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Comprehensive Annual Financial Report

For the Fiscal Year Ended June 30, 2018

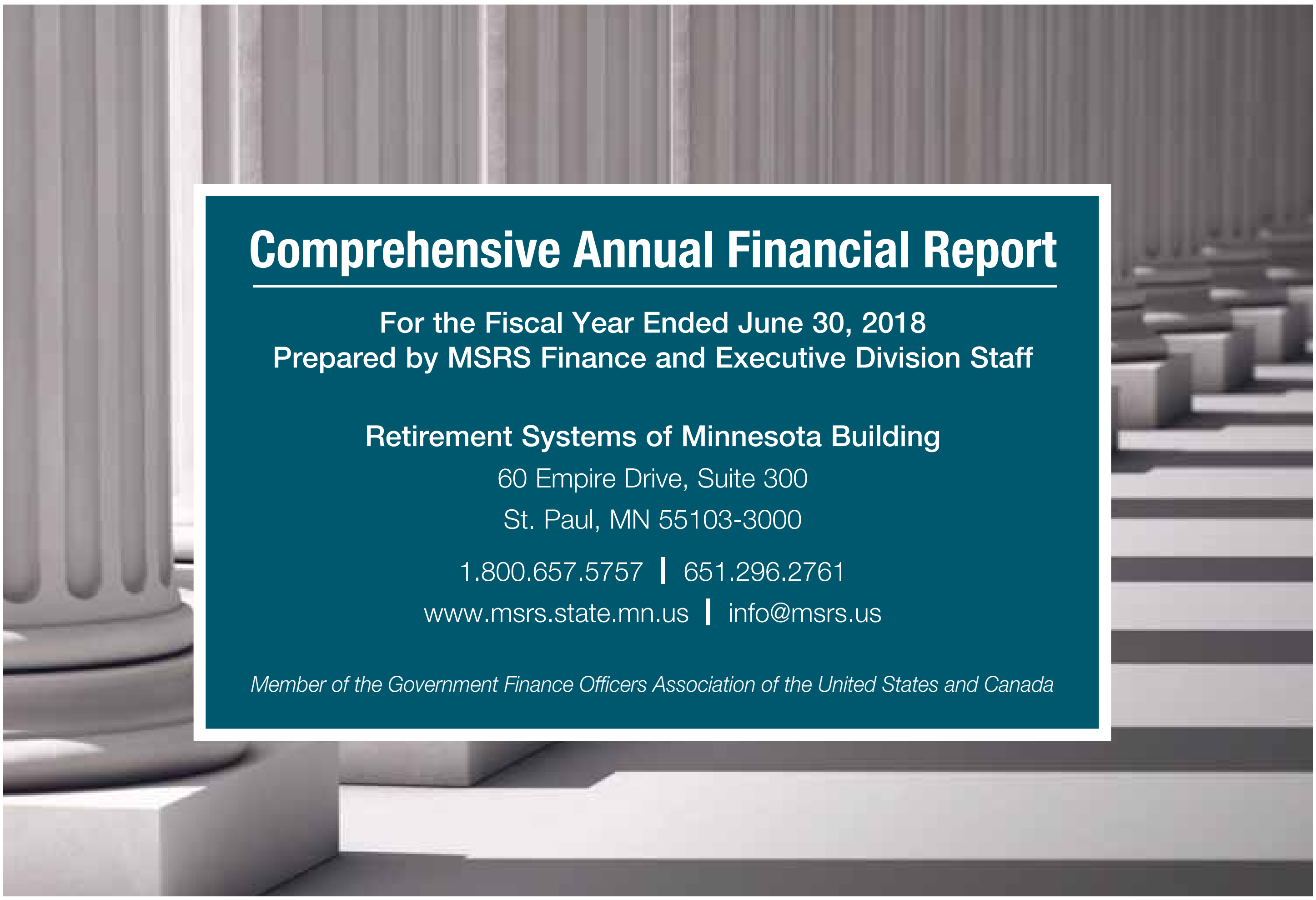
Minnesota State Retirement System
Pension Trust Funds of the State of Minnesota

A STRONG **foundation.** It provides support and security. A strong foundation is fundamental to a secure retirement. MSRS is committed to empowering Minnesota public employees to build their strong foundation.

MSRS 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, 2018
Prepared by MSRS Finance and Executive Division Staff

Retirement Systems of Minnesota Building
60 Empire Drive, Suite 300
St. Paul, MN 55103-3000

1.800.657.5757 | 651.296.2761
www.msrs.state.mn.us | info@msrs.us

Member of the Government Finance Officers Association of the United States and Canada

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building
blocks
of **your**
foundation.

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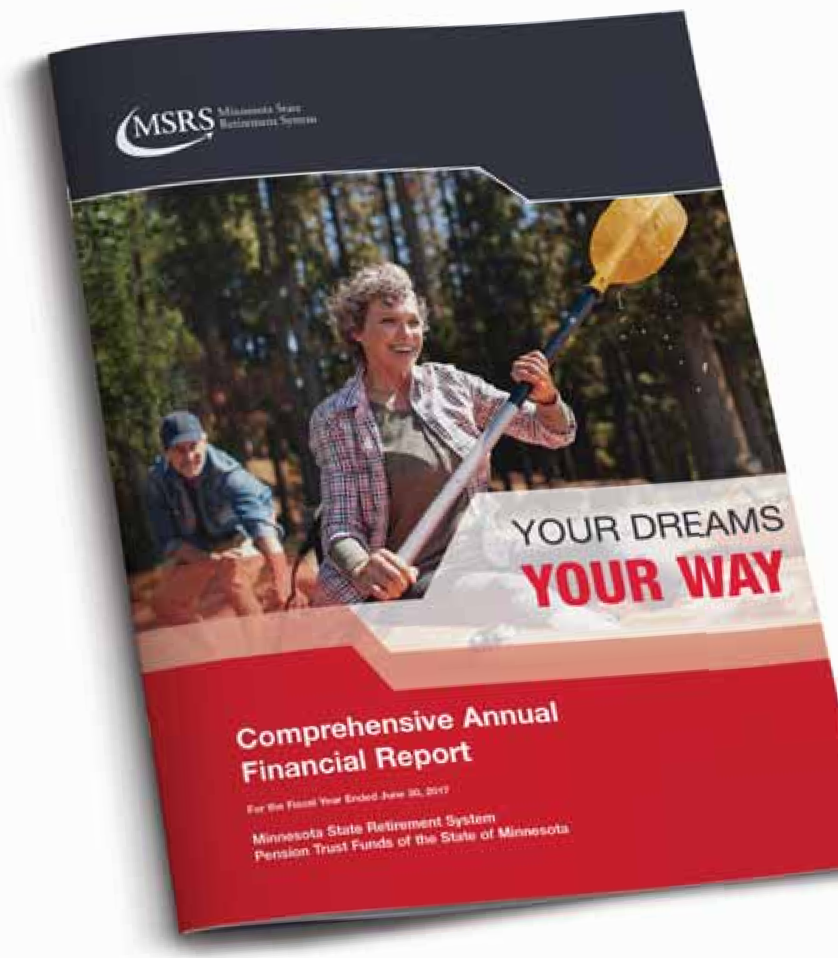


GFOA
Government
Finance Officers
Association

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 2017 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 20, 2018

Dear Members, Benefit Recipients, and Employers:

Fiscal year 2018 was a successful year for the Minnesota State Retirement System (MSRS). Legislation passed during the 2018 legislative session that provides stable, sustainable and secure pension funds for all of our current and future benefit recipients. MSRS benefited from high investment returns which had a positive impact on the retirement plans' funding status. Additionally, the Board approved a new mission statement and a long-term strategic plan for MSRS.

To ensure a secure retirement for its members, the Board recommended "shared sacrifice" legislation in both the 2016 and 2017 legislative sessions. For various reasons, the legislation was not passed into law. However, the 2018 legislative session ended with the Legislature unanimously passing the *2018 Omnibus Retirement Act*. This act was signed by the Governor on May 31, 2018. It included a comprehensive set of reforms intended to improve the funding status of Minnesota's public pension funds. Based on estimates provided to the Legislative Commission on Pensions and Retirement, the 2018 Omnibus Retirement Act immediately reduced the actuarial accrued liabilities of the MSRS pension funds by nearly $1 billion and guides the pension funds on a trajectory to full funding.

As of July 1, 2018, MSRS' largest retirement plan, the General Employees Retirement Plan, was 90.6 percent funded (based on the market value of assets). The plan's funding status increased by 4.5 percent since July 1, 2017, due largely to the legislative changes in plan provisions and a 10.3 percent investment return in fiscal year 2018.

MSRS' fiduciary net position as of June 30, 2018, totaling over $23.9 billion, increased 7.2 percent from the prior year. Total assets of over $25.5 billion grew 6.5 percent, while total liabilities decreased by almost $50.2 million, or 3.1 percent, compared with our position on June 30, 2017. 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 review proactive measures that ensure MSRS provides financially secure retirement plans to pay promised retirement benefits now and in the future.

Additionally, the Board supported MSRS management with the approval of a new mission statement and long-term strategic plan. The Board wholeheartedly agrees with and supports the new MSRS mission statement, which empowers Minnesota public employees to build a strong foundation for retirement. The MSRS Strategic Plan includes initiatives that support goals focused on talent management, service delivery, participant success, and financial sustainability that will lead MSRS towards long-term success in fulfilling its mission.

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 20, 2018

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, 2018, our 89th year of operation. The theme of this year's report is **Your Foundation for Retirement**. MSRS adopted a new mission statement in fiscal year 2018; *We empower Minnesota public employees to build a strong foundation for retirement*. The photos throughout this CAFR represent what a strong foundation looks like, and intend to convey how the MSRS Board of Directors and MSRS staff are committed to fulfilling our mission. We would like to thank the Board of Directors for your continued dedication to create funding policies and advocate legislation that preserves our defined benefits plans. Your commitment in advancing initiatives to administer financially secure retirement plans, a low-cost deferred compensation plan, and a tax-free health savings plan, allows our members to achieve a strong foundation for retirement.

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. 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, 2018, 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 40-49, presents financial highlights and an overview of MSRS' financial statements for fiscal year 2018, along with an analysis the 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 https://mn.gov/mmb/accounting/reports.

About MSRS Funds

MSRS administers five defined benefit and four defined contribution funds. 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 $23.9 billion as of June 30, 2018.

For the defined benefit funds, MSRS serves 57,130 active employees from 14 employer and component units, 45,892 benefit recipients, and 27,666 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 $15.3 billion as of June 30, 2018.

Alternatively, for the defined contribution funds, member participation and financial position as of June 30, 2018, varied significantly among the funds. MSRS serves 88,993 participants in the Minnesota Deferred Compensation Fund with a fiduciary net position totaling over $7 billion. The Health Care Savings Fund has 122,346 participants and a fiduciary net position of almost $1.1 billion. The Unclassified Employees Retirement Fund has 3,217 members with a fiduciary net position of more than $323.9 million. Finally, the Supplemental Retirement Fund for Hennepin County has 1,276 members with a fiduciary net position of approximately $159.1 million.

Major Initiatives

Fiscal year 2018 accomplishments included the completion of significant initiatives and numerous other projects. These activities contributed to MSRS being more efficient and better serving our members and participants. The year also included MSRS kicking off new initiatives which will carry on into the future. Major accomplishments and initiatives are highlighted below.

- **2018 Omnibus Retirement Act.** The MSRS Board recommended legislation in both the 2016 and 2017 legislative sessions to move the MSRS pension funds towards full funding. For various reasons, the legislation was not passed into law. However, the 2018 legislative session ended with the Legislature unanimously passing the *2018 Omnibus Retirement Act*. It included reforms intended to improve the funding status of MSRS' pension funds. The *2018 Omnibus Retirement Act* immediately reduced the actuarial accrued liabilities of the MSRS pension funds and directs the pension funds on a path to full funding.

- **Strategic Plan.** MSRS began to implement a long-term strategic plan in fiscal year 2018. Management determined that a strategic plan was needed to acknowledge organizational changes and employ a more thoughtful, intentional planning approach than the informal planning approach used in prior years. The strategic planning project included reviewing the mission and establishing a vision for MSRS. Our updated mission statement is to empower Minnesota public employees to build a strong foundation for retirement. Our vision is to be a nationally recognized leader in public retirement plans by leveraging our engaged workforce, customer-focused culture and innovative technologies to promote sustainable retirement options for Minnesota public employees. Our strategic plan includes goals, objectives and initiatives around talent management, service delivery, participant success, and financial sustainability to lead MSRS towards long term success in fulfilling our mission and vision.

- **Customer Service.** In fiscal year 2018, MSRS attained a Cobalt Retirement Process Customer Satisfaction Survey score of 90. The highest attainable score is 100. A score of 90 puts MSRS among the leaders in organizations who participate in the survey. This score, which is based on survey results of new retirees, covers topics such as staff interaction, written information, and online tools.

Letter of Transmittal

- **Other notable MSRS accomplishments during fiscal year 2018 include:**
  - Business continuity improvements, including updates to our business continuity plan documentation and the completion of numerous testing activities.
  - MSRS Account Online operation and security enhancements, including the finalization of our comprehensive security plan and implementation of multi-factor authentication.
  - Team engagement meetings and Strengths Based training for all new staff to build upon the Strengths Based culture at MSRS.
  - Completion of a comprehensive employee onboarding process.

MSRS fiscal year 2019 goals are based on the MSRS Strategic Plan and include four strategic objectives: talent management, service delivery, participant success, and financial sustainability.

The goal for the strategic objective of talent management is to attract, hire, develop, empower, and retain an engaged workforce. Specific objectives within talent management include promoting team and individual development goals, making work more flexible, encouraging cross-training and cross-over work, inviting communication between leadership and staff, improving feedback, coordinating agency-wide training and recruiting creatively. Many initiatives, including reviewing and updating the training policy and completing goal-setting training, are currently underway within the talent management objectives.

The goal of the service delivery strategic objective is to enhance customer service to each other and our customers. Objectives within service delivery include enhancing the pension application system, improving internal business communication, speeding up financial transactions, improving and documenting workflows, and performing the business continuity life cycle. Several service delivery initiatives, such as upgrading the hosting environment to provide releases more quickly and reviewing and implementing workflows mapping tools are in process.

Participant success is a strategic objective with a goal to increase retirement readiness of Minnesota public employees. Objectives include responding faster to participants, getting better participant feedback, providing comprehensive counseling, engaging with new public employees and creating user-centered interfaces. Numerous initiatives with the participant success strategic objective, including Account Online foundation work for functionality enhancements and reviewing the investment lineup for our defined contribution plans, are ongoing in order to increase the retirement readiness for Minnesota public employees.

Finally, the goal for the strategic objective of financial sustainability is to ensure the long-term viability of MSRS pension plans. Objectives for financial sustainability include advocating policies focusing on long-term goals and developing a focused, multi-year strategic communication plan. Initiatives, including the completion of a Board funding policy and publishing a Popular Annual Financial Report, are currently ongoing in this strategic objective area.

Financial Information

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.

Exhibit 1 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, 2018 and 2017. 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 10.3 percent investment gain in fiscal year 2018, MSRS realized an increase of over $1.6 billion in the fiduciary net position for all MSRS pension trust funds for fiscal year 2018. This amount includes an increase of almost $953.7 million for MSRS' defined benefit funds and an increase of $657.2 million for its defined contribution funds.

Exhibit 1: Summary Statement of Changes in Fiduciary Net Position All MSRS Pension Trust Funds

For the Fiscal Years Ended June 30, 2018 and 2017

(Dollars in thousands)

	Defined Benefit Funds		Defined Contribution Funds	
Source	**FY 2018**	**FY 2017**	**FY 2018**	**FY 2017**
Total Additions	$1,937,826	$2,396,651	$1,119,006	$1,217,929
Total Deductions	984,134	928,993	461,849	450,767
Net Increase (Decrease) in Net Position	953,692	1,467,658	657,157	767,162
Fiduciary Net Position - beginning of year	14,386,171	12,918,513	7,911,295	7,144,133
Fiduciary Net Position - end of year	**$15,339,863**	**$14,386,171**	**$8,568,452**	**$7,911,295**

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 2018.

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.

Exhibit 2 on the next page 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, 2018.

Exhibit 2: Highlights of the 2018 Actuarial Valuations
(Dollars in thousands)

Defined Benefit Retirement Fund	Actuarial Value of Assets	Actuarial Accrued Liability	Funded Ratio	Contribution Sufficiency/ (Deficiency)
State Employees	$13,035,350	$14,679,489	88.8%	0.1%
State Patrol	715,964	930,408	77.0	(1.0)
Correctional Employees	1,092,719	1,490,521	73.3	(1.8)
Judges	197,852	377,925	52.4	(0.4)
Legislators [1]	0	213,008	0.0	$(27,914)

[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 each of the defined benefit retirement funds, the contribution deficiency, determined on an actuarial value of assets basis as of the July 1, 2018, valuation date, decreased in comparison to the contribution deficiency as of July 1, 2017. For each of the defined benefit retirement funds, with the exception of the State Patrol Retirement Fund, the funded ratio, determined on an actuarial value of assets basis as of the July 1, 2018, valuation date, improved in comparison to the funded ratio as of July 1, 2017. The contribution deficiency and funded ratio improvements are primarily due to enacted plan provision changes passed in the *2018 Omnibus Retirement Act* and a 10.3 percent investment return in fiscal year 2018. Please refer to *Management's Discussion and Analysis* in the *Financial Section* for additional actuarial valuation details.

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.

Investment Results

In accordance with the Minnesota Constitution, the State Board of Investment (SBI) invests the assets of MSRS' funds. The Board includes the Governor, Attorney General, Secretary of State, and State Auditor. 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 analysis 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 10.3 percent gain (net of fees) for the 2018 fiscal year. Annualized over the latest ten-year period, the Combined Funds generated a 7.8 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 0.4 percentage points.

During fiscal year 2018, the combined funds public equity investments, which include domestic and international equities, reported a 12.8 percent return (net of fees), performing better than its benchmarks, the Russell 3000 and the Morgan Stanley Capital International All Country Index excluding USA Index Indices, by 0.5 percentage points. The combined fixed income investments reported a return rate of 0.1 percent (net of fees) for fiscal year 2018, 0.5 percentage points higher than the Bloomberg Barclays U.S. Aggregate Index. The combined fund treasury investments reported a return of 0.0 percent (net of fees) in fiscal year 2018, which was 0.1 percent higher than the Bloomberg Barclays Treasury 5+ Years Index. Private markets returned a gain of 14.8 percent (net of fees) in fiscal year 2018.

Exhibit 3: Combined Funds Asset Mix and Market Indices

Investment Type	Market Indicator	Transitional Target Allocation
Public Equity	Russell 3000	
	Morgan Stanley Capital International All Country World Index Ex-U.S. Indicies	49%
Fixed Income	Bloomberg Barclays U.S. Aggregate Index	16
Private Markets	Private Markets	25
Treasuries	Bloomberg Barclays Treasury 5+ Years Index	8
Cash	3-Month Treasury Bills	2
		100%

Please refer to the *Investment Section* for additional details on the investment results of MSRS' largest defined benefit retirement funds for fiscal year 2018.

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, 2017. This was the ninth 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 2018 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.

Acknowledgments

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.

Respectfully submitted,

Erin Leonard
Executive Director

Timothy Rekow, CPA
Chief Financial Officer

MSRS Board of Directors, Administrative Staff and Professional Consultants

As of June 30, 2018

MSRS 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

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

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

Chester Jorgenson
Elected by General and Unclassified Plans Membership
Term expires: March 22, 2022

Michael LeDoux
Elected State Patrol Plan Representative
Term expires: March 2, 2022

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

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

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

Jacqueline Terry
Elected by General and Unclassified Plans Membership
Term expires: March 2, 2022

Key Administrative Staff

Executive Director:
Erin Leonard

Chief Financial Officer:
Timothy Rekow

Chief Benefits Officer - External:
Mark Manion

Chief Benefits Officer - Internal:
Linda Henderson

Chief Information Officer:
Anita Scott

Professional Consultants

Actuary:
Gabriel Roeder Smith & Company

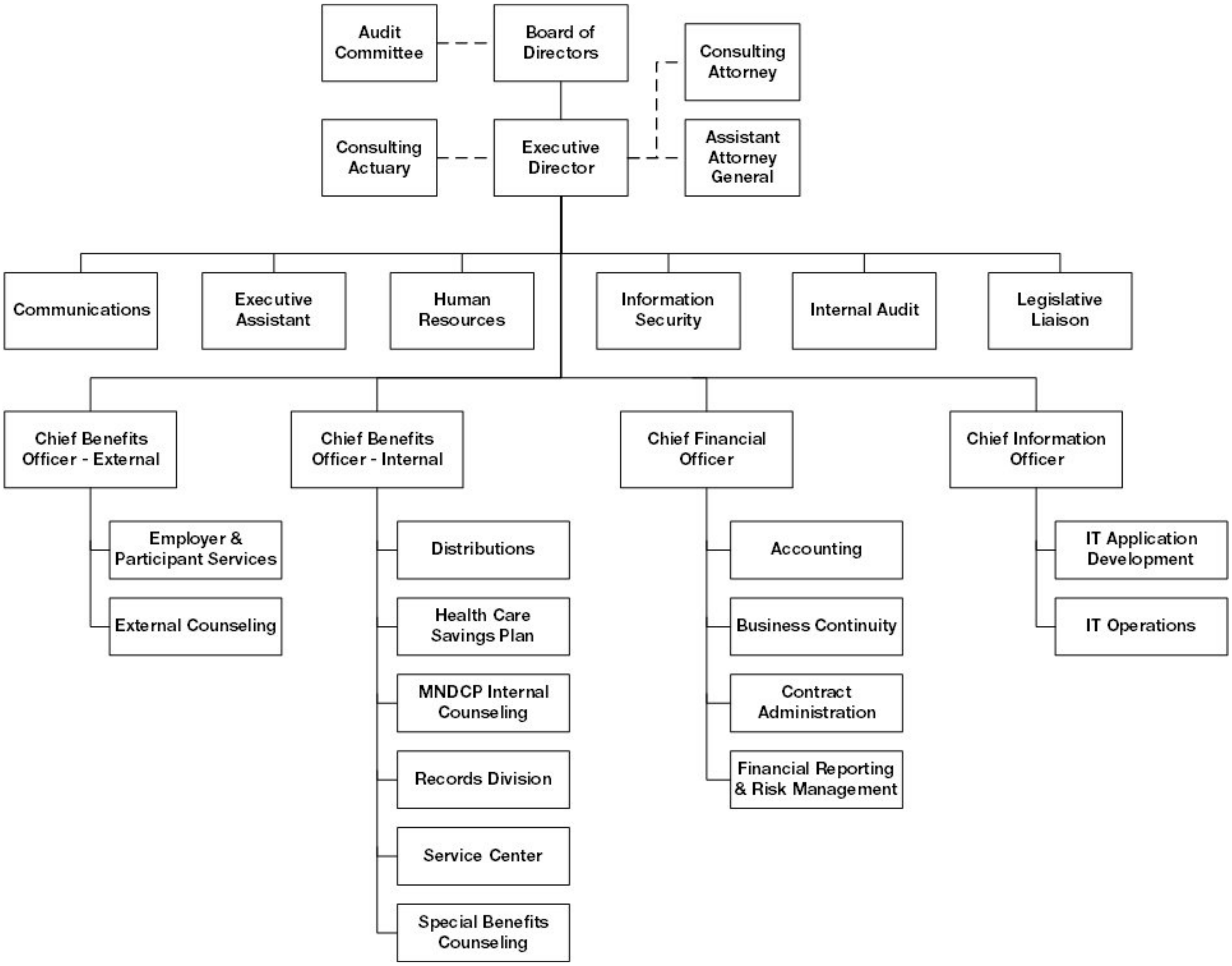
Legal Counsel:
Assistant Attorney General Ian Welsh

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 123 of the *Investment Section* of this CAFR.

Organization Chart

As of June 30, 2018



Mission Statement

We empower Minnesota public employees to build a strong foundation for retirement.

Summary of Plan Provisions - Defined Benefit Plans

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, and provide general information only. Plan provisions specific to MSRS' defined contribution plans follow this section.

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 current pilots began employment after 2008, therefore this is a closed plan. • **Fire Marshals:** Employees of the State Fire Marshal Division of the Minnesota Department of Public Safety who are employed as a deputy state fire marshal, fire, or arson investigator	• State troopers, conservation officers, and certain crime bureau and gambling enforcement agents
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
STATUTORY OR LEGAL REFERENCES:		
Minn. Stat. §352.90 - 352.955	Minn. Stat. §490	Minn. Stat. §3A
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.
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

Continued on next page

Summary of Plan Provisions - Defined Benefit Plans

GENERAL EMPLOYEES	MILITARY AFFAIRS, TRANSPORTATION PILOTS, AND FIRE MARSHALS	STATE PATROL
CONTRIBUTION RATES:		
• **Employee:** 5.5 percent of salary – Rate increases to 5.75 percent on July 1, 2018 – Rate increases to 6.0 percent on July 1, 2019 • **Employer:** 5.5 percent of salary – Rate increases to 5.875 percent on July 1, 2018 – Rate increases to 6.25 percent on July 1, 2019 • 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 – Rate increases to 14.9 percent on July 1, 2018 – Rate increases to 15.4 percent on July 1, 2020 • **Employer:** 21.6 percent of salary – Rate increases to 22.35 percent on July 1, 2018 – Rate increases to 23.1 percent on July 1, 2019 • **Supplemental Contribution:** An employer contribution of 1.75 percent is effective on July 1, 2018, and remains in effect until the plan is 100 percent funded. – Rate increases to 3.0 percent on July 1, 2019 – Rate increases to 5.0 percent on July 1, 2020 – Rate increases to 7.0 percent on July 1, 2021. • **Supplemental Aid:** $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, or until July 1, 2048, whichever is earlier. • Employee contributions are "picked up" according to the provisions of Internal Revenue Code 414(h)

CORRECTIONAL EMPLOYEES	JUDGES	LEGISLATORS
CONTRIBUTION RATES:		
• **Employee:** 9.1 percent of salary – Rate increases to 9.6 percent on July 1, 2018 • **Employer:** 12.85 percent of salary – Rate increases to 14.4 percent on July 1, 2018 • **Supplemental Contribution:** A supplemental employer contribution of 1.45 percent is effective on July 1, 2019, and remains in effect until the plan is 100 percent funded. – Rate increases to 2.95 percent on July 1, 2020 – Rate increases to 4.45 percent on July 1, 2021 • 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 $6 million is paid to the fund annually until the plan is fully funded, or until July 1, 2048, whichever is earlier.	• **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)

Continued on next page

Summary of Plan Provisions - Defined Benefit Plans

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
RETIREMENT ELIGIBILITY:		
For vested employees: • Full retirement benefits at age 55 • Reduced retirement benefits at age 50	**For vested employees:** **Tier 1:** • Full retirement benefits at age 65 **Tier 2:** • Full retirement benefits at age 66 **Tier 1 and Tier 2:** • Reduced retirement benefits at 60 • Mandatory retirement age is 70	**For vested employees:** • Full retirement benefits at age 62 • Reduced retirement benefits at 55
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

Continued on next page

Summary of Plan Provisions - Defined Benefit Plans

<table>
<tr><th>GENERAL EMPLOYEES</th><th>MILITARY AFFAIRS, TRANSPORTATION PILOTS, AND FIRE MARSHALS</th><th>STATE PATROL</th></tr>
<tr><td colspan="3">BENEFIT FORMULA:</td></tr>
<tr><td>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.</td><td>• Same as General Employees</td><td>• 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.</td></tr>
</table>

CORRECTIONAL EMPLOYEES	JUDGES	LEGISLATORS
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

Continued on next page

Summary of Plan Provisions - Defined Benefit Plans

GENERAL EMPLOYEES	MILITARY AFFAIRS, TRANSPORTATION PILOTS, AND FIRE MARSHALS	STATE PATROL
POST-RETIREMENT BENEFIT INCREASES:		
• Benefit recipients received a 2.0 percent benefit increase on January 1, 2018. • Annual benefit increases will change to 1.0 percent for five years, beginning January 1, 2019, and 1.5 percent per year thereafter. • 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.
SURVIVOR BENEFITS:		
• 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, **OR** (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.	• Same as General Employees	• 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, **OR** (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.

CORRECTIONAL EMPLOYEES	JUDGES	LEGISLATORS
POST-RETIREMENT BENEFIT INCREASES:		
• Benefit recipients received a 2.0 percent benefit increase on January 1, 2018. • Benefit increases will change to 1.5 percent per year beginning January 1, 2019.	• 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 received a 2.0 percent benefit increase on January 1, 2018. • Annual benefit increases will change to 1.0 percent for five years, beginning January 1, 2019, and 1.5 percent per year thereafter.
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.

Continued on next page

Summary of Plan Provisions - Defined Benefit Plans

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.
REFUNDS:		
• 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, 4.0 percent until June 30, 2018, and 3.0 percent thereafter.	• Same as General Employees	• Same as General Employees

CORRECTIONAL EMPLOYEES	JUDGES	LEGISLATORS
DISABILITY ELIGIBILITY AND BENEFIT CALCULATION:		
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
REFUNDS:		
• Same as General Employees	• Same as General Employees	• Same as General Employees

Continued on next page

Summary of Plan Provisions - Defined Contribution Plans

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 18 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 • The link to the plan document can be found online at www.msrs.state.mn.us/about-hcsp • 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 – Increases to 5.75 percent on July 1, 2018 – Increases to 6.0 percent on July 1, 2019 • Employer: 6.0 percent of salary – Increases to 6.25 percent on July 1, 2019	• 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 $31,000 for fiscal year 2018 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.
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 in their first year of employment in the Unclassified Plan, or if they have ten or more years of service. • 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
STATUTORY OR LEGAL REFERENCES:	
• Minn. Stat. §352.965 - 352.97 • IRC Section 457(b) Plan • The link to the plan document can be found online at www.msrs.state.mn.us/about-mndcp	• Minn. Stat. §383B.46 - 383B.52 • Non-qualified Plan • From December 1, 2005 through July 1, 2009, internally administered by MSRS
COVERAGE:	
• Optional for all state employees and political subdivision employees	• Optional for employees of Hennepin County, MN, 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 2018 IRS contribution limit of $18,500 for members under 50 years old, $24,500 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.
ANNUITY AND DISABILITY OPTIONS FOR EMPLOYEES ELECTING COVERAGE IN GENERAL EMPLOYEES RETIREMENT PLAN:	
• Not applicable	• Not applicable

Continued on next page

Summary of Plan Provisions - Defined Contribution Plans

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 • 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:	
• $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

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Financial Section

MSRS 2018 Comprehensive Annual Financial Report

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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, 2018, 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.

Room 140 Centennial Building, 658 Cedar Street, St. Paul, Minnesota 55155-1603 • Phone: 651-296-4708 • Fax: 651-296-4712
E-mail: legislative.auditor@state.mn.us • Website: www.auditor.leg.state.mn.us • Minnesota Relay: 1-800-627-3529 or 7-1-1

Independent Auditor's Report

Members of the Board of Directors
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 of Minnesota as of June 30, 2018, and the changes in financial position for the fiscal year then ended in conformity with accounting principles generally accepted in the United States of America.

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, which considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to 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.

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 issued our report, also dated December 20, 2018, 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 and results of our

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

testing of internal controls over financial reporting and compliance and not to provide an opinion on the internal control 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.

Chris Buse

Christopher Buse, CPA
Deputy Legislative Auditor

Tracy Gebhard

Tracy Gebhard, CPA
Audit Director

December 20, 2018
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, 2018. 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 2018. MSRS' fiduciary net position for all pension trust funds increased $1.61 billion, or 7.22 percent, from $22.30 billion as of June 30, 2017, to almost $23.91 billion as of June 30, 2018.

- For MSRS' defined benefit retirement funds, the investment rate of return, net of fees, decreased from 15.10 in 2017 to 10.30 percent in 2018. While the return is lower than it was in the previous year, it still exceeds the assumed rate of return of 7.50 percent used in the annual actuarial valuations.

- For MSRS' defined contribution retirement funds, participants' fiscal year 2018 investment performance varied depending upon the types of assets held in their securities portfolio. The average fiscal year 2018 rates of return ranged from a low of a negative 0.50 percent for the Vanguard Total Bond Market Index to a high of 18.30 percent for the T. Rowe Price Small-Cap Stock fund.

- Total additions to all MSRS pension trust funds decreased nearly $557.75 million, or 15.43 percent, during fiscal year 2018, from $3.61 billion for fiscal year 2017 to $3.06 billion for fiscal year 2018. This decrease reflects the reduction in investment return, from 15.10 percent in 2017 to 10.30 percent in 2018.

- Total deductions from all MSRS pension trust funds increased over $66.22 million, or 4.80 percent, from just under $1.38 billion for fiscal year 2017 to over $1.45 billion for fiscal year 2018. The increase was due to defined benefit annuity payments, which increased $52.99 million, or 5.86 percent, resulting from annual post-retirement benefit increases of up to 2 percent and the growth in the number of retirees. Plan member refunds increased $24.51 million, or 8.87 percent.

- Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68 actuarial valuation results indicated that on June 30, 2018, the governmental employers participating in the State Employees Retirement Fund incurred a Net Pension Liability of almost $1.39 billion, over a $6.03 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 90.56 percent, an improvement of 27.83 percent over the 62.73 percent ratio as of June 30, 2017. These improvements are due to the 10.30 percent investment return during the fiscal year, to the changes in plan provisions, and to an increase in the single discount rate assumption, from 5.42 to 7.50 percent. Other defined benefit retirement funds reported similar improvements.

- Changes in plan provisions led to improvement in the funding status of each of the largest three retirement funds according to the "funding" actuarial valuation reports. Changes in plan provisions include increased contribution amounts for employer and employee, supplemental employer contributions in two funds, and reduced post-retirement benefit increases in three funds. All retirement funds, however, also implemented a new, 7.50 percent investment return assumption which offset some of the funding status improvements due to changes in plan provisions. On an actuarial value of assets basis, MSRS' largest defined benefit retirement fund, the State Employees Retirement Fund, was 88.80 percent funded as of the July 1, 2018, actuarial valuation in comparison to 85.22 percent funded as of the July 1, 2017, actuarial valuation. On a market value of assets basis, this fund was 90.56 percent funded based on the 2018 actuarial valuation results. The market value of assets basis funding status improved in comparison to the 86.05 percent funded ratio reported as of the 2017 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 Fund, the Health Care Savings Fund, the Minnesota Deferred Compensation Fund, and the Hennepin County Supplemental Retirement Fund. 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,* and the *Statement of Changes in Fiduciary Net Position*.

Consistent with Minnesota Statutes, Chapter 356.20, the purpose of these financial statements, along with the accompanying *Notes to the Financial Statements* and *Required Supplementary Information*, 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, 2018 and 2017 are depicted in the table below.

Summary Statement of Fiduciary Net Position – All MSRS Pension Trust Funds
As of June 30, 2018 and 2017
(Dollars in thousands)

	FY 2018	FY 2017	Change	Percent Change
Total Assets	$25,468,269	$23,907,657	$1,560,612	6.53%
Total Liabilities	1,559,954	1,610,191	(50,237)	(3.12)
Net Position Restricted for Pensions	**$23,908,315**	**$22,297,466**	**$1,610,849**	**7.22%**

Total assets as of June 30, 2018, totaling almost $25.47 billion, increased $1.56 billion, or 6.53 percent, from the prior year. This growth can be attributed to high investment returns for fiscal year 2018, which resulted in net investment income for the year, net of fees, of over $2.14 billion.

Total liabilities of $1.56 billion as of June 30, 2018, decreased almost $50.24 million, or 3.12 percent, from the prior year. This is due to a decrease of over $50 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 $1.61 billion, or 7.22 percent. This increase was due to investment income resulting from the 10.30 percent investment return for fiscal year 2018. While the investment return was lower than the 15.10 percent recognized in fiscal year 2017, it was substantial enough to impact the net position restricted for pensions.

MSRS had no deferred outflows or inflows of resources as of June 30, 2018.

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, 2018 and 2017 are depicted below.

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

For the Fiscal Years Ended June 30, 2018 and 2017

(Dollars in thousands)

	FY 2018	FY 2017	Change	Percent Change
Additions (by Major Source)				
Plan Member Contributions	$635,250	$615,117	$20,133	3.27 %
Employer Contributions	231,659	223,761	7,898	3.53
Investment Income (Net)	2,142,208	2,706,513	(564,305)	(20.85)
Other	47,715	69,189	(21,474)	(31.04)
Total Additions	**$3,056,832**	**$3,614,580**	**$(557,748)**	**(15.43)%**
Deductions (by Type)				
Benefits, Withdrawals and Reimbursements	$1,091,907	$1,025,414	$66,493	6.48 %
Refunds	300,939	276,425	24,514	8.87
Recordkeeper Expenses	4,444	4,338	106	2.44
Administrative Expenses	16,601	17,529	(928)	(5.29)
Other	32,092	56,054	(23,962)	(42.75)
Total Deductions	**$1,445,983**	**$1,379,760**	**$66,223**	**4.80 %**
Net Increase (Decrease) in Net Position Restricted for Pensions	**$1,610,849**	**$2,234,820**	**$(623,971)**	**(27.92)%**

Total additions decreased 15.43 percent, over $557.75 million, to just under $3.06 billion, primarily because the investment return was 10.30 percent in fiscal year 2018, compared to 15.10 percent in the previous year. Total plan member and employer contributions increased $28.03 million, or 3.34 percent, for fiscal year 2018. This slight increase is mostly due to increases in active members in the three largest defined benefit retirement funds during fiscal year 2018 and in the decisions of Minnesota Deferred Compensation Fund members to contribute additional amounts to the fund.

Total deductions increased $66.22 million, or 4.80 percent, from just under $1.38 billion in fiscal year 2017 to nearly $1.45 billion in fiscal year 2018. This change was largely due to an increase in annuity benefits and refunds. Increases in annuity benefits are the result of post-retirement benefit increases and to the growth in the number of benefit recipients, from almost 44,200 as of June 30, 2017, to nearly 46,000 as of June 30, 2018. On January 1, 2018, retirees in the State Employees, Correctional Employees, and Legislators Retirement Funds received annual post-retirement benefit increases of 2 percent. Eligible members in the State Patrol Retirement Fund received a 1 percent annual post-retirement benefit increase, and retirees in the Judges Retirement Fund received a 1.75 percent annual post-retirement benefit increase.

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 six sections. Each section is described below

1. Description of Organization and Plans - This section describes MSRS as an organization, including key membership, contribution, and benefit or distribution provisions for each of its retirement funds.
2. 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.
3. Deposits and Investments - This section provides information about cash deposits and MSRS investments, including risks and fair value reporting.
4. Capital Assets - This section of the notes provides information about capital assets.
5. Liabilities - This section provides information about certain liabilities reflected in the *Statement of Fiduciary Net Position*.
6. Net Pension Liability of Participating Employers - This section provides information about the net pension liability of the employers participating in the MSRS retirement funds.

Required Supplementary Information (RSI) consists of three schedules with 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 five years is presented. Additional yearly data will be displayed as it becomes available. The presentation of multi-year data is designed to provide economic context regarding amounts reported in the financial statements, and to provide historical context for each pension fund'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 Payments to Consultants*, and the *Schedule of Investment Expenses*. These schedules summarize the operating expenses MSRS incurred during fiscal year 2018 to administer its defined benefit and defined contribution retirement funds.

GASB Statements No. 67 and No. 68 require two schedules which MSRS includes in the *Financial Section* of this report: a *Schedule of Employer Allocations* for our cost-sharing pension funds (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 funds to report in their own financial statements.

Management's Discussion and Analysis

Financial Analysis of MSRS' 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 2018.

Analysis of the Defined Benefit Funds

The following two tables compare various performance measures to the previous fiscal year for the four largest MSRS defined benefit retirement funds. 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 Funds

For the Fiscal Years Ended June 30, 2018 and 2017

(Dollars in thousands)

	State Employees	State Patrol	Correctional Employees	Judges
Total Assets, as of 06/30/2018	$14,638,007	$803,355	$1,228,161	$222,030
Total Assets, as of 06/30/2017	13,780,567	763,143	1,130,488	204,217
Change in Total Assets	$857,440	$40,212	$97,673	$17,813
Percentage Change	6.22%	5.27%	8.64%	8.72%
Total Liabilities, as of 06/30/2018	$1,344,585	$73,556	$113,274	$20,275
Total Liabilities, as of 06/30/2017	1,294,953	71,544	106,671	19,076
Change in Total Liabilities	$49,632	$2,012	$6,603	$1,199
Percentage Change	3.83%	2.81%	6.19%	6.29%
Total Net Position Restricted for Pensions, as of 06/30/2018	$13,293,422	$729,799	$1,114,887	$201,755
Total Net Position Restricted for Pensions, as of 06/30/2017	12,485,614	691,599	1,023,817	185,141
Change in Net Position Restricted for Pensions	$807,808	$38,200	$91,070	$16,614
Percentage Change	6.47%	5.52%	8.90%	8.97%

Summary Statement of Changes in Fiduciary Net Position – MSRS Pension Trust Funds Defined Benefit Funds

For the Fiscal Years Ended June 30, 2018 and 2017

(Dollars in thousands)

	State Employees	State Patrol	Correctional Employees	Judges
Total Additions, year ended 06/30/2018	$1,628,956	$98,083	$161,573	$40,265
Total Additions, year ended 06/30/2017	2,035,286	120,380	189,770	42,419
Change in Total Additions	$(406,330)	$(22,297)	$(28,197)	$(2,154)
Percentage Change	(19.96)%	(18.52)%	(14.86)%	(5.08)%
Total Deductions, year ended 06/30/2018	$821,148	$59,883	$70,503	$23,651
Total Deductions, year ended 06/30/2017	772,737	58,773	65,545	23,183
Change in Total Deductions	$48,411	$1,110	$4,958	$468
Percentage Change	6.26 %	1.89 %	7.56 %	2.02 %
Net Increase (Decrease) for the Fiscal Year ended 06/30/2018	$807,808	$38,200	$91,070	$16,614
Net Increase (Decrease) for the Fiscal Year ended 06/30/2017	1,262,549	61,607	124,225	19,236
Change in Net Increase (Decrease) of Net Position Restricted for Pensions	$(454,741)	$(23,407)	$(33,155)	$(2,622)
Percentage Change	(36.02)%	(37.99)%	(26.69)%	(13.63)%

State Employees Retirement Fund

Fiduciary Net Position Restricted for Pensions for the State Employees Retirement Fund, the largest MSRS defined benefit retirement fund, increased $807.81 million, or 6.47 percent, to over $13.29 billion as of June 30, 2018. The increase is the result of the strong investment return of 10.30 percent in the Combined Funds, which far outpaced the small increase in deductions during the fiscal year.

Though the fiduciary net position increased, total additions decreased $406.33 million, or 19.96 percent, to just under $1.63 billion. This change is largely attributable to the fiscal year 2018 investment return of 10.30 percent not matching the 15.10 return of the previous year. This reduction in the investment return resulted in a drop in investment income of $391.01 million, or 23.45 percent. Transfers into the fund from the Unclassified Employees Fund were less than half the amount of transfers in 2017, a reduction of $26.2 million. Total plan member and employer contributions did increase slightly to $330.96 million, an increase of 3.42 percent over the previous year, due to an increase in active members.

Total deductions increased over $48.41 million to almost $821.15 million, an increase of 6.26 percent. The increase is due almost entirely to increased annuity benefit distributions, which rose 6.20 percent to just under $797.03 million. The increase is the result of growth in the number of retirees, survivors and disabled members (up 3.78 percent to 40,821 members) and payment of a 2 percent post-retirement benefit increase to retirees and other benefit recipients in January 2018.

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 2018 by $38.20 million, or 5.52 percent, largely due to strong investment returns.

Total additions decreased $22.30 million, or 18.52 percent, to $98.08 million. Investment income was not as impressive in fiscal year 2018 as in the previous year, dropping from $93.08 million in fiscal year 2017 to $70.47 million in fiscal year 2018, a reduction of 24.28 percent. Employer and employee contributions increased slightly to $26.61 million, or 1.16 percent, during the fiscal year. Contribution increases are due to a slight increase in active, contributing members during the year, from 902 to 921 members, an increase of 2.11 percent. Other income includes $1 million of supplemental state aid that will continue to be received annually until this fund and the Public Employees Retirement Association's Police and Fire Fund both reach a 90 percent funded ratio.

Total deductions increased $1.11 million, or 1.89 percent, to just over $59.88 million. The increase is the result of annuity benefit distributions, which increased over $1.09 million, or 1.87 percent, to $59.65 million. The increase is due to the payment of a 1 percent post-retirement benefit increase to retirees and other benefit recipients in January 2018, and to the slight increase in retirees, to 1,071, a change of 1.81 percent.

Correctional Employees Retirement Fund

The Fiduciary Net Position Restricted for Pensions for the Correctional Employees Retirement Fund increased $91.07 million, or 8.90 percent, to $1.11 billion. Like the other funds, strong investment returns accounted for the vast majority of this increase.

Total additions decreased $28.20 million, or 14.86 percent, to $161.57 million. As in other funds, the decrease is the result of lower investment returns than were earned in the previous year. Investment income decreased 22.23 percent, from $135.36 million to $105.26 million. Payroll growth and 4,650 active contributing employees, an increase of 71 employees, or 1.55 percent, resulted in a slight increase in contributions during the fiscal year, up 3.49 percent to $56.31 million.

Total deductions increased $4.96 million, or 7.56 percent, to $70.50 million, largely due to annuity benefit distributions. Annuity benefits increased $4.40 million, or 6.96 percent, to $67.62 million due to growth in the number of benefit recipients and to the payment of a 2 percent post-retirement benefit increase to retirees and other benefit recipients in January 2018. Retiree, survivor and disabled member counts in fiscal year 2018 increased 5.67 percent to 3,259.

Judges Retirement Fund

Fiduciary Net Position Restricted for Pensions for the Judges Retirement Fund increased $16.61 million, or 8.97 percent, to $201.76 million due to the favorable investment performance during fiscal year 2018.

Total additions decreased $2.15 million, or 5.08 percent, to $40.27 million. Investment income declined from $24.73 million in fiscal year 2017 to $19.26 million in fiscal year 2018 due to the lower investment return. Additions for the Judges Retirement Fund also includes an appropriation of $6 million from the State's General Fund, which offset some of the decrease from investment income. In fiscal year 2017, the appropriation was half of that amount, $3 million.

Total deductions increased slightly, from $23.18 million in fiscal year 2017 to $23.65 million in fiscal year 2018, a change of 2.02 percent. Annuity benefits increased $800.23 thousand, or 3.51 percent, to $23.58 million due to payment of a 1.75 percent post-retirement benefit increase to retirees and other benefit recipients in January 2018 and to a 5.13 percent increase in the number of retirees, from 351 to 369. Much of the increase in deductions was offset by a reductions in refunds. There were no refunds issued in 2018, compared to $309.59 thousand in fiscal year 2017.

Legislators Retirement Fund

There are no assets in the Legislators Retirement Fund, so the Fiduciary Net Position Restricted for Pensions remains at $0. The Legislators Fund consists of two retirement plans closed to new membership, so the depletion of assets was anticipated. Benefit payments and administrative expenses are paid by contributions from the 19 remaining active members of the fund and by General Fund appropriation.

Total assets decreased $23.95 thousand, or 9.23 percent, to $235.41 thousand.

Total additions of $8.95 million for fiscal year 2018 are up $152.74 thousand, or 1.74 percent, from fiscal year 2017. Total additions consist of minimal plan member contributions of $92.95 thousand, and a General Fund appropriation of $8.86 million.

Total deductions increased $193.78 thousand, or 2.21 percent, to $8.95 million during fiscal year 2018. Annuity benefits increased $196.04 thousand, or 2.25 percent, due to payment of a 2 percent post-retirement benefit increase in January 2018.

Analysis of the Defined Contribution Funds

MSRS administers four defined contribution funds. 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 2018 and 2017 for each defined contribution fund are not meaningful.

For each of MSRS' defined contribution funds, securities lending collateral was eliminated during fiscal year 2018. This had no effect on the net position restricted for pensions for any of the funds because securities lending collateral is recognized as both an asset and a liability.

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 increased $19.33 million, 6.34 percent, to $323.92 million as of June 30, 2018. While other activity was relatively similar between fiscal 2017 and fiscal 2018, fewer members chose to transfer out of the fund to the State Employees Retirement Fund, resulting in $26.24 million less in transfers. Fund transfers are variable and subject to member's individual decisions.

Health Care Savings Fund

For MSRS' fastest-growing fund, the Health Care Savings Fund, membership again grew significantly during fiscal year 2018. Total participant counts increased 7,647, or 6.67 percent, to over 122,000 participants as of June 30, 2018. Fiduciary Net Position Restricted for Pensions for the fund increased $119.09 million, or 12.53 percent, to $1.07 billion as of June 30, 2018. Investment income of $63.68 million was the majority of the increase. Deductions remained relatively stable between fiscal year 2017 and 2018, with a total increase of $5.42 million, due largely to an additional $4.76 million in health care reimbursements during the year. The required federal tax to finance operations of the Patient-Centered Outcomes Research Institute increased from $251.08 thousand in fiscal year 2017 to $282.56 thousand in fiscal year 2018, an increase of 12.50 percent.

Minnesota Deferred Compensation Fund

Fiduciary Net Position Restricted for Pensions for the Minnesota Deferred Compensation Fund increased $512.69 million, or 7.88 percent, from over $6.50 billion on June 30, 2017, to nearly $7.02 billion as of June 30, 2018. While there was an 8.47 percent increase in refunds, from $255.57 million in fiscal year 2017 to $277.22 million in fiscal year 2018, investment income continued to outpace the deductions. This is despite the fact that investment income was lower in fiscal year 2018, decreasing from $665.34 million to $560.52 million, a change of $104.82 million, or 15.75 percent. Member contributions increased by $12.89 million, or 4.76 percent.

Hennepin County Supplemental Retirement Fund

Fiduciary Net Position Restricted for Pensions for the Hennepin County Supplemental Retirement Fund increased $6.05 million in fiscal year 2018, or 3.95 percent, to $159.05 million. As with other funds, investment returns were the reason for the improvement, resulting in investment income during fiscal year 2018 of $15.68 million. Only Hennepin County employees who began employment prior to April 14, 1982, are eligible for this fund, so the number of active members has been slowing declining, resulting in ongoing decreases in contributions from members and the employer. Contributions decreased $54 thousand, or 16.88 percent. Total deductions are minimal in this fund, increasing $982.63 thousand, or 10.91 percent, due to a $1.10 million increase in ongoing withdrawals. This increase is due to a 13.81 percent increase in the number of members taking ongoing withdrawals, which was 206 as of June 30, 2018.

Actuarial Valuation Results

MSRS' consulting actuaries conduct two actuarial valuations for each MSRS defined benefit retirement fund on an annual basis: 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.

GASB Statements No. 67 and No. 68 Actuarial Valuations

This is the fifth year since MSRS implemented 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 expense, and deferred outflows and deferred inflows of resources for each of its defined benefit retirement funds as of June 30, 2018. MSRS' participating governmental employers are required to report their respective shares of these amounts in their financial statements 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, 2018, GASB-compliant actuarial valuation report revealed a net pension liability of $1.39 billion, and pension income totaling $1.66 billion. This is a significant decrease from the fiscal year 2017 net pension liability of $7.42 billion. In addition, the fund reported pension income rather than pension expense. These improvements are due, in large part, to changes in plan provisions. As a result of this June 30, 2018, actuarial valuation, fund fiduciary net position as a percentage of the total pension liability was 90.56 percent, increasing 27.83 percent from the ratio of 62.73 percent reported as of June 30, 2017.

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 163.

Funding Actuarial Valuations

The July 1, 2018, actuarial valuation results indicate the State Employees Retirement Fund was 88.80 percent funded, the State Patrol Retirement Fund was 76.95 percent funded, the Correctional Employees Retirement Fund was 73.31 percent funded, and the Judges Retirement Fund was 52.35 percent funded. These funded ratios are calculated using the actuarial value of assets. The three largest defined benefit funds all had significant plan provision changes, and all funds had assumption changes approved in the 2018 Legislative session, which had a direct impact on the funding status of those funds.

A brief discussion of the funding actuarial valuation results is below. Additional information about the funding actuarial valuation results for each defined benefit fund can be found in the *Actuarial Section* of this report.

State Employees Retirement Fund

For the State Employees Retirement Fund, the fiscal year 2017 contribution deficiency of 2.24 percent was eliminated, with a contribution sufficiency of 0.10 percent reported in the July 1, 2018 valuation. Changes to member and employer contribution rates, extension of the amortization period, and reductions to post-retirement benefit increases led to this improvement. Various assumption changes were also implemented, including the lowering of the investment return assumption from 8.00 percent to 7.50 percent. The assumption changes offset some of the positive effects of the plan provisions. Funded 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 decreased significantly, from 5.33 percent on July 1, 2017, to 0.96 percent on July 1, 2018. The decrease in the deficiency is due to changes in plan provisions and assumptions. Changes include increases in member and employer contribution rates, a new supplemental employer contribution, a reduction in the investment return assumption, and the resetting of the amortization period. The amortization period was reset from 22 years to 30 years, essentially allowing the fund to spread out the unfunded liability over a longer period of time. The actuarial value of assets funded ratio decreased slightly, from 77.77 percent on July 1, 2017, to 76.95 percent on July 1, 2018. 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 years have been included in the actuarial value of assets, thereby affecting the funded ratio. On a market value of assets basis, which is not subject to gain/loss smoothing, the funded ratio remained relatively stable, 78.52 percent on July 1, 2017 and 78.44 percent on July 1, 2018.

Correctional Employees Retirement Fund

For the Correctional Employees Retirement Fund, the contribution deficiency decreased from 6.45 percent on July 1, 2017, to 1.77 percent on July 1, 2018. The actuarial value of assets funded ratio increased from 71.63 percent on July 1, 2017, to 73.31 percent on July 1, 2018, and the market value of assets funded ratio increased from 72.38 percent to 74.80 percent. Like the other funds, the valuations for this fund reflected changes in the investment return assumption, a reset to the amortization period, increases to member and employer contributions, and an additional supplemental employer contribution in future years.

Judges Retirement Fund

The Judges Retirement Fund, showed a reduction to the contribution deficiency, decreasing from 1.97 percent on July 1, 2017, to 0.40 percent on July 1, 2018. The decrease is due to the resetting of the amortization period to 30 years. Unlike the other defined benefit funds, there were only minor changes to plan provisions, but an annual general fund appropriation of $6 million contributes to the reduction in the contribution deficiency. The actuarial value of assets funded ratio decreased from 52.54 percent on July 1, 2017, to 52.35 percent on July 1, 2018. The funded ratio calculated on a market value of assets, which does not include a smoothing of assets, improved from 53.05 percent to 53.38 percent on June 30, 2018.

Legislators Retirement Fund

The Legislators Retirement Fund is a closed plan, with few active, contributing members. Remaining assets in the fund 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.

Request for Information

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

This financial report is intended to provide a general overview of MSRS' financial position as of June 30, 2018, and the results of financial activities for fiscal year 2018. 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, 2018
(Dollars in thousands)

	Defined Benefit Funds				
	State Employees	State Patrol	Correctional Employees	Judges	Legislators
Assets					
Cash	$1,278	$39	$50	$16	$235
Short-term investments	142,943	9,202	15,703	3,442	0
Total Cash & Short-term Investments	$144,221	$9,241	$15,753	$3,458	$235
Receivables					
Member Contributions	$8,950	$551	$1,181	$62	$0
Employer Contributions	8,950	827	1,667	173	0
Other Receivables	663	33	25	6	0
Due from Other Funds	6,209	1	0	0	0
Total Receivables	$24,772	$1,412	$2,873	$241	$0
Investments, at Fair Value					
Bond Pool	$2,080,384	$114,111	$174,115	$31,429	$0
U.S. Stock Actively Managed Pool	1,403,454	76,981	117,460	21,202	0
U.S. Stock Index Pool	4,106,367	225,238	343,677	62,037	0
Alternative Investment Pool	1,834,672	100,633	153,551	27,717	0
Broad International Stock Pool	2,548,802	139,804	213,318	38,506	0
Treasuries Pool	1,143,750	62,736	95,725	17,279	0
DC Supplemental Investment Fund	0	0	0	0	0
DC Mutual Funds	0	0	0	0	0
Total Investments	$13,117,429	$719,503	$1,097,846	$198,170	$0
Securities Lending Collateral	$1,334,503	$73,199	$111,689	$20,161	$0
Capital Assets, Net of Depreciation					
Land	$88	$0	$0	$0	$0
Building, Improvements, and Equipment	4,892	0	0	0	0
Equipment, Furniture, and Fixtures	322	0	0	0	0
Internally Generated Software	11,780	0	0	0	0
Total Capital Assets	$17,082	$0	$0	$0	$0
Total Assets	**$14,638,007**	**$803,355**	**$1,228,161**	**$222,030**	**$235**
Liabilities					
Accounts Payable	$4,265	$178	$277	$51	$3
Compensated Absences	984	0	0	0	0
Securities Lending Collateral	1,334,503	73,199	111,689	20,161	0
Due to Other Funds	252	179	816	63	34
Due to the State's General Fund	0	0	0	0	198
Bonds Payable	3,504	0	0	0	0
Other Payables	1,077	0	492	0	0
Total Liabilities	**$1,344,585**	**$73,556**	**$113,274**	**$20,275**	**$235**
Net Position Restricted for Pensions	**$13,293,422**	**$729,799**	**$1,114,887**	**$201,755**	**$0**

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

Defined Contribution Funds				
Unclassified Employees	Health Care Savings Plan	MN Deferred Compensation	Hennepin County Supplemental	Totals
$0	$0	$0	$0	$1,618
121	793	8,775	18	180,997
$121	$793	$8,775	$18	$182,615
$227	$7,429	$10,056	$2	$28,458
244	0	0	1	11,862
9	98	184	4	1,022
0	251	55	0	6,516
$480	$7,778	$10,295	$7	$47,858
$0	$0	$0	$0	$2,400,039
0	0	0	0	1,619,097
0	0	0	0	4,737,319
0	0	0	0	2,116,573
0	0	0	0	2,940,430
0	0	0	0	1,319,490
302,894	1,065,930	1,408,079	159,070	2,935,973
20,938	0	5,591,303	0	5,612,241
$323,832	$1,065,930	$6,999,382	$159,070	$23,681,162
$0	$0	$0	$0	$1,539,552
$0	$0	$0	$0	$88
0	0	0	0	4,892
0	0	0	0	322
0	0	0	0	11,780
$0	$0	$0	$0	$17,082
$324,433	**$1,074,501**	**$7,018,452**	**$159,095**	**$25,468,269**
$51	$886	$1,214	$36	$6,961
0	0	0	0	984
0	0	0	0	1,539,552
439	3,618	1,109	6	6,516
0	0	0	0	198
0	0	0	0	3,504
27	102	541	0	2,239
$517	**$4,606**	**$2,864**	**$42**	**$1,559,954**
$323,916	**$1,069,895**	**$7,015,588**	**$159,053**	**$23,908,315**

Statement of Changes in Fiduciary Net Position

For the Fiscal Year Ended June 30, 2018
(Dollars in thousands)

	Defined Benefit Funds				
	State Employees	State Patrol	Correctional Employees	Judges	Legislators
Additions					
Contributions					
Plan Member Contributions	$166,726	$10,657	$23,417	$3,973	$93
Employer Contributions	164,233	15,952	32,893	11,027	0
General Fund Contributions	0	0	0	6,000	8,856
Total Contributions	$330,959	$26,609	$56,310	$21,000	$8,949
Investment Income					
Investment Income	$1,281,547	$70,751	$105,671	$19,341	$0
Less Investment Expenses	13,973	770	1,159	212	0
Net Investment Income	$1,267,574	$69,981	$104,512	$19,129	$0
Income from Securities Lending Activities:					
Securities Lending Income	$27,820	$1,527	$2,328	$421	$0
Securities Lending Expenses:					
Borrower Rebates	$17,786	$976	$1,488	$269	$0
Management Fees	1,058	58	89	16	0
Total Securities Lending Expenses	$18,844	$1,034	$1,577	$285	$0
Net Income from Securities Lending Activities	8,976	493	751	136	0
Total Net Investment Income	$1,276,550	$70,474	$105,263	$19,265	$0
Other Additions					
Transfers from Other Plans	$21,269	$0	$0	$0	$0
Other Income	178	1,000	0	0	0
Total Other Additions	$21,447	$1,000	$0	$0	$0
Total Additions	**$1,628,956**	**$98,083**	**$161,573**	**$40,265**	**$8,949**
Deductions					
Annuity Benefits	$797,027	$59,653	$67,622	$23,585	$8,912
Ongoing Withdrawals	0	0	0	0	0
Health Care Reimbursements	0	0	0	0	0
Refunds	13,533	39	2,052	0	0
Transfers to Other Plans	952	0	0	0	0
Recordkeeper Expenses	0	0	0	0	0
Administrative Expenses	9,564	184	827	66	37
Other Expenses	72	7	2	0	0
Total Deductions	**$821,148**	**$59,883**	**$70,503**	**$23,651**	**$8,949**
Net Increase (Decrease) in Net Position	**$807,808**	**$38,200**	**$91,070**	**$16,614**	**$0**
Net Position Restricted for Pensions					
Beginning of Year	$12,485,614	$691,599	$1,023,817	$185,141	$0
End of Year	**$13,293,422**	**$729,799**	**$1,114,887**	**$201,755**	**$0**

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

	Defined Contribution Funds				
	Unclassified Employees	Health Care Savings Plan	MN Deferred Compensation	Hennepin County Supplemental	Totals
	$6,407	$140,286	$283,558	$133	$635,250
	7,421	0	0	133	231,659
	0	0	0	0	14,856
	$13,828	$140,286	$283,558	$266	$881,765
	$30,959	$64,267	$564,409	$15,765	$2,152,710
	180	591	3,885	88	20,858
	$30,779	$63,676	$560,524	$15,677	$2,131,852
	$0	$0	$0	$0	$32,096
	$0	$0	$0	$0	$20,519
	0	0	0	0	1,221
	$0	$0	$0	$0	$21,740
	0	0	0	0	10,356
	$30,779	$63,676	$560,524	$15,677	$2,142,208
	$952	$0	$0	$0	$22,221
	195	4,850	4,320	95	10,638
	$1,147	$4,850	$4,320	$95	$32,859
	$45,754	**$208,812**	**$848,402**	**$16,038**	**$3,056,832**
	$0	$0	$0	$0	$956,799
	0	0	49,160	6,500	55,660
	0	79,448	0	0	79,448
	4,790	0	277,223	3,302	300,939
	21,269	0	0	0	22,221
	53	2,608	1,755	28	4,444
	127	2,800	2,975	21	16,601
	189	4,863	4,601	137	9,871
	$26,428	**$89,719**	**$335,714**	**$9,988**	**$1,445,983**
	$19,326	**$119,093**	**$512,688**	**$6,050**	**$1,610,849**
	$304,590	$950,802	$6,502,900	$153,003	$22,297,466
	$323,916	**$1,069,895**	**$7,015,588**	**$159,053**	**$23,908,315**

Notes to the Financial Statements

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

Note 1: Description of Organization 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 the four largest MSRS defined benefit 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 whom 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 76 counties, 294 cities and townships, 298 school districts and other educational entities, and 236 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, 2018, for all MSRS defined benefit retirement funds are shown in **Exhibit 1** on the following page. Specific descriptions of each of these funds are contained in the narrative and schedules that follow.

Exhibit 1: Membership Statistics - Defined Benefit Funds

As of June 30, 2018	State Employees	State Patrol	Correctional Employees	Judges	Legislators	Totals
Members Receiving Benefits						
Retirees	34,937	862	2,736	272	293	39,100
Disabled Annuitants	1,826	59	297	16	0	2,198
Beneficiaries	4,058	150	226	81	79	4,594
Total Members Receiving Benefits	**40,821**	**1,071**	**3,259**	**369**	**372**	**45,892**
Deferred Members						
Vested, Not Receiving	17,109	56	1,347	15	39	18,566
Nonvested	8,235	22	843	0	0	9,100
Total Deferred Members	**25,344**	**78**	**2,190**	**15**	**39**	**27,666**
Active Members						
Vested	33,876	724	2,985	283	19	37,887
Nonvested	17,347	197	1,665	34	0	19,243
Total Active Members	**51,223**	**921**	**4,650**	**317**	**19**	**57,130**
Grand Total Members	**117,388**	**2,070**	**10,099**	**701**	**430**	**130,688**
Participating Employers	14	1	2	1	1	

Note: These retirement funds have no nonemployer contributing entities

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.

As of June 30, 2018, all MSRS employees except for the Executive Director are members of the General Plan. MSRS employee and employer contributions were funded at 100 percent of the required contributions set by statute. Total covered payroll for MSRS employees was approximately $8.16 million for fiscal year 2018, with employee and employer contributions of $472,261 each.

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.

Notes to the Financial Statements

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.

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 both 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.

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 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 (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. All members of the Elective State Officers Plan are in retirement status.

The General Fund plans provide retirement and death benefits to plan members and their beneficiaries.

Benefits for both plans are financed on a pay-as-you-go basis, funded primarily by annual appropriations from the state's General Fund.

Contribution Rates

Minnesota statutes require that eligible employees contribute a percentage of their total compensation to the retirement fund. Participating employers are also required to contribute a percentage to the funds. Contribution rates are reflected in **Exhibit 2**. Employee and employer contribution rates will be increasing in fiscal year 2019 for the State Employees, State Patrol, and Correctional Employees Retirement Plans. A supplemental contribution will be added for the State Patrol Retirement Fund beginning in fiscal year 2019, and for the Correctional Employees Retirement fund beginning in fiscal year 2020. Details of future contribution increases are included in the *Summary of Plan Provisions* in the *Introductory Section* of this CAFR.

In addition to the contributions noted in the schedule on the next page, the State Patrol Retirement Fund and the Judges Retirement Fund receive further funding.

The State Patrol Retirement Fund receives a $1 million supplemental state contribution on an annual basis until the earlier of July 1, 2048, or when 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.

The Judges Fund receives a general fund appropriation of $6 million on an annual basis until the Judges Retirement Fund is fully funded or until July 1, 2048, whichever is earlier.

Exhibit 2: Fiscal Year 2018 Contribution Rates for MSRS Defined Benefit Retirement Funds

Retirement Plan	Employee Contribution Rate	Employer Contribution Rate	Statutory Authority
State Employees (General Plan)	5.50%	5.50%	M.S. 352.04
State Patrol	14.40	21.60	M.S. 352B.02
Correctional Employees	9.10	12.85	M.S. 352.92
Judges - Tier 1	9.00	22.50	M.S. 490.123
	Contributions for Tier 1 Judges are redirected to the Unclassified Employees Retirement Plan after the judge's maximum retirement benefit is reached		
Judges - Tier 2	7.00	22.50	M.S. 490.123
Legislators	9.00% to the State's General Fund	Funded by State General Fund appropriation	M.S. 3A.03

Post-Retirement Benefit Increases

Post-retirement benefit increases are effective on January 1 of each year. Benefit increase rates are noted in **Exhibit 3.**

The Judges Plan post retirement increase may change in future years as the result of an improvement in the funding status of the plan, which is calculated annually.

Minnesota statute stipulates that 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.

Exhibit 3: Annual Post-Retirement Benefit Increases for MSRS Defined Benefit Retirement Plans

Retirement Plan	Benefit Increase Amount
State Employees (General Plan)	2.00 percent in 2018, 1.00 percent through 2023, 1.50 percent thereafter
State Patrol	1.00 percent
Correctional Employees	2.00 percent in 2018,1.50 percent thereafter
Judges	1.75 percent
Legislators	2.00 percent in 2018, 1.00 percent through 2023, 1.50 percent thereafter

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. Legislators can also choose a 100 percent survivor coverage with an actuarially reduced benefit.

Notes to the Financial Statements

Vesting and Retirement Ages

All active and deferred members are fully vested to the extent of their contributions plus interest at a rate of 6 percent through June 30, 2011, 4 percent through June 30, 2018, and 3 percent thereafter. For monthly retirement benefits, members are vested in each plan as noted in **Exhibit 4**.

Exhibit 4: Fiscal Year 2018 Vesting and Retirement Ages for MSRS Defined Benefit Retirement Plans

Retirement Plan	Vesting Requirements	Full retirement Age	Reduced (Early) Retirement Age
State Employees (General Plan)	Hired before July 1, 2010: Three years of covered service Hired after June 30, 2010: Five years	Hired before July 1, 1989: - age 65, or - age 62 with 30 years of service, or - Rule of 90 eligible (age plus years of service equals 90 or more) Hired after June 30, 1989: age 66	Age 55, if vested
State Patrol	Hired before July 1, 2013: Three years of covered service Hired after June 30, 2013: ten years for members, five years for survivor purposes	Age 55	Age 50
Correctional Employees	Hired before July 1, 2010: Three years of covered service Hired 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.	Age 55	Age 50
Judges - Tier 1	5 years of allowable service	Age 65, mandatory age 70	Age 60
Judges - Tier 2	5 years of allowable service	Age 66, mandatory age 70	Age 60
Legislators	6 years of allowable service	Age 62	Age 55

Benefit Formulas

Benefits are calculated based on years and months of service, member age, and the average salary from the sixty successive-month period (five years) with the highest gross salary. Formulas for MSRS defined benefit plans are shown in **Exhibit 5**.

Exhibit 5: Benefit Formulas for MSRS Defined Benefit Retirement Plans

Retirement Plan	Benefit Formula
State Employees (General Plan)	Members hired before July 1, 1989: Step or Level formula, whichever is greater. Members hired on or after July 1, 1989: Level formula. Step formula: 1.20 percent of the high-five average salary for each of the first 10 years of covered service, then 1.70 percent for each year thereafter. It also includes full benefits under the Rule of 90 (age plus years of allowable service equals 90). Level formula: 1.70 percent of the high-five average salary for all years of covered service, with full benefits at normal retirement age. Not Rule of 90 eligible.
State Patrol	3.00 percent of the high-five 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.
Correctional Employees	For employees hired before July 1, 2010: 2.40 percent of the high-five average salary for each year of allowable service, prorated for completed months. For employees hired after June 30, 2010: 2.20 percent of the high-five average salary for each year of allowable service, prorated for completed months. Monthly benefits 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.
Judges - Tier 1	2.70 percent of the high-five average salary for each year of allowable service prior to July 1, 1980, then 3.20 percent for each year of allowable service after June 30, 1980. The maximum benefit a Tier 1 program member receives is 76.80 percent of high-five average salary.
Judges - Tier 2	2.50 percent of the high-five average salary for each year of allowable service. There is no maximum benefit for Tier 2 program members.
Legislators	For members first elected prior to January 1, 1979: 5.00 percent of high-five average salary for the first eight years of service prior to January 1, 1979, then 2.50 percent for subsequent years. For members elected after December 31, 1978: 2.50 percent of the high-five average salary for each year of allowable service.

Notes to the Financial Statements

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 Insurance Company), to provide various recordkeeping services for the four MSRS defined contribution funds. Membership statistics as of June 30, 2018, are provided in **Exhibit 6.**

Exhibit 6: Membership Statistics – Defined Contribution Funds
(Dollars in thousands)

As of June 30, 2018	Unclassified Employees	Health Care Savings	MN Deferred Compensation	Hennepin County Supplemental	Totals
Active Members	1,452	65,450	50,694	150	117,746
Inactive Members	1,765	45,856	27,057	920	75,598
Withdrawing Members	0	11,040	11,242	206	22,488
Total Members	**3,217**	**122,346**	**88,993**	**1,276**	**215,832**
Annual Payroll	$116,489	N/A	N/A	$13,313	
Participating Employers	6	560	727	2	

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. Minnesota Statutes, Section 352D.01 authorized creation of this plan. Participation is limited to certain, specified employees of the State of Minnesota and various statutorily designated entities. As of June 30, 2018, the Executive Director is the only MSRS employee who is an active participant 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 percent of salary. These rates will increase in fiscal year 2019. Details about future increases can be found in the *Summary of Plan Provisions* in the *Introductory Section* of this CAFR.

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, 2018, in the amount $7,275,000.

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 provides 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 percent of salary are matched by employer contributions of 1 percent of salary.

Plan Administrative Fees

Plan administrative fees in each defined contribution plan are collected near the middle of the month, and are based on each participant's account balance on that day. The fees are used to pay for recordkeeping and custodial services, and to reimburse MSRS for expenses incurred to administer the plan. The fiscal year 2018 plan administrative fee rate structure for each defined contribution fund is shown in **Exhibit 7.**

Exhibit 7: Fiscal Year 2018 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 between $10,000.01 and $30,000
	$6 per month for an account balance 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

Notes to the Financial Statements

Note 2: 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, 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 2018.

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.

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.

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

Investment Policy

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 the Minnesota 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.

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 IAC, has the authority for establishing and amending investment policy for all funds under its control. The policy outlines the investment philosophy and guidelines within which the Combined Fund's investments will be managed. Studies that guide the ongoing management of the funds are updated periodically.

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

Description of Significant Investment Policy Changes During the Year

The SBI formally adopted a set of ten Investment Beliefs for managing the assets of the Combined Funds. Additionally, the SBI approved changes to the asset allocation policy and adopted a new Strategic Asset Category Framework. The investment policy changes were recommended by SBI staff, investment consultants, and the IAC.

<u>SBI Investment Beliefs</u>

In September 2017, the State Board of Investment adopted a set of ten Investment Beliefs. The primary purpose of these beliefs is to guide the SBI toward sound principles related to investing on behalf of the Combined Funds. The beliefs help provide context for SBI's actions, reflect SBI's investment values, and acknowledge SBI's role in supporting the State's retirement systems. The ten SBI Investment Beliefs are:

1. The SBI is a long-term investor whose primary mission is to maintain the viability of the retirement systems it supports.
2. The SBI's strategic allocation policy is the primary determinant of the asset portfolio's long-term investment return and asset portfolio's risk.
3. While the SBI can sacrifice some short-term liquidity to pursue a greater long-term return, the investment portfolio's net cash flows and ability to pay benefits on a year-by-year basis are key risk considerations.
4. Diversification improves the risk-adjusted return profile of the SBI investment portfolio.
5. There are long-term benefits to SBI managing investment costs.
6. The equity risk premium is significantly positive over a long-term investment horizon although it can vary over time.
7. Private market investments have an illiquidity premium that the SBI can capture.
8. It is extremely challenging for a large institutional investor to add significant value over market-representative benchmarks, particularly in the highly-competitive public global equity markets.
9. The SBI benefits significantly when roles and levels of authority are clearly defined and followed.
10. Utilizing engagement initiatives to address economic, social, and governance-related issues can lead to positive portfolio and governance outcomes.

Notes to the Financial Statements

Strategic Asset Category Framework

In December 2017, the SBI approved a Strategic Asset Category Framework for the Combined Funds. The framework defined a broader array of asset classes and assigned asset classes to Strategic Allocation Categories. Using the Strategic Asset Category approach better defines the role that asset classes play in a portfolio, better identifies the relative risk levels of the asset classes, and allows the SBI to focus less on what they invest in, but why they invest in it.

The strategic allocation categories are as follows:

- Growth - Appreciation: This is the primary return-seeking category with the objective of generating long-term capital appreciation. Growth - Appreciation asset classes include U.S. Equity, Non-U.S. Developed Market Equity, Emerging Market Equity, Private Equity, and Non-Core Real Estate.

- Growth - Income Oriented: This category has attributes that include generating stable levels of current income and capital appreciation at lower levels of risk than growth-appreciation assets. Asset classes in this category include Investment Grade Credit, Private Credit, Debt-Related Private Credit, Debt-Related Real Estate, and Global Diversified Credit.

- Real Return: The Real Return category provides diversification through investments in assets which have inflation-sensitive characteristics and the ability to hedge against inflation. This category has two subcategories: Real Assets and Inflation Protection Assets. Real Assets are considered to be hard whereas Inflation Protection Assets are considered to be soft. Asset classes include Private and Public Real Assets, Core Real Estate, Treasury Inflation Protected Securities, and Inflation-Linked Bonds.

- Protection: The Protection category provides stability, protection during a crisis, and can act as a hedge against deflation. Asset classes include U.S. Treasuries and U.S. Government Bonds.

- Liquidity: This category provides liquidity to meet daily obligations, primarily benefit payments and capital commitment calls. Asset classes consist of cash and cash equivalents.

- Opportunity: The opportunity category's purpose is to allow for investment in new strategies that do not fit within clearly-defined asset class lines. Classes in this category include niche opportunities in multiple asset categories.

Additionally, the SBI approved ranges for adoption of the Strategic Allocation Category Framework, which are shown in **Exhibit 8**. Due to the nature of the Opportunity allocation category, no specific target ranges are assigned. Private investments, which include private equity, real estate, resource funds, and yield-oriented investments, are limited to 30 percent of the total fund.

Exhibit 8: SBI Strategic Allocation Framework

Strategic Allocation Category	Minimum Percent of Total Fund	Maximum Percent of Total Fund	Maximum Private Investments Percent of Total Fund
Growth - Appreciation	50%	75%	20%
Growth - Income Oriented	15	30	15
Real Return [1]	0	20	15
Protection	5	20	0
Liquidity	0	5	NA

[1] Real Return contains the Real Assets and Inflation Protection strategic allocation categories.

Valuation of Investments

Investments in the Combined Funds, the Defined Contribution Supplemental Investment Fund, and the Minnesota Deferred Compensation Plan are reported on a trade date basis 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 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 funding 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 Fees* 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*.

Notes to the Financial Statements

Asset Allocation

To match the long-term nature of pension obligations, the SBI maintains a strategic asset allocation for the Combined Funds that includes allocations to public equity (both domestic and international), fixed income, private markets, and cash equivalents. The asset allocation through December 2017 is shown in **Exhibit 9.**

Exhibit 9: Asset Allocation for the Combined Funds
Through December 2017

Asset Class	Target Allocation
Public Equity [1]	58%
Fixed Income	20
Private Markets	20
Cash	2

[1] 39% Domestic Equity, 19% International Equity

During fiscal year 2018, the SBI made Board-approved changes to the asset allocation policy, resulting in the long-term asset allocation as shown in **Exhibit 10**.

Exhibit 10: Final Target Asset Allocation

Asset Class	Target Allocation
Public Equity [1]	53%
Fixed Income	20
Private Markets	25
Cash	2

[1] 36% Domestic Equity, 17% International Equity

The Executive Director of the SBI implemented the approved Board changes beginning in January 2018. The Private Markets allocation was increased from 20 percent to 25 percent. Until the allocation to Private Markets reaches its target of 25 percent, the uninvested portion of the allocation will continue to be invested in the Public Equity pool. In order to increase the Private Markets allocation, the Public Equities target allocation was reduced from 58 percent to 53 percent.

The Combined Funds Fixed Income allocation is undergoing a transition which may continue through the end of fiscal year 2019. The target allocation for Fixed Income remains at 20 percent. However, during the transitional period from January 1, 2018, through the end of fiscal year 2019, there may be combined asset classes (Treasuries, Core Fixed Income, or any new asset class which may be initiated during this period) which in total will be composed of Fixed Income investment instruments and may exceed 20 percent in aggregate. A new asset class called Treasuries was created which holds U.S. Treasury Bonds and has a current allocation of 8 percent. The Fixed Income asset classes will be drawn down through the end of fiscal year 2019 from the current allocations to a level where the aggregation of the Fixed Income investment asset classes will total 20 percent.

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. This information is shown in **Exhibit 11**.

Exhibit 11: SBI Transitional Asset Allocations and Long Term Expected Real Rate of Return

Asset Class	Transitional Target Allocation as of June 30, 2018	Final Target Allocation	Long-term Expected Real Rate of Return (Geometric Mean)
Domestic Equity [(1)]	33%	36%	5.10%
International Equity [(2)]	16	17	5.30
Fixed Income [(3)]	16	20	0.75
Treasuries	8	0	0.50
Private Markets [(4)]	25	25	5.90
Cash	2	2	0.00
Total	**100%**	**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)] Fixed Income includes the Bond Pool. The final target allocation will combine Fixed Income and Treasuries.

[(4)] Private Markets includes the Alternative Investment Pool. If a 25 percent allocation cannot be achieved, the uncommitted allocation is invested in Domestic and International Equities.

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 12.** The Legislators Retirement Fund had no assets at June 30, 2018, and therefore no rate of return.

Exhibit 12: Money-weighted Rate of Return

For the Year Ended June 30, 2018

Retirement Fund	Money-weighted Rate of Return
State Employees	10.49%
State Patrol	10.51
Correctional Employees	10.43
Judges	10.46
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 13.**

Exhibit 13: Capital Assets Estimated Useful Lives

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

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 so will not be recognized as an outflow of resources (expense) until then. MSRS has no deferred outflows of resources in 2018.

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 so will not be recognized as an inflow of resources (revenue) until that time. MSRS has no deferred inflows of resources in 2018.

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 percent through June 30, 2011, 4 percent through June 30, 2018, and 3 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.

Note 3: Deposits and Investments

A. Risks

Custodial Credit Risk

Custodial credit risk for cash deposits and investments is the risk that, in the event of a bank or custodian failure, MSRS will not be able to recover the value of its investments or collateral securities. 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 2018, the combined depository insurance and collateral was sufficient to meet legal requirements and secure all MSRS deposits, eliminating exposure to custodial credit risk.

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, 2018, 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 14.** 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.

Exhibit 14: Credit Risk Exposure

(Dollars in thousands)

Quality Rating	Fair Value as of June 30, 2018
AAA	$156,809
AA	2,863,110
A	150,854
BBB	552,298
BB	251,128
B	16,344
CCC	6,666
CC	6,254
C	1,363
D	184
Unrated	426,605
U.S. Government	33,645
Total	**$4,465,260**

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. The MSRS share of debt securities is held in external investment pools and as of June 30, 2018, had the weighted-average maturities shown in **Exhibit 15.**

Exhibit 15: Interest Rate Risk
As of June 30, 2018
(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	$107,953	6.10	$4,576	4.22
Asset-Backed Securities	206,047	7.05	12,338	4.85
Short-Term Investment Securities	407,507	0.34	15,513	0.35
Commercial Mortgage-Backed Securities	1,085	3.28	91	3.28
Collateralized Mortgage Obligations	249,813	9.56	15,252	7.20
Corporate Debt	1,396,831	12.15	53,129	9.98
Foreign Country Bonds	10,716	23.47	468	23.21
Yankee Bonds	367,427	11.96	18,660	8.35
Mortgage-Backed Securities (non-commercial)	810,177	6.62	56,911	5.64
State and Local Government Bonds	27,780	18.15	1,924	16.64
Preferred Stock	3,321	0.00	280	0.00
U.S. Treasuries	649,290	11.19	48,171	11.04
Total Fair Value	**$4,237,947**		**$227,313**	
Portfolio Weighted-Average Maturity		**9.30**		**7.82**

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. The MSRS share of foreign security investments at June 30, 2018, was distributed among the currencies shown in **Exhibit 16.**

Exhibit 16: Foreign Currency Risk
As of June 30, 2018
(Dollars in thousands)

Currency	Cash & Cash Equivalents	Equities	Fixed Income	Investment Totals
Australian Dollar	$2,500	$136,762	$0	$139,262
Brazilian Real	16	29,185	0	29,201
Canadian Dollar	2,756	200,298	74	203,128
Chilean Peso	20	5,223	0	5,243
Danish Krone	58	39,991	0	40,049
Euro Currency	4,683	836,055	1,095	841,833
Hong Kong Dollar	885	213,912	0	214,797
Hungarian Forint	0	5,815	0	5,815
Indian Rupee	37	25,171	0	25,208
Indonesian Rupiah	21	15,107	0	15,128
Japanese Yen	3,226	479,374	1,275	483,875
Malaysian Ringgit	47	14,044	0	14,091
Mexican Peso	37	16,340	0	16,377
New Israeli Sheqel	39	8,340	0	8,379
New Taiwan Dollar	497	66,688	0	67,185
Norwegian Krone	40	16,454	0	16,494
Philippine Peso	4	6,811	0	6,815
Polish Zloty	3	9,139	0	9,142
Pound Sterling	6,014	382,511	2,922	391,447
Singapore Dollar	619	31,261	0	31,880
South African Rand	34	35,219	0	35,253
South Korean Won (1)	(51)	90,395	0	90,344
Swedish Krona	81	50,220	0	50,301
Swiss Franc	6	148,881	0	148,887
Thailand Baht	15	9,764	0	9,779
Turkish Lira	2	5,163	0	5,165
Other (2)	281	15,642	0	15,923
Totals	**$21,870**	**$2,893,765**	**$5,366**	**$2,921,001**

(1) Timing issues resulted in negative cash and cash equivalents in some currencies.

(2) Other currency includes Colombian Peso, Czech Koruna, Egyptian Pound, Moroccan Dirham, New Zealand Dollar, Qatari Rial, UAE Dirham, and Yuan Renminbi.

Notes to the Financial Statements

Derivative Financial Instruments and Credit Risk

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, 2018, classified by derivative instrument type, and the changes in fair value for fiscal year 2018 are shown in **Exhibit 17.**

Exhibit 17: Derivative Financial Instruments

As of June 30, 2018

(Dollars in thousands)

Derivative Investment Type	Changes in Fair Value During FY 2018	Fair Value at June 30, 2018	Notional Amount
Futures			
Equity Futures - Long	18,041	0	952
Equity Futures - Short	(898)	0	(17)
Fixed Income Futures - Long	(3,997)	0	750,345
Fixed Income Futures - Short	6,204	0	(461,082)
Options			
Futures Options Bought (Puts)	(1,425)	203	820
Futures Options Written (Calls)	1,076	(244)	(1,665)
Currency Forwards			
Foreign Exchange (FX) Forwards	(1,861)	(264)	130,141
Stock Warrants and Rights			
Stock Rights	66	161	1,980
Stock Warrants	(355)	16	36

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. 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 similar 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, 2018, the SBI's portfolio of well-diversified, high quality, investment grade fixed income securities had a fair value of $1,460,451,142 that is $18,702,549 below the value protected by the wrap contract. The Fixed Income Account also includes liquid investment pools with a combined fair value of $74,579,196.

Derivative Credit Risk

The SBI is exposed to credit risk through multiple counter-parties 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, 2018, if all counterparties failed to perform as contracted is $419,614. These counterparties have Standard and Poor's ratings of BBB+ or better.

B. 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 18.**

Exhibit 18: Securities Loaned

(Dollars in thousands)

Investment Type	Amount as of June 30, 2018
Domestic Equities	$1,551,486
U.S. Government Bonds	366,957
International Equities	91,219
Domestic Corporate Bonds	195,019
International Corporate Bonds	582
Total	**$2,205,263**

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, 2018, the investment pool had an average duration of 14.42 days and an average weighted final maturity of 99.84 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, 2018, 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, 2018, was $2,284,247,126 and $2,205,263,453 respectively. Cash collateral totaling $1,539,551,634 is reported on the *Statement of Fiduciary Net Position* as an asset and correspondingly on the statement as a liability.

Notes to the Financial Statements

C. 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 19** 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, 2018, 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 52 investments that are valued at NAV that are currently in the liquidation mode, totaling 3 percent of the NAV value. MSRS' proportionate share of the unfunded commitments to the investments valued at NAV totals $1,718,744,851. 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 19: Fair Value of MSRS Investments

As of June 30, 2018

(Dollars in thousands)

Investments	Fair Value	Level 1	Level 2	Level 3
Equity				
Common Stock	$9,324,104	$9,306,991	$16,963	$150
Real Estate Investment Trust	285,677	285,523	154	0
Other Equity	311,297	208,363	27,584	75,350
Equity Total	**$9,921,078**	**$9,800,877**	**$44,701**	**$75,500**
Fixed Income				
Asset-Backed Securities	$426,254	$0	$413,160	$13,094
Mortgage-Backed Securities	1,282,651	0	1,262,054	20,597
Corporate Bonds	1,421,776	0	1,417,776	4,000
Government Issues	2,380,475	0	2,380,475	0
Other Debt Instruments	431,649	0	431,649	0
Fixed Income Total	**$5,942,805**	**$0**	**$5,905,114**	**$37,691**
Investment Derivatives - Options	**$(41)**	**$(41)**	**$0**	**$0**
Total Investments by Fair Value	**$15,863,842**	**$9,800,836**	**$5,949,815**	**$113,191**

Investments Measured at the Net Asset Value (NAV)

	NAV	Number of Investments	Percent of NAV Value	Unfunded Commitments
Private Equity	$1,268,706	131	61%	$1,142,028
Real Estate	153,027	22	7	181,223
Resource	472,987	36	23	205,397
Yield Oriented	190,964	31	9	190,097
NAV Total	**$2,085,684**	**220**	**100%**	**$1,718,745**

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.

Notes to the Financial Statements

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.

Government Issue: Securities or bonds issued by any of the fifty states, the territories and their subdivisions, counties, cities, towns, villages, 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.

Note 4: Capital Assets

Capital asset activity for the year ended June 30, 2018, is reported in **Exhibit 20.**

Exhibit 20: Capital Assets
(Dollars in thousands)

Capital Asset Types	June 30, 2017	Additions	Deductions	June 30, 2018
Capital Assets, Not Depreciated				
Land	$88	$0	$0	$88
Development in Progress	0	0	0	0
Total Capital Assets, Not Depreciated	**$88**	**$0**	**$0**	**$88**
Capital Assets, to be Depreciated or Amortized				
Building, Improvements, and Building Equipment	$8,233	$0	$0	$8,233
Equipment, Furniture, and Fixtures	1,861	0	0	1,861
Internally Generated Software	15,904	0	0	15,904
Total Capital Assets, to be Depreciated or Amortized	**$25,998**	**$0**	**$0**	**$25,998**
Total Capital Assets	**$26,086**	**$0**	**$0**	**$26,086**
Less Accumulated Depreciation or Amortization				
Building, Improvements, and Building Equipment	$(3,126)	$(215)	$0	$(3,341)
Equipment, Furniture, and Fixtures	(1,443)	(96)	0	(1,539)
Internally Generated Software	(3,061)	(1,063)	0	(4,124)
Total Accumulated Depreciation or Amortization	**$(7,630)**	**$(1,374)**	**$0**	**$(9,004)**
Total Capital Assets, Net of Depreciation or Amortization	**$18,456**	**$(1,374)**	**$0**	**$17,082**

Note 5: Liabilities

A. 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 Detroit Lakes, Duluth, and Mankato. MSRS has an interagency agreement to reimburse TRA for office space located in a St. Cloud branch office. Additionally, in fiscal year 2019, MSRS will enter into an interagency agreement with TRA for lease costs at a Duluth branch office.

As of June 30, 2018, future obligations under the terms of the MSRS leases are scheduled in **Exhibit 21.**

Exhibit 21: MSRS Lease Obligations

	Fiscal Year					
Locations	**2019**	**2020**	**2021**	**2022**	**2023**	**Total**
Detroit Lakes	$17,931	$18,009	$4,502	$0	$0	$40,442
Duluth	15,294	0	0	0	0	15,294
Mankato	83,542	83,542	83,542	83,542	13,925	348,093
Totals	**$116,767**	**$101,551**	**$88,044**	**$83,542**	**$13,925**	**$403,829**

Notes to the Financial Statements

B. 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 largest defined benefit plans in the three statewide retirement systems. Through the issuance of the refunding bonds, which received an AAA rating in late July 2012, the bond term was reduced by five years and the present value of the savings to the three systems was $9,582,538. The MSRS portion of the savings was $2,568,120.

Exhibit 22 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 $12,741,734. 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, 2018, of 27.50 percent. Bonds Payable includes the principal balance as of June 30, 2018, the premium balance as of June 30, 2018, and interest accrued for the month of June.

Exhibit 22: Debt Repayment Schedule by Fiscal Year

Fiscal Year	Principal	Interest	Premium	Total Principal, Interest, and Premium
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	**$3,304,125**	**$209,651**	**$195,286**	**$3,709,062**

Total Unpaid Principal, June 30, 2018	$3,304,125
Total Unpaid Premium, June 30, 2018	195,286
Accrued Interest for June 2018	4,565
Bonds Payable per Statement of Fiduciary Net Position	**$3,503,976**

C. 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 for the calendar year unless hired under a Post-Retirement Option agreement. The maximum earnings limits for calendar years 2017 and 2018 for individuals under the full retirement age is $16,920 and $17,040, respectively. For individuals that reach full retirement age during 2017 or 2018, the maximum earnings limits is $44,880 and $45,360, 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. Through December 31, 2010, any funds held in abeyance accrued six percent interest. 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, 2018, MSRS had 55 re-employed retirees with funds held in abeyance, which totaled $1,387,149 ($895,671 for the State Employees Retirement Fund and $491,478 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 12 distributions of these funds, totaling $157,445 during fiscal year 2018 ($138,678 for the State Employees Retirement Fund and $18,767 for the Correctional Employees Retirement Fund).

Note 6: 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 less the fiduciary net position of the respective fund.

Exhibit 23 presents the components of the net pension liability of the participating employers for each MSRS defined benefit retirement fund as of June 30, 2018. This exhibit also depicts each retirement fund's net position as a percentage of the total pension liability.

Exhibit 23: Net Pension Liability of Participating Employers
As of June 30, 2018
(Dollars in thousands)

	Defined Benefit Retirement Fund				
Component of Net Pension Liability	**State Employees**	**State Patrol**	**Correctional Employees**	**Judges**	**Legislators**
Total Pension Liability (TPL)	$14,679,489	$930,408	$1,490,521	$377,925	$139,367
Fiduciary Net Position (FNP)	13,293,422	729,799	1,114,887	201,755	0
Employers' Net Pension Liability	**$1,386,067**	**$200,609**	**$375,634**	**$176,170**	**$139,367**
FNP as a percentage of the TPL	90.56%	78.44%	74.80%	53.38%	0.00%

Notes to the Financial Statements

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, 2018, using the key actuarial assumptions shown in **Exhibit 24,** applied to all prior periods included in the measurement.

Exhibit 24: 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, 2018 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	NA
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	NA - Fixed rate established in MN statute. No assumption required			1.75% through 2037; 2.00% from 2038 through 2051; 2.50% thereafter	NA
Retirement	Age-related rates				
Withdrawal	Rates based on actual experience	Select and Ultimate rates based on experience		None	Rates based on actual experience
Disability	Age-related rates based on experience				None
Single Discount Rate	7.50%				3.62%

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 25.**

Exhibit 25: Experience Study Dates

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

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 7.50 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 7.50 percent long term expected rate of return assumption beginning with 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 7.50 percent, and a municipal bond rate of 3.62 percent, as published by the Fidelity Index in June 2018.

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 selected assumptions, the fiduciary net position for the four largest MSRS plans was projected to be available to make all future benefit payments of current plan members through fiscal year 2118. 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 7.50 percent.

For the State Employees Retirement Fund, the use of a 7.50 percent discount rate was an improvement from the previous year, when the single blended rate was 5.42 percent. For the State Patrol Retirement Fund, the rate improved from 6.38 percent to 7.50 percent, and for the Correctional Employees Retirement Fund the rate improved from 5.02 percent to 7.50 percent. The rate for the Judges Retirement Fund is 7.50 percent, unchanged from fiscal year 2017.

For the Legislators Retirement Fund, assets are not sufficient to pay benefits in any future year, so the municipal bond rate of 3.62 percent was used in all years. In the previous fiscal year, the municipal bond rate of 3.56 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 163.

Sensitivity Analysis

GASB Statement No. 67 requires the disclosure of the sensitivity of the net pension liability to changes in the discount rates. **Exhibit 26** presents the June 30, 2018, 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 26: Sensitivity of the FY2018 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	6.50%	$3,203,749	7.50%	$1,386,067	8.50%	$(122,710)
State Patrol	6.50	312,538	7.50	200,609	8.50	107,826
Correctional Employees	6.50	586,669	7.50	375,634	8.50	203,507
Judges	6.50	214,820	7.50	176,170	8.50	143,079
Legislators	2.62	154,902	3.62	139,367	4.62	126,340

Required Supplementary Information

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

For the Five Years Ended June 30, 2018
(Dollars in thousands)

State Employees Retirement Fund	2014	2015	2016	2017	2018
Total Pension Liability					
Service Cost	$256,155	$210,545	$211,491	$619,666	$455,709
Interest on the Total Pension Liability	922,181	1,018,035	1,020,925	982,066	1,069,154
Changes of Benefit Terms	0	0	0	83,490	(1,711,128)
Difference between Expected and Actual Experience	(44,023)	(493,197)	21,209	49,659	(8,132)
Changes of Assumptions	(1,477,308)	0	9,911,319	(4,691,209)	(4,219,074)
Benefit and Refund Payments	(635,928)	(677,847)	(720,706)	(762,102)	(810,560)
Net Change in Total Pension Liability	$(978,923)	$57,536	$10,444,238	$(3,718,430)	$(5,224,031)
Total Pension Liability - Beginning	$14,099,099	$13,120,176	$13,177,712	$23,621,950	$19,903,520
Total Pension Liability - Ending	**$13,120,176**	**$13,177,712**	**$23,621,950**	**$19,903,520**	**$14,679,489**
Plan Fiduciary Net Position					
Contributions - Employer	$128,037	$146,333	$151,168	$158,352	$164,233
Contributions - Plan Member	131,033	149,293	153,854	161,670	166,726
Net Investment Income	1,829,621	501,185	(9,633)	1,667,562	1,276,550
Benefit and Refund Payments	(635,928)	(677,847)	(720,706)	(762,102)	(810,560)
Administrative Expense	(8,125)	(8,719)	(10,196)	(10,165)	(9,564)
Other Changes	20,528	29,470	20,259	47,232	20,423
Net Change in Plan Fiduciary Net Position	**$1,465,166**	**$139,715**	**$(415,254)**	**$1,262,549**	**$807,808**
Plan Fiduciary Net Position - Beginning	$10,033,438	$11,498,604	$11,638,319	$11,223,065	$12,485,614
Plan Fiduciary Net Position - Ending	**$11,498,604**	**$11,638,319**	**$11,223,065**	**$12,485,614**	**$13,293,422**
Net Pension Liability - Ending	**$1,621,572**	**$1,539,393**	**$12,398,885**	**$7,417,906**	**$1,386,067**
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	87.64%	88.32%	47.51%	62.73%	90.56%
Covered Payroll	$2,620,660	$2,714,418	$2,797,345	$2,939,455	$3,031,382
Net Pension Liability as a Percentage of Covered Payroll	61.88%	56.71%	443.24%	252.36%	45.72%

Notes to this schedule may be found on pages 88-89.

Schedules are intended to show information for 10 years. Additional years will be displayed as they become available.

Required Supplementary Information

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

For the Five Years Ended June 30, 2018
(Dollars in thousands)

State Patrol Retirement Fund	2014	2015	2016	2017	2018
Total Pension Liability					
Service Cost	$14,514	$16,144	$16,555	$29,758	$24,935
Interest on the Total Pension Liability	60,183	63,753	64,592	58,865	65,110
Changes of Benefit Terms	0	0	0	0	(2,604)
Difference between Expected and Actual Experience	(5,771)	(12,855)	(22,222)	(2,418)	(8,369)
Changes of Assumptions	30,058	0	283,584	(112,694)	(126,888)
Benefit and Refund Payments	(53,722)	(55,480)	(57,774)	(58,565)	(59,692)
Net Change in Total Pension Liability	$45,262	$11,562	$284,735	$(85,054)	$(107,508)
Total Pension Liability - Beginning	$781,411	$826,673	$838,235	$1,122,970	$1,037,916
Total Pension Liability - Ending	**$826,673**	**$838,235**	**$1,122,970**	**$1,037,916**	**$930,408**
Plan Fiduciary Net Position					
Contributions - Employer[1]	$12,894	$14,763	$14,938	$16,783	$16,952
Contributions - Plan Member	7,930	9,174	9,292	10,520	10,657
Net Investment Income	107,187	28,903	(774)	93,077	70,474
Benefit and Refund Payments	(53,722)	(55,480)	(57,774)	(58,565)	(59,692)
Administrative Expense	(150)	(170)	(220)	(208)	(184)
Other Changes	0	0	0	0	(7)
Net Change in Plan Fiduciary Net Position	**$74,139**	**$(2,810)**	**$(34,538)**	**$61,607**	**$38,200**
Plan Fiduciary Net Position - Beginning	$593,201	$667,340	$664,530	$629,992	$691,599
Plan Fiduciary Net Position - Ending	**$667,340**	**$664,530**	**$629,992**	**$691,599**	**$729,799**
Net Pension Liability - Ending	**$159,333**	**$173,705**	**$492,978**	**$346,317**	**$200,609**
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	80.73%	79.28%	56.10%	66.63%	78.44%
Covered Payroll	$63,952	$68,463	$69,343	$73,056	$74,007
Net Pension Liability as a Percentage of Covered Payroll	249.14%	253.72%	710.93%	474.04%	271.07%

Correctional Employees Retirement Fund	2014	2015	2016	2017	2018
Total Pension Liability					
Service Cost	$54,443	$48,805	$56,718	$95,522	$85,364
Interest on the Total Pension Liability	85,702	92,039	97,571	95,307	108,421
Changes of Benefit Terms	0	0	0	0	(164,182)
Difference between Expected and Actual Experience	4,103	7,115	(764)	6,566	(3,499)
Changes of Assumptions	(147,067)	118,399	576,552	(213,159)	(617,840)
Benefit and Refund Payments	(52,289)	(56,499)	(60,940)	(64,687)	(69,674)
Net Change in Total Pension Liability	$(55,108)	$209,859	$669,137	$(80,451)	$(661,410)
Total Pension Liability - Beginning	$1,408,494	$1,353,386	$1,563,245	$2,232,382	$2,151,931
Total Pension Liability - Ending	**$1,353,386**	**$1,563,245**	**$2,232,382**	**$2,151,931**	**$1,490,521**
Plan Fiduciary Net Position					
Contributions - Employer	$26,468	$29,480	$30,678	$31,763	$32,893
Contributions - Plan Member	18,855	21,061	21,953	22,648	23,417
Net Investment Income	137,523	38,624	(195)	135,359	105,263
Benefit and Refund Payments	(52,289)	(56,499)	(60,940)	(64,687)	(69,674)
Administrative Expense	(657)	(720)	(906)	(856)	(827)
Other Changes	(1)	0	0	(2)	(2)
Net Change in Plan Fiduciary Net Position	**$129,899**	**$31,946**	**$(9,410)**	**$124,225**	**$91,070**
Plan Fiduciary Net Position - Beginning	$747,157	$877,056	$909,002	$899,592	$1,023,817
Plan Fiduciary Net Position - Ending	**$877,056**	**$909,002**	**$899,592**	**$1,023,817**	**$1,114,887**
Net Pension Liability - Ending	**$476,330**	**$654,243**	**$1,332,790**	**$1,128,114**	**$375,634**
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	64.80%	58.15%	40.30%	47.58%	74.80%
Covered Payroll	$219,244	$231,440	$241,242	$248,879	$257,330
Net Pension Liability as a Percentage of Covered Payroll	217.26%	282.68%	552.47%	453.28%	145.97%

Notes to these schedules may be found on pages 90-93.

Schedules are intended to show information for 10 years. Additional years will be displayed as they become available.

(1) Includes annual supplemental state aid of $1 million.

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

For the Five Years Ended June 30, 2018
(Dollars in thousands)

Judges Retirement Fund	2014	2015	2016	2017	2018
Total Pension Liability					
Service Cost	$12,075	$12,251	$13,711	$9,483	$9,857
Interest on the Total Pension Liability	20,535	21,773	21,349	25,367	26,746
Changes of Benefit Terms	0	0	0	0	0
Difference between Expected and Actual Experience	5,080	(4,366)	7,135	(4,958)	1,424
Changes of Assumptions	(8,416)	21,696	(85,756)	11,652	0
Benefit and Refund Payments	(20,802)	(21,893)	(22,378)	(23,094)	(23,585)
Net Change in Total Pension Liability	$8,472	$29,461	$(65,939)	$18,450	$14,442
Total Pension Liability - Beginning	$373,039	$381,511	$410,972	$345,033	$363,483
Total Pension Liability - Ending	**$381,511**	**$410,972**	**$345,033**	**$363,483**	**$377,925**
Plan Fiduciary Net Position					
Contributions - Employer (1)	$9,426	$9,776	$10,219	$13,758	$17,027
Contributions - Plan Member	3,578	3,629	3,763	3,932	3,973
Net Investment Income	28,011	7,572	(186)	24,729	19,265
Benefit and Refund Payments	(20,802)	(21,893)	(22,378)	(23,094)	(23,585)
Administrative Expense	(55)	(60)	(93)	(89)	(66)
Other Changes	0	0	0	0	0
Net Change in Plan Fiduciary Net Position	**$20,158**	**$(976)**	**$(8,675)**	**$19,236**	**$16,614**
Plan Fiduciary Net Position - Beginning	$155,398	$175,556	$174,580	$165,905	$185,141
Plan Fiduciary Net Position - Ending	**$175,556**	**$174,580**	**$165,905**	**$185,141**	**$201,755**
Net Pension Liability - Ending	**$205,955**	**$236,392**	**$179,128**	**$178,342**	**$176,170**
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	46.02%	42.48%	48.08%	50.94%	53.38%
Covered Payroll	$41,893	$43,449	$45,418	$47,813	$49,009
Net Pension Liability as a Percentage of Covered Payroll	491.62%	544.07%	394.40%	373.00%	359.46%

Legislators Retirement Fund	2014	2015	2016	2017	2018
Total Pension Liability					
Service Cost	$398	$428	$495	$546	$437
Interest on the Total Pension Liability	6,177	6,113	5,333	4,293	5,094
Changes of Benefit Terms	0	0	0	0	(9,839)
Difference between Expected and Actual Experience	(237)	(7,303)	(1,597)	1,517	6,119
Changes of Assumptions	11,201	7,057	14,653	(5,017)	(856)
Benefit and Refund Payments	(8,486)	(8,441)	(8,536)	(8,716)	(8,912)
Net Change in Total Pension Liability	$9,053	$(2,146)	$10,348	$(7,377)	$(7,957)
Total Pension Liability - Beginning	$137,446	$146,499	$144,353	$154,701	$147,324
Total Pension Liability - Ending	**$146,499**	**$144,353**	**$154,701**	**$147,324**	**$139,367**
Plan Fiduciary Net Position					
Contributions - State General Fund	$3,436	$3,216	$5,087	$8,716	$8,856
Contributions - Plan Member	101	153	89	80	93
Net Investment Income	1,750	281	(69)	0	0
Benefit and Refund Payments	(8,486)	(8,441)	(8,536)	(8,716)	(8,912)
Administrative Expense	(36)	(37)	(42)	(39)	(37)
Other Changes	0	0	41	(41)	0
Net Change in Plan Fiduciary Net Position	**$(3,235)**	**$(4,828)**	**$(3,430)**	**$0**	**$0**
Plan Fiduciary Net Position - Beginning	$11,493	$8,258	$3,430	$0	$0
Plan Fiduciary Net Position - Ending	**$8,258**	**$3,430**	**$0**	**$0**	**$0**
Net Pension Liability - Ending	**$138,241**	**$140,923**	**$154,701**	**$147,324**	**$139,367**
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	5.64%	2.38%	0.00%	0.00%	0.00%
Covered Payroll	$1,122	$1,700	$989	$889	$1,033
Net Pension Liability as a Percentage of Covered Payroll	12,320.94%	8,289.59%	15,642.16%	16,571.88%	13,491.48%

Notes to these schedules may be found on pages 93-95.

Schedules are intended to show information for 10 years. Additional years will be displayed as they become available.

(1) Includes General Fund appropriation of $3 million in fiscal year 2017, and $6 million annually thereafter.

Required Supplementary Information

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

State Employees Retirement Fund

Fiscal Year 2018 Changes Since the Fiscal Year 2017 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The single discount rate changed from 5.42 percent to 7.50 percent.

The following changes were made to plan provisions:

- The augmentation adjustment in early retirement factors is eliminated over a five-year period starting July 1, 2019, resulting in actuarial equivalence after June 30, 2024.
- Member contributions increased from 5.50 percent to 5.75 percent of pay, effective July 1, 2018, and 6.00 percent of pay effective July 1, 2019.
- Employer contributions increased from 5.50 percent to 5.875 percent of pay, effective July 1, 2018, and 6.25 percent of pay effective July 1, 2019.
- Interest credited on member contributions will decrease from 4.0 to 3.0 percent, beginning July 1, 2018.
- Deferred augmentation was changed to 0.0 percent for future accruing benefits effective January 1, 2019.
- Contribution stabilizer provisions were repealed.
- Post-retirement benefit increases were changed from a 2.0 to 2.5 percent per year increase based upon funded ratio, to a fixed rate of 1.0 percent for five years beginning January 1, 2019, and 1.5 percent per year thereafter.
- For retirements on or after January 1, 2024, the first benefit increase is delayed until the retiree reaches Normal Retirement Age.

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 40.0 percent for deferred members, to 0.0 percent for active members, 4.0 percent for vested deferred members, and 5.0 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 75.0 percent of previous rates. Rates for male members were lowered by utilizing the same disability rates as for females.

Fiscal Year 2016 Changes Since the Fiscal Year 2015 Actuarial Valuation (continued)

The following changes were made to the actuarial assumptions (continued):

- 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 7.90 percent to 7.50 percent.
- The single discount rate changed from 7.90 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.

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 funded ratio subsequently drops below 80.0 percent for the most recent valuation year or 85.0 percent for two consecutive years, the post-retirement benefit increase will change to 2.0 percent until the plan again reaches a 90.0 percent funded 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 funded ratio threshold that must be attained to pay a 2.5 percent post-retirement benefit increase to benefit recipients was changed from 90.0 percent for one year to 90.0 percent for two consecutive years.

Required Supplementary Information

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

State Patrol Retirement Fund

Fiscal Year 2018 Changes Since the Fiscal Year 2017 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The single discount rate changed from 6.38 percent to 7.50 percent.

The following changes were made to plan provisions:

- Member contributions increased from 14.4 to 15.4 percent of pay over three years, effective July 1, 2018.
- Regular employer contributions increased from 21.6 percent to 23.1 percent of pay over two years, effective July 1, 2018.
- Supplemental employer contributions totaling 7.0 percent of pay will be phased in through fiscal year 2022; the supplemental employer contributions remain in effect until the plan is 100.0 percent funded.
- Interest credited on member contributions will decrease from 4.0 to 3.0 percent, beginning July 1, 2018.
- Deferred augmentation was changed to 0.0 percent for future accruing benefits effective January 1, 2019.
- Contribution stabilizer provisions were repealed.
- Post-retirement benefit increases were changed from a 1.0 to 2.5 percent per year increase based upon funded ratio, to a fixed rate of 1.0 percent per year.
- An end date of July 1, 2048, was added for the $1 million annual state contribution.

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 1.00 percent per year for all years, to 1.00 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 form 7.90 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 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 1.5 percent post-retirement benefit increase is triggered and the funded 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 funded 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 1.0 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 funded 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 funded 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.

Correctional Employees Retirement Fund

Fiscal Year 2018 Changes Since the Fiscal Year 2017 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The single discount rate changed from 5.02 percent to 7.50 percent.

The following changes were made to plan provisions:

- Member contributions increased from 9.1 percent to 9.6 percent of pay effective July 1, 2018.
- Regular employer contributions increased from 12.85 to 14.40 percent of pay effective July 1, 2018.
- Supplemental employer contributions totaling 4.45 percent of pay will be phased in through fiscal year 2022; the supplemental employer contributions remain in effect until the plan is 100 percent funded.
- Interest credited on member contributions will decrease from 4.0 to 3.0 percent, beginning July 1, 2018.
- Deferred augmentation was changed to 0.0 percent for future accruing benefits effective January 1, 2019.
- Contribution stabilizer provisions were repealed.
- Post-retirement benefit increases were changed from a 2.0 to 2.5 percent per year increase based upon funded ratio, to a fixed rate of 1.5 percent per year.

Required Supplementary Information

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

Correctional Employees Retirement Fund (continued)

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 0.60 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 funded 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 funded 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 12.10 percent to 12.85 percent of pay.
- The funded 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 2018 Changes Since the Fiscal Year 2017 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The assumed post-retirement benefit increase rate was changed from 1.75 percent through 2038, 2.00 percent for 2039 through 2053, and 2.50 percent thereafter, to 1.75 percent through 2037, 2.00 percent for 2038 through 2051, and 2.50 percent thereafter.

The following changes were made to plan provisions:

- Interest credited on member contributions will decrease from 4.0 to 3.0 percent, beginning July 1, 2018.
- An end date of July 1, 2048, was added for the $6 million annual state contribution.

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, 2.00 percent for 2042 through 2054, and 2.50 percent thereafter, to 1.75 percent through 2038, 2.00 percent for 2039 through 2053, and 2.50 percent thereafter.

Required Supplementary Information

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

Judges Retirement Fund (continued)

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, 2.00 percent per year from 2042 through 2054, and 2.50 percent per year thereafter.
- The long-term expected rate of return on investments was changed from 7.90 percent to 7.50 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 funded 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 funded 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.

Legislators Retirement Fund

Fiscal Year 2018 Changes Since the Fiscal Year 2017 Actuarial Valuation

The following changes were made to the actuarial assumptions:

- The single discount rate changed from 3.56 percent to 3.62 percent.

The following changes were made to plan provisions:

- Interest credited on member contributions will decrease from 4.0 to 3.0 percent, beginning July 1, 2018.
- Deferred augmentation was changed to 0.0 percent for future accruing benefits effective January 1, 2019.
- Post-retirement benefit increases were changed from a 2.0 to 2.5 percent per year increase based upon funded ratio, to a fixed rate of 1.0 percent for five years beginning January 1, 2019, and 1.5 percent per year thereafter.
- For retirements on or after January 1, 2024, the first benefit increase is delayed until the retiree reaches Normal Retirement Age.

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 funded 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 funded 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 funded 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)	Actual Contributions (b)	Contribution Deficiency (Sufficiency) (c=a-b)	Covered Payroll (2) (d)	Contributions as a Percentage of Covered Payroll (e=b/d)
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
2018	234,629	164,233	70,396	3,031,382	5.42

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.

(2) Assumption: Actual member contributions divided by employee contribution rate from 2012 through 2018.

Valuation Date:	June 30, 2017
Actuarial Cost Method:	Entry age normal
Amortization Method:	Level percentage of payroll, closed period
Remaining Amortization Period:	25 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 table, projected with mortality improvement MP-2015 from a base year of 2014, white collar adjustment, set forward 2 years for males and no age adjustment for females
Post-Retirement Benefit Increases:	2.00% per year indefinitely

State Patrol Retirement Fund

Fiscal Year Ended June 30	Actuarially Determined Contribution [1] (a)	Actual Contributions [2] (b)	Contribution Deficiency (Sufficiency) (c=a-b)	Covered Payroll [3] (d)	Contributions as a Percentage of Covered Payroll (e=b/d)
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
2018	20,900	16,952	3,948	74,007	22.91

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.

(2) Includes supplemental state aid of $1 million from 2014 through 2018.

(3) Assumption: Actual member contributions divided by employee contribution rate from 2012 through 2018.

Valuation Date:	June 30, 2017
Actuarial Cost Method:	Entry age normal
Amortization Method:	Level percentage of payroll, closed period
Remaining Amortization Period:	21 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
Healthy Post-Retirement Mortality:	RP-2014 annuitant generational mortality tables, projected with mortality improvement scale MP-2015, white collar adjustment
Post-Retirement Benefit Increases:	1.00% per year through 2034, 1.50% from 2035 through 2053, and 2.50% thereafter

Required Supplementary Information

Schedule of Employer Contributions

For the Last Ten Fiscal Years
(Dollars in thousands)

Correctional Employees Retirement Fund

Fiscal Year Ended June 30	Actuarially Determined Contribution [(1)] (a)	Actual Contributions (b)	Contribution Deficiency (Sufficiency) (c=a-b)	Covered Payroll [(2)] (d)	Contributions as a Percentage of Covered Payroll (e=b/d)
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
2018	49,665	32,893	16,772	257,330	12.78

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.

(2) Assumption: Actual member contributions divided by employee contribution rate from 2012 through 2018.

Valuation Date:	June 30, 2017
Actuarial Cost Method:	Entry age normal
Amortization Method:	Level percentage of payroll, closed period
Remaining Amortization Period:	21 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.
Healthy Post-Retirement Mortality:	RP-2014 annuitant generational mortality table, projected with mortality improvement scale MP-2015 from a base year of 2006, white collar adjustment, set forward 2 years for males and set forward 1 year for females
Post-Retirement Benefit Increases:	2.00% per year indefinitely

Judges Retirement Fund

Fiscal Year Ended June 30	Actuarially Determined Contribution [1] (a)	Actual Contributions [2] (b)	Contribution Deficiency (Sufficiency) (c=a-b)	Covered Payroll [3] (d)	Contributions as a Percentage of Covered Payroll (e=b/d)
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	3,032	47,813	28.77
2018	18,032	17,027	1,005	49,009	34.74

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.

[2] Includes General Fund appropriation of $3 million in 2017 and $6 million annually beginning in 2018.

[3] Assumption: Actual employer contributions divided by employer contribution rate from 2012 through 2018.

Valuation Date:	June 30, 2017
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:	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.
Healthy Post-Retirement Mortality:	RP-2014 annuitant generational mortality table, projected with mortality improvement scale MP-2015 from a base year of 2006, white collar adjustment
Post-Retirement Benefit Increases:	1.75% per year through 2032, 2.00% per year from 2033 through 2044, and 2.50% per year thereafter

Required Supplementary Information

Schedule of Employer Contributions

For the Last Ten Fiscal Years
(Dollars in thousands)

Legislators Retirement Fund [1]

Fiscal Year Ended June 30	Actuarially Determined Contribution [2] (a)	Actual Contributions (b) [3]	Contribution Deficiency (Sufficiency) (c=a-b)	Covered Payroll [4] (d)	Contributions as a Percentage of Covered Payroll (e=b/d)
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
2018	33,560	8,856	24,704	1,033	857.31

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 2014-2018 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.

[3] Contributions to the Legislators Retirement Fund include appropriations from the State's General Fund.

[4] Assumption: Actual member contributions divided by employee contribution rate from 2012 through 2018.

Valuation Date:	June 30, 2017
Actuarial Cost Method:	Entry age normal
Amortization Method:	Level dollar, closed period
Remaining Amortization Period:	9 years
Asset Valuation Method:	Market value of assets
Investment Rate of Return:	0.00%
Projected Salary Increases:	5.00% including inflation
Inflation Rate:	2.75%
Retirement Age:	Experience-based table of rates that are specific to the type of eligibility condition.
Mortality Rates:	RP-2014 annuitant generational mortality table, projected with mortality improvement scale MP-2015 from a base year of 2014, white collar adjustment, set forward 2 years for males, no adjustment for females
Post-Retirement Benefit Increases:	2.00% per year indefinitely

Elective State Officers Retirement Fund [1]

Fiscal Year Ended June 30	Actuarially Determined Contribution [2] (a)	Actual Contributions (b)	Contribution Deficiency (Sufficiency) (c=a-b)	Covered Payroll (d)	Contributions as a Percentage of Covered Payroll (e=b/d)
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 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 Five Years Ended June 30, 2018

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

Fiscal Year	State Employees	State Patrol	Correctional Employees	Judges	Legislators
2014	18.67%	18.69%	18.62%	18.66%	19.30%
2015	4.45	4.46	4.44	4.45	5.00
2016	(0.08)	(0.12)	(0.02)	(0.11)	N/A
2017	15.24	15.24	15.23	15.18	N/A
2018	10.49	10.51	10.43	10.46	N/A

Notes to Schedule

Schedule is intended to show information for 10 years. Additional years will be displayed as available.

Schedule of Administrative Expenses

Supplementary Information

For the Fiscal Year Ended June 30, 2018
(Dollars in thousands)

Personnel Services	
Staff Salaries	$8,348
Health Insurance	1,639
Social Security and Medicare	602
Retirement	481
Other Personnel Services	10
Total	**$11,080**
Communication-Related Expenses	
Printing	$351
Postage	251
Telephone	151
Total	**$753**
Office Building and Maintenance Expenses	
Building Services	$443
Building and Building Improvements Depreciation	215
Office Space Rentals	81
Bond Interest and Issuance	62
Other Building and Maintenance	9
Total	**$810**
Professional Service Fees	
Data Processing	$614
Actuarial	276
Disability Examinations	113
Legal Counsel	72
Other Professional Services	407
Total	**$1,482**
Other Miscellaneous Expenses	
Equipment Depreciation and Software Amortization	$1,159
Computer Components and Supplies	575
Equipment Repairs and Maintenance Expenses	67
Statewide Indirect Costs	174
Travel	158
Training and Licenses	140
State and Local Sales Taxes	80
Office Supplies	92
Subscriptions and Memberships	22
Other Expenses	9
Total	**$2,476**
Total Administrative Expenses	**$16,601**

Allocation of Administrative Expenses by Retirement Fund

State Employees	$9,564
State Patrol	184
Correctional Employees	827
Judges	66
Legislators	37
Unclassified Employees	127
Health Care Savings	2,800
Minnesota Deferred Compensation	2,975
Hennepin County Supplemental	21
Total Administrative Expenses	**$16,601**

Summary Schedule of Payments to Consultants

Supplementary Information

For the Fiscal Year Ended June 30, 2018
(Dollars in thousands)

Individual or Firm Name	Services Received	Fees Paid
Gabriel Roeder Smith & Company	Actuarial Services	$276
Managed Medical Review Organization (MMRO)	Medical and Disability Evaluations	113
Clifton Larson Allen	Network Penetration Testing	49
Momentum Design	Annual Financial Report Desktop Publishing Support	24
RSM US LLP	Application Development Support	18
DeepSee	Cultural Competency Training	14
BKD LLP	Internal Auditing	14
State of Minnesota		
Office of Legislative Auditor	Financial Audit	140
Office of Minnesota Attorney General	Legal Advice	55
Office of Adminstrative Hearings	Legal Advice	15
MINNCOR Industries	Graphic Design Services	8

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, 2018
(Dollars in thousands)

	State Employees	State Patrol	Correctional Employees	Judges	Defined Contribution Funds	Totals
External Managers						
Domestic Equity - Active	$4,100	$226	$340	$62	$321	$5,049
International Equity	5,998	330	497	92	185	7,102
Domestic Equity - Semi-Passive	478	26	40	7	93	644
Domestic Equity - Passive	200	11	17	3	23	254
Fixed Income	0	0	0	0	3,779	3,779
Domestic Bond	2,016	111	167	31	179	2,504
Treasury	225	13	19	3	0	260
Other Investment Expenses						
MN State Board of Investment	741	41	61	11	164	1,018
Pension Consulting Alliance	55	3	5	1	0	64
Aon Consulting	100	6	8	1	0	115
Broadridge Financial Solutions	60	3	5	1	0	69
Total Investment Expenses	**$13,973**	**$770**	**$1,159**	**$212**	**$4,744**	**$20,858**

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.

The Legislators Retirement Fund has no assets, and therefore no investment expenses.

GASB Statement No. 68
Supplemental Employer Schedules

The schedules that follow on pages 109-113 are provided for financial reporting purposes for the employer units of the defined benefit plans of MSRS.

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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, 2018. 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, 2018.

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.

Room 140 Centennial Building, 658 Cedar Street, St. Paul, Minnesota 55155-1603 • Phone: 651-296-4708 • Fax: 651-296-4712
E-mail: legislative.auditor@state.mn.us • Website: www.auditor.leg.state.mn.us • Minnesota Relay: 1-800-627-3529 or 7-1-1

Independent Auditor's Report

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, 2018, 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, 2018, and our report thereon, also dated December 20, 2018, 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 20, 2018, 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 control 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, 2018. It is not suitable for any other purpose.

Chris Buse

Christopher Buse, CPA
Deputy Legislative Auditor

Tracy Gebhard

Tracy Gebhard, CPA
Audit Director

December 20, 2018
Saint Paul, Minnesota

Schedule of Employer Allocations

As of the Measurement Date of June 30, 2018

State Employees Retirement Fund

Employer	2018 Employer Contributions	Employer Allocation Percentage
State of Minnesota and Select Component Units(1)	$123,620,536	75.265%
Other State of Minnesota Component Units(1):		
University of Minnesota	24,059,518	14.648
Metropolitan Council	15,378,939	9.363
Minnesota Sports Facilities Authority	20,216	0.012
Total State of Minnesota and its Component Units	**$163,079,209**	**99.288%**
Minnesota Historical Society	$311,127	0.189%
Minnesota State Fair	346,639	0.211
Gillette Children's Hospital	133,107	0.081
Minnesota Association of Professional Employees (MAPE)	103,810	0.063
Minnesota Safety Council	65,408	0.040
Veolia Environment North America	47,142	0.029
Minnesota Crop Improvement Association	53,902	0.033
Amalgamated Transit Union	32,688	0.020
American Federation of State, County and Municipal Employees (AFSCME)	20,756	0.013
Middle Management Association (MMA)	21,352	0.013
Minnesota State Horticultural Society	16,120	0.010
Minnesota Government Engineers Council (MGEC)	7,749	0.005
Enterprise Minnesota	8,387	0.005
Total Non-State of Minnesota/Component Units	**$1,168,187**	**0.712%**
Grand Total	**$164,247,396**	**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	2018 Employer Contributions	Employer Allocation Percentage
State of Minnesota	$32,854,277	99.893%
AFSCME	35,289	0.107
Total	**$32,889,566**	**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, 2018

State Employees Retirement Fund

Employer	Net Pension Liability	Deferred Outflows of Resources [1]: Differences Between Expected and Actual Experience in 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]	$1,043,225,257	$28,667,752	$2,958,250,757	$0	$68,537,525	$3,055,456,034
Other State of Minnesota Component Units: [2]						
University of Minnesota	203,026,696	5,730,659	602,608,104	0	(39,880,146)	568,458,617
Metropolitan Council	129,773,876	3,583,619	372,427,666	0	6,257,460	382,268,745
Minnesota Sports Facilities Authority	162,375	5,954	832,550	0	(629,936)	208,568
Total State of Minnesota and its Component Units	**$1,376,188,204**	**$37,987,984**	**$3,934,119,077**	**$0**	**$34,284,903**	**$4,006,391,964**
Minnesota Historical Society	$2,614,208	$78,684	$8,087,636	$0	$(610,030)	$7,556,290
Minnesota State Fair	2,923,999	80,809	8,246,216	0	570,258	8,897,283
Gillette Children's Hospital	1,122,192	38,531	4,360,979	0	(1,913,554)	2,485,956
MAPE	870,611	25,988	2,537,297	0	435,792	2,999,077
Minnesota Safety Council	556,694	17,396	1,863,328	0	(434,541)	1,446,183
Veolia Environment North America	405,785	12,036	1,308,294	0	(278,000)	1,042,330
Minnesota Crop Improvement Association	459,745	11,356	991,132	0	882,253	1,884,741
Amalgamated Transit Union	278,478	6,508	673,970	0	284,372	964,850
AFSCME	184,846	5,312	951,486	0	(251,339)	705,459
MMA	180,194	4,593	475,744	0	119,289	599,626
Minnesota State Horticultural Society	140,988	3,913	436,098	0	(50,889)	389,122
Kandiyohi County [3]	0	254	118,936	0	(159,808)	(40,618)
MGEC	72,920	1,829	158,581	0	127,553	287,963
Enterprise Minnesota	67,936	2,807	198,226	0	267,759	468,792
Agricultural Utilization Research Institute [3]	0	0	0	0	5,474	5,474
Foster Wheeler Twin Cities [3]	0	0	0	0	0	0
Total Non State/Component Unit	**$9,878,596**	**$290,016**	**$30,407,923**	**$0**	**$(1,005,411)**	**$29,692,528**
Grand Total	**$1,386,066,800**	**$38,278,000**	**$3,964,527,000**	**$0**	**$33,279,492**	**$4,036,084,492**

Deferred Inflows of Resources (1)					Pension Expense (Income)		
Differences Between Expected and Actual Experience in 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 (Income)
$78,520,650	$4,650,644,313	$262,530,110	$23,141,681	$5,014,836,754	$(1,255,214,878)	$20,992,393	$(1,234,222,485)
16,167,231	913,970,846	49,501,576	683,491	980,323,144	(241,532,692)	(22,545,821)	(264,078,513)
9,604,139	579,286,730	32,515,718	6,717,351	628,123,938	(153,005,095)	2,936,322	(150,068,773)
33,333	799,092	2,357	141,816	976,598	(234,944)	(274,353)	(509,297)
$104,325,353	**$6,144,700,981**	**$344,549,761**	**$30,684,339**	**$6,624,260,434**	**$(1,649,987,609)**	**$1,108,541**	**$(1,648,879,068)**
$224,372	$12,177,573	$666,359	$311,305	$13,379,609	$(3,135,754)	$(400,925)	$(3,536,679)
215,940	13,089,013	752,843	250,312	14,308,108	(3,560,977)	142,732	(3,418,245)
130,542	5,492,391	224,777	207,067	6,054,777	(1,329,836)	(894,984)	(2,224,820)
67,228	4,068,574	244,433	403,841	4,784,076	(1,073,181)	449,468	(623,713)
48,963	2,616,730	132,956	14,533	2,813,182	(607,954)	(143,344)	(751,298)
38,384	1,851,390	89,822	33,253	2,012,849	(486,864)	229,245	(257,619)
26,807	1,986,400	139,916	310,096	2,463,219	(649,694)	182,963	(466,731)
20,043	1,153,556	65,998	115,505	1,355,102	(352,755)	25,444	(327,311)
12,683	748,402	(4,371)	520,473	1,277,187	59,665	(252,616)	(192,951)
11,696	776,551	45,285	53,078	886,610	(216,044)	26,412	(189,632)
11,500	618,998	30,262	23,729	684,489	(147,439)	(24,905)	(172,344)
4,932	0	(14,886)	73,361	63,407	38,343	(79,674)	(41,331)
4,272	309,499	21,787	53,904	389,462	(95,810)	24,665	(71,145)
3,285	393,942	34,058	213,161	644,446	(111,800)	41,054	(70,746)
0	0	0	11,535	11,535	(10,291)	(6,116)	(16,407)
0	0	0	0	0	0	(427,960)	(427,960)
$820,647	**$45,283,019**	**$2,429,239**	**$2,595,153**	**$51,128,058**	**$(11,680,391)**	**$(1,108,541)**	**$(12,788,932)**
$105,146,000	**$6,189,984,000**	**$346,979,000**	**$33,279,492**	**$6,675,388,492**	**$(1,661,668,000)**	**$0**	**$(1,661,668,000)**

(1) Deferred Outflows of Resources figures and Deferred Inflows of Resources figures represent balances at June 30, 2018, not the activity during fiscal year 2018.

(2) Refer to the note on page 109 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, 2018

Employer	Net Pension Liability	Deferred Outflows of Resources [1]: Differences Between Expected and Actual Experience in 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]	**$200,609,396**	**$0**	**$146,800,000**	**$0**	**$0**	**$146,800,000**
Correctional Employees Retirement Fund						
State of Minnesota	$375,231,878	$6,985,836	$269,823,153	$0	$342,945	$277,151,934
AFSCME	401,927	7,972	263,541	0	106,224	377,737
MAPE [3]	0	192	2,306	0	26,429	28,927
Total	**$375,633,805**	**$6,994,000**	**$270,089,000**	**$0**	**$475,598**	**$277,558,598**
Judges Retirement Fund						
State of Minnesota	**$176,169,632**	**$3,993,000**	**$11,332,000**	**$0**	**$0**	**$15,325,000**
Legislators Retirement Fund						
State of Minnesota	**$139,366,688**	**$0**	**$0**	**$118,000**	**$0**	**$118,000**

Deferred Inflows of Resources [1]					Pension Expense (Income)		
Differences Between Expected and Actual Experience in 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 (Income)**
$24,940,000	**$180,870,000**	**$18,769,000**	**$0**	**$224,579,000**	**$19,262,000**	**$0**	**$19,262,000**
$3,100,724	$645,985,211	$29,426,507	$291,192	$678,803,634	$(137,205,172)	$48,440	$(137,156,732)
3,272	687,119	27,370	140,855	858,616	(177,862)	(53,829)	(231,691)
4	6,670	123	43,551	50,348	(7,966)	5,389	(2,577)
$3,104,000	**$646,679,000**	**$29,454,000**	**$475,598**	**$679,712,598**	**$(137,391,000)**	**$0**	**$(137,391,000)**
$3,848,000	**$34,303,000**	**$5,230,000**	**$0**	**$43,381,000**	**$4,723,000**	**$0**	**$4,723,000**
$0	**$0**	**$0**	**$0**	**$0**	**$767,000**	**$0**	**$767,000**

(1) Deferred Outflows of Resources figures and Deferred Inflows of Resources figures represent balances at June 30, 2018, not the activity during fiscal year 2018.

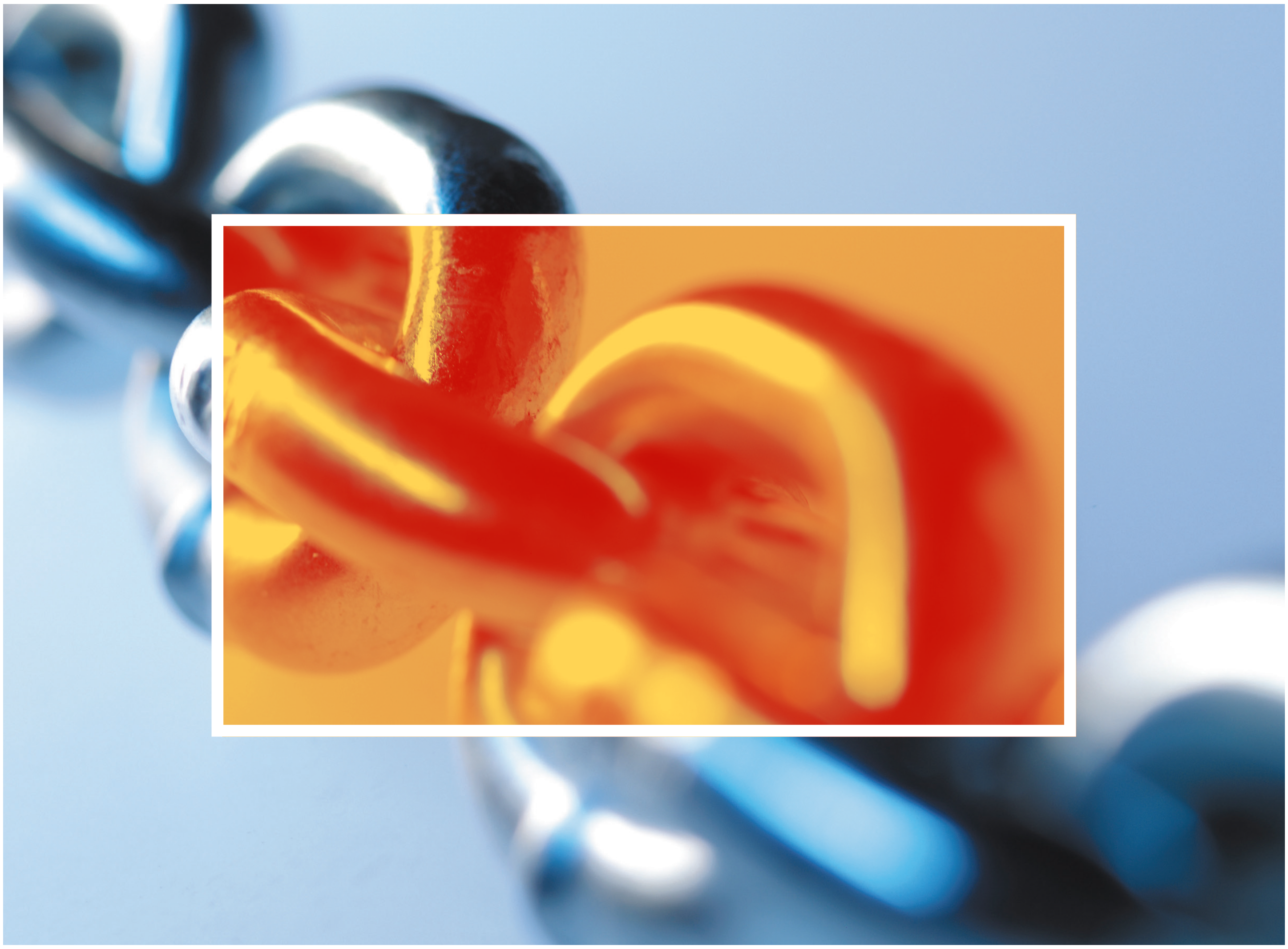
(2) No component units of the State of Minnesota participate in the plans listed on these pages.

(3) This employer was not allocated a percentage of Net Pension Liability because they were not active at fiscal year end.

Each link supports another for **your** foundation.

Investment Section

MSRS 2018 Comprehensive Annual Financial 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

60 Empire Drive
Suite 355
St. Paul, MN 55103
(651) 296-3328
FAX (651) 296-9572
E-mail:
minn.sbi@state.mn.us
www.sbi.state.mn.us

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 2018 Legislature reduced the actuarial interest rate assumption for MSRS to 7.5%.

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	53%
• Fixed Income	20%
• Private Markets	25%
• Cash	2%

Based on values on June 30, 2018, the Combined Funds returned 4.6 percentage points above the CPI over the last 20 years and returned 0.4 percentage point above the composite index over the past 10 years. Investment returns ranked in the 8th percentile over the past five years and in the 8th 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,

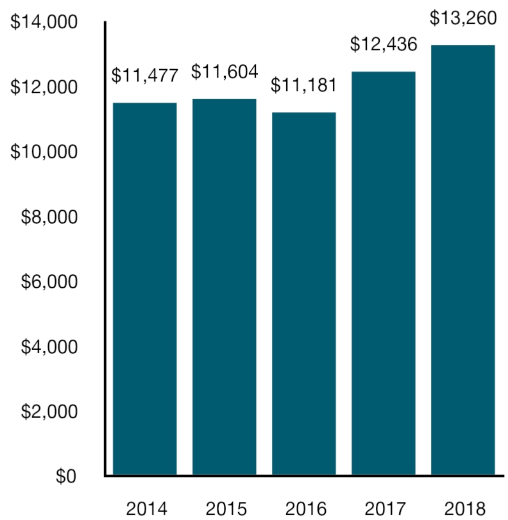
Mansco Perry TH

Mansco Perry III
Executive Director
Minnesota State Board of Investment
November 26, 2018

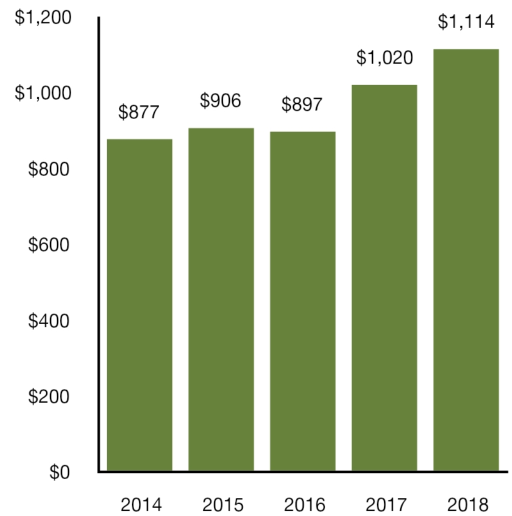
Fair Value of Investments

Four Largest MSRS Defined Benefit Retirement Funds
As of June 30, 2018
(Dollars in millions)

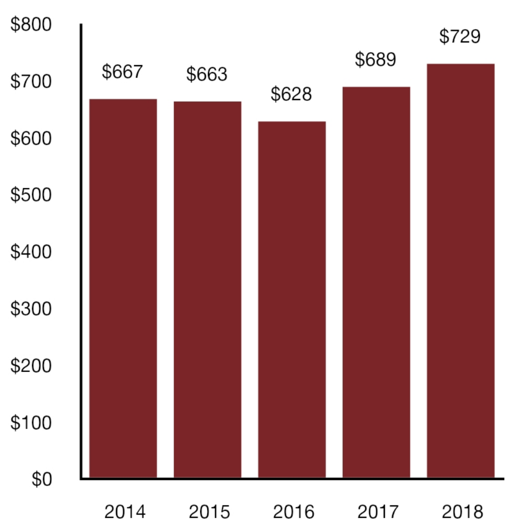
State Employees Retirement Fund



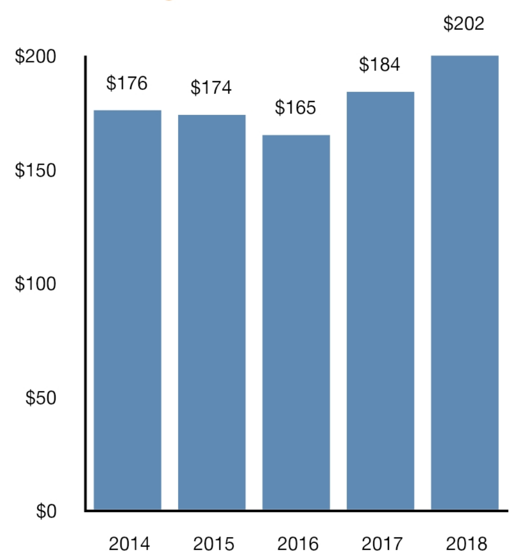
Correctional Employees Retirement Fund



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 2018	Three-Year	Five-Year	Ten-Year
Domestic Equity	15.4%	11.3%	13.3%	10.2%
Russell 3000 Index	14.8	11.6	13.3	10.2
International Equity	7.5%	5.3%	6.4%	3.0%
MSCI ACWI ex U.S. (net)	7.3	5.1	6.0	2.5
Domestic Bonds	0.1%	2.3%	2.8%	4.4%
Bloomberg Barclays U.S. Aggregate Index	(0.4)	1.7	2.3	3.7
Private Markets	14.8%	11.3%	12.0%	9.2%
Private Equity Investments	19.7	15.1	15.5	11.7
Private Credit Investments	12.0	14.2	14.4	11.2
Resource Investments	4.3	(0.3)	0.9	4.9
Real Estate Investments	12.1	9.4	13.1	4.8

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.

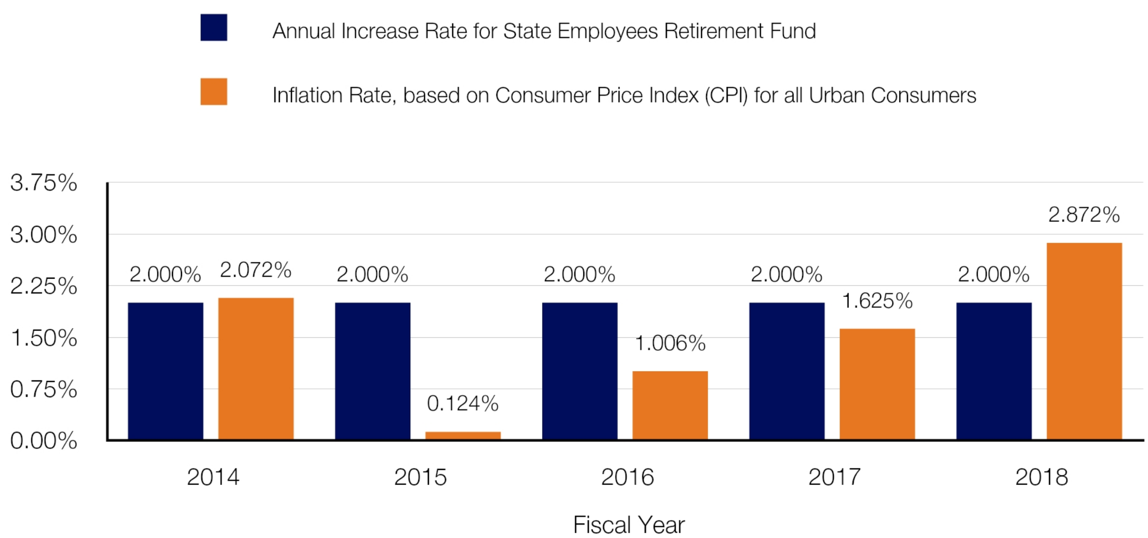
	Combined Funds	
Investment Type	**Actual Asset Mix 06/30/2018**	**Long-Term Policy Target**
Domestic Equity	41.5%	36.0%
International Equity	19.2	17.0
Domestic Bonds	15.7	20.0
Treasuries	8.6	0.0
Private Markets [1]	13.8	25.0
Cash	1.2	2.0
Totals	**100.0%**	**100.0%**

[1] If a 25 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.

Benefit Increases vs. Inflation

(Last Five Years)

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



Post-retirement benefit increases in the State Employees Retirement Fund and the Legislators Retirement fund will be reduced to 1 percent for five years beginning January 1, 2019, and 1.5 percent per year thereafter. Increases in the State Patrol and Correctional Employees Retirement Funds will also be reduced beginning in 2019 to 1.0 percent and 1.5 percent per year, respectively.

Investment Results

	Rates of Return (Annualized)			
Funds	**FY 2018**	**Three-Year**	**Five-Year**	**Ten-Year**
Combined Funds	10.3%	8.3%	9.5%	7.8%
Combined Funds-Composite Index	9.7	8.3	9.3	7.4

Investment Return percentages are the time-weighted rate of return, net of all management fees.

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
Treasuries	Bloomberg Barclays Treasury 5+ Years
Cash	3-Month Treasury Bills

List of Largest Assets Held at Fair Value

As of June 30, 2018
(Dollars in thousands)

Top Ten Equity Holdings

Company	Fair Value	Percent of Portfolio
Apple, Inc.	$195,951	1.07%
Amazon.com Inc.	176,471	0.97
Microsoft Corporation	169,445	0.93
Facebook, Inc.	115,731	0.63
Alphabet Inc. Class A	83,631	0.46
JP Morgan Chase & Co.	82,945	0.45
Berkshire Hathaway Inc. Class B	76,834	0.42
Alphabet Inc. Class C	75,960	0.42
Exxon Mobil Corporation	75,377	0.41
Johnson & Johnson	75,010	0.41

Top Ten Bond Holdings

Security	Coupon Rate	Maturity Date	Fair Value	Percent of Portfolio
U.S. Treasury Note/Bond	2.250%	02/15/2027	$88,475	0.48%
U.S. Treasury Note/Bond	2.125	09/30/2024	83,830	0.46
U.S. Treasury Note/Bond	3.750	11/15/2043	60,619	0.33
U.S. Treasury Note/Bond	2.250	11/15/2024	50,152	0.27
GNMA II TBA 30 Yr	4.500	07/19/2048	48,240	0.26
U.S. Treasury Note/Bond	3.000	05/15/2047	42,662	0.23
U.S. Treasury Note/Bond	2.000	08/15/2025	40,404	0.22
U.S. Treasury Note/Bond	2.750	11/15/2042	39,921	0.22
U.S. Treasury Note/Bond	1.750	05/31/2022	38,938	0.21
U.S. Treasury Note/Bond	2.125	02/29/2024	38,725	0.21

Legend: GNMA = Government 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.

Defined Contribution Investment Results

	Rates of Return (Annualized)		
	FY 2018	Three-Year	Five-Year
Supplemental Investment Fund Accounts			
Balanced Fund	8.9%	7.8%	9.0%
U.S. Stock Actively Managed Fund	18.2	12.1	13.9
U.S. Stock Index Fund	14.8	11.6	13.3
Broad International Stock Fund	7.5	5.3	6.4
Bond Fund	0.1	2.3	2.8
Money Market Fund	1.5	0.9	0.6
Stable Value Fund	2.2	2.1	2.0
Deferred Compensation Plan Accounts			
Large Cap Equity			
Vanguard Index Institutional Plus (passive)	14.4%	11.9%	13.4%
Vanguard Dividend Growth (active)	10.6	NA	NA
Mid Cap Equity			
Vanguard Mid Cap Index (passive)	12.1%	9.2%	12.3%
Small Cap Equity			
T. Rowe Price Small Cap (active)	18.3%	11.9%	13.3%
International Equity			
Fidelity Diversified International (active)	6.0%	4.0%	7.2%
Vanguard Total International Stock Index (passive)	7.1	5.4	6.5
Balanced			
Vanguard Balanced Index (passive)	8.6%	7.7%	8.9%
Fixed Income			
Dodge & Cox Income Fund (active)	0.4%	2.6%	3.1%
Vanguard Total Bond Market Index (passive)	(0.5)	1.7	2.2
SIF Money Market Fund	1.5	0.9	0.6
SIF Stable Value Fund	2.2%	2.1%	2.0%
MN Target Retirement Accounts			
Income Fund	4.0%	3.8%	4.1%
2020 Fund	4.7	4.4	5.3
2025 Fund	6.1	5.5	6.7
2030 Fund	7.7	6.6	7.8
2035 Fund	8.5	7.1	8.3
2040 Fund	9.4	7.5	8.8
2045 Fund	10.1	7.9	9.2
2050 Fund	10.7	8.2	9.5
2055 Fund	10.7	8.2	9.5
2060 Fund	10.7	8.2	9.5

Schedule of Investment Fees

For the Fiscal Year Ended June 30, 2018
(Dollars in thousands)

SBI and Consultants

MN State Board of Investment	$1,018
Aon Consulting	115
Broadridge Financial Solutions	69
Pension Consulting Alliance	64
Total	**$1,266**

Outside Money Managers

Domestic Equity - Active Managers

Arrowpoint Asset Management, LLC	$351
Barrow, Hanley, Mewhinney & Strauss, LLC	155
Earnest Partners, LLC	107
Goldman Sachs Asset Management	504
Hood River Capital Management LLC	396
Hotchkis and Wiley Capital Management	543
LSV Asset Management	373
Martingale Asset Management	424
McKinley Capital Management	117
Peregrine Capital Management	490
Rice Hall James & Associates, LLC	346
Sands Capital Management, Inc.	315
Wellington Management Company LLP	337
Winslow Capital Management, Inc.	163
Zevenbergen Capital, Inc.	428
Total	**$5,049**

Domestic Equity - Semi Passive Managers

BlackRock Institutional Trust Company, N.A	$254
J.P. Morgan Investment Management	390
Total	**$644**

Treasury Protection Pool

BlackRock Institutional Trust Company, N.A	$86
Goldman Sachs Asset Management	91
Neuberger Berman Investment	83
Total	**$260**

Fixed Income Manager

Galliard Capital Management, Inc.	**$3,779**

Domestic Equity - Passive Managers

BlackRock Institutional Trust Co., N.A.	**$254**

International Equity Managers

Acadian Asset Management, LLC	$410
AQR Capital Management, LLC	428
Columbia Management Investment Advisors, LLC	289
Earnest Partners, LLC	457
Fidelity Investments	567
J.P. Morgan Investment Management, Inc.	280
Macquarie/Delaware Investments	400
Marathon Asset Management	635
Martin Currie, Inc	421
McKinley Capital Management, Inc.	294
Morgan Stanley Dean	1,007
Neuberger Berman Investment	557
Pzena Investment Management	523
Rock Creek	543
State Street Emerging Markets	128
State Street Global Advisors ALPHA	9
State Street Global Advisors Passive	154
Total	**$7,102**

Domestic Bond Managers

BlackRock, Inc	$252
Columbia Management Investment Advisors, LLC	271
Dodge & Cox Investment Management	411
Goldman Sachs Asset Management	390
Neuberger Investment Management	157
Pacific Investment Management Company, LLC	678
Western Asset Management	345
Total	**$2,504**

Total Investment Expenses **$20,858**

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.

Investment Summary at Fair Value

As of June 30, 2017 and 2018

(Dollars in thousands)

Description	Fair Value June 30, 2017	Percent of 2017 Portfolio	Fair Value June 30, 2018	Percent of 2018 Portfolio
State Employees Retirement Fund				
U.S. Stock Actively Managed Pool	$3,319,335	27%	$1,403,454	10%
U.S. Stock Index Pool	2,061,572	17	4,106,367	31
Broad International Stock Pool	2,697,645	22	2,548,802	19
Bond Pool	2,412,541	19	2,080,384	16
Alternative Investment Pool	1,632,670	13	1,834,672	14
Treasuries Pool	0	0	1,143,750	9
Money Market	312,411	2	142,943	1
Totals	**$12,436,174**	**100%**	**$13,260,372**	**100%**
State Patrol Retirement Fund				
U.S. Stock Actively Managed Pool	$183,912	27%	$76,981	10%
U.S. Stock Index Pool	114,224	17	225,238	31
Broad International Stock Pool	149,467	22	139,804	19
Bond Pool	133,670	19	114,111	16
Alternative Investment Pool	90,461	13	100,633	14
Treasuries Pool	0	0	62,736	9
Money Market	17,761	2	9,202	1
Totals	**$689,495**	**100%**	**$728,705**	**100%**
Correctional Employees Retirement Fund				
U.S. Stock Actively Managed Pool	$271,724	27%	$117,460	10%
U.S. Stock Index Pool	168,763	17	343,677	31
Broad International Stock Pool	220,832	22	213,318	19
Bond Pool	197,493	19	174,115	16
Alternative Investment Pool	133,652	13	153,551	14
Treasuries Pool	0	0	95,725	9
Money Market	27,810	2	15,703	1
Totals	**$1,020,274**	**100%**	**$1,113,549**	**100%**
Judges Retirement Fund				
U.S. Stock Actively Managed Pool	$48,951	27%	$21,202	10%
U.S. Stock Index Pool	30,403	17	62,037	31
Broad International Stock Pool	39,783	22	38,506	19
Bond Pool	35,579	19	31,429	16
Alternative Investment Pool	24,077	13	27,717	14
Treasuries Pool	0	0	17,279	9
Money Market	5,629	2	3,442	1
Totals	**$184,422**	**100%**	**$201,612**	**100%**

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Strong
assets
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foundation.

Actuarial Section

MSRS 2018 Comprehensive Annual Financial Report

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 133-161.

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 168-174.

Actuary's Certification Letter

GRS Retirement Consulting

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

December 12, 2018

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

Re: 2018 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, 2018.

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. LRF assets have been zero since July 1, 2016.

	Accrued Liability Funded Ratio		Contribution Deficiency/ (Sufficiency) (% of Pay)			
Plan	Actuarial Value of Assets	Market Value of Assets	Actuarial Value of Assets	Market Value of Assets	Statutory Amortization Date	Future Contribution Increases (% of Pay)
SERF	88.80%	90.56%	(0.10)%	(0.58)%	2048	0.62%
SPRF	76.95%	78.44%	0.96%	(0.08)%	2048	6.50%
CERF	73.31%	74.80%	1.77%	1.29%	2048	4.45%
JRF	52.35%	53.38%	0.40%	(0.10)%	2048	N/A
LRF*	0.00%	0.00%	$27,914,000*	$27,914,000*	2026	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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All of the plans except LRF, which is funded on a pay-as-you-go basis, currently have a contribution sufficiency when future contribution increases not reflected in the contribution deficiency/(sufficiency) as of July 1, 2018 are taken into account. For JRF, the plan has a small sufficiency on a market value of assets basis only. A contribution sufficiency means that the fund is expected to meet the goal of full funding by the statutory amortization date.

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.

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 required 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 changes were recognized this year in the funding valuations for all plans, except as noted:

- Investment return assumption reduced from 8.0% to 7.5% (except for LRF).
- Inflation assumption reduced from 2.75% to 2.50%.
- Payroll growth assumption was lowered from 3.50% to 3.25% (except for JRF and LRF).
- Salary increase rates were reduced by 0.25% at each year of service (except for JRF and LRF).
- Amortization period reset to 30 years (except for LRF).
- Deferred augmentation was changed to 0.00% for future accruing benefits, effective January 1, 2019 (except for JRF). Augmentation that has already accrued for deferred members will still apply.
- Refund interest rate was reduced from 4% to 3%, effective July 1, 2018.
- Contribution stabilizer provisions were repealed (except for JRF and LRF).

The following additional changes were recognized for the SERF:

- Post-retirement benefit increases were changed from 2.0% per year, increasing to 2.5% per year upon achieving a 90% funding ratio to a fixed rate of 1.0% for five years (beginning January 1, 2019) and 1.5% per year thereafter.
- The augmentation adjustment in early retirement factors was eliminated over a five-year period starting July 1, 2019, resulting in actuarial equivalence after June 30, 2024.
- Member contributions were changed from 5.50% to 5.75% of payroll, effective July 1, 2018 and 6.00% of payroll, effective July 1, 2019.
- Employer contributions were changed from 5.50% to 5.875% of payroll, effective July 1, 2018 and 6.25% of payroll, effective July 1, 2019.
- For retirements on or after January 1, 2024, the first benefit increase is delayed until the retiree reaches Normal Retirement Age.

The following additional changes were recognized for the SPRF:

- Post-retirement benefit increases were changed from 1.0% per year, increasing to 2.5% per year upon achieving a 90% funding ratio to a fixed rate of 1.0% per year.
- Member contributions were increased from 14.4% of payroll to 15.4% of payroll over three years, effective July 1, 2018.
- Regular employer contributions were increased from 21.6% of payroll to 23.1% of payroll over two years, effective July 1, 2018.
- Supplemental employer contributions totaling 7.0% of pay will be phased-in through fiscal year 2022; the supplemental employer contributions remain in effect until the plan is 100% funded.
- An end date of July 1, 2048 was added for the $1 million state contributions.

The following additional changes were recognized for the CERF:

- Post-retirement benefit increases were changed from 2.0% per year, increasing to 2.5% per year upon achieving a 90% funding ratio to a fixed rate of 1.50% per year.
- Member contributions were increased from 9.10% of pay to 9.60% of pay, effective July 1, 2018.
- Regular employer contributions were increased from 12.85% to 14.40%, effective July 1, 2018.
- Supplemental employer contributions of 4.45% will be phased-in over three years beginning July 1, 2019; the supplemental employer contributions remain in effect until the plan is 100% funded.

The following additional changes were recognized for the JRF:

- Payroll growth assumption was lowered from 2.75% to 2.50%.
- Salary increase rate was lowered from 2.75% to 2.50%.
- The assumed benefit increase was changed from 1.75% per year through 2032, 2.00% per year from 2033 to 2044 and 2.50% thereafter to 1.75% per year through 2037, 2.00% per year from 2038 to 2051 and 2.50% thereafter.
- An end date of July 1, 2048 was added for the $6 million state contribution.

The following additional changes were recognized for the LRF:

- Post-retirement benefit increases were changed from 2.0% per year, increasing to 2.5% per year upon achieving a 90% funding ratio to a fixed rate of 1.0% for five years (beginning January 1, 2019) and 1.5% per year thereafter.
- For retirements on or after January 1, 2024, the first benefit increase is delayed until the retiree reaches Normal Retirement Age.

GRS performed a basic review of the basic financial and membership data provided to us as of June 30, 2018 by MSRS, and determined that the data appears reasonable in comparison to last year. We did not audit the data. 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).

GRS

Actuary's Certification Letter

Members of the Board
December 12, 2018
Page 4

In a 2018 analysis of long-term rate of investment return and inflation assumptions, GRS suggested that an investment return assumption in the range of 6.64% to 7.56% would be reasonable. Please see our draft letter dated September 17, 2018 for additional information. The current assumed rate, which is mandated by Minnesota Statutes, is 7.5% and is at the upper end of the reasonable range. This report also concluded that the probability of exceeding the current 7.5% assumption over 20 years is only 39%. If capital market assumptions decline further from present levels, the 7.5% return assumption might not comply with actuarial standards for the July 1, 2019 valuation.

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.

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

80 CELEBRATING 80 YEARS OF EXCELLENCE 1938 - 2018

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 174.

Additional actuarial methods and assumptions used in the July 1, 2018, 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 7/1/2017 Valuation:** The amortization period was reset to 30 years, ending in 2048.

Actuarial Assumptions [1]

1. **Investment Return:** 7.50% per year (2018)

2. **Salary Increases:** Service-related rates as shown in the table on page 141 (2018)

3. **Inflation:** 2.50% per year (2018)

4. **Payroll Growth:** 3.25% per year (2018)

5. **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)

6. **Retirement:** Age-based rates as shown in the table on page 145 (2016)

7. **Withdrawal:** Service-related rates based on experience as shown in the table on page 147 (2016)

8. **Disability:** Age-related rates based on actual experience as shown in the table on page 146 (2016)

9. **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)

10. **Administrative Expenses:** Prior year administrative expenses expressed as a percentage of prior year projected payroll (1994)

11. **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.

Summary of Actuarial Methods and Assumptions

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 7/1/2017 Valuation:** The amortization period was reset to 30 years, ending in 2048.

Actuarial Assumptions [1]

1. **Investment Return:** 7.50% per year (2018)

2. **Salary Increases:** Service-related rates as shown in the table on page 141 (2017)

3. **Inflation:** 2.50% per year (2018)

4. **Payroll Growth:** 3.25% per year (2018)

5. **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)

6. **Retirement:** Age-based rates as shown in the table on page 145 (2017)

7. **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 147 (2017)

8. **Disability:** Age-related rates based on experience as shown in the table on page 146. All incidences are assumed to be duty-related (2017)

9. **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)

10. **Administrative Expenses:** Prior year administrative expenses expressed as a percentage of prior year projected payroll (1994)

11. **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)

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 7/1/2017 Valuation:** The amortization period was reset to 30 years, ending in 2048.

Actuarial Assumptions [1]

1. **Investment Return:** 7.50% per year (2018)
2. **Salary Increases:** Service-related rates as shown in the table on page 141 (2017)
3. **Inflation:** 2.50% per year (2018)
4. **Payroll Growth:** 3.25% per year (2018)
5. **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)
6. **Retirement:** Age-based rates as shown in the table on page 145 (2017)
7. **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 147 (2017)
8. **Disability:** Age-related rates based on experience as shown in the table on page 146. All incidences are assumed to be duty-related (2017)
9. **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)
10. **Administrative Expenses:** Prior year administrative expenses expressed as a percentage of prior year projected payroll (1994)
11. **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.

Summary of Actuarial Methods and Assumptions

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 7/1/2017 Valuation:** The amortization period was reset to 30 years, ending in 2048.

Actuarial Assumptions [1]

1. **Investment Return:** 7.50% per year (2018)

2. **Benefit Increases After Retirement:** 1.75% per year through 2037, then 2.0% per year from 2038 to 2051, and 2.5% per year thereafter (2018)

3. **Salary Increases:** 2.50% per year (2018)

4. **Inflation:** 2.50% per year (2018)

5. **Payroll Growth:** 2.50% per year (2018)

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 145 (2017)

8. **Withdrawal:** None

9. **Disability:** Age-related rates are based on actual experience as shown in the table on page 146 (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

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 7/1/2017 Valuation:** None.

Actuarial Assumptions [1]

1. **Investment Return:** 0% per year (2011)
2. **Salary Increases:** 5% annually (1994)
3. **Inflation:** 2.50% per year (2018)
4. **Payroll Growth:** Not applicable; closed plan with decreasing payroll
5. **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
6. **Retirement:** Age-based rates as shown in the table on page 145 (2012)
7. **Withdrawal:** Ultimate rates based on actual experience as shown on page 147
8. **Disability:** No disability benefits
9. **Allowance for Combined Service Annuity:** None (2017)
10. **Administrative Expenses:** Prior year administrative expenses expressed as a percentage of prior year projected payroll (1994)
11. **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, 2017, actuarial valuations. Assumption changes are based on a review of inflation and investment return assumptions in September 2017.

State Employees, State Patrol, and Correctional Employees Retirement Funds

- The assumed investment return was lowered from 8.00 percent to 7.50 percent.
- The assumed rate of inflation decreased from 2.75 percent to 2.50 percent.
- The assumed payroll growth rate decreased from 3.50 percent to 3.25 percent.
- Salary increase rates were reduced by 0.25 percent at each year of service.

Judges Retirement Fund

- The assumed investment return was lowered from 8.00 percent to 7.50 percent.
- The assumed rate of inflation, payroll growth rate, and salary increase rate decreased from 2.75 percent to 2.50 percent.
- The assumed benefit increase was changed from 1.75 percent per year through 2032, 2.00 percent per year from 2033 to 2044, and 2.50 percent per year thereafter, to 1.75 percent per year through 2037, 2.00 percent per year from 2038 to 2051, and 2.50 percent per year thereafter.

Legislators Retirement Fund

- The assumed rate of inflation decreased from 2.75 percent to 2.50 percent.

Changes in Plan Provisions

The following changes in plan provisions have occurred since the July 1, 2017, actuarial valuations:

State Employees Retirement Fund

- The augmentation adjustment in early retirement factors is eliminated over a five-year period starting July 1, 2019, resulting in actuarial equivalence after June 30, 2024.
- Member contributions increased from 5.50 percent to 5.75 percent of pay, effective July 1, 2018, and 6.0 percent of pay effective July 1, 2019.
- Employer contributions increased from 5.50 percent to 5.875 percent of pay, effective July 1, 2018, and 6.25 percent of pay effective July 1, 2019.
- Interest credited on member contributions will decrease from 4.0 to 3.0 percent, beginning July 1, 2018.
- Deferred augmentation was changed to 0.0 percent for future accruing benefits, effective January 1, 2019.
- Contribution stabilizer provisions were repealed.
- Post-retirement benefit increases were changed from a 2.0 to 2.50 percent per year increase based upon funded ratio, to a fixed rate of 1.0 percent for five years beginning January 1, 2019, and 1.5 percent per year thereafter.
- For retirements on or after January 1, 2024, the first benefit increase is delayed until the retiree reaches Normal Retirement Age.

State Patrol Retirement Fund

- Member contributions increased from 14.4 percent to 15.4 percent of pay over three years, effective July 1, 2018.
- Regular employer contributions increased from 21.6 percent of pay to 23.1 percent of pay over two years, effective July 1, 2018.
- Supplemental employer contributions totaling 7.0 percent of pay will be phased in through fiscal year 2022; the supplemental employer contributions remain in effect until the plan is 100 percent funded.
- Interest credited on member contributions will decrease from 4.0 percent to 3.0 percent, beginning July 1, 2018.
- Deferred augmentation was changed to 0.0 percent for future accruing benefits effective January 1, 2019.
- Contribution stabilizer provisions were repealed.
- Post-retirement benefit increases were changed from a 1.0 to 2.50 percent per year increase based upon funded ratio, to a fixed rate of 1.0 percent per year.
- An end date of July 1, 2048, was added for the $1 million annual state contribution.

Correctional Employees Retirement Fund

- Member contributions increased from 9.1 percent of pay to 9.6 percent of pay, effective July 1, 2018.
- Regular employer contributions increased from 12.85 of pay to 14.40 percent of pay, effective July 1, 2018.
- Supplemental employer contributions totaling 4.45 percent of pay will be phased in through fiscal year 2022; the supplemental employer contributions remain in effect until the plan is 100 percent funded.
- Interest credited on member contributions will decrease from 4.0 percent to 3.0 percent, beginning July 1, 2018.
- Deferred augmentation was changed to 0.0 percent for future accruing benefits, effective January 1, 2019.
- Contribution stabilizer provisions were repealed.
- Post-retirement benefit increases were changed from a 2.0 to 2.50 percent per year increase based upon funded ratio, to a fixed rate of 1.5 percent per year.

Judges Retirement Fund

- Interest credited on member contributions will decrease from 4.0 percent to 3.0 percent, beginning July 1, 2018.
- An end date of July 1, 2048, was added for the $6 million annual state contribution.

Legislators Retirement Fund

- Interest credited on member contributions will decrease from 4.0 percent to 3.0 percent, beginning July 1, 2018.
- Deferred augmentation was changed to 0.0 percent for future accruing benefits, effective January 1, 2019.
- Post-retirement benefit increases were changed from a 2.0 to 2.50 percent per year increase based upon funded ratio, to a fixed rate of 1.0 percent for five years beginning January 1, 2019, and 1.5 percent per year thereafter.
- For retirements on or after January 1, 2024, the first benefit increase is delayed until the retiree reaches Normal Retirement Age.

A description of the system and plans may be found in the *Notes to the Financial Statements* beginning on page 54. Additional plan provisions are summarized in the *Introductory Section* beginning on page 18.

Other Assumptions

June 30, 2018

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 [1]: Males	Percent Married [1]: 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

[1] 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, 2018

Salary Increase Rates

State Employees Retirement Fund

Salary Scale	
Service Years	Increase
1	13.75%
2	11.25
3	6.00
4	5.25
5	5.00
6	4.90
7	4.75
8	4.50
9	4.25
10	4.00
11	3.95
12	3.90
13	3.85
14	3.80
15	3.75
16	3.70
17	3.65
18	3.60
19	3.55
20	3.50
21	3.45
22	3.40
23	3.35
24	3.30
25+	3.25

State Patrol Retirement Fund

Salary Scale	
Service Years	Increase
1	15.25%
2	9.25
3	7.75
4	7.25
5	6.75
6	6.25
7	6.00
8	5.75
9	5.50
10	5.25
11	5.00
12	4.75
13	4.50
14	4.25
15	4.25
16	4.25
17	4.00
18	4.00
19	3.75
20	3.75
21	3.65
22	3.55
23	3.45
24	3.35
25+	3.25

Correctional Employees Retirement Fund

Salary Scale	
Service Years	Increase
1	12.25%
2	8.75
3	5.75
4	5.25
5	5.00
6	4.75
7	4.75
8	4.75
9	4.75
10	4.75
11	4.75
12	4.50
13	4.25
14	4.25
15	4.00
16	4.00
17	4.00
18	3.75
19	3.75
20	3.75
21	3.50
22	3.50
23	3.50
24+	3.25

Judges Retirement

2.50% per year

Legislators Retirement Fund

5.00% per year

Actuarial Tables

June 30, 2018

Mortality Rates [1]

State Employees Retirement Fund and Legislators Retirement Fund

Age in 2018	Rates [2]					
	Healthy Pre-Retirement Mortality		Healthy Post-Retirement Mortality		Disability Mortality [3]	
	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	0.27	0.18
30	0.03	0.02	0.06	0.05	0.57	0.37
35	0.04	0.02	0.09	0.08	0.95	0.61
40	0.04	0.03	0.13	0.11	1.32	0.84
45	0.07	0.05	0.20	0.15	1.64	1.05
50	0.12	0.09	0.29	0.19	1.94	1.31
55	0.20	0.14	0.41	0.27	2.31	1.61
60	0.36	0.20	0.58	0.38	2.76	1.94
65	0.63	0.30	0.88	0.62	3.34	2.50
70	1.09	0.51	1.45	0.99	4.27	3.55
75	1.92	0.89	2.50	1.65	5.83	5.30
80	3.48	1.57	4.47	2.89	8.41	7.94
85	7.29	4.12	8.29	5.21	12.68	11.72
90	13.53	9.22	14.99	9.53	19.16	17.26

State Patrol Retirement Fund and Judges Retirement Fund

Age in 2018	Rates [4]					
	Healthy Pre-Retirement Mortality		Healthy Post-Retirement Mortality		Disability Mortality	
	Male	Female	Male	Female	Male	Female
20	0.02%	0.01%	0.02%	0.01%	0.02%	0.01%
25	0.03	0.01	0.03	0.02	0.03	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	0.16	0.14	0.16	0.14
50	0.11	0.09	0.25	0.19	0.25	0.19
55	0.18	0.14	0.37	0.27	0.37	0.27
60	0.32	0.21	0.51	0.39	0.51	0.39
65	0.56	0.30	0.73	0.63	0.73	0.63
70	0.99	0.52	1.20	1.02	1.20	1.02
75	1.79	0.93	2.09	1.72	2.09	1.72
80	3.20	1.65	3.70	3.04	3.70	3.04
85	6.66	4.41	6.82	5.57	6.82	5.57
90	12.64	9.84	12.49	10.16	12.49	10.16

[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] Disability benefits apply only to the State Employees Retirement Fund.

[4] These rates were adjusted for mortality improvements using Projection Scale MP-2015 from a base year of 2006.

Actuarial Tables

June 30, 2018

Mortality Rates [1]

Correctional Employees Retirement Fund

Age in 2018	Rates [2] Healthy Pre-Retirement Mortality		Healthy Post-Retirement Mortality		Disability Mortality	
	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	0.42	0.22
35	0.03	0.03	0.09	0.09	0.78	0.44
40	0.04	0.03	0.13	0.12	1.13	0.66
45	0.06	0.05	0.19	0.15	1.46	0.84
50	0.11	0.09	0.28	0.20	1.83	1.10
55	0.18	0.14	0.40	0.29	2.21	1.45
60	0.32	0.21	0.60	0.45	2.59	1.71
65	0.56	0.30	0.90	0.70	3.06	2.02
70	0.99	0.52	1.50	1.12	3.89	2.71
75	1.79	0.93	2.60	1.91	5.33	4.01
80	3.20	1.65	4.67	3.41	7.61	6.10
85	6.66	4.41	8.66	6.29	11.29	9.22
90	12.64	9.84	15.43	11.40	17.12	13.45

[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.

Retirement Rates

State Employees Retirement Fund

Age	Percent Retiring: Rule of 90 Eligible	Percent Retiring: Hired Prior to 7/1/1989	Percent Retiring: 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

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

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

Actuarial Tables

June 30, 2018

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.

Withdrawal Rates [1]

State Employees Retirement Fund

Years of Service	Withdrawal Rates Male	Withdrawal Rates 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

State Patrol Retirement Fund

Age	Withdrawal Rates After Third Year Male	Withdrawal Rates After Third Year 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

Correctional Employees Retirement Fund

Age	Withdrawal Rates After Third Year Male	Withdrawal Rates After Third Year 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

Legislators Retirement Fund

Years of Service	Withdrawal Rates House	Withdrawal Rates Senate
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

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 134-135.

Actuarial Accrued Liability (AAL)

As of June 30, 2018
(Dollars in thousands)

	Defined Benefit Retirement Funds				
	State Employees	State Patrol	Correctional Employees	Judges	Legislators
Active Members					
Retirement Annuities	$5,075,608	$265,202	$556,754	$123,834	$16,464
Disability Benefits	138,211	6,866	10,295	1,480	0
Survivor Benefits	66,268	1,339	4,990	1,804	221
Deferred Retirements	(26,640)	530	14,607	0	(87)
Refunds	(62,292)	(167)	(7,211)	108	(12)
Total Active Members	$5,191,155	$273,770	$579,435	$127,226	$16,586
Deferred Retirements	960,715	9,297	116,232	4,639	39,921
Former Members Not Vested	8,328	33	2,579	0	0
Benefit Recipients	8,512,016	647,308	792,275	246,060	156,501
Unclassified Employees Retirement Fund Contingent Liability	7,275	0	0	0	0
Total AAL	**$14,679,489**	**$930,408**	**$1,490,521**	**$377,925**	**$213,008**

Actual Contribution Rates Compared to Actuarially Recommended Rates

As of June 30, 2018
(Dollars in thousands)

Retirement Fund	Actuarial Valuation Date	Actual Contribution Rates				Recommended Rate	Sufficiency/ (Deficiency)
		Employee	Employer	State	Total		
State Employees	July 1, 2018	5.75%	5.88%	NA	11.63%	11.53%	0.10%
State Patrol [1]	July 1, 2018	14.90	24.10	1.28%	40.28	41.24	(0.96)
Correctional Employees	July 1, 2018	9.60	14.40	NA	24.00	25.77	(1.77)
Judges [2] [3]	July 1, 2018	8.00	22.50	12.04	42.54	42.94	(0.40)
Legislators	July 1, 2018	9.00	0.00	NA	9.00	$28,007,000	$(27,914,000)

(1) Annual state contribution of $1 million is statutorily required 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 or until July 1, 2048, whichever is earlier.

(2) Annual state appropriation of $6 million is statutorily required until the earlier of July 1, 2048, or 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 8.37 percent and 42.91 percent, respectively, instead of 8.00 and 42.54 percent as shown above. The distinction between the Tier 1 and Tier 2 benefit programs is explained in the *Notes to the Financial Statements*.

Schedule of Changes in Unfunded Actuarial Accrued Liabilities (UAAL)

For the Fiscal Year Ended June 30, 2018
(Dollars in thousands)

	Defined Benefit Retirement Funds				
	State Employees	State Patrol	Correctional Employees	Judges	Legislators
A. UAAL at the Beginning of the Year	$2,144,193	$195,769	$401,270	$165,615	$227,700
B. Change Due to Interest Requirements and Current Rate of Funding					
1. Normal Cost and Expenses	$257,185	$18,613	$43,707	$9,342	$1,220
2. Contributions	(330,959)	(27,609)	(56,310)	(21,000)	(8,949)
3. Interest on A, B1, and B2	168,584	15,302	31,597	12,783	0
4. Totals (B1+B2+B3)	$94,810	$6,306	$18,994	$1,125	$(7,729)
C. Expected UAAL at End of the Year (A+B4)	$2,239,003	$202,075	$420,264	$166,740	$219,971
D. Increase (Decrease) Due to Actuarial Losses (Gains) Because of Experience Deviations from the Expected					
1. Age and Service Requirements	$3,546	$(56)	$3,308	$1,197	$(127)
2. Disability Requirements	(1,161)	185	(1,971)	(122)	0
3. Death-in-Service Benefits	(1,036)	935	(59)	(78)	13
4. Withdrawals	(2,500)	(129)	(963)	(97)	0
5. Salary Increases	(39,788)	(9,352)	(4,382)	(163)	1,870
6. Investment Return	(179,981)	(9,447)	(12,391)	(2,511)	0
7. Mortality of Annuitants	(8,091)	844	(77)	207	(325)
8. Other items	8,174	(57)	150	(203)	9,723
9. Totals	$(220,837)	$(17,077)	$(16,385)	$(1,770)	$11,154
E. UAAL at End of Year Before Actuarial Assumption and Plan Changes (C + D9)	$2,018,166	$184,998	$403,879	$164,970	$231,125
F. Change in UAAL Due to Changes in Plan Provisions	(1,111,699)	(16,970)	(90,562)	(2)	(18,117)
G. Change in UAAL Due to Changes in Actuarial Assumptions	737,672	46,416	84,485	15,105	0
H. UAAL at the End of the Year	**$1,644,139**	**$214,444**	**$397,802**	**$180,073**	**$213,008**

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)
State Employees Retirement Fund						
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)
07/01/18	13,035,350	88.80	0.10	13,293,422	90.56	0.58
State Patrol Retirement Fund						
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)
07/01/18	715,964	76.95	(0.96)	729,799	78.44	0.08

Actuarial Valuation Date	Actuarial Basis			Market Value Basis		
	Assets	Funded Ratio	Contribution Sufficiency/ (Deficiency)	Assets	Funded Ratio	Contribution Sufficiency/ (Deficiency)
Correctional Employees Retirement Fund						
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)
07/01/18	1,092,719	73.31	(1.77)	1,114,887	74.80	(1.29)
Judges Retirement Fund						
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)
07/01/18	197,852	52.35	(0.40)	201,755	53.38	0.10

Schedule of Contributions from Employers 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							
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
2018	13.24	3,031,382	166,726	234,629	164,233		70.00
State Patrol Retirement Fund							
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
2018	42.64	74,007	10,657	20,900	16,952	(1)	81.11
Correctional Employees Retirement Fund							
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
2018	28.40	257,330	23,417	49,665	32,893		66.23

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							
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
2018	44.90	49,009	3,973	18,032	17,027	(3)	94.43
Legislators Retirement Fund							
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	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
2018	3,257.81	1,033	93	33,560	8,856		26.39
Elective State Officers Retirement Fund							
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 in 2017 and $6 million annually thereafter.

Schedule of Active Member Valuation Data

Last Ten Fiscal Years

Actuarial Valuation Date	Active Member Count	Annual Payroll	Average Annual Pay	Percentage Increase In Average Pay
State Employees Retirement Fund				
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
07/01/18	51,223	3,031,382,000	58,136	2.51
State Patrol Retirement Fund				
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
07/01/18	921	74,007,000	80,187	0.06
Correctional Employees Retirement Fund				
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
07/01/18	4,650	257,330,000	54,750	2.57

Actuarial Valuation Date	Active Member Count	Annual Payroll	Average Annual Pay	Percentage Increase In Average Pay
Judges Retirement Fund				
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)
07/01/18	317	49,009,000	153,339	2.05
Legislators Retirement Fund				
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	41,313	10.51
07/01/16	23	989,000	37,047	(10.33)
07/01/17	19	889,000	40,819	10.18
07/01/18	19	1,033,000	51,657	26.55

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 Allowances
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances		
State Employees Retirement Fund								
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
06/30/18	2,705	55,152,884	1,217	23,707,118	40,821	797,027,000	6.20	19,525
State Patrol Retirement Fund								
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
06/30/18	47	2,112,033	28	1,511,936	1,071	59,653,000	1.87	55,698
Correctional Employees Retirement Fund								
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
06/30/18	215	5,096,589	40	930,452	3,259	67,622,000	6.96	20,749

Valuation Year Ended	Added to Rolls		Removed from Rolls		Rolls at Fiscal Year End		% Change in Annual Allowances	Average Annual Allowances
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances		
Judges Retirement Fund								
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
06/30/18	31	2,036,076	13	904,562	369	23,585,000	3.51	63,916
Legislators Retirement Fund								
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
06/30/18	13	433,800	16	568,833	372	8,912,000	2.25	23,957
Elective State Officers Retirement Fund								
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

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									
07/01/09	$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
07/01/18	1,309,528	8,512,016	4,857,945	14,679,489	13,035,350	100.0	100.0	66.2	88.8
State Patrol Retirement Fund									
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
07/01/18	81,702	647,308	201,398	930,408	715,964	100.0	98.0	0.0	77.0
Correctional Employees Retirement Fund									
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
07/01/18	154,678	792,275	543,568	1,490,521	1,092,719	100.0	100.0	26.8	73.3

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
Judges Retirement Fund									
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
07/01/18	31,888	246,060	99,977	377,925	197,852	100.0	67.4	0.0	52.4
Legislators Retirement Fund									
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 [1]	2,622	62,967	19,445	85,034	19,140	100.0	26.2	0.0	22.5
07/01/12 [1]	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	0.0
07/01/17	1,769	172,400	53,531	227,700	0	0.0	0.0	0.0	0.0
07/01/18	1,857	156,501	54,650	213,008	0	0.0	0.0	0.0	0.0
Elective State Officers Retirement Fund									
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 [1]	0	3,381	312	3,693	0	0.0	0.0	0.0	0.0
07/01/12 [1]	0	8,036	871	8,907	0	0.0	0.0	0.0	0.0
07/01/13	0	7,751	844	8,595	0	0.0	0.0	0.0	0.0

[1] 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					
07/01/09	$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
07/01/18	14,679,489	13,035,350	1,644,139	3,031,382	54.24
State Patrol Retirement Fund					
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
07/01/18	930,408	715,964	214,444	74,007	289.76
Correctional Employees Retirement Fund					
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
07/01/18	1,490,521	1,092,719	397,802	257,330	154.59

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						
07/01/09		$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
07/01/18		377,925	197,852	180,073	49,009	367.43
Legislators Retirement Fund						
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	(1)	216,559	19,140	197,419	1,774	11,128.47
07/01/12	(1)	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		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
07/01/18		213,008	0	213,008	1,033	20,620.33
Elective State Officers Retirement Fund						
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	(1)	7,610	0	7,610	0	N/A
07/01/12	(1)	8,907	0	8,907	0	N/A
07/01/13		8,595	0	8,595	0	N/A

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

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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 12, 2018

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

Re: 2018 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, 2018. 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 Employer Contributions 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

Valuation Results

The results of the June 30, 2018 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	$14,679,489	$13,293,422	$1,386,067	90.56%	$(1,661,668)	7.50 %
SPRF	930,408	729,799	200,609	78.44	19,262	7.50
CERF	1,490,521	1,114,887	375,634	74.80	(137,391)	7.50
JRF	377,925	201,755	176,170	53.38	4,723	7.50
LRF[2]	139,367	0	139,367	0.00	767	3.62

[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 changes were recognized this year in the valuations for GASB Statements No. 67 and 68 purposes for all plans, except as noted:

- Deferred augmentation was changed to 0.00% for future accruing benefits, effective January 1, 2019 (except for JRF). Augmentation that has already accrued for deferred members will still apply.
- Refund interest rate was reduced from 4% to 3%, effective July 1, 2018.
- Contribution stabilizer provisions were repealed (except for JRF and LRF).
- The Single Discount Rates were changed as follows:

	Prior	Current
SERF	5.42%	7.50%
SPRF	6.38%	7.50%
CERF	5.02%	7.50%
LRF	3.56%	3.62%

The following additional changes were recognized for the SERF:

- Post-retirement benefit increases were changed from 2.0% per year, increasing to 2.5% per year upon achieving a 90% funding ratio to a fixed rate of 1.0% for five years (beginning January 1, 2019) and 1.5% per year thereafter.
- The augmentation adjustment in early retirement factors was eliminated over a five-year period starting July 1, 2019, resulting in actuarial equivalence after June 30, 2024.
- Member contributions were changed from 5.50% to 5.75% of payroll, effective July 1, 2018 and 6.00% of payroll, effective July 1, 2019.

GRS

Actuary's Certification Letter

- Employer contributions were changed from 5.50% to 5.875% of payroll, effective July 1, 2018 and 6.25% of payroll, effective July 1, 2019.
- For retirements on or after January 1, 2024, the first benefit increase is delayed until the retiree reaches Normal Retirement Age.

The following additional changes were recognized for the SPRF:

- Post-retirement benefit increases were changed from 1.0% per year, increasing to 2.5% per year upon achieving a 90% funding ratio to a fixed rate of 1.0% per year.
- Member contributions were increased from 14.4% of payroll to 15.4% of payroll over three years, effective July 1, 2018.
- Regular employer contributions were increased from 21.6% of payroll to 23.1% of payroll over two years, effective July 1, 2018.
- Supplemental employer contributions totaling 7.0% of pay will be phased-in through fiscal year 2022; the supplemental employer contributions remain in effect until the plan is 100% funded.
- An end date of July 1, 2048 was added for the $1 million state contributions.

The following additional changes were recognized for the CERF:

- Post-retirement benefit increases were changed from 2.0% per year, increasing to 2.5% per year upon achieving a 90% funding ratio to a fixed rate of 1.50% per year.
- Member contributions were increased from 9.10% of pay to 9.60% of pay, effective July 1, 2018.
- Regular employer contributions were increased from 12.85% to 14.40%, effective July 1, 2018.
- Supplemental employer contributions of 4.45% will be phased-in over three years beginning July 1, 2019; the supplemental employer contributions remain in effect until the plan is 100% funded.

The following additional changes were recognized for the JRF:

- The assumed benefit increase was changed from 1.75% per year through 2038, 2.00% per year from 2039 to 2053 and 2.50% thereafter to 1.75% per year through 2037, 2.00% per year from 2038 to 2051 and 2.50% thereafter.
- An end date of July 1, 2048 was added for the $6 million state contribution.

The following additional changes were recognized for the LRF:

- Post-retirement benefit increases were changed from 2.0% per year, increasing to 2.5% per year upon achieving a 90% funding ratio to a fixed rate of 1.0% for five years (beginning January 1, 2019) and 1.5% per year thereafter.
- For retirements on or after January 1, 2024, the first benefit increase is delayed until the retiree reaches Normal Retirement Age.

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GRS performed a basic review of the basic financial and membership data provided to us as of June 30, 2018 by MSRS, and determined that the data appears reasonable in comparison to last year. We did not audit the data. 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).

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:sc

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

As of and For the Year Ended June 30, 2018
(Dollars in thousands)

	State Employees Retirement Fund
Actuarial Valuation Date	June 30, 2018
Measurement Date of the Net Pension Liability	June 30, 2018
Net Pension Liability	
Total Pension Liability	$14,679,489
Fiduciary Net Position	13,293,422
Net Pension Liability	$1,386,067
Fiduciary Net Position as a percentage of Total Pension Liability	90.56%
Deferred Outflows (Inflows) of Resources	
Deferred Outflows (Inflows) of Resources Arising from the Current Reporting Period due to:	
Differences Between Expected and Actual Experience	$(8,132)
Assumption Changes	(4,219,074)
Differences Between Expected and Actual Earnings on Investments	(357,707)
Total Pension Expense (Income)	$(1,661,668)
Single Discount Rate	
Long-Term Expected Rate of Investment Return	7.50%
Long-Term Municipal Bond Rate	3.62
Single Discount Rate	7.50
Last fiscal year for which projected benefits are fully funded (using a 100-year projection)	2118

State Patrol Retirement Fund	Correctional Employees Retirement Fund	Judges Retirement Fund	Legislators Retirement Fund
June 30, 2018	June 30, 2018	June 30, 2018	June 30, 2018
June 30, 2018	June 30, 2018	June 30, 2018	June 30, 2018
$930,408	$1,490,521	$377,925	$139,367
729,799	1,114,887	201,755	0
$200,609	$375,634	$176,170	$139,367
78.44%	74.80%	53.38%	0.00%
$(8,369)	$(3,499)	$1,424	$6,119
(126,888)	(617,840)	0	(856)
(19,814)	(29,009)	(5,479)	0
$19,262	$(137,391)	$4,723	$767
7.50%	7.50%	7.50%	7.50%
3.62	3.62	3.62	3.62
7.50	7.50	7.50	3.62
2118	2118	2118	NA

Other Information

- Details regarding the Net Pension Liability may be found in *Required Supplementary Information* on pages 83-95 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 81.
- 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, 2018
(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	$(8,132)
Recognition Period: Average of the expected remaining service lives of all employees	5 years
Deferred Outflows (Inflows) of Resources to be recognized in the current pension expense	$(1,626)
Deferred Outflows (Inflows) of Resources to be recognized in the future pension expense	$(6,506)
Deferred Outflows (Inflows) of Resources Due to Changes in Actuarial Assumptions	
Total Assumption Change (Gains) or Losses	$(4,219,074)
Recognition Period: Average of the expected remaining service lives of all employees	5 years
Deferred Outflows (Inflows) of Resources to be recognized in the current pension expense	$(843,815)
Deferred Outflows (Inflows) of Resources to be recognized in the future pension expense	$(3,375,259)
Deferred Outflows (Inflows) of Resources Due to Differences Between Expected and Actual Earnings on Pension Plan Investments	
Total Difference between between projected and actual earnings on pension plan investments	$(357,707)
Recognition Period	5 years
Deferred Outflows (Inflows) of Resources to be recognized in the current pension expense	$(71,541)
Deferred Outflows (Inflows) of Resources to be recognized in the future pension expense	$(286,166)

	State Patrol Retirement Fund	Correctional Employees Retirement Fund	Judges Retirement Fund	Legislators Retirement Fund
	$(8,369)	$(3,499)	$1,424	$6,119
	6 years	5 years	5 years	1 year
	$(1,395)	$(700)	$285	$6,119
	$(6,974)	$(2,799)	$1,139	$0
	$(126,888)	$(617,840)	$0	$(856)
	6 years	5 years	5 years	1 year
	$(21,148)	$(123,568)	$0	$(856)
	$(105,740)	$(494,272)	$0	$0
	$(19,814)	$(29,009)	$(5,479)	$0
	5 years	5 years	5 years	5 years
	$(3,963)	$(5,802)	$(1,096)	$0
	$(15,851)	$(23,207)	$(4,383)	$0

Summary of Pension Expense (Income)

For the Year Ended June 30, 2018
(Dollars in thousands)

	State Employees Retirement Fund
Service Cost	$455,709
Interest on the Total Pension Liability	1,069,154
Current-Period Benefit Changes	(1,711,128)
Employee Contributions	(166,726)
Projected Earnings on Plan Investments	(918,843)
Pension Plan Administrative Expenses	9,564
Other Changes in Fiduciary Net Position	(20,423)
Recognition of Outflow (Inflow) of Resources Arising from the Current Reporting Period due to:	
Difference between expected and actual experience in the measurement of the Total Pension Liability	(1,626)
Assumption Changes	(843,815)
Difference between projected and actual earnings on pension plan investments	(71,541)
Recognition of Outflow (Inflow) of Resources Arising from Prior Reporting Periods due to:	
Difference between expected and actual experience in the measurement of the Total Pension Liability	(93,269)
Assumption Changes	748,562
Difference between projected and actual earnings on pension plan investments	(117,286)
Total Pension Expense (Income)	**$(1,661,668)**

State Patrol Retirement Fund	Correctional Employees Retirement Fund	Judges Retirement Fund	Legislators Retirement Fund
$24,935	$85,364	$9,857	$437
65,110	108,421	26,746	5,094
(2,604)	(164,182)	0	(9,839)
(10,657)	(23,417)	(3,973)	(93)
(50,660)	(76,254)	(13,786)	0
184	827	66	37
7	2	0	0
(1,395)	(700)	285	6,119
(21,148)	(123,568)	0	(856)
(3,963)	(5,802)	(1,096)	0
(7,212)	3,030	578	0
33,492	67,900	(12,166)	0
(6,827)	(9,012)	(1,788)	(132)
$19,262	**$(137,391)**	**$4,723**	**$767**

Summary of Actuarial Methods and Assumptions

For the Year Ended June 30, 2018

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 (Judges Plan only):

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 2038 through 2051, and a 2.5 percent increase thereafter.

[(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 of 7.50 percent and statutory salary increases of 2.50 percent)
- 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

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 133-147 of this section. Only the assumptions that differ are listed below, and the funds to which they pertain are noted parenthetically.

1. Single Discount Rate as of the June 30, 2018 Measurement Date:	7.50 percent (State Employees, State Patrol, Correctional Employees, Judges) 3.62 percent (Legislators)

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Statistical Section

MSRS 2018 Comprehensive Annual Financial Report

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 age, as well as service credit over a 10-year period. The *Schedule of New Retirees and*

Schedule of Changes in Fiduciary Net Position

For the Ten Fiscal Years EndedJune 30, 2018

(Dollars in thousands)

State Employees Retirement Fund

	2009	2010	2011	2012
Additions				
Plan Member Contributions	$108,866	$115,181	$122,029	$118,358
Employer Contributions	107,211	113,716	118,563	115,159
Investment Income (Net of Expenses)	(1,674,387)	1,040,873	1,764,307	213,887
Other Additions	15,246	14,939	24,975	24,677
Total Additions	$(1,443,064)	$1,284,709	$2,029,874	$472,081
Deductions				
Annuity Benefits	$445,792	$473,447	$505,573	$552,088
Refunds	10,907	9,733	14,206	11,573
Administrative Expenses	5,320	5,771	6,064	6,341
Other Expenses	939	345	325	219
Total Deductions	$462,958	$489,296	$526,168	$570,221
Change in Fiduciary Net Position	**$(1,906,022)**	**$795,413**	**$1,503,706**	**$(98,140)**

Introduction

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, 2018, 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.

	2013	2014	2015	2016	2017	2018
	$124,150	$131,033	$149,293	$153,854	$161,670	$166,726
	121,673	128,037	146,333	151,168	158,352	164,233
	1,275,308	1,829,621	501,185	(9,633)	1,667,562	1,276,550
	21,565	21,014	30,401	20,751	47,702	21,447
	$1,542,696	$2,109,705	$827,212	$316,140	$2,035,286	$1,628,956
	$586,256	$623,942	$665,821	$707,361	$750,526	$797,027
	12,222	11,986	12,026	13,345	11,576	13,533
	8,589	8,125	8,719	10,196	10,165	9,564
	227	486	931	492	470	1,024
	$607,294	$644,539	$687,497	$731,394	$772,737	$821,148
	$935,402	**$1,465,166**	**$139,715**	**$(415,254)**	**$1,262,549**	**$807,808**

Schedule of Changes in Fiduciary Net Position

For the Ten Fiscal Years EndedJune 30, 2018

(Dollars in thousands)

State Patrol Retirement Fund

	2009	2010	2011	2012
Additions				
Plan Member Contributions	$6,216	$6,726	$6,578	$7,753
Employer Contributions	9,178	10,104	9,873	11,620
Investment Income (Net of Expenses)	(110,073)	68,184	110,908	12,744
Other Additions	13	41	0	0
Total Additions	$(94,666)	$85,055	$127,359	$32,117
Deductions				
Annuity Benefits	$44,480	$46,119	$47,844	$50,007
Refunds	0	3	0	275
Administrative Expenses	104	123	92	158
Other Expenses	69	0	14	0
Total Deductions	$44,653	$46,245	$47,950	$50,440
Change in Fiduciary Net Position	**$(139,319)**	**$38,810**	**$79,409**	**$(18,323)**

Correctional Employees Retirement Fund

	2009	2010	2011	2012
Additions				
Plan Member Contributions	$14,031	$15,267	$17,002	$17,203
Employer Contributions	20,126	21,988	23,892	24,188
Investment Income (Net of Expenses)	(107,787)	68,880	121,413	15,926
Other Additions	40	30	19	0
Total Additions	$(73,590)	$106,165	$162,326	$57,317
Deductions				
Annuity Benefits	$33,239	$36,078	$39,116	$42,571
Refunds	1,016	1,170	1,509	1,257
Administrative Expenses	402	455	356	548
Other Expenses	150	0	8	0
Total Deductions	$34,807	$37,703	$40,989	$44,376
Change in Fiduciary Net Position	**$(108,397)**	**$68,462**	**$121,337**	**$12,941**

2013	2014	2015	2016	2017	2018
$7,703	$7,930	$9,174	$9,292	$10,520	$10,657
11,482	11,894	13,763	13,938	15,783	15,952
76,315	107,187	28,903	(774)	93,077	70,474
0	1,000	1,000	1,000	1,000	1,000
$95,500	$128,011	$52,840	$23,456	$120,380	$98,083
$52,057	$53,697	$55,465	$57,695	$58,560	$59,653
7	25	15	79	5	39
190	150	170	220	208	184
1	0	0	0	0	7
$52,255	$53,872	$55,650	$57,994	$58,773	$59,883
$43,245	**$74,139**	**$(2,810)**	**$(34,538)**	**$61,607**	**$38,200**

2013	2014	2015	2016	2017	2018
$17,561	$18,855	$21,061	$21,953	$22,648	$23,417
24,632	26,468	29,480	30,678	31,763	32,893
93,392	137,523	38,624	(195)	135,359	105,263
0	0	0	0	0	0
$135,585	$182,846	$89,165	$52,436	$189,770	$161,573
$46,226	$50,842	$54,909	$59,045	$63,221	$67,622
1,032	1,447	1,590	1,895	1,466	2,052
692	657	720	906	856	827
1	1	0	0	2	2
$47,951	$52,947	$57,219	$61,846	$65,545	$70,503
$87,634	**$129,899**	**$31,946**	**$(9,410)**	**$124,225**	**$91,070**

Schedule of Changes in Fiduciary Net Position

For the Ten Fiscal Years EndedJune 30, 2018

(Dollars in thousands)

Judges Retirement Fund

	2009	2010	2011	2012
Additions				
Plan Member Contributions	$2,978	$2,988	$3,010	$2,931
Employer Contributions	8,219	8,283	8,297	7,922
Investment Income (Net of Expenses)	(26,283)	17,339	28,644	3,341
Other Additions	0	1	0	0
Total Additions	$(15,086)	$28,611	$39,951	$14,194
Deductions				
Annuity Benefits	$16,261	$17,058	$17,585	$18,539
Refunds	0	0	30	0
Administrative Expenses	36	42	32	72
Other Expenses	16	0	1	1
Total Deductions	$16,313	$17,100	$17,648	$18,612
Change in Fiduciary Net Position	**$(31,399)**	**$11,511**	**$22,303**	**$(4,418)**

Legislators Retirement Fund [(1)]

	2009	2010	2011	2012
Additions				
Plan Member Contributions	$248	$171	$160	$124
Employer Contributions	0	0	0	0
Investment Income (Net of Expenses)	(5,021)	3,199	4,142	253
Other Additions	1,269	1,975	2,807	3,935
Total Additions	$(3,504)	$5,345	$7,109	$4,312
Deductions				
Annuity Benefits	$7,016	$7,159	$7,464	$7,721
Refunds	0	0	11	172
Administrative Expenses	26	28	22	36
Other Expenses	0	0	0	0
Total Deductions	$7,042	$7,187	$7,497	$7,929
Change in Fiduciary Net Position	**$(10,546)**	**$(1,842)**	**$(388)**	**$(3,617)**

	2013	2014	2015	2016	2017	2018
	$3,037	$3,578	$3,629	$3,763	$3,932	$3,973
	8,177	9,426	9,776	10,219	10,758	11,027
	19,943	28,011	7,572	(186)	24,729	19,265
	0	0	0	0	3,000	6,000
	$31,157	$41,015	$20,977	$13,796	$42,419	$40,265
	$19,772	$20,802	$21,893	$22,378	$22,785	$23,585
	0	0	0	0	309	0
	72	55	60	93	89	66
	1	0	0	0	0	0
	$19,845	$20,857	$21,953	$22,471	$23,183	$23,651
	$11,312	**$20,158**	**$(976)**	**$(8,675)**	**$19,236**	**$16,614**

	2013	2014	2015	2016	2017	2018
	$111	$101	$153	$89	$80	$93
	0	0	0	0	0	0
	1,763	1,750	281	(69)	0	0
	3,399	3,436	3,216	5,087	8,716	8,856
	$5,273	$5,287	$3,650	$5,107	$8,796	$8,949
	$7,826	$8,407	$8,441	$8,496	$8,716	$8,912
	101	79	0	40	0	0
	38	36	37	42	39	37
	1,338	0	0	0	0	0
	$9,303	$8,522	$8,478	$8,578	$8,755	$8,949
	$(4,030)	**$(3,235)**	**$(4,828)**	**$(3,471)**	**$41**	**$0**

(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 the following page.

Schedule of Changes in Fiduciary Net Position

For the Ten Fiscal Years EndedJune 30, 2018

(Dollars in thousands)

Elective State Officers Retirement Fund [1]

	2009	2010	2011	2012
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	442	453	460	465
Total Additions	$442	$453	$460	$465
Deductions				
Annuity Benefits	$440	$451	$459	$458
Refunds	0	0	0	0
Administrative Expenses	1	1	1	7
Other Expenses	0	0	0	0
Total Deductions	$441	$452	$460	$465
Change in Fiduciary Net Position	**$1**	**$1**	**$0**	**$0**

Unclassified Employees Retirement Fund

	2009	2010	2011	2012
Additions				
Plan Member Contributions	$4,660	$4,472	$5,417	$5,586
Employer Contributions	6,514	6,333	6,360	5,918
Investment Income (Net of Expenses)	(46,746)	28,860	51,977	6,622
Other Additions	426	259	311	293
Total Additions	$(35,146)	$39,924	$64,065	$18,419
Deductions				
Refunds	$5,009	$5,691	$7,799	$5,250
Administrative Expenses	229	164	174	144
Other Expenses	14,850	14,652	24,777	24,339
Total Deductions	$20,088	$20,507	$32,750	$29,733
Change in Fiduciary Net Position	**$(55,234)**	**$19,417**	**$31,315**	**$(11,314)**

	2013
	$0
	0
	0
	470
	$470
	$469
	0
	1
	0
	$470
	$0

	2013	2014	2015	2016	2017	2018
	$5,096	$5,430	$6,173	$5,810	$6,635	$6,407
	5,867	6,099	6,256	6,187	6,945	7,421
	36,246	49,457	14,839	4,673	37,605	30,779
	139	147	1,102	682	623	1,147
	$47,348	$61,133	$28,370	$17,352	$51,808	$45,754
	$6,197	$7,496	$8,461	$6,751	$4,068	$4,790
	144	140	125	155	148	127
	21,155	21,001	30,451	20,743	47,775	21,511
	$27,496	$28,637	$39,037	$27,649	$51,991	$26,428
	$19,852	**$32,496**	**$(10,667)**	**$(10,297)**	**$(183)**	**$19,326**

[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 the preceding page.

Schedule of Changes in Fiduciary Net Position

For the Ten Fiscal Years EndedJune 30, 2018

(Dollars in thousands)

Health Care Savings Fund

	2009	2010	2011	2012
Additions				
Plan Member Contributions	$82,920	$90,445	$132,526	$128,375
Investment Income (Net of Expenses)	(13,942)	13,032	26,499	4,445
Other Additions	1,438	63	1,989	2,422
Total Additions	$70,416	$103,540	$161,014	$135,242
Deductions				
Health Care Reimbursements	$31,088	$35,613	$44,740	$58,987
Administrative Expenses	1,523	1,388	794	1,296
Other Expenses	0	743	1,396	855
Total Deductions	$32,611	$37,744	$46,930	$61,138
Change in Fiduciary Net Position	**$37,805**	**$65,796**	**$114,084**	**$74,104**

Minnesota Deferred Compensation Fund

	2009	2010	2011	2012
Additions				
Plan Member Contributions	$217,415	$228,190	$222,031	$216,010
Investment Income (Net of Expenses)	(547,303)	308,697	652,762	85,400
Other Income	3,788	2,305	5,819	4,480
Total Additions	$(326,100)	$539,192	$880,612	$305,890
Deductions				
Ongoing Withdrawals	$35,222	$30,353	$28,549	$29,615
Refunds	106,009	114,889	162,756	170,442
Administrative Expenses	3,004	2,726	3,370	2,762
Other Expenses	3,409	1,715	1,630	1,745
Total Deductions	$147,644	$149,683	$196,305	$204,564
Change in Fiduciary Net Position	**$(473,744)**	**$389,509**	**$684,307**	**$101,326**

	2013	2014	2015	2016	2017	2018
	$112,359	$116,971	$130,894	$130,016	$138,807	$140,286
	28,116	50,333	18,678	7,485	65,084	63,676
	2,789	3,610	3,673	3,959	4,220	4,850
	$143,264	$170,914	$153,245	$141,460	$208,111	$208,812
	$62,482	$64,762	$67,688	$71,541	$74,686	$79,448
	1,506	1,838	2,048	2,290	2,559	2,800
	941	4,600	5,250	6,316	7,051	7,471
	$64,929	$71,200	$74,986	$80,147	$84,296	$89,719
	$78,335	**$99,714**	**$78,259**	**$61,313**	**$123,815**	**$119,093**

	2013	2014	2015	2016	2017	2018
	$229,187	$234,805	$246,013	$240,934	$270,665	$283,558
	642,247	748,675	238,537	55,177	665,340	560,524
	4,237	5,320	4,857	4,897	3,839	4,320
	$875,671	$988,800	$489,407	$301,008	$939,844	$848,402
	$28,961	$29,754	$33,205	$42,472	$41,524	$49,160
	192,774	218,492	262,855	232,986	255,567	277,223
	2,959	3,372	3,463	3,522	3,444	2,975
	1,721	3,851	3,998	3,582	4,939	6,356
	$226,415	$255,469	$303,521	$282,562	$305,474	$335,714
	$649,256	**$733,331**	**$185,886**	**$18,446**	**$634,370**	**$512,688**

Schedule of Changes in Fiduciary Net Position

For the Ten Fiscal Years EndedJune 30, 2018

(Dollars in thousands)

Hennepin County Supplemental Retirement Fund

	2009	2010	2011	2012
Additions				
Plan Member Contributions	$570	$514	$467	$458
Employer Contributions	570	515	466	459
Investment Income (Net of Expenses)	(20,951)	12,288	21,710	3,919
Other Income	34	48	49	49
Total Additions	$(19,777)	$13,365	$22,692	$4,885
Deductions				
Ongoing Withdrawals	$4,260	$3,514	$4,069	$2,807
Refunds	322	2,244	2,490	3,933
Administrative Expenses	5	17	11	17
Other Expenses	32	35	39	33
Total Deductions	$4,619	$5,810	$6,609	$6,790
Change in Fiduciary Net Position	**$(24,396)**	**$7,555**	**$16,083**	**$(1,905)**

	2013	2014	2015	2016	2017	2018
	$227	$270	$235	$197	$160	$133
	228	270	231	197	160	133
	15,968	22,473	7,450	2,296	17,757	15,677
	52	57	83	86	90	95
	$16,475	$23,070	$7,999	$2,776	$18,166	$16,038
	$4,225	$5,182	$6,130	$4,665	$5,396	$6,500
	2,491	1,933	1,911	3,174	3,434	3,302
	16	27	25	25	21	21
	37	87	134	141	155	165
	$6,769	$7,229	$8,200	$8,005	$9,006	$9,988
	$9,706	**$15,841**	**$(201)**	**$(5,229)**	**$9,160**	**$6,050**

Schedule of Revenues by Source

For the Ten Fiscal Years EndedJune 30, 2018

(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								
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	
2018	166,726	164,233	1,276,550	21,447	1,628,956	3,031,382	5.88	
State Patrol Retirement Fund								
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)
2018	10,657	15,952	70,474	1,000	98,083	74,007	24.10	(2)
Correctional Employees Retirement Fund								
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	
2018	23,417	32,893	105,263	0	161,573	257,330	14.40	

Fiscal Year Ended June 30	Employee Contributions	Employer Contributions	Investment Income	Other Income	Total	Actual Covered Payroll	Percentage Employer Contributions (1)	
Judges Retirement Fund								
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)
2018	3,973	11,027	19,265	6,000	40,265	49,009	22.50	(3)
Legislators Retirement Fund (4)								
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	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	
2018	93	N/A	0	8,856	8,949	1,033	N/A	
Elective State Officers Retirement Fund (4)								
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.

Schedule of Expenses by Type

For the Ten Fiscal Years EndedJune 30, 2018

(Dollars in thousands)

Fiscal Year Ended June 30	Annuity Benefits	Administrative Expenses	Refunds	Other Expenses	Total
State Employees Retirement Fund					
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
2018	797,027	9,564	13,533	1,024	821,148
State Patrol Retirement Fund					
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
2018	59,653	184	39	7	59,883
Correctional Employees Retirement Fund					
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
2018	67,622	827	2,052	2	70,503

Fiscal Year Ended June 30	Annuity Benefits	Administrative Expenses	Refunds	Other Expenses	Total
Judges Retirement Fund					
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
2018	23,585	66	0	0	23,651
Legislators Retirement Fund					
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
2018	8,912	37	0	0	8,949
Elective State Officers Retirement Fund					
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

Schedule of Benefits and Refunds by Type

For the Ten Fiscal Years EndedJune 30, 2018
(Dollars in thousands)

State Employees Retirement Fund

	2009	2010	2011	2012
Benefits by Type				
Retirement	$377,343	$400,703	$428,731	$471,881
Survivor	47,345	50,822	54,029	56,585
Disability	21,104	21,922	22,813	23,622
Total	**$445,792**	**$473,447**	**$505,573**	**$552,088**
Refunds by Type				
Separation	$5,484	$5,556	$7,329	$6,683
Death	1,478	756	948	781
Interest	3,945	3,421	5,929	4,109
Total	**$10,907**	**$9,733**	**$14,206**	**$11,573**

State Patrol Retirement Fund

	2009	2010	2011	2012
Benefits by Type				
Retirement	$37,167	$38,560	$40,246	$42,435
Survivor	5,560	5,600	5,562	5,528
Disability	1,753	1,959	2,036	2,044
Total	**$44,480**	**$46,119**	**$47,844**	**$50,007**
Refunds by Type				
Separation	$0	$3	$0	$1
Death	0	0	0	138
Interest	0	0	0	136
Total	**$0**	**$3**	**$0**	**$275**

Correctional Employees Retirement Fund

	2009	2010	2011	2012
Benefits by Type				
Retirement	$28,167	$30,637	$33,062	$35,906
Survivor	1,515	1,618	1,793	2,037
Disability	3,557	3,823	4,261	4,628
Total	**$33,239**	**$36,078**	**$39,116**	**$42,571**
Refunds by Type				
Separation	$724	$758	$1,100	$1,007
Death	64	62	19	24
Interest	228	350	390	226
Total	**$1,016**	**$1,170**	**$1,509**	**$1,257**

2013	2014	2015	2016	2017	2018
$502,520	$536,403	$574,893	$613,101	$653,158	$696,294
59,150	62,122	65,000	67,674	70,400	73,168
24,586	25,417	25,928	26,586	26,968	27,565
$586,256	**$623,942**	**$665,821**	**$707,361**	**$750,526**	**$797,027**
$7,309	$7,227	$7,207	$7,390	$7,191	$8,175
618	829	1,653	2,037	1,376	1,906
4,295	3,930	3,166	3,918	3,009	3,452
$12,222	**$11,986**	**$12,026**	**$13,345**	**$11,576**	**$13,533**

2013	2014	2015	2016	2017	2018
$44,296	$45,737	$47,363	$49,727	$50,677	$51,439
5,598	5,612	5,590	5,453	5,434	5,568
2,163	2,348	2,512	2,515	2,449	2,646
$52,057	**$53,697**	**$55,465**	**$57,695**	**$58,560**	**$59,653**
$5	$24	$14	$73	$4	$35
0	0	0	0	0	0
2	1	1	6	1	4
$7	**$25**	**$15**	**$79**	**$5**	**$39**

2013	2014	2015	2016	2017	2018
$39,120	$43,087	$46,700	$50,313	$54,178	$58,272
2,197	2,519	2,806	3,106	3,277	3,435
4,909	5,236	5,403	5,626	5,766	5,915
$46,226	**$50,842**	**$54,909**	**$59,045**	**$63,221**	**$67,622**
$818	$1,058	$1,311	$1,516	$1,186	$1,651
27	107	21	73	53	95
187	282	258	306	227	306
$1,032	**$1,447**	**$1,590**	**$1,895**	**$1,466**	**$2,052**

Schedule of Benefits and Refunds by Type

For the Ten Fiscal Years EndedJune 30, 2018
(Dollars in thousands)

Judges Retirement Fund

	2009	2010	2011	2012
Benefits by Type				
Retirement	$10,528	$10,996	$11,525	$12,279
Survivor	3,906	4,202	4,195	4,521
Disability	1,827	1,860	1,865	1,739
Total	**$16,261**	**$17,058**	**$17,585**	**$18,539**
Refunds by Type				
Separation	$0	$0	$27	$0
Death	0	0	0	0
Interest	0	0	3	0
Total	**$0**	**$0**	**$30**	**$0**

Legislators Retirement Fund

	2009	2010	2011	2012
Benefits by Type[1]				
Retirement	$5,983	$6,007	$6,231	$6,420
Survivor	1,033	1,152	1,233	1,301
Total	**$7,016**	**$7,159**	**$7,464**	**$7,721**
Refunds by Type				
Separation	$0	$0	$5	$73
Death	0	0	0	0
Interest	0	0	6	99
Total	**$0**	**$0**	**$11**	**$172**

Elective State Officers Retirement Fund

	2009	2010	2011	2012
Benefits by Type[1]				
Retirement	$348	$357	$353	$337
Survivor	92	94	106	121
Total	**$440**	**$451**	**$459**	**$458**

Refunds by Type

There were no refunds for the past ten years.

	2013	2014	2015	2016	2017	2018
	$13,415	$14,700	$15,874	$16,650	$17,328	$18,372
	4,624	4,363	4,307	4,113	4,211	4,138
	1,733	1,739	1,712	1,615	1,246	1,075
	$19,772	**$20,802**	**$21,893**	**$22,378**	**$22,785**	**$23,585**
	$0	$0	$0	$0	$17	$0
	0	0	0	0	291	0
	0	0	0	0	1	0
	$0	**$0**	**$0**	**$0**	**$309**	**$0**

	2013	2014	2015	2016	2017	2018
	$6,565	$7,032	$6,987	$7,114	$7,269	$7,205
	1,261	1,375	1,454	1,382	1,447	1,707
	$7,826	**$8,407**	**$8,441**	**$8,496**	**$8,716**	**$8,912**
	$34	$0	$0	$0	$0	$0
	0	58	0	16	0	0
	67	21	0	24	0	0
	$101	**$79**	**$0**	**$40**	**$0**	**$0**

	2013
	$345
	124
	$469

(1) The Legislators and Elective State Officers Retirement Funds do not provide disability benefits.

Active Members Average Age Tables

For the Ten Fiscal Years EndedJune 30, 2018
(In Years)

Fiscal Year Ended	Averages for New Members: Entry Age Male	Female	Total	Averages for All Members: Entry Age Male	Female	Total	Attained Age Male	Female	Total	Service Credit Male	Female	Total
State Employees Retirement Fund												
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
06/30/18	36.4	35.0	35.6	35.1	34.1	34.5	47.1	46.2	46.6	11.4	10.9	11.1
State Patrol Retirement Fund												
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
06/30/18	32.0	29.9	31.5	29.5	29.7	29.5	40.6	39.9	40.6	11.2	10.2	11.1

Fiscal Year Ended	Averages for New Members: Entry Age Male	Female	Total	Averages for All Members: Entry Age Male	Female	Total	Attained Age Male	Female	Total	Service Credit Male	Female	Total
Correctional Employees Retirement Fund												
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
06/30/18	33.2	33.2	33.1	31.7	33.2	32.3	41.6	40.7	41.2	9.7	7.2	8.8
Judges Retirement Fund												
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
06/30/18	48.7	44.9	47.0	47.9	45.2	46.7	58.1	54.3	56.3	10.1	8.5	9.4

These statistics are not available for the Legislators Retirement Fund.

Schedule of Retired Members by Type of Benefit

As of June 30, 2018

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	8,668	7,499	352	817	4,961	3,207	255	245
$500-$999	6,979	5,693	458	828	3,601	3,002	223	153
$1,000-$1,499	6,044	4,896	396	752	2,999	2,820	145	80
$1,500-$1,999	5,074	4,230	315	529	2,363	2,546	94	71
$2,000-$2,499	4,533	3,963	165	405	1,882	2,539	66	46
$2,500-$2,999	3,335	2,988	86	261	1,440	1,830	34	31
$3,000-$3,499	2,372	2,158	36	178	968	1,360	23	21
$3,500-$3,999	1,551	1,446	8	97	585	939	11	16
$4,000-$4,499	937	851	7	79	365	567	2	3
$4,500-$4,999	580	532	2	46	218	354	6	2
$5,000+	753	681	1	71	293	443	5	12
Totals	**40,826**	**34,937**	**1,826**	**4,063**	**19,675**	**19,607**	**864**	**680**

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	21	18	0	3	11	8	2	0
$500-$999	22	10	2	10	4	10	7	1
$1,000-$1,499	37	23	0	14	14	17	6	0
$1,500-$1,999	22	14	3	5	8	14	0	0
$2,000-$2,499	53	26	2	25	9	38	5	1
$2,500-$2,999	70	29	6	35	19	44	7	0
$3,000-$3,499	70	50	6	14	18	49	2	1
$3,500-$3,999	94	64	19	11	36	56	2	0
$4,000-$4,499	71	57	7	7	20	49	1	1
$4,500-$4,999	116	103	4	9	35	79	2	0
$5,000+	495	468	10	17	202	289	4	0
Totals	**1,071**	**862**	**59**	**150**	**376**	**653**	**38**	**4**

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 1	2	3	Option Selected Life	I	II	III
$0-$499	468	403	17	48	244	196	22	6
$500-$999	555	489	12	54	272	256	20	7
$1,000-$1,499	535	394	95	46	258	258	14	5
$1,500-$1,999	498	380	86	32	234	255	3	6
$2,000-$2,499	392	319	53	20	143	236	9	4
$2,500-$2,999	308	276	19	13	121	183	2	2
$3,000-$3,499	173	158	9	6	65	105	2	1
$3,500-$3,999	159	151	5	3	63	96	0	0
$4,000-$4,499	67	65	0	2	20	47	0	0
$4,500-$4,999	59	57	1	1	22	36	0	1
$5,000+	45	44	0	1	13	32	0	0
Totals	**3,259**	**2,736**	**297**	**226**	**1,455**	**1,700**	**72**	**32**

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 1	2	3	Life	I	II	III
$0-$499	0	0	0	0	0	0	0	0
$500-$999	3	1	0	2	0	2	1	0
$1,000-$1,499	3	3	0	0	0	3	0	0
$1,500-$1,999	12	10	0	2	4	5	2	1
$2,000-$2,499	14	6	1	7	5	8	1	0
$2,500-$2,999	23	14	0	9	5	16	2	0
$3,000-$3,499	21	12	0	9	3	15	3	0
$3,500-$3,999	25	12	1	12	4	19	2	0
$4,000-$4,499	24	12	2	10	7	16	1	0
$4,500-$4,999	27	21	1	5	5	19	3	0
$5,000+	217	181	11	25	54	152	7	4
Totals	**369**	**272**	**16**	**81**	**87**	**255**	**22**	**5**

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 1	Retirement Type 2	Option Selected Life	Option Selected I	Option Selected II
$0-$499	20	15	5	11	5	4
$500-$999	71	49	22	29	21	19
$1,000-$1,499	78	59	19	42	21	11
$1,500-$1,999	66	55	11	30	28	8
$2,000-$2,499	44	38	6	21	18	5
$2,500-$2,999	24	24	0	14	10	0
$3,000-$3,499	20	15	5	8	9	2
$3,500-$3,999	14	11	3	10	1	2
$4,000-$4,499	13	11	2	7	5	0
$4,500-$4,999	4	4	0	3	1	0
$5,000+	18	12	6	7	9	2
Totals	**372**	**293**	**79**	**182**	**128**	**53**

Type:

1 Retired members
2 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 of Credited Service							
		0-5	5-10	10-15	15-20	20-25	25-30	30+	Totals
Retirements During Fiscal Year									
	Average Monthly Benefit	$150	$421	$712	$1,068	$1,362	$1,744	$2,399	$1,367
2009	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
	Average Monthly Benefit	$151	$433	$683	$1,022	$1,414	$1,712	$2,416	$1,389
2010	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
	Average Monthly Benefit	$169	$452	$752	$1,159	$1,498	$1,772	$2,534	$1,527
2011	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
	Average Monthly Benefit	$179	$482	$813	$1,169	$1,551	$1,947	$2,673	$1,512
2012	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
	Average Monthly Benefit	$200	$520	$847	$1,201	$1,619	$2,024	$3,136	$1,595
2013	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
	Average Monthly Benefit	$158	$462	$850	$1,209	$1,757	$2,079	$2,724	$1,517
2014	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
	Average Monthly Benefit	$186	$509	$930	$1,245	$1,723	$2,111	$2,850	$1,650
2015	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
	Average Monthly Benefit	$195	$536	$950	$1,289	$1,742	$2,073	$2,797	$1,620
2016	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
	Average Monthly Benefit	$211	$517	$923	$1,398	$1,899	$2,244	$2,898	$1,717
2017	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
	Average Monthly Benefit	$220	$574	$1,019	$1,451	$1,868	$2,304	$3,019	$1,737
2018	Number of New Retirees	262	274	308	282	228	226	670	2,250
	Average Final Average Salary	$4,593	$4,403	$4,511	$4,848	$4,920	$5,761	$5,641	$5,053
Ten Years Ending June 30, 2018									
	Average Monthly Benefit	$182	$495	$862	$1,238	$1,637	$2,007	$2,746	$1,569
	Number of New Retirees	2,414	2,518	2,524	2,393	2,290	2,355	6,326	20,820
	Average Final Average Salary	$4,499	$3,898	$4,132	$4,328	$4,566	$4,875	$5,160	$4,613

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 of Credited Service							
		0-5	5-10	10-15	15-20	20-25	25-30	30+	Totals
Retirements During Fiscal Year									
	Average Monthly Benefit	$0	$788	$2,053	$3,471	$4,204	$4,435	$3,842	$3,793
2009	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
	Average Monthly Benefit	$444	$827	$1,889	$0	$3,652	$4,840	$4,343	$3,441
2010	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
	Average Monthly Benefit	$0	$0	$2,406	$0	$3,484	$5,083	$4,670	$4,422
2011	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
	Average Monthly Benefit	$517	$847	$2,476	$2,383	$4,187	$5,391	$6,158	$4,875
2012	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
	Average Monthly Benefit	$395	$0	$2,323	$3,202	$4,297	$4,756	$6,296	$4,596
2013	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
	Average Monthly Benefit	$323	$1,086	$2,448	$2,685	$4,672	$5,218	$5,700	$4,035
2014	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
	Average Monthly Benefit	$85	$2,226	$2,704	$3,122	$4,426	$5,841	$6,234	$4,850
2015	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
	Average Monthly Benefit	$1,145	$0	$3,599	$3,062	$3,687	$5,551	$5,135	$4,612
2016	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
	Average Monthly Benefit	$0	$1,724	$2,294	$3,944	$4,099	$4,760	$6,926	$4,788
2017	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
	Average Monthly Benefit	$0	$621	$2,469	$3,012	$4,384	$5,450	$6,864	$3,971
2018	Number of New Retirees	0	2	6	9	6	5	5	33
	Average Final Average Salary	$0	$5,787	$7,040	$6,925	$7,494	$7,195	$7,729	$7,143
Ten Years Ending June 30, 2018									
	Average Monthly Benefit	$437	$1,078	$2,387	$3,093	$4,102	$5,175	$5,569	$4,362
	Number of New Retirees	12	15	29	32	64	102	106	360
	Average Final Average Salary	$6,039	$5,879	$6,521	$6,560	$6,724	$6,994	$6,890	$6,760

Correctional Employees Retirement Fund

		Years of Credited Service							
		0-5	5-10	10-15	15-20	20-25	25-30	30+	Totals
Retirements During Fiscal Year									
	Average Monthly Benefit	$343	$822	$1,318	$1,567	$2,315	$3,003	$3,458	$1,671
2009	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
	Average Monthly Benefit	$440	$812	$1,386	$1,583	$2,416	$2,611	$3,101	$1,494
2010	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
	Average Monthly Benefit	$282	$745	$1,329	$1,601	$2,505	$3,157	$4,264	$1,623
2011	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
	Average Monthly Benefit	$296	$645	$1,050	$1,575	$1,884	$2,571	$3,248	$1,289
2012	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
	Average Monthly Benefit	$267	$630	$1,178	$1,769	$2,031	$2,679	$3,136	$1,386
2013	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
	Average Monthly Benefit	$272	$700	$1,266	$1,558	$1,957	$2,454	$3,099	$1,441
2014	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
	Average Monthly Benefit	$233	$790	$1,243	$1,669	$2,026	$2,715	$2,966	$1,648
2015	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
	Average Monthly Benefit	$275	$761	$1,164	$1,536	$2,034	$2,518	$3,352	$1,438
2016	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
	Average Monthly Benefit	$345	$953	$1,114	$1,896	$2,255	$2,827	$3,684	$1,598
2017	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
	Average Monthly Benefit	$289	$781	$1,198	$1,821	$2,249	$2,753	$4,135	$1,675
2018	Number of New Retirees	24	19	54	27	24	29	11	188
	Average Final Average Salary	$5,114	$5,042	$5,083	$4,994	$5,209	$5,673	$6,232	$5,244
Ten Years Ending June 30, 2018									
	Average Monthly Benefit	$308	$754	$1,212	$1,665	$2,131	$2,773	$3,333	$1,529
	Number of New Retirees	273	305	302	282	243	186	138	1,729
	Average Final Average Salary	$4,718	$4,509	$4,501	$4,522	$4,762	$5,135	$5,346	$4,712

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

Judges Retirement Fund

		Years of Credited Service							
		0-5	5-10	10-15	15-20	20-25	25-30	30+	Totals
Retirements During Fiscal Year									
	Average Monthly Benefit	$0	$0	$4,538	$4,698	$4,539	$0	$0	$4,594
2009	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
	Average Monthly Benefit	$0	$1,347	$3,383	$4,880	$5,975	$0	$0	$5,387
2010	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
	Average Monthly Benefit	$0	$2,005	$2,369	$4,743	$5,416	$0	$0	$4,626
2011	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
	Average Monthly Benefit	$0	$1,673	$3,451	$5,443	$6,324	$0	$0	$4,898
2012	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
	Average Monthly Benefit	$807	$0	$3,087	$4,980	$6,216	$0	$0	$5,354
2013	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
	Average Monthly Benefit	$0	$1,104	$3,423	$5,464	$6,914	$0	$0	$5,568
2014	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
	Average Monthly Benefit	$0	$2,176	$3,904	$4,999	$6,870	$0	$0	$5,495
2015	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
	Average Monthly Benefit	$0	$2,479	$3,834	$5,135	$7,648	$0	$0	$5,740
2016	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
	Average Monthly Benefit	$0	$3,029	$3,505	$4,836	$6,902	$0	$0	$4,840
2017	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
	Average Monthly Benefit	$0	$2,032	$4,171	$5,965	$7,407	$0	$0	$5,664
2018	Number of New Retirees	0	3	6	8	10	0	0	27
	Average Final Average Salary	$0	$9,997	$11,848	$11,971	$11,308	$0	$0	$11,479
Ten Years Ending June 30, 2018									
	Average Monthly Benefit	$807	$2,126	$3,545	$5,186	$6,473	$0	$0	$5,277
	Number of New Retirees	1	14	34	42	93	0	0	184
	Average Final Average Salary	$10,472	$9,931	$10,570	$11,006	$10,623	$0	$0	$10,647

Legislators Retirement Fund

		Years of Credited Service							
		0-5	5-10	10-15	15-20	20-25	25-30	30+	Totals
Retirements During Fiscal Year									
	Average Monthly Benefit	$739	$1,209	$1,240	$1,546	$2,200	$3,373	$0	$1,531
2009	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
	Average Monthly Benefit	$396	$2,187	$1,001	$1,471	$5,026	$3,373	$0	$1,670
2010	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
	Average Monthly Benefit	$0	$1,700	$1,552	$1,837	$1,999	$2,226	$2,451	$1,765
2011	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
	Average Monthly Benefit	$0	$1,235	$1,444	$2,481	$0	$0	$0	$1,621
2012	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
	Average Monthly Benefit	$664	$0	$2,518	$2,439	$1,851	$3,232	$3,290	$2,347
2013	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
	Average Monthly Benefit	$0	$1,008	$1,490	$0	$0	$6,118	$0	$1,888
2014	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
	Average Monthly Benefit	$831	$0	$1,681	$2,220	$1,979	$0	$0	$1,679
2015	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
	Average Monthly Benefit	$0	$2,335	$3,084	$2,406	$0	$0	$0	$2,727
2016	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
	Average Monthly Benefit	$485	$652	$2,150	$3,465	$0	$0	$3,767	$2,379
2017	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
	Average Monthly Benefit	$0	$1,085	$0	$3,309	$1,830	$0	$7,397	$3,386
2018	Number of New Retirees	0	1	0	2	1	0	1	5
	Average Final Average Salary	$0	$4,018	$0	$7,471	$3,383	$0	$7,149	$5,899
Ten Years Ending June 30, 2018									
	Average Monthly Benefit	$596	$1,400	$1,654	$2,595	$2,285	$3,397	$3,994	$1,956
	Number of New Retirees	7	25	38	14	11	7	6	108
	Average Final Average Salary	$6,736	$5,003	$4,203	$4,880	$3,759	$5,225	$3,549	$4,625

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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 2018 Active Employees	Fiscal Year 2018 Rank	Fiscal Year 2018 Percent of Total Active Members	Fiscal Year 2009 Active Employees	Fiscal Year 2009 Rank	Fiscal Year 2009 Percent of Total Active Members
State Employees Retirement Fund						
State of Minnesota and its component units (1)	50,881	1	99.33%	48,528	1	99.06%
All Others	342		0.67	461		0.94
Totals	51,223		100.00%	48,989		100.00%
State Patrol Retirement Fund						
State of Minnesota	921	1	100.00%	876	1	100.00%
Correctional Employees Retirement Fund						
State of Minnesota	4,645	1	99.89%	4,392	1	99.75%
All Others	5		0.11	11		0.25
Totals	4,650		100.00%	4,403		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%	48	1	100.00%

Defined Contribution Participating Employer (2)	Fiscal Year 2018 Covered Employees	Fiscal Year 2018 Rank	Fiscal Year 2018 Percent of Total Fund	Fiscal Year 2009 Covered Employees	Fiscal Year 2009 Rank	Fiscal Year 2009 Percent of Total Fund
Health Care Savings Plan						
State of Minnesota and its component units (1)	58,117	1	47.50%	26,081	1	44.89%
Hennepin County	6,998	2	5.72	1,988	2	3.42
Ramsey County	4,341	3	3.55	1,719	5	2.96
Dakota County	2,737	4	2.24	1,924	3	3.31
City of Minneapolis	2,308	5	1.88	1,817	4	3.13
Independent School District (ISD) 623 Roseville	2,027	6	1.66	1,114	7	1.92
Special School District 1 (SSD) Minneapolis	1,633	7	1.33	1,403	6	2.42
ISD 728 Elk River	1,587	8	1.30	816	10	1.40
City of Duluth	1,312	9	1.07	904	9	1.56
Douglas County Hospital	1,269	10	1.04			
Scott County				937	8	1.61
All Others	40,017		32.71	19,394		33.38
Totals	122,346		100.00%	58,097		100.00%

Defined Contribution Participating Employer [2]	Fiscal Year 2018 Covered Employees	Rank	Percent of Total Fund	Fiscal Year 2009 Covered Employees	Rank	Percent of Total Fund
Unclassified Employees Retirement Fund						
State of Minnesota and its component units [1]	3,074	1	95.56%	3,027	1	92.65%
All Others	143		4.44	240		7.35
Totals	3,217		100.00%	3,267		100.00%
Minnesota Deferred Compensation Fund						
State of Minnesota and its component units [1]	49,907	1	56.08%	43,299	1	54.37%
SSD 1 Minneapolis	4,313	2	4.85	5,475	2	6.88
Ramsey County	3,654	3	4.10	3,141	3	3.94
City of Minneapolis	3,374	4	3.79	1,132	9	1.42
Hennepin County	2,208	5	2.48	2,251	4	2.83
Anoka County	1,777	6	2.00	1,108	10	1.39
ISD 625 St. Paul	1,656	7	1.86	2,059	6	2.58
City of St. Paul	1,549	8	1.74	2,067	5	2.60
Dakota County	1,189	9	1.34	1,154	8	1.45
Hennepin County Medical Center	1,179	10	1.32			
ISD 279 Osseo				1,289	7	1.62
All Others	18,187		20.44	16,659		20.92
Totals	88,993		100.00%	79,634		100.00%
Hennepin County Supplemental Retirement Fund						
Hennepin County	984	1	77.08%	1,539	1	77.68%
Hennepin County Medical Center	292	2	22.92	442	2	22.32
Totals	1,276		100.00%	1,981		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.

MSRS **is committed** to empowering Minnesota public employees to build a strong foundation for retirement.