic Bonds	20
Cash	2
Total	100%

[1] 39% Domestic Equity and 19% International Equity
[2] If a 20% allocation cannot be achieved, uncommitted is invested in Public Equities.

- With the new asset allocations, the Board approved new benchmarks for Public Equities in 2017, moving to a composite of the benchmarks used in 2016.
  - The U.S. equity portion of Public Equities will continue to be benchmarked against the Russell 3000. The SBI will be authorized to invest in and benchmark U.S. Equity managers to the Russell 3000 Index. This includes any of the Russell 3000 sub-indices that are segmented by market cap and by style such that the aggregation of the U.S. equity manager benchmarks are reflective of the Russell 3000 Index.
  - The Non-U.S. equity portion of Public Equities will continue to be benchmarked against the MSCI ACWI

ex USA Index. The SBI will be authorized to invest in and benchmark Non-U.S. equity managers to the MSCI ACWI ex USA (standard) Index. This includes any of the MSCI ACWI ex USA sub-indices that are segmented by market cap, style, or geography such that the aggregation of the Non-U.S. equity manager benchmarks are reflective of the MSCI ACWI ex USA Index. Additionally, the SBI will be authorized to opportunistically invest in Non-U.S. equity managers that are benchmarked to the small cap segments of the MSCI ACWI.

- For International Equity Investments, the SBI is now authorized to invest with Global Managers who invest in and are benchmarked to the MSCI ACWI or the MSCI World indices.

Participation in the State's Combined Investment Funds

The state's public retirement fund assets are commingled in various pooled investment accounts, commonly referred to as the Combined Funds. Minnesota Statutes Section 11A.14 establishes the Combined Funds, which the SBI administers. Each participating retirement fund owns an undivided participation in all of the assets of the Combined Funds' pooled investment accounts.

As of June 30, 2017, MSRS Funds' share of the Combined Funds, at fair value, was approximately 22 percent ($14.0 billion for MSRS and $64.1 billion total, exclusive of short-term investments). **Exhibit 3** displays specific totals of MSRS' investment portfolio by category. Minnesota Statutes, Section 11A.24, broadly restricts retirement fund investments to obligations and stocks of United States and Canadian governments, their agencies and their registered corporations; short-term obligations of specified high quality; restricted participation as a limited partner in venture capital, real estate or resource equity investments; restricted participation in registered mutual funds; and some qualified foreign instruments.

Exhibit 3: MSRS Investment Portfolio – At Fair Value
(Dollars in thousands)

MSRS Fund Pooled Accounts	Amount as of June 30, 2017
Bond Fund	$2,779,283
U.S. Stock Actively Managed Fund	3,823,922
U.S. Stock Index Fund	2,374,962
Alternative Investment Pool	1,880,860
Broad International Stock Fund	3,107,727
Subtotal - MSRS' Share of the SBI's Combined Funds	$13,966,754
Defined Contribution Supplemental Investment Fund	2,807,784
Mutual Funds	5,077,942
Total Investment Pools	$21,852,480
Short-term Investments	373,911
Total MSRS Investment Portfolio	**$22,226,391**

Valuation of Investments

Investments in the pooled accounts, the Defined Contribution Supplemental Investment Fund, and the Minnesota Deferred Compensation Plan (mutual funds) are reported at fair value. Fair value is the proportionate share of the combined market value of the investment portfolio of the SBI investment pool in which the funds participate. All securities within the pools are valued at fair value except for U.S. government short-term securities and commercial paper, which are valued at fair value less accrued interest. Accrued interest is recognized as short-term income. The SBI values long-term fixed income securities by using various valuation systems which provide prices for both actively traded and privately placed bonds. For equity securities, the SBI uses various valuation services and fair

Continued on next page

Notes to the Financial Statements

value is the last reported sales price for securities traded on national or international exchanges. If a security is not actively traded, then the fair value is based on the analysis of financial statements, analysis of future cash flows and independent appraisals.

Assumptions made in valuing securities are as follows:

- Values of actively traded securities determined by recognized exchanges are objectively negotiated purchase prices between willing buyers and sellers, and are not subject to either undue influence or market manipulation. Securities traded on a national or international exchange are valued using the last reported trade price.

- Values of securities not actively traded are determined by objective appraisals by qualified professional analysts whose results would not vary materially from those of other similarly qualified professionals. The fair value of investments is based upon valuations provided by a recognized pricing service. Short-term investments are reported at cost, which approximates fair value. The fair value of real estate investments is based on independent yearly appraisals. Investments that do not have an established market are reported at estimated fair value.

The term "market value" is used when describing asset valuation methods for actuarial purposes, and is used consistently throughout the *Actuarial Section* and in other places in the CAFR when referring to funded status. "Market value" is equivalent to "fair value."

Investment Income

Investment income is recognized as it is earned. Accrued investment income of the pooled investment accounts is included in participation in the accounts. Gains and losses on sales or exchanges are recognized on the transaction date.

Investment Expenses

For financial reporting purposes, the cost of security transactions is included in the transaction price. Investment expenses include administrative expenses of the SBI to manage the state's comprehensive investment portfolio and investment management fees paid to the external money managers and the state's master custodian for pension fund assets. These expenses are allocated proportionately to the funds participating in the pooled investment accounts. Details of these expenses are presented in the *Schedule of Investment Manager Fees*, *Commissions and Other Investment Expenses* found within the unaudited *Investment Section* of this comprehensive annual financial report. A more detailed schedule of fees and commissions the SBI paid to brokerage firms, along with the number of shares traded, total commissions, commissions per share for the pooled investment accounts, and other investment information may be obtained from the Minnesota State Board of Investment at the Retirement Systems of Minnesota Building, 60 Empire Drive, Suite 355, Saint Paul, Minnesota 55103.

Investment expenses exclude the plan administrative fees, self-directed brokerage account fees, investment advisory service fees, and any fund redemption fees deducted from participants' defined contribution retirement plan account balances. These investment-related fees are reported as Other Expenses in the *Statement of Changes in Fiduciary Net Position.*

Asset Allocation

To match the long-term nature of the pension obligations, the SBI maintains a strategic asset allocation for the Combined Funds that includes allocations to public equity (which includes domestic equity and international equity), domestic bonds, private markets, and cash. The current long-term asset allocation is shown in **Exhibit 4**.

If a 20 percent allocation to Private Markets cannot be achieved, the uncommitted allocation is invested in Public Equities. When the actual asset allocation deviates beyond specified ranges, assets are redistributed to achieve the long-term allocation targets.

The SBI's long-term expected rate of return was determined using a building-block method. Best estimates of future real rates of return (expected returns, net of inflation) were developed for each asset class using both long-term historical returns and long-term capital market expectations from a number of investment management and consulting organizations. The asset class estimates and target allocations were then combined to produce a geometric, long-term expected real rate of return for the portfolio. Inflation expectations were applied to derive the nominal rate of return for the portfolio.

Exhibit 4: SBI Target Asset Allocations and Long Term Expected Real Rate of Return

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return (Geometric Mean)
Domestic Equity (1)	39%	5.10%
International Equity (2)	19	5.30
Private Markets (3)	20	5.90
Domestic Bonds	20	0.75
Cash	2	0.00
Total	100%	

(1) Domestic Equity includes U.S. Stock Actively Managed and the U.S. Stock Index Fund.
(2) International Equity includes Broad International Stock Fund.
(3) Private Markets includes the Alternative Investment Pool.

Annual Money-Weighted Rate of Return

The annual money-weighted rate of return is a method of calculating period-by-period returns on pension fund investments that adjusts for the changing amounts actually invested. The money-weighted rate of return is calculated as the internal rate of return on pension fund investments, net of pension fund investment expenses. Because the pension funds each have different cash flows throughout the year, they have different money-weighted rates of return. The money-weighted rate of return for each MSRS retirement fund is presented in **Exhibit 5**. The Legislators Retirement Fund had no assets at June 30, 2017, and therefore no rate of return.

Exhibit 5: Money-weighted Rate of Return
For the Year Ended June 30, 2017

Retirement Fund	Money-weighted Rate of Return
State Employees	15.24%
State Patrol	15.24
Correctional Employees	15.23
Judges	15.18
Legislators	N/A

Capital Assets

Capital assets consist of land, building, building improvements, equipment, furniture, and fixtures, and internally developed software intended for MSRS use only. With the exception of internally developed or acquired computer software, capital assets are defined as assets with an initial, individual cost of more than $5,000 and an estimated minimum useful life of two years. The capitalization threshold for internally developed or acquired software is $30,000 per application. All assets were capitalized at historical cost at the date of acquisition, issuance, or completion. All assets, except land, are depreciated or amortized when placed into operation using the straight-line method over the estimated useful lives shown in **Exhibit 6**.

Exhibit 6: Capital Assets Estimated Useful Lives

Capital Asset Types	Useful Life (in Years)
Land	N/A
Building	30
Building Improvements and Building Equipment	10
Equipment, Furniture, and Fixtures	3-10
Internally Developed Software	4-10

Continued on next page

Notes to the Financial Statements

Deferred Outflows/Inflows of Resources

In addition to assets, the *Statement of Fiduciary Net Position* may report a separate section for deferred outflows of resources. This separate financial statement element represents a consumption of net position that applies to future periods and so will not be recognized as an outflow of resources (expense) until then. MSRS has no deferred outflows of resources in 2017.

In addition to liabilities, the *Statement of Fiduciary Net Position* also may report a separate section for deferred inflows of resources. This separate financial statement element represents an acquisition of net position that applies to future periods and so will not be recognized as an inflow of resources (revenue) until that time. MSRS has no deferred inflows of resources in 2017.

Net Position Restricted for Pensions

Net position represents the sum of total assets and total deferred outflows of resources less the sum of total liabilities and total deferred inflows of resources. For each defined benefit and defined contribution retirement fund, the amount reported as net position is restricted for the future payment of benefits and refunds to members or their surviving spouses or beneficiaries, and administrative expenses.

Accrued Compensated Absences

In accordance with various collective bargaining unit agreements, MSRS employees earn vacation, sick, and compensatory leave benefits. Earned but unused benefits are eligible for payment upon separation from state government service. At fiscal year-end, MSRS recognizes an obligation for future payment to the extent that the right to receipt is vested or expected to become vested.

Other Income

Other income for MSRS' defined benefit retirement funds represents its proportionate ownership share (27.5 percent) of the Retirement Services Building office space lease income, room rental fees, and parking fee revenues. Other income for these funds also includes employer late fees submitted with payroll contributions and fees received for fulfilling data requests.

Other income for MSRS' defined contribution retirement funds represents participant plan administrative fee income earned during the fiscal year. For the Minnesota Deferred Compensation Fund, other income also includes administrative expense reimbursements from various mutual fund companies.

For all defined contribution funds, except the Supplemental Retirement Fund for Hennepin County, this revenue is primarily used to cover fees for recordkeeping and custodial services, and to reimburse MSRS for administrative costs incurred to counsel members, adjudicate health care reimbursement claims, and perform various business support services. For the Supplemental Retirement Fund for Hennepin County, the excess of participant plan administrative fee income over recordkeeping and MSRS' administrative expenses is returned to the county.

Refunds

For defined benefit plans, refunds represent distributions to members, separated from service, of their retirement deductions with interest compounded daily at 6.0 percent through June 30, 2011, and at 4.0 percent thereafter. It excludes employer contribution amounts. When a member takes a refund, the member forfeits the right to retirement, survivor, and disability benefits. Refunds also include rollovers to an individual retirement account or another qualified retirement plan.

For defined contribution funds, refunds represent distributions to plan participants equal to all or a portion of their account balances, which are composed of contributions plus any investment gains or losses. Refunds may be in the form of cash withdrawals or rollovers to other qualified plans.

Administrative Expenses

MSRS administrative expenses are disbursed from the State Employees Retirement Fund. While no designated revenue source is statutorily dedicated to the payment of administrative expenses, as a policy, they are paid from investment earnings. At fiscal year-end, these expenses are allocated pursuant to an approved cost reallocation plan to the various funds administered. Each fund then reimburses the State Employees Retirement Fund for their allocated portion of administrative expenses.

2. Description of System and Plans

A. Organization

The Minnesota State Retirement System (MSRS) is the administrator of a multiple-employer, cost-sharing public employee retirement system. It consists of five defined benefit funds and four defined contribution funds. The defined benefit funds are listed below with parenthetical disclosure of the Minnesota Statutes (MS) that set forth criteria for benefit computations, members' and participating employers' obligations to make contributions, and other plan provisions:

State Employees Retirement Fund
(MS Sections 352.01 - 352.87)

State Patrol Retirement Fund
(MS Chapter 352B)

Correctional Employees Retirement Fund
(MS Sections 352.90 - 352.955)

Judges Retirement Fund
(MS Chapter 490)

Legislators Retirement Fund
(MS Chapter 3A)

The defined contribution funds are listed below with parenthetical disclosure of the Minnesota Statutes pertinent to plan administration:

Unclassified Employees Retirement Fund
(MS Chapter 352D)

Health Care Savings Fund
(*MS Chapter 352.98)*

Minnesota Deferred Compensation Fund
(MS Sections 352.965 - 352.97)

Hennepin County Supplemental Retirement Fund
(MS Sections 383B.46 - 383B.52)

Minnesota Statutes Section 356.20 defines financial reporting requirements for all MSRS administered retirement funds.

Responsibility for the organization is vested in MSRS' Board of Directors, which consists of eleven members. Four members are elected by the membership at large of the State Employees Retirement Plan and the Unclassified Employees Retirement Plan. Three members are appointed by the Governor, one of which must be a constitutional officer or an appointed state official, and two of whom must be public members knowledgeable in pension matters. The remaining four members represent the State Patrol Retirement Plan, the Correctional Employees Plan, the Transit Division of the Metropolitan Council, and the retired and disabled members of all plans that MSRS administers. MSRS employees are ineligible for membership on the board of directors.

B. Participating Employers

MSRS members are employed by the State of Minnesota, the University of Minnesota (non-instructional), and approximately 78 counties, 289 cities and townships, 293 school districts and other educational entities, and 222 additional miscellaneous entities.

C. Reporting Entity

MSRS functions as a separate statutory entity. The system maintains rights to sue or be sued in its own name and to hold property in its own name. For financial reporting purposes, MSRS funds are considered pension trust funds of the State of Minnesota and are included in the State's *Comprehensive Annual Financial Report* with its fiduciary funds. MSRS does not have any component units and this report includes financial information for MSRS only.

D. Defined Benefit Retirement Funds – Membership Statistics, Contribution Information, and Plan Descriptions

Membership statistics as of June 30, 2017, for all MSRS defined benefit retirement funds are shown in **Exhibit 7** on the following page. Specific descriptions of each of these funds, including employee and employer contribution rate information, are contained on the pages that follow.

State Employees Retirement Fund

The State Employees Retirement Fund includes the General Employees Retirement Plan (General Plan), a multiple-employer, cost-sharing plan, and three single-employer plans: the Military Affairs Plan, the Transportation Pilots Plan, and the Fire Marshals Plan. Only certain employees of the Department of Military Affairs, Department of Transportation, and the State Fire Marshals Office are eligible to be members of those plans, but all state of Minnesota employees who are not members of another plan are covered by the General Plan. The Transportation Pilots Plan has been closed to new entrants since July 1, 2008, and there are no active contributing participants in the plan. The General Plan provides retirement, disability, and death benefits to plan members and their beneficiaries.

Minnesota Statutes, Section 352.04 requires that eligible employees contribute 5.50 percent of their total

Continued on next page

Notes to the Financial Statements

Exhibit 7: Membership Statistics - Defined Benefit Funds

As of June 30, 2017	State Employees	State Patrol	Correctional Employees	Judges	Legislators	Totals
Members Receiving Benefits						
Retirees	33,563	847	2,576	255	301	37,542
Disabled Annuitants	1,830	57	292	16	0	2,195
Beneficiaries	3,940	148	216	80	74	4,458
Total Members Receiving Benefits	**39,333**	**1,052**	**3,084**	**351**	**375**	**44,195**
Deferred Members						
Vested, Not Receiving	17,006	59	1,310	15	44	18,434
Nonvested	9,468	28	818	0	0	10,314
Total Deferred Members	**26,474**	**87**	**2,128**	**15**	**44**	**28,748**
Active Members						
Vested	33,398	696	2,983	279	19	37,375
Nonvested	17,180	206	1,596	38	0	19,020
Total Active Members	**50,578**	**902**	**4,579**	**317**	**19**	**56,395**
Grand Total Members	**116,385**	**2,041**	**9,791**	**683**	**438**	**129,338**
Participating Employers	14	1	3	1	1	

Note: These retirement funds have no nonemployer contributing entities.

compensation to the State Employees Retirement Fund. Participating employers also are required to contribute 5.50 percent to this fund.

All active and deferred members are fully vested to the extent of their contributions plus interest at a rate of 6.0 percent through June 30, 2011, and 4.0 percent thereafter. For monthly retirement benefits, members hired before July 1, 2010, are vested after three years of covered service; members hired after June 30, 2010, are vested after five years of covered service.

Retirement benefits can be computed using one of two methods: the Step formula and the Level formula. Members hired before July 1, 1989, may use the Step or Level formula, whichever is greater. Members hired on or after July 1, 1989, must use the Level formula. Each formula converts years and months of service to a certain percentage. Under the Step formula, members receive 1.2 percent of the high-five average salary for each of the first 10 years of covered service, plus 1.7 percent for each year thereafter. It also includes full benefits under the Rule of 90 (age plus years of allowable service equals 90). In contrast, the Level formula does not include the Rule of 90. Under the Level formula, members receive 1.7 percent of the high-five average salary for all years of covered service, and full benefits are available at normal retirement age.

Annuitants receive post-retirement increases of 2.0 percent each year. When the State Employees Retirement Fund reaches or exceeds a 90 percent funded ratio for two consecutive years (determined on a market value of assets basis), the post-retirement adjustment will increase to 2.5 percent each year. If, after reverting to a 2.5 percent increase, the funded ratio declines to less than 80 percent for the most recent actuarial valuation year, or 85 percent for two consecutive years, the post-retirement benefit increase will return to 2.0 percent. The funding status of the State Employees Retirement Fund is actuarially calculated on an annual basis.

As of June 30, 2017, all MSRS employees are members of the General Plan. MSRS employee and employer contributions, as reported in **Exhibit 8**, were funded at 100 percent of the required contributions set by statute. Total covered payroll for MSRS employees was approximately $8.1 million for fiscal year 2017. This includes $95,622 that was capitalized in the development of software for MSRS.

Exhibit 8: MSRS Contributions to the State Employees Retirement Fund

For Fiscal Year Ended	Employee	Employer
June 30, 2014	$340,776	$340,776
June 30, 2015	400,445	400,445
June 30, 2016	438,791	438,791
June 30, 2017	459,652	459,652

State Patrol Retirement Fund

The State Patrol Retirement Fund includes only the State Patrol Retirement Plan, a single-employer plan. Membership is limited to State of Minnesota employees who are state troopers, conservation officers, and certain crime bureau and gambling enforcement agents. The State Patrol Retirement Plan provides retirement, disability, and death benefits to plan members and their beneficiaries.

Minnesota Statutes, Section 352B.02 requires that eligible employees contribute 14.40 percent of their total compensation, with the employer contributing 21.60 percent.

All active and deferred members are fully vested to the extent of their contributions plus interest at a rate of 6.0 percent through June 30, 2011, and 4.0 percent thereafter. For monthly retirement benefits, members hired before July 1, 2013, become vested after three years of allowable service; members hired after June 30, 2013, are vested after ten years of allowable service. Vesting for survivor purposes for members hired after June 30, 2013, is five years of allowable service.

Members become eligible for normal retirement benefits at age 55. The benefit formula is 3.0 percent of the high five-year average salary for each year of allowable service. Allowable service used to determine benefits is limited to 33 years, with a refund of employee contributions for excess years of service. Members with at least 28 years of service as of July 1, 2013, are not subject to this service limit.

Annuitants receive post-retirement benefit increases of 1.0 percent each year. When the State Patrol Retirement Fund reaches or exceeds an 85 percent funded ratio for two consecutive years (on a market value of assets basis), the post-retirement adjustment will increase to 1.5 percent each year. When the funded ratio reaches or exceeds 90 percent for two consecutive years, the post-retirement adjustment will increase to 2.5 percent each year. If, after reverting to a 1.5 percent increase, the funded ratio of the State Patrol Retirement Fund declines to 75 percent or less for one year, or 80 percent or less for two consecutive years, the benefit increase will return to 1.0 percent. The funding status of the State Patrol Retirement Fund is actuarially calculated on an annual basis.

A state contribution of $1 million will be made annually to the State Patrol Retirement Fund until the State Patrol Retirement Fund and the Public Employees Retirement Association Police and Fire Retirement Fund both reach a 90 percent funded ratio, determined on the market value of assets basis.

Correctional Employees Retirement Fund

The Correctional Employees Retirement Fund includes only the Correctional Plan, a multiple-employer, cost-sharing plan. Membership is limited to State of Minnesota employees with 75 percent working time spent in direct contact with inmates or patients in Minnesota correctional facilities, the state-operated forensic services program, or the Minnesota Sex Offenders Program. Additionally, employees on leave from eligible positions to work for a labor organization may also be covered. The Correctional Employees Retirement Plan provides retirement, disability, and death benefits to plan members and their beneficiaries.

Minnesota Statutes, Section 352.92 requires that eligible employees contribute 9.10 percent of their total compensation. The employer contributes 12.85 percent of salary. All active and deferred members are fully vested to the extent of their contributions plus interest at a rate of 6.0 percent through June 30, 2011, and 4.0 percent thereafter. For monthly retirement benefits, members hired before July 1, 2010, become vested after three years of allowable service. New hires after June 30, 2010, must have a minimum of five years allowable service before a graded vesting schedule begins, which ranges from 50 percent vested after five years of allowable service to 100 percent vested after ten years of allowable service.

Continued on next page

Notes to the Financial Statements

Vested members become eligible for normal retirement benefits at age 55. For employees hired before July 1, 2010, the benefit formula is 2.4 percent of the high-five average salary for each year of allowable service, prorated for completed months. For employees hired after June 30, 2010, the benefit formula is 2.2 percent of the high-five salary for each year of allowable service, prorated for completed months. The monthly benefit can be received either as level lifelong payments or accelerated payments until a reversion age of 62 or 65. Upon attaining the reversion age, the benefit is adjusted actuarially to a lower, permanent amount.

Annuitants receive post-retirement increases of 2.0 percent each year. When the Correctional Employees Retirement Fund reaches or exceeds a 90 percent funded ratio for two consecutive years (on a market value of assets basis), the post-retirement adjustment will increase to 2.5 percent each year. If, after reverting to a 2.5 percent increase, the funded ratio declines to less than 80 percent for the most recent actuarial valuation year, or 85 percent for two consecutive years, the post-retirement benefit increase will return to 2.0 percent. The funding status of Correctional Employees Retirement Fund is actuarially calculated on an annual basis.

Judges Retirement Fund

The Judges Retirement Fund includes only the Judges Retirement Plan, a single employer plan. Membership is limited to Minnesota district, appellate and Supreme Court judges. Retirees also include former municipal and county court judges. The Judges Retirement Plan provides retirement, disability, and death benefits to plan members and their beneficiaries.

The Judges Retirement Plan provides a Tier 1 and a Tier 2 benefit program depending upon a judge's appointment or election date. Tier 1 program judges are those first appointed or elected before July 1, 2013, and Tier 2 program judges are those first appointed or elected after June 30, 2013. Judges with less than five years of service as of December 31, 2013, may make a one-time irrevocable election into the Tier 2 benefit program.

Minnesota Statutes, Section 490.123 requires that eligible judges in the Tier 1 program contribute 9.0 percent of their total compensation. A Tier 1 program judge's contributions are redirected to the Unclassified Employees Retirement Plan after the judge's maximum retirement benefit is reached. Tier 2 program judges are required to contribute 7.0 percent of their total compensation. The employer contributes 22.5 percent of salary for both tiers.

Tier 1 members become eligible for retirement benefits at age 65 with five years of allowable service. Tier 2 members become eligible for retirement benefits at age 66 with five years of allowable service. Reduced retirement benefits are available to all members at age 60 with five years of allowable service. Mandatory retirement is age 70 for both tiers.

The retirement benefit for Tier 1 program judges is 2.7 percent of the high-five average salary for each year of allowable service prior to July 1, 1980, plus 3.2 percent for each year of allowable service after June 30, 1980. The retirement benefit for Tier 2 program judges is 2.5 percent of the high-five average salary for each year of allowable service. The maximum benefit a Tier 1 program member receives is 76.80 percent of high-five average salary. There is no maximum benefit for Tier 2 program members.

Annuitants receive post-retirement increases of 1.75 percent each year. When the Judges Retirement Fund reaches or exceeds a 70 percent funded ratio for two consecutive years (on a market value of assets basis), the post-retirement adjustment will increase to 2.0 percent each year. When the funding status reaches or exceeds 90 percent for two consecutive years, the post-retirement adjustment will increase to 2.5 percent each year. The funding status of the Judges Retirement Fund is actuarially calculated on an annual basis.

A general fund appropriation of $3 million was made to the Judges Retirement Fund in fiscal year 2017, which will increase to $6 million annually beginning in fiscal year 2018 until the plan is fully funded.

Legislators Fund

The Legislators Fund includes two state of Minnesota General Fund plans: the Legislators Retirement Plan and the Elective State Officers Retirement Plan. Each is a single employer plan that is closed to new entrants. Effective July 1, 2013, these plans were merged for administrative cost savings purposes. The General Fund plans provide retirement and death benefits to plan members and their beneficiaries.

The Legislators Retirement Plan includes members of the Minnesota State Legislature who were first elected to office before July 1, 1997, and who elected to retain coverage under this plan. Legislators elected after that date are participants in the Unclassified Employees Retirement Plan, a defined contribution plan. The Elective State Officers Retirement Plan includes constitutional officers (e.g., Governor, Lieutenant Governor, Secretary of State, Attorney General and State Auditor) who were first elected to office between July 1, 1967, and July 1, 1997, and chose to retain coverage under this plan.

Although the Legislators Retirement Plan is closed, a small number of members actively contribute to the plan. Minnesota Statutes, Section 3A.03 requires that these active members contribute 9.0 percent of their salary to the state's General Fund. There are no active contributing participants in the Elective State Officers Retirement Plan.

Legislators are eligible for full retirement benefits at age 62 with six years of allowable service. Reduced retirement benefits are available at age 55 with the same service requirement. For members first elected prior to January 1, 1979, the retirement benefit is computed at 5.0 percent of high-five average salary for the first eight years of service prior to January 1, 1979, and 2.5 percent for subsequent years. For members elected after December 31, 1978, the retirement benefit is computed at 2.5 percent of the high-five average salary for each year of allowable service.

Elective State Officers are eligible for full retirement benefits at age 62 with six years of allowable service. Reduced retirement benefits are available at age 60 with the same service requirement. The retirement benefit is computed at 2.5 percent of high-five average salary.

Benefits for both plans are financed on a pay-as-you-go basis, funded primarily by annual appropriations from the state's General Fund. Annuitants receive post-retirement increases of 2.0 percent each year. When the State Employees Retirement Fund reaches or exceeds a 90 percent funded ratio for two consecutive years (determined on a market value of assets basis), the post-retirement adjustment will increase to 2.5 percent each year. If, after reverting to a 2.5 percent increase, the funded ratio of the State Employees Retirement Fund declines to less than 80 percent for the most recent actuarial valuation year, or 85 percent for two consecutive years, the post-retirement benefit increase will return to 2.0 percent. The funding status of the State Employees Retirement Fund is actuarially calculated on an annual basis.

Optional Retirement Annuities

In the defined benefit funds, three joint-and-survivor annuity options are available: a 50 percent survivor benefit, a 75 percent survivor benefit, and a 100 percent survivor benefit to the beneficiary. Each option includes the right of reversion to the single-life amount if the beneficiary dies before the member. A 15-year period certain and life thereafter annuity is also available. By statute, the Legislators Retirement Fund automatically provides a 50 percent benefit continuance to a surviving spouse. Also, legislators can choose 100 percent survivor coverage with an actuarially reduced benefit.

E. Defined Contribution Retirement Funds Membership Statistics, Contribution Information, and Plan Descriptions

MSRS contracts with a third-party administrator, Empower Retirement™ (Great-West Life & Annuity Assurance Company), to provide various recordkeeping services for administering the four MSRS defined contribution funds. Membership statistics as of June 30, 2017, are provided in **Exhibit 9**.

Exhibit 9: Membership Statistics – Defined Contribution Funds
(Dollars in thousands)

As of June 30, 2017	Unclassified Employees	Health Care Savings	MN Deferred Compensation	Hennepin County Supplemental	Totals
Active Members	1,471	62,848	48,544	188	113,051
Inactive Members	1,745	42,071	27,469	973	72,258
Withdrawing Members	0	9,780	10,196	181	20,157
Total Members	3,216	114,699	86,209	1,342	205,466
Annual Payroll	$120,636	N/A	N/A	$15,958	
Participating Employers	7	549	697	2	

Continued on next page

Notes to the Financial Statements

Unclassified Employees Retirement Fund

The Unclassified Employees Retirement Fund is a tax-deferred, defined contribution fund entirely composed of a single, multiple-employer defined contribution plan, the Unclassified Employees Retirement Plan. Participation is limited to certain, specified employees of the State of Minnesota and various statutorily designated entities. Minnesota Statutes, Section 352D.01 authorized creation of this plan. As of June 30, 2017, no MSRS employees are active participants of the Unclassified Employees Retirement Plan.

It is considered a money purchase plan, with participants vesting only to the extent of the value of their accounts (employee contributions plus employer contributions plus/minus investment gains/losses, less administrative expenses), but functions as a hybrid of a defined contribution plan and a defined benefit plan.

Minnesota Statutes, Section 352D.04, subdivision 2, requires a contribution rate of 5.5 percent of salary from participating employees, which is equivalent to the employee contribution rate for members of the General Employees Retirement Plan. The employer contribution rate for the Unclassified Employees Retirement Plan is 6.0 percent of salary.

Unclassified Employees Retirement Plan participants are eligible to apply for the balance in their account after termination of public service. There is no minimum employment requirement to qualify for this lump-sum payment. Since contributions made to this plan are not taxed, participants pay taxes when funds are withdrawn and may be subject to a ten percent tax penalty if funds are withdrawn in a lump sum before the member reaches age 59 1/2. Monthly benefits are available to terminated participants at age 55 or later, regardless of the individual's length of service. Participants age 55 or older may also apply for a portion of their account balance as a lump-sum payment and the remainder in lifetime, monthly benefits.

Retirement and disability benefits are available to some participants through conversion, at the participant's option, to the General Plan provided the employee has at least 10 years of allowable service in the Unclassified and/or the General Plan if hired prior to July 1, 2010, or has no more than seven years of service if hired after June 30, 2010. This conversion option is not available to judges, legislators and elected state officers. It is a contingent liability of the State Employees Retirement Fund and actuarially valued as of June 30, 2017, in the amount $8,494,000.

Health Care Savings Fund

The Health Care Savings Fund is a defined contribution fund entirely composed of the Health Care Savings Plan. It is an employer-sponsored program authorized by Minnesota Statutes Section 352.98. The Health Care Savings Plan allows employees to save tax-free contributions in an investment account to be used to reimburse the plan participants for future medical expenses and medical insurance premiums after they terminate employment. As a result of various Internal Revenue Service (IRS) rulings and regulations, benefit payments are tax exempt. Program participation is mandated by either collective bargaining agreement or personnel policy. Contribution rates are determined by collective bargaining agreements or employer personnel policies. They are highly variable, ranging from a percentage of weekly earnings to terminal, lump sum benefits such as severance pay.

Minnesota Deferred Compensation Fund

The Minnesota Deferred Compensation Fund is a defined contribution fund entirely composed of the Minnesota Deferred Compensation Plan. Minnesota Statutes Section 352.965 establishes this plan. It is a voluntary plan offered to all state employees and political subdivisions located in Minnesota. Authorized under Section 457(b) of the Internal Revenue Code, contributions and investment earnings are tax sheltered until the time of withdrawal. Employee contributions may be as little as $10 each paycheck. Some employer units or bargaining units may match a portion of an employee's contributions annually. All contributions are subject to annual maximum limits determined by the IRS. All assets and income are held in trust, custodial accounts, or annuity contracts for the sole benefit of plan participants and beneficiaries. Plan participants may only withdraw money from their account upon separation of service or retirement. Unlike many other supplemental retirement plans, Section 457(b) plan participants who take a distribution before reaching age 59 1/2 are not subject to the IRS ten percent early withdrawal penalty.

Hennepin County Supplemental Retirement Fund

MSRS is responsible for providing recordkeeping services for the Hennepin County Supplemental Retirement Fund, a defined contribution fund. Only employees of Hennepin County who began employment prior to April 14, 1982, are eligible to participate in this tax sheltered nonqualified plan. This plan was created in accordance with Minnesota Statutes Section 383B.46 and Section 6064(d)(2) and (3) of the Technical and Miscellaneous Revenue Act of 1988. Employee contributions of 1.0 percent of salary are matched by employer contributions of 1.0 percent of salary.

3. Detailed Notes on All Activities and Funds

A. Assets

Cash Deposits with Financial Institutions

Custodial Credit Risk - Deposits

In the case of deposits, there is risk that in the event of a bank failure, the organization's deposits may not be returned to it. Minnesota Statutes, Section 9.031, requires that deposits be secured by depository insurance or a combination of depository insurance and collateral securities held in the state's name by an agent of the state. Such insurance and collateral shall be in amounts sufficient to ensure that deposits do not exceed 90 percent of the sum of the insured amount and the fair value of the collateral. Throughout fiscal year 2017, the combined depository insurance and collateral was sufficient to meet legal requirements and secure all MSRS deposits, eliminating exposure to custodial credit risk.

Investment Risks

The Minnesota State Board of Investment (SBI) is responsible for investing various MSRS funds under the authority of Minnesota Statutes, Section 11A.24. The following disclosures apply to those investments.

Credit Risk

Credit risk is the risk that an issuer or counterparty to an investment will be unable to fulfill its obligations. The SBI has policies designed to minimize credit risk. They may invest funds in governmental obligations provided the issue is backed by the full faith and credit of the issuer, or that the issue is rated among the top four quality rating categories by a nationally recognized rating agency. They may invest funds in corporate obligations provided the issue is rated among the top four quality categories by a nationally recognized rating agency. They may also invest in unrated corporate obligations or in corporate obligations that are not rated among the top four quality categories provided that:

- The aggregate value of these obligations may not exceed five percent of the fund for which the SBI is investing;
- Participation is limited to 50 percent of a single offering; and
- Participation is limited to 25 percent of an issuer's obligations.

The SBI may also invest in banker's acceptances, deposit notes of U.S. banks, certificates of deposit, mortgage securities, and asset-backed securities rated in the top four quality categories by a nationally recognized rating agency. Commercial paper must be rated in the top two quality categories.

As of June 30, 2017, MSRS' proportionate share of the SBI's exposure to credit risk, based on the lower of Standard and Poor's or Moody's Quality Ratings for debt securities and short-term investments, is shown in **Exhibit 10**.

Exhibit 10: Credit Risk Exposure
(Dollars in thousands)

Quality Rating(1)	Fair Value as of June 30, 2017
AAA	$159,323
AA	99,462
A	165,147
BBB	534,990
BB	314,910
B	31,770
CCC	7,769
CC	6,754
C	1,723
D	1,843
Unrated Agencies(2)	817,113
Unrated Other	724,022
U.S. Government	829,136
Total	$3,693,962

(1) The exposure to credit risk is based on the lower of Standard and Poor's or Moody's Quality Ratings. For clarity of reporting, Moody's ratings are displayed in this exhibit using the comparable Standard and Poor's rating. If only one rating exists, that rating is used.

(2) Items listed as Agencies are not rated and include implicitly guaranteed items of the federal government. Implicitly guaranteed investments include investments in the Federal Home Loan Bank (FHL Banks), Federal National Mortgage Association (Fannie Mae), Federal Home Loan Mortgage Corporation (Freddie Mac), Financing Corporation (FICO), Federal Farm Credit Banks (FCBanks), and Federal Agricultural Mortgage Corporation (Farmer Mac).

Continued on next page

Notes to the Financial Statements

Concentration of Credit Risk

Concentration of credit risk is the risk of loss that may be attributed to the magnitude of a government's investment in a single issuer. The SBI determined the concentration of credit risk based on security identification number. MSRS' defined benefit retirement funds do not have exposure to a single issuer that equals or exceeds 5 percent of the MSRS fiduciary net position. Therefore, there is no concentration of credit risk.

Interest Rate Risk

Interest rate risk is the risk that changes in interest rates of debt instruments could adversely affect the fair value of an investment. The SBI controls interest rate risk through guidelines established for each portfolio. MSRS' share of debt securities is held in external investment pools and as of June 30, 2017, had the weighted-average maturities shown in **Exhibit 11**.

Exhibit 11: Interest Rate Risk
As of June 30, 2017
(Dollars in thousands)

	Defined Benefit Funds		Defined Contribution Funds	
Security Type	**Fair Value**	**Weighted Average Maturity in Years**	**Fair Value**	**Weighted Average Maturity in Years**
U.S. Agencies	$74,381	5.17	$4,110	6.19
Asset-Backed Securities	124,327	2.80	8,569	2.80
Short-Term Investment Securities	586,777	0.28	16,536	0.43
Commercial Mortgage-Backed Securities	1,385	4.22	96	4.22
Collateralized Mortgage Obligations	176,118	5.16	12,138	5.16
Corporate Debt	760,539	9.01	51,658	9.13
Foreign Country Bonds	14,554	17.75	1,003	17.75
Yankee Bonds	217,171	7.77	14,902	7.79
Mortgage-Backed Securities (non-commercial)	718,036	5.06	49,486	5.06
State and Local Government Bonds	27,723	16.50	1,901	16.57
Preferred Stock	3,197	0.00	220	0.00
U.S. Treasuries	775,801	9.61	53,334	9.63
Total Fair Value	**$3,480,009**		**$213,953**	
Portfolio Weighted-Average Maturity		**6.37**		**7.11**

Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates between the U.S. dollar and foreign currencies could adversely affect the fair value of an investment. Most foreign currency risk resides within the SBI's international equity investment holdings. To reduce foreign currency risk, the SBI implements several policies. Government obligations, including guaranteed or insured issues of the International Bank for Reconstruction and Development, the Inter-American Development Bank, the Asian Development Bank, and the African Development Bank, must pay interest and principal in U.S. dollars. The principal and interest of obligations of corporations, including those corporations incorporated or organized under the laws of the Dominion of Canada or any province thereof, must also be paid in U.S. dollars. Based on total investments, the SBI has less than a 15 percent exposure to currency risk. Various investments at June 30, 2017, were distributed among the following currencies shown in **Exhibit 12**.

Exhibit 12: Foreign Currency Risk
As of June 30, 2017
(Dollars in thousands)

Currency	Cash & Cash Equivalents	Equities	Fixed Income	Investment Totals
Australian Dollar	$2,016	$143,394	$0	$145,410
Brazilian Real	13	36,293	0	36,306
Canadian Dollar	2,086	194,867	115	197,068
Danish Krone	33	46,855	0	46,888
Euro Currency	2,199	871,130	195	873,524
Hong Kong Dollar	1,200	208,323	0	209,523
Indian Rupee	97	32,665	0	32,762
Indonesian Rupiah	7	20,892	0	20,899
Japanese Yen	3,219	506,271	5,411	514,901
Malaysian Ringgit	57	13,674	0	13,731
Mexican Peso	244	21,334	0	21,578
New Israeli Shegel	17	6,489	0	6,506
New Taiwan Dollar (1)	(151)	75,080	0	74,929
Norwegian Krone	29	17,907	0	17,936
Philippine Peso	0	8,791	0	8,791
Polish Zloty	2	9,473	0	9,475
Pound Sterling	5,076	387,058	5,275	397,409
Singapore Dollar	380	26,760	0	27,140
South African Rand	25	34,718	0	34,743
South Korean Won (1)	(4)	101,347	0	101,343
Swedish Krona (1)	(5)	59,286	0	59,281
Swiss Franc	185	175,001	0	175,186
Thailand Baht	0	13,378	0	13,378
UAE Dirham	1	2,548	0	2,549
Other (2)	52	31,525	0	31,577
Totals	**$16,778**	**$3,045,059**	**$10,996**	**$3,072,833**

(1) Timing issues resulted in negative cash and cash equivalents in some currencies.
(2) Other currency includes Chilean Peso, Colombian Peso, Czech Koruna, Egyptian Pound, Hungarian Forint, Moroccan Dirham, New Zealand Dollar, Qatari Rial, and Turkish Lira.

Continued on next page

Notes to the Financial Statements

Derivative Financial Instruments

On behalf of MSRS, the SBI invests in various types of derivative financial instruments. Derivatives are defined as any financial arrangement between two parties that has value based on or derived from future price fluctuations. The derivative financial instruments that the SBI enters into include futures, options, stock warrants and rights, currency forwards, and synthetic guaranteed investment contracts.

Minnesota Statutes, Section 11A.24, provides that any agreement for put (sell) and call (buy) options and futures contracts may only be entered into with a fully offsetting amount of cash or securities. This applies to foreign currency forward contracts used to offset the currency risk of a security. All other derivatives are exchange-traded. The purpose of the SBI's derivative activity is to equitize cash in the portfolio, to adjust the duration of the portfolio, or to offset current futures positions.

The fair value balances and notional (face value) amounts at June 30, 2017, classified by derivative instrument type, and the changes in fair value for fiscal year 2017 are shown in **Exhibit 13**.

Exhibit 13: Derivative Financial Instruments
As of June 30, 2017
(Dollars in thousands)

Derivative Investment Type	Changes in Fair Value During FY 2017	Fair Value at June 30, 2017	Notional Amount
Futures			
Equity Futures - Long	$14,634	$0	$978
Equity Futures - Short	(1,294)	0	(17)
Fixed Income Futures - Long	(2,223)	0	163,804
Fixed Income Futures - Short	8,080	0	(260,449)
Options			
Futures Options Bought (Puts)	$(1,050)	$151	$637
Futures Options Written (Calls)	1,328	(38)	(324)
Currency Forwards			
Foreign Exchange (FX) Forwards	$880	$(272)	$86,453
Stock Warrants and Rights			
Stock Rights	$264	$133	$222
Stock Warrants	50	807	6

Derivative Instrument Type Explanations

Futures
Futures are contract commitments to purchase (asset) or sell (liability) at a future date. The net change in the values of futures contracts is settled on a regular basis, and gains and losses are included in investment income.

Options
Options are contracts that give buyers or sellers the right to buy (calls) or sell (puts) a security at a predetermined price on a future date. Gains and losses result from variances in the fair value of the security that is the subject of the contract that occur prior to or on the contract specified date. The gains and losses are included in investment income.

Currency Forward Contracts
Foreign currency forward contracts are used to manage portfolio foreign currency risk. The provisions of the contract vary based on what is negotiated between the two parties to the contract.

Stock Warrants and Rights
Stock warrants, similar to options, are the right to purchase shares of a stock at a certain price by a certain date. They usually have five years or more before expiration. When exercised, the company issues new shares. Rights are the same but are issued to current stock owners to enable them to retain their relative ownership share. Gains and losses from the sale or exercise of stock warrants and rights are included in investment income.

The SBI maintains a fully benefit-responsive synthetic guaranteed investment contract for the Supplemental Investment Fund - Stable Value Fund. The investment objective of the Stable Value Fund is to protect investors from loss of their original investment and to provide a competitive interest rate. On June 30, 2017, the SBI's portfolio of well-diversified, high quality, investment grade fixed income securities had a fair value of $1,486,261,625 that is $11,892,076 in excess of the value protected by the wrap contract. The Stable Value Fund also includes liquid investment pools with a combined fair value of $90,940,928.

Derivative Credit Risk

The SBI is exposed to credit risk through multiple counterparties in foreign currency forward contracts that are used to offset the currency risk of a security. MSRS' proportionate share of the maximum loss that the SBI would have recognized as of June 30, 2017, if all counterparties failed to perform as contracted is $521,703. These counterparties have Standard and Poor's ratings of BBB+ or better.

Securities Lending Transactions

MSRS does not own specific securities, but instead owns shares in various pooled funds invested by the SBI. The amounts shown on the financial statements are MSRS' proportionate share of securities loaned, collateral pledged and loan income that resulted from the lending activity of the investment managers, retained by the SBI, of these investment pools. The types and amounts of securities loaned are presented in **Exhibit 14**.

Exhibit 14: Securities Loaned
(Dollars in thousands)

Investment Type	Amount as of June 30, 2017
Domestic Equities	$1,999,954
U.S. Government Bonds	707,304
International Equities	417,542
Domestic Corporate Bonds	230,567
International Corporate Bonds	895
Total	**$3,356,262**

Minnesota Statutes, section 356A.06, subdivision 7, allows the SBI to participate in securities lending transactions. The SBI has, by way of a Securities Lending Authorization Agreement, authorized State Street Bank and Trust Company (State Street) to lend its securities to broker-dealers and banks pursuant to a form of loan agreement.

During the fiscal year, State Street lent, on behalf of the SBI, certain securities held by State Street as custodian and received cash or other collateral including securities issued or guaranteed by the United States government. State Street does not have the ability to pledge or sell collateral securities delivered absent a borrower default. Borrowers were required to deliver collateral for each loan equal to at least 100 percent of the fair value of the loaned securities.

Pursuant to the Securities Lending Authorization Agreement, State Street had an obligation to indemnify the SBI in the event of default by the borrower. There were no failures by any borrowers to return loaned securities or pay distributions thereon during the fiscal year that resulted in a declaration or notice of default of the borrower.

During the fiscal year, the SBI and the borrowers maintained the right to terminate securities lending transactions upon notice. The cash collateral received on each loan was invested, together with the cash collateral of other qualified tax-exempt plan lenders, in a collective investment pool. As of June 30, 2017, the investment pool had an average duration of 13.08 days and an average weighted final maturity of 115.06 days for U.S. dollars. Because the loans were terminable at will, their duration did not generally match the duration of the investments made with cash collateral. On June 30, 2017, the SBI had no credit risk exposure to borrowers. MSRS' share of the collateral held and the fair value of securities on loan (in U.S. dollars) as of June 30, 2017, was $3,510,755,111 and $3,356,261,802, respectively. Cash collateral totaling $1,590,116,623 is reported on the *Statement of Fiduciary Net Position* as an asset and correspondingly on the statement as a liability.

Continued on next page

Notes to the Financial Statements

Fair Value Reporting

GASB Statement No. 72, *Fair Value Measurement and Application*, sets forth the framework for measuring the fair value of investments based on a hierarchy of valuation inputs. The hierarchy has three levels:

Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities that the reporting entity can access at the measurement date.

Level 2: Inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly or indirectly. Inputs for level 2 include:

- Quoted prices for similar assets or liabilities in active markets;
- Quoted prices for identical or similar assets or liabilities in inactive markets;
- Inputs other than quoted prices that are observable for the asset or liability;
- Inputs derived principally from or corroborated by observable market data by correlation or other means.

Level 3: Unobservable inputs for the asset or liability. Unobservable inputs reflect the SBI's assumptions about the inputs that market participants would use in pricing an asset or liability.

Net Asset Value (NAV): Investments that do not have a readily determinable fair value are measured using the net asset value per share (or its equivalent) as a practical expedient, and are not classified in the fair value hierarchy.

All non-cash investments, including derivative investments that are not hedging derivatives, are required to be measured at fair value on a recurring basis. The SBI maintains investment pools that participants can invest in; participants own a proportionate share of the investment pools. The fair value of the investment pools is priced daily by the SBI custodian, when a daily price is available, by using independent pricing sources.

In **Exhibit 15** on the following page, Level 3 investments primarily consist of assets where the asset is distressed, or there is not an active market. The fair value of the assets measured at NAV have been determined using the March 31, 2017, values, adjusted for cash flows. The investments measured at NAV are typically not eligible for redemption. Distributions are received as underlying investments within the funds are liquidated, which occur over the life of the investment. Cash and short term investments are not leveled under GASB Statement No. 72, and therefore are not included in the exhibit.

The SBI has 20 investments that are valued at NAV that are currently in the liquidation mode, totaling 1 percent of the NAV value. MSRS' proportionate share of the unfunded commitments to the investments valued at NAV totals $1,336,317,514. Unfunded commitments are funds that have been committed to an investment but not yet transferred to investors.

Explanations of investment types follow the exhibit.

Exhibit 15: Fair Value of MSRS Investments
As of June 30, 2017
(Dollars in thousands)

Investments	Fair Value	Level 1	Level 2	Level 3
Equity				
Common Stock	$9,206,501	$9,161,569	$38,163	$6,769
Real Estate Investment Trust	293,424	293,184	0	240
Other Equity	299,713	225,792	20,009	53,912
Equity Total	**$9,799,638**	**$9,680,545**	**$58,172**	**$60,921**
Fixed Income				
Asset-Backed Securities	$448,033	$0	$444,096	$3,937
Mortgage-Backed Securities	1,324,447	0	1,303,054	21,393
Corporate Bonds	1,504,816	0	1,504,816	0
Government Issues	1,308,635	0	1,308,635	0
Other Debt Instruments	422,997	0	422,997	0
Fixed Income Total	**$5,008,928**	**$0**	**$4,983,598**	**$25,330**
Investment Derivatives - Options	**$113**	**$113**	**$0**	**$0**
Total Investments by Fair Value	**$14,808,679**	**$9,680,658**	**$5,041,770**	**$86,251**

Investments Measured at the Net Asset Value (NAV)

	NAV	Number of Investments	Percent of NAV Value	Unfunded Commitments
Private Equity	$1,137,193	122	61%	$899,181
Real Estate	125,004	17	7	108,273
Resource	423,775	33	23	161,163
Yield Oriented	162,133	30	9	167,701
NAV Total	**$1,848,105**	**202**	**100%**	**$1,336,318**

Note: Cash, cash equivalents, and derivative futures (hedge type instruments) are not leveled under GASB Statement No. 72, so are not included in the exhibit.

Equity

Common Stock: Securities representing equity ownership in a corporation, providing voting rights, and entitling the holder to a share of the company's success through dividends and/or capital appreciation.

Real Estate Investment Trust (REIT): An investment pool established by a group of investors for the purpose of investing in real estate or mortgages. REITs are generally exempt from federal taxes, provided that 95 percent of earned income is distributed and that the various investors are not treated differently.

Other Equity: Includes Preferred Stock, Depository Receipts, Limited Partnership Units, Common Stock Units, and Mutual Funds.

Fixed Income

Asset-Backed Securities: Bonds or notes backed by financial assets, including auto loans and credit card receivables.

Mortgage-Backed Securities: An asset-backed security that is secured by a mortgage or collection of mortgages. The mortgages are sold to a government agency or investment bank that will package the loans together into a security that can be purchased by investors.

Corporate Bonds: Debt obligations issued by corporations as an alternative to offering equity ownership by issuing stock. Like most municipal bonds and Treasuries, most corporate bonds pay semi-annual interest and promise to return their principal when they mature. Maturities range from 1 to 30 years.

Continued on next page

Notes to the Financial Statements

Government Issue: Securities or bonds issued by any of the fifty states, the territories and their subdivisions, counties, cities, towns, villages and school districts, agencies (such as authorities and special districts created by the states), and certain federally sponsored agencies such as local housing authorities.

Other Debt Instruments: Includes STIF (Short Term Investment Funds) type instruments.

Investment Derivatives

Options - Futures: A contract that gives the holder the right to buy from or sell to the writer a specified amount of securities at a specified price, good for a specified period of time.

NAV

Private Equity: The private equity investment strategy is to establish and maintain a broadly diversified private equity portfolio composed of investments that provide diversification by industry type, stage of corporate development, and location.

Real Estate: The real estate investment strategy calls for the establishment and maintenance of a broadly diversified real estate portfolio composed of investments that provide overall diversification by property type and location. The main components of this portfolio consist of investments in closed-end commingled funds. The remaining portion of the portfolio may include investments in less diversified, more focused (specialty) commingled funds, and REITs.

Resource Funds: The strategy for resource investments is to establish and maintain a portfolio of resource investment vehicles that provide an inflation hedge and additional diversification. Resource investments include oil and gas investments and energy service industry investments that are diversified by geographic area as well as by type.

Yield Oriented: The strategy for yield-oriented investments is to target funds that typically provide a current return and may have an equity component. Structures such as subordinated debt investments and mezzanine investments are typical yield-oriented investments.

Capital Assets

Capital asset activity for the year ended June 30, 2017, is reported in **Exhibit 16**.

Exhibit 16: Capital Assets
(Dollars in thousands)

Capital Asset Types	Balance July 1, 2016	Additions	Deductions	Balance June 30, 2017
Capital Assets, Not Depreciated				
Land	$88	$0	$0	$88
Development in Progress	168	194	362	0
Total Capital Assets, Not Depreciated	**$256**	**$194**	**$362**	**$88**
Capital Assets, to be Depreciated or Amortized				
Building, Improvements, and Building Equipment	$8,233	$0	$0	$8,233
Equipment, Furniture, and Fixtures	1,498	363	0	1,861
Internally Generated Software	15,904	0	0	15,904
Total Capital Assets, to be Depreciated or Amortized	**$25,635**	**$363**	**$0**	**$25,998**
Total Capital Assets	**$25,891**	**$557**	**$362**	**$26,086**
Less Accumulated Depreciation or Amortization				
Building, Improvements, and Building Equipment	$(2,902)	$(224)	$0	$(3,126)
Equipment, Furniture, and Fixtures	(1,388)	(55)	0	(1,443)
Internally Generated Software	(1,997)	(1,064)	0	(3,061)
Total Accumulated Depreciation or Amortization	**$(6,287)**	**$(1,343)**	**$0**	**$(7,630)**
Total Capital Assets, Net of Accumulated Depreciation or Amortization	**$19,604**	**$(786)**	**$362**	**$18,456**

Continued on next page

Notes to the Financial Statements

B. Liabilities

Lease Obligations

MSRS' main office is in the Retirement Systems of Minnesota building located in St. Paul. MSRS, Public Employees Retirement Association (PERA), and Teachers Retirement Association (TRA), jointly own this building under the terms of a co-tenancy agreement. MSRS also leases space for branch offices in Mankato, Detroit Lakes, and Duluth, and has an interagency agreement with TRA to reimburse TRA for one-half of the lease costs for office space located in the St. Cloud branch office.

As of June 30, 2017, future obligations under the terms of those leases are scheduled in **Exhibit 17**.

Exhibit 17: Lease Obligations

	Locations			
Fiscal Year Ending June 30	Mankato	Duluth	Detroit Lakes	Totals
2018	$82,221	$25,995	$17,621	$125,837
2019	83,542	15,294	17,931	116,767
2020	83,542	0	18,009	101,551
2021	83,542	0	4,502	88,044
2022-2023	97,467	0	0	97,467
Totals	**$430,314**	**$41,289**	**$58,063**	**$529,666**

Long-term Debt

Legislation was passed in 1999 allowing MSRS, TRA and PERA to purchase land and construct a 140,000 square foot building to house all three retirement systems. Ownership of the facility is prorated based on the proportionate share of the building's usable space in square feet. On June 1, 2000, the state Department of Finance (currently known as Minnesota Management and Budget) issued $29,000,000 in 30-year revenue bonds to finance the building construction.

In the fall of 2012, the remaining bonds were refunded with the proceeds of a new, lower-interest rate bond issue. The bonds are secured by the value of the total assets of the retirement systems, excluding all amounts contributed to and deposited for the Elective State Officers Retirement Plan (MSRS), the Legislators Retirement Plan (MSRS), the Supplemental Investment Fund for participants in the Unclassified Employees Retirement Plan (MSRS), the Minnesota Deferred Compensation Plan (MSRS), the Hennepin County Supplemental Retirement account (MSRS), the Health Care Savings Plan (MSRS), the Public Employees Defined Contribution Plan (PERA), the Volunteer Firefighters Lump Sum Retirement Plan (PERA), and any fund related to or dedicated to defined contribution plans administered by the retirement systems. Through the issuance of the refunding bonds, which received an AAA rating in late July 2012, the bond term has been reduced by five years and the present value of the savings to the three systems is $9,582,538. The MSRS portion of the savings is $2,568,120.

Exhibit 18 on the following page shows the debt service amounts for which MSRS is directly responsible. Pursuant to the joint and several liability clause in the bond sale official statement, in the event of default, MSRS could be liable for the entire remaining outstanding principal and premium balances of the bonds, plus the interest accrued for the month of June, a total of $14,596,230. Bonds Payable on the *Statement of Fiduciary Net Position* is the MSRS share of the outstanding debt, calculated at MSRS' building ownership percentage on June 30, 2017, of 27.5 percent. Bonds Payable includes the principal balance as of June 30, 2017, the premium balance as of June 30, 2017, and interest accrued for the month of June.

Exhibit 18: Debt Repayment Schedule by Fiscal Year

Fiscal Year	Principal	Interest	Premium	Total Principal, Interest, and Premium
2018	$470,250	$62,581	$39,087	$571,918
2019	484,000	54,784	37,479	576,263
2020	490,875	46,759	35,824	573,458
2021	504,625	38,620	34,145	577,390
2022	515,625	30,253	32,419	578,297
2023	526,625	21,704	30,656	578,985
2024	507,375	12,972	18,323	538,670
2025	275,000	4,559	6,440	285,999
Totals	**$3,774,375**	**$272,232**	**$234,373**	**$4,280,980**

Total Unpaid Principal, June 30, 2017	$3,774,375
Total Unpaid Premium, June 30, 2017	234,373
Accrued Interest for June 2017	5,215
Bonds Payable per Statement of Fiduciary Net Position	**$4,013,963**

Accounting and Financial Reporting by Employers for Post-Employment Benefits Other Than Pensions

All MSRS employees are covered by the State Employees Group Insurance Plan (SEGIP), a multiple-employer cost-sharing defined benefit plan, administered by Minnesota Management and Budget (MMB). At present, this plan subsidizes the cost of retiree insurance by charging a single premium rate for active employees and retirees, regardless of underwriting experience. Based on the results of a July 1, 2017, actuarial valuation, the SEGIP had an actuarially determined unfunded net obligation for future benefits of $331,513,000 at June 30, 2017, to be funded on a pay-as-you-go basis. MSRS' allocated portion of this liability is $135,000. The MSRS share of the required contributions and the net Other Post Employment Benefit (OPEB) obligation is presented in **Exhibit 19** on the following page.

Continued on next page

Notes to the Financial Statements

Exhibit 19: Required OPEB Contributions and Net OPEB Obligation

State Employee Group Insurance Plan OPEB Disclosures

Fiscal Year Ended June 30	Annual Required Contribution (a)	Employer Contribution (b)	Percent (b)/(a)	Net OPEB Obligation
2013	$52,000	$60,000	115.38%	$60,000
2014	53,000	43,000	81.13	70,000
2015	63,000	40,000	63.49	93,000
2016	66,000	45,000	68.18	115,000
2017	65,000	44,000	67.69	135,000

C. Interfund Receivables and Payables

Interfund receivables and payables as of June 30, 2017, are detailed in **Exhibit 20.**

Exhibit 20: Due From/To Other Funds
As of June 30, 2017
(Dollars in thousands)

Retirement Fund	Due From Other Funds (Interfund Receivables)	Due To Other Funds (Interfund Payables)
State Employees	$5,727	$2
State Patrol	0	205
Correction Employees	1	848
Judges	0	87
Legislators	0	37
Unclassified Employees	0	379
Health Care Savings	4	2,579
MN Deferred Compensation	0	1,585
Hennepin County Supplemental	0	10
Totals	**$5,732**	**$5,732**

D. Revenues and Expenses

Administrative Expenses

Administrative expenses by fund for the fiscal year ended June 30, 2017, are detailed in the *Schedule of Administrative Expenses* found on page 107.

Reemployed Retirees' Earnings Limitations

MSRS members whose age is under the Social Security full retirement age, and who return to work in an MSRS covered position after their retirement, are subject to an annual earnings limitation unless hired under a Post-Retirement Option (PRO) agreement. The maximum earnings limits for calendar years 2016 and 2017 for individuals under the full retirement age is $15,720 and $16,920, respectively. For individuals that reach full retirement age during 2016 or 2017, the maximum earnings limits is $41,880 and $44,880, respectively.

Benefit payments for members exceeding the earnings limit are stopped for the remainder of the calendar year and held in abeyance for later distribution to the retiree. Six percent interest, compounded annually, accrued on these funds through December 31, 2010.

Effective January 1, 2011, funds held in abeyance no longer accrue interest. Funds held in abeyance are included in Other Payables in the respective fund's *Statement of Fiduciary Net Position*. As of June 30, 2017, MSRS had 60 re-employed retirees with funds held in abeyance, which totaled $1,333,016 ($917,228 for the State Employees Retirement Fund and $415,788 for the Correctional Employees Retirement Fund).

Retirees must wait one year following termination of their post-retirement employment to be eligible to receive a distribution of these funds. At the time of distribution, the retiree may choose a lump-sum payment or a direct rollover to an eligible retirement plan as defined by section 402(c) of the Internal Revenue Code. MSRS processed 13 distributions of these funds, totaling $535,816 during fiscal year 2017 ($525,560 for the State Employees Retirement Fund and $10,256 for the Correctional Employees Retirement Fund).

E. Interfund Transfers

Interfund transfers during the fiscal year ended June 30, 2017, are shown in **Exhibit 21**.

Exhibit 21: Fiscal Year 2017 Interfund Transfers
(Dollars in thousands)

Retirement Fund	Transfers From Other Plans	Transfers To Other Plans
State Employees	$47,513	$415
State Patrol	0	0
Correctional Employees	0	0
Judges	0	0
Legislators	0	0
Unclassified Employees	415	47,513
Health Care Savings	0	0
MN Deferred Compensation	0	0
Hennepin County Supplemental	0	0
Totals	**$47,928**	**$47,928**

Continued on next page

Notes to the Financial Statements

F. Net Pension Liability of Participating Employers

Two actuarial valuations for each MSRS defined benefit retirement fund are performed annually: a traditional funding actuarial valuation and a GASB-compliant actuarial valuation. The purpose of the traditional funding actuarial valuation is to measure funding progress, and to determine the required contribution rate, contribution sufficiency or deficiency, and other actuarial information necessary for monitoring funding position. The purpose of the GASB-compliant actuarial valuation is to determine actuarial information necessary to prepare financial reports in compliance with GASB Statements No. 67 and No. 68. This includes computation of the net pension liability. Net pension liability is computed as the total pension liability for each MSRS defined benefit retirement fund, determined in accordance with GASB Statement No. 67, less the fiduciary net position of the respective fund.

Exhibit 22 presents the components of the net pension liability of the participating employers for each MSRS defined benefit retirement fund as of June 30, 2017. This exhibit also depicts each retirement fund's net position as a percentage of the total pension liability.

Exhibit 22: Net Pension Liability of Participating Employers
As of June 30, 2017
(Dollars in thousands)

	Defined Benefit Retirement Fund				
Component of Net Pension Liability	State Employees	State Patrol	Correctional Employees	Judges	Legislators
Total Pension Liability	$19,903,520	$1,037,916	$2,151,931	$363,483	$147,324
Fiduciary Net Position	12,485,614	691,599	1,023,817	185,141	0
Employers' Net Pension Liability	$7,417,906	$346,317	$1,128,114	$178,342	$147,324
Fiduciary Net Position as a percentage of the Total Pension Liability	62.73%	66.63%	47.58%	50.94%	0.00%

Actuarial Methods and Assumptions

The total pension liability for each MSRS defined benefit retirement fund was determined by an actuarial valuation as of June 30, 2017, using the key actuarial assumptions shown in **Exhibit 23**, applied to all prior periods included in the measurement.

Exhibit 23: Summary of Key Actuarial Methods and Assumptions for GASB-Compliant Valuations

	Defined Benefit Retirement Fund				
	State Employees	State Patrol	Correctional Employees	Judges	Legislators
Actuarial Valuation Date	June 30, 2017 for all funds				
Actuarial Cost Method	Entry Age Normal for all funds				
Asset Valuation Method	Fair Value for all funds				
Long-Term Expected Rate of Return	7.50 percent for all funds				
Inflation	2.50 percent for all funds				
Salary Increases	Service related rates			2.50 percent	4.50 percent
Payroll Growth	3.25 percent			2.50 percent	Not applicable
Mortality Rates	**State Employees and Legislators:** RP-2014 generational mortality tables projected with mortality improvement scale MP-2015 from a base year of 2014. **All Other Funds:** RP-2014 generational mortality tables projected with mortality improvement scale MP-2015 from a base year of 2006. All of the tables are set back or set forward to match fund experience.				
Annual Post-Retirement Benefit Increases	2.0% indefinitely	1.0% through 2064; 1.5% per year thereafter	2.0% indefinitely	1.75% through 2038; 2.0% from 2039 through 2053; 2.5% thereafter	2.0% indefinitely
Retirement	Age-related rates				
Withdrawal	Ultimate rates based on actual experience	Select and Ultimate rates based on experience		None	Ultimate rates based on actual experience
Disability	Age-related rates based on experience				None

Continued on next page

Notes to the Financial Statements

Actuarial assumptions are based on experience studies, generally conducted every four years for the State Employees Retirement Fund, and every six to eight years for the smaller MSRS defined benefit funds. The most recent studies and the periods covered are presented in **Exhibit 24**.

Exhibit 24: Experience Study Dates

Retirement Fund	Fiscal Years Covered
State Employees	2008 - 2014
State Patrol	2011 - 2015
Correctional Employees	2011 - 2015
Judges	2011 - 2015

For additional actuarial assumptions used in determination of the June 30, 2017, valuation results, please refer to page 181 of the *Actuarial Section* of this comprehensive annual financial report.

In addition to the experience studies listed above, a study of economic assumptions took place in the fall of 2014. This study reviewed assumptions for inflation, salary increases, payroll growth, and the long-term expected rate of return, which are central to the calculations of the net pension liability for each fund.

Long-Term Expected Rate of Return on Investments

The long-term expected rate of return used in the determination of the net pension liability is 7.5 percent.

During fiscal year 2016, the SBI hired an outside consultant to perform a thorough asset and liability study. Based on the study, the SBI staff proposed an update to the asset allocation, which yields a lower nominal expected return. As a result of this study, and keeping in mind the national trends towards lower investment rate assumptions, the MSRS Board of Directors approved the use of a 7.5 percent long term expected rate of return assumption for the fiscal year 2017 actuarial valuations.

Single Discount Rate

Projected benefit payments are discounted to their actuarial present values using a single discount rate. The single discount rate reflects (1) the long-term expected rate of return on pension plan investments for the period in which assets are projected to be available to pay benefits, and (2) a tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating for the remaining years.

As long as assets are projected to be on hand to pay future benefits, the long-term expected rate of return is used as the discount rate. In years where assets are not projected to be sufficient to meet benefit payments, the use of a "risk-free" municipal bond rate is required in the calculation of the single discount rate. The single discount rate is the equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods.

All MSRS defined benefit funds use a long-term expected rate of return assumption of 7.5 percent, and a municipal bond rate of 3.56 percent, as published by the Fidelity Index in June 2017.

The projection of cash flows used to determine the single discount rates assumes that plan member and employer contributions will be made at the current statutory contribution rates.

Based on the assumptions noted on page 181, the fiduciary net position for the Judges Retirement Fund was projected to be available to make all projected future benefit payments of current plan members. Therefore, the discount rate is the long-term expected rate of return on pension plan investments, which was applied to all periods of projected benefit payments to determine the total pension liability. The discount rate used to measure the total pension liability was 7.5 percent.

For the State Employees, State Patrol, Correctional Employees, and Legislators Retirement Funds, the fiduciary net position was projected to be insufficient to finance the projected future benefit payments of current plan members. Therefore, a single discount rate was applied, which blends the long-term expected rate of return on pension plan investments (7.5 percent) with the tax-exempt municipal bond rate, based on an index of 20-year general obligation bonds with an average AA credit rating (3.56 percent). This single discount rate was applied to all periods of projected benefit payments to determine the total pension liability.

For the State Employees Retirement Fund, the long-term expected rate of return was used to project benefit payments through fiscal year 2049 and the municipal bond rate was used in all of the following years, resulting in the single blended rate of 5.42 percent. This is a change from the previous fiscal year, when the single blended rate was 4.17 percent.

For the State Patrol Retirement Fund, the long-term expected rate of return was used to project benefit payments through fiscal year 2062 and the municipal bond rate was used in all of the following years, resulting in the single blended rate of 6.38 percent. This is a change from the previous fiscal year, when the single blended rate was 5.31 percent.

For the Correctional Employees Retirement Fund, the long-term expected rate of return was used to project benefit payments through fiscal year 2048 and the municipal bond rate was used in all of the following years, resulting in the single blended rate of 5.02 percent. This is a change from the previous fiscal year, when the single blended rate was 4.24 percent.

For the Legislators Retirement Fund, assets are not sufficient to pay benefits in any future year, so the municipal bond rate of 3.56 percent was used in all years. In the previous fiscal year, the municipal bond rate of 2.85 percent was used to calculate the total pension liability.

Further detail on the calculation of the single discount rates can be found in the unaudited *Actuarial Section* of this comprehensive annual financial report beginning on page 169.

Sensitivity Analysis

GASB Statement No. 67 requires the disclosure of the sensitivity of the net pension liability to changes in the discount rates. **Exhibit 25** presents the June 30, 2017, net pension liability for each of MSRS' defined benefit retirement funds calculated using the current single discount rates, as well as what each fund's net pension liability would be if it were calculated using a single discount rate that is one percentage-point lower or one percentage-point higher than the current rate.

Exhibit 25: Sensitivity of the FY2017 Net Pension Liability to Changes in the Discount Rate
(Dollars in thousands)

	With 1% Decrease		Current Discount Rate		With 1% Increase	
Retirement Fund	Rate	Net Pension Liability	Rate	Net Pension Liability	Rate	Net Pension Liability
State Employees	4.42%	$10,393,381	5.42%	$7,417,906	6.42%	$4,986,527
State Patrol	5.38	483,870	6.38	346,317	7.38	233,692
Correctional Employees	4.02	1,513,735	5.02	1,128,114	6.02	823,061
Judges	6.50	215,488	7.50	178,342	8.50	146,517
Legislators	2.56	164,518	3.56	147,324	4.56	132,985

4. Required Supplementary Information

Required supplementary information for each defined benefit retirement fund, listed in the bullets below, is presented in the pages that follow these notes.

- *Schedule of Changes in the Employers' Net Pension Liability and Related Ratios*
- *Notes to Schedule of Changes in the Employers' Net Pension Liability and Related Ratios*
- *Schedules of Employer Contributions (and notes thereto)*
- *Schedule of Investment Returns*

Other supplementary information presented in the succeeding sections of this comprehensive annual financial report is for the benefit of financial statement users and is not a required part of the basic financial statements.

Required Supplementary Information

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

For the Four Years Ended June 30, 2017[1]
(Dollars in thousands)

State Employees Retirement Fund	2014	2015	2016	2017
Total Pension Liability				
Service Cost	$256,155	$210,545	$211,491	$619,666
Interest on the Total Pension Liability	922,181	1,018,035	1,020,925	982,066
Changes of Benefit Terms	0	0	0	83,490
Difference between Expected and Actual Experience in the Measurement of the Total Pension Liability	(44,023)	(493,197)	21,209	49,659
Changes of Assumptions	(1,477,308)	0	9,911,319	(4,691,209)
Benefit Payments, Including Refunds of Member Contributions	(635,928)	(677,847)	(720,706)	(762,102)
Net Change in Total Pension Liability	$(978,923)	$57,536	$10,444,238	$(3, 718,430)
Total Pension Liability - Beginning	$14,099,099	$13,120,176	$13,177,712	$23,621,950
Total Pension Liability - Ending	**$13,120,176**	**$13,177,712**	**$23,621,950**	**$19,903,520**
Plan Fiduciary Net Position				
Contributions - Employer	$128,037	$146,333	$151,168	$158,352
Contributions - Plan Member	131,033	149,293	153,854	161,670
Net Investment Income	1,829,621	501,185	(9,633)	1,667,562
Benefit Payments, Including Refunds of Member Contributions	(635,928)	(677,847)	(720,706)	(762,102)
Administrative Expense	(8,125)	(8,719)	(10,196)	(10,165)
Other Changes	20,528	29,470	20,259	47,232
Net Change in Plan Fiduciary Net Position	**$1,465,166**	**$139,715**	**$(415,254)**	**$1,262,549**
Plan Fiduciary Net Position - Beginning	$10,033,438	$11,498,604	$11,638,319	$11,223,065
Plan Fiduciary Net Position - Ending	**$11,498,604**	**$11,638,319**	**$11,223,065**	**$12,485,614**
Net Pension Liability - Ending	**$1,621,572**	**$1,539,393**	**$12,398,885**	**$7,417,906**
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	87.64%	88.32%	47.51%	62.73%
Covered-Employee Payroll	$2,620,660	$2,714,418	$2,797,345	$2,939,455
Net Pension Liability as a Percentage of Covered-Employee Payroll	61.88%	56.71%	443.24%	252.36%

State Patrol Retirement Fund

	2014	2015	2016	2017
Total Pension Liability				
Service Cost	$14,514	$16,144	$16,555	$29,758
Interest on the Total Pension Liability	60,183	63,753	64,592	58,865
Changes of Benefit Terms	0	0	0	0
Difference between Expected and Actual Experience in the Measurement of the Total Pension Liability	(5,771)	(12,855)	(22,222)	(2,418)
Changes of Assumptions	30,058	0	283,584	(112,694)
Benefit Payments, Including Refunds of Member Contributions	(53,722)	(55,480)	(57,774)	(58,565)
Net Change in Total Pension Liability	$45,262	$11,562	$284,735	$(85,054)
Total Pension Liability - Beginning	$781,411	$826,673	$838,235	$1,122,970
Total Pension Liability - Ending	**$826,673**	**$838,235**	**$1,122,970**	**$1,037,916**
Plan Fiduciary Net Position				
Contributions - Employer[2]	$12,894	$14,763	$14,938	$16,783
Contributions - Plan Member	7,930	9,174	9,292	10,520
Net Investment Income	107,187	28,903	(774)	93,077
Benefit Payments, Including Refunds of Member Contributions	(53,722)	(55,480)	(57,774)	(58,565)
Administrative Expense	(150)	(170)	(220)	(208)
Other Changes	0	0	0	0
Net Change in Plan Fiduciary Net Position	**$74,139**	**$(2,810)**	**$(34,538)**	**$61,607**
Plan Fiduciary Net Position - Beginning	$593,201	$667,340	$664,530	$629,992
Plan Fiduciary Net Position - Ending	**$667,340**	**$664,530**	**$629,992**	**$691,599**
Net Pension Liability - Ending	**$159,333**	**$173,705**	**$492,978**	**$346,317**
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	80.73%	79.28%	56.10%	66.63%
Covered-Employee Payroll	$63,952	$68,463	$69,343	$73,056
Net Pension Liability as a Percentage of Covered-Employee Payroll	249.14%	253.72%	710.93%	474.04%

Notes to these schedules may be found on pages 95-96.

[1] Schedules are intended to show information for 10 years. Additional years will be displayed as they become available.
[2] Includes supplemental state aid of $1 million.

Required Supplementary Information

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

For the Four Years Ended June 30, 2017[1]
(Dollars in thousands)

Correctional Employees Retirement Fund	2014	2015	2016	2017
Total Pension Liability				
Service Cost	$54,443	$48,805	$56,718	$95,522
Interest on the Total Pension Liability	85,702	92,039	97,571	95,307
Changes of Benefit Terms	0	0	0	0
Difference between Expected and Actual Experience in the Measurement of the Total Pension Liability	4,103	7,115	(764)	6,566
Changes of Assumptions	(147,067)	118,399	576,552	(213,159)
Benefit Payments, Including Refunds of Member Contributions	(52,289)	(56,499)	(60,940)	(64,687)
Net Change in Total Pension Liability	$(55,108)	$209,859	$669,137	$(80,451)
Total Pension Liability - Beginning	$1,408,494	$1,353,386	$1,563,245	$2,232,382
Total Pension Liability - Ending	**$1,353,386**	**$1,563,245**	**$2,232,382**	**$2,151,931**
Plan Fiduciary Net Position				
Contributions - Employer	$26,468	$29,480	$30,678	$31,763
Contributions - Plan Member	18,855	21,061	21,953	22,648
Net Investment Income	137,523	38,624	(195)	135,359
Benefit Payments, Including Refunds of Member Contributions	(52,289)	(56,499)	(60,940)	(64,687)
Administrative Expense	(657)	(720)	(906)	(856)
Other Changes	(1)	0	0	(2)
Net Change in Plan Fiduciary Net Position	**$129,899**	**$31,946**	**$(9,410)**	**$124,225**
Plan Fiduciary Net Position - Beginning	$747,157	$877,056	$909,002	$899,592
Plan Fiduciary Net Position - Ending	**$877,056**	**$909,002**	**$899,592**	**$1,023,817**
Net Pension Liability - Ending	**$476,330**	**$654,243**	**$1,332,790**	**$1,128,114**
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	64.80%	58.15%	40.30%	47.58%
Covered-Employee Payroll	$219,244	$231,440	$241,242	$248,879
Net Pension Liability as a Percentage of Covered-Employee Payroll	217.26%	282.68%	552.47%	453.28%

Judges Retirement Fund

	2014	2015	2016	2017
Total Pension Liability				
Service Cost	$12,075	$12,251	$13,711	$9,483
Interest on the Total Pension Liability	20,535	21,773	21,349	25,367
Changes of Benefit Terms	0	0	0	0
Difference between Expected and Actual Experience in the Measurement of the Total Pension Liability	5,080	(4,366)	7,135	(4,958)
Changes of Assumptions	(8,416)	21,696	(85,756)	11,652
Benefit Payments, Including Refunds of Member Contributions	(20,802)	(21,893)	(22,378)	(23,094)
Net Change in Total Pension Liability	$8,472	$29,461	$(65,939)	$18,450
Total Pension Liability - Beginning	$373,039	$381,511	$410,972	$345,033
Total Pension Liability - Ending	**$381,511**	**$410,972**	**$345,033**	**$363,483**
Plan Fiduciary Net Position				
Contributions - Employer	$9,426	$9,776	$10,219	$13,758 (2)
Contributions - Plan Member	3,578	3,629	3,763	3,932
Net Investment Income	28,011	7,572	(186)	24,729
Benefit Payments, Including Refunds of Member Contributions	(20,802)	(21,893)	(22,378)	(23,094)
Administrative Expense	(55)	(60)	(93)	(89)
Other Changes	0	0	0	0
Net Change in Plan Fiduciary Net Position	**$20,158**	**$(976)**	**$(8,675)**	**$19,236**
Plan Fiduciary Net Position - Beginning	$155,398	$175,556	$174,580	$165,905
Plan Fiduciary Net Position - Ending	**$175,556**	**$174,580**	**$165,905**	**$185,141**
Net Pension Liability - Ending	**$205,955**	**$236,392**	**$179,128**	**$178,342**
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	46.02%	42.48%	48.08%	50.94%
Covered-Employee Payroll	$41,893	$43,449	$45,418	$47,813
Net Pension Liability as a Percentage of Covered-Employee Payroll	491.62%	544.07%	394.40%	373.00%

Notes to these schedules may be found on pages 97-98.

(1) Schedules are intended to show information for 10 years. Additional years will be displayed as they become available.
(2) Includes General Fund appropriation of $3 million.

Required Supplementary Information

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

For the Four Years Ended June 30, 2017[1]
(Dollars in thousands)

Legislators Retirement Fund	2014	2015	2016	2017
Total Pension Liability				
Service Cost	$398	$428	$495	$546
Interest on the Total Pension Liability	6,177	6,113	5,333	4,293
Changes of Benefit Terms	0	0	0	0
Difference between Expected and Actual Experience in the Measurement of the Total Pension Liability	(237)	(7,303)	(1,597)	1,517
Changes of Assumptions	11,201	7,057	14,653	(5,017)
Benefit Payments, Including Refunds of Member Contributions	(8,486)	(8,441)	(8,536)	(8,716)
Net Change in Total Pension Liability	$9,053	$(2,146)	$10,348	$(7,377)
Total Pension Liability - Beginning	$137,446	$146,499	$144,353	$154,701
Total Pension Liability - Ending	**$146,499**	**$144,353**	**$154,701**	**$147,324**
Plan Fiduciary Net Position				
Contributions - Employer	$0	$0	$0	$0
Contributions - Plan Member	101	153	89	80
Contributions - State General Fund Appropriations	3,436	3,216	5,087	8,716
Net Investment Income	1,750	281	(69)	0
Benefit Payments, Including Refunds of Member Contributions	(8,486)	(8,441)	(8,536)	(8,716)
Administrative Expense	(36)	(37)	(42)	(39)
Other Changes	0	0	41	(41)
Net Change in Plan Fiduciary Net Position	**$(3,235)**	**$(4,828)**	**$(3,430)**	**$0**
Plan Fiduciary Net Position - Beginning	$11,493	$8,258	$3,430	$0
Plan Fiduciary Net Position - Ending	**$8,258**	**$3,430**	**$0**	**$0**
Net Pension Liability - Ending	**$138,241**	**$140,923**	**$154,701**	**$147,324**
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	5.64%	2.38%	0.00%	0.00%
Covered-Employee Payroll	$1,122	$1,700	$989	$889
Net Pension Liability as a Percentage of Covered-Employee Payroll	12,320.94%	8,289.59%	15,642.16%	16,571.88%

Notes to this schedule may be found on page 99.

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

Required Supplementary Information
Notes to Schedules of Changes in the Employers' Net Pension Liability and Related Ratios

State Employees Retirement Fund

Fiscal Year 2017 Changes Since the Fiscal Year 2016 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The Combined Service Annuity loads were changed from 1.2 percent for active members and 40 percent for deferred members, to 0 percent for active members, 4 percent for vested deferred members, and 5 percent for non-vested deferred members.
- The single discount rate changed from 4.17 percent to 5.42 percent.

The following changes were made to plan provisions:

- Actuarial equivalent factors were updated to reflect current mortality and interest assumptions, effective January 1, 2017.

Fiscal Year 2016 Changes Since the Fiscal Year 2015 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- Assumed salary increase rates were changed to rates that average 0.2 percent greater than the previous rates.
- Assumed rates of retirement were changed, resulting in fewer unreduced retirements and fewer Rule of 90 retirements. Distinct rates for reduced (Early) retirements were adopted for members hired prior to July 1, 1989, and members hired after June 30, 1989.
- Assumed rates of termination were changed, with new rates generally greater than the previous rates for years 3 through 9 and less than the previous rates after 15 years.
- Assumed rates of disability for females were reduced to 75 percent of previous rates. Rates for male members were lowered by utilizing the same disability rates as for females.
- The base mortality table for healthy annuitants and employees was changed from the RP-2000 fully generational table to the RP-2014 fully generational table (with a base year of 2014), white collar adjustments, with age adjustments. The mortality improvement scale was changed from Scale AA to Scale MP-2015. The base mortality table for disabled annuitants was changed from the RP-2000 disabled mortality table (no projection for future mortality improvement) to the RP-2014 disabled annuitant mortality table (with future mortality improvement according to Scale MP-2015), with age adjustments.
- The percent married assumption was changed from 85 percent of active male members and 70 percent of female members to 80 percent of active male members and 65 percent of active female members.
- The assumed number of married male new retirees electing the 75 percent Joint & Survivor option changed from 10 percent to 15 percent. The assumed number of married female new retirees electing the 75 percent and 100 percent Joint & Survivor options changed from 0 percent to 10 percent and from 25 percent to 30 percent, respectively. The corresponding number of married new retirees electing the Life annuity option was adjusted accordingly.
- The assumed post-retirement benefit increase rate was changed from 2.0 percent per year through 2043 and 2.5 percent per year thereafter, to 2.0 percent per year for all future years.
- The long-term expected rate of return on pension plan investments was changed from 7.9 percent to 7.5 percent.
- The single discount rate changed from 7.9 percent to 4.17 percent.
- The inflation assumption was changed from 2.75 percent to 2.50 percent.
- The payroll growth assumption was changed from 3.50 percent to 3.25 percent.

Continued on next page

Required Supplementary Information

Notes to Schedules of Changes in the Employers' Net Pension Liability and Related Ratios

State Employees Retirement Fund *(continued)*

Fiscal Year 2015 Changes Since the Fiscal Year 2014 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The assumed post-retirement benefit increase rate was changed from 2.0 percent per year through 2015 and 2.5 percent per year thereafter, to 2.0 percent per year through 2043 and 2.5 percent per year thereafter.

The following changes were made to plan provisions:

- The Contribution Stabilizer statutes were revised to make changes to contribution rates less prescriptive and more flexible.
- Effective July 1, 2015, if the 2.5 percent post-retirement benefit increase is triggered and the funding ratio subsequently drops below 80 percent for the most recent valuation year or 85 percent for two consecutive years, the post-retirement benefit increase will change to 2.0 percent until the plan again reaches a 90 percent funding ratio for two consecutive years.

Fiscal Year 2014 Changes Since the Fiscal Year 2013 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The assumed post-retirement benefit increase rate was changed from 2.0 percent per year indefinitely, to 2.0 percent per year through 2015 and 2.5 percent per year thereafter.
- The long-term expected rate of return on pension plan investments changed from 6.63 percent to 7.90 percent.

The following changes were made to plan provisions:

- The member and employer contribution rates increased from 5.0 percent to 5.5 percent of pay.
- The funding ratio threshold that must be attained to pay a 2.5 percent post-retirement benefit increase to benefit recipients was changed from 90 percent for one year to 90 percent for two consecutive years.

State Patrol Retirement Fund

Fiscal Year 2017 Changes Since the Fiscal Year 2016 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- Assumed salary increase rates were changed to rates that average 0.26 percent greater than the previous rates.
- Assumed rates of retirement were changed, resulting in slightly more unreduced (normal) retirements and fewer reduced (early) retirements.
- Assumed rates of termination were changed, with new rates decreased for the first three years of employment.
- Disability rates for ages 35 to 51 were increased.
- The base mortality table for healthy and disabled annuitants and employees was changed from the RP-2000 fully generational table to the RP-2014 fully generational table (with a base year of 2006), with white collar adjustments. The mortality improvement scale was changed from Scale AA to Scale MP-2015.
- The assumed percentage of members electing joint and survivor annuities was increased. The form of payment assumptions are now the same for males and females.
- The assumed post-retirement benefit increase rate was changed from 1.0 percent per year for all years, to 1.0 percent per year through 2064, and 1.50 percent per year thereafter.
- The Combined Service Annuity loads were changed from 30 percent for vested and non-vested deferred members, to 13 percent for vested deferred members, and 0 percent for non-vested deferred members.
- The single discount rate changed from 5.31 percent to 6.38 percent.

Fiscal Year 2016 Changes Since the Fiscal Year 2015 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The assumed post-retirement benefit increase rate was changed from 1.0 percent per year through 2031, 1.5 percent per year from 2032 to 2052, and 2.5 percent per year thereafter, to 1.0 percent per year indefinitely.
- The long-term expected rate of return on investments was changed from 7.9 percent to 7.5 percent.
- The assumed future salary increases, payroll growth, and inflation rates were decreased by 0.25 percent.
- The single discount rate changed from 7.9 percent to 5.31 percent.

Fiscal Year 2015 Changes Since the Fiscal Year 2014 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The assumed post-retirement benefit increase rate was changed from 1.0 percent per year through 2018, 1.5 percent per year from 2019 to 2045, and 2.5 percent per year thereafter, to 1.0 percent per year through 2031, 1.5 percent per year from 2032 to 2052, and 2.5 percent thereafter.

The following changes were made to plan provisions:

- The Contribution Stabilizer statutes were revised to make changes to contribution rates less prescriptive and more flexible.
- Effective July 1, 2015, if the 1.5 percent post-retirement benefit increase is triggered and the funding ratio subsequently drops below 75 percent for one year or 80 percent for two consecutive years, the post-retirement benefit increase will change to 1.5 percent until the plan again reaches an 85 percent funding ratio for two consecutive years.
- The age that disabilitants change from disabled status to retired status changed from age 65 to age 55 for disabilities after June 30, 2015.

Fiscal Year 2014 Changes Since the Fiscal Year 2013 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The assumed post-retirement benefit increase rate was changed from 1.0 percent per year indefinitely, to 1 percent per year through 2018, 1.5 percent per year from 2019 through 2045, and 2.5 percent per year thereafter.

The following changes were made to plan provisions:

- The funding ratio threshold that must be attained to pay a 1.5 percent post-retirement benefit increase to benefit recipients was changed from 85 percent for one year to 85 percent for two consecutive years. The funding ratio threshold that must be attained to pay a 2.5 percent post-retirement benefit increase to benefit recipients was changed from 90 percent for one year to 90 percent for two consecutive years.
- The interest assumption used to determine optional form conversion factors was changed from an actuarial equivalent rate consistent with the post-retirement discount rate to a fixed rate of 6.5 percent.

Continued on next page

Required Supplementary Information
Notes to Schedules of Changes in the Employers' Net Pension Liability and Related Ratios

Correctional Employees Retirement Fund

Fiscal Year 2017 Changes Since the Fiscal Year 2016 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- Assumed salary increase rates were changed to rates that average 0.6 percent greater than the previous rates.
- Assumed rates of retirement were changed, resulting in slightly fewer expected unreduced (normal) retirements.
- Assumed rates of termination were decreased for the first two years of employment and increased for the third year of service. For rates beyond the first three years, male rates for ages less than 43 were increased; female rates for ages less than 35 and between ages 42 to 44 were increased.
- Disability rates for ages 39 and over were decreased.
- The base mortality table for healthy annuitants and employees was changed from the RP-2000 fully generational table to the RP-2014 fully generational table (with a base year of 2006), with white collar adjustments and with age adjustments. The mortality improvement scale was changed from Scale AA to Scale MP-2015. The base mortality table for disabled annuitants was changed from the RP-2000 disabled mortality table (no projection for future mortality improvement) to the RP-2014 disabled annuitant mortality table (with future mortality improvement according to MP-2015).
- The assumed percentage of married members was changed from 85 percent to 75 percent.
- The assumed age difference for members and their spouse was lowered from 3 years to 2 years.
- The assumed percentage of members electing joint and survivor annuities was increased and the assumed percentage of members electing the single life annuity was decreased.
- The Combined Service Annuity loads were changed from 30 percent for vested and non-vested deferred members, to 17 percent for vested deferred members, and 6 percent for non-vested deferred members.
- The single discount rate changed from 4.24 percent to 5.02 percent.

Fiscal Year 2016 Changes Since the Fiscal Year 2015 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The single discount rate changed from 6.25 percent to 4.24 percent.
- The long-term expected rate of return on investments was reduced from 7.90 percent to 7.50 percent.
- The assumed future salary increases, payroll growth, and inflation rates were decreased by 0.25 percent.

Fiscal Year 2015 Changes Since the Fiscal Year 2014 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The single discount rate changed from 6.82 percent to 6.25 percent.
- The assumed post-retirement benefit increase rate was changed from 2.0 percent through 2065 and 2.5 percent thereafter, to 2.0 percent indefinitely.

The following changes were made to plan provisions:

- The Contribution Stabilizer statutes were revised to make changes to contribution rates less prescriptive and more flexible.
- Effective July 1, 2015, if the 2.5 percent post-retirement benefit increase is triggered and the funding ratio subsequently drops below 80 percent for one year or 85 percent for two consecutive years, the post-retirement benefit increase will change to 2.0 percent until the plan again reaches a 90 percent funding ratio for two consecutive years.

Fiscal Year 2014 Changes Since the Fiscal Year 2013 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The single discount rate changed from 6.08 percent to 6.82 percent.
- The assumed post-retirement benefit increase rate was changed from 2.0 percent indefinitely, to 2.0 percent per year through 2065, and 2.5 percent per year thereafter.

The following changes were made to plan provisions:

- Member contribution rates increased from 8.6 percent to 9.1 percent of pay.
- Employer contribution rates increased from 12.1 percent to 12.85 percent of pay.
- The funding ratio threshold that must be attained to pay a 2.5 percent post-retirement benefit increase to benefit recipients was changed from 90 percent for one year to 90 percent for two consecutive years.

Judges Retirement Fund

Fiscal Year 2017 Changes Since the Fiscal Year 2016 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- Assumed rates of retirement were changed, resulting in more unreduced (normal) retirements and slightly fewer reduced (early) retirements.
- Male disability incidence rates were decreased to equal female disability incidence rates.
- The base mortality table for healthy and disabled annuitants and employees was changed from the RP-2000 fully generational table to the RP-2014 fully generational table (with a base year of 2006), with white collar adjustments. The mortality improvement scale was changed from Scale AA to Scale MP-2015.
- The assumed post-retirement benefit increase rate was changed from 1.75 percent through 2041, 2.0 percent for 2042 through 2054, and 2.5 percent thereafter, to 1.75 percent through 2038, 2.0 percent for 2039 through 2053, and 2.5 percent thereafter.

Fiscal Year 2016 Changes Since the Fiscal Year 2015 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The assumed post-retirement benefit increase rate was changed from 1.75 percent for all years, to 1.75 percent per year through 2041, 2.0 percent per year from 2042 through 2054, and 2.5 percent per year thereafter.
- The long-term expected rate of return on investments was changed from 7.9 percent to 7.5 percent.
- The assumed future salary increases, payroll growth, and inflation rates were decreased by 0.25 percent.
- The single discount rate was changed from 5.25 percent to 7.50 percent.

The following changes were made to plan provisions:

- Legislation provides state contributions equal to $3,000,000 for the fiscal year ending June 30, 2017, and $6,000,000 per year thereafter until the plan is fully funded.

Fiscal Year 2015 Changes Since the Fiscal Year 2014 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The single discount rate was changed from 5.78 percent to 5.25 percent.

Fiscal Year 2014 Changes Since the Fiscal Year 2013 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The single discount rate was changed from 5.57 percent to 5.78 percent.

The following changes were made to plan provisions:

- Effective July 1, 2014, the funding ratio threshold that must be attained to pay a 2.0 percent post-retirement benefit increase to benefit recipients was changed from 70 percent for one year to 70 percent for two consecutive years. The funding ratio threshold that must be attained to pay a 2.5 percent post-retirement benefit increase to benefit recipients was changed from 90 percent for one year to 90 percent for two consecutive years.
- The 10-year certain and life thereafter optional form of payment is no longer available.

Continued on next page

Required Supplementary Information

Notes to Schedules of Changes in the Employers' Net Pension Liability and Related Ratios

Legislators Fund

Fiscal Year 2017 Changes Since the Fiscal Year 2016 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The Combined Service Annuity loads were changed from 30 percent for terminated members, to 0 percent for all members.
- The base mortality table for healthy annuitants and employees was changed from the RP-2000 fully generational table to the RP-2014 fully generational table (with a base year of 2014), with white collar adjustments and with age adjustments. The mortality improvement scale was changed from Scale AA to Scale MP-2015.
- The single discount rate changed from 2.85 percent to 3.56 percent.

The following changes were made to plan provisions:

- Actuarial equivalent factors were updated to reflect current mortality and interest assumptions, effective January 1, 2017.

Fiscal Year 2016 Changes Since the Fiscal Year 2015 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The single discount rate changed from 3.80 percent to 2.85 percent.
- The long-term expected rate of return on investments was reduced from 7.90 percent to 7.50 percent.
- The assumed salary increases and inflation rates were decreased by 0.25 percent.
- The assumed post-retirement benefit increase rate was changed from 2.0 percent per year through 2043 and 2.5 percent thereafter, to 2.0 percent for all years.

Fiscal Year 2015 Changes Since the Fiscal Year 2014 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The single discount rate changed from 4.29 percent to 3.80 percent.
- The assumed post-retirement benefit increase rate was changed from 2.0 percent per year through 2015 and 2.5 percent thereafter, to 2.0 percent per year through 2043 and 2.5 percent thereafter.

The following changes were made to plan provisions:

- Effective July 1, 2015, if the 2.5 percent post-retirement benefit increase is triggered and the State Employees Retirement Fund funding ratio declines to less than 80 percent for the most recent year or 85 percent for two consecutive years, the benefit increase will decrease to 2.0 percent until the plan reaches a 90 percent funding ratio for two consecutive years.

Fiscal Year 2014 Changes Since the Fiscal Year 2013 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The single discount rate changed from 4.63 percent to 4.29 percent.
- The assumed post-retirement benefit increase rate was changed from 2.0 percent per year indefinitely, to 2.0 percent per year through 2015, and 2.5 percent per year thereafter.

The following changes were made to plan provisions:

- The funding ratio threshold that must be attained in the State Employees Retirement Fund to pay a 2.5 percent post-retirement benefit increase to benefit recipients in the Legislators Retirement Fund was changed from 90 percent for one year to 90 percent for two consecutive years.

Required Supplementary Information
Schedule of Employer Contributions

For the Last Ten Fiscal Years
(Dollars in thousands)

State Employees Retirement Fund

Fiscal Year Ended June 30	Actuarially Determined Contribution [1] (a)	Contributions Recognized by Plan in Relation to the Actuarially Determined Contribution (b)	Contribution Deficiency (Sufficiency) (c=a-b)	Covered-Employee Payroll [2] (d)	Contributions as a Percentage of Covered-Employee Payroll (e=b/d)
2008	$166,088	$96,746	$69,342	$2,256,528	4.29%
2009	179,759	107,211	72,548	2,329,499	4.60
2010	230,439	113,716	116,723	2,327,398	4.89
2011	146,191	118,563	27,628	2,440,580	4.86
2012	142,740	115,159	27,581	2,367,160	4.86
2013	181,756	121,673	60,083	2,483,000	4.90
2014	195,239	128,037	67,202	2,620,660	4.89
2015	198,695	146,333	52,362	2,714,418	5.39
2016	194,136	151,168	42,968	2,797,345	5.40
2017	264,257	158,352	105,905	2,939,455	5.39

Notes to Schedule

(1) The Actuarially Determined Contribution rates are calculated as of June 30 each year and apply to the fiscal year beginning on the day after the measurement date.

Valuation Date:	June 30, 2016
Actuarial Cost Method:	Entry age normal
Amortization Method:	Level percentage of payroll, closed period
Remaining Amortization Period:	26 years
Asset Valuation Method:	Market value smoothed over 5 years
Investment Rate of Return:	8.00%
Projected Salary Increases:	Service-related rates ranging from 14.00% (one year of service) to 3.50% (25 or more years of service), including inflation
Inflation Rate:	2.75%
Payroll Growth:	3.50%
Retirement Age:	Experience-based table of rates that are specific to the type of eligibility condition
Healthy Post-Retirement Mortality:	RP-2014 annuitant generational mortality tables, projected with mortality improvement MP-2015 from a base year of 2014 with a white collar adjustment, set forward 2 years for males and no age adjustment for females
Post-Retirement Benefit Increases:	2.0% per year indefinitely

(2) Assume equal to actual member contributions divided by employee contribution rate from 2012 through 2017.

Required Supplementary Information
Schedule of Employer Contributions

For the Last Ten Fiscal Years
(Dollars in thousands)

State Patrol Retirement Fund

Fiscal Year Ended June 30	Actuarially Determined Contribution [1] (a)	Contributions Recognized by Plan in Relation to the Actuarially Determined Contribution [2] (b)	Contribution Deficiency (Sufficiency) (c=a-b)	Covered-Employee Payroll [3] (d)	Contributions as a Percentage of Covered-Employee Payroll (e=b/d)
2008	$12,355	$8,279	$4,076	$60,029	13.79%
2009	14,999	9,178	5,821	61,511	14.92
2010	17,410	10,104	7,306	63,250	15.97
2011	14,826	9,873	4,953	63,250	15.61
2012	14,912	11,620	3,292	62,524	18.58
2013	18,711	11,482	7,229	62,121	18.48
2014	18,444	12,894	5,550	63,952	20.16
2015	20,648	14,763	5,885	68,463	21.56
2016	20,463	14,938	5,525	69,343	21.54
2017	19,031	16,783	2,248	73,056	22.97

Notes to Schedule

[1] The Actuarially Determined Contribution rates are calculated as of June 30 each year and apply to the fiscal year beginning on the day after the measurement date.

Valuation Date:	June 30, 2016
Actuarial Cost Method:	Entry age normal
Amortization Method:	Level percentage of payroll, closed period
Remaining Amortization Period:	22 years
Asset Valuation Method:	Market value smoothed over 5 years
Investment Rate of Return:	8.00%
Projected Salary Increases:	Service-related rates ranging from 7.75% (one year of service) to 3.75% (21 or more years of service), including inflation
Inflation Rate:	2.75%
Payroll Growth:	3.50%
Retirement Age:	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2012 valuation pursuant to an experience study of the period 2006-2011.
Healthy Post-Retirement Mortality:	RP-2000 annuitant generational mortality tables, projected with mortality improvement scale AA with a white collar adjustment, set back 2 years for males and set forward 1 year for females
Post-Retirement Benefit Increases:	1.0% per year through 2044, 1.50% from 2045 through 2061, and 2.50% thereafter

[2] Includes supplemental state aid of $1 million from 2014 through 2017.

[3] Assume equal to actual member contributions divided by employee contribution rate from 2012 through 2017.

Correctional Employees Retirement Fund

Fiscal Year Ended June 30	Actuarially Determined Contribution [1] (a)	Contributions Recognized by Plan in Relation to the Actuarially Determined Contribution (b)	Contribution Deficiency (Sufficiency) (c=a-b)	Covered-Employee Payroll [2] (d)	Contributions as a Percentage of Covered-Employee Payroll (e=b/d)
2008	$34,734	$18,623	$16,111	$194,391	9.58%
2009	31,738	20,126	11,612	193,445	10.40
2010	32,557	21,988	10,569	192,450	11.43
2011	33,274	23,892	9,382	197,702	12.08
2012	34,806	24,188	10,618	200,035	12.09
2013	34,060	24,632	9,428	204,198	12.06
2014	38,390	26,468	11,922	219,244	12.07
2015	40,109	29,480	10,629	231,440	12.74
2016	44,171	30,678	13,493	241,242	12.72
2017	45,943	31,763	14,180	248,879	12.76

Notes to Schedule

[1] The Actuarially Determined Contribution rates are calculated as of June 30 each year and apply to the fiscal year beginning on the day after the measurement date.

Valuation Date:	June 30, 2016
Actuarial Cost Method:	Entry age normal
Amortization Method:	Level percentage of payroll, closed period
Remaining Amortization Period:	22 years
Asset Valuation Method:	Market value smoothed over 5 years
Investment Rate of Return:	8.00%
Projected Salary Increases:	Service-related rates ranging from 5.75% (one year of service) to 3.50% (19 or more years of service), including inflation
Inflation Rate:	2.75%
Payroll Growth:	3.50%
Retirement Age:	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2012 valuation pursuant to an experience study of the period 2006-2011.
Healthy Post-Retirement Mortality:	RP-2000 annuitant generational mortality tables, projected with mortality improvement scale AA with a white collar adjustment set forward 1 year for males and set back 1 year for females
Post-Retirement Benefit Increases:	2.0% per year indefinitely

[2] Assume equal to actual member contributions divided by employee contribution rate from 2012 through 2017.

Required Supplementary Information
Schedule of Employer Contributions

For the Last Ten Fiscal Years
(Dollars in thousands)

Judges Retirement Fund

Fiscal Year Ended June 30	Actuarially Determined Contribution [1] (a)	Contributions Recognized by Plan in Relation to the Actuarially Determined Contribution (b)	Contribution Deficiency (Sufficiency) (c=a-b)	Covered-Employee Payroll [2] (d)	Contributions as a Percentage of Covered-Employee Payroll (e=b/d)
2008	$10,045	$7,936	$2,109	$38,296	20.72%
2009	8,985	8,219	766	39,444	20.84
2010	9,400	8,283	1,117	39,291	21.08
2011	9,804	8,297	1,507	40,473	20.50
2012	9,879	7,922	1,957	38,644	20.50
2013	13,524	8,177	5,347	39,888	20.50
2014	14,193	9,426	4,767	41,893	22.50
2015	14,298	9,776	4,522	43,449	22.50
2016	15,644	10,219	5,425	45,418	22.50
2017	16,790	13,758 [3]	3,032	47,813	28.77

Notes to Schedule

(1) The Actuarially Determined Contribution rates are calculated as of June 30 each year and apply to the fiscal year beginning on the day after the measurement date.

Valuation Date:	June 30, 2016
Actuarial Cost Method:	Entry age normal
Amortization Method:	Level percentage of payroll, closed period
Remaining Amortization Period:	23 years
Asset Valuation Method:	Market value smoothed over 5 years
Investment Rate of Return:	8.00%
Projected Salary Increases:	2.75%
Inflation Rate:	2.75%
Payroll Growth:	2.75%
Retirement Age:	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2012 valuation pursuant to an experience study of the period 2007-2011.
Healthy Post-Retirement Mortality:	RP-2000 annuitant generational mortality tables, projected with mortality improvement scale AA with a white collar adjustment, set back 1 year for males and set back 2 years for females
Post-Retirement Benefit Increases:	1.75% per year through 2034, 2% per year from 2035 through 2045, and 2.5% per year thereafter

(2) Assume equal to actual employer contributions divided by employer contribution rate from 2012 through 2017.

(3) Includes General Fund appropriation of $3 million.

Legislators Retirement Fund [1]

Fiscal Year Ended June 30	Actuarially Determined Contribution [2] (a)	Contributions Recognized by Plan in Relation to the Actuarially Determined Contribution [3] (b)	Contribution Deficiency (Sufficiency) (c=a-b)	Covered-Employee Payroll [4] (d)	Contributions as a Percentage of Covered-Employee Payroll (e=b/d)
2008	$3,230	$2,217	$1,013	$1,993	111.24%
2009	4,526	1,269	3,257	1,963	64.65
2010	7,582	1,975	5,607	1,877	105.22
2011	7,520	2,805	4,715	1,774	158.12
2012	18,079	3,935	14,144	1,378	285.56
2013	16,411	3,399	13,012	1,233	275.67
2014	22,157	3,436	18,721	1,122	306.24
2015	38,736	3,216	35,520	1,700	189.18
2016	21,711	5,087	16,624	989	514.36
2017	22,844	8,716	14,128	889	980.43

Notes to Schedule

(1) Effective July 1, 2013, the Elective State Officers Retirement Fund was merged with the Legislators Retirement Fund for cost-savings purposes. The 2014-2017 figures in the schedule above represent the combined totals for both funds.

(2) The Actuarially Determined Contribution rates are calculated as of June 30 each year and apply to the fiscal year beginning on the day after the measurement date.

Valuation Date:	June 30, 2016
Actuarial Cost Method:	Entry age normal
Amortization Method:	Level dollar, closed period
Remaining Amortization Period:	10 years
Asset Valuation Method:	Market value of assets
Investment Rate of Return:	0.0%
Projected Salary Increases:	5.0% including inflation
Inflation Rate:	2.75%
Retirement Age:	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2012 valuation pursuant to an experience study.
Mortality Rates:	RP-2000 annuitant generational mortality tables, projected with mortality improvement scale AA with a white collar adjustment
Benefit Increases Post Retirement:	2.0% per year indefinitely

(3) Contributions to the Legislators Retirement Fund include appropriations from the State's General Fund. The State of Minnesota is the employer for this Retirement Fund.

(4) Assume equal to actual member contributions divided by employee contribution rate from 2012 through 2017.

Required Supplementary Information
Schedule of Employer Contributions

For the Last Ten Fiscal Years
(Dollars in thousands)

Elective State Officers Retirement Fund [1]

Fiscal Year Ended June 30	Actuarially Determined Contribution [2] (a)	Contributions Recognized by Plan in Relation to the Actuarially Determined Contribution (b)	Contribution Deficiency (Sufficiency) (c=a-b)	Covered-Employee Payroll (d)	Contributions as a Percentage of Covered-Employee Payroll (e=b/d)
2008	$506	$435	$71	$0	N/A
2009	558	442	116	0	N/A
2010	601	453	148	0	N/A
2011	644	460	184	0	N/A
2012	1,269	466	803	0	N/A
2013	991	470	521	0	N/A

Notes to Schedule

[1] Effective July 1, 2013, the Elective State Officers Retirement Fund was merged with the Legislators Retirement Fund for administrative cost-savings purposes.

[2] The Actuarially Determined Contribution is calculated as of June 30 each year using the actuarial methods and assumptions in effect as of the valuation date.

Required Supplementary Information
Schedule of Investment Returns

For the Year Ended June 30, 2017 [1]

Annual Money-Weighted Rate of Return (Net of Investment Expense)

Fiscal Year	State Employees	State Patrol	Correctional Employees	Judges	Legislators
2014	18.674%	18.688%	18.623%	18.658%	19.302%
2015	4.451	4.457	4.440	4.451	5.002
2016	(0.083)	(0.119)	(0.019)	(0.108)	N/A
2017	15.236	15.239	15.233	15.180	N/A

Notes to Schedule

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

Schedule of Administrative Expenses

Supplementary Information
For the Fiscal Year Ended June 30, 2017
(Dollars in thousands)

Personnel Services	
Staff Salaries	$7,994
Health Insurance	1,649
Social Security and Medicare	583
Retirement	460
Other Personnel Services	36
Total	**$10,722**
Communication-Related Expenses	
Printing	$323
Postage	245
Telephone	165
Total	**$733**
Office Building and Maintenance Expenses	
Building Services	$384
Building and Building Improvements Depreciation	224
Office Space Rentals	79
Bond Interest and Issuance	69
Other Building and Maintenance	9
Total	**$765**
Professional Service Fees	
Data Processing	$1,211
Actuarial	354
Disability Examinations	156
Legal Counsel	82
Other Professional Services	680
Total	**$2,483**
Other Miscellaneous Expenses	
Equipment Depreciation and Software Amortization	$1,118
Computer Components and Supplies	587
Equipment Repairs and Maintenance Expenses	262
Statewide Indirect Costs	139
Travel	165
Training and Licenses	93
State and Local Sales Taxes	90
Office Supplies	76
Other Rentals	22
Subscriptions and Memberships	17
Department Head and Board Member Expenses	4
Other Expenses	253
Total	**$2,826**
Total Administrative Expenses	**$17,529**
Allocation of Administrative Expenses by Retirement Fund	
State Employees	$10,165
State Patrol	208
Correctional Employees	856
Judges	89
Legislators	39
Unclassified Employees	148
Health Care Savings	2,559
Minnesota Deferred Compensation	3,444
Hennepin County Supplemental	21
Total Administrative Expenses	**$17,529**

Summary Schedule of Commissions and Payments to Consultants

Supplementary Information
For the Fiscal Year Ended June 30, 2017
(Dollars in thousands)

Individual or Firm Name	Services Received	Fees Paid
Gabriel Roeder Smith & Company	Actuarial Services	$362
Reiling Construction Co., Inc.	Remodeling Services	217
Compar Inc.	Software Services	150
Managed Medical Review Organization (MMRO)	Medical and Disability Evaluations	147
RSM US LLP	Application Development Support	105
IBM Corporation	System Migration Project	92
Clifton Larson Allen	Network Penetration Testing	45
Duan Corporation	Remodeling Services	27
ITProFound Inc.	Training	24
Aeritae Consulting Group	Technical Assistance - System Migration Project	21
Momentum Design	Annual Financial Report Desktop Publishing Support	19
State of Minnesota		
Office of Legislative Auditor	Financial Audit	136
Office of Minnesota Management & Budget	StrengthsFinders® Training	99
Office of Minnesota Attorney General	Legal Advice	56
MINNCOR Industries	Graphic Design Services	23

Fees paid may differ from expenses reported on the *Schedule of Administrative Expenses* due to retainage.

Schedule of Investment Expenses

Supplementary Information
For the Fiscal Year Ended June 30, 2017
(Dollars in thousands)

	State Employees	State Patrol	Correctional Employees	Judges	Legislators	Defined Contribution Funds	Totals
External Managers							
Domestic Equity - Active	$3,867	$216	$313	$57	$0	$160	$4,613
International Equity	4,530	252	368	68	0	143	5,361
Domestic Equity - Semi-Passive	1,221	68	99	18	0	93	1,499
Domestic Equity - Passive	184	10	15	3	0	28	240
Fixed Income	0	0	0	0	0	3,891	3,891
Domestic Bond	2,237	125	182	33	0	172	2,749
Other Investment Expenses							
MN State Board of Investment	711	40	58	11	0	166	986
Pension Consulting Alliance	19	1	2	0	0	0	22
Callan Investment	104	6	8	1	0	0	119
QED Financial Systems	59	3	5	1	0	0	68
Total Investment Expenses	**$12,932**	**$721**	**$1,050**	**$192**	**$0**	**$4,653**	**$19,548**

MSRS does not directly pay any investment fees or commissions. All investment expenses are paid by the Minnesota State Board of Investment. These are the proportionate share of the expenses charged to the investment pools in which MSRS participates.

GASB Statement No. 68
Supplemental Employer Schedules

The schedules that follow on pages 115-119 are provided for financial reporting purposes for the employer units of the defined benefit plans of MSRS.

Independent Auditor's Report

OLA
OFFICE OF THE LEGISLATIVE AUDITOR
STATE OF MINNESOTA • James Nobles, Legislative Auditor

Independent Auditor's Report

Members of the Board of Directors
Minnesota State Retirement System

Ms. Erin Leonard, Executive Director
Minnesota State Retirement System

Report on Schedules

We have audited the accompanying Schedule of Employer Allocations of the Minnesota State Retirement System (MSRS) as of and for the fiscal year ended June 30, 2017. We have also audited the total for all entities of the columns titled net pension liability, total deferred outflows of resources, total deferred inflows of resources, and total pension expense (specified column totals) included in the accompanying Schedule of Pension Amounts by Employer of MSRS as of and for the year ended June 30, 2017.

Management's Responsibility for the Schedules

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

Auditor's Responsibility

Our responsibility is to express opinions on the Schedule of Employer Allocations and the specified column totals included in the Schedule of Pension Amounts by Employer based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards,* issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the Schedule of Employer Allocations and specified column totals included in the Schedule of Pension Amounts by Employer are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts in the Schedule of Employer Allocations and specified column totals included in the Schedule of Pension Amounts by Employer. The procedures selected depend on the auditor's judgment, including the assessment of risks of material misstatement within the schedules, whether due to fraud or error. In making those risk assessments, the auditor considers internal controls relevant to the entity's preparation and fair presentation of the schedules 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 entity's internal controls. 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 Schedule of Employer Allocations and specified column totals included in the Schedule of Pension Amounts by Employer. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

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Independent Auditor's Report

Minnesota State Retirement System Board of Directors
Ms. Erin Leonard, Executive Director
Page 2

Opinion

In our opinion, the schedules referred to above present fairly, in all material respects, the employer allocations and net pension liability, total deferred outflows of resources, total deferred inflows of resources, and total pension expense for the total of all participating entities for MSRS as of and for the year ended June 30, 2017, in accordance with accounting principles generally accepted in the United States of America.

Other Matter

We have audited, in accordance with auditing standards generally accepted in the United States of America, the financial statements of MSRS as of and for the year ended June 30, 2017, and our report thereon, dated December 22, 2017, expressed an unmodified opinion on those financial statements.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards,* we have also issued our report dated December 22, 2017, on our consideration of MSRS's internal controls over the preparation of these schedules and on our tests of compliance with certain provisions of laws, regulations, and other matters. The purpose of that report is to describe the scope of our testing of internal controls and compliance and not to provide an opinion on internal controls over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards.*

Restriction on Use

Our report is intended solely for the information and use of MSRS's Board of Directors and its management to support the financial reporting needs of employers participating in MSRS's plans and their auditors for the year ended June 30, 2017. It is not suitable for any other purpose.

James R. Nobles
Legislative Auditor

Tracy Gebhard, CPA
Audit Director

December 22, 2017
Saint Paul, Minnesota

Schedule of Employer Allocations

As of the Measurement Date of June 30, 2017

State Employees Retirement Fund

Employer	2017 Employer Contributions	Employer Allocation Percentage
State of Minnesota and Select Component Units[1]	$118,609,255	74.972%
Other State of Minnesota Component Units[1]:		
University of Minnesota	23,582,393	14.906
Metropolitan Council	14,797,512	9.353
Minnesota Sports Facilities Authority	22,063	0.014
Total State of Minnesota and its Component Units	**$157,011,223**	**99.245%**
Minnesota Historical Society	325,551	0.206
Minnesota State Fair	335,521	0.212
Gillette Children's Hospital	154,309	0.098
Minnesota Association of Professional Employees (MAPE)	108,432	0.069
Minnesota Safety Council	70,983	0.045
Veolia Environment North America	49,739	0.031
Minnesota Crop Improvement Association	49,498	0.031
Amalgamated Transit Union	26,683	0.017
American Federation of State, County and Municipal Employees (AFSCME)	17,617	0.011
Middle Management Association (MMA)	19,770	0.012
Minnesota State Horticultural Society	16,029	0.010
Minnesota Government Engineers Council (MGEC)	7,269	0.005
Enterprise Minnesota	12,996	0.008
Total Non-State of Minnesota/Component Units	**$1,194,397**	**0.755%**
Grand Total	**$158,205,620**	**100.000%**

[1] *State of Minnesota component units include the Housing Finance Agency, Metropolitan Council, University of Minnesota, Minnesota Sports Facilities Authority, Agricultural and Economic Development Board, National Sports Center Foundation, Office of Higher Education, Public Facilities Authority, Rural Finance Authority, and the Workers' Compensation Assigned Risk Plan. Component units that submit contributions to MSRS separately from the state payroll are displayed individually in this schedule. The remaining component units are included in the line specified for the State of Minnesota.*

Correctional Employees Retirement Fund

Employer	2017 Employer Contributions	Employer Allocation Percentage
State of Minnesota	$31,729,281	99.909%
AFSCME	28,470	0.090
MAPE	360	.001
Total	**$31,758,111**	**100.000%**

Additional information regarding the GASB Statement No. 68 standards may be found in the *Notes to the Financial Statements.*

Schedule of Pension Amounts by Employer

As of and For the Year Ended June 30, 2017

State Employees Retirement Fund

Employer	Net Pension Liability	Deferred Outflows of Resources [1]				
		Differences Between Expected and Actual Experience in the Measurement of the Total Pension Liability	Changes of Assumptions	Net Differences Between Projected and Actual Investment Earnings on Pension Plan Investments	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Deferred Outflows of Resources
State of Minnesota and Select Component Units [2]	$5,561,352,290	$39,279,267	$4,437,376,509	$0	$59,526,288	$4,536,182,064
Other State of Minnesota Component Units: [2]						
University of Minnesota	1,105,713,030	7,855,907	903,912,232	0	(18,021,511)	893,746,628
Metropolitan Council	693,796,723	4,911,052	558,641,546	0	8,784,598	572,337,196
Minnesota Sports Facilities Authority	1,038,507	8,235	1,248,825	$0	(395,472)	861,588
Total State of Minnesota and its Component Units	**$7,361,900,550**	**$52,054,461**	**$5,901,179,112**	**$0**	**$49,893,903**	**$6,003,127,476**
Minnesota Historical Society	$15,280,887	$107,798	$12,131,455	0	$154,087	$12,393,340
Minnesota State Fair	15,725,961	110,688	12,369,325	0	607,368	13,087,381
Gillette Children's Hospital	7,269,547	52,930	6,541,469	0	(704,372)	5,890,027
MAPE	5,118,355	35,556	3,805,946	0	1,074,965	4,916,467
Minnesota Safety Council	3,338,059	23,859	2,794,992	0	(132,201)	2,686,650
Veolia Environment North America	2,299,550	16,515	1,962,441	0	233,377	2,212,333
Minnesota Crop Improvement Association	2,299,550	15,495	1,486,698	0	672,962	2,175,155
Amalgamated Transit Union	1,261,042	8,917	1,010,955	0	10,910	1,030,782
AFSCME	815,970	7,423	1,427,229	0	(629,637)	805,015
MMA	890,148	6,294	713,616	0	37,307	757,217
Minnesota State Horticultural Society	741,790	5,373	654,147	0	(67,778)	591,742
Kandiyohi County [3]	0	381	178,404	0	(201,308)	(22,523)
MGEC	370,895	2,496	237,872	0	106,617	346,985
Enterprise Minnesota	593,433	3,814	297,339	0	369,882	671,035
Agricultural Utilization Research Institute [3]	0	0	0	0	7,581	7,581
Foster Wheeler Twin Cities [3]	0	0	0	0	11,133	11,133
Total Non State/Component Unit	**$56,005,187**	**$397,539**	**$45,611,888**	**$0**	**$1,550,893**	**$47,560,320**
Grand Total	**$7,417,905,737**	**$52,452,000**	**$5,946,791,000**	**$0**	**$51,444,796**	**$6,050,687,796**

Deferred Inflows of Resources [1]					Pension Expense (Income)		
Differences Between Expected and Actual Experience in the Measurement of the Total Pension Liability	Changes of Assumptions	Net Differences Between Projected and Actual Investment Earnings on Pension Plan Investments	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Deferred Inflows of Resources	Proportionate Share of Plan Pension Expense	Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Employer Pension Expense
$153,768,465	$3,032,530,504	$134,096,673	$14,894,790	$3,335,290,432	$895,139,424	$16,641,043	$911,780,467
31,839,676	606,782,456	26,488,294	25,926,308	691,036,734	179,050,849	(18,713,491)	160,337,358
18,784,260	377,674,362	16,106,865	7,051,767	419,617,254	114,678,328	2,787,603	117,465,931
69,593	676,097	34,526	502,783	1,282,999	125,358	(244,785)	(119,427)
$204,461,994	**$4,017,663,419**	**$176,726,358**	**$48,375,648**	**$4,447,227,419**	**$1,188,993,959**	**$470,370**	**$1,189,464,329**
$442,902	$8,360,442	$378,413	$216,029	$9,397,786	$2,386,568	$(148,863)	$2,237,705
422,646	8,567,892	399,971	70,619	9,461,128	2,480,016	157,546	2,637,562
264,805	4,156,551	197,796	1,050,268	5,669,420	1,099,159	(642,793)	456,366
131,453	2,763,868	137,109	148,815	3,181,245	770,585	538,415	1,309,000
96,947	1,830,656	72,352	89,035	2,088,990	566,622	(69,106)	497,516
76,780	1,290,468	60,058	166,542	1,593,848	351,799	259,012	610,811
51,433	1,234,330	82,792	65,906	1,434,461	278,438	153,351	431,789
39,068	691,186	29,236	38,979	798,469	198,103	(19,031)	179,072
24,642	445,326	(53,197)	542,555	959,326	413,558	(282,170)	131,388
22,668	482,857	20,840	18,865	545,230	149,099	11,576	160,675
22,668	407,798	12,863	31,442	474,771	136,140	(24,845)	111,295
10,304	14,773	(13,779)	111,535	122,833	38,343	(79,673)	(41,330)
8,244	199,466	13,853	7,840	229,403	43,553	24,759	68,312
6,270	312,059	30,129	51,867	400,325	52,349	85,527	137,876
176	5,909	4,206	19,758	30,049	(10,291)	(6,115)	(16,406)
0	0	0	439,093	439,093	0	(427,960)	(427,960)
$1,621,006	**$30,763,581**	**$1,372,642**	**$3,069,148**	**$36,826,377**	**$8,954,041**	**$(470,370)**	**$8,483,671**
$206,083,000	**$4,048,427,000**	**$178,099,000**	**$51,444,796**	**$4,484,053,796**	**$1,197,948,000**	**$0**	**$1,197,948,000**

[1] Deferred Outflows of Resources figures and Deferred Inflows of Resources figures represent balances at June 30, 2017, not the activity during fiscal year 2017.

[2] Refer to the note on page 115 for details regarding State of Minnesota component units.

[3] These employers were not allocated a percentage of Net Pension Liability because they were not active at fiscal year end.

Schedule of Pension Amounts by Employer

As of and For the Year Ended June 30, 2017

Employer	Net Pension Liability	Deferred Outflows of Resources (1): Differences Between Expected and Actual Experience in the Measurement of the Total Pension Liability	Changes of Assumptions	Net Differences Between Projected and Actual Investment Earnings on Pension Plan Investments	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Deferred Outflows of Resources
State Patrol Retirement Fund						
State of Minnesota (2)	**$346,317,535**	**$0**	**$199,074,000**	**$0**	**$0**	**$199,074,000**
Correctional Employees Retirement Fund						
State of Minnesota	$1,127,086,889	$10,164,674	$404,733,231	$0	$545,609	$415,443,514
AFSCME	1,015,302	11,971	395,310	0	(56,053)	351,228
MAPE	11,281	355	3,459	0	55,617	59,431
Total	**$1,128,113,472**	**$10,177,000**	**$405,132,000**	**$0**	**$545,173**	**$415,854,173**
Judges Retirement Fund						
State of Minnesota	**$178,341,939**	**$5,297,000**	**$18,001,000**	**$0**	**$0**	**$23,298,000**
Legislators Retirement Fund						
State of Minnesota	**$147,323,232**	**$0**	**$0**	**$0**	**$0**	**$0**

Deferred Inflows of Resources [1]					Pension Expense (Income)		
Differences Between Expected and Actual Experience in the Measurement of the Total Pension Liability	Changes of Assumptions	Net Differences Between Projected and Actual Investment Earnings on Pension Plan Investments	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Deferred Inflows of Resources	Proportionate Share of Plan Pension Expense	Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Employer Pension Expense
$25,178,000	$93,912,000	$9,745,000	$0	$128,835,000	$51,695,000	$0	$51,695,000
$457,578	$219,297,755	$15,234,156	$264,824	$235,254,313	$163,783,762	$84,558	$163,868,320
416	239,756	21,260	224,280	485,712	127,184	(92,203)	34,981
6	12,489	3,584	56,069	72,148	(6,946)	7,645	699
$458,000	$219,550,000	$15,259,000	$545,173	$235,812,173	$163,904,000	$0	$163,904,000
$5,713,000	$53,138,000	$2,635,000	$0	$61,486,000	$5,396,000	$0	$5,396,000
$0	$0	$14,000	$0	$14,000	$1,206,000	$0	$1,206,000

[1] Deferred Outflows of Resources figures and Deferred Inflows of Resources figures represent balances at June 30, 2017, not the activity during fiscal year 2017.
[2] No component units of the State of Minnesota participate in the plans listed on these pages.

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Investment Section

MSRS 2017 Comprehensive Annual Financial Report

MSRS Minnesota State Retirement System
Your Foundation for Retirement

Investment Report

MINNESOTA STATE BOARD OF INVESTMENT

Board Members

Governor
Mark Dayton

State Auditor
Rebecca Otto

Secretary of State
Steve Simon

Attorney General
Lori Swanson

Executive Director & Chief Investment Officer

Mansco Perry

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An Equal Opportunity Employer

INVESTMENT AUTHORITY

The assets of the Minnesota State Retirement System (MSRS) are invested along with the assets of the Public Employees Retirement Association and the Teachers Retirement Association under the direction and authority of the State Board of Investment (SBI) in accordance with Minnesota Statutes, Chapters 11A and 356A. The SBI includes Minnesota's governor, auditor, secretary of state and attorney general. The Legislature has established a 17-member Investment Advisory Council (IAC) to advise the SBI and its staff on investment related matters. MSRS's executive director is a member of the IAC.

INVESTMENT POLICY

Investment policy states that the SBI will operate within standard investment practices of the prudent person. The SBI is to "exercise that degree of judgment and care, under circumstances then prevailing, which persons of prudence, discretion, and intelligence exercise in the management of their own affairs, not for speculation, but for investment, considering the probable safety of their capital as well as the probable income to be derived therefrom." (See M.S., section 11A.09.) The SBI is authorized to own government obligations, corporate obligations, various short-term obligations, corporate stocks, venture capital interests, resource investments, and real estate interests subject to specific constraints. (See M.S., section 11A.24.) In particular, pension fund assets are to be invested for the exclusive benefit of the members of the fund.

INVESTMENT OBJECTIVES AND PERFORMANCE

MSRS's pension contributions from employees and employers are invested in the Combined Funds. The Combined Funds include the assets of active and retired public employees who participate in the defined benefit plans administered by MSRS, the Minnesota Teachers Retirement Association, and the Public Employees Retirement Association. MSRS does not own any underlying assets, but instead owns a participation in the pooled Combined Funds. Because these assets normally accumulate for thirty to forty years, SBI's objective is to take advantage of the long investment time horizon offered by equities and alternative assets in order to meet its actuarial return target and ensure that sufficient funds are available to finance promised benefits at the time of retirement. The 2015 Legislature reduced the interest rate actuarial assumption for MSRS to a single rate of 8%.

The long term objectives of the Combined Funds are:

- Provide returns that are 3-5 percentage points greater than inflation over the latest 20-year period; and

- Outperform a composite market index weighted in a manner that reflects the actual asset mix of the Combined Funds over the latest 10-year period.

Consistent with these objectives, the SBI maintains a long-term asset allocation for the Combined Funds as follows:

- Public Equity 58%
- Domestic Bonds 20%
- Private Markets 20%
- Cash 2%

Based on values on June 30, 2017, the Combined Funds returned 5.1 percentage points above the CPI over the last 20 years and returned 0.2 percentage point above the composite index over the past 10 years. Investment returns ranked in the 10th percentile over the past five years and in the 19th percentile over the past 10 years, compared to similar funds in the Trust Universe Comparison Service.

INVESTMENT PRESENTATION

Investment returns were prepared using time-weighted rate of return methodology based upon fair market value, net of investment expenses.

Respectfully submitted,

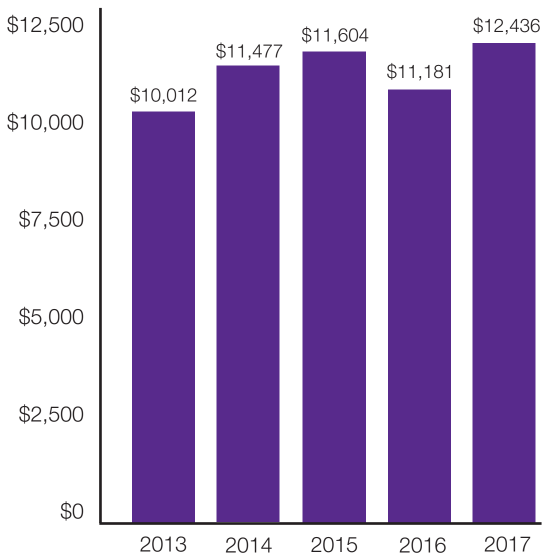
Mansco Perry III

Mansco Perry III
Executive Director
Minnesota State Board of Investment
November 17, 2017

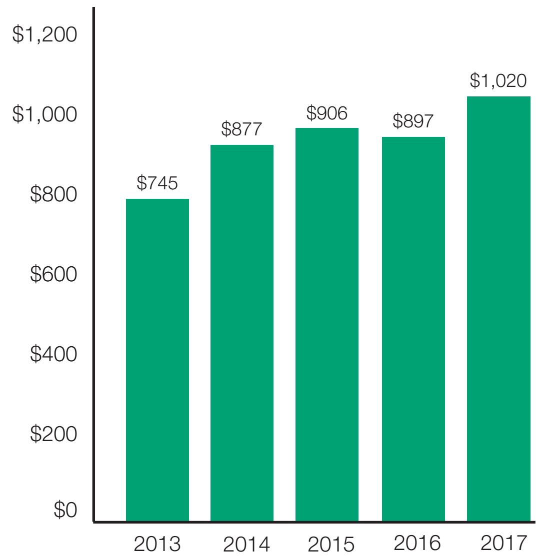
Fair Value of Investments

Four Largest MSRS Defined Benefit Retirement Funds
As of June 30, 2017
(Dollars in millions)

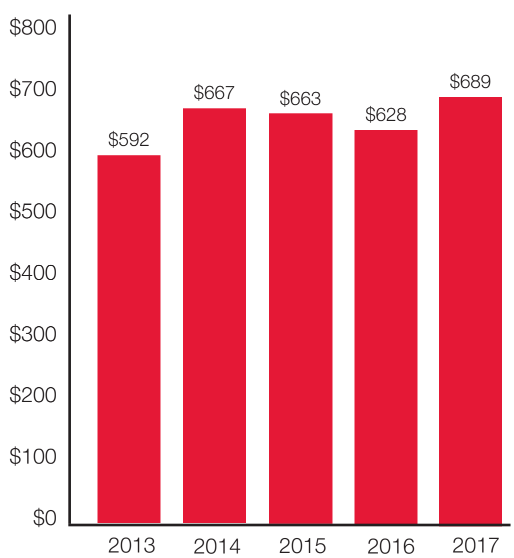
State Employees Retirement Fund



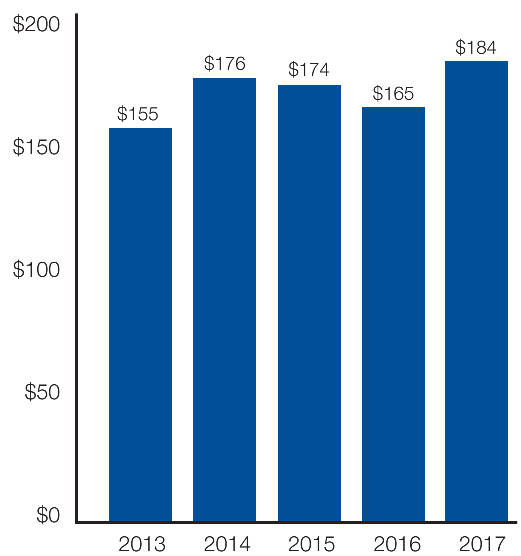
Correctional Employees Retirement Fund



State Patrol Retirement Fund



Judges Retirement Fund



Investment Returns by Sector

Investment Performance Compared to Target Indices (Net of Fees)

	Rates of Return (Annualized)			
	FY 2017	Three-Year	Five-Year	Ten-Year
Domestic Equity	19.4%	8.7%	14.5%	7.1%
Russell 3000 Index	18.5	9.1	14.6	7.3
International Equity	20.2%	1.5%	8.0%	1.6%
MSCI ACWI ex U.S. (net)	20.5	0.8	7.2	1.2
Domestic Bonds	0.9%	2.9%	2.9%	4.9%
Bloomberg Barclays U.S. Aggregate Index	(0.3)	2.5	2.2	4.5
Private Markets	19.7%	8.9%	11.3%	9.0%
Private Equity Investments	18.7	12.6	14.1	10.9
Private Credit Investments	20.0	14.4	14.6	11.1
Resource Investments	27.3	(4.7)	1.7	6.9
Real Estate Investments	7.8	11.8	12.3	4.7

Investment returns were calculated using a time-weighted rate of return.

Private Markets, made up of Private Equity Investments, Private Credit Investments, Resource Investments, and Real Estate Investments, have no benchmarks.

Asset Allocation

Asset allocation can have a significant effect on investment returns. To achieve the best results, investment allocations are periodically reviewed and adjusted to reflect changing market conditions and revised investment objectives.

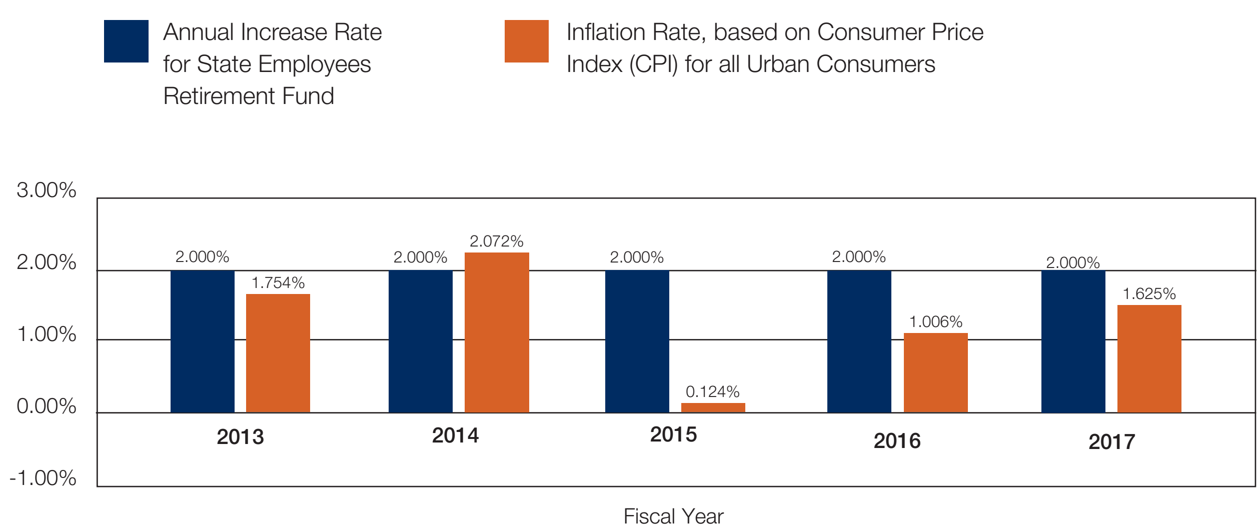
	Combined Funds	
Investment Type	Actual Asset Mix 06/30/2017	Long-Term Policy Target
Domestic Equity	43.2%	39.0%
International Equity	21.7	19.0
Domestic Bonds	19.4	20.0
Private Markets [1]	13.1	20.0
Cash	2.6	2.0
Totals	100.0%	100.0%

[1] If a 20 percent allocation cannot be achieved, the uncommitted allocation is invested in Domestic and International Equities. Private Markets include Private Equity, Private Credit, Resources, and Real Estate.

Investment Results

Benefit Increases vs. Inflation (Last Five Years)

Annual post-retirement benefit increases awarded to MSRS retirees have been greater than inflation during four of the past five years: 2013, 2015, 2016 and 2017. Benefit increases and inflation are measured as of June 30. Benefit increases are effective January 1 of the following year.



As a sustainability measure, post-retirement benefit increases are set at 2% for all defined benefit plans, except State Patrol Retirement Fund, which is set at 1%, and Judges Retirement Fund, which is set at 1.75%. These limits will remain in effect until designated funding thresholds are achieved.

Investment Results by Investment Pool

Investment Performance

Funds	FY2017	Three-Year	Five-Year	Ten-Year
	Rates of Return (Annualized)			
Combined Funds	15.1%	6.3%	10.2%	6.2%
Combined Funds-Composite Index	14.4	6.3	9.9	6.0

Notes:
1. Investment Return percentages are the time-weighted rate of return, net of all management fees.
2. The composite index is composed of the market indicators listed below, weighted according to asset allocation.

Investment Type	Market Indicator
Public Equity	Russell 3000 (67%)
	Morgan Stanley Capital International All Country World Index ex-U.S. (33%)
Domestic Bonds	Bloomberg Barclays U.S. Aggregate Index
Private Markets	Private Markets
Cash	3-Month Treasury Bills

List of Largest Assets Held at Fair Value

As of June 30, 2017
(Dollars in thousands)

Composite of Top Ten Equity Holdings

Company	Fair Value	Percent of Portfolio
Apple, Inc.	$177,606	1.04%
Microsoft Corporation	123,430	0.72
Amazon.com Inc.	105,387	0.61
Facebook, Inc.	96,911	0.57
Johnson & Johnson	87,659	0.51
JP Morgan Chase & Co.	80,384	0.47
Exxon Mobil Corporation	79,542	0.46
Alphabet Inc. Class A	75,927	0.44
Berkshire Hathaway Inc. Class B	74,269	0.43
Alphabet Inc. Class C	67,528	0.39

Composite of Top Ten Bond Holdings

Security	Coupon Rate	Maturity Date	Fair Value	Percent of Portfolio
FNMA TBA 30 Yr	3.500%	07/25/2046	$64,201	0.37%
FNMA TBA 30 Yr	3.000	08/14/2047	40,200	0.23
U.S. Treasury Note/Bond	3.750	11/15/2043	38,599	0.23
U.S. Treasury Note/Bond	2.000	05/31/2024	35,460	0.21
U.S. Treasury Note/Bond	2.250	11/15/2025	26,220	0.15
U.S. Treasury Note/Bond	1.250	06/30/2019	25,623	0.15
U.S. Treasury Note/Bond	1.375	09/30/2020	25,586	0.15
U.S. Treasury Note/Bond	1.375	07/31/2018	23,614	0.14
U.S. Treasury Note/Bond	1.875	08/31/2017	18,659	0.11
U.S. Treasury Note/Bond	2.125	03/31/2024	18,635	0.11

Legend: FNMA = Federal National Mortgage Association TBA = To Be Announced

MSRS assets are commingled in various pooled investment accounts administered by the Minnesota State Board of Investment (SBI). MSRS does not own specific values of the underlying assets. The percentages and fair value shown are those attributable to the MSRS funds based on MSRS's participation in the pools. Information on the SBI investment activity and a listing of specific investments held by the various investment pools is available from the SBI.

Investment Results by Defined Contribution Investment Options

	Rates of Return (Annualized)		
	FY 2017	Three-Year	Five-Year
Supplemental Investment Fund Accounts			
Balanced Fund	11.3%	6.6%	9.9%
U.S. Stock Actively Managed Fund	20.5	8.7	14.6
U.S. Stock Index Fund	18.5	9.1	14.6
Broad International Stock Fund	20.2	1.5	8.0
Bond Fund	0.9	2.9	2.9
Money Market Fund	0.7	0.4	0.3
Stable Value Fund	2.0	2.0	2.1
Deferred Compensation Plan Accounts			
Large Cap Equity			
Vanguard Index Institutional Plus (passive)	17.9%	9.6%	14.6%
Vanguard Dividend Growth (active)(1)	3.8	NA	NA
Mid Cap Equity			
Vanguard Mid Cap Index (passive)	17.3%	8.1%	14.8%
Small Cap Equity			
T. Rowe Price Small Cap (active)	21.2%	8.0%	14.5%
International Equity			
Fidelity Diversified International (active)	18.0%	2.7%	9.5%
Vanguard Total International Stock Index (passive)	20.1	1.4	7.7
Balanced			
Vanguard Balanced Index (passive)	10.6%	6.5%	9.6%
Fixed Income			
Dodge & Cox Income Fund (active)	3.2%	2.8%	3.4%
Vanguard Total Bond Market Index (passive)	(0.4)	2.4	2.1
Money Market Fund	0.7	0.4	0.3
Stable Value Fund	2.0%	2.0%	2.1%
MN Target Retirement Accounts			
Income Fund	5.4%	2.4%	4.3%
2020 Fund	6.8	2.8	5.8
2025 Fund	9.1	3.7	7.4
2030 Fund	11.4	4.5	8.5
2035 Fund	12.7	4.7	9.2
2040 Fund	13.9	4.9	9.7
2045 Fund	15.0	5.0	10.2
2050 Fund	15.8	5.2	10.3
2055 Fund	15.8	5.2	10.3
2060 Fund	15.8	5.2	10.3

(1) Rate of return for one quarter.

Schedule of Investment Manager Fees, Commissions and Other Investment Expenses

For the Fiscal Year Ended June 30, 2017
(Dollars in thousands)

SBI and Consultants

MN State Board of Investment	$986
Pension Consulting Alliance	22
Callan Investment	119
QED Financial Systems	68
Total	**$1,195**

Outside Money Managers

Domestic Equity - Active Managers

Arrowpoint Asset Management, LLC	$184
Barrow, Hanley, Mewhinney & Strauss, LLC	217
Earnest Partners, LLC	149
Goldman Sachs Asset Management	478
Hood River Capital Management LLC	230
Hotchkis and Wiley Capital Management, LLC	516
INTECH Investment Management, LLC	92
Jacobs Levy Equity Management, Inc.	42
LSV Asset Management	422
Martingale Asset Management	381
McKinley Capital Management	346
Next Century Growth Investors, LCC [(1)]	(47)
Peregrine Capital Management	472
Rice Hall James & Associates, LLC	196
Sands Capital Management, Inc.	187
Systematic Financial Management, L.P.	9
Wellington Management Company LLP	202
Winslow Capital Management, Inc.	168
Zevenbergen Capital, Inc.	369
Total	**$4,613**

Domestic Equity - Semi Passive Managers

BlackRock Institutional Trust Company, N.A	$353
INTECH Investment Management, LLC	299
Mellon Capital Management	358
J.P. Morgan Investment Management	489
Total	**$1,499**

Fixed Income Manager

Galliard Capital Management, Inc.	**$3,891**

Domestic Equity - Passive Managers

BlackRock Institutional Trust Co., N.A.	**$240**

International Equity Managers

Acadian Asset Management, LLC	$374
AQR Capital Management, LLC	375
Capital International, Inc	312
Columbia Management Investment Advisors, LLC	266
Fidelity Investments	615
Earnest Partners, LLC	118
Macquarie/Delaware Investments	104
Martin Currie, Inc	103
Marathon Asset Management	578
McKinley Capital Management, Inc.	284
J.P. Morgan Investment Management, Inc.	273
Morgan Stanley Dean	1,136
Neuberger Berman Investment	142
Pzena Investment Management	140
Rock Creek	168
State Street Emerging Markets	92
State Street Global Advisors ALPHA	143
State Street Global Advisors Passive	138
Total	**$5,361**

Domestic Bond Managers

Columbia Management Investment Advisors, LLC	$264
BlackRock, Inc	261
Aberdeen Asset Management	148
Dodge & Cox Investment Management	400
Goldman Sachs Asset Management	397
Neuberger Investment Management	168
Pacific Investment Management Company, LLC (PIMCO)	765
Western Asset Management	346
Total	**$2,749**

Total Investment Expenses	**$19,548**

MSRS assets are commingled in various pooled investment accounts administered by the Minnesota State Board of Investment (SBI). The SBI uses outside money managers and consultants to invest the assets. The amounts in this schedule represent the MSRS share of fees paid to the SBI, and fees paid by the SBI to consultants and money managers. A listing of commissions paid and assets under management can be obtained from the SBI.

[(1)] Negative expense is the result of a negative performance bonus.

Investment Summary at Fair Value

As of June 30, 2016 and 2017
(Dollars in thousands)

Description	Fair Value June 30, 2016	Percent of 2016 Portfolio	Fair Value June 30, 2017	Percent of 2017 Portfolio
State Employees Retirement Fund				
U.S. Stock Actively Managed	$3,456,873	31%	$3,319,335	27%
U.S. Stock Index Fund	1,726,894	15	2,061,572	17
Broad International Stock Fund	1,564,844	14	2,697,645	22
Bond Fund	2,760,132	25	2,412,541	19
Alternative Investment Pool	1,431,127	13	1,632,670	13
Money Market	240,753	2	312,411	2
Totals	**$11,180,623**	**100%**	**$12,436,174**	**100%**
State Patrol Retirement Fund				
U.S. Stock Actively Managed	$194,197	31%	$183,912	27%
U.S. Stock Index Fund	97,012	15	114,224	17
Broad International Stock Fund	87,909	14	149,467	22
Bond Fund	155,056	25	133,670	19
Alternative Investment Pool	80,397	13	90,461	13
Money Market	13,609	2	17,761	2
Totals	**$628,180**	**100%**	**$689,495**	**100%**
Correctional Employees Retirement Fund				
U.S. Stock Actively Managed	$276,674	31%	$271,724	27%
U.S. Stock Index Fund	138,214	15	168,763	17
Broad International Stock Fund	125,244	14	220,832	22
Bond Fund	220,910	25	197,493	19
Alternative Investment Pool	114,542	13	133,652	13
Money Market	20,928	2	27,810	2
Totals	**$896,512**	**100%**	**$1,020,274**	**100%**
Judges Retirement Fund				
U.S. Stock Actively Managed	$50,818	31%	$48,951	27%
U.S. Stock Index Fund	25,386	15	30,403	17
Broad International Stock Fund	23,004	14	39,783	22
Bond Fund	40,576	25	35,579	19
Alternative Investment Pool	21,039	13	24,077	13
Money Market	4,408	2	5,629	2
Totals	**$165,231**	**100%**	**$184,422**	**100%**

The Legislators Retirement Fund had no assets at June 30, 2016 or 2017.

Actuarial Section

MSRS 2017 Comprehensive Annual Financial Report

MSRS Minnesota State Retirement System
Your Foundation for Retirement

Actuarial Section

The following section is divided into two parts:

Actuarial Valuation information for funding purposes.

Typically, these valuations include the calculations for funded ratio and annual required contribution, which are necessary for developing and monitoring funding policy. The Executive Director, staff and advisors develop funding policy recommendations for review and approval by the MSRS Board of Directors. The Board of Directors is responsible for establishing and maintaining funding policy for all MSRS defined benefit retirement plans.

The valuation results can be found on pages 134-167.

Actuarial Valuation information for GASB-compliant accounting and financial reporting purposes.

These valuations provide information necessary for the MSRS governmental employers to record pension related transactions in their accounting system and financial statements, including year-end actuarially determined pension amounts and related note disclosures.

The valuation results can be found on pages 170-181.

Funding
Actuarial Valuation
Results

Actuary's Certification Letter

GRS Retirement Consulting

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December 15, 2017

Board of Directors
Minnesota State Retirement System
60 Empire Drive, Suite 300
St. Paul, MN 55103-3000

Re: 2017 Comprehensive Annual Financial Report (CAFR)

Dear Members of the Board:

We have previously prepared and presented to you our annual actuarial valuation of the State Employees Retirement Fund (SERF), the State Patrol Retirement Fund (SPRF), the Correctional Employees Retirement Fund (CERF), the Judges Retirement Fund (JRF) and the Legislators Retirement Fund (LRF) as of July 1, 2017.

In this Comprehensive Annual Financial Report (CAFR), MSRS prepared all supporting schedules in the Actuarial Section based on the information included in the annual actuarial valuation prepared by Gabriel, Roeder, Smith & Company (GRS). Reading the CAFR is not a substitute for reading the actuarial reports. In order to gain a full understanding of the actuarial condition of the System, it is important to read and understand the full actuarial reports and potentially other relevant information in addition to this CAFR for each of the aforementioned funds. Annual actuarial valuation reports for funding purposes as well as for accounting and financial reporting purposes are available on the MSRS website, along with online copies of this and previous CAFRs.

Valuation Results

The results of the valuations are summarized in the following table. For all plans, except LRF, because the asset returns are smoothed over five years in the valuation, the actuarial value of assets is lower than the market value of assets. The funded ratios on that basis are lower and the deficiencies are higher than the market value results. The LRF valuation is based on the market value of assets, consistent with valuations since July 1, 2000.

	Accrued Liability Funded Ratio		Contribution Deficiency/ (Sufficiency) (% of Pay)			Projected Full Funding Date	
Plan	Actuarial Value of Assets	Market Value of Assets	Actuarial Value of Assets	Market Value of Assets	Statutory Amortization Date	Actuarial Value of Assets	Market Value of Assets
SERF	85.22%	86.05%	2.24%	1.98%	2042	never	never
SPRF	77.77%	78.52%	5.33%	4.72%	2039	Approx. 50 years	
CERF	71.63%	72.38%	6.45%	6.15%	2038	never	never
JRF	52.54%	53.05%	1.97%	1.69%	2039	Approx. 30 years	
LRF*	0.00%	0.00%	$26,445,000*	$26,445,000*	2026	N/A	N/A

* *This fund is closed to new hires and currently funded on a pay-as-you-go basis by annual appropriations from the State's General Fund. The deficiency is expressed as an annual dollar amount rather than a percent of payroll.*

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Members of the Board
December 15, 2017
Page 2

The fundamental financing objective of the fund is to establish contribution rates which will remain approximately level as a percentage of active member payroll from generation to generation and meet the required deadline for full funding.

A contribution deficiency means that over the long run, without further changes or favorable actuarial experience, the contributions scheduled to be made to the fund will not meet the goal of full funding by the statutory amortization date. All of the plans currently have contribution deficiencies. For the CERF and JRF, plan changes affecting members hired after June 30, 2010 and June 30, 2013, respectively, are expected to ultimately reduce the cost of the plan.

The funded ratio measurements shown above are not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations (of transferring the obligations to an unrelated third party in an arm's length market value transaction). The measurements also are dependent upon the actuarial cost method which, in combination with the plan's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will be different from those calculated in the actuarial reports due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement of 100% would not be synonymous with no required future contributions. If the funded status were 100%, the plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).

The following actuarial assumption and plan changes were recognized this year in the valuation:

- For the SPRF, CERF, JRF, and LRF, the base mortality table was changed from RP-2000 to RP-2014, fully generational, white collar adjustments with age adjustments. The mortality improvement scale was changed from Scale AA to Scale MP-2015.
- The Combined Service Annuity (CSA) loads were changed as follows:

	SERF		**SPRF**		**CERF**		**LRF**	
	Prior	**Current**	**Prior**	**Current**	**Prior**	**Current**	**Prior**	**Current**
Active	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Deferred Vested	40.0%	4.0%	30.0%	13.0%	30.0%	17.0%	30.0%	0.0%
Non-Vested Deferred	40.0%	5.0%	30.0%	0.0%	30.0%	6.0%	30.0%	0.0%

- The assumed post-retirement benefit increase rate was changed from 1.00% per year through 2044, 1.50% per year from 2045 through 2061, and 2.50% per year thereafter to 1.00% per year through 2034, 1.50% per year from 2035 through 2053, and 2.50% per year thereafter for the SPRF.
- The assumed post-retirement benefit increase rate was changed from 1.75% per year through 2034, 2.00% per year from 2035 through 2045, and 2.50% per year thereafter to 1.75% per year through 2032, 2.00% per year for 2033 through 2044, and 2.50% per year thereafter for the JRF.
- Actuarial equivalent factors for the SERF and LRF were updated to reflect current mortality and interest assumptions, effective January 1, 2017.

GRS

Actuary's Certification Letter

Members of the Board
December 15, 2017
Page 3

The following additional changes were recognized for the SPRF:

- Assumed increases in member salaries were changed.
- Form of payment assumptions were modified.
- Assumed rates of termination, retirement, and disability were updated.

The following additional changes were recognized for the CERF:

- Assumed increases in member salaries were changed.
- Form of payment assumptions were modified.
- Assumed rates of termination, retirement, and disability were updated.
- Assumed age difference of members and their spouse was lowered from three years to two years.
- The percent married assumption was changed from 85% to 75%.

The following additional changes were recognized for the JRF:

- Assumed rates of retirement and disability were adjusted.

GRS performed a basic review of the basic financial and membership data provided to us as of June 30, 2017 by MSRS, and determined that the data appears reasonable in comparison to last year. We have relied upon the data as submitted in performing the actuarial valuation and in preparing trend data schedules. The actuarial cost method and the assumptions related to asset valuation, investment return, earnings progression and active member payroll growth are specified by State Statute. All other assumptions are based on actual experience, with changes adopted by the MSRS Board, and approved by the Legislative Commission on Pensions and Retirement (LCPR).

In our professional judgement, the statutory discount rate of 8.0% used in this report deviates materially from the guidance set forth in Actuarial Standards of Practice No. 27 (ASOP No. 27). In a 2017 analysis of long-term rate of investment return and inflation assumptions, GRS suggested that an investment return assumption in the range of 6.85% to 7.68% would be reasonable. Please see our letter dated September 11, 2017 for additional information. If a discount rate within the reasonable range were used in this valuation instead of 8.0%, the unfunded liability and contribution deficiency would be higher than shown, and the funded status of the plans would either deteriorate at a faster rate, or improve at a slower rate. Note that estimated results based on a 7.0% discount rate are shown on page five or six of each valuation report (except for LRF, which has a statutory discount rate of 0.00%).

Actuarial standards do not require the actuary to evaluate the ability of the plan sponsor or other contributing entity to make required contributions to the plan when due. Such an evaluation was not within the scope of this project and is not within the actuary's domain of expertise. Consequently, the actuary performed no such evaluation.

GRS

Members of the Board
December 15, 2017
Page 4

With the exception of the prescribed interest rate assumption, to the best of our knowledge and belief, the valuations were performed in accordance with generally accepted actuarial principles and procedures, the requirements of Minnesota Statutes, Section 356.215, and the requirements of the Standards for Actuarial Work established by the LCPR. In our opinion, the results of the valuations reflect the actuarial position of the plans on an ongoing basis under the prescribed assumptions, methods, and procedures.

Brian B. Murphy and Bonita J. Wurst are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. In addition, Mr. Murphy meets the requirements of "approved actuary" under Minnesota Statutes, Section 356.215, Subdivision 1, Paragraph (c). The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

Respectfully submitted,

Brian B. Murphy

Brian B. Murphy, FSA, EA, FCA, MAAA

Bonita J. Wurst

Bonita J. Wurst, ASA, EA, FCA, MAAA

BBM/BJW:sc

GRS

Summary of Actuarial Methods and Assumptions

The actuarial methods and assumptions that follow are prescribed by *Minnesota Statutes*, the Legislative Commission on Pensions and Retirement (LCPR), and the MSRS Board of Directors. MSRS uses these methods and assumptions to monitor funding progress and the sufficiency of plan member and employer contribution rates. Methods and assumptions used for financial reporting purposes, if they differ, are found in the *Actuarial Section,* beginning on page 180. Additional actuarial methods and assumptions used in the July 1, 2017, funding actuarial valuations can be found online at www.msrs.state.mn.us/actuarial-reports.

State Employees Retirement Fund

Actuarial Methods

1. **Actuarial Cost Method:** Entry age normal, with the unfunded actuarial accrued liability amortized over the statutory period using a level percent of payroll assuming payroll increases
2. **Asset Valuation Method:** Market value smoothed over five years
3. **Funding Objective:** Establish contribution rates which, when expressed as a percentage of active member payroll, will remain approximately level from generation to generation and meet the required deadline for full funding
4. **Change in Methods since the 7/1/2016 Valuation:** None.

Actuarial Assumptions (1)

1. **Investment Return:** 8.00% per year (2015)
2. **Benefit Increases After Retirement:** 2% per year (2016)
3. **Salary Increases:** Service-related rates as shown in the table on page 146 of this section (2016)
4. **Inflation:** 2.75% per year (2015)
5. **Payroll Growth:** 3.50% per year (2015)
6. **Mortality Rates:**
   a. Healthy Pre-retirement: RP-2014 employee generational mortality table projected with mortality improvement scale MP-2015 from a base year of 2014; white collar adjustment; males-set forward one year; females-no adjustment (2016)
   b. Healthy Post-retirement: RP-2014 annuitant generational mortality table projected with mortality improvement scale MP-2015 from a base year of 2014; white collar adjustment; males-set forward two years; females-no adjustment (2016)
   c. Disabled: RP-2014 disabled mortality table projected with mortality improvement scale MP-2015 from a base year of 2014; males-set forward two years; females-set forward four years (2016)
7. **Retirement:** Age-based rates as shown in the table on page 150 of this section (2016)
8. **Withdrawal:** Service-related rates based on experiences as shown in the table on page 152 of this section (2016)
9. **Disability:** Age-related rates based on actual experience as shown in the table on page 151 of this section (2016)
10. **Allowance for Combined Service Annuity:** Liabilities for former vested members are increased by 4%, and liabilities for former, non-vested members are increased by 5% to account for the effect of some participants having eligibility for a Combined Service Annuity (2017)
11. **Administrative Expenses:** Prior year administrative expenses expressed as a percentage of prior year projected payroll (1994)
12. **Refund of Contributions:** Employees who withdraw are assumed to take the larger of their contributions accumulated with interest or the value of their deferred benefit (1978)

State Patrol Retirement Fund

Actuarial Methods

1. **Actuarial Cost Method:** Entry age normal, with the unfunded actuarial accrued liability amortized over the statutory period using a level percent of payroll assuming payroll increases
2. **Asset Valuation Method:** Market value smoothed over five years
3. **Funding Objective:** Establish contribution rates which, when expressed as a percentage of active member payroll, will remain approximately level from generation to generation and meet the required deadline for full funding
4. **Change in Methods since the 7/1/2016 Valuation:** None.

Actuarial Assumptions [1]

1. **Investment Return:** 8.00% per year (2015)
2. **Benefit Increases After Retirement:** 1.0% per year through 2034, then 1.5% per year from 2035 to 2053, and 2.5% per year thereafter (2017)
3. **Salary Increases:** Service-related rates as shown in the table on page 146 of this section (2017)
4. **Inflation:** 2.75% per year (2015)
5. **Payroll Growth:** 3.50% per year (2015)
6. **Mortality Rates:**
   a. Healthy Pre-retirement: RP-2014 employee generational mortality table projected with mortality improvement scale MP-2015, from a base year of 2006; white collar adjustment (2017)
   b. Healthy Post-retirement: RP-2014 annuitant generational mortality table projected with mortality improvement scale MP-2015, from a base year of 2006; white collar adjustment (2017)
   c. Disabled: RP-2014 annuitant generational mortality table projected with mortality improvement scale MP-2015, from a base year of 2006; white collar adjustment (2017)
7. **Retirement:** Age-based rates as shown in the table on page 150 of this section (2017)
8. **Withdrawal:** Select and Ultimate rates based on actual experience; 2.5% in year 1, 2% in year 2, and 1.5% in year 3; Rates after the third year are shown on page 152 of this section (2017)
9. **Disability:** Age-related rates based on experience as shown in the table on page 151 of this section. All incidences are assumed to be duty-related (2017)
10. **Allowance for Combined Service Annuity:** Liabilities for former, vested members are increased by 13% to account for the effect of some participants having eligibility for a Combined Service Annuity (2017)
11. **Administrative Expenses:** Prior year administrative expenses expressed as a percentage of prior year projected payroll (1994)
12. **Refund of Contributions:** Employees who withdraw are assumed to take the larger of their contributions accumulated with interest or the value of their deferred benefit (1978)

[1] Year in parentheses is the date of adoption.

Continued on next page

Summary of Actuarial Methods and Assumptions

Correctional Employees Retirement Fund

Actuarial Methods

1. **Actuarial Cost Method:** Entry age normal, with the unfunded actuarial accrued liability amortized over the statutory period using a level percent of payroll assuming payroll increases
2. **Asset Valuation Method:** Market value smoothed over five years
3. **Funding Objective:** Establish contribution rates which, when expressed as a percentage of active member payroll, will remain approximately level from generation to generation and meet the required deadline for full funding
4. **Change in Methods since the 7/1/2016 Valuation:** None.

Actuarial Assumptions [1]

1. **Investment Return:** 8.00% per year (2015)
2. **Benefit Increases After Retirement:** 2% per year (2015)
3. **Salary Increases:** Service-related rates as shown in the table on page 146 of this section (2017)
4. **Inflation:** 2.75% per year (2015)
5. **Payroll Growth:** 3.50% per year (2015)
6. **Mortality Rates:**
   a. Healthy Pre-retirement: RP-2014 employee generational mortality table projected with mortality improvement scale MP-2015, from a base year of 2006; white collar adjustment (2017)
   b. Healthy Post-retirement: RP-2014 annuitant generational mortality table projected with mortality improvement scale MP-2015, from a base year of 2006; white collar adjustment; males-set forward two years; females-set forward one year (2017)
   c. Disabled: RP-2014 disabled mortality table projected with mortality improvement scale MP-2015, from a base year of 2006 (2017)
7. **Retirement:** Age-based rates as shown in the table on page 150 of this section (2017)
8. **Withdrawal:** Select and Ultimate rates based on actual experience; 10% in years 1 through 3 for males, 12% in years 1 through 3 for females; Rates after the third year are shown on page 152 of this section (2017)
9. **Disability:** Age-related rates based on experience as shown in the table on page 151 of this section. All incidences are assumed to be duty-related (2017)
10. **Allowance for Combined Service Annuity:** Liabilities for former, vested members are increased by 17% and liabilities for former, non-vested members are increased by 6% to account for the effect of some participants having eligibility for a Combined Service Annuity (2017)
11. **Administrative Expenses:** Prior year administrative expenses expressed as a percentage of prior year projected payroll (1994)
12. **Refund of Contributions:** Employees who withdraw are assumed to take the larger of their contributions accumulated with interest or the value of their deferred benefit (1978)

Judges Retirement Fund

Actuarial Methods

1. **Actuarial Cost Method:** Entry age normal, with the unfunded actuarial accrued liability amortized over the statutory period using a level percent of payroll assuming payroll increases
2. **Asset Valuation Method:** Market value smoothed over five years
3. **Funding Objective:** Establish contribution rates which, when expressed as a percentage of active member payroll, will remain approximately level from generation to generation and meet the required deadline for full funding
4. **Change in Methods since the 7/1/2016 Valuation:** None.

Actuarial Assumptions [1]

1. **Investment Return:** 8.00% per year (2015)
2. **Benefit Increases After Retirement:** 1.75% per year through 2032, then 2.0% per year from 2033 to 2044, and 2.5% per year thereafter (2017)
3. **Salary Increases:** 2.75% per year (2015)
4. **Inflation:** 2.75% per year (2015)
5. **Payroll Growth:** 2.75% per year (2015)
6. **Mortality Rates:**
   a. Healthy Pre-retirement: RP-2014 employee generational mortality table projected with mortality improvement scale MP-2015, from a base year of 2006; white collar adjustment (2017)
   b. Healthy Post-retirement: RP-2014 annuitant generational mortality table projected with mortality improvement scale MP-2015, from a base year of 2006; white collar adjustment (2017)
   c. Disabled: RP-2014 annuitant generational mortality table projected with mortality improvement scale MP-2015, from a base year of 2006; white collar adjustment (2017)
7. **Retirement:** Age-based rates as shown in the table on page 150 of this section (2017)
8. **Withdrawal:** None
9. **Disability:** Age-related rates are based on actual experience as shown in the table on page 151 of this section (2017)
10. **Administrative Expenses:** Prior year administrative expenses expressed as a percentage of prior year projected payroll
11. **Refund of Contributions:** Account balances for deferred members accumulate interest until normal retirement date and are discounted back to the valuation date

[1] Year in parentheses is the date of adoption.

Continued on next page

Summary of Actuarial Methods and Assumptions

Legislators Retirement Fund

Actuarial Methods

1. **Actuarial Cost Method:** Entry age normal, with the unfunded actuarial accrued liability amortized over 30 years as a level percent of payroll
2. **Asset Valuation Method:** Market value
3. **Funding Objective:** Pay-as-you-go, with annual benefit payments and administrative expenses financed primarily by State of Minnesota General Fund appropriations
4. **Change in Methods since the 7/1/2016 Valuation:** None.

Actuarial Assumptions [1]

1. **Investment Return:** 0% per year (2011)
2. **Benefit Increases After Retirement:** 2% per year (2016)
3. **Salary Increases:** 5% annually (1994)
4. **Inflation:** 2.75% per year (2015)
5. **Payroll Growth:** Not applicable; closed plan with decreasing payroll
6. **Mortality Rates:**
   a. Healthy Pre-retirement: RP-2014 employee generational mortality table projected with mortality improvement scale MP-2015, from a base year of 2014; white collar adjustment; males-set forward one year; females - no adjustment (2017)
   b. Healthy Post-retirement: RP-2014 annuitant generational mortality table projected with mortality improvement scale MP-2015, from a base year of 2014; white collar adjustment; males - set forward two years; females - no adjustment (2017)
   c. Disabled: Not applicable
7. **Retirement:** Age-based rates as shown in the table on page 150 of this section (2012)
8. **Withdrawal:** Ultimate rates based on actual experience as shown on page 152 of this section
9. **Disability:** No disability benefits
10. **Allowance for Combined Service Annuity:** None (2017)
11. **Administrative Expenses:** Prior year administrative expenses expressed as a percentage of prior year projected payroll (1994)
12. **Refund of Contributions:** Employees who withdraw are assumed to take the larger of their contributions accumulated with interest or the value of their deferred benefit (1978)

[1] Year in parentheses is the date of adoption.

Changes in Actuarial Assumptions

The following changes in funding actuarial assumptions have occurred since the July 1, 2016, actuarial valuations. Assumption changes in the State Patrol, Correctional Employees, and Judges Retirement Funds are the result of experience studies dated July 26, 2016.

State Employees Retirement Fund

- The Combined Service Annuity (CSA) loads were 1.2 percent for active member liability and 40 percent for vested and nonvested deferred member liability. The CSA has been changed to 0 percent for active member liability, 4 percent for vested deferred member liability, and 5 percent for non-vested deferred member liability.

State Patrol Retirement Fund

- Assumed salary increase rates are, on average, 0.26 percent greater than previous rates.
- Changes in assumed rates of retirement result in slightly more unreduced (normal) retirements, and fewer early (reduced) retirements.
- Assumed rates of termination decreased for the first three years of employment.
- Disability rates for ages 35 to 51 were increased.
- The base mortality table for healthy and disabled annuitants and employees was changed from the RP-2000 fully generational table to the RP-2014 fully generational table, with a base year of 2006 with white collar adjustments. The mortality improvement scale was changed from Scale AA to Scale MP-2015.
- The assumed percentage of members electing joint and survivor annuities was increased. The form of payment assumptions are now the same for males and females.
- The Combined Service Annuity (CSA) load was 30 percent for vested and non-vested deferred member liability. The CSA has been changed to 13 percent for vested deferred member liability and 0 percent for non-vested deferred member liability.
- The assumed post-retirement benefit increase rate was changed from 1.0 percent per year through 2044, 1.5 percent per year from 2045 through 2061, and 2.5 percent per year thereafter, to 1.0 percent per year through 2034, 1.5 percent per year from 2035 through 2053, and 2.5 percent per year thereafter.

Correctional Employees Retirement Fund

- Assumed salary increase rates are, on average, 0.6 percent greater than previous rates.
- Changes in assumed rates of retirement result in fewer expected unreduced (normal) retirements.
- Assumed rates of termination decreased for the first two years of employment and increased for the third year. For rates beyond the first three years, rates for males younger than 43 were increased, and rates for females younger than 35 and between ages 42 and 44 were increased.
- Disability rates for ages 39 and older were decreased.
- The base mortality table for healthy annuitants and employees was changed from the RP-2000 fully generational table to the RP-2014 fully generational table, with a base year of 2006 with white collar adjustments and age adjustments. The mortality improvement scale was changed from Scale AA to Scale MP-2015. The base mortality table for disabled annuitants was changed from the RP-2000 disabled table with no projection for future mortality improvement to the RP-2014 disabled annuitant mortality table, with future mortality improvement according to MP-2015.
- The assumed percentage of married members was changed from 85 percent to 75 percent.
- The assumed age difference for members and their spouse was lowered from 3 years to 2 years.
- The assumed percentage of members electing joint and survivor annuities was increased. The assumed percentage of members electing the single life annuity was decreased.
- The Combined Service Annuity (CSA) load was 30 percent for vested and non-vested deferred member liability. The CSA has been changed to 17 percent for vested deferred member liability and 6 percent for non-vested deferred member liability.

Continued on next page

Changes in Actuarial Assumptions

Judges Retirement Fund

- The base mortality table for healthy and disabled annuitants and employees was changed from the RP-2000 fully generational table to the RP-2014 fully generational table, with a base year of 2006 with white collar adjustments. The mortality improvement scale was changed from Scale AA to Scale MP-2015.
- Changes in assumed rates of retirement resulted in more unreduced (normal) retirements and slightly fewer reduced (early) retirements.
- Male disability incidence rates were decreased to equal female disability incidence rates.
- The assumed post-retirement benefit increase rate was changed from 1.75 percent per year through 2034, 2.0 percent per year from 2035 through 2045, and 2.5 percent per year thereafter, to 1.75 percent through 2032, 2.0 percent from 2033 through 2044, and 2.5 percent thereafter.

Legislators Retirement Fund

- The base mortality table for healthy annuitants and employees was changed from the RP-2000 fully generational table to the RP-2014 fully generational table with a base year of 2014, white collar adjustments, with age adjustments. The mortality improvement scale was changed from Scale AA to Scale MP-2015.
- The Combined Service Annuity (CSA), which was 30 percent for terminated members, was eliminated.

Changes in Plan Provisions

The following changes in plan provisions have occurred since the July 1, 2016, actuarial valuations:

State Employees and Legislators Retirement Funds

- Actuarial equivalent factors were updated to reflect current mortality and interest assumptions, effective January 1, 2017.

State Patrol, Correctional Employees, and Judges Retirement Funds

- There were no changes in plan provisions during fiscal year 2017.

A description of the system and plans may be found in the *Notes to the Financial Statements* beginning on page 67. Additional plan provisions are summarized in the *Introductory Section* beginning on page 20.

Other Assumptions

June 30, 2017

Form of Payment

Annuity Option Selected

Retirement Fund	Benefit Option: 50% Joint and Survivor	75% Joint and Survivor	100% Joint and Survivor	Straight Life
State Employees				
Male-Married	15%	15%	50%	20%
Female-Married	15	10	30	45
All Unmarried	0	0	0	100
All Deferred	0	0	0	100
State Patrol				
All Married	20%	10%	55%	15%
All Unmarried	0	0	0	100
Correctional Employees				
Male-Married	15%	15%	50%	20%
Female-Married	10	10	35	45
All Unmarried	0	0	0	100
All Deferred [1]	0	0	0	100
Judges				
All	0%	0%	0%	100%
Legislators				
Active Married	100%	0%	0%	0%
Active Single	0	0	0	100
All Deferred	0	0	0	100

[1] Current deferred members who terminated prior to July 1, 1997, are assumed to receive the Level Social Security option to age 62.

Member Information

Active Member Percentage Married and Beneficiary Age

Retirement Fund	Percent Married: Males	Percent Married: Females	Age of Beneficiaries for: Males	Age of Beneficiaries for: Females
State Employees	80%	65%	3 years younger	2 years older
State Patrol	85	85	2 years younger	2 years older
Correctional Employees	75	75	2 years younger	2 years older
Judges	Marital status as indicated in member data file		3 years younger	3 years older
Legislators	85	85	3 years younger	3 years older

Actual marital status is used for members in payment status in the four largest plans. Legislators in payment status are assumed to be 100% married for purposes of a death benefit, except if reported with a joint and survivor benefit. 100% of Elective State Officers members are assumed to be eligible for the automatic survivor benefit.

Actuarial Tables

June 30, 2017

Salary Increase Rates

State Employees Retirement Fund

Salary Scale	
Service Years	Increase
1	14.00%
2	11.50
3	6.25
4	5.50
5	5.25
6	5.15
7	5.00
8	4.75
9	4.50
10	4.25
11	4.20
12	4.15
13	4.10
14	4.05
15	4.00
16	3.95
17	3.90
18	3.85
19	3.80
20	3.75
21	3.70
22	3.65
23	3.60
24	3.55
25+	3.50

State Patrol Retirement Fund

Salary Scale	
Service Years	Increase
1	15.50%
2	9.50
3	8.00
4	7.50
5	7.00
6	6.50
7	6.25
8	6.00
9	5.75
10	5.50
11	5.25
12	5.00
13	4.75
14	4.50
15	4.50
16	4.50
17	4.25
18	4.25
19	4.00
20	4.00
21	3.90
22	3.80
23	3.70
24	3.60
25+	3.50

Correctional Employees Retirement Fund

Salary Scale	
Service Years	Increase
1	12.50%
2	9.00
3	6.00
4	5.50
5	5.25
6	5.00
7	5.00
8	5.00
9	5.00
10	5.00
11	5.00
12	4.75
13	4.50
14	4.50
15	4.25
16	4.25
17	4.25
18	4.00
19	4.00
20	4.00
21	3.75
22	3.75
23	3.75
24+	3.50

Judges Retirement Fund

2.75% per year

Legislators Retirement Fund

5.00% per year

Mortality Rates [1]

State Employees Retirement Fund

	Rates [2]					
	Healthy Pre-Retirement Mortality		Healthy Post-Retirement Mortality		Disability Mortality	
Age	Male	Female	Male	Female	Male	Female
20	0.03%	0.01%	0.03%	0.01%	0.08%	0.06%
25	0.03	0.01	0.04	0.02	0.28	0.18
30	0.03	0.02	0.06	0.05	0.59	0.38
35	0.04	0.02	0.09	0.08	0.97	0.61
40	0.04	0.03	0.14	0.11	1.34	0.84
45	0.07	0.05	0.20	0.15	1.68	1.07
50	0.12	0.09	0.29	0.20	1.99	1.33
55	0.21	0.14	0.42	0.27	2.35	1.63
60	0.36	0.20	0.59	0.38	2.78	1.96
65	0.63	0.30	0.89	0.63	3.37	2.53
70	1.10	0.52	1.47	1.00	4.32	3.60

State Patrol Retirement Fund

	Rates [3]					
	Healthy Pre-Retirement Mortality		Healthy Post-Retirement Mortality		Disability Mortality	
Age	Male	Female	Male	Female	Male	Female
20	0.02%	0.01%	0.02%	0.01%	0.02%	0.01%
25	0.03	0.01	0.04	0.02	0.04	0.02
30	0.03	0.02	0.05	0.05	0.05	0.05
35	0.03	0.03	0.08	0.08	0.08	0.08
40	0.04	0.03	0.11	0.12	0.11	0.12
45	0.06	0.05	0.17	0.15	0.17	0.15
50	0.11	0.09	0.25	0.20	0.25	0.20
55	0.19	0.14	0.38	0.27	0.38	0.27
60	0.32	0.21	0.51	0.39	0.51	0.39
65	0.56	0.31	0.74	0.64	0.74	0.64
70	1.00	0.53	1.21	1.03	1.21	1.03

(1) Generally, mortality rates are expected to increase as age increases. These standard mortality rates have been adjusted slightly to prevent decreasing mortality rates. If the rates were not adjusted as described, the actuaries would not expect the valuation results to be materially different.
(2) These rates were adjusted for mortality improvements using Projection Scale MP-2015 from a base year of 2014.
(3) These rates were adjusted for mortality improvements using Projection Scale MP-2015 from a base year of 2006.

Continued on next page

Actuarial Tables

June 30, 2017

Mortality Rates (1)

Correctional Employees Retirement Fund

	Rates (2)					
	Healthy Pre-Retirement Mortality		Healthy Post-Retirement Mortality		Disability Mortality	
Age	Male	Female	Male	Female	Male	Female
20	0.02%	0.01%	0.03%	0.01%	0.04%	0.02%
25	0.03	0.01	0.04	0.03	0.17	0.08
30	0.03	0.02	0.06	0.05	0.43	0.22
35	0.03	0.03	0.09	0.09	0.79	0.44
40	0.04	0.03	0.14	0.12	1.15	0.66
45	0.06	0.05	0.19	0.15	1.49	0.85
50	0.11	0.09	0.28	0.20	1.87	1.12
55	0.19	0.14	0.41	0.30	2.24	1.46
60	0.32	0.21	0.61	0.45	2.61	1.72
65	0.56	0.31	0.91	0.71	3.08	2.04
70	1.00	0.53	1.52	1.14	3.94	2.76

Judges Retirement Fund

	Rates (2)					
	Healthy Pre-Retirement Mortality		Healthy Post-Retirement Mortality		Disability Mortality	
Age	Male	Female	Male	Female	Male	Female
20	0.02%	0.01%	0.02%	0.01%	0.02%	0.01%
25	0.03	0.01	0.04	0.02	0.04	0.02
30	0.03	0.02	0.05	0.05	0.05	0.05
35	0.03	0.03	0.08	0.08	0.08	0.08
40	0.04	0.03	0.11	0.12	0.11	0.12
45	0.06	0.05	0.17	0.15	0.17	0.15
50	0.11	0.09	0.25	0.20	0.25	0.20
55	0.19	0.14	0.38	0.27	0.38	0.27
60	0.32	0.21	0.51	0.39	0.51	0.39
65	0.56	0.31	0.74	0.64	0.74	0.64
70	1.00	0.53	1.21	1.03	1.21	1.03

Legislators Retirement Fund

	Rates [3]			
	Healthy Pre-Retirement Mortality		Healthy Post-Retirement Mortality	
Age	Male	Female	Male	Female
20	0.03%	0.01%	0.03%	0.01%
25	0.03	0.01	0.04	0.02
30	0.03	0.02	0.06	0.05
35	0.04	0.02	0.09	0.08
40	0.04	0.03	0.14	0.11
45	0.07	0.05	0.20	0.15
50	0.12	0.09	0.29	0.20
55	0.21	0.14	0.42	0.27
60	0.36	0.20	0.59	0.38
65	0.63	0.30	0.89	0.63
70	1.10	0.52	1.47	1.00

(1) Generally, mortality rates are expected to increase as age increases. These standard mortality rates have been adjusted slightly to prevent decreasing mortality rates. If the rates were not adjusted as described, the actuaries would not expect the valuation results to be materially different.
(2) These rates were adjusted for mortality improvements using Projection Scale MP-2015 from a base year of 2006.
(3) These rates were adjusted for mortality improvements using Projection Scale MP-2015 from a base year of 2014.

Continued on next page

Actuarial Tables

June 30, 2017

Retirement Rates

State Employees Retirement Fund

	Percent Retiring		
Age	Rule of 90 Eligible	Hired Prior to 7/1/1989	Hired After 6/30/1989
55	15%	4%	4%
56	15	4	4
57	12.5	4	4
58	12.5	4	4
59	15	6	5
60	15	8	5
61	20	10	10
62	30	20	15
63	25	18	15
64	25	18	15
65	35	35	20
66	30	30	30
67	25	25	25
68	25	25	25
69	22	22	22
70	30	30	30
71+	100	100	100

State Patrol Retirement Fund

Age	Percent Retiring
50	5%
51	5
52	5
53	5
54	5
55	65
56	50
57	30
58	20
59	30
60+	100

Correctional Employees Retirement Fund

Age	Percent Retiring
50	5%
51	3
52	3
53	3
54	5
55	45
56	20
57	15
58	15
59	15
60	15
61	15
62	25
63	25
64	25
65	30
66	30
67	25
68	25
69	40
70+	100

Judges Retirement Fund

Age	Percent Retiring
60	0%
61	0
62	8
63	8
64	5
65	20
66	23
67	23
68	20
69	20
70	100

Legislators Retirement Fund

Age	Percent Retiring
60	0%
61	0
62	40
63	30
64	30
65	40
66	30
67	25
68	25
69	25
70	30
71+	100

Disability Retirement Rates

State Employees Retirement Fund

Age	Disability Retirement Rates
20	0.00%
25	0.01
30	0.01
35	0.02
40	0.06
45	0.11
50	0.22
55	0.32
60	0.47
65	0.00

State Patrol Retirement Fund

Age	Disability Retirement Rates
20	0.03%
25	0.05
30	0.06
35	0.11
40	0.18
45	0.30
50	0.48
55	0.00
60	0.00
65	0.00

Correctional Employees Retirement Fund

Age	Disability Retirement Rates
20	0.05%
25	0.08
30	0.11
35	0.15
40	0.22
45	0.35
50	0.54
55	0.00
60	0.00
65	0.00

Judges Retirement Fund

Age	Disability Retirement Rates
20	0.00%
25	0.00
30	0.00
35	0.00
40	0.01
45	0.03
50	0.05
55	0.12
60	0.31
65	0.00

Legislators Retirement Fund

No disability benefits are available with this plan.

Continued on next page

Actuarial Tables

June 30, 2017

Withdrawal Rates [1]

State Employees Retirement Fund

Years of Service	Withdrawal Rates After Third Year Male	Female
1	20.00%	24.00%
2	15.00	18.00
3	11.00	13.00
4	8.50	11.00
5	7.75	9.00
6	6.50	8.50
7	5.75	7.50
8	5.00	5.75
9	4.00	5.00
10	3.25	4.50
11	3.00	4.00
12	2.75	4.00
13	2.50	3.00
14	2.50	2.75
15	2.50	2.50
16	2.00	2.25
17	2.00	2.25
18	2.00	2.25
19	2.00	2.25
20	1.50	2.25
21	1.50	2.00
22	1.50	2.00
23	1.00	1.50
24	1.00	1.50
25	1.00	1.50
26	1.00	1.50
27	1.00	1.25
28	1.00	1.25
29	1.00	1.25
30+	1.00	1.00

Legislators Retirement Fund

Years of Service	Withdrawal Rates After Third Year Male	Female
1	0.00%	0.00%
2	30.00	0.00
3	0.00	0.00
4	20.00	25.00
5	0.00	0.00
6	10.00	0.00
7	0.00	0.00
8	5.00	10.00
9+	0.00	0.00

State Patrol Retirement Fund

Age	Withdrawal Rates After Third Year Male	Female
20	1.47%	1.47%
25	1.13	1.13
30	0.80	0.80
35	0.47	0.47
40	0.40	0.40
45	0.40	0.40
50	0.00	0.00
55	0.00	0.00
60	0.00	0.00
65	0.00	0.00

Correctional Employees Retirement Fund

Age	Withdrawal Rates After Third Year Male	Female
20	10.00%	12.00%
25	10.00	11.50
30	5.00	9.10
35	4.50	7.10
40	3.50	5.70
45	1.95	3.50
50	0.00	0.00
55	0.00	0.00
60	0.00	0.00
65	0.00	0.00

Judges Retirement Fund

Members in the Judges Plan are assumed not to withdraw.

[1] Withdrawal rates for the first three years of employment in the State Patrol and Correctional Employees Retirement Funds are found in the *Summary of Actuarial Methods and Assumptions* on pages 139-140.

Actuarial Accrued Liability (AAL)

As of June 30, 2017
(Dollars in thousands)

	Defined Benefit Retirement Funds				
	State Employees	State Patrol	Correctional Employees	Judges	Legislators
Active Members					
Retirement Annuities	$5,073,823	$251,055	$529,175	$122,006	$15,086
Disability Benefits	134,124	6,614	9,543	1,346	0
Survivor Benefits	67,521	1,293	4,808	1,774	216
Deferred Retirements	(9,066)	764	17,309	0	(88)
Refunds	(49,974)	(130)	(6,300)	105	(11)
Total Active Members	$5,216,428	$259,596	$554,535	$125,231	$15,203
Deferred Retirements	1,065,663	9,430	115,754	4,158	40,097
Former Members Not Vested	10,622	38	2,460	0	0
Benefit Recipients	8,207,943	611,782	741,694	219,587	172,400
Unclassified Employees Retirement Fund Contingent Liability	8,494	0	0	0	0
Total AAL	**$14,509,150**	**$880,846**	**$1,414,443**	**$348,976**	**$227,700**

Actual Contribution Rates as Compared to Actuarially Recommended Rates

As of June 30, 2017
(Dollars in thousands)

Retirement Fund	Actuarial Valuation Date	Actual Contribution Rates				Recommended Rate	Sufficiency/ (Deficiency)
		Employee	Employer	State	Total		
State Employees	July 1, 2017	5.50%	5.50%	N/A	11.00%	13.24%	(2.24)%
State Patrol [1]	July 1, 2017	14.40	21.60	1.31%	37.31	42.64	(5.33)
Correctional Employees	July 1, 2017	9.10	12.85	N/A	21.95	28.40	(6.45)
Judges [2] [3]	July 1, 2017	8.17	22.50	12.26	42.93	44.90	(1.97)
Legislators	July 1, 2017	9.00	0.00	N/A	9.00	$26,518,000	$(26,445,000)

(1) Annual state contribution of $1 million is statutorily required only until the Public Employee Retirement Association Police and Fire Retirement Fund and the MSRS State Patrol Retirement Fund both reach a 90 percent funded ratio on a market value of assets basis.

(2) State appropriation of $3 million in 2017, and $6 million annually beginning in 2018 is statutorily required until the Judges Retirement Fund is fully funded.

(3) The statutory contribution rate for Judges in the Tier 1 benefit program is 9 percent of salary. The statutory contribution rate for Judges in the Tier 2 benefit program is 7 percent of salary. The employee and total rates on the schedule reflect the fact that member contributions for Tier 1 Judges at the maximum benefit are directed to the Unclassified Employees Retirement Fund. If these contributions were not directed to the Unclassified Employees Retirement Fund, the employee and total rates would be 8.54 percent and 43.30 percent, respectively, instead of 8.17 and 42.93 percent as shown above. The distinction between the Tier 1 and Tier 2 benefit programs is explained on page 70 of the *Financial Section*.

Schedule of Changes in Unfunded Actuarial Accrued Liabilities (UAAL)

For the Fiscal Year Ended June 30, 2017
(Dollars in thousands)

	Defined Benefit Retirement Funds				
	State Employees	State Patrol	Correctional Employees	Judges	Legislators
A. UAAL at the Beginning of the Year	$2,640,516	$179,044	$376,516	$158,809	$218,514
B. Change Due to Interest Requirements and Current Rate of Funding					
1. Normal Cost and Expenses	$246,809	$16,765	$41,311	$9,020	$1,229
2. Contributions	(320,022)	(27,303)	(54,411)	(17,690)	(8,796)
3. Interest on A, B1, and B2	208,313	13,902	29,597	12,358	0
4. Totals (B1+B2+B3)	$135,100	$3,364	$16,497	$3,688	$(7,567)
C. Expected UAAL at End of the Year (A+B4)	$2,775,616	$182,408	$393,013	$162,497	$210,947
D. Increase (Decrease) Due to Actuarial Losses (Gains) Because of Experience Deviations from the Expected					
1. Age and Service Requirements	$2,486	$(334)	$1,939	$(307)	$(192)
2. Disability Requirements	(1,290)	1,437	(1,916)	(143)	0
3. Death-in-Service Benefits	(22)	(208)	108	(99)	39
4. Withdrawals	383	(84)	(948)	8	25
5. Salary Increases	(9,015)	(4,903)	899	(3,266)	581
6. Investment Return	(214,241)	(10,359)	(11,900)	(2,654)	0
7. Mortality of Annuitants	(9,596)	(551)	672	(2,196)	627
8. Other items	(8,420)	1,398	(1,695)	511	1,800
9. Totals	$(239,715)	$(13,604)	$(12,841)	$(8,146)	$2,880
E. UAAL at End of Year Before Plan Amendments and Changes in Actuarial Assumptions (C + D9)	$2,535,901	$168,804	$380,172	$154,351	$213,827
F. Change in UAAL Due to Changes in Plan Provisions	42,807	0	0	0	0
G. Change in UAAL Due to Changes in Actuarial Assumptions	(434,515)	26,965	21,098	11,264	13,873
H. Change in UAAL Due to Changes in Decrement Timing and Miscellaneous Methodology	0	0	0	0	0
I. UAAL at the End of the Year	**$2,144,193**	**$195,769**	**$401,270**	**$165,615**	**$227,700**

Schedule of Actuarial and Market Value Funding Progress

Four Largest MSRS Defined Benefit Retirement Funds
Last Ten Fiscal Years

	Actuarial Basis			Market Value Basis		
Actuarial Valuation Date	Assets	Funded Ratio	Contribution Sufficiency/ (Deficiency)	Assets	Funded Ratio	Contribution Sufficiency/ (Deficiency)[1]
State Employees Retirement Fund						
07/01/08	$9,013,456	90.18%	(3.39)%	$8,803,140	88.08%	N/A
07/01/09	9,030,401	85.90	(5.35)	6,897,118	65.61	(15.08)%
07/01/10	8,960,391	87.30	(0.99)	7,692,531	74.95	(3.90)
07/01/11	9,130,011	86.32	(1.03)	9,197,664	86.96	(0.86)
07/01/12	9,162,301	82.67	(2.32)	9,098,097	82.09	(2.48)
07/01/13	9,375,780	82.04	(2.45)	10,033,499	87.79	(0.80)
07/01/14	10,326,272	82.97	(1.82)	11,498,604	92.39	1.02
07/01/15	11,223,285	85.72	(1.44)	11,638,319	88.89	(0.45)
07/01/16	11,676,370	81.56	(3.49)	11,223,065	78.39	(4.51)
07/01/17	12,364,957	85.22	(2.24)	12,485,614	86.05	(1.98)
State Patrol Retirement Fund						
07/01/08	$595,082	85.79%	(10.09)%	$589,379	84.96%	N/A
07/01/09	584,501	80.58	(12.16)	450,060	62.05	(24.21)%
07/01/10	567,211	83.00	(7.84)	488,870	71.54	(15.05)
07/01/11	563,046	80.33	(5.25)	568,279	81.08	(4.75)
07/01/12	554,244	72.84	(11.52)	549,956	72.27	(11.95)
07/01/13	552,319	74.45	(8.68)	593,201	79.96	(4.33)
07/01/14	597,870	74.69	(8.58)	667,340	83.37	(1.52)
07/01/15	639,863	76.81	(7.98)	664,530	79.77	(5.52)
07/01/16	654,842	78.53	(3.08)	629,992	75.55	(5.51)
07/01/17	685,077	77.77	(5.33)	691,599	78.52	(4.72)

	Actuarial Basis			Market Value Basis		
Actuarial Valuation Date	Assets	Funded Ratio	Contribution Sufficiency/ (Deficiency)	Assets	Funded Ratio	Contribution Sufficiency/ (Deficiency) [1]
Correctional Employees Retirement Fund						
07/01/08	$572,719	75.32%	(6.56)%	$565,180	74.33%	N/A
07/01/09	590,339	71.88	(6.05)	456,783	55.62	(9.77)%
07/01/10	603,863	70.95	(4.73)	525,245	61.71	(6.99)
07/01/11	637,027	70.23	(5.30)	646,582	71.29	(5.02)
07/01/12	663,713	68.55	(4.58)	659,523	68.12	(4.71)
07/01/13	701,091	68.33	(5.41)	747,157	72.82	(3.97)
07/01/14	790,304	70.41	(4.48)	877,056	78.14	(1.86)
07/01/15	878,624	70.90	(5.46)	909,002	73.35	(4.56)
07/01/16	937,000	71.34	(5.61)	899,592	68.49	(6.68)
07/01/17	1,013,173	71.63	(6.45)	1,023,817	72.38	(6.15)
Judges Retirement Fund						
07/01/08	$147,542	63.70%	(2.45)%	$146,088	63.07%	N/A
07/01/09	147,120	60.84	(3.73)	114,690	47.43	(8.50)%
07/01/10	144,728	60.16	(3.62)	126,201	52.46	(6.41)
07/01/11	145,996	58.72	(5.17)	148,504	59.73	(4.78)
07/01/12	144,898	51.46	(13.50)	144,086	51.17	(13.68)
07/01/13	144,918	50.94	(11.46)	155,398	54.62	(9.64)
07/01/14	157,528	52.82	(10.24)	175,556	58.87	(7.27)
07/01/15	168,235	53.30	(11.89)	174,580	55.31	(10.85)
07/01/16	172,525	52.07	(6.28)	165,905	50.07	(7.30)
07/01/17	183,361	52.54	(1.97)	185,141	53.05	(1.69)

[1] Data not available for fiscal year 2008.

Schedule of Contributions from the Employer(s) and Other Contributing Entities

Last Ten Years
(Dollars in thousands)

Year Ended June 30	Actuarially Required Contribution Rate (A)	Actual Covered Payroll (B)	Actual Member Contributions (C)	Annual Required Contributions [(A)x(B)]-(C)]	Actual Employer Contributions	Percent Contributed
State Employees Retirement Fund						
2008	11.76%	$2,256,528	$99,280	$166,088	$96,746	58.25%
2009	12.39	2,329,499	108,866	179,759	107,211	59.64
2010	14.85	2,327,398	115,180	230,439	113,716	49.35
2011	10.99	2,440,580	122,029	146,191	118,563	81.10
2012	11.03	2,367,160	118,358	142,740	115,159	80.68
2013	12.32	2,483,000	124,150	181,756	121,673	66.94
2014	12.45	2,620,660	131,033	195,239	128,037	65.58
2015	12.82	2,714,418	149,293	198,695	146,333	73.65
2016	12.44	2,797,345	153,854	194,136	151,168	77.87
2017	14.49	2,939,455	161,670	264,257	158,352	59.92
State Patrol Retirement Fund						
2008	29.90%	$60,029	$5,594	$12,355	$8,279	67.01%
2009	34.49	61,511	6,216	14,999	9,178	61.19
2010	38.16	63,250	6,726	17,410	10,104	58.04
2011	33.84	63,250	6,578	14,826	9,873	66.59
2012	36.25	62,524	7,753	14,912	11,620	77.92
2013	42.52	62,121	7,703	18,711	11,482	61.37
2014	41.24	63,952	7,930	18,444	12,894[(1)]	69.91
2015	43.56	68,463	9,174	20,648	14,763[(1)]	71.50
2016	42.91	69,343	9,292	20,463	14,938[(1)]	73.00
2017	40.45	73,056	10,520	19,031	16,783[(1)]	88.19
Correctional Employees Retirement Fund						
2008	24.44%	$194,391	$12,775	$34,734	$18,623	53.62%
2009	23.66	193,445	14,031	31,738	20,126	63.41
2010	24.85	192,450	15,267	32,557	21,988	67.54
2011	25.43	197,702	17,002	33,274	23,892	71.80
2012	26.00	200,035	17,203	34,806	24,188	69.49
2013	25.28	204,198	17,561	34,060	24,632	72.32
2014	26.11	219,244	18,855	38,390	26,468	68.95
2015	26.43	231,440	21,061	40,109	29,480	73.50
2016	27.41	241,242	21,953	44,171	30,678	69.45
2017	27.56	248,879	22,648	45,943	31,763	69.14

Year Ended June 30	Actuarially Required Contribution Rate (A)	Actual Covered Payroll (B)	Actual Member Contributions (C)	Annual Required Contributions [(A)x(B)]-(C)]	Actual Employer Contributions [2]	Percent Contributed
Judges Retirement Fund						
2008	33.70%	$38,296	$2,861	$10,045	$7,936	79.00%
2009	30.33	39,444	2,978	8,985	8,219	91.47
2010	31.53	39,291	2,988	9,400	8,283	88.11
2011	31.66	40,473	3,010	9,804	8,297	84.63
2012	33.15	38,644	2,931	9,879	7,922	80.19
2013	41.52	39,888	3,037	13,524	8,177	60.46
2014	42.42	41,893	3,578	14,193	9,426	66.41
2015	41.26	43,449	3,629	14,298	9,776	68.37
2016	42.73	45,418	3,763	15,644	10,219	65.32
2017	43.34	47,813	3,932	16,790	13,758 [3]	81.94
Legislators Retirement Fund [4]						
2008	171.10%	$1,993	$180	$3,230	$2,217	68.64%
2009	243.21	1,963	248	4,526	1,269	28.04
2010	413.00	1,877	171	7,582	1,975	26.05
2011	432.92	1,774	160	7,520	2,805	37.30
2012	1,320.95	1,378	124	18,079	3,935	21.77
2013	1,340.00	1,233	111	16,411	3,399	20.71
2014	1,887.98	1,122	101	21,082	3,436	16.30
2015 [5]	2,287.58	1,700	153	38,736	3,216	8.30
2016	2,204.22	989	89	21,711	5,087	23.43
2017	2,578.68	889	80	22,844	8,716	38.15
Elective State Officers Retirement Fund [4]						
2008	$506	$0	$0	$506	$435	85.92%
2009	558	0	0	558	442	79.28
2010	601	0	0	601	453	75.37
2011	644	0	0	644	460	71.54
2012	1,269	0	0	1,269	466	36.73
2013	991	0	0	991	470	47.43

[1] Includes supplemental state aid of $1 million.
[2] For the Legislators and Elective State Officers Retirement Funds, actual employer contributions include contributions from the state's General Fund.
[3] Includes general fund appropriation of $3 million.
[4] Effective July 1, 2013, the Elective State Officers Retirement Fund was merged with the Legislators Retirement Fund for administrative cost-savings purposes.
[5] Actual member contributions include a member repayment of a prior year employee contribution refund. Actual covered payroll is calculated based on member contributions.

Schedule of Active Member Valuation Data

Last Ten Fiscal Years

Actuarial Valuation Date	Active Member Count	Annual Payroll	Average Annual Pay	Percent Increase In Average Pay
State Employees Retirement Fund				
07/01/08	48,823	$2,256,528,000	$46,219	6.71%
07/01/09	48,989	2,329,499,000	47,551	2.88
07/01/10	48,494	2,327,398,000	47,994	0.93
07/01/11	47,955	2,440,580,000	48,191	0.41
07/01/12	48,207	2,367,160,000	48,815	1.29
07/01/13	49,121	2,483,000,000	49,601	1.61
07/01/14	49,663	2,620,660,000	50,952	2.72
07/01/15	49,037	2,714,418,000	53,149	4.31
07/01/16	49,472	2,797,345,000	55,463	4.35
07/01/17	50,578	2,939,455,000	56,713	2.25
State Patrol Retirement Fund				
07/01/08	840	$60,029,000	$71,463	(1.92)%
07/01/09	876	61,511,000	70,218	(1.74)
07/01/10	848	63,250,000	74,587	6.22
07/01/11	862	63,250,000	71,369	(4.31)
07/01/12	823	62,524,000	76,883	7.73
07/01/13	845	62,121,000	72,171	(6.13)
07/01/14	858	63,952,000	74,727	3.54
07/01/15	843	68,463,000	78,927	5.62
07/01/16	892	69,343,000	78,097	(1.05)
07/01/17	902	73,056,000	80,141	2.62
Correctional Employees Retirement Fund				
07/01/08	4,520	$194,391,000	$43,007	11.08%
07/01/09	4,403	193,445,000	43,935	2.16
07/01/10	4,268	192,450,000	45,091	2.63
07/01/11	4,332	197,702,000	44,200	(1.97)
07/01/12	4,276	200,035,000	47,358	7.14
07/01/13	4,384	204,198,000	46,411	(2.00)
07/01/14	4,504	219,244,000	48,153	3.75
07/01/15	4,449	231,440,000	50,671	5.23
07/01/16	4,521	241,242,000	52,524	3.66
07/01/17	4,579	248,879,000	53,380	1.63

Actuarial Valuation Date	Active Member Count	Annual Payroll	Average Annual Pay	Percent Increase In Average Pay
Judges Retirement Fund				
07/01/08	308	$38,296,000	$124,338	5.80%
07/01/09	312	39,444,000	126,423	1.68
07/01/10	312	39,291,000	125,933	(0.39)
07/01/11	308	40,473,000	127,032	0.87
07/01/12	308	38,644,000	127,844	0.64
07/01/13	309	39,888,000	127,391	(0.35)
07/01/14	316	41,893,000	133,732	4.98
07/01/15	312	43,449,000	139,052	3.98
07/01/16	311	45,418,000	150,726	8.40
07/01/17	317	47,813,000	150,265	(0.31)
Legislators Retirement Fund [1]				
07/01/08	52	$1,993,000	$38,327	(13.04)%
07/01/09	48	1,963,000	40,900	6.71
07/01/10	47	1,877,000	39,936	(2.35)
07/01/11	38	1,774,000	41,241	3.27
07/01/12	34	1,378,000	38,328	(7.06)
07/01/13	24	1,233,000	39,033	1.84
07/01/14	24	1,122,000	37,384	(4.22)
07/01/15	23	1,700,000[2]	41,313	10.51
07/01/16	23	989,000	37,047	(10.33)
07/01/17	19	889,000	40,819	10.18

[1] Effective July 1, 2013, the Elective State Officers Retirement Fund was merged with the Legislators Retirement Fund for administrative cost-savings purposes. There have been no active members in the Elective State Officers Retirement Fund between fiscal year 2008 and the merger.

[2] Actual member contributions include a member repayment of a prior year employee contribution refund. Actual payroll on this schedule is calculated based on member contributions.

Schedule of Retirees and Beneficiaries

Last Ten Fiscal Years

Valuation Year Ended	Added to Rolls		Removed from Rolls		Rolls at Fiscal Year End		% Change in Annual Allowances	Average Annual Allowance
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances		
State Employees Retirement Fund								
06/30/08	2,107	$21,456,000	1,007	$7,102,000	26,446	$418,757,000	6.81%	$15,834
06/30/09	1,873	18,931,000	976	7,210,000	27,343	445,792,000	6.46	16,304
06/30/10	2,071	23,023,000	979	8,116,000	28,435	473,447,000	6.20	16,650
06/30/11	2,699	27,821,000	970	9,607,000	30,164	505,573,000	6.79	16,761
06/30/12	2,971	32,057,768	1,160	11,467,895	31,975	552,088,000	9.20	17,266
06/30/13	2,291	24,459,318	980	9,758,992	33,286	586,256,000	6.19	17,613
06/30/14	2,611	19,878,596	1,168	9,734,906	34,729	623,942,000	6.43	17,966
06/30/15	2,860	35,485,229	1,113	11,270,174	36,476	665,821,000	6.71	18,254
06/30/16	2,548	22,010,668	1,072	10,993,119	37,952	707,361,000	6.24	18,638
06/30/17	2,481	50,812,764	1,100	21,950,949	39,333	750,526,000	6.10	19,081
State Patrol Retirement Fund								
06/30/08	49	$1,503,000	29	$414,000	896	$42,804,000	5.48%	$47,772
06/30/09	33	1,080,000	21	434,000	908	44,480,000	3.92	48,987
06/30/10	37	1,041,000	21	413,000	924	46,119,000	3.68	49,912
06/30/11	36	1,064,000	28	723,000	932	47,844,000	3.74	51,335
06/30/12	51	1,704,000	20	541,200	963	50,007,000	4.52	51,928
06/30/13	45	1,321,942	25	524,505	983	52,057,000	4.10	52,957
06/30/14	64	1,270,181	62	900,675	985	53,697,000	3.15	54,515
06/30/15	68	2,295,671	26	729,264	1,027	55,465,000	3.29	54,007
06/30/16	51	1,282,399	30	1,020,976	1,048	57,695,000	4.02	55,052
06/30/17	44	2,344,952	40	1,952,046	1,052	58,560,000	1.50	55,665
Correctional Employees Retirement Fund								
06/30/08	135	$1,580,000	37	$284,000	1,600	$30,932,000	8.29%	$19,332
06/30/09	139	1,871,000	30	190,000	1,709	33,239,000	7.46	19,449
06/30/10	173	2,116,000	23	175,000	1,859	36,078,000	8.54	19,407
06/30/11	195	2,103,000	38	330,000	2,016	39,116,000	8.42	19,403
06/30/12	222	1,804,146	41	395,124	2,197	42,571,000	8.83	19,377
06/30/13	214	2,524,880	37	327,671	2,374	46,226,000	8.59	9,472
06/30/14	208	2,072,392	65	489,187	2,517	50,842,000	9.99	20,199
06/30/15	295	4,209,512	43	494,457	2,769	54,909,000	8.00	19,830
06/30/16	193	1,741,689	44	488,337	2,918	59,045,000	7.53	20,235
06/30/17	208	4,863,463	42	844,411	3,084	63,221,000	7.07	20,500

Valuation Year Ended	Added to Rolls		Removed from Rolls		Rolls at Fiscal Year End		% Change in Annual Allowances	Average Annual Allowance
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances		
Judges Retirement Fund								
06/30/08	25	$833,000	9	$272,000	279	$15,116,000	4.13%	$54,179
06/30/09	17	580,000	11	187,000	285	16,261,000	7.57	57,056
06/30/10	20	933,000	14	223,000	291	17,058,000	4.90	58,619
06/30/11	25	780,000	19	831,000	297	17,585,000	3.09	59,209
06/30/12	24	784,130	7	367,857	314	18,539,000	5.43	59,041
06/30/13	32	1,088,182	14	437,495	332	19,772,000	6.65	59,554
06/30/14	28	764,654	25	328,523	335	20,802,000	5.21	62,096
06/30/15	23	1,058,885	12	487,967	346	21,893,000	5.24	63,275
06/30/16	20	532,785	16	673,338	350	22,378,000	2.22	63,937
06/30/17	17	991,663	16	1,223,853	351	22,785,000	1.82	64,915
Legislators Retirement Fund [1]								
06/30/08	17	$177,000	11	$85,000	346	$6,786,000	6.20%	$19,613
06/30/09	22	289,000	10	159,000	358	7,016,000	3.39	19,598
06/30/10	19	164,000	18	224,000	359	7,159,000	2.00	19,942
06/30/11	23	340,000	14	144,000	368	7,464,000	4.26	20,283
06/30/12	15	173,314	16	157,452	367	7,721,000	3.44	21,038
06/30/13	18	315,685	23	218,497	362	7,826,000	1.36	21,619
06/30/14	32	653,406	19	180,791	375	8,407,000	1.35	22,419
06/30/15	16	141,320	14	108,325	377	8,441,000	0.40	22,390
06/30/16	7	52,356	12	107,867	372	8,496,000	2.01	22,839
06/30/17	20	559,014	17	475,881	375	8,716,000	2.59	23,243
Elective State Officers Retirement Fund [1]								
06/30/08	0	$0	0	$0	15	$430,000	2.63%	$28,667
06/30/09	0	0	0	0	15	440,000	2.33	29,333
06/30/10	0	0	0	0	15	451,000	2.50	30,067
06/30/11	1	12	2	32,164	14	460,000	2.00	32,857
06/30/12	0	0	0	0	14	458,000	(0.43)	32,714
06/30/13	0	0	0	0	14	469,000	2.40	33,500

[1] Effective July 1, 2013, the Elective State Officers Retirement Fund was merged with the Legislators Retirement Fund for administrative cost-savings purposes.

Solvency Test

Last Ten Fiscal Years
(Dollars in thousands)

Actuarial Valuation Date	Aggregate Accrued Liabilities: (A) Active Member Contributions	(B) Retired and Beneficiaries	(C) Active Member (Employer Financed)	Total Actuarial Accrued Liabilities	Reported Assets	Portion Covered by Reported Assets: (A)	(B)	(C)	Funded Ratio
State Employees Retirement Fund									
07/01/08	$1,041,731	$4,251,341	$4,701,530	$9,994,602	$9,013,456	100.0%	100.0%	79.1%	90.2%
07/01/09	1,102,082	4,496,247	4,914,431	10,512,760	9,030,401	100.0	100.0	69.8	85.9
07/01/10	1,155,473	4,535,401	4,573,197	10,264,071	8,960,391	100.0	100.0	71.5	87.3
07/01/11	982,365	4,982,212	4,611,904	10,576,481	9,130,011	100.0	100.0	68.6	86.3
07/01/12	1,044,810	5,489,756	4,548,661	11,083,227	9,162,301	100.0	100.0	57.8	82.7
07/01/13	1,090,373	5,807,381	4,530,887	11,428,641	9,375,780	100.0	100.0	54.7	82.0
07/01/14	1,128,164	6,471,998	4,844,964	12,445,126	10,326,272	100.0	100.0	56.3	83.0
07/01/15	1,161,369	6,949,000	4,982,333	13,092,702	11,223,285	100.0	100.0	62.5	85.7
07/01/16	1,206,968	7,746,511	5,363,407	14,316,886	11,676,370	100.0	100.0	50.8	81.6
07/01/17	1,260,721	8,207,943	5,040,486	14,509,150	12,364,957	100.0	100.0	57.5	85.2
State Patrol Retirement Fund									
07/01/08	$49,380	$445,217	$199,089	$693,686	$595,082	100.0%	100.0%	50.5%	85.8%
07/01/09	52,557	466,817	205,960	725,334	584,501	100.0	100.0	31.6	80.6
07/01/10	56,699	441,901	184,760	683,360	567,211	100.0	100.0	37.1	83.0
07/01/11	55,513	454,811	190,574	700,898	563,046	100.0	100.0	27.7	80.3
07/01/12	59,777	513,106	188,072	760,955	554,244	100.0	96.4	0.0	72.8
07/01/13	63,504	507,005	171,341	741,850	552,319	100.0	96.4	0.0	74.5
07/01/14	67,030	537,866	195,525	800,421	597,870	100.0	98.7	0.0	74.7
07/01/15	67,543	570,541	194,949	833,033	639,863	100.0	100.0	0.9	76.8
07/01/16	70,738	581,343	181,805	833,886	654,842	100.0	100.0	1.5	78.5
07/01/17	76,399	611,782	192,665	880,846	685,077	100.0	99.5	0.0	77.8
Correctional Employees Retirement Fund									
07/01/08	$81,233	$338,511	$340,619	$760,363	$572,719	100.0%	100.0%	44.9%	75.3%
07/01/09	90,572	368,390	362,288	821,250	590,339	100.0	100.0	36.3	71.9
07/01/10	100,323	383,387	367,376	851,086	603,863	100.0	100.0	32.7	71.0
07/01/11	93,251	417,110	396,651	907,012	637,027	100.0	100.0	31.9	70.2
07/01/12	105,973	456,495	405,698	968,166	663,713	100.0	100.0	25.0	68.6
07/01/13	113,276	498,718	414,104	1,026,098	701,091	100.0	100.0	21.5	68.3
07/01/14	122,102	543,049	457,323	1,122,474	790,304	100.0	100.0	27.4	70.4
07/01/15	126,918	634,592	477,748	1,239,258	878,624	100.0	100.0	24.5	70.9
07/01/16	136,511	673,129	503,876	1,313,516	937,000	100.0	100.0	25.3	71.3
07/01/17	146,482	741,694	526,267	1,414,443	1,013,173	100.0	100.0	23.8	71.6

	Aggregate Accrued Liabilities					Portion Covered by Reported Assets			
Actuarial Valuation Date	(A) Active Member Contributions	(B) Retired and Beneficiaries	(C) Active Member (Employer Financed)	Total Actuarial Accrued Liabilities	Reported Assets	(A)	(B)	(C)	Funded Ratio
Judges Retirement Fund									
07/01/08	$25,450	$124,780	$81,393	$231,623	$147,542	100.0%	98.6%	0.0%	63.7%
07/01/09	27,419	133,356	81,040	241,815	147,120	100.0	89.8	0.0	60.8
07/01/10	28,685	135,184	76,710	240,579	144,728	100.0	85.8	0.0	60.2
07/01/11	25,328	141,762	81,540	248,630	145,996	100.0	85.1	0.0	58.7
07/01/12	26,703	169,262	85,611	281,576	144,898	100.0	69.8	0.0	51.5
07/01/13	26,359	180,641	77,513	284,513	144,918	100.0	65.6	0.0	50.9
07/01/14	28,112	190,570	79,551	298,233	157,528	100.0	67.9	0.0	52.8
07/01/15	29,164	205,115	81,354	315,633	168,235	100.0	67.8	0.0	53.3
07/01/16	30,486	211,594	89,254	331,334	172,525	100.0	67.1	0.0	52.1
07/01/17	32,460	219,587	96,929	348,976	183,361	100.0	68.7	0.0	52.5
Legislators Retirement Fund [1]									
07/01/08	$6,266	$54,926	$24,939	$86,131	$39,209	100.0%	60.0%	0.0%	45.5%
07/01/09	6,059	61,327	23,045	90,431	28,663	100.0	36.9	0.0	31.7
07/01/10	5,993	59,229	21,014	86,236	26,821	100.0	35.2	0.0	31.1
07/01/11[2]	2,622	62,967	19,445	85,034	19,140	100.0	26.2	0.0	22.5
07/01/12[2]	2,498	146,582	98,577	247,657	15,523	100.0	8.9	0.0	6.3
07/01/13	1,930	149,331	84,616	235,877	11,493	100.0	6.4	0.0	4.9
07/01/14	2,011	162,938	85,911	250,860	8,258	100.0	3.8	0.0	3.3
07/01/15	2,024	154,999	73,196	230,219	3,430	100.0	0.9	0.0	1.5
07/01/16	2,103	151,293	65,118	218,514	0	0	0.0	0.0	0.0
07/01/17	1,769	172,400	53,531	227,700	0	0	0.0	0.0	0.0
Elective State Officers Retirement Fund [1]									
07/01/08	$36	$3,605	$267	$3,908	$212	100.0%	4.9%	0.0%	5.4%
07/01/09	36	3,570	280	3,886	213	100.0	5.0	0.0	5.5
07/01/10	36	3,476	270	3,782	214	100.0	5.1	0.0	5.7
07/01/11[2]	0	3,381	312	3,693	0	0	0.0	0.0	0.0
07/01/12[2]	0	8,036	871	8,907	0	0	0.0	0.0	0.0
07/01/13	0	7,751	844	8,595	0	0	0.0	0.0	0.0

[1] Effective July 1, 2013, the Elective State Officers Retirement Fund was merged with the Legislators Retirement Fund for administrative cost-savings purposes.

[2] Amounts reported are based on actuarial valuation results using GASB-compliant (as of the valuation date) alternative assumptions.

Summary of Unfunded Actuarial Accrued Liabilities (UAAL)

Last Ten Fiscal Years
(Dollars in thousands)

Actuarial Valuation Date	Actuarial Accrued Liabilities	Actuarial Value of Assets	Unfunded Actuarial Accrued Liabilities	Member Payroll	UAAL as a Percent of Payroll
State Employees Retirement Fund					
07/01/08	$9,994,602	$9,013,456	$981,146	$2,256,528	43.48%
07/01/09	10,512,760	9,030,401	1,482,359	2,329,499	63.63
07/01/10	10,264,071	8,960,391	1,303,680	2,327,398	56.01
07/01/11	10,576,481	9,130,011	1,446,470	2,440,580	59.27
07/01/12	11,083,227	9,162,301	1,920,926	2,367,160	81.15
07/01/13	11,428,641	9,375,780	2,052,861	2,483,000	82.68
07/01/14	12,445,126	10,326,272	2,118,854	2,620,660	80.85
07/01/15	13,092,702	11,223,285	1,869,417	2,714,418	68.87
07/01/16	14,316,886	11,676,370	2,640,516	2,797,345	94.39
07/01/17	14,509,150	12,364,957	2,144,193	2,939,455	72.95
State Patrol Retirement Fund					
07/01/08	$693,686	$595,082	$98,604	$60,029	164.26%
07/01/09	725,334	584,501	140,833	61,511	228.96
07/01/10	683,360	567,211	116,149	63,250	183.63
07/01/11	700,898	563,046	137,852	63,250	217.95
07/01/12	760,955	554,244	206,711	62,524	330.61
07/01/13	741,850	552,319	189,531	62,121	305.10
07/01/14	800,421	597,870	202,551	63,952	316.72
07/01/15	833,033	639,863	193,170	68,463	282.15
07/01/16	833,886	654,842	179,044	69,343	258.20
07/01/17	880,846	685,077	195,769	73,056	267.97
Correctional Employees Retirement Fund					
07/01/08	$760,363	$572,719	$187,644	$194,391	96.53%
07/01/09	821,250	590,399	230,851	193,445	119.34
07/01/10	851,086	603,863	247,223	192,450	128.46
07/01/11	907,012	637,027	269,985	197,702	136.56
07/01/12	968,166	663,713	304,453	200,035	152.20
07/01/13	1,026,098	701,091	325,007	204,198	159.16
07/01/14	1,122,474	790,304	332,170	219,244	151.51
07/01/15	1,239,258	878,624	360,634	231,440	155.82
07/01/16	1,313,516	937,000	376,516	241,242	156.07
07/01/17	1,414,443	1,013,173	401,270	248,879	161.23

Actuarial Valuation Date	Actuarial Accrued Liabilities	Actuarial Value of Assets	Unfunded Actuarial Accrued Liabilities	Member Payroll	UAAL as a Percent of Payroll
Judges Retirement Fund					
07/01/08	$231,623	$147,542	$84,081	$38,296	219.56%
07/01/09	241,815	147,120	94,695	39,444	240.07
07/01/10	240,579	144,728	95,851	39,291	243.95
07/01/11	248,630	145,996	102,634	40,473	253.59
07/01/12	281,576	144,898	136,678	38,644	353.69
07/01/13	284,513	144,918	139,595	39,888	349.97
07/01/14	298,233	157,528	140,705	41,893	335.86
07/01/15	315,633	168,235	147,398	43,449	339.24
07/01/16	331,334	172,525	158,809	45,418	349.66
07/01/17	348,976	183,361	165,615	47,813	346.38
Legislators Retirement Fund (1)					
07/01/08	$86,131	$39,209	$46,922	$1,993	2,354.34%
07/01/09	90,431	28,663	61,768	1,963	3,146.61
07/01/10	86,236	26,821	59,415	1,877	3,165.42
07/01/11 (2)	216,559	19,140	197,419	1,774	11,128.47
07/01/12 (2)	247,657	15,523	232,134	1,378	16,845.72
07/01/13	235,877	11,493	224,384	1,233	18,198.22
07/01/14	250,860	8,258	242,602	1,122	21,622.28
07/01/15 (3)	230,219	3,430	226,789	1,700	13,340.53
07/01/16	218,514	0	218,514	989	22,094.44
07/01/17	227,700	0	227,700	889	25,613.05
Elective State Officers Retirement Fund (1)					
07/01/08	$3,908	$212	$3,696	$0	N/A
07/01/09	3,886	213	3,673	0	N/A
07/01/10	3,782	214	3,568	0	N/A
07/01/11 (2)	7,610	0	7,610	0	N/A
07/01/12 (2)	8,907	0	8,907	0	N/A
07/01/13	8,595	0	8,595	0	N/A

(1) Effective July 1, 2013, the Elective State Officers Retirement Fund was merged with the Legislators Retirement Fund for administrative cost-savings purposes. The Elective State Officers Retirement Fund has no active contributing members.

(2) Amounts reported are based on actuarial valuation results using GASB-compliant (as of the valuation date) alternative assumptions.

(3) Actual member contributions include a member repayment of a prior year employee contribution refund. Member payroll on this schedule is calculated based on member contributions.

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GASB Statements No. 67 and No. 68 Actuarial Valuation Results

The following pages contain information specific to the actuarial valuations performed to determine the pension liability and pension expense reported in the *Notes to the Financial Statements* in this CAFR. In addition, each employer participating in one of the MSRS defined benefit retirement plans will be allocated their proportionate share of these liability and expense amounts. State and local government employers will be required to recognize their share of the pension expense and pension liability in their financial statements.

These valuations have no bearing on measurement of pension plan funding status, or in decisions regarding contribution requirements for any plan.

Actuary's Certification Letter

GRS Retirement Consulting

P: 800.521.0498 | F: 763.432.5842 | www.grsconsulting.com

December 15, 2017

Board of Directors
Minnesota State Retirement System
60 Empire Drive, Suite 300
St. Paul, MN 55102-3000

Re: 2017 Comprehensive Annual Financial Report (CAFR)

Dear Members of the Board:

We have previously prepared and presented to you our actuarial valuations for accounting and financial reporting purposes for the State Employees Retirement Fund (SERF), the State Patrol Retirement Fund (SPRF), the Correctional Employees Retirement Fund (CERF), the Judges Retirement Fund (JRF) and the Legislators Retirement Fund (LRF) as of June 30, 2017. These annual reports provide information that is intended to comply with the Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68. These calculations have been made on a basis that is consistent with our understanding of these accounting standards.

GASB Statement No. 67 is the accounting standard that applies to the financial reports issued by retirement systems. GASB Statement No. 68 establishes accounting and financial reporting requirements for state and local government employers who provide their employees (including former employees) pension benefits through a trust.

In this Comprehensive Annual Financial Report (CAFR), MSRS prepared the Schedule of Changes in Net Pension Liabilities and Related Ratios and the Schedule of Contributions from Employers and Nonemployers in the Financial Section based on information included in the annual actuarial valuation prepared by Gabriel, Roeder, Smith & Company (GRS). MSRS was responsible for preparing the Schedule of Employer Allocations and the Schedule of Pension Amounts by Employer.

Reading the CAFR is not a substitute for reading the actuarial reports. In order to gain a full understanding of the actuarial condition of the System, it is important to read and understand the full actuarial reports for each of the aforementioned funds. Annual actuarial valuation reports for funding purposes, as well as for accounting and financial reporting purposes, are available on the MSRS website.

277 Coon Rapids Boulevard | Suite 212 | Coon Rapids, Minnesota 55433-2629

Board of Directors
December 15, 2017
Page 2

Valuation Results

The results of the June 30, 2017 GASB Statements No. 67 and No. 68 valuations are summarized in the following table (Dollars in Thousands).

Plan	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability	Ratio[1]	Pension Expense/ (Income)	Single Discount Rate
	(a)	(b)	(a) – (b)	(b) / (a)		
SERF	$ 19,903,520	$ 12,485,614	$ 7,417,906	62.73%	$ 1,197,948	5.42 %
SPRF	1,037,916	691,599	346,317	66.63	51,695	6.38
CERF	2,151,931	1,023,817	1,128,114	47.58	163,904	5.02
JRF	363,483	185,141	178,342	50.94	5,396	7.50
LRF[2]	147,324	0	147,324	0.00	1,206	3.56

(1) *Plan Fiduciary Net Position as a Percentage of Total Pension Liability*
(2) *The Legislators Retirement Fund is currently funded on a pay-as-you-go basis*

The following actuarial assumption and plan changes were recognized this year in the valuations for GASB Statements No. 67 and No. 68 purposes:

- For the SPRF, CERF, JRF, and LRF, the base mortality table was changed from RP-2000 to RP-2014, fully generational, white collar adjustments with age adjustments. The mortality improvement scale was changed from Scale AA to Scale MP-2015.
- The Combined Service Annuity (CSA) loads were changed as follows:

	SERF		SPRF		CERF		LRF	
	Prior	Current	Prior	Current	Prior	Current	Prior	Current
Active	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Deferred Vested	40.0%	4.0%	30.0%	13.0%	30.0%	17.0%	30.0%	0.0%
Non-Vested Deferred	40.0%	5.0%	30.0%	0.0%	30.0%	6.0%	30.0%	0.0%

- The assumed post-retirement benefit increase rate was changed from 1.0% for all years to 1.0% per year through 2064, and 1.50% per year thereafter for the SPRF.
- The assumed post-retirement benefit increase rate was changed from 1.75% per year through 2041, 2.00% per year from 2042 through 2054, and 2.50% per year thereafter to 1.75% per year through 2038, 2.00% per year for 2039 through 2053, and 2.50% per year thereafter for the JRF.

Actuary's Certification Letter

- The Single Discount Rates were changed as follows:

	Prior	Current
SERF	4.17%	5.42%
SPRF	5.31%	6.38%
CERF	4.24%	5.02%
LRF	2.85%	3.56%

- Actuarial equivalent factors for the SERF and LRF were updated to reflect current mortality and interest assumptions, effective January 1, 2017.

The following additional changes were recognized for the SPRF:

- Assumed increases in member salaries were changed.
- Form of payment assumptions were modified.
- Assumed rates of termination, retirement, and disability were updated.

The following additional changes were recognized for the CERF:

- Assumed increases in member salaries were changed.
- Form of payment assumptions were modified.
- Assumed rates of termination, retirement, and disability were updated.
- Assumed age difference of members and their spouse was lowered from three years to two years.
- The percent married assumption was changed from 85% to 75%.

The following additional changes were recognized for the JRF:

- Assumed rates of retirement and disability were adjusted.

GRS performed a brief review of the basic financial and membership data provided to us as of June 30, 2017 by MSRS, and determined that the data appears reasonable in comparison to last year. We have relied upon the data as submitted in performing the actuarial valuation and in preparing trend data schedules. The demographic actuarial assumptions are based on actual experience, with changes adopted by the MSRS' Board and approved by the Legislative Commission on Pensions and Retirement (LCPR). The economic assumptions are based on reviews of inflation and investment return assumptions dated September 11, 2014 and September 11, 2017 and a recent asset liability study obtained by the Minnesota State Board of Investment.

GRS

To the best of our knowledge and belief, the methods and assumptions used in the actuarial valuations meet the parameters set by generally accepted actuarial principles and procedures (ASOPs), generally accepted accounting principles (GAAP) applicable in the United States, the requirements of Minnesota Statutes, Section 356.215, and the requirements of the Standards for Actuarial Work established by the LCPR. In our opinion, the results of the reports reflect the actuarial position of the plans on an ongoing basis under these assumptions, methods, and procedures.

Brian B. Murphy and Bonita J. Wurst are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. In addition, Mr. Murphy meets the requirements of "approved actuary" under Minnesota Statutes, Section 356.215, Subdivision 1, Paragraph (c). The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

Respectfully submitted,

Brian B. Murphy

Brian B. Murphy, FSA, EA, FCA, MAAA

Bonita J. Wurst

Bonita J. Wurst, ASA, EA, FCA, MAAA

BBM/BJW:bd

GRS

Summary of GASB Statements No. 67 and No. 68 Actuarial Valuation Results

As of and For the Year Ended June 30, 2017
(Dollars in thousands)

	State Employees Retirement Fund
Actuarial Valuation Date	June 30, 2017
Measurement Date of the Net Pension Liability	June 30, 2017
Net Pension Liability	
Total Pension Liability	$19,903,520
Fiduciary Net Position	12,485,614
Net Pension Liability	$7,417,906
Deferred Outflows (Inflows) of Resources	
Deferred Outflows (Inflows) of Resources Arising from the Current Reporting Period due to:	
Differences Between Expected and Actual Experience	$49,659
Assumption Changes	(4,691,209)
Differences Between Expected and Actual Earnings on Investments	(841,021)
Total Pension Expense (Income)	$1,197,948
Single Discount Rate	
Long-Term Expected Rate of Investment Return	7.50%
Long-Term Municipal Bond Rate	3.56
Single Discount Rate	5.42
Last fiscal year for which projected benefits are fully funded (using a 100-year projection)	2049

	State Patrol Retirement Fund	Correctional Employees Retirement Fund	Judges Retirement Fund	Legislators Retirement Fund
	June 30, 2017	June 30, 2017	June 30, 2017	June 30, 2017
	June 30, 2017	June 30, 2017	June 30, 2017	June 30, 2017
	$1,037,916	$2,151,931	$363,483	$147,324
	691,599	1,023,817	185,141	0
	$346,317	$1,128,114	$178,342	$147,324
	$(2,418)	$6,566	$(4,958)	$1,517
	(112,694)	(213,159)	11,652	(5,017)
	(47,008)	(68,307)	(12,492)	0
	$51,695	$163,904	$5,396	$1,206
	7.50%	7.50%	7.50%	7.50%
	3.56	3.56	3.56	3.56
	6.38	5.02	7.50	3.56
	2062	2048	2117	2018

Other Information

- Details regarding the Net Pension Liability may be found in *Required Supplementary Information* on pages 90-100 of the *Financial Section* of this report.
- Details regarding the Single Discount Rate may be found in the *Notes to the Financial Statements* beginning on page 88.
- Details for all other information in this schedule are on the pages that follow.

Summary of Deferred Outflows (Inflows) of Resources Arising from Current Reporting Period

For the Fiscal Year Ended June 30, 2017
(Dollars in thousands)

Changes in the net pension liability from one fiscal year to the next are recognized as a pension expense, except in specific situations as outlined in GASB Statement No. 68, and presented in this schedule. In the situations noted in the schedule below, the change in net liability is considered a deferred outflow of resources or a deferred inflow of resources. The deferred outflows and inflows of resources are amortized on a straight-line basis over a specified period of time, and recognized as an expense (or income) partially in the current period and partially in future periods.

	State Employees Retirement Fund
Deferred Outflows (Inflows) of Resources Due to Differences Between Expected and Actual Experience	
Total Difference between Expected and Actual Experience in the measurement of the Total Pension Liability	$49,659
Recognition Period: Average of the expected remaining service lives of all employees (in years)	5
Deferred Outflows (Inflows) of Resources to be recognized in the *current* pension expense for the difference between expected and actual experience in the measurement of the Total Pension Liability	$9,932
Deferred Outflows (Inflows) of Resources to be recognized in *future* pension expenses for the difference between expected and actual experience in the measurement of the Total Pension Liability	$39,727
Deferred Outflows (Inflows) of Resources Due to Changes in Actuarial Assumptions	
Total Assumption Change (Gains) or Losses	$(4,691,209)
Recognition Period: Average of the expected remaining service lives of all employees (in years)	5
Deferred Outflows (Inflows) of Resources to be recognized in the current pension expense due to assumption changes	$(938,242)
Deferred Outflows (Inflows) of Resources to be recognized in future pension expenses due to assumption changes	$(3,752,967)
Deferred Outflows (Inflows) of Resources Due to the Difference Between Expected and Actual Earnings on Pension Plan Investments	
Total Difference between projected and actual earnings on pension plan investments	$(841,021)
Recognition Period (in years)	5
Deferred Outflows (Inflows) of Resources to be recognized in the *current* pension expense due to the difference between projected and actual investment (gains) or losses	$(168,204)
Deferred Outflows (Inflows) of Resources to be recognized in *future* pension expenses due to the difference between projected and actual investment (gains) or losses	$(672,817)

	State Patrol Retirement Fund	Correctional Employees Retirement Fund	Judges Retirement Fund	Legislators Retirement Fund
	$(2,418)	$6,566	$(4,958)	$1,517
	6	5	5	1
	$(403)	$1,313	$(992)	$1,517
	$(2,015)	$5,253	$(3,966)	$0
	$(112,694)	$(213,159)	$11,652	$(5,017)
	6	5	5	1
	$(18,782)	$(42,632)	$2,330	$(5,017)
	$(93,912)	$(170,527)	$9,322	$0
	$(47,008)	$(68,307)	$(12,492)	$0
	5	5	5	5
	$(9,402)	$(13,661)	$(2,498)	$0
	$(37,606)	$(54,646)	$(9,994)	$0

Summary of Pension Expense (Income)

For the Year Ended June 30, 2017
(Dollars in thousands)

	State Employees Retirement Fund
Service Cost	$619,666
Interest on the Total Pension Liability	982,066
Current-Period Benefit Changes	83,490
Employee Contributions	(161,670)
Projected Earnings on Plan Investments	
Pension Plan Administrative Expenses	(826,541)
Other Changes in Fiduciary Net Position	10,165
Recognition of Outflow (Inflow) of Resources Arising from the Current Reporting Period due to:	(47,232)
Difference between expected and actual experience in the measurement of the Total Pension Liability	9,932
Assumption Changes	
Difference between projected and actual earnings on pension plan investments	(938,242)
Recognition of Outflow (Inflow) of Resources Arising from Prior Reporting Periods due to:	(168,204)
Difference between expected and actual experience in the measurement of the Total Pension Liability	(103,202)
Assumption Changes	1,686,802
Difference between projected and actual earnings on pension plan investments	50,918
Total Pension Expense (Income)	**$1,197,948**

State Patrol Retirement Fund	Correctional Employees Retirement Fund	Judges Retirement Fund	Legislators Retirement Fund
$29,758	$95,522	$9,483	$546
58,865	95,307	25,367	4,293
0	0	0	0
(10,520)	(22,648)	(3,932)	(80)
(46,069)	(67,052)	(12,237)	0
208	856	89	39
0	2	0	41
(403)	1,313	(992)	1,517
(18,782)	(42,632)	2,330	(5,017)
(9,402)	(13,661)	(2,498)	0
(6,809)	1,717	1,570	0
52,274	110,532	(14,495)	0
2,575	4,648	711	(133)
$51,695	**$163,904**	**$5,396**	**$1,206**

Summary of Actuarial Methods and Assumptions

For the Year Ended June 30, 2017

Actuarial Methods

1. **Actuarial Cost Method:** Entry age normal
2. **Asset Valuation Method:** Fair value of assets
3. **Valuation of Future Post-Retirement Benefit Increases:**

State Employees

Benefit recipients receive a future annual 2.0 percent post-retirement benefit increase. If the funded ratio (determined on a market value of assets basis) reaches 90 percent (based on a 2.5 percent post-retirement benefit increase assumption) for two consecutive years, the benefit increase will revert to 2.5 percent. If, after reverting to a 2.5 percent benefit increase, the funded ratio declines to less than 80 percent for one year or less than 85 percent for two consecutive years, the benefit increase will be reduced to 2.0 percent.

Projections(1) indicate that this plan is expected to pay 2.0 percent post-retirement benefit increases indefinitely.

State Patrol

Benefit recipients receive a future annual 1.0 percent post-retirement benefit increase. If the funded ratio (determined on a market value of assets basis) reaches 85 percent (based on a 1.5 percent post-retirement benefit increase assumption) for two consecutive years, the benefit increase will change to 1.5 percent; if the funded ratio reaches 90 percent (based on a 2.5 percent post-retirement benefit increase assumption) for two consecutive years, the benefit increase will revert to 2.5 percent. If, after reverting to a 1.5 percent benefit increase, the funded ratio declines to less than 75 percent for one year or less than 80 percent for two consecutive years, the benefit increase will be reduced to 1.0 percent.

Projections(1) indicate that this plan is expected to attain the funding ratio threshold required to pay 1.5 percent post-retirement benefit increase in the year 2064 and is not expected to reach the funding ratio required to pay a 2.5 percent post-retirement benefit increase.

Correctional Employees

Benefit recipients receive a future annual 2.0 percent post-retirement benefit increase. If the funded ratio (determined on a market value of assets basis) reaches 90 percent (based on a 2.5 percent post-retirement benefit increase assumption) for two consecutive years, the benefit increase will revert to 2.5 percent. If, after reverting to a 2.5 percent benefit increase, the funded ratio declines to less than 80 percent for one year or less than 85 percent for two consecutive years, the benefit increase will be reduced to 2.0 percent.

Projections(1) indicate that this plan is expected to pay 2.0 percent post-retirement benefit increases indefinitely.

Judges

Benefit recipients receive a future annual 1.75 percent post-retirement benefit increase. If the funded ratio (determined on a market value of assets basis) reaches 70 percent (based on a 2.0 percent post-retirement benefit increase assumption) for two consecutive years, the benefit increase will increase to 2.0 percent; if the funded ratio reaches 90 percent (based on a 2.5 percent post-retirement benefit increase assumption) for two consecutive years, the benefit increase will revert to 2.5 percent.

Projections(1) indicate that this plan is expected to attain the funded ratio threshold required to pay a 2.0 percent post-retirement benefit increase in the years 2039 through 2053, and a 2.5 percent increase thereafter.

Legislators

Benefit recipients receive a future annual 2.0 percent post-retirement benefit increase. If the funded ratio (determined on a market value of assets basis) of the State Employees Retirement Fund reaches 90 percent (based on a 2.5 percent post-retirement benefit increase assumption) for two consecutive years, the benefit increase for the Legislators Fund will revert to 2.5 percent. If, after reverting to a 2.5 percent benefit increase, the funded ratio of the State Employee Retirement Fund declines to less than 80 percent for one year or less than 85 percent for two consecutive years, the benefit increase will be reduced to 2.0 percent.

Projections[1] for the State Employees Retirement Fund indicate that the Legislators Fund is expected to pay a 2.0 percent post-retirement benefit indefinitely.

[1] To determine assumptions regarding a future change in the post-retirement benefit increase, liabilities and assets were projected based on the following methods and assumptions:

- Future investment returns of 7.5 percent
- Liabilities and normal cost based on statutory funding assumptions (discount rate and salary increases) as reflected on pages 138-152.
- Open group, stable active population (new members, if applicable, based on average new members hired in recent years)
- Post-retirement benefit increases are assumed at the current rate until each successive funded ratio threshold required for a change is reached.
- Contributions are at the current statutory rate, so do not include potential contribution increases under the contribution stabilizer statute.

Actuarial Assumptions

Most assumptions used for GASB-compliant financial reporting purposes are the same as those used for the purposes of measuring funding progress and determining the required contribution rate, as noted on pages 138-152 of this section. Only the assumptions that differ are listed below, and the funds to which they pertain are noted parenthetically.

1. Investment Return:	7.50 percent
2. Single Discount Rate as of the June 30, 2017 Measurement Date:	5.42 percent (State Employees) 6.38 percent (State Patrol) 5.02 percent (Correctional Employees) 7.50 percent (Judges) 3.56 percent (Legislators)
3. Inflation:	2.50 percent
4. Payroll Growth:	3.25 percent (State Employees, State Patrol, Correctional Employees) 2.50 percent (Judges) 4.50 percent (Legislators)
5. Benefit Increases After Retirement:	1.0 percent per year through 2064, 1.5 percent thereafter (State Patrol) 1.75 percent per year through 2038, 2.0 percent per year from 2039 to 2053, and 2.5 percent per year thereafter (Judges)
6. Unclassified Plan Reversion:	Liabilities for active members are increased by 0.16 percent to account for the effect of Unclassified Retirement Plan members who elect coverage under the State Employees Retirement Plan. (State Employees)

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Statistical Section

MSRS 2017 Comprehensive Annual Financial Report

Minnesota State Retirement System
Your Foundation for Retirement

Introduction

GASB Statement No. 44, Economic Condition Reporting: The Statistical Section, issued in May 2004, established the requirements for the information presented in this section of the comprehensive annual financial report. The information that follows is intended to provide financial statement users with additional historical perspectives, context and details. The information contained in this section supplements the financial information provided in the preceding sections and displays trends where they exist, to help readers gain a better understanding of MSRS' overall financial condition.

The *Schedule of Changes in Fiduciary Net Position* shows a 10-year history of the asset growth of the various funds. This data allows readers to review trends in revenue sources and expense categories for all MSRS defined benefit and defined contribution funds.

The *Schedule of Benefits and Refunds by Type* displays in detail the growth of benefits disbursed, whereas the *Schedule of Revenues by Source* provides a 10-year history of the resources received along with the corresponding member payroll contributions and rate information. The *Schedule of Expenses by Type* summarizes the application of those resources over the past ten years.

The remaining schedules provide demographic information about the memberships and information about the employers that participate in the funds. The *Active Members Average Age Tables* report member entry age and attained

Schedule of Changes in Fiduciary Net Position

For the Ten Fiscal Years Ended June 30, 2017
(Dollars in thousands)

State Employees Retirement Fund

	2008	2009	2010	2011
Additions				
Plan Member Contributions	$99,280	$108,866	$115,181	$122,029
Employer Contributions	96,746	107,211	113,716	118,563
Investment Income (Net of Expenses)	(474,845)	(1,674,387)	1,040,873	1,764,307
Other Additions	13,532	15,246	14,939	24,975
Total Additions	$(265,287)	$(1,443,064)	$1,284,709	$2,029,874
Deductions				
Annuity Benefits	$418,757	$445,792	$473,447	$505,573
Refunds	11,676	10,907	9,733	14,206
Administrative Expenses	5,152	5,320	5,771	6,064
Other Expenses	2,993	939	345	325
Total Deductions	$438,578	$462,958	$489,296	$526,168
Change in Net Position	**$(703,865)**	**$(1,906,022)**	**$795,413**	**$1,503,706**

age, as well as service credit over a 10-year period. The *Schedule of New Retirees and Average Benefit Payments* reflects the number of new retirees and their average monthly benefits, also over a 10-year period. The *Schedule of Retired Members by Type of Benefit* reports the June 30, 2017, retirees, monthly benefit amount, and various benefit options selected.

The schedules in this section can be used together to gain a broader historical picture of the activities at MSRS. For instance, when service credit increases on the *Active Members Average Age Tables*, the average benefit shown on the *Schedule of New Retirees and Average Benefit Payments* will similarly increase for members with comparable years of service. Consequently, higher average benefits will be reflected in larger annuity benefit payment amounts reported in the *Schedule of Changes in Fiduciary Net Position* and *Schedule of Expenses by Type* found in this *Statistical Section*.

All the information contained in the schedules of this section was extracted from the database records of MSRS and summarized in the formats shown. There were no estimates or assumptions used in compiling this data.

	2012	**2013**	**2014**	**2015**	**2016**	**2017**
	$118,358	$124,150	$131,033	$149,293	$153,854	$161,670
	115,159	121,673	128,037	146,333	151,168	158,352
	213,887	1,275,308	1,829,621	501,185	(9,633)	1,667,562
	24,677	21,565	21,014	30,401	20,751	47,702
	$472,081	$1,542,696	$2,109,705	$827,212	$316,140	$2,035,286
	$552,088	$586,256	$623,942	$665,821	$707,361	$750,526
	11,573	12,222	11,986	12,026	13,345	11,576
	6,341	8,589	8,125	8,719	10,196	10,165
	219	227	486	931	492	470
	$570,221	$607,294	$644,539	$687,497	$731,394	$772,737
	$(98,140)	**$935,402**	**$1,465,166**	**$139,715**	**$(415,254)**	**$1,262,549**

Schedule of Changes in Fiduciary Net Position

For the Ten Fiscal Years Ended June 30, 2017
(Dollars in thousands)

State Patrol Retirement Fund

	2008	2009	2010	2011
Additions				
Plan Member Contributions	$5,595	$6,216	$6,726	$6,578
Employer Contributions	8,279	9,178	10,104	9,873
Investment Income (Net of Expenses)	(30,579)	(110,073)	68,184	110,908
Other Additions	0	13	41	0
Total Additions	$(16,705)	$(94,666)	$85,055	$127,359
Deductions				
Annuity Benefits	$42,804	$44,480	$46,119	$47,844
Refunds	6	0	3	0
Administrative Expenses	109	104	123	92
Other Expenses	178	69	0	14
Total Deductions	$43,097	$44,653	$46,245	$47,950
Change in Net Position	**$(59,802)**	**$(139,319)**	**$38,810**	**$79,409**

Correctional Employees Retirement Fund

	2008	2009	2010	2011
Additions				
Plan Member Contributions	$12,775	$14,031	$15,267	$17,002
Employer Contributions	18,623	20,126	21,988	23,892
Investment Income (Net of Expenses)	(30,673)	(107,787)	68,880	121,413
Other Additions	1,845	40	30	19
Total Additions	$2,570	$(73,590)	$106,165	$162,326
Deductions				
Annuity Benefits	$30,932	$33,239	$36,078	$39,116
Refunds	795	1,016	1,170	1,509
Administrative Expenses	410	402	455	356
Other Expenses	310	150	0	8
Total Deductions	$32,447	$34,807	$37,703	$40,989
Change in Net Position	**$(29,877)**	**$(108,397)**	**$68,462**	**$121,337**

	2012	2013	2014	2015	2016	2017
	$7,753	$7,703	$7,930	$9,174	$9,292	$10,520
	11,620	11,482	11,894	13,763	13,938	15,783
	12,744	76,315	107,187	28,903	(774)	93,077
	0	0	1,000	1,000	1,000	1,000
	$32,117	$95,500	$128,011	$52,840	$23,456	$120,380
	$50,007	$52,057	$53,697	$55,465	$57,695	$58,560
	275	7	25	15	79	5
	158	190	150	170	220	208
	0	1	0	0	0	0
	$50,440	$52,255	$53,872	$55,650	$57,994	$58,773
	$(18,323)	**$43,245**	**$74,139**	**$(2,810)**	**$(34,538)**	**$61,607**

	2012	2013	2014	2015	2016	2017
	$17,203	$17,561	$18,855	$21,061	$21,953	$22,648
	24,188	24,632	26,468	29,480	30,678	31,763
	15,926	93,392	137,523	38,624	(195)	135,359
	0	0	0	0	0	0
	$57,317	$135,585	$182,846	$89,165	$52,436	$189,770
	$42,571	$46,226	$50,842	$54,909	$59,045	$63,221
	1,257	1,032	1,447	1,590	1,895	1,466
	548	692	657	720	906	856
	0	1	1	0	0	2
	$44,376	$47,951	$52,947	$57,219	$61,846	$65,545
	$12,941	**$87,634**	**$129,899**	**$31,946**	**$(9,410)**	**$124,225**

Schedule of Changes in Fiduciary Net Position

For the Ten Fiscal Years Ended June 30, 2017
(Dollars in thousands)

Judges Retirement Fund

	2008	2009	2010	2011
Additions				
Plan Member Contributions	$2,859	$2,978	$2,988	$3,010
Employer Contributions	7,935	8,219	8,283	8,297
Investment Income (Net of Expenses)	(8,874)	(26,283)	17,339	28,644
Other Additions	0	0	1	0
Total Additions	$1,920	$(15,086)	$28,611	$39,951
Deductions				
Annuity Benefits	$15,116	$16,261	$17,058	$17,585
Refunds	0	0	0	30
Administrative Expenses	54	36	42	32
Other Expenses	24	16	0	1
Total Deductions	$15,194	$16,313	$17,100	$17,648
Change in Net Position	**$(13,274)**	**$(31,399)**	**$11,511**	**$22,303**

Legislators Retirement Fund [1]

	2008	2009	2010	2011
Additions				
Plan Member Contributions	$180	$248	$171	$160
Employer Contributions	0	0	0	0
Investment Income (Net of Expenses)	(1,233)	(5,021)	3,199	4,142
Other Additions	2,217	1,269	1,975	2,807
Total Additions	$1,164	$(3,504)	$5,345	$7,109
Deductions				
Annuity Benefits	$6,786	$7,016	$7,159	$7,464
Refunds	1	0	0	11
Administrative Expenses	34	26	28	22
Other Expenses	3	0	0	0
Total Deductions	$6,824	$7,042	$7,187	$7,497
Change in Net Position	**$(5,660)**	**$(10,546)**	**$(1,842)**	**$(388)**

2012	2013	2014	2015	2016	2017
$2,931	$3,037	$3,578	$3,629	$3,763	$3,932
7,922	8,177	9,426	9,776	10,219	10,758
3,341	19,943	28,011	7,572	(186)	24,729
0	0	0	0	0	3,000
$14,194	$31,157	$41,015	$20,977	$13,796	$42,419
$18,539	$19,772	$20,802	$21,893	$22,378	$22,785
0	0	0	0	0	309
72	72	55	60	93	89
1	1	0	0	0	0
$18,612	$19,845	$20,857	$21,953	$22,471	$23,183
$(4,418)	**$11,312**	**$20,158**	**$(976)**	**$(8,675)**	**$19,236**

2012	2013	2014	2015	2016	2017
$124	$111	$101	$153	$89	$80
0	0	0	0	0	0
253	1,763	1,750	281	(69)	0
3,935	3,399	3,436	3,216	5,087	8,716
$4,312	$5,273	$5,287	$3,650	$5,107	$8,796
$7,721	$7,826	$8,407	$8,441	$8,496	$8,716
172	101	79	0	40	0
36	38	36	37	42	39
0	1,338	0	0	0	0
$7,929	$9,303	$8,522	$8,478	$8,578	$8,755
$(3,617)	**$(4,030)**	**$(3,235)**	**$(4,828)**	**$(3,471)**	**$41**

[1] Effective July 1, 2013, the Elective State Officers Retirement Fund was merged with the Legislators Retirement Fund for administrative cost-savings purposes. The Elective State Officers Retirement Fund schedule through fiscal year 2013 is on page 190.

Schedule of Changes in Fiduciary Net Position

For the Ten Fiscal Years Ended June 30, 2017
(Dollars in thousands)

Elective State Officers Retirement Fund [1]

	2008	2009	2010	2011
Additions				
Plan Member Contributions	$0	$0	$0	$0
Employer Contributions	0	0	0	0
Investment Income (Net of Expenses)	0	0	0	0
Other Additions	434	442	453	460
Total Additions	$434	$442	$453	$460
Deductions				
Annuity Benefits	$430	$440	$451	$459
Refunds	0	0	0	0
Administrative Expenses	4	1	1	1
Other Expenses	0	0	0	0
Total Deductions	$434	$441	$452	$460
Change in Net Position	**$0**	**$1**	**$1**	**$0**

Unclassified Employees Retirement Fund

	2008	2009	2010	2011
Additions				
Plan Member Contributions	$5,209	$4,660	$4,472	$5,417
Employer Contributions	6,362	6,514	6,333	6,360
Investment Income (Net of Expenses)	(3,949)	(46,746)	28,860	51,977
Other Additions	878	426	259	311
Total Additions	$8,500	$(35,146)	$39,924	$64,065
Deductions				
Refunds	$23,256	$5,009	$5,691	$7,799
Administrative Expenses	157	229	164	174
Other Expenses	13,282	14,850	14,652	24,777
Total Deductions	$36,695	$20,088	$20,507	$32,750
Change in Net Position	**$(28,195)**	**$(55,234)**	**$19,417**	**$31,315**

2012	2013
$0	$0
0	0
0	0
465	470
$465	$470
$458	$469
0	0
7	1
0	0
$465	$470
$0	**$0**

2012	2013	2014	2015	2016	2017
$5,586	$5,096	$5,430	$6,173	$5,810	$6,635
5,918	5,867	6,099	6,256	6,187	6,945
6,622	36,246	49,457	14,839	4,673	37,605
293	139	147	1,102	682	623
$18,419	$47,348	$61,133	$28,370	$17,352	$51,808
$5,250	$6,197	$7,496	$8,461	$6,751	$4,068
144	144	140	125	155	148
24,339	21,155	21,001	30,451	20,743	47,775
$29,733	$27,496	$28,637	$39,037	$27,649	$51,991
$(11,314)	**$19,852**	**$32,496**	**$(10,667)**	**$(10,297)**	**$(183)**

[1] Effective July 1, 2013, the Elective State Officers Retirement Fund was merged with the Legislators Retirement Fund for administrative cost-savings purposes. The Legislators Retirement Fund schedule is on page 188.

Schedule of Changes in Fiduciary Net Position

For the Ten Fiscal Years Ended June 30, 2017
(Dollars in thousands)

Health Care Savings Fund

	2008	2009	2010	2011
Additions				
Plan Member Contributions	$73,082	$82,920	$90,445	$132,526
Investment Income (Net of Expenses)	(2,336)	(13,942)	13,032	26,499
Other Additions	1,318	1,438	63	1,989
Total Additions	72,064	$70,416	$103,540	$161,014
Deductions				
Health Care Reimbursements	$27,548	$31,088	$35,613	$44,740
Administrative Expenses	1,090	1,523	1,388	794
Other Expenses	0	0	743	1,396
Total Deductions	$28,638	$32,611	$37,744	$46,930
Change in Net Position	**$43,426**	**$37,805**	**$65,796**	**$114,084**

Minnesota Deferred Compensation Fund

	2008	2009	2010	2011
Additions				
Plan Member Contributions	$231,671	$217,415	$228,190	$222,031
Investment Income (Net of Expenses)	(93,065)	(547,303)	308,697	652,762
Other Income	4,608	3,788	2,305	5,819
Total Additions	$143,214	$(326,100)	$539,192	$880,612
Deductions				
Ongoing Withdrawals	$37,039	$35,222	$30,353	$28,549
Refunds	144,837	106,009	114,889	162,756
Administrative Expenses	2,728	3,004	2,726	3,370
Other Expenses	4,577	3,409	1,715	1,630
Total Deductions	$189,181	$147,644	$149,683	$196,305
Change in Net Position	**$(45,967)**	**$(473,744)**	**$389,509**	**$684,307**

	2012	2013	2014	2015	2016	2017
	$128,375	$112,359	$116,971	$130,894	$130,016	$138,807
	4,445	28,116	50,333	18,678	7,485	65,084
	2,422	2,789	3,610	3,673	3,959	4,220
	$135,242	$143,264	$170,914	$153,245	$141,460	$208,111
	$58,987	$62,482	$64,762	$67,688	$71,541	$74,686
	1,296	1,506	1,838	2,048	2,290	2,559
	855	941	4,600	5,250	6,316	7,051
	$61,138	$64,929	$71,200	$74,986	$80,147	$84,296
	$74,104	**$78,335**	**$99,714**	**$78,259**	**$61,313**	**$123,815**

	2012	2013	2014	2015	2016	2017
	$216,010	$229,187	$234,805	$246,013	$240,934	$270,665
	85,400	642,247	748,675	238,537	55,177	665,340
	4,480	4,237	5,320	4,857	4,897	3,839
	$305,890	$875,671	$988,800	$489,407	$301,008	$939,844
	$29,615	$28,961	$29,754	$33,205	$42,472	$41,524
	170,442	192,774	218,492	262,855	232,986	255,567
	2,762	2,959	3,372	3,463	3,522	3,444
	1,745	1,721	3,851	3,998	3,582	4,939
	$204,564	$226,415	$255,469	$303,521	$282,562	$305,474
	$101,326	**$649,256**	**$733,331**	**$185,886**	**$18,446**	**$634,370**

Schedule of Changes in Fiduciary Net Position

For the Ten Fiscal Years Ended June 30, 2017
(Dollars in thousands)

Hennepin County Supplemental Retirement Fund

	2008	2009	2010	2011
Additions				
Plan Member Contributions	$601	$570	$514	$467
Employer Contributions	601	570	515	466
Investment Income (Net of Expenses)	(9,625)	(20,951)	12,288	21,710
Other Income	50	34	48	49
Total Additions	$(8,373)	$(19,777)	$13,365	$22,692
Deductions				
Ongoing Withdrawals	$5,885	$4,260	$3,514	$4,069
Refunds	227	322	2,244	2,490
Administrative Expenses	6	5	17	11
Other Expenses	41	32	35	39
Total Deductions	$6,159	$4,619	$5,810	$6,609
Change in Net Position	**$(14,532)**	**$(24,396)**	**$7,555**	**$16,083**

2012	2013	2014	2015	2016	2017
$458	$227	$270	$235	$197	$160
459	228	270	231	197	160
3,919	15,968	22,473	7,450	2,296	17,757
49	52	57	83	86	89
$4,885	$16,475	$23,070	$7,999	$2,776	$18,166
$2,807	$4,225	$5,182	$6,130	$4,665	$5,396
3,933	2,491	1,933	1,911	3,174	3,434
17	16	27	25	25	21
33	37	87	134	141	155
$6,790	$6,769	$7,229	$8,200	$8,005	$9,006
$(1,905)	**$9,706**	**$15,841**	**$(201)**	**$(5,229)**	**$9,160**

Schedule of Revenues by Source

For the Ten Fiscal Years Ended June 30, 2017
(Dollars in thousands)

Fiscal Year Ended June 30	Employee Contributions	Employer Contributions	Investment Income	Other Income	Total	Actual Covered Payroll	Percentage Employer Contributions [1]
State Employees Retirement Fund							
2008	$99,280	$96,746	$(474,845)	$13,532	$(265,287)	$2,256,528	4.25%
2009	108,866	107,211	(1,674,387)	15,246	(1,443,064)	2,329,499	4.50
2010	115,181	113,716	1,040,873	14,939	1,284,709	2,327,398	4.75
2011	122,029	118,563	1,764,307	24,975	2,029,874	2,440,580	5.00
2012	118,358	115,159	213,887	24,677	472,081	2,367,160	5.00
2013	124,150	121,673	1,275,308	21,565	1,542,696	2,483,000	5.00
2014	131,033	128,037	1,829,621	21,014	2,109,705	2,620,660	5.00
2015	149,293	146,333	501,185	30,401	827,212	2,714,418	5.50
2016	153,854	151,168	(9,633)	20,751	316,140	2,797,345	5.50
2017	161,670	158,352	1,667,562	47,702	2,035,286	2,939,455	5.50
State Patrol Retirement Fund							
2008	$5,595	$8,279	$(30,579)	$0	$(16,705)	$60,029	13.60%
2009	6,216	9,178	(110,073)	13	(94,666)	61,511	14.60
2010	6,726	10,104	68,184	41	85,055	63,250	14.60
2011	6,578	9,873	110,908	0	127,359	63,250	18.60
2012	7,753	11,620	12,744	0	32,117	62,524	18.60
2013	7,703	11,482	76,315	0	95,500	62,121	18.60[2]
2014	7,930	11,894	107,187	1,000	128,011	63,952	18.60[2]
2015	9,174	13,763	28,903	1,000	52,840	68,463	20.10[2]
2016	9,292	13,938	(774)	1,000	23,456	69,343	20.10[2]
2017	10,520	15,783	93,077	1,000	120,380	73,056	21.60[2]
Correctional Employees Retirement Fund							
2008	$12,775	$18,623	$(30,673)	$1,845	$2,570	$194,391	9.10%
2009	14,031	20,126	(107,787)	40	(73,590)	193,445	10.10
2010	15,267	21,988	68,880	30	106,165	192,450	11.10
2011	17,002	23,892	121,413	19	162,326	197,702	12.10
2012	17,203	24,188	15,926	0	57,317	200,035	12.10
2013	17,561	24,632	93,392	0	135,585	204,198	12.10
2014	18,855	26,468	137,523	0	182,846	219,244	12.10
2015	21,061	29,480	38,624	0	89,165	231,440	12.85
2016	21,953	30,678	(195)	0	52,436	241,242	12.85
2017	22,648	31,763	135,359	0	189,770	248,879	12.85

Fiscal Year Ended June 30	Employee Contributions	Employer Contributions	Investment Income	Other Income	Total	Actual Covered Payroll	Percentage Employer Contributions [1]
Judges Retirement Fund							
2008	$2,859	$7,935	$(8,874)	$0	$1,920	$38,296	20.50%
2009	2,978	8,219	(26,283)	0	(15,086)	39,444	20.50
2010	2,988	8,283	17,339	1	28,611	36,723	20.50
2011	3,010	8,297	28,644	0	39,951	40,473	20.50
2012	2,931	7,922	3,341	0	14,194	38,644	20.50
2013	3,037	8,177	19,943	0	31,157	39,888	20.50
2014	3,578	9,426	28,011	0	41,015	41,893	22.50
2015	3,629	9,776	7,572	0	20,977	43,449	22.50
2016	3,763	10,219	(186)	0	13,796	45,418	22.50
2017	3,932	10,758	24,729	3,000	42,419	47,813	22.50[3]
Legislators Retirement Fund [4]							
2008	$180	N/A	$(1,233)	$2,217	$1,164	$1,993	N/A
2009	248	N/A	(5,021)	1,269	(3,504)	1,963	N/A
2010	171	N/A	3,199	1,975	5,345	1,877	N/A
2011	160	N/A	4,142	2,807	7,109	1,774	N/A
2012	124	N/A	253	3,935	4,312	1,378	N/A
2013	111	N/A	1,763	3,399	5,273	1,233	N/A
2014	101	N/A	1,750	3,436	5,287	1,122	N/A
2015[5]	153	N/A	281	3,216	3,650	1,700	N/A
2016	89	N/A	(69)	5,087	5,107	989	N/A
2017	80	N/A	0	8,716	8,796	889	N/A
Elective State Officers Retirement Fund [4]							
2008	$0	$0	$0	$434	$434	N/A	N/A
2009	0	0	0	442	442	N/A	N/A
2010	0	0	0	453	453	N/A	N/A
2011	0	0	0	460	460	N/A	N/A
2012	0	0	0	465	465	N/A	N/A
2013	0	0	0	470	470	N/A	N/A

(1) Because of employer-paid interest, penalties and leaves of absence, actual employer contributions may exceed the statutorily required percentage.
(2) Percentage excludes statutorily required annual supplemental state contribution of $1 million.
(3) Percentage excludes statutorily required general fund appropriation of $3 million in 2017, and $6 million annually in future years.
(4) Other income for the Legislators Retirement Fund and the Elective State Officers Retirement Fund include appropriations from the State's General Fund. Effective July 1, 2013, the Elective State Officers Retirement Fund was merged with the Legislators Retirement Fund for administrative cost-savings purposes.
(5) Employee contributions included a member repayment of a prior year employee contribution refund. Actual covered payroll is calculated based on employee contributions.

Schedule of Expenses by Type

For the Ten Fiscal Years Ended June 30, 2017
(Dollars in thousands)

Fiscal Year Ended June 30	Annuity Benefits	Administrative Expenses	Refunds	Other Expenses	Total
State Employees Retirement Fund					
2008	$418,757	$5,152	$11,676	$2,993	$438,578
2009	445,792	5,320	10,907	939	462,958
2010	473,447	5,771	9,733	345	489,296
2011	505,573	6,064	14,206	325	526,168
2012	552,088	6,341	11,573	219	570,221
2013	586,256	8,589	12,222	227	607,294
2014	623,942	8,125	11,986	486	644,539
2015	665,821	8,719	12,026	931	687,497
2016	707,361	10,196	13,345	492	731,394
2017	750,526	10,165	11,576	470	772,737
State Patrol Retirement Fund					
2008	$42,804	$109	$6	$178	$43,097
2009	44,480	104	0	69	44,653
2010	46,119	123	3	0	46,245
2011	47,844	92	0	14	47,950
2012	50,007	158	275	0	50,440
2013	52,057	190	7	1	52,255
2014	53,697	150	25	0	53,872
2015	55,465	170	15	0	55,650
2016	57,695	220	79	0	57,994
2017	58,560	208	5	0	58,773
Correctional Employees Retirement Fund					
2008	$30,932	$410	$795	$310	$32,447
2009	33,239	402	1,016	150	34,807
2010	36,078	455	1,170	0	37,703
2011	39,116	356	1,509	8	40,989
2012	42,571	548	1,257	0	44,376
2013	46,226	692	1,032	1	47,951
2014	50,842	657	1,447	1	52,947
2015	54,909	720	1,590	0	57,219
2016	59,045	906	1,895	0	61,846
2017	63,221	856	1,466	2	65,545

Fiscal Year Ended June 30	Annuity Benefits	Administrative Expenses	Refunds	Other Expenses	Total
Judges Retirement Fund					
2008	$15,116	$54	$0	$24	$15,194
2009	16,261	36	0	16	16,313
2010	17,058	42	0	0	17,100
2011	17,585	32	30	1	17,648
2012	18,539	72	0	1	18,612
2013	19,772	72	0	1	19,845
2014	20,802	55	0	0	20,857
2015	21,893	60	0	0	21,953
2016	22,378	93	0	0	22,471
2017	22,785	89	309	0	23,183
Legislators Retirement Fund [1]					
2008	$6,786	$34	$1	$3	$6,824
2009	7,016	26	0	0	7,042
2010	7,159	28	0	0	7,187
2011	7,464	22	11	0	7,497
2012	7,721	36	172	0	7,929
2013	7,826	38	101	1,338	9,303
2014	8,407	36	79	0	8,522
2015	8,441	37	0	0	8,478
2016	8,496	42	40	0	8,578
2017	8,716	39	0	0	8,755
Elective State Officers Retirement Fund [1]					
2008	$430	$4	$0	$0	$434
2009	440	1	0	0	441
2010	451	1	0	0	452
2011	459	1	0	0	460
2012	458	7	0	0	465
2013	469	1	0	0	470

[1] Effective July 1, 2013, the Elective State Officers Retirement Fund was merged with the Legislators Retirement Fund for administrative cost-savings purposes.

Schedule of Benefits and Refunds by Type

For the Ten Fiscal Years Ended June 30, 2017
(Dollars in thousands)

State Employees Retirement Fund

	2008	2009	2010	2011
Benefits by Type				
Retirement	$354,317	$377,343	$400,703	$428,731
Survivor	44,403	47,345	50,822	54,029
Disability	20,037	21,104	21,922	22,813
Total	**$418,757**	**$445,792**	**$473,447**	**$505,573**
Refunds by Type				
Separation	$6,657	$5,484	$5,556	$7,329
Death	1,162	1,478	756	948
Interest	3,857	3,945	3,421	5,929
Total	**$11,676**	**$10,907**	**$9,733**	**$14,206**

State Patrol Retirement Fund

	2008	2009	2010	2011
Benefits by Type				
Retirement	$35,561	$37,167	$38,560	$40,246
Survivor	5,510	5,560	5,600	5,562
Disability	1,733	1,753	1,959	2,036
Total	**$42,804**	**$44,480**	**$46,119**	**$47,844**
Refunds by Type				
Separation	$6	$0	$3	$0
Death	0	0	0	0
Interest	0	0	0	0
Total	**$6**	**$0**	**$3**	**$0**

Correctional Employees Retirement Fund

	2008	2009	2010	2011
Benefits by Type				
Retirement	$26,133	$28,167	$30,637	$33,062
Survivor	1,404	1,515	1,618	1,793
Disability	3,395	3,557	3,823	4,261
Total	**$30,932**	**$33,239**	**$36,078**	**$39,116**
Refunds by Type				
Separation	$631	$724	$758	$1,100
Death	13	64	62	19
Interest	151	228	350	390
Total	**$795**	**$1,016**	**$1,170**	**$1,509**

2012	2013	2014	2015	2016	2017
$471,881	$502,520	$536,403	$574,893	$613,101	$653,158
56,585	59,150	62,122	65,000	67,674	70,400
23,622	24,586	25,417	25,928	26,586	26,968
$552,088	**$586,256**	**$623,942**	**$665,821**	**$707,361**	**$750,526**
$6,683	$7,309	$7,227	$7,207	$7,390	$7,191
781	618	829	1,653	2,037	1,376
4,109	4,295	3,930	3,166	3,918	3,009
$11,573	**$12,222**	**$11,986**	**$12,026**	**$13,345**	**$11,576**

2012	2013	2014	2015	2016	2017
$42,435	$44,296	$45,737	$47,363	$49,727	$50,677
5,528	5,598	5,612	5,590	5,453	5,434
2,044	2,163	2,348	2,512	2,515	2,449
$50,007	**$52,057**	**$53,697**	**$55,465**	**$57,695**	**$58,560**
$1	$5	$24	$14	$73	$4
138	0	0	0	0	0
136	2	1	1	6	1
$275	**$7**	**$25**	**$15**	**$79**	**$5**

2012	2013	2014	2015	2016	2017
$35,906	$39,120	$43,087	$46,700	$50,313	$54,178
2,037	2,197	2,519	2,806	3,106	3,277
4,628	4,909	5,236	5,403	5,626	5,766
$42,571	**$46,226**	**$50,842**	**$54,909**	**$59,045**	**$63,221**
$1,007	$818	$1,058	$1,311	$1,516	$1,186
24	27	107	21	73	53
226	187	282	258	306	227
$1,257	**$1,032**	**$1,447**	**$1,590**	**$1,895**	**$1,466**

Schedule of Benefits and Refunds by Type

For the Ten Fiscal Years Ended June 30, 2017
(Dollars in thousands)

Judges Retirement Fund

	2008	2009	2010	2011
Benefits by Type				
Retirement	$10,959	$10,528	$10,996	$11,525
Survivor	3,520	3,906	4,202	4,195
Disability	637	1,827	1,860	1,865
Total	**$15,116**	**$16,261**	**$17,058**	**$17,585**
Refunds by Type				
Separation	$0	$0	$0	$27
Death	0	0	0	0
Interest	0	0	0	3
Total	**$0**	**$0**	**$0**	**$30**

Legislators Retirement Fund [1]

	2008	2009	2010	2011
Benefits by Type [2]				
Retirement	$5,837	$5,983	$6,007	$6,231
Survivor	949	1,033	1,152	1,233
Total	**$6,786**	**$7,016**	**$7,159**	**$7,464**
Refunds by Type				
Separation	$1	$0	$0	$5
Death	0	0	0	0
Interest	0	0	0	6
Total	**$1**	**$0**	**$0**	**$11**

Elective State Officers Retirement Fund [1]

	2008	2009	2010	2011
Benefits by Type [2]				
Retirement	$340	$348	$357	$353
Survivor	90	92	94	106
Total	**$430**	**$440**	**$451**	**$459**

Refunds by Type
There were no refunds for the past ten years.

2012	2013	2014	2015	2016	2017
$12,279	$13,415	$14,700	$15,874	$16,650	$17,328
4,521	4,624	4,363	4,307	4,113	4,211
1,739	1,733	1,739	1,712	1,615	1,246
$18,539	**$19,772**	**$20,802**	**$21,893**	**$22,378**	**$22,785**
$0	$0	$0	$0	$0	$17
0	0	0	0	0	291
0	0	0	0	0	1
$0	**$0**	**$0**	**$0**	**$0**	**$309**

2012	2013	2014	2015	2016	2017
$6,420	$6,565	$7,032	$6,987	$7,114	$7,269
1,301	1,261	1,375	1,454	1,382	1,447
$7,721	**$7,826**	**$8,407**	**$8,441**	**$8,496**	**$8,716**
$73	$34	$0	$0	$0	$0
0	0	58	0	16	0
99	67	21	0	24	0
$172	**$101**	**$79**	**$0**	**$40**	**$0**

2012	2013
$337	$345
121	124
$458	**$469**

(1) Effective July 1, 2013, the Elective State Officers Retirement Fund was merged with the Legislators Retirement Fund for administrative cost-savings purposes.

(2) The Legislators and Elective State Officers Retirement Funds do not provide disability benefits.

Active Members Average Age Tables

For the Ten Fiscal Years Ended June 30, 2017
(In Years)

Fiscal Year Ended	Averages for New Members: Entry Age			Averages for All Members: Entry Age			Attained Age			Service Credit		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
State Employees Retirement Fund												
06/30/08	36.6	35.5	35.9	33.2	32.6	32.9	47.3	45.5	46.3	13.2	11.5	12.3
06/30/09	36.8	35.8	36.3	33.5	32.8	33.1	47.5	46.0	46.7	13.2	11.8	12.5
06/30/10	37.1	35.9	36.4	33.6	32.7	33.1	47.7	46.3	47.0	13.3	12.1	12.7
06/30/11	36.4	36.9	36.7	33.8	32.9	33.3	47.7	46.6	47.1	13.1	12.2	12.6
06/30/12	36.6	34.7	35.5	34.0	33.2	33.6	47.6	46.6	47.1	12.8	12.0	12.4
06/30/13	37.1	36.5	36.8	34.3	33.4	33.8	47.6	46.6	47.0	12.5	11.9	12.2
06/30/14	36.2	35.8	35.9	34.5	33.7	34.1	47.6	46.6	47.0	12.3	11.7	12.0
06/30/15	36.3	34.9	35.5	34.7	33.8	34.2	47.6	46.6	47.0	12.2	11.7	11.9
06/30/16	36.5	35.2	35.7	34.9	33.9	34.3	47.5	46.5	46.9	12.0	11.5	11.6
06/30/17	36.0	35.2	35.6	35.0	34.0	34.5	47.2	46.3	46.7	11.6	11.2	11.3
State Patrol Retirement Fund												
06/30/08	32.8	29.5	32.3	29.0	28.9	29.0	41.6	40.3	41.5	12.5	11.2	12.4
06/30/09	29.9	29.8	29.9	29.0	29.1	29.0	41.2	40.1	41.1	12.1	10.9	11.9
06/30/10	39.4	N/A	39.4	29.0	28.7	29.0	41.9	40.9	41.8	12.8	12.0	12.7
06/30/11	29.6	33.4	30.0	29.1	29.0	29.1	41.8	41.0	41.7	12.6	11.8	12.6
06/30/12	36.5	27.9	33.4	29.2	28.8	29.2	42.1	41.3	42.0	12.8	12.2	12.7
06/30/13	30.7	31.7	30.7	29.3	28.9	29.3	41.9	41.8	41.8	12.5	12.7	12.5
06/30/14	32.8	28.4	32.4	29.4	29.0	29.4	41.8	41.6	41.8	12.4	12.7	12.4
06/30/15	29.7	33.6	29.9	29.4	29.1	29.4	41.2	41.5	41.3	11.9	12.4	11.9
06/30/16	30.3	32.5	30.5	29.5	29.5	29.5	40.6	41.0	40.6	11.1	11.5	11.1
06/30/17	29.4	32.6	29.7	29.5	29.9	29.5	40.6	41.3	40.6	11.2	11.3	11.2

	Averages for New Members			Averages for All Members								
	Entry Age			Entry Age			Attained Age			Service Credit		
Fiscal Year Ended	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total

Correctional Employees Retirement Fund

06/30/08	33.5	34.7	34.1	32.0	34.3	32.9	40.5	40.0	40.3	8.2	5.5	7.1
06/30/09	33.3	35.2	34.2	32.1	34.6	33.0	41.0	40.9	40.9	8.7	6.1	7.7
06/30/10	36.1	38.0	37.1	32.0	34.5	32.9	41.6	41.6	41.6	9.3	6.7	8.4
06/30/11	32.1	33.3	32.7	31.9	34.0	32.7	41.6	41.3	41.5	9.4	7.0	8.5
06/30/12	32.3	33.6	32.8	31.8	33.8	32.6	41.5	41.2	41.4	9.4	7.1	8.6
06/30/13	32.0	34.0	32.9	31.8	33.7	32.4	41.6	41.2	41.5	9.5	7.2	8.7
06/30/14	33.7	33.6	33.7	31.9	33.4	32.5	41.8	40.8	41.4	9.7	7.1	8.7
06/30/15	33.0	35.4	34.1	31.9	33.6	32.5	41.7	41.0	41.4	9.6	7.1	8.7
06/30/16	33.1	34.1	33.6	31.9	33.4	32.5	41.7	40.9	41.4	9.6	7.2	8.7
06/30/17	33.4	34.3	33.8	31.9	33.4	32.4	41.8	40.9	41.4	9.7	7.2	8.8

Judges Retirement Fund

06/30/08	53.2	46.5	50.7	46.6	44.1	45.9	57.1	52.9	55.9	10.4	8.7	9.9
06/30/09	52.0	47.7	49.8	46.9	44.4	46.1	57.6	53.2	56.2	10.5	8.7	10.0
06/30/10	49.4	43.8	47.1	47.0	44.5	46.2	58.6	53.4	56.5	10.8	8.8	10.1
06/30/11	49.8	45.3	48.3	47.3	44.7	46.4	58.2	53.8	56.7	10.8	9.0	10.2
06/30/12	52.1	49.4	51.0	47.7	45.0	46.7	58.3	54.4	56.9	10.6	9.2	10.1
06/30/13	51.6	46.6	48.7	48.1	45.1	47.0	58.3	54.2	56.7	10.1	8.7	9.6
06/30/14	48.7	45.9	47.5	48.0	45.1	46.9	58.3	54.0	56.7	10.2	8.6	9.6
06/30/15	51.6	48.1	49.6	48.2	45.0	46.9	58.6	53.9	56.8	10.3	8.5	9.6
06/30/16	47.0	46.9	47.0	48.0	45.1	46.8	58.8	54.1	56.8	10.5	8.6	9.7
06/30/17	50.8	49.5	50.1	47.9	45.3	46.8	58.9	54.6	57.0	10.8	8.8	9.9

These statistics are not available for the Legislators Retirement Fund.

Schedule of Retired Members by Type of Benefit

As of June 30, 2017

State Employees Retirement Fund

Monthly Benefit Amount	Number of Retirees	Retirement Type 1	Retirement Type 2	Retirement Type 3	Option Selected Life	Option Selected I	Option Selected II	Option Selected III
$0-$499	8,479	7,326	362	791	4,901	3,086	259	233
$500-$999	6,858	5,557	465	836	3,572	2,913	241	132
$1,000-$1,499	5,965	4,796	415	754	2,990	2,751	143	81
$1,500-$1,999	5,006	4,186	310	510	2,315	2,537	87	67
$2,000-$2,499	4,261	3,731	157	373	1,776	2,378	65	42
$2,500-$2,999	3,165	2,819	80	266	1,361	1,742	35	27
$3,000-$3,499	2,173	1,992	27	154	872	1,266	18	17
$3,500-$3,999	1,406	1,308	5	93	527	854	11	14
$4,000-$4,499	847	769	6	72	338	505	2	2
$4,500-$4,999	508	472	2	34	186	313	5	4
$5,000+	673	607	1	65	262	395	5	11
Totals	**39,341**	**33,563**	**1,830**	**3,948**	**19,100**	**18,740**	**871**	**630**

Type:
1 Retired members
2 Disabilitants
3 Survivors

Option:
Life Single life annuity
I Joint and Survivor annuity
II Death while eligible
III Period certain

State Patrol Retirement Fund

Monthly Benefit Amount	Number of Retirees	Retirement Type 1	Retirement Type 2	Retirement Type 3	Option Selected Life	Option Selected I	Option Selected II	Option Selected III
$0-$499	19	16	0	3	11	6	2	0
$500-$999	26	13	2	11	5	12	8	1
$1,000-$1,499	34	21	0	13	13	16	5	0
$1,500-$1,999	23	12	3	8	7	16	0	0
$2,000-$2,499	50	25	2	23	10	34	5	1
$2,500-$2,999	65	26	5	34	19	40	6	0
$3,000-$3,499	65	46	7	12	18	44	3	0
$3,500-$3,999	91	64	17	10	35	56	0	0
$4,000-$4,499	76	60	8	8	23	51	1	1
$4,500-$4,999	122	108	4	10	37	83	2	0
$5,000+	481	456	9	16	196	281	4	0
Totals	**1,052**	**847**	**57**	**148**	**374**	**639**	**36**	**3**

Type:
1 Retired members
2 Disabilitants
3 Survivors

Option:
Life Single life annuity
I Joint and Survivor annuity
II Death while eligible
III Period certain

Correctional Employees Retirement Fund

Monthly Benefit Amount	Number of Retirees	Retirement Type			Option Selected			
		1	2	3	Life	I	II	III
$0-$499	449	388	13	48	237	180	25	7
$500-$999	537	473	15	49	269	248	16	4
$1,000-$1,499	510	368	98	44	247	245	13	5
$1,500-$1,999	464	351	83	30	217	238	4	5
$2,000-$2,499	370	295	54	21	146	211	9	4
$2,500-$2,999	292	264	16	12	107	180	3	2
$3,000-$3,499	170	157	9	4	66	102	1	1
$3,500-$3,999	133	127	3	3	57	76	0	0
$4,000-$4,499	75	71	1	3	27	48	0	0
$4,500-$4,999	47	46	0	1	12	34	0	1
$5,000+	37	36	0	1	12	25	0	0
Totals	**3,084**	**2,576**	**292**	**216**	**1,397**	**1,587**	**71**	**29**

Type:
1 Retired members
2 Disabilitants
3 Survivors

Option:
Life Single life annuity
I Joint and Survivor annuity
II Death while eligible
III Period certain

Judges Retirement Fund

Monthly Benefit Amount	Number of Retirees	Retirement Type			Option Selected			
		1	2	3	Life	I	II	III
$0-$499	0	0	0	0	0	0	0	0
$500-$999	4	2	0	2	0	3	1	0
$1,000-$1,499	1	1	0	0	0	1	0	0
$1,500-$1,999	13	11	0	2	4	5	2	2
$2,000-$2,499	15	7	1	7	6	8	1	0
$2,500-$2,999	21	13	0	8	4	15	2	0
$3,000-$3,499	25	15	0	10	4	18	3	0
$3,500-$3,999	19	8	1	10	3	14	2	0
$4,000-$4,499	26	12	2	12	6	16	4	0
$4,500-$4,999	27	20	1	6	5	21	1	0
$5,000+	200	166	11	23	1	137	7	5
Totals	**351**	**255**	**16**	**80**	**83**	**238**	**23**	**7**

Type:
1 Retired members
2 Disabilitants
3 Survivors

Option:
Life Single life annuity
I Joint and Survivor annuity
II Death while eligible
III Period certain

Schedule of Retired Members by Type of Benefit

As of June 30, 2017

Legislators Retirement Fund

Monthly Benefit Amount	Number of Retirees	Retirement Type I	Retirement Type II	Option Selected Life	Option Selected I	Option Selected II
$0-$499	20	15	5	11	5	4
$500-$999	82	57	25	35	25	22
$1,000-$1,499	73	58	15	41	24	8
$1,500-$1,999	63	52	11	26	30	7
$2,000-$2,499	45	42	3	26	16	3
$2,500-$2,999	20	20	0	11	9	0
$3,000-$3,499	20	15	5	8	10	2
$3,500-$3,999	18	14	4	13	4	1
$4,000-$4,499	10	10	0	6	4	0
$4,500-$4,999	8	5	3	5	2	1
$5,000+	16	13	3	7	8	1
Totals	**375**	**301**	**74**	**189**	**137**	**49**

Type:

I Retired members
II Survivors

Option:

Life Single life annuity
I Joint and Survivor annuity
II Life plus 50 percent survivors

Schedule of New Retirees and Average Benefit Payments

Last Ten Years

State Employees Retirement Fund

	Years Credited Service							
	0-5	5-10	10-15	15-20	20-25	25-30	30+	Totals
Retirement Effective Dates								
Period 7/1/07 to 6/30/08:								
Average Monthly Benefit	$147	$428	$740	$1,026	$1,395	$1,691	$2,335	$1,338
Number of New Retirees	224	184	163	209	198	208	541	1,727
Average Final Average Salary	$4,435	$3,737	$3,728	$3,928	$4,089	$4,227	$4,568	$4,203
Period 7/1/08 to 6/30/09:								
Average Monthly Benefit	$150	$421	$712	$1,068	$1,362	$1,744	$2,399	$1,367
Number of New Retirees	201	183	173	168	176	197	447	1,545
Average Final Average Salary	$4,278	$3,718	$3,767	$3,957	$3,853	$4,267	$4,816	$4,225
Period 7/1/09 to 6/30/10:								
Average Monthly Benefit	$151	$433	$683	$1,022	$1,414	$1,712	$2,416	$1,389
Number of New Retirees	252	204	178	166	241	199	606	1,846
Average Final Average Salary	$4,548	$3,849	$3,607	$3,992	$4,111	$4,237	$4,778	$4,315
Period 7/1/10 to 6/30/11:								
Average Monthly Benefit	$169	$452	$752	$1,159	$1,498	$1,772	$2,534	$1,527
Number of New Retirees	219	246	240	258	294	260	782	2,299
Average Final Average Salary	$4,164	$3,550	$3,899	$4,113	$4,214	$4,259	$4,734	$4,276
Period 7/1/11 to 6/30/12:								
Average Monthly Benefit	$179	$482	$813	$1,169	$1,551	$1,947	$2,673	$1,512
Number of New Retirees	285	291	299	236	289	235	738	2,373
Average Final Average Salary	$4,089	$3,512	$3,969	$3,966	$4,434	$4,627	$5,008	$4,372
Period 7/1/12 to 6/30/13:								
Average Monthly Benefit	$200	$520	$847	$1,201	$1,619	$2,024	$3,136	$1,595
Number of New Retirees	241	254	250	216	213	237	503	1,914
Average Final Average Salary	$4,310	$3,831	$3,868	$4,072	$4,549	$4,743	$5,247	$4,488
Period 7/1/13 to 6/30/14:								
Average Monthly Benefit	$158	$462	$850	$1,209	$1,757	$2,079	$2,724	$1,517
Number of New Retirees	241	253	269	245	200	235	554	1,997
Average Final Average Salary	$4,680	$3,809	$4,226	$4,363	$5,005	$5,041	$5,224	$4,695
Period 7/1/14 to 6/30/15:								
Average Monthly Benefit	$186	$509	$930	$1,245	$1,723	$2,111	$2,850	$1,650
Number of New Retirees	277	267	284	294	240	287	737	2,386
Average Final Average Salary	$4,886	$4,106	$4,363	$4,314	$4,868	$5,032	$5,413	$4,844
Period 7/1/15 to 6/30/16:								
Average Monthly Benefit	$195	$536	$950	$1,289	$1,742	$2,073	$2,797	$1,620
Number of New Retirees	221	280	268	290	202	260	639	2,160
Average Final Average Salary	$4,757	$4,066	$4,420	$4,642	$4,682	$5,199	$5,233	$4,797
Period 7/1/16 to 6/30/17:								
Average Monthly Benefit	$211	$517	$923	$1,398	$1,899	$2,244	$2,898	$1,717
Number of New Retirees	215	266	255	238	207	219	650	2,050
Average Final Average Salary	$4,666	$4,050	$4,297	$4,629	$5,128	$5,464	$5,460	$4,920
Period 7/1/07 to 6/30/17:								
Average Monthly Benefit	$175	$481	$834	$1,193	$1,593	$1,951	$2,681	$1,534
Number of New Retirees	2,376	2,428	2,379	2,320	2,260	2,337	6,197	20,297
Average Final Average Salary	$4,483	$3,829	$4,055	$4,229	$4,489	$4,732	$5,056	$4,529

Notes:

The number of new retirees added in the *Schedule of Retirees and Beneficiaries* is greater than the number of new retirees here because it includes benefit restarts and qualified domestic relations order starts.

The Average Final Average Salary is equivalent to the average of the five highest consecutive years of salary, based on service during which member contributions were made.

Schedule of New Retirees and Average Benefit Payments

Last Ten Years

State Patrol Retirement Fund

	Years Credited Service							
Retirement Effective Dates	0-5	5-10	10-15	15-20	20-25	25-30	30+	Totals
Period 7/1/07 to 6/30/08:								
Average Monthly Benefit	$185	$774	$1,986	$2,788	$3,151	$4,469	$4,256	$3,541
Number of New Retirees	1	2	3	6	6	12	13	43
Average Final Average Salary	$4,992	$5,020	$6,769	$5,475	$5,304	$6,093	$5,918	$5,815
Period 7/1/08 to 6/30/09:								
Average Monthly Benefit	$0	$788	$2,053	$3,471	$4,204	$4,435	$3,842	$3,793
Number of New Retirees	0	2	3	2	3	14	11	35
Average Final Average Salary	$0	$6,121	$5,846	$5,642	$6,274	$6,098	$6,467	$6,183
Period 7/1/09 to 6/30/10:								
Average Monthly Benefit	$444	$827	$1,889	$0	$3,652	$4,840	$4,343	$3,441
Number of New Retirees	4	3	3	0	7	10	10	37
Average Final Average Salary	$5,677	$3,993	$5,557	$0	$6,061	$6,858	$7,092	$6,305
Period 7/1/10 to 6/30/11:								
Average Monthly Benefit	$0	$0	$2,406	$0	$3,484	$5,083	$4,670	$4,422
Number of New Retirees	0	0	2	0	6	12	7	27
Average Final Average Salary	$0	$0	$6,275	$0	$6,037	$6,452	$3,609	$5,610
Period 7/1/11 to 6/30/12:								
Average Monthly Benefit	$517	$847	$2,476	$2,383	$4,187	$5,391	$6,158	$4,875
Number of New Retirees	2	1	3	1	7	13	16	43
Average Final Average Salary	$7,934	$5,957	$6,634	$4,165	$6,785	$7,278	$7,361	$7,111
Period 7/1/12 to 6/30/13:								
Average Monthly Benefit	$395	$0	$2,323	$3,202	$4,297	$4,756	$6,296	$4,596
Number of New Retirees	2	0	3	1	5	7	10	28
Average Final Average Salary	$5,841	$0	$6,252	$5,908	$7,001	$7,187	$7,362	$6,974
Period 7/1/13 to 6/30/14:								
Average Monthly Benefit	$323	$1,086	$2,448	$2,685	$4,672	$5,218	$5,700	$4,035
Number of New Retirees	1	4	4	3	6	6	9	33
Average Final Average Salary	$7,171	$5,687	$6,535	$5,968	$6,923	$7,017	$7,317	$6,771
Period 7/1/14 to 6/30/15:								
Average Monthly Benefit	$85	$2,226	$2,704	$3,122	$4,426	$5,841	$6,234	$4,850
Number of New Retirees	2	1	2	9	10	17	14	55
Average Final Average Salary	$2,652	$8,607	$5,958	$6,731	$6,966	$7,602	$7,246	$7,032
Period 7/1/15 to 6/30/16:								
Average Monthly Benefit	$1,145	$0	$3,599	$3,062	$3,687	$5,551	$5,135	$4,612
Number of New Retirees	1	0	1	5	8	12	16	43
Average Final Average Salary	$9,737	$0	$8,638	$6,470	$6,676	$7,179	$6,524	$6,853
Period 7/1/16 to 6/30/17:								
Average Monthly Benefit	$0	$1,724	$2,294	$3,944	$4,099	$4,760	$6,926	$4,788
Number of New Retirees	0	2	2	2	6	6	8	26
Average Final Average Salary	$0	$7,540	$7,371	$7,700	$6,803	$7,274	$7,660	$7,345
Period 7/1/07 to 6/30/17:								
Average Monthly Benefit	$417	$1,098	$2,322	$3,055	$3,987	$5,085	$5,363	$4,305
Number of New Retirees	13	15	26	29	64	109	114	370
Average Final Average Salary	$5,958	$5,777	$6,429	$6,222	$6,519	$6,886	$6,742	$6,616

Correctional Employees Retirement Fund

Retirement Effective Dates	Years Credited Service 0-5	5-10	10-15	15-20	20-25	25-30	30+	Totals
Period 7/1/07 to 6/30/08:								
Average Monthly Benefit	$407	$774	$1,265	$1,501	$2,044	$2,841	$3,171	$1,504
Number of New Retirees	17	32	18	22	13	17	10	129
Average Final Average Salary	$5,018	$4,059	$3,815	$3,592	$3,967	$4,367	$4,667	$4,150
Period 7/1/08 to 6/30/09:								
Average Monthly Benefit	$343	$822	$1,318	$1,567	$2,315	$3,003	$3,458	$1,671
Number of New Retirees	19	22	23	23	16	17	12	132
Average Final Average Salary	$4,308	$4,444	$4,014	$3,801	$4,738	$4,603	$5,099	$4,353
Period 7/1/09 to 6/30/10:								
Average Monthly Benefit	$440	$812	$1,386	$1,583	$2,416	$2,611	$3,101	$1,494
Number of New Retirees	35	28	23	36	21	12	14	169
Average Final Average Salary	$4,217	$4,315	$4,452	$3,999	$4,479	$4,680	$4,356	$4,296
Period 7/1/10 to 6/30/11:								
Average Monthly Benefit	$282	$745	$1,329	$1,601	$2,505	$3,157	$4,264	$1,623
Number of New Retirees	33	19	20	51	13	23	8	167
Average Final Average Salary	$4,421	$4,081	$4,161	$4,011	$4,594	$4,294	$5,408	$4,269
Period 7/1/11 to 6/30/12:								
Average Monthly Benefit	$296	$645	$1,050	$1,575	$1,884	$2,571	$3,248	$1,289
Number of New Retirees	34	40	23	1	22	14	13	177
Average Final Average Salary	$4,694	$4,228	$4,332	$4,165	$4,687	$5,067	$4,761	$4,548
Period 7/1/12 to 6/30/13:								
Average Monthly Benefit	$267	$630	$1,178	$1,769	$2,031	$2,679	$3,136	$1,386
Number of New Retirees	36	35	25	30	29	16	12	183
Average Final Average Salary	$4,961	$4,565	$4,515	$4,938	$4,658	$5,188	$5,231	$4,810
Period 7/1/13 to 6/30/14:								
Average Monthly Benefit	$272	$700	$1,266	$1,558	$1,957	$2,454	$3,099	$1,441
Number of New Retirees	18	34	23	25	20	7	18	145
Average Final Average Salary	$5,160	$4,402	$4,654	$4,394	$4,756	$5,346	$5,368	$4,749
Period 7/1/14 to 6/30/15:								
Average Monthly Benefit	$233	$790	$1,243	$1,669	$2,026	$2,715	$2,966	$1,648
Number of New Retirees	24	43	37	35	49	29	27	244
Average Final Average Salary	$4,971	$4,863	$4,486	$4,877	$4,644	$5,466	$5,237	$4,887
Period 7/1/15 to 6/30/16:								
Average Monthly Benefit	$275	$761	$1,164	$1,536	$2,034	$2,518	$3,352	$1,438
Number of New Retirees	22	39	31	24	26	13	15	170
Average Final Average Salary	$4,415	$4,382	$4,311	$4,685	$4,805	$5,017	$6,006	$4,673
Period 7/1/16 to 6/30/17:								
Average Monthly Benefit	$345	$953	$1,114	$1,896	$2,255	$2,827	$3,684	$1,598
Number of New Retirees	28	26	43	30	23	26	8	184
Average Final Average Salary	$5,090	$4,797	$4,363	$5,305	$5,073	$5,476	$6,378	$5,022
Period 7/1/07 to 6/30/17:								
Average Monthly Benefit	$316	$754	$1,219	$1,631	$2,114	$2,783	$3,257	$1,511
Number of New Retirees	266	318	266	307	232	174	137	1,700
Average Final Average Salary	$4,702	$4,432	$4,336	$4,417	$4,671	$4,971	$5,226	$4,608

Notes:

The number of new retirees added in the *Schedule of Retirees and Beneficiaries* greater than the number of new retirees here because it includes benefit restarts and qualified domestic relations order starts.

The Average Final Average Salary is equivalent to the average of the five highest consecutive years of salary, based on service during which member contributions were made.

Schedule of New Retirees and Average Benefit Payments

Last Ten Years

Judges Retirement Fund

	Years Credited Service							
	0-5	5-10	10-15	15-20	20-25	25-30	30+	Totals
Retirement Effective Dates								
Period 7/1/07 to 6/30/08:								
Average Monthly Benefit	$0	$2,606	$3,038	$4,243	$5,252	$5,588	$0	$4,675
Number of New Retirees	0	1	3	2	12	1	0	19
Average Final Average Salary	$0	$11,235	$9,934	$9,991	$8,516	$9,868	$0	$9,109
Period 7/1/08 to 6/30/09:								
Average Monthly Benefit	$0	$0	$4,538	$4,698	$4,539	$0	$0	$4,594
Number of New Retirees	0	0	1	2	3	0	0	6
Average Final Average Salary	$0	$0	$10,727	$10,119	$10,048	$0	$0	$10,185
Period 7/1/09 to 6/30/10:								
Average Monthly Benefit	$0	$1,347	$3,383	$4,880	$5,975	$0	$0	$5,387
Number of New Retirees	0	1	1	2	12	0	0	16
Average Final Average Salary	$0	$7,079	$10,299	$10,084	$10,348	$0	$0	$10,108
Period 7/1/10 to 6/30/11:								
Average Monthly Benefit	$0	$2,005	$2,369	$4,743	$5,416	$0	$0	$4,626
Number of New Retirees	0	1	3	6	11	0	0	21
Average Final Average Salary	$0	$8,020	$8,092	$9,163	$9,014	$0	$0	$8,878
Period 7/1/11 to 6/30/12:								
Average Monthly Benefit	$0	$1,673	$3,451	$5,443	$6,324	$0	$0	$4,898
Number of New Retirees	0	1	8	1	10	0	0	20
Average Final Average Salary	$0	$10,045	$10,175	$11,833	$10,734	$0	$0	$10,531
Period 7/1/12 to 6/30/13:								
Average Monthly Benefit	$807	$0	$3,087	$4,980	$6,216	$0	$0	$5,354
Number of New Retirees	1	0	2	8	14	0	0	25
Average Final Average Salary	$10,472	$0	$11,037	$11,833	$10,734	$0	$0	$11,099
Period 7/1/13 to 6/30/14:								
Average Monthly Benefit	$0	$1,104	$3,423	$5,464	$6,914	$0	$0	$5,568
Number of New Retirees	0	1	4	4	10	0	0	19
Average Final Average Salary	$0	$5,507	$10,067	$10,796	$10,700	$0	$0	$10,313
Period 7/1/14 to 6/30/15:								
Average Monthly Benefit	$0	$2,176	$3,904	$4,999	$6,870	$0	$0	$5,495
Number of New Retirees	0	3	2	4	11	0	0	20
Average Final Average Salary	$0	$10,887	$10,854	$10,925	$10,934	$0	$0	$10,917
Period 7/1/15 to 6/30/16:								
Average Monthly Benefit	$0	$2,479	$3,834	$5,135	$7,648	$0	$0	$5,740
Number of New Retirees	0	2	2	5	7	0	0	16
Average Final Average Salary	$0	$11,108	$9,511	$11,034	$11,383	$0	$0	$11,006
Period 7/1/16 to 6/30/17:								
Average Monthly Benefit	$0	$3,029	$3,505	$4,836	$6,902	$0	$0	$4,840
Number of New Retirees	0	2	5	2	5	0	0	14
Average Final Average Salary	$0	$11,759	$11,706	$11,279	$11,363	$0	$0	$11,530
Period 7/1/07 to 6/30/17:								
Average Monthly Benefit	$807	$2,190	$3,375	$4,961	$6,220	$5,588	$0	$5,152
Number of New Retirees	1	12	31	36	95	1	0	176
Average Final Average Salary	$10,472	$10,024	$10,262	$10,735	$10,285	$9,868	$0	$10,353

Legislators Retirement Fund

	Years Credited Service							
Retirement Effective Dates	0-5	5-10	10-15	15-20	20-25	25-30	30+	Totals
Period 7/1/07 to 6/30/08:								
Average Monthly Benefit	$0	$1,372	$1,233	$1,289	$2,935	$2,318	$0	$1,505
Number of New Retirees	0	5	5	1	1	1	0	13
Average Final Average Salary	$0	$4,573	$3,334	$3,351	$2,705	$3,331	$0	$3,763
Period 7/1/08 to 6/30/09:								
Average Monthly Benefit	$739	$1,209	$1,240	$1,546	$2,200	$3,373	$0	$1,531
Number of New Retirees	1	5	5	1	3	1	0	16
Average Final Average Salary	$6,741	$4,410	$3,433	$3,275	$4,378	$3,284	$0	$4,103
Period 7/1/09 to 6/30/10:								
Average Monthly Benefit	$396	$2,187	$1,001	$1,471	$5,026	$3,373	$0	$1,670
Number of New Retirees	2	2	5	1	1	1	0	12
Average Final Average Salary	$6,741	$4,410	$3,433	$3,275	$4,378	$3,284	$0	$4,200
Period 7/1/10 to 6/30/11:								
Average Monthly Benefit	$0	$1,700	$1,552	$1,837	$1,999	$2,226	$2,451	$1,765
Number of New Retirees	0	7	9	1	3	2	1	23
Average Final Average Salary	$0	$7,785	$3,255	$3,345	$3,436	$3,338	$3,468	$4,678
Period 7/1/11 to 6/30/12:								
Average Monthly Benefit	$0	$1,235	$1,444	$2,481	$0	$0	$0	$1,621
Number of New Retirees	0	4	1	2	0	0	0	7
Average Final Average Salary	$0	$4,271	$2,691	$5,279	$0	$0	$0	$4,333
Period 7/1/12 to 6/30/13:								
Average Monthly Benefit	$664	$0	$2,518	$2,439	$1,851	$3,232	$3,290	$2,347
Number of New Retirees	2	0	3	2	2	2	2	13
Average Final Average Salary	$6,118	$0	$5,098	$4,682	$3,381	$7,461	$3,549	$5,052
Period 7/1/13 to 6/30/14:								
Average Monthly Benefit	$0	$1,008	$1,490	$0	$0	$6,118	$0	$1,888
Number of New Retirees	0	3	4	0	0	1	0	8
Average Final Average Salary	$0	$2,718	$3,391	$0	$0	$8,411	$0	$3,766
Period 7/1/14 to 6/30/15:								
Average Monthly Benefit	$831	$0	$1,681	$2,220	$1,979	$0	$0	$1,679
Number of New Retirees	1	0	6	1	1	0	0	9
Average Final Average Salary	$4,845	$0	$4,301	$3,136	$3,384	$0	$0	$4,130
Period 7/1/15 to 6/30/16:								
Average Monthly Benefit	$0	$2,335	$3,084	$2,406	$0	$0	$0	$2,727
Number of New Retirees	0	1	2	1	0	0	0	4
Average Final Average Salary	$0	$4,361	$9,563	$3,016	$0	$0	$0	$6,625
Period 7/1/16 to 6/30/17:								
Average Monthly Benefit	$485	$652	$2,150	$3,465	$0	$0	$3,767	$2,379
Number of New Retirees	1	2	3	3	0	0	2	11
Average Final Average Salary	$9,847	$3,052	$6,532	$5,804	$0	$0	$1,790	$5,140
Period 7/1/07 to 6/30/17:								
Average Monthly Benefit	$596	$1,406	$1,605	$2,385	$2,385	$3,262	$3,313	$1,844
Number of New Retirees	7	29	43	13	11	8	5	116
Average Final Average Salary	$6,736	$4,963	$4,102	$4,364	$3,698	$4,989	$2,829	$4,473

Notes:

The number of new retirees added in the *Schedule of Retirees and Beneficiaries* is greater than the number of new retirees here because it includes benefit restarts and qualified domestic relations order starts.

The Average Final Average Salary is equivalent to the average of the five highest consecutive years of salary, based on service during which member contributions were made.

Schedule of Principal Participating Employers

Current Year and Nine Years Ago

Defined Benefit Participating Employer	Fiscal Year 2017 Active Employees	Fiscal Year 2017 Rank	Fiscal Year 2017 Percent of Total Active Members	Fiscal Year 2008 Active Employees	Fiscal Year 2008 Rank	Fiscal Year 2008 Percent of Total Active Members
State Employees Retirement Fund						
State of Minnesota and its component units [1]	50,102	1	99.06%	48,378	1	99.09%
All Others	476		0.94	445		0.91
Totals	50,578		100.00%	48,823		100.00%
State Patrol Retirement Fund						
State of Minnesota	902	1	100.00%	840	1	100.00%
Correctional Employees Retirement Fund						
State of Minnesota	4,566	1	99.72%	4,508	1	99.74%
All Others	13		0.28	12		0.26
Totals	4,579		100.00%	4,520		100.00%
Judges Retirement Fund						
State of Minnesota	317	1	100.00%	287	1	100.00%
Legislators Retirement Fund						
State of Minnesota	19	1	100.00%	52	1	100.00%

Defined Contribution Participating Employer	Fiscal Year 2017 Covered Employees	Fiscal Year 2017 Rank	Fiscal Year 2017 Percent of Total Fund	Fiscal Year 2008 Covered Employees	Fiscal Year 2008 Rank	Fiscal Year 2008 Percent of Total Fund
Unclassified Employees Retirement Fund [2]						
State of Minnesota and its component units [1]	3,080	1	95.77%	3,186	1	96.46%
All Others	136		4.23	117		3.54
Totals	3,216		100.00%	3,303		100.00%
Health Care Savings Plan [2]						
State of Minnesota and its component units [1]	54,081	1	47.15%	21,144	1	42.69%
Hennepin County	6,326	2	5.52			
Ramsey County	3,986	3	3.48	1,667	5	3.37
Dakota County	2,667	4	2.33	2,273	2	4.59
City of Minneapolis	2,193	5	1.91	1,678	4	3.39
Independent School District (ISD) 623 Roseville	1,919	6	1.67	1,041	6	2.10
Special School District 1 (SSD) Minneapolis	1,623	7	1.41	1,918	3	3.87
ISD 728 Elk River	1,518	8	1.32	836	10	1.69
City of Duluth	1,296	9	1.13			
Scott County	1,229	10	1.07	904	8	1.83
Metropolitan Airports Commission				1,041	7	2.10
ISD 112 Chaska				867	9	1.75
All Others	37,861		33.01	16,157		32.62
Totals	114,699		100.00%	49,526		100.00%

Defined Benefit Participating Employer	Fiscal Year 2017 Covered Employees	Rank	Percent of Total Fund	Fiscal Year 2009 (3) Covered Employees	Rank	Percent of Total Fund
Minnesota Deferred Compensation Fund (MNDCP) (2)						
State of Minnesota and its component units (1)	47,997	1	55.08%	47,058	1	54.09%
SSD 1 Minneapolis	4,409	2	5.06	5,951	2	6.84
Ramsey County	3,598	3	4.13	3,414	3	3.93
City of Minneapolis	3,298	4	3.78	1,230	9	1.42
Hennepin County	2,130	5	2.44	2,446	4	2.81
ISD 625 St. Paul	1,677	6	1.92	2,239	6	2.57
Anoka County	1,660	7	1.90	1,204	10	1.38
City of St. Paul	1,577	8	1.81	2,246	5	2.58
Dakota County	1,154	9	1.32	1,254	8	1.44
Hennepin County Medical Center	1,127	10	1.29			
ISD 279 Osseo				1,401	7	1.61
All Others	17,582		21.27	18,560		21.33
Totals	86,209		100.00%	87,003		100.00%
Hennepin County Supplemental Retirement Fund (2)						
Hennepin County	1,033	1	76.94%	1,596	1	78.01%
Hennepin County Medical Center	309	2	23.06	458	2	21.99
Totals	1,342		100.00%	2,054		100.00%

(1) Component units of the State of Minnesota include the Housing Finance Agency, Metropolitan Council, University of Minnesota, Agricultural and Economic Development Board, National Sports Center Foundation, Office of Higher Education, Public Facilities Authority, Rural Finance Authority, Workers' Compensation Assigned Risk Plan, and the Minnesota Sports Facilities Authority.

(2) Includes all members with account balances.

(3) Complete data is unavailable from previous recordkeeper.

Minnesota State Retirement System
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