

# St. Paul Teachers' Retirement Fund Association

Serving the retirement needs of St. Paul Teachers since 1909



The Radio Operators – Horace Mann 1922

Aeronautics Training – Johnson Sr. High 2014

Democracy depends on Education  
Education depends on Teachers

ANNUAL REPORT

FYE 2016

# ST. PAUL TEACHERS' RETIREMENT FUND ASSOCIATION

## Annual Report

*for the fiscal year ended June 30, 2017*

*St. Paul Teachers' Retirement Fund Association  
1619 Dayton Avenue, Room 309  
Saint Paul, Minnesota 55104-6276*

*Phone 651-642-2550*

*Fax 651-642-2553*

*[www.sptrfa.org](http://www.sptrfa.org)*

**Jill E. Schurtz**

*Executive Director*

**Christine MacDonald**

*Deputy Director*

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## Mission

**P**rovide our members and their beneficiaries with retirement, survivor, and disability benefits as specified in law and the Association Articles and Bylaws.

**A**ssist our members in planning a secure retirement by providing friendly, high quality, consumer oriented service, pre-retirement education and information in a professional and cost effective manner.

**I**nvest the assets of the fund to provide the optimum return while preserving principal by controlling portfolio risk.

## SPTRFA Board of Trustees

John R. Kunz, Jr.	President
Mike McCollor	Vice President
W. Matt Bogenschultz	Secretary
Lori Borgeson	Treasurer
Feryle W. Borgeson	Trustee
Zuki Ellis	<i>Ex-Officio</i> Trustee
Michael McKay	Trustee
Karen A. Odegard	Trustee
James Paddock	Trustee
Stephanie Pignato	Trustee

## SPTRFA Staff

Jill E. Schurtz	Executive Director
Christine MacDonald	Deputy Director
Nancy Langer	Member Services and Outreach
Susan Nystrom*	Finance and Member Services
Rachel Pastick	Communications and Member Services
Janet Williams	Operations and Member Services
Tamera Zielinski	Administrative Assistant

\*Retired during the fiscal year.

# St. Paul Teachers' Retirement Fund Association

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## TRUSTEES & OFFICERS

Feryle W. Borgeson  
Zuki Ellis  
Michael McKay

Karen Odegard  
James Paddock  
Stephanie Pignato

John R. Kunz, Jr. .... President  
Mike McCollor ..... Vice President  
W. Matthew Bogenschultz... Secretary  
Lori Borgeson ..... Treasurer  
Jill E. Schurtz ..... Executive Director

1619 Dayton Avenue, Room 309  
Saint Paul, MN 55104-6206  
Phone (651) 642-2550  
Fax (651) 642-2553  
Online: [www.sptrfa.org](http://www.sptrfa.org)

## Letter of Transmittal

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Members of the Association:

The trustees and staff of the St. Paul Teachers' Retirement Fund Association (SPTRFA) present the Annual Financial Report for the fiscal year ended June 30, 2017, in accordance with the provisions of Minnesota Statutes § 356.20.

This report is intended to provide readers with sufficient information to make informed assessments about the organization's financial condition, fiscal activities, actuarial status, investment performance, and compliance with laws, regulations, bylaws and policies.

This is the complete Annual Report of the Association. This report is also available on the Fund's website at: [www.sptrfa.org](http://www.sptrfa.org), or by request from the SPTRFA office.

Major sections included in this report and their content are as follows:

- **Introduction**

Mission Statement, Board of Trustees, professional service relationships, and organizational structure.

- **Benefits**

Summary information regarding Plan benefit options, calculation methods, and a history of annual retirements.

- **Investments**

Fund investment returns, security holdings, and investment advisors under contract with the Association.

- **Actuarial Valuation**

Actuary's Certification Letter and various actuarial valuation sections that assess the Plan's long-term funded status and adequacy of revenues and describe relevant actuarial methods and assumptions.

- **Appendix A – State Auditor's Report**

The Office of the State Auditor audits the financial statements of the SPTRFA. However, their report for the most recent fiscal year was still pending completion at the time this report went to print.

The SPTRFA Board and staff are responsible for the safekeeping of the Association's assets, the prudent investment of those assets, and for ensuring that benefits are calculated properly and paid timely. Administrative costs are budgeted at a level sufficient to meet service needs of the members. We strive to be service providers of the first order and our administrative costs remain extremely efficient.

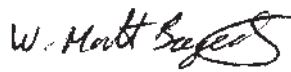
The Board and staff of the SPTRFA serve as fiduciaries on behalf of our members and their survivors and beneficiaries. We manage the assets entrusted to our care in concert with the Prudent Person Standard in Minn. Stat. § 356A.04, subd. 2, and as specified under Minn. Stat. § 356A.06, subd. 7.

With over 108 years of service to our members, the SPTRFA Board and staff remain committed to administering the affairs of the Association with the highest degree of diligence and efficiency.

Respectfully submitted,



John R. Kunz, Jr.  
President



W. Matt Bogenschultz  
Secretary



Lori Borgeson  
Treasurer



Jill E. Schurtz  
Executive Director

# **Independent Professional Service Providers As of June 30, 2017**

## **Auditor**

Minnesota Office of the State Auditor

## **Investment Managers**

Advantus Capital Management

Allianz Global Investors

Barrow, Hanley, Mewhinney & Strauss, LLC

BlackRock Institutional Trust Co.

The Boston Company Asset Management, LLC

Brandywine Global Investment Management, LLC

Corvex Management, LP

Dimensional Fund Advisors, Inc.

Dune Real Estate Partners

EnTrust Capital

Franklin Park

Guggenheim Partners Investment Management, LLC

JPMorgan Investment Management, Inc.

Morgan Stanley Investment Management, Inc.

North Sky Private Equity Partners IV

Parametric Portfolio Associates

RWI Ventures I

RWI Ventures II

Minnesota State Board of Investment

TCW Asset Management Co.

Tortoise Capital Advisors

UBS Realty Investors, LLC

Venture Investment Advisors

Wellington Management Company, LLP

## **Investment Custodian**

U.S. Bank

## **Investment Performance Consultant**

Asset Consulting Group

## **IT Services**

Sagitec

Corporate Technologies

## **Legal Counsel**

Fox Rothschild

Rice, Michels & Walther, LLP

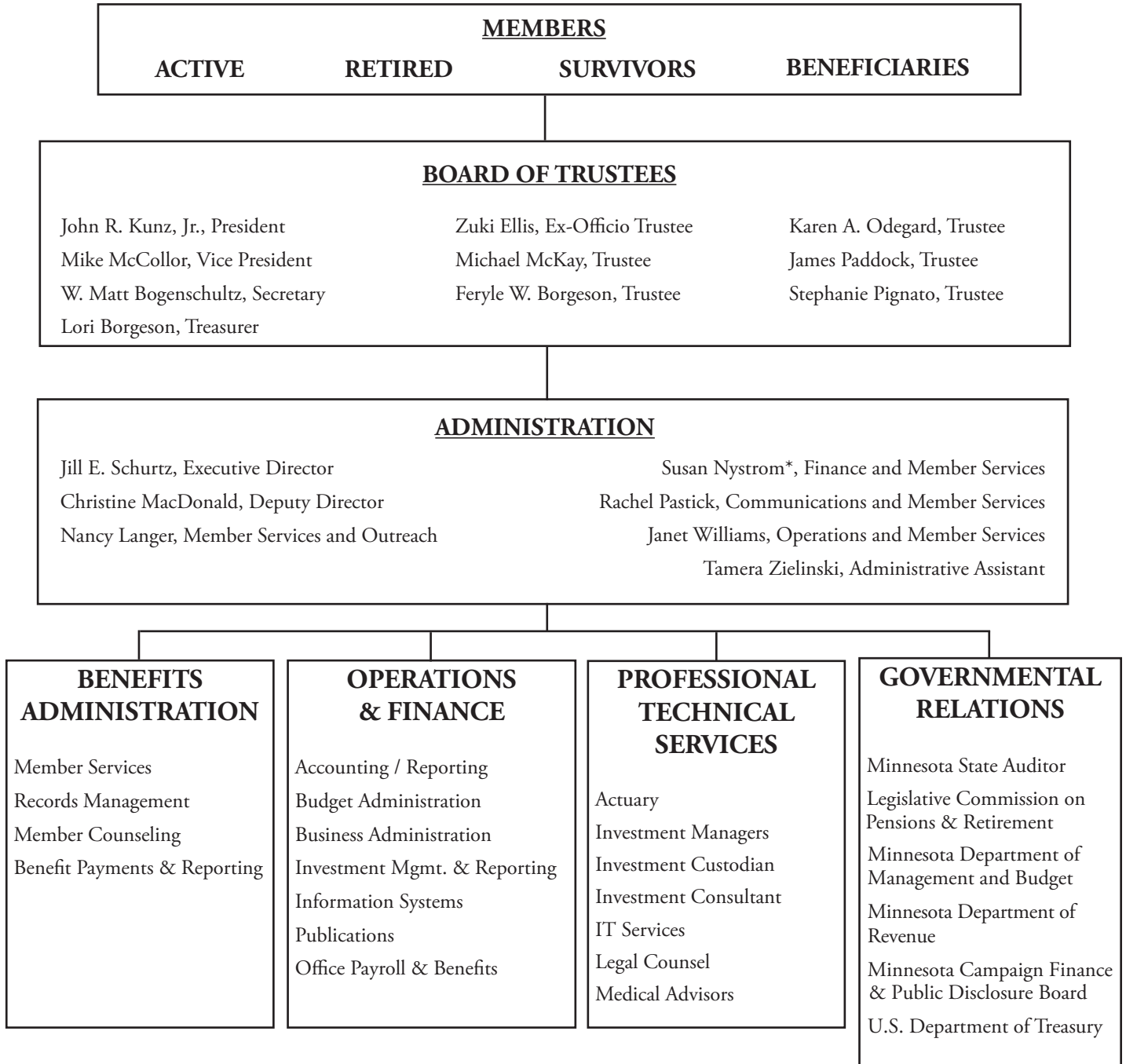
## **Medical Advisors**

Dr. Ronald Vessey M.D.

Dr. David Johnson M.D.



# Organizational Chart



\*Retired during the fiscal year.

## **BENEFITS**

## Pre-Retirement Topics

<b>Membership</b>	SPTRFA membership is mandatory upon employment in any position requiring a license issued by the MN Department of Education for employment with Saint Paul Public Schools (SPPS), St. Paul College (SPC) – if you were first employed prior to July 1, 1995, or St. Paul Charter Schools – from July 1, 1995 through June 30, 2002. Hereinafter collectively referred to as “Saint Paul Schools.”
<b>Allowable Retirement Service Credit</b>	A full year of retirement service credit is earned after 170 days are worked during each fiscal year. Partial years are calculated based on the ratio of days worked to 170 days. No more than one year of retirement service credit is allowable during any fiscal year.
<b>Definition of Salary</b>	Minnesota Statutes Chapter 354A and the Association Articles and Bylaws define salary as the entire compensation upon which member contributions are required and made.
<b>Refund of Contributions</b>	Coordinated and Basic members who resign from St. Paul Schools may apply for a refund of employee contributions, plus applicable interest. Basic Plan members must be either under Age 55 or ineligible for a pension to receive a refund of contributions.
<b>Repaying a Refund of Contributions</b>	A member who received a refund may reinstate previous retirement service credit by repaying the amount refunded plus applicable interest. Such repayments may only be made after the member has accumulated at least two years of allowable retirement service credit since the last refund was taken.
<b>Leaves of Absence</b>	Subject to certain requirements, members may purchase retirement service credit for the following Saint Paul Schools approved leaves of absence: Sabbatical, Military, Parental, Mobility, Medical, Family Medical.
<b>Service Payments</b>	Members may repay refunds or purchase SPTRFA retirement service credit by using personal savings or by transferring money from their Roth IRA or tax-sheltered retirement accounts, such as 403(b), 457, 401(k), IRAs, or from another plan qualified under 401(a).
<b>Beneficiary</b>	A beneficiary is the person or persons designated to receive a refund of employee contributions, plus applicable interest, upon the death of the member if no survivor or family benefit is payable. If no valid beneficiary designation form is on file for a member, a refund of contributions plus applicable interest will be paid to the member’s estate.
<b>Marriage Dissolution</b>	Minnesota Statutes Chapter 518 covers marriage dissolutions and requires that SPTRFA receive a copy of the petition and summons, including a copy of the affidavit of service, before any information may be released. In the event that a court order requires a division of pension benefits, a judge signed copy of a decree or domestic relations order is required. All inquiries are kept confidential. Any survivor benefit coverage ends at the dissolution of marriage.
<b>Disability Benefit</b>	Subject to certain requirements, a disability benefit is available to vested members who become totally and permanently disabled.

## Retirement Topics

<b>Basic Plan Retirement Options</b>	Basic Plan members receive a formula benefit payable for life. An automatic spousal survivor benefit is also provided. This survivor benefit coverage does not cause a reduction in the member's benefit, but does terminate at any dissolution of marriage.
<b>Coordinated Plan Retirement Options</b>	At the time of retirement, Coordinated Plan members select one of the five benefit annuity options below:
<b>C1 Member Life Only</b>	Monthly benefit payable for life to the member, with nothing payable after the member's death.
<b>C2 Guaranteed Refund</b>	Reduced monthly benefit payable for life to the member. In exchange for the member's benefit reduction, after the member's death, SPTRFA pays a refund to a designated beneficiary. The refund is equal to the difference between SPTRFA pre-retirement member contributions less cumulative SPTRFA post-retirement benefits paid to the member prior to death.
<b>C3 15-Year Certain</b>	Reduced monthly benefit payable for life to the member. In exchange for the member's benefit reduction, SPTRFA continues monthly payments to a beneficiary if the member's death occurs within 15 years after retirement. Beneficiary payments end after the balance of the 15 years of SPTRFA benefit payments (member and beneficiary combined) is fulfilled.
<b>C4 100% Joint &amp; Survivor</b>	Reduced monthly benefit payable for life to the member. In exchange for the member's benefit reduction, after the member's death, the member's spouse receives the same monthly benefit for life. If the spouse predeceases the member, the member's benefit would bounceback to the full, unreduced benefit amount payable under the C1 option. Survivor benefit coverage ends at any dissolution of marriage.
<b>C5 50% Joint &amp; Survivor</b>	Reduced monthly benefit payable for life to the member. In exchange for the member's benefit reduction, after the member's death, the member's spouse receives 50% of the member's benefit as a monthly benefit for life. If the spouse predeceases the member, the member's benefit would bounceback to the full, unreduced benefit amount payable under the C1 option. Survivor benefit coverage ends at any dissolution of marriage.

## Post-Retirement Topics

### Post-Retirement SPPS Reemployment

If a retired member is reemployed by SPPS prior to Age 65, their SPTRFA monthly benefits will be reduced if the retired member earns more than \$46,000 from SPPS in any calendar year. The following year's pension will be reduced by one dollar for every three dollars in SPPS earnings over \$46,000, with the amount of the reduction forfeited to SPTRFA. After age 65, retired members have no SPPS re-employment earnings limitation. Retired members can work for any other employer without a reduction in their SPTRFA pension benefits.

### 90 Day Period of Separation

Newly retired members must have a complete and continuous 90 day separation from Saint Paul Schools employment in any form. Importantly, "employment" for this purpose includes "any service provided to Saint Paul Schools directly, as an independent contractor, or as an employee of an independent contractor."

### Post-Retirement Adjustment

Post-retirement adjustments are determined annually under Minnesota statutes, which may be amended from time to time. Effective July 1, 2015, post-retirement adjustments are based on SPTRFA's funding ratio in each of the two most recent actuarial valuations, according to the following table:

<u>Accrued Liability Funding Ratio (AVA)</u>	<u>Full COLA Rate (%)</u>
Less than 80 percent	1.0
Greater than or equal to 80 percent, but less than 90 percent	2.0
Greater than or equal to 90 percent	2.5

The postretirement benefit increase applies to each eligible member on January 1 of each year. Members in retirement payment status for at least one full year will receive the full increase noted above. Members in retirement payment status after January 1st but on or before July 1st of the preceding year will receive one-half of the full increase.

## Basic Plan - Summary of Tier Benefits

Vested members of the Basic Plan are eligible to receive a lifetime monthly pension based on the member's Final Average Salary (**FAS**), Years of Service (**YOS**) and a Percentage Multiplier.

The following chart provides an overview of the Tier 1 and Tier 2 retirement benefits:

Normal Benefit	Minimum Age	Service	Computation of Annual Benefit
<b>Tier 1</b>			
Unreduced	Rule of 90		} FAS x YOS x 2.0%
	60	25	
	65	5	
Reduced	55	5	Reduced for early retirement by 0.25% for each month a member's age is under 65.
	55	25	Reduced for early retirement by 0.25% for each month a member's age is under 60.
<b>Tier 2</b>			
Unreduced	65	5	FAS x YOS x 2.5%
Reduced	55	5	Formula reduced for early retirement by the use of actuarial tables.
<b>Deferred Retirement</b>			
	55	5	Annual Benefit (see above).

Formula Key:

FAS: Final Average Salary

YOS: Years of Service

2.0% or 2.5%: Percentage Multiplier

## Coordinated Plan - Summary of Tier Benefits

Vested members of the Coordinated Plan are eligible to receive a lifetime monthly pension based on the member's Final Average Salary (FAS), Years of Service (YOS) and a Percentage Multiplier. Members first hired after June 30, 1989 are only eligible for Tier 2 benefits.

The following chart provides an overview of the Tier 1 and Tier 2 retirement benefits effective as of July 1, 2015.

Normal Benefit	Minimum	Age	Service	Computation of Annual Benefit									
<b>Tier 1</b>													
Unreduced	Rule of 90		30	(FAS x First 10 YOS x Multiplier*) + (FAS x YOS greater than 10 x Multiplier*)									
	62	3											
	65	3											
Reduced	55	3	Reduced for early retirement by 0.25% for each month a member's age is under 65.										
	Any Age	30	Reduced for early retirement by 0.25% for each month a member's age is under 62.										
<table style="margin-left: auto; border: none;"> <tr> <td style="text-align: left;"><b>*Tier 1 Multipliers</b></td> <td style="text-align: center;"><b>First 10 YOS</b></td> <td style="text-align: center;"><b>Over 10 YOS</b></td> </tr> <tr> <td>Service Prior to July 1, 2015</td> <td style="text-align: center;">1.2%</td> <td style="text-align: center;">1.7%</td> </tr> <tr> <td>Service Effective July 1, 2015</td> <td style="text-align: center;">1.4%</td> <td style="text-align: center;">1.9%</td> </tr> </table>					<b>*Tier 1 Multipliers</b>	<b>First 10 YOS</b>	<b>Over 10 YOS</b>	Service Prior to July 1, 2015	1.2%	1.7%	Service Effective July 1, 2015	1.4%	1.9%
<b>*Tier 1 Multipliers</b>	<b>First 10 YOS</b>	<b>Over 10 YOS</b>											
Service Prior to July 1, 2015	1.2%	1.7%											
Service Effective July 1, 2015	1.4%	1.9%											

### Tier 2

Unreduced	If first employed before July 1, 1989:									
	65	3	FAS x YOS x Multiplier*							
	If first employed on or after July 1, 1989:									
	65-66	3	FAS x YOS x Multiplier*							
Reduced	55	3	Reduced for early retirement by the use of actuarial tables.							
<table style="margin-left: auto; border: none;"> <tr> <td style="text-align: left;"><b>*Tier 2 Multipliers</b></td> <td style="text-align: center;">Service Prior to July 1, 2015</td> <td style="text-align: center;">1.7%</td> </tr> <tr> <td></td> <td style="text-align: center;">Service Effective July 1, 2015</td> <td style="text-align: center;">1.9%</td> </tr> </table>					<b>*Tier 2 Multipliers</b>	Service Prior to July 1, 2015	1.7%		Service Effective July 1, 2015	1.9%
<b>*Tier 2 Multipliers</b>	Service Prior to July 1, 2015	1.7%								
	Service Effective July 1, 2015	1.9%								

### Deferred Retirement

55	3	Annual Benefit (see above) with augmentation <sup>1</sup> .	
Any Age	30		
<p>1. Augmented by 3% per year from date of resignation to January 1 after reaching Age 55, then 5% per year thereafter, if first hired prior to July 1, 2006.            Augmented by 2.5% for all years if first hired on or after July 1, 2006.            Augmentation for all members, regardless of hire date, changed to 2% as of July 1, 2012 for the portion of benefit deferral occurring after June 30, 2012.</p>			

### Key

FAS: Final Average Salary

YOS: Years of Service

## Retirement History Record

<b>Fiscal Year Ending</b>	<b>Pensions Granted</b>	<b>Persons On Payroll</b>	<b>Benefits Paid (\$)</b>	<b>Fiscal Year Ending</b>	<b>Pensions Granted</b>	<b>Persons On Payroll</b>	<b>Benefits Paid (\$)</b>
June 1910	15	13	\$ 4,860	December 1975	52	778	\$ 3,765,322
June 1931	8	125	69,024	December 1976	77	883	4,393,513
June 1932	8	130	72,961	December 1977	63	919	5,050,507
June 1933	2	126	74,190	December 1978	48	946	5,523,548
June 1934	6	127	74,120	December 1979	40	946	6,240,309
June 1935	9	131	74,001	December 1980	47	963	6,623,804
June 1936	14	135	75,864	December 1981	47	981	7,139,037
June 1937	19	151	80,747	December 1982	61	996	7,725,617
June 1938	17	160	89,709	December 1983	72	1,042	8,555,099
June 1939	11	161	93,184	December 1984	64	1,061	9,466,664
June 1939 to				January 1985 to			
December 1939	0	158	23,870	June 1985	59	1,103	5,324,727
December 1940	71	222	170,685	June 1986	66	1,134	11,267,144
December 1941	35	246	210,257	June 1987	117	1,191	12,478,180
December 1942	27	266	234,217	June 1988	70	1,210	14,690,455
December 1943	38	286	253,031	June 1989	67	1,236	15,506,957
December 1944	34	311	282,299	June 1990	67	1,270	17,382,410
December 1945	56	350	308,113	June 1991	80	1,309	18,811,677
December 1946	51	378	337,512	June 1992	83	1,357	20,509,335
December 1947	28	387	360,571	June 1993	120	1,426	22,763,806
December 1948	42	413	375,912	June 1994	92	1,469	25,044,494
December 1949	42	441	419,618	June 1995	113	1,539	26,792,534
December 1950	30	461	450,641	June 1996	119	1,595	29,446,215
December 1951	27	476	472,670	June 1997	179	1,720	32,056,967
December 1952	28	486	508,923	June 1998	129	1,789	37,852,099
December 1953	32	487	525,959	June 1999	114	1,861	41,724,751
December 1954	10	482	529,429	June 2000	144	1,964	47,121,179
December 1955	38	509	666,994	June 2001	130	2,050	53,851,893
December 1956	46	529	750,146	June 2002	127	2,136	58,738,724
December 1957	59	560	840,883	June 2003	126	2,248	63,357,052
December 1958	41	579	1,019,502	June 2004	141	2,361	67,941,921
December 1959	30	585	1,084,506	June 2005	192	2,505	72,448,201
December 1960	38	600	1,144,380	June 2006	146	2,624	78,420,222
December 1961	39	611	1,230,715	June 2007	138	2,744	82,809,201
December 1962	49	624	1,352,779	June 2008	122	2,851	88,273,233
December 1963	42	647	1,467,461	June 2009	114	2,933	92,137,480
December 1964	33	653	1,545,252	June 2010	166	3,044	95,299,300
December 1965	40	668	1,631,554	June 2011	233	3,212	97,264,937
December 1966	43	676	1,770,083	June 2012	141	3,292	101,989,143
December 1967	36	682	1,862,249	June 2013	166	3,404	103,237,869
December 1968	45	695	1,969,760	June 2014	177	3,529	105,742,221
December 1969	53	726	2,319,186	June 2015	178	3,633	108,877,858
December 1970	31	719	2,385,868	June 2016	159	3,723	111,223,711
December 1971	47	731	2,522,350	June 2017	190	3,851	112,750,820
December 1972	51	745	2,742,660				
December 1973	36	744	3,039,253				
December 1974	46	754	3,372,453				



# INVESTMENTS

## Investment Returns for Fiscal Year End June 30, 2017

	<b>Assets Under Management (Market Value)</b>	<b>Fiscal Year Investment Performance</b>
<b>Domestic Equity</b>		
Barrow, Hanley, Mewhinney & Strauss, Inc.	55,059,519	16.64%
BlackRock S&P 500	8,848,215	17.92%
The Boston Company Asset Management	48,472,472	28.80%
Dimensional Fund Advisors, Inc.	49,786,698	22.74%
State Board of Investments - Domestic Equity	218,583,408	18.54%
Wellington Management Company, LLP	42,365,617	24.32%
	<b><u>\$ 423,115,928</u></b>	
<b>International Equity</b>		
State Board of Investments - Int'l Equity	71,085,958	20.59%
	<b><u>\$ 71,085,958</u></b>	
<b>Global Equity</b>		
Morgan Stanley Global Franchise	61,168,626	16.26%
JP Morgan Focus	59,102,827	24.75%
	<b><u>\$ 120,271,454</u></b>	
<b>Fixed Income</b>		
Brandywine Global Opportunistic Fixed	36,885,743	5.24%
Allianz Cash Overlay	30,477,464	7.01%
Guggenheim Core Plus	106,395,501	5.95%
	<b><u>\$ 173,758,708</u></b>	
<b>Real Assets</b>		
Advantus	26,672,081	-1.79%
UBS Trumbull Fund	38,994,354	5.61%
UBS Growth & Income Fund	16,274,608	11.86%
Tortoise MLP	22,181,571	5.23%
Dune Realty Partners	3,303,259	10.84%
Parametric - TIPS	11,167,121	-0.69%
	<b><u>\$ 118,592,994</u></b>	
<b>Private Equity</b>		
Franklin Park	24,945,594	
North Sky	7,783,498	
RWI Ventures I	241,521	
RWI Ventures II	473,742	
TCW LLC	8,560,481	
VIA Partners	2,199,255	
	<b><u>\$ 44,204,092</u></b>	13.10%
<b>Alternatives</b>		
Parametric Defensive Equity	27,280,313	10.39%
	<b><u>\$ 27,280,313</u></b>	
<b>Opportunistic</b>		
Corvex	15,281,017	13.65%
Entrust	15,862,748	13.27%
	<b><u>\$ 31,143,765</u></b>	
<b>Cash</b>		
Cash - US Bank Custody	7,647,233	0.38%
Cash - US Bank Checking	10,180,173	
Parametric Cash Overlay	1,207,628	6.70%
	<b><u>\$ 19,035,035</u></b>	
<b>Total Fund (net of fees)</b>	<b><u>\$ 1,028,488,246</u></b>	<b>13.93%</b>
<b>Total Fund Benchmark</b>		<b>13.01%</b>

## Holdings by Asset Class, Security Type, and Issuer as of June 30, 2017

Asset Class / Security Type / Issuer	Cost	Market Value	Accrued Interest or Dividends	Mkt + Accrued
<b>Cash or Equivalents</b>				
U.S. Bank Commercial Paper Sweep & Cash	\$ 10,180,173	\$ 10,180,173	\$ -	10,180,173
Custodian Short Term Investment Pool	19,683,637	19,794,464	6,988	19,801,452
Subtotal - Cash or Equivalents	<u>\$ 29,863,810</u>	<u>\$ 29,974,637</u>	<u>\$ 6,988</u>	<u>\$ 29,981,625</u>
<b>Domestic Equity Securities</b>				
Abiomed Inc	\$ 452,892	\$ 579,362	\$ -	579,362
Acadia Healthcare Co Inc	857,031	736,009	-	736,009
Adient Ltd	115,997	162,796	-	162,796
Agree Rlty Corp	346,019	334,851	3,687	338,538
Air Prods Chemicals Inc	1,450,442	1,673,802	11,115	1,684,917
Alexandria Real Estate Equities Inc	651,603	855,337	6,106	861,443
Altria Group Inc	455,602	2,033,031	16,653	2,049,684
American Campus Communities	183,902	203,390	-	203,390
American Express Co	1,008,655	1,550,016	-	1,550,016
American Homes 4 Rent A	473,045	460,428	-	460,428
Antero Midstream Partners Lp	439,455	529,752	-	529,752
Antero Resources Midstream	177,705	172,103	-	172,103
Anthem Inc	351,146	658,455	-	658,455
Apartment Invt Mgmt Co Cl A	286,258	289,016	-	289,016
Apple Hospitality Reit Inc	259,745	246,972	1,320	248,292
Aramark	1,320,228	1,473,682	-	1,473,682
Arch Coal Inc	774,954	733,337	-	733,337
AT&T Inc	519,629	554,631	-	554,631
Athenahealth Inc	188,569	223,193	-	223,193
Autodesk Inc	381,152	652,305	-	652,305
Avalonbay Cmnty Inc	581,377	749,463	5,538	755,001
Avis Budget Group Inc	1,048,252	1,068,084	-	1,068,084
Avon Prods Inc	495,612	366,491	-	366,491
Bank Of America Corp	981,970	1,235,513	-	1,235,513
Banner Corporation	774,795	832,957	-	832,957
Blackbaud Inc	360,278	404,483	-	404,483
Boston Pptys Inc	480,946	514,101	3,134	517,235
BP Plc Spon A D R	1,277,121	977,130	-	977,130
Brandywine Realty Trust	573,375	625,821	-	625,821
Bright Horizons Family Solut	583,732	573,748	-	573,748
Brixmor Property Group Inc	536,730	370,116	-	370,116
Broadridge Financial Solutions Inc	370,013	445,880	-	445,880
Brookdale Sr Living Inc	796,801	784,558	-	784,558
Buckeye Partners Lp	1,072,272	993,856	-	993,856
Calpine Corp	616,174	613,071	-	613,071
Cardinal Health Inc	1,376,844	1,667,488	9,895	1,677,383
Carnival Corp	277,908	544,231	-	544,231
CDW Corp De	684,580	1,236,031	-	1,236,031
Centene Corp	383,422	459,869	-	459,869
Cerner Corporation	581,379	611,590	-	611,590
Cheniere Energy Inc	121,116	121,385	-	121,385
Chevron Corporation	223,378	500,784	-	500,784
Ciena Corp	1,269,263	1,589,721	-	1,589,721
Citigroup Inc	671,194	1,084,125	-	1,084,125
Commvault Systems Inc	37,019	52,724	-	52,724
Conocophillips	579,906	830,844	-	830,844
Corporate Office Pptys Tr	461,852	560,480	4,400	564,880
Cubesmart	231,938	227,346	2,553	229,900
CVS Health Corporation	1,737,177	1,633,338	-	1,633,338
Cyrusone Inc	402,197	473,875	3,570	477,445
Deere Co	1,017,907	1,408,926	6,840	1,415,766
Dexcom Inc	1,558,830	1,471,632	-	1,471,632
Digital Realty Trust Inc	527,921	576,045	-	576,045
Dollar General Corp	1,021,465	1,009,260	-	1,009,260
Dollar Tree Inc	113,697	140,679	-	140,679

## Holdings by Asset Class, Security Type, and Issuer as of June 30, 2017

Asset Class / Security Type / Issuer	Cost	Market Value	Accrued Interest or Dividends	Mkt + Accrued
Dominos Pizza Inc	404,965	625,917	-	625,917
Du Pont E I De Nemours & Co	1,081,138	1,121,869	-	1,121,869
Duke Realty Corporation	560,437	760,240	-	760,240
Dupont Fabros Technology	81,577	116,204	950	117,154
E Trade Financial Corp	347,032	830,309	-	830,309
Eaton Vance Corp	236,035	230,874	-	230,874
Edwards Lifesciences Corp	650,979	920,853	-	920,853
Electronic Arts Inc	733,200	1,047,685	-	1,047,685
Energy Transfer Equity L P	1,315,742	1,466,578	-	1,466,578
Energy Transfer Partners L P	1,465,788	1,167,715	-	1,167,715
Enterprise Prods Partners L P	2,071,971	1,978,384	-	1,978,384
Investnet Inc	206,105	222,116	-	222,116
Envision Healthcare Corp	847,585	696,076	-	696,076
EPR Properties	341,929	337,789	1,598	339,387
EQT Gp Holdings LP	118,229	118,007	-	118,007
EQT Midstream Partners LP	1,240,044	1,231,395	-	1,231,395
Equinix Inc	1,140,918	1,499,056	-	1,499,056
Equity Residential	831,053	862,373	6,700	869,073
Essex Ppty Tr Inc	577,601	744,539	5,065	749,604
Expedia Inc	768,690	1,099,698	-	1,099,698
Express Scripts Hldgs C	1,806,138	1,698,144	-	1,698,144
Extended Stay America Inc	526,445	583,975	-	583,975
Extra Space Storage Inc	1,115,017	1,105,962	-	1,105,962
Factset Research Systems Inc	608,603	595,755	-	595,755
Fastenal Co	955,806	970,545	-	970,545
Federal Rlty Invt Tr Sbi New	126,250	126,390	980	127,370
Fidelity National Financial Inc	569,499	409,315	-	409,315
First Data Corp Class A	949,386	1,053,088	-	1,053,088
First Indl Rlty Tr Inc	120,848	117,342	861	118,203
First Interstate Bancsys Mt	300,421	307,904	-	307,904
First Republic Bank San Fran	567,501	791,691	-	791,691
Fleetcor Technologies Inc	776,009	770,081	-	770,081
Flex Ltd	964,470	978,926	-	978,926
Flir Systems Inc	275,196	290,485	-	290,485
G I I Apparel Group Ltd	1,453,972	1,324,221	-	1,324,221
Gartner Inc	1,120,111	1,479,773	-	1,479,773
General Dynamics Corp	356,915	911,260	-	911,260
Genesis Energy Lp	702,112	496,162	-	496,162
GGP Inc	702,759	695,020	-	695,020
Global Payments Inc	966,910	1,295,821	-	1,295,821
Grand Canyon Education Inc	295,477	557,730	-	557,730
Great Western Bancorp Inc	797,133	775,635	-	775,635
Green Dot Corp Cl A	213,335	328,430	-	328,430
Grubhub Inc	282,989	333,714	-	333,714
Guidewire Software Inc	454,406	537,450	-	537,450
HCP Inc	508,491	453,832	-	453,832
HD Supply Holdings Inc	267,145	226,723	-	226,723
Healthcare Trust Of Ame Cl A	301,202	323,544	3,120	326,664
Hexcel Corp New	908,607	1,005,386	-	1,005,386
Highwoods Properties Inc	312,233	349,899	-	349,899
Hilton Worldwide Hldgs Wi	527,794	550,527	-	550,527
Host Hotels Resorts Inc	393,997	405,777	4,442	410,219
Hubbell Inc	578,721	608,402	-	608,402
Hudson Pacific Properties Inc	169,612	164,112	-	164,112
Hunt J B Trans Svcs Inc	388,571	389,644	-	389,644
Huntington Bancshares Inc	889,278	911,113	-	911,113
Icon Plc	722,137	1,169,373	-	1,169,373
IHS Markit Ltd	1,087,561	1,279,979	-	1,279,979
Illumina Inc	470,828	596,041	-	596,041

## Holdings by Asset Class, Security Type, and Issuer as of June 30, 2017

Asset Class / Security Type / Issuer	Cost	Market Value	Accrued Interest or Dividends	Mkt + Accrued
Incyte Corp	407,914	528,318	-	528,318
Infinera Corp	432,297	478,731	-	478,731
Intercontinental Exchange In	622,560	813,980	-	813,980
Invitation Homes Inc	328,496	326,613	-	326,613
Itron Inc	120,936	124,592	-	124,592
J P Morgan Chase Co	739,182	1,736,600	-	1,736,600
Jazz Pharmaceuticals Plc	794,148	956,636	-	956,636
Johnson Ctls Intl Plc	1,724,895	1,682,758	9,702	1,692,460
Johnson Johnson	987,488	1,693,312	-	1,693,312
Keycorp	961,136	1,249,190	-	1,249,190
Kilroy Rlty Corp	577,752	653,805	3,698	657,503
Kimco Realty Corp	476,734	409,205	-	409,205
Knight Transn Inc	1,309,641	1,566,733	-	1,566,733
Lam Research Corp	255,379	497,409	-	497,409
Leucadia Natl Corp	931,793	1,129,013	-	1,129,013
Liberty Ppty Tr Sbi	458,184	492,591	4,840	497,431
Lithia Motors Inc Cl A	1,019,547	1,116,531	-	1,116,531
Lowes Co Inc	812,621	845,077	-	845,077
Lumentum Holdings Inc W I	289,772	502,097	-	502,097
Lyondellbasell Industries Cl A	119,506	126,585	-	126,585
M G I C Invt Corp	1,038,541	1,266,933	-	1,266,933
Magellan Midstream Partners Lp	1,446,490	1,738,061	-	1,738,061
Marketaxess Hldgs Inc	234,834	463,133	-	463,133
Marvell Technology Group Ltd	199,270	258,108	-	258,108
Maxim Integrated Prods Inc	286,014	310,394	-	310,394
Maxlinear Inc Class A	234,662	322,381	-	322,381
Medtronic Plc	1,550,531	1,801,625	-	1,801,625
Mellanox Technologies Ltd A D R	218,172	195,629	-	195,629
Merck Co Inc	552,861	839,579	6,157	845,736
Methanex Corp	716,518	1,129,266	-	1,129,266
Methode Electronics Inc	604,082	757,750	-	757,750
Microsemi Corp	357,093	415,210	-	415,210
Microsoft Corp	313,311	1,144,238	-	1,144,238
Mid-Amer Apt Cmnty Inc	804,417	895,730	-	895,730
Middleby Corp	371,577	348,855	-	348,855
Miller Herman Inc	188,297	198,907	1,768	200,675
Mohawk Inds Inc	536,147	670,931	-	670,931
Monster Beverage Corp	178,669	309,606	-	309,606
MPLX Lp	1,502,512	1,188,940	-	1,188,940
MSCI Inc	433,067	555,116	-	555,116
National Retail Properties Inc	254,533	238,510	-	238,510
Nexstar Broadcasting Group A	1,118,794	1,229,189	-	1,229,189
Nielsen Holdings Plc	1,812,393	1,620,821	-	1,620,821
Noble Midstream Partners Lp	108,454	165,755	-	165,755
Norwegian Cruise Line Holdings Ltd	596,542	608,808	-	608,808
Nuance Communications Inc	432,369	426,023	-	426,023
Nustar Energy Lp	218,262	219,581	-	219,581
O Reilly Automotive Inc	376,240	339,047	-	339,047
Oasis Petroleum Inc	234,085	232,669	-	232,669
Occidental Petroleum Corporation	318,630	694,492	8,816	703,308
Office Depot Inc	537,559	886,681	-	886,681
Old Dominion Fght Line Inc	610,357	815,540	-	815,540
Oneok Partners Lp	857,574	1,239,622	-	1,239,622
Oracle Corporation	1,489,604	1,830,110	-	1,830,110
Packaging Corp America	684,458	813,815	-	813,815
Penn National Gaming Inc	628,353	725,118	-	725,118
Pfizer Inc	1,392,230	1,704,860	-	1,704,860
Philip Morris Intl	782,904	1,937,925	17,160	1,955,085
Phillips 66	437,781	913,725	-	913,725

## Holdings by Asset Class, Security Type, and Issuer as of June 30, 2017

Asset Class / Security Type / Issuer	Cost	Market Value	Accrued Interest or Dividends	Mkt + Accrued
Phillips 66 Partners Lp	956,962	970,065	-	970,065
Physicians Realty Trust	365,053	388,702	4,439	393,141
Plains All Amer Pipeline Lp	2,599,322	1,527,259	-	1,527,259
Planet Fitness Inc Cl A	325,714	401,215	-	401,215
Prologis Inc	1,033,350	1,445,476	-	1,445,476
Public Storage Inc	615,223	667,296	-	667,296
Qualcomm Inc	1,825,325	1,546,160	-	1,546,160
Raymond James Finl Inc	501,754	682,432	-	682,432
Regency Centers Corporation	712,786	654,150	-	654,150
Rexford Industrial Realty In	243,672	274,400	5,930	280,330
Ross Stores Inc	872,737	976,965	-	976,965
Sage Therapeutics Inc	958,633	1,457,332	-	1,457,332
Sanofi A D R	1,261,022	1,566,657	-	1,566,657
SBA Communications Corp	850,375	969,122	-	969,122
Seaspan Corp	205,671	209,428	-	209,428
Servicenow Inc	445,653	626,036	-	626,036
Shell Midstream Partners L P	588,013	596,425	-	596,425
Simon Property Group Inc	1,684,224	1,789,874	-	1,789,874
Sinclair Broadcast Group Inc A	1,183,504	1,284,581	-	1,284,581
Skyworks Solutions Inc	145,402	282,285	-	282,285
SL Green Rlty Corp	376,192	380,880	2,790	383,670
SLM Corp	1,032,721	1,636,094	-	1,636,094
Snap On Inc	842,636	852,568	-	852,568
Spectra Energy Partners Lp	507,885	467,782	-	467,782
Square Inc A	412,729	794,567	-	794,567
SS&C Technologies Holdings	393,983	416,941	-	416,941
Stamps Com Inc	121,721	155,649	-	155,649
Sun Cmnty Inc	485,032	569,985	4,355	574,340
Sunstone Hotel Invs Inc	232,826	285,324	885	286,209
SVB Finl Group	606,210	1,084,449	-	1,084,449
Take-Two Interactive Software Inc	234,531	343,859	-	343,859
Tallgrass Energy Gp Lp	84,810	98,033	-	98,033
Tallgrass Energy Partners L P	561,492	640,801	-	640,801
Targa Resources Corp	468,063	369,600	-	369,600
Teradata Corp	1,229,325	1,159,606	-	1,159,606
Teradyne Inc	661,480	950,359	-	950,359
Tesoro Logistics Lp	1,070,847	1,030,440	-	1,030,440
Teva Pharmaceutical Inds Ltd A D R	1,573,562	1,172,666	-	1,172,666
Texas Instruments Inc	429,937	1,330,889	-	1,330,889
Therapeutics Md Inc	1,712,998	1,255,288	-	1,255,288
Transunion	867,500	1,166,252	-	1,166,252
Travelers Cos Inc	353,789	1,088,158	-	1,088,158
Trinet Group Inc	130,067	218,278	-	218,278
Twenty First Century Fox Inc	1,278,257	1,363,154	-	1,363,154
UDR Inc	606,380	666,387	-	666,387
Under Armour Inc	599,644	406,950	-	406,950
United Microelectron Sp A D R	170,532	226,415	-	226,415
United Technologies Corp	1,337,297	1,672,907	-	1,672,907
Unitedhealth Group Inc	156,062	648,970	-	648,970
Universal Display Corporation	104,780	206,920	-	206,920
Universal Health Svcs B	908,374	939,894	-	939,894
US Concrete Inc	351,091	408,696	-	408,696
US Foods Holding Corp	509,380	505,285	-	505,285
Vail Resorts Inc	795,255	1,015,975	5,274	1,021,250
Valero Energy Partners Lp	528,808	646,947	-	646,947
Vantiv Inc	177,351	324,808	-	324,808
Ventas Inc	566,475	643,454	-	643,454
Verifone Systems Inc	751,856	748,888	-	748,888
Verizon Communications Inc	1,365,059	1,384,281	-	1,384,281

## Holdings by Asset Class, Security Type, and Issuer as of June 30, 2017

Asset Class / Security Type / Issuer	Cost	Market Value	Accrued Interest or Dividends	Mkt + Accrued
Viavi Solutions Inc	1,159,630	1,648,787	-	1,648,787
Visteon Corp	323,302	437,837	-	437,837
Vornado Realty Trust	357,228	370,154	-	370,154
Wabco Hldgs Inc	474,168	573,923	-	573,923
Wells Fargo Co	871,073	1,750,956	-	1,750,956
Welltower Inc	633,971	726,045	-	726,045
Werner Enterprises Inc	606,765	778,391	-	778,391
Western Gas Equity Partners Lp	105,185	108,927	-	108,927
Western Gas Partners Lp	1,145,201	1,031,701	-	1,031,701
Williams Cos Inc	488,200	547,856	-	547,856
Williams Partners L P	714,831	801,197	-	801,197
Xerox Corporation	742,096	739,223	-	739,223
Zebra Technologies Corp Cl A	407,029	442,389	-	442,389
Subtotal - Domestic Equity	<u>\$ 162,105,547</u>	<u>\$ 190,859,065</u>	<u>\$ 174,340</u>	<u>\$ 191,033,406</u>
<b>Domestic Equity Commingled Accounts</b>				
BlackRock S&P	7,165,951	8,848,215		8,848,215
Dimensional Fund Advisors	9,820,197	49,786,698		49,786,698
SBI Domestic Index Stock	158,421,454	218,583,408		218,583,408
Subtotal - Domestic Equity Commingled	<u>\$ 175,407,602</u>	<u>\$ 277,218,321</u>	<u>\$ -</u>	<u>\$ 277,218,321</u>
<b>International Equity Commingled Accounts</b>				
JPMorgan Global Focus	36,388,620	59,102,827		59,102,827
SBI - International	64,842,668	71,085,958		71,085,958
Subtotal - International Equity Commingled	<u>\$ 101,231,287</u>	<u>\$ 130,188,785</u>	<u>\$ -</u>	<u>\$ 130,188,785</u>
<b>International Equity Mutual Funds</b>				
Morgan Stanley Ins Glb Fra I	\$ 44,782,601	\$ 61,168,626		61,168,626
Subtotal - Int'l Equity Mutual Fund	<u>\$ 44,782,601</u>	<u>\$ 61,168,626</u>	<u>\$ -</u>	<u>\$ 61,168,626</u>
<b>Fixed Income Commingled Accounts</b>				
Allianz Global Investors	26,000,000	30,477,464		30,477,464
Brandywine Global Opportunistic Fi	33,784,603	36,885,743		36,885,743
Subtotal - Fixed Income Commingled	<u>\$ 59,784,603</u>	<u>\$ 67,363,208</u>	<u>\$ -</u>	<u>\$ 67,363,208</u>
<b>Fixed Income Securities</b>				
ABPCI Direct	\$ 997,500	\$ 1,000,000	\$ 19,167	1,019,167
ACC Group Housing	200,000	235,666	5,856	241,522
Acis CLO Ltd	995,000	1,000,258	5,888	1,006,146
Adams Outdoor Adve	650,000	640,783	1,092	641,875
AES Corp VA	129,675	130,000	439	130,439
AIM Aviation Finance	833,333	825,000	1,560	826,560
Aircraft Lease	1,859,600	1,859,600	3,926	1,863,526
American Equity Int	332,515	339,695	563	340,258
American Equity Inv	203,813	206,886	6,110	212,996
American Mun Pwr OH	537,482	558,061	10,689	568,750
Amtrust Financial Services Inc	-	-	9,163	9,163
Anchorage Credit	1,000,000	1,000,000	19,153	1,019,153
Anchorage Credit	1,000,000	1,000,000	7,525	1,007,525
Apollo Aviation	862,527	883,750	1,896	885,646
Army Hawaii Family	980,000	984,332	2,504	986,836
Atlantic Marine Corp	227,467	236,671	1,071	237,742
Banc Of America	649,761	675,406	112	675,518
Bank Of America Corp	636,500	678,969	11,014	689,983
Bank Of America Corp	452,765	481,016	8,333	489,350
Bank Of America Corp	76,680	78,947	872	79,819
BCAP LLC Trust	482,602	515,818	649	516,467
Betony CLO Ltd	1,000,000	1,000,300	6,649	1,006,949
Beverly Hills CA Unif	151,316	159,422	-	159,422

## Holdings by Asset Class, Security Type, and Issuer as of June 30, 2017

Asset Class / Security Type / Issuer	Cost	Market Value	Accrued Interest or Dividends	Mkt + Accrued
BHP Billiton Fin	201,800	228,518	2,700	231,218
Black Diamond CLO	745,313	750,053	5,384	755,436
Buckeye Partners LP	209,962	209,844	698	210,542
Buckeye Partners P	126,987	124,630	1,111	125,741
Bumble Bee Acq Co	514,375	501,250	2,000	503,250
Capmark Military	719,416	718,135	2,402	720,537
Capmark Military Hsg	904,509	1,204,180	3,835	1,208,015
Castlelake Aircraft	823,670	834,966	1,722	836,687
Catamaran CLO Ltd	1,000,000	1,000,460	969	1,001,429
Catamaran CLO Ltd	750,000	753,495	6,126	759,621
Cent CLO LP	250,000	250,018	1,376	251,393
Cerberus Onshore	1,000,000	1,005,010	7,741	1,012,751
Cerberus Onshore	111,046	112,294	926	113,220
CFCRE Commercial	473,063	430,045	6,136	436,181
Chesterfield	391,500	392,534	783	393,317
CIT Mortgage Loan	802,743	842,223	366	842,589
Citigroup Commerci	497,287	454,644	6,267	460,911
Citigroup Inc	191,475	196,794	4,617	201,411
Citigroup Inc	899,463	965,161	20,240	985,400
COA Summit CLOLtd	497,500	501,720	3,830	505,550
Cold Storage Trust	1,100,000	1,101,705	1,178	1,102,883
Cold Storage Trust	1,000,000	1,001,240	960	1,002,200
Conocophillips	187,772	203,517	4,198	207,714
Cosmopolitan Hotel	1,000,000	1,009,080	1,693	1,010,773
Credit Suisse	929,856	1,048,384	1,322	1,049,706
Detroit MI City Sch	380,175	504,425	4,777	509,202
Diamond Head	635,758	636,220	1,144	637,364
Divcore CLO	248,975	250,000	562	250,562
Dominican Republic	165,689	170,400	4,688	175,088
Dryden Senior Loan	974,283	902,460	0	902,460
ECAF Ltd	723,901	714,852	1,592	716,444
Emerald Aviation	838,306	851,511	1,718	853,229
Emerald Aviation	360,428	370,291	1,020	371,311
F H L M C Deb Zero	654,148	680,970	-	680,970
F H L M C Strip	1,471,553	1,520,615	-	1,520,615
F H L M C Strip	183,102	183,066	-	183,066
F N M A Strip	391,557	406,398	-	406,398
F N M A Strip	1,119,516	1,147,229	-	1,147,229
F N M A Strip	305,270	300,803	-	300,803
FDf Limited	999,000	1,000,000	5,594	1,005,594
Figueroa CLOLtd	246,000	250,073	1,109	251,182
Flagship CLO	1,000,000	1,000,300	5,955	1,006,255
Fort Benning Fam	582,188	593,108	5,218	598,326
Fortress Credit	750,000	747,705	0	747,705
Fortress Credit	1,000,000	1,000,060	6,090	1,006,150
Fortress Credit	1,000,000	1,009,860	2,785	1,012,645
Fortress Credit	250,000	249,043	0	249,043
Fortress Credit	200,000	198,542	-	198,542
Gallatin Funding	745,000	750,240	6,510	756,750
Garrison Funding	997,000	1,001,110	3,682	1,004,792
Gasco	1	351,231	2,244	353,475
Gasco	1	356,248	2,959	359,207
GMAC Commercial	353,533	416,182	1,352	417,534
GMH Military Hsg	507,844	485,000	6,448	491,448
Golub Capital	991,900	1,001,750	4,387	1,006,137
Golub Capital	1,246,875	1,250,000	9,721	1,259,721
Golub Capital	250,000	247,873	2,111	249,984
Golub Capital	249,238	249,770	1,251	251,021
Great Lakes CLO	995,500	1,008,290	6,562	1,014,852



## Holdings by Asset Class, Security Type, and Issuer as of June 30, 2017

Asset Class / Security Type / Issuer	Cost	Market Value	Accrued Interest or Dividends	Mkt + Accrued
Great Lakes CLO Lt	998,500	1,006,220	6,435	1,012,655
Great Lakes CLO Lt	250,000	248,180	2,598	250,778
Great Lakes CLO Lt	750,000	743,970	8,435	752,405
GSAA Home Equity	1,078,875	1,089,744	310	1,090,054
Hess Corp	149,685	146,517	1,613	148,130
Hospitality	488,687	531,050	9,917	540,967
Hospitality Mortga	1,000,000	1,001,180	1,239	1,002,419
HRG Group Inc	294,594	289,050	10,240	299,290
IMT Trust	1,011,351	1,000,000	-	1,000,000
Infinity Property	125,234	126,687	1,686	128,373
ING US Inc	255,188	265,625	1,805	267,430
Ivy Hill Middle	539,825	544,649	4,928	549,577
JP Morgan Chase	527,317	517,704	7,427	525,131
Keycorp	243,438	254,688	556	255,243
KKR Financial CLO	498,750	500,445	2,957	503,402
Lancer Fin Spv Ltd	235,027	228,061	-	228,061
LVII	726,604	706,175	2,848	709,024
LVII	1,178,856	1,179,599	128	1,179,727
Madison Park	1,000,000	1,000,230	5,713	1,005,943
Marathon CLO Ltd	1,244,531	1,250,363	6,651	1,257,013
Metlife Inc	280,188	291,375	7,839	299,214
Monroe Capital CLO	577,500	603,630	5,416	609,046
Morgan Stanley Baml	998,200	997,615	3,948	1,001,564
N Star Real Estate	508,580	526,985	704	527,689
Nelder Grove CLO	1,000,000	1,000,180	2,725	1,002,905
Newcrest Fin Pty	251,070	258,353	2,625	260,978
Newstar Arlington	243,827	247,633	6,055	253,687
Newstar Commercial	243,438	247,640	2,640	250,280
Nomura	62,166	74,089	12	74,101
Northern Group	400,000	493,804	1,209	495,013
Northern Trust Corp	490,750	505,000	5,750	510,750
NRPL Trust Series	719,940	728,426	481	728,907
NZCG Funding Ltd	750,000	750,345	2,833	753,178
NZCG Funding Ltd	473,325	499,815	2,559	502,374
NZCG Funding Ltd	997,500	1,000,740	7,831	1,008,571
NZCG Funding Ltd	493,760	501,010	2,261	503,271
Oak Hill Credit Partners	950,356	1,000,000	11,020	1,011,020
OZLM Ltd	1,000,000	1,000,050	0	1,000,050
RAIR CRE CDO Ltd	146,618	185,482	73	185,556
RASPRO Trust	759,162	755,574	3,319	758,893
Republic Of Kenya	167,539	163,600	214	163,814
Resource Capital	1,000,000	1,000,000	1,921	1,001,921
Sammons Fin Group	750,000	936,990	11,083	948,073
SRERS Funding Ltd	81,573	91,661	70	91,731
Store Master Funding	987,814	999,477	1,196	1,000,673
Store Master Funding	494,327	506,097	630	506,727
Sunco Logistics	420,141	477,955	2,107	480,062
T V A	507,115	562,490	6,257	568,747
T V A	399,188	448,199	4,434	452,634
Taco Bell Funding	818,813	836,384	3,946	840,330
TCP Waterman CLO	1,000,000	1,016,450	1,559	1,018,009
Tenet Healthcare	598,000	606,000	1,235	607,235
Textainer Marine	982,140	990,326	1,116	991,442
TICC CLO LLC	251,000	250,033	1,441	251,474
Treman Park CLO	472,755	438,370	7,056	445,426
Turbine Engine	578,083	567,032	1,322	568,354
U S Treas Bd Strip	8,023,061	8,260,339	-	8,260,339
U S Treasury Bd	496,294	513,682	1,873	515,555
U S Treasury I P S	1,538,933	1,517,363	2,608	1,519,972

## Holdings by Asset Class, Security Type, and Issuer as of June 30, 2017

Asset Class / Security Type / Issuer	Cost	Market Value	Accrued Interest or Dividends	Mkt + Accrued
U S Treasury I P S	2,205,498	2,193,538	6,171	2,199,709
U S Treasury I P S	1,650,272	1,602,230	7,609	1,609,839
U S Treasury I P S	1,791,708	1,774,722	14,729	1,789,451
U S Treasury I P S	2,970,479	2,923,808	24,073	2,947,881
U S Treasury I P S	1,153,704	1,142,828	6,863	1,149,690
Wells Fargo	687,671	603,916	9,812	613,728
Wells Fargo Coml	366,041	345,069	2,675	347,743
Wells Fargo Tr	494,541	441,102	6,669	447,771
Whitehorse VIII	988,350	1,092,696	5,684	1,098,380
Willis Engine Secur	344,439	343,576	844	344,420
Wilton Re Finance	634,063	637,500	9,282	646,782
Yamana Gold Inc	760,322	798,184	18,032	816,216
Subtotal - Fixed Income	<u>\$ 107,959,712</u>	<u>\$ 110,515,596</u>	<u>\$ 609,589</u>	<u>\$ 111,125,185</u>
<b>Real Estate Commingled Fund</b>				
UBS Trumbull Property Fund	29,521,582	38,994,354		38,994,354
UBS Growth & Income Fund	10,421,595	16,274,595		16,274,595
Dune Real Estate Partners	3,303,259	3,303,259		3,303,259
Subtotal - Real Estate Commingled	<u>\$ 43,246,437</u>	<u>\$ 58,572,208</u>	<u>\$ -</u>	<u>\$ 58,572,208</u>
<b>Private Equity</b>				
North Sky - PEP IV Fund	5,608,322	7,783,498		7,783,498
Franklin Park Private Equity Fund	22,288,974	24,945,594		24,945,594
RWI Group - Ventures I Capital Ltd Ptnr	241,211	241,521		241,521
RWI Group - Ventures II Capital Ltd Ptnr	473,742	473,742		473,742
VIA Fund III	1,926,037	2,199,186		2,199,186
Subtotal - Private Equity	<u>\$ 30,538,286</u>	<u>\$ 35,643,541</u>	<u>\$ -</u>	<u>\$ 35,643,541</u>
<b>Private Equity / Alternative</b>				
TCW	8,265,174	8,560,183		8,560,183
Parametric Def Eq Fund	24,000,000	27,280,313		27,280,313
Subtotal - Private Equity / Alternative	<u>\$ 32,265,174</u>	<u>\$ 35,840,496</u>	<u>\$ -</u>	<u>\$ 35,840,496</u>
<b>Opportunistic</b>				
Corvex	16,000,000	15,281,017		15,281,017
Entrust	13,966,132	15,862,748		15,862,748
Subtotal - Opportunistic	<u>\$ 29,966,132</u>	<u>\$ 31,143,765</u>	<u>\$ -</u>	<u>\$ 31,143,765</u>
<b>TOTAL FUND</b>	<u><u>\$ 817,151,192</u></u>	<u><u>\$ 1,028,488,246</u></u>	<u><u>\$ 790,917</u></u>	<u><u>\$ 1,029,279,164</u></u>

**ACTUARIAL SECTION**

December 21, 2017

Ms. Jill E. Schurtz, Executive Director  
St. Paul Teachers' Retirement Fund Association  
1619 Dayton Avenue, Room 309  
St. Paul, MN 55104-6206

Dear Ms. Schurtz:

We are pleased to present the report of the actuarial valuation of the St. Paul Teachers' Retirement Fund Association ("Fund") as of July 1, 2017. This report provides, among other things, the required annual contribution rate of the Fund for the Plan Year commencing July 1, 2017 and ending on June 30, 2018, according to prescribed assumptions.

The valuation was based upon information furnished by the Fund staff, concerning Retirement Fund benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. Their efforts in furnishing the materials needed are gratefully acknowledged. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the Fund.

The report has been prepared at the request of the Fund's Board of Trustees in accordance with Section 356.215 of the Minnesota Statutes as well as the Standards for Actuarial Work established by the State of Minnesota Legislative Commission on Pensions and Retirement. To the best of our knowledge, this report is complete and accurate, and has been prepared in accordance with prescribed assumptions and generally accepted actuarial principles and practices. This report is intended for use by the Fund and those determined or approved by the Fund's Board of Trustees. This report may be provided to parties other than the Fund only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The required contribution rate of 22.16% of pay shown on page 20 was designed to comply with Minnesota Statutes. Users of this report should be aware that contributions made at that rate do not guarantee benefit security. Please note that, given the importance of benefit security to any retirement system, we encourage all retirement systems to consider implementing funding programs that provide for contributions in excess of the levels listed in their valuation report.

The contribution rate in this report is determined using the actuarial assumptions and methods disclosed in Section 4 of this report. This report includes risk metrics on page 8, but does not include a robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment. We encourage a review and assessment of investment and other significant risks that may have a material effect on the plan's financial condition.

Ms. Jill E. Schurtz  
St. Paul Teachers' Retirement Fund Association  
December 21, 2017  
Page 2

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements.

This report should not be relied on for any purpose other than the purpose described in this report. Determinations of financial results associated with the benefits described in this report in a manner other than the intended purpose may produce significantly different results.

Actuarial assumptions, including discount rates, mortality tables and others identified in this report, are prescribed by Minnesota Statutes Section 356.215, the Legislative Commission on Pensions and Retirement (LCPR), and the Board of Trustees. These parties are responsible for selecting the plan's funding policy, actuarial valuation methods, asset valuation methods, and assumptions. The policies, methods and assumptions used in this valuation are those that have been so prescribed and are described in the Actuarial Basis of this report. The Fund is solely responsible for communicating to GRS any changes required thereto.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. Bonita J. Wurst and James D. Anderson 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 herein. The signing actuaries are independent of the plan sponsor.

We will be pleased to review this report with you at your convenience.

Respectfully submitted,



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



James D. Anderson, FSA, EA, MAAA

BJW/JDA:rmn:dj

## Summary of Valuation Results

(Dollars in Thousands)

	July 1, 2016	July 1, 2017
	Valuation	Valuation
A. CONTRIBUTIONS % OF PAYROLL (Table 11)		
1. Statutory Contributions - Chapter 354A	21.52%	21.64%
2. Required Contributions - Chapter 356	22.44%	22.16%
3. Sufficiency / (Deficiency)	(0.92%)	(0.52%)
B. FUNDING RATIOS		
1. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$ 1,007,360	\$ 1,038,467
b. Actuarial Accrued Liability (Table 9)	1,592,570	1,611,208
c. Funding Ratio	63.25%	64.45%
2. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$ 1,741,583	\$ 1,773,650
b. Current and Expected Future Benefit Obligations	1,815,411	1,847,501
c. Funding Ratio	95.93%	96.00%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	3,455	3,409
b. Projected Annual Earnings	\$ 271,781	\$ 280,785
c. Average Annual Earnings (Projected dollars)	\$ 76,094	\$ 78,060
d. Average Age	44.8	44.8
e. Average Service	12.7	12.7
f. Members on Leave of Absence	79	141
2. Others		
a. Service Retirements (Table 4)	3,363	3,478
b. Disability Retirements (Table 5)	32	30
c. Survivors (Table 6)	328	343
d. Deferred Retirements (Table 7)	2,020	2,034
e. Terminated Other Non-Vested (Table 7)	2,915	2,945
f. Total - Others	8,658	8,830
3. Grand Total (1.a + 1.f + 2.f)	12,192	12,380

## Accounting Balance Sheet as of June 30, 2017 (dollars in thousands)

	Market Value	Cost Value
A. ASSETS		
1. Cash, Equivalents, Short-Term Securities	\$ 32,899	\$ 32,899
2. Investments		
a. Fixed Income	188,598	179,316
b. Equity	637,561	460,644
c. Real Estate	69,727	49,807
d. Alternative	102,628	95,209
3. Other Assets	3,289	3,289
B. TOTAL ASSETS	\$ 1,034,702	\$ 821,164
C. AMOUNTS CURRENTLY PAYABLE	\$ 2,453	\$ 2,453
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$ 187,955	\$ 187,966
2. Employer Reserves	844,294	630,745
3. Total Assets Available for Benefits	\$ 1,032,249	\$ 818,711
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	\$ 1,034,702	\$ 821,164
F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Market Value of Assets Available for Benefits (D.3)	\$ 1,032,249	
2. Unrecognized Asset Returns		
a. June 30, 2017	\$ 54,191	
b. June 30, 2016	(77,451)	
c. June 30, 2015	(55,629)	
d. June 30, 2014	95,762	
3. UAR Adjustment: $.80 * 2(a) + .60 * 2(b) + .40 * 2(c) + .20 * 2(d)$	(6,218)	
4. Actuarial Value of Assets: (F.1 - F.3)	\$ 1,038,467	

	Market Value
DERIVATION OF OTHER ASSETS *	
Accounts Receivable	
Employer Contribution	\$ 368
Employee Contribution	256
Service Purchases Receivable	31
Pensions Receivable	10
State Contributions	838
Real Estate Income Receivable	81
Commission Recapture Receivable	1
Interest Receivable	617
Dividend Receivable	93
Misc. Receivable	-
Escrow Funds receivable	-
Sale of Securities	941
Total Accounts Receivable	\$ 3,236
Fixed Assets	53
Total Other Assets	\$ 3,289

*\*Numbers may not add due to rounding.*

## Change(s) in Assets Available for Benefits as of June 30, 2017 (dollars in thousands)

	Market Value	Cost Value
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$ 959,666	\$ 838,738
B. OPERATING REVENUES		
1. Member Contributions	\$ 20,146	\$ 20,146
2. Employer Contributions	27,543	27,543
3. Supplemental Contributions	10,665	10,665
4. Reemployed Annuitant Employer Contributions	142	142
5. Investment Income	12,999	12,999
6. Investment Expenses	(4,823)	(4,823)
7. Net Realized Gain / (Loss)	27,933	27,933
8. Other	0	0
9. Net Change in Unrealized Gain / (Loss)	92,610	0
10. Total Operating Revenue	\$ 187,215	\$ 94,605
C. OPERATING EXPENSES		
1. Service Retirements	\$ 100,965	\$ 100,965
2. Disability Benefits	605	605
3. Survivor Benefits	11,201	11,201
4. Refunds	972	972
5. Administrative Expenses	889	889
6. Total Operating Expenses	\$ 114,632	\$ 114,632
D. OTHER CHANGES IN RESERVES	\$ 0	\$ 0
E. ASSETS AVAILABLE AT END OF PERIOD	\$ 1,032,249	\$ 818,711
F. DETERMINATION OF CURRENT YEAR UNRECOGNIZED ASSET RETURN		
1. Average Balance		
(a) Assets available at BOY		\$ 959,666
(b) Assets available at EOY		1,032,249
(c) Average balance $\{[(a) + (b) - \text{Net Investment Income}] / 2\}$ {Net investment income: B.5+B.6+B.7+B.9}		\$ 931,598
2. Expected Return: $.080 * F.1$		74,528
3. Actual Return		128,719
4. Current Year Gross Asset Gain/(Loss): $F.3 - F.2$		\$ 54,191



## Actuarial Balance Sheet as of July 1, 2017 (dollars in thousands)

A. CURRENT ASSETS (TABLE 1; Line F.4)	\$	1,038,467
B. EXPECTED FUTURE ASSETS		
1. Present Value of Expected Future Statutory Supplemental Contributions*	\$	498,890
2. Present Value of Future Normal Costs		236,293
3. Total Expected Future Assets	\$	<u>735,183</u>
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS	\$	<u>1,773,650</u>
D. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS	\$	<u>1,847,501</u>
E. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (D - C)	\$	73,851

\* Includes the effect of scheduled employee and employer contribution increases and supplemental state contributions.

## Determination of Unfunded Actuarial Accrued Liability (UAAL) and Supplemental Contribution Rate as of July 1, 2017 (dollars in thousands)

	Actuarial Present Value of Projected Benefits	Actuarial Present Value of Future Normal Costs	Actuarial Accrued Liability
A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)			
1. Active Members*			
a. Retirement Benefits	\$ 635,767	\$ 172,486	\$ 463,281
b. Disability Benefits	\$ 13,751	\$ 5,338	\$ 8,413
c. Surviving Spouse and Child Benefits	\$ 9,245	\$ 3,207	\$ 6,038
d. Vested Withdrawals	\$ 36,648	\$ 41,163	\$ (4,515)
e. Refund Liability Due to Death or Withdrawal	\$ 2,989	\$ 14,099	\$ (11,110)
f. Total	\$ 698,400	\$ 236,293	\$ 462,107
2. Deferred Retirements	\$ 77,599	\$ 0	\$ 77,599
3. Former Members without Vested Rights	\$ 2,812	\$ 0	\$ 2,812
4. Annuitants	\$ 1,068,690	\$ 0	\$ 1,068,690
5. Total	\$ 1,847,501	\$ 236,293	\$ 1,611,208
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. Actuarial Accrued Liability (A.5)			\$ 1,611,208
2. Current Assets (Table 1; Line F.4)			\$ 1,038,467
3. Unfunded Actuarial Accrued Liability (B.1 - B.2)			\$ 572,741
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE**			
1. Present Value of Future Payrolls Through the Amortization Date of June 30, 2042***			\$ 4,440,299
2. Supplemental Contribution Rate (B.3 / C.1)			12.90%

\* Includes members on leave of absence.

\*\* The amortization of the unfunded actuarial accrued liability (UAAL) using the current amortization method results in initial payments less than the "interest only" payment on the UAAL. Payments less than the interest only amount will result in the UAAL increasing for an initial period of time.

\*\*\* Calculated using 8.0% annual investment return rate.

## Changes in Unfunded Actuarial Accrued Liability (UAAL) as of July 1, 2017 (dollars in thousands)

A. UAAL AT BEGINNING OF YEAR	\$	585,210
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING		
1. Normal Cost and Expenses	\$	24,987
2. Contributions	\$	(58,496)
3. Interest	\$	45,441
4. Total	<u>\$</u>	<u>11,932</u>
C. EXPECTED UAAL AT END OF YEAR (A + B.4)	\$	597,142
D. INCREASE / (DECREASE) DUE TO ACTUARIAL LOSSES / (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED		
1. Age and Service Retirements	\$	534
2. Disability Retirements		(62)
3. Death-in-Service Benefits		128
4. Withdrawals		(925)
5. Salary Increases		(145)
6. Investment Income		(7,976)
7. Mortality of Annuitants		2,342
8. Other Items		(10,118)
9. Total	<u>\$</u>	<u>(16,222)</u>
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTIONS (C + D.9)	\$	580,920
F. CHANGE IN UAAL DUE TO PLAN AMENDMENTS		-
G. CHANGE IN UAAL DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS		(8,179)
H. UAAL AT END OF YEAR (E + F + G)	<u>\$</u>	<u>572,741</u>

## Determination of Contribution Sufficiency as of July 1, 2017 (dollars in thousands)

	<u>Percent-of- Payroll</u>	<u>Dollar Amount</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	7.50%	\$ 21,069
2. Employer Contributions		
a. Regular	6.50%	18,265
b. Additional	3.84%	10,782
3. Supplemental Contribution		
a. 1996 Legislation	0.30%	838
b. 1997 Legislation	1.01%	2,827
c. 2014 Legislation	2.49%	7,000
4. Total	<u>21.64%</u>	<u>\$ 60,781</u>
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	6.62%	\$ 18,596
b. Disability Benefits	0.19%	535
c. Surviving Spouse and Child Benefits	0.12%	336
d. Vested Withdrawals	1.48%	4,157
e. Refund Liability Due to Death or Withdrawal	0.52%	1,463
f. Total	<u>8.93%</u>	<u>\$ 25,087</u>
2. Supplemental Contribution Amortization	12.90%	36,221
3. Allowance for Administrative Expenses	0.33%	927
4. Total	<u>22.16%</u>	<u>\$ 62,235</u>
C. CONTRIBUTION SUFFICIENCY / (DEFICIENCY) (A.4 - B.4)	(0.52%)	(1,454)
Projected Annual Payroll for Fiscal Year Beginning on the Valuation Date:		\$ 280,785

# Actuarial Methods and Assumptions as of July 1, 2017

## I. ACTUARIAL COST METHOD

An Actuarial Cost Method is a set of techniques used by the actuary to develop contribution levels under a retirement plan. The Actuarial Cost Method used in this valuation for all purposes is the Entry Age Actuarial Cost Method. Under this Method, a Normal Cost is developed by amortizing the actuarial value of benefits expected to be received by each active participant (as a level percentage of pay) over the total working lifetime of that participant, from hire to termination. Years of Service for valuation purposes was provided by the Retirement Fund. Age as of the valuation date was calculated based on the dates of birth provided by the Retirement Fund. Entry Age for valuation purposes was calculated as the age on the valuation date minus the years of service on the valuation date.

To the extent that current assets and future Normal Costs do not support participants' expected future benefits, an Unfunded Actuarial Accrued liability ("UAAL") develops. The UAAL is amortized over the closed statutory amortization period ending June 30, 2042 using level percent-of-payroll assuming payroll increases of 4.00% per annum. The total contribution developed under this method is the sum of the Normal Cost and the payment toward the UAAL.

## II. CURRENT ACTUARIAL ASSUMPTIONS

The assumptions were last updated for the July 1, 2017 valuation as a result of an analysis of Combined Service Annuity assumptions completed by the LCPR Actuary and documented in a report dated October 2016. Other assumptions are based on an experience study for the five-year period of July 1, 2006 to June 30, 2011, as well as a legislated change to the investment return assumption effective July 1, 2015.

An experience study for the 2011 to 2016 period is currently in process. This report recommends many changes to demographic assumptions, expected to be effective at a future date.

### A. Demographic Assumptions

Mortality:

1. Healthy Mortality\*:
  - a. Male: RP-2000 Combined Mortality Table for males projected with Scale AA to 2020 set back 1 year
  - b. Female: RP-2000 Combined Mortality Table for females projected with Scale AA to 2020 set back 3 years
2. Disabled Mortality:
  - a. Male: RP-2000 Disabled Life Mortality Table for males
  - b. Female: RP-2000 Disabled Life Mortality Table for females

\* Mortality rates were adjusted to include margin for future mortality improvement as described in the table name above.

## Actuarial Methods and Assumptions as of July 1, 2017

*Deaths Expressed as the Number of Occurrences per 10,000:*

<u>Age</u>	<u>Healthy Mortality</u>		<u>Disabled Mortality</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
20	2	1	226	75
21	2	1	226	75
22	2	1	226	75
23	3	1	226	75
24	3	1	226	75
25	3	1	226	75
26	3	1	226	75
27	3	1	226	75
28	3	2	226	75
29	4	2	226	75
30	4	2	226	75
31	4	2	226	75
32	5	2	226	75
33	5	2	226	75
34	6	3	226	75
35	6	3	226	75
36	7	3	226	75
37	8	4	226	75
38	8	4	226	75
39	9	4	226	75
40	9	4	226	75
41	9	5	226	75
42	10	5	226	75
43	10	5	226	75
44	10	6	226	75

## Actuarial Methods and Assumptions as of July 1, 2017

*Deaths Expressed as the Number of Occurrences per 10,000:*

<u>Age</u>	<u>Healthy Mortality</u>		<u>Disabled Mortality</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
45	11	6	226	75
46	12	7	238	82
47	12	8	251	90
48	13	8	264	98
49	13	9	277	106
50	14	9	290	115
51	15	10	303	125
52	17	11	316	135
53	18	12	329	145
54	19	13	342	155
55	21	15	354	165
56	25	17	367	176
57	29	20	380	187
58	33	23	393	197
59	38	27	407	208
60	43	31	420	218
61	49	35	435	229
62	57	40	450	241
63	65	46	466	253
64	76	53	483	266
65	85	60	502	280
66	96	69	522	296
67	111	78	545	313
68	124	88	569	332
69	135	99	596	353

## Actuarial Methods and Assumptions as of July 1, 2017

Rates of Disability:

*Disability Expressed as the Number of Occurrences per 10,000:*

Age	Disability	Age	Disability
20	2	45	5
21	2	46	5
22	2	47	5
23	2	48	5
24	2	49	5
25	2	50	10
26	2	51	10
27	2	52	10
28	2	53	10
29	2	54	10
30	3	55	20
31	3	56	20
32	3	57	20
33	3	58	20
34	3	59	20
35	3	60	40
36	3	61	40
37	3	62	40
38	3	63	40
39	3	64	40
40	3		
41	3		
42	3		
43	3		
44	3		



## Actuarial Methods and Assumptions as of July 1, 2017

### Rates of Termination:

Years of Service	Number of Terminations per 1,000 Active Members	
	Male	Female
0	400	400
1	180	180
2	140	140
3	100	100
4	60	67
5	50	59
6	45	51
7	41	43
8	37	35
9	33	31
10	29	27
11	25	23
12	20	19
13	20	15
14	20	13
15 & Over	20	13

### Rates of Retirement:

*Retirements Expressed as the Number of Occurrences per 10,000:*

Age	Basic Members Eligible for Rule of 90 Provision	Basic Members Not Eligible for Rule of 90 Provision	Male Coordinated Members Eligible for Rule of 90 Provision	Female Coordinated Members Eligible for Rule of 90 Provision	Male Coordinated Members Not Eligible for Rule of 90 Provision	Female Coordinated Members Not Eligible for Rule of 90 Provision
55	5,000	800	3,500	3,500	700	500
56	5,000	1,300	3,500	3,500	700	500
57	4,000	1,300	3,500	3,500	700	500
58	4,000	1,800	3,500	3,500	700	500
59	3,500	1,800	3,500	3,500	700	500
60	3,500	2,000	3,500	3,500	1,100	800
61	3,500	2,000	3,500	3,500	1,500	1,100
62	3,500	4,000	3,500	3,500	1,900	1,400
63	3,500	4,000	3,500	3,500	2,300	1,900
64	4,000	4,000	3,500	4,000	2,700	2,400
65	5,000	5,000	3,500	5,000	3,100	3,500
66	3,000	5,000	3,500	5,000	3,500	3,500
67	3,000	5,000	3,500	5,000	3,500	3,500
68	3,000	5,000	3,500	5,000	3,500	3,500
69	3,000	5,000	3,500	5,000	3,500	3,500
70 & Over	10,000	10,000	10,000	10,000	10,000	10,000

## Actuarial Methods and Assumptions as of July 1, 2017

### B. Economic Assumptions

Investment Return Rate: 8.00%

Cost-of-Living Increases: 1.00% per year through 2041; 2.00% beginning 2042; 2.50% beginning 2052.

Wage Inflation: 4.00% per year

Future Salary Increases: In addition to the age-based rates shown below, during the first 15 years of employment, a service-based component of  $0.20\% \times (15-T)$ , where T is completed years of service, is included in the salary increase used.

#### Annual Salary Increases

Age	Ultimate Rate of Annual Salary Increases	Age	Ultimate Rate of Annual Salary Increases
<22	5.90%	45	4.75%
23	5.85	46	4.70
24	5.80	47	4.65
		48	4.60
25	5.75	49	4.55
26	5.70		
27	5.65	50	4.50
28	5.60	51	4.45
29	5.55	52	4.40
		53	4.35
30	5.50	54	4.30
31	5.45		
32	5.40	55	4.25
33	5.35	56	4.20
34	5.30	57	4.15
		58	4.10
35	5.25	59	4.05
36	5.20		
37	5.15	60 & Over	4.00
38	5.10		
39	5.05		
40	5.00		
41	4.95		
42	4.90		
43	4.85		
44	4.80		

Asset Value: The actuarial value of assets is smoothed by using a five-year average market value.

## **Actuarial Methods and Assumptions as of July 1, 2017**

### **C. Other Assumptions**

Marital Status:	It is assumed that 75% of male members and 60% of female members have an eligible spouse. The male spouse is assumed to be two years older than the female spouse. Married members are assumed to have two dependent children.
Deferred Benefit Commencement:	Basic Plan members who terminate vested are assumed to commence benefits at age 61. Coordinated Plan members are assumed to commence benefits at age 62. If the member is already past the assumed deferral age, the member is assumed to commence benefits one year from the valuation date.
Administrative Expenses:	Prior year administrative expenses (excluding investment expenses) are expressed as a percentage-of-payroll and then applied to current projected payroll.
Refund of Contributions:	All employees withdrawing after becoming eligible for a deferred benefit take the larger of their contributions accumulated with interest or the value of their deferred benefit. Account balances for deferred members accumulate interest until the assumed benefit commencement date and are discounted back to the valuation date.
Allowance for Combined Service Annuity:	20.0% load on liabilities for former, vested members. 9.0% load on liabilities for former, non-vested members.
Missing Salary and Salary Minimums:	Active members with reported salaries of \$100 or less were assumed to have the average non-zero active salary. Active members with salaries less than those reported at the prior valuation date are valued using their prior salary amount. Active members who have been hired within one year of the valuation date have had their pay annualized by dividing by months of service credited, not to exceed the average non-zero active salary. For members on leave of absence at valuation date who were not on leave at the prior valuation date, the prior year's valuation pay was used.
Missing Data for Deferred Vested Members:	Deferred vested members without a reported benefit and without salary information were assumed to have a final average salary of \$40,000.
Decrement Timing:	Retirement and Termination: end of valuation year – consistent with retirements and terminations occurring at the end of the school year. Death and Disability: middle of valuation year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Service Credit Accruals:	It is assumed that members accrue one year of service credit per year. Exact fractional service is used to determine the amount of benefit payable.

## Actuarial Methods and Assumptions as of July 1, 2017

Valuation of Future Post-Retirement Benefit Increases: If the plan has reached the funding ratio threshold required to pay a different benefit increase, Minnesota Statutes require the benefit increase rate to be reflected in the liability calculations. If the plan has not yet reached the funding ratio threshold required to pay a benefit increase, Minnesota Statutes require a projection to be performed to determine the expected attainment of the funding ratio thresholds, and the expected payment of benefit increases must be reflected in the liability calculations.

Supplemental Contributions: 1996 legislation provides for a variable amortization aid contribution paid annually on July 15. We assumed the annual amortization aid contribution will equal \$838,000, which was the actual contribution for the most recent fiscal year. Additionally, according to 1997 legislation, annual supplemental contributions currently equal to \$2,827,000 are scheduled to be paid on October 1. According to 2014 legislation, the State of Minnesota will make annual additional supplemental contributions of \$7,000,000 on October 1. The contributions described herein will continue until the plan is 100% funded or until June 30, 2042, whichever occurs earlier.

Projected Annual Payroll Calculation: The census data as of July 1, 2017 reflects retirements and terminations occurring during the months of May and June; however, it does not necessarily reflect the replacements hired to fill their positions who may have hire dates in August and September. We assumed that May and June retirements are replaced by members coming in at the B.A. entry salary level of \$44,759; and the Projected Annual Payroll for the fiscal year ending June 30, 2018 includes this replacement salary amount.

Changes in Actuarial Assumptions Since the Prior Valuation: The Combined Service Annuity (CSA) loads on liabilities were changed as follows:

	Active Pre-89	Active Post-89	Vested Terminated	Non-Vested Terminated
Prior	7.0%	2.0%	30.0%	30.0%
Current	0.0%	0.0%	20.0%	9.0%

The assumed cost-of-living adjustments were changed from 1.00% per year through 2054; 2.00% beginning 2055; 2.50% beginning 2066 to 1.00% per year through 2041; 2.00% beginning 2042; 2.50% beginning 2052.

**APPENDIX – *State Auditor’s Report***

# STATE OF MINNESOTA

## Office of the State Auditor



**Rebecca Otto**  
**State Auditor**

The Office of the State Auditor audits the financial statements of the SPTRFA. However, their report for the most recent fiscal year was still pending completion at the time this report went to print. The full report will be published on the website of the Minnesota Office of the State Auditor <http://www.osa.state.mn.us>

**ST. PAUL TEACHERS' RETIREMENT FUND ASSOCIATION**  
**ST. PAUL, MINNESOTA**

**FOR THE YEAR ENDED JUNE 30, 2017**