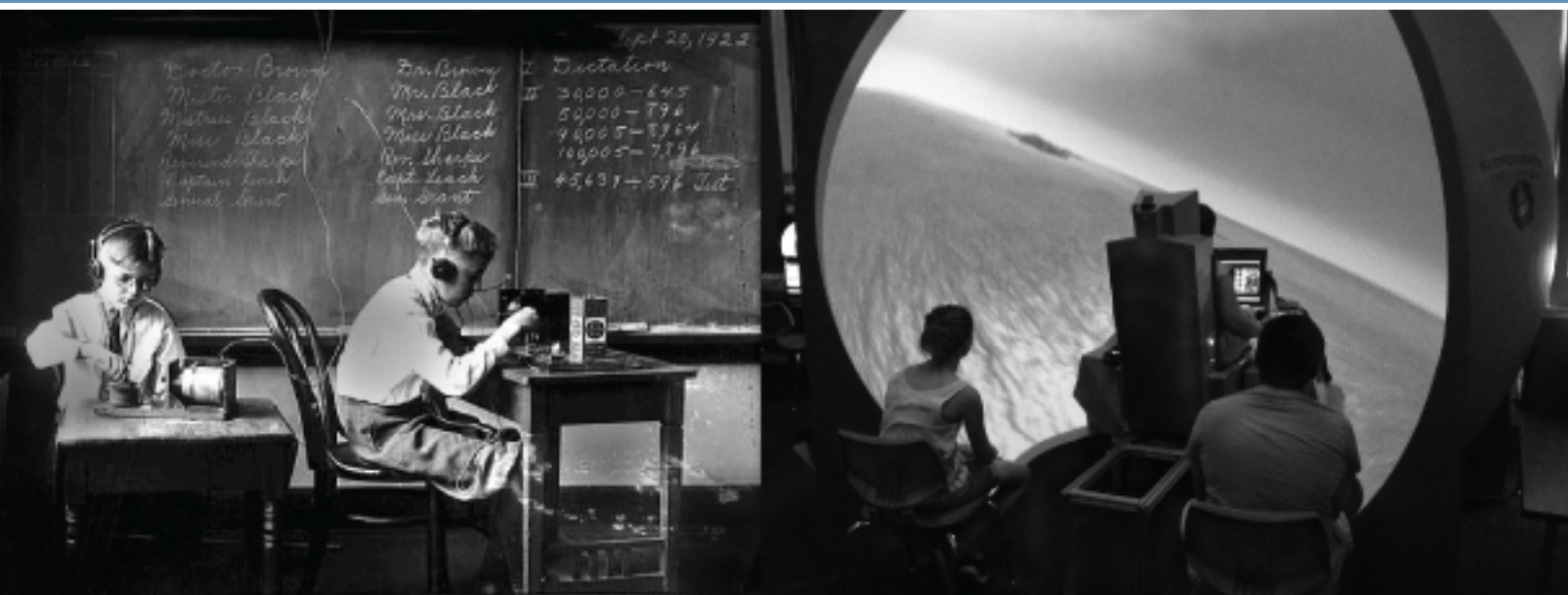


# St. Paul Teachers' Retirement Fund Association

Serving the retirement needs of St. Paul Teachers since 1909



ANNUAL REPORT

Democracy depends on Education  
Education depends on Teachers

FYE 2021



# ST. PAUL TEACHERS' RETIREMENT FUND ASSOCIATION

## Annual Report

for the fiscal year ended June 30, 2021

St. Paul Teachers' Retirement Fund Association  
2550 University Ave W 312N  
St. Paul, MN 55114-1005

Phone 651-642-2550  
Fax 651-642-2553  
[www.sptrfa.org](http://www.sptrfa.org)

Jill E. Schurtz  
Executive Director / CIO

Christine MacDonald  
Deputy Director / CFO

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## Mission

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

Assist 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.

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

## SPTRFA Board of Trustees

|                      |                    |
|----------------------|--------------------|
| Mike McCollor        | President          |
| Lori Borgeson        | Vice President     |
| W. Matt Bogenschultz | Secretary          |
| Michael McKay        | Treasurer          |
| Zuki Ellis           | Ex-Officio Trustee |
| Thomas Koreltz       | Trustee            |
| Xong Moua            | Trustee            |
| Karen A. Odegard     | Trustee            |
| Stephanie Pignato    | Trustee            |
| Margaret Schiller    | Trustee            |

## SPTRFA Staff

|                     |                                    |
|---------------------|------------------------------------|
| Jill E Schurtz      | Executive Director / CIO           |
| Christine MacDonald | Deputy Director / CFO              |
| Nancy Langer        | Member Services and Outreach       |
| Rachel Pastick      | Communications and Member Services |
| Janet Williams      | Operations and Member Services     |
| Tamera Zielinski    | Administrative Assistant           |

# St. Paul Teachers' Retirement Fund Association

---

## TRUSTEES & OFFICERS

Zuki Ellis  
Thomas Koreltz  
Xong Moua

Karen Odegard  
Stephanie Pignato  
Maggi Schiller

Mike McCollor ..... President  
Lori Borgeson..... Vice President  
W. Matthew Bogenschultz.... Secretary  
Mike McKay ..... Treasurer  
Jill E. Schurtz ..... Executive Director

2550 University Ave W STE 312N  
Saint Paul, MN 55114  
Phone (651) 642-2550  
Fax (651) 642-2553  
Online: [www.sptrfa.org](http://www.sptrfa.org)

## Letter of Transmittal

---

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, 2021, 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 and Fund 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 (OSA) 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. This report will be made publicly available on the website of the Minnesota Office of the State Auditor, <https://www.osa.state.mn.us>.



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 service the needs of our 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 112 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,



Executive Director / CIO



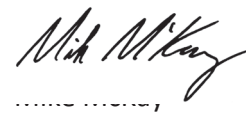
President



Vice President



Secretary



Treasurer

# Independent Professional Service Providers

## As of June 30, 2021

### **Actuary**

Gabriel Roeder Smith & Company

### **Auditor**

Minnesota Office of the State Auditor

### **Investment Managers**

Barrow, Hanley, Mewhinney & Strauss, LLC  
BlackRock Institutional Trust Co.  
Brandywine Global Investment Management, LLC  
Dimensional Fund Advisors, LP  
Dune Real Estate Partners  
EnTrust Global  
Franklin Park  
Guggenheim Partners Investment Management, LLC  
JPMorgan Investment Management, Inc.  
Mellon Investments Corp  
Morgan Stanley Investment Management, Inc.  
North Sky Capital  
Parametric Portfolio Associates, LLC  
Securian Asset Management, Inc.  
Minnesota State Board of Investment  
TCW Asset Management Co.  
UBS Realty Investors, LLC  
Venture Investment Associates  
Wellington Management Company, LLP

### **Investment Custodian**

U.S. Bank

### **Investment Performance Consultant**

Asset Consulting Group

### **IT Services**

Sagitec  
Corporate Technologies

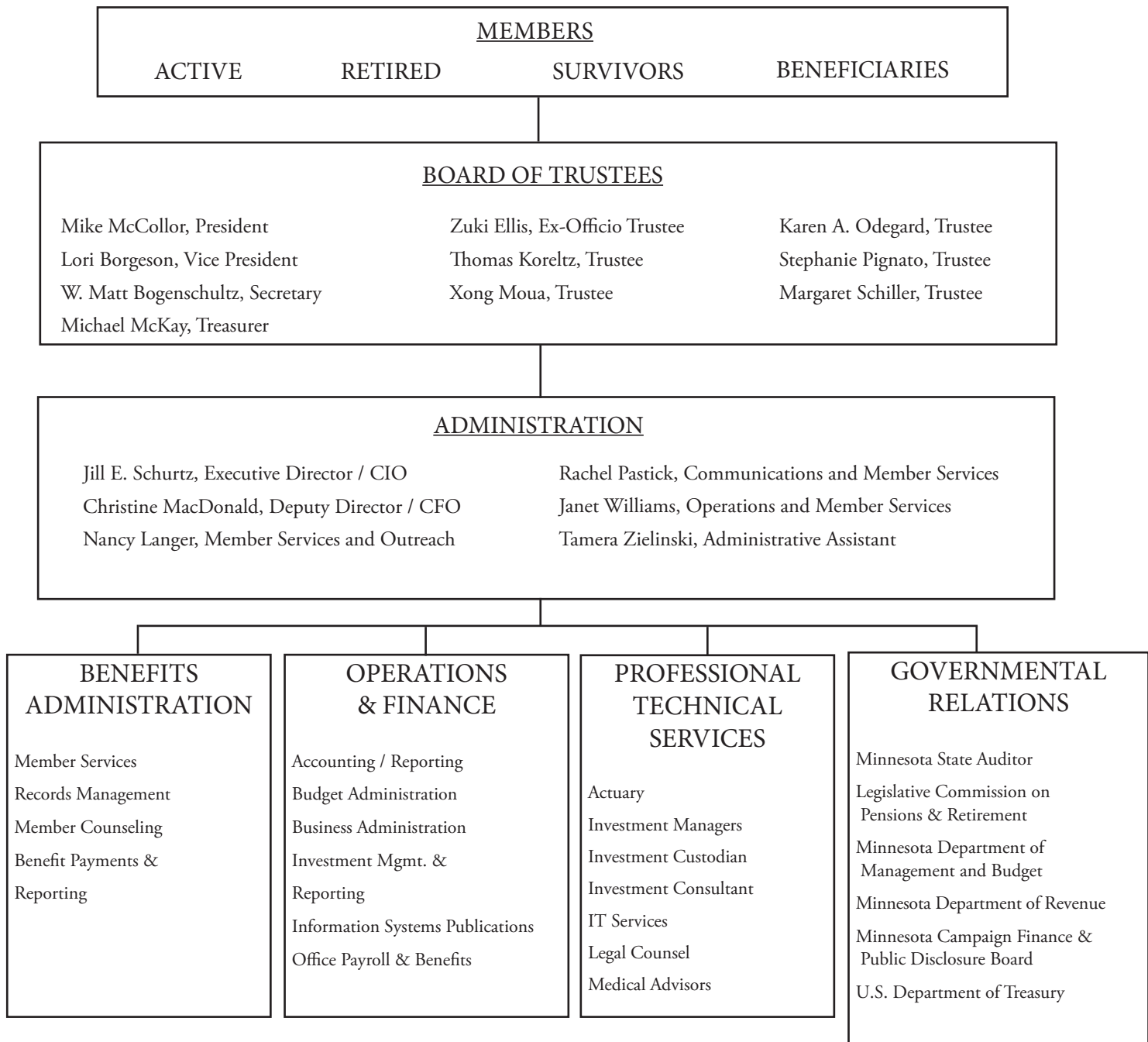
### **Legal Counsel**

Fox Rothschild, LLC  
Rice, Michels & Walther, LLP

### **Medical Advisors**

Dr. Ronald Vessey M.D.  
Dr. David Johnson M.D.

# Organizational Chart



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## BENEFITS

## Pre-Retirement Topics

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Membership</b>                          | SPTRFA membership is mandatory upon employment in any position requiring a license issued by the MN Professional Educator Licensing and Standards Board 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, and 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.                 |
| <b>Disability Benefit</b>                  | Subject to certain requirements, a disability benefit is available to vested members who become totally and permanently disabled.                                                                                                                                                                                                                                                                                             |

## Retirement Topics

### **Basic Plan Retirement Options**

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.

### **Coordinated Plan Retirement Options**

At the time of retirement, Coordinated Plan members select one of the five benefit annuity options below:

#### **C1     Member Life Only**

Monthly benefit payable for life to the member, with nothing payable after the member's death.

#### **C2     Guaranteed Refund**

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.

#### **C3     15-Year Certain**

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.

#### **C4     100% Joint & Survivor**

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.

#### **C5     50% Joint & Survivor**

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.

## Post-Retirement Topics

### **Post-Retirement SPPS Reemployment**

If a retired member is reemployed by SPPS prior to Social Security Normal Retirement Age, 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 Social Security Normal Retirement Age, 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. Post-retirement adjustments for members in retirement for at least a full year are currently 1.0%

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 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 in effect for eligible Basic Plan members during FY2021.

| Normal<br>Benefit | Minimum    |         | Computation of Annual Benefit                                                    |
|-------------------|------------|---------|----------------------------------------------------------------------------------|
|                   | Age        | Service |                                                                                  |
| Tier 1            |            |         |                                                                                  |
| 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. |

### Tier 2

|           |    |   |                                                                      |
|-----------|----|---|----------------------------------------------------------------------|
| Unreduced | 65 | 5 | FAS x YOS x 2.5%                                                     |
| Reduced   | 55 | 5 | Formula reduced for early retirement by the use of actuarial tables. |

### Deferred Retirement

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |    |   |                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 55 | 5 | Annual Benefit (see above) with augmentation.* |
| <p>* 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.</p> <p>Augmented by 2.5% for all years if first hired on or after July 1, 2006.</p> <p>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> <p>Augmentation was eliminated as of July 1, 2019, for the portion of benefit deferral occurring after June 30, 2019.</p> |    |   |                                                |

\* Please note that as of July 1, 2020, there are no remaining Basic Plan members in active status.

## Coordinated Plan - Summary of 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 in effect for eligible Coordinated Plan members during FY2021.

| Normal<br>Benefit   | Minimum    |                                | Computation of Annual Benefit                                                                     |
|---------------------|------------|--------------------------------|---------------------------------------------------------------------------------------------------|
|                     | Age        | Service                        |                                                                                                   |
| Tier 1              |            |                                |                                                                                                   |
| Unreduced           | Rule of 90 |                                | <div>(FAS x First 10 YOS x Multiplier*)<br/>+<br/>(FAS x YOS greater than 10 x Multiplier*)</div> |
|                     | 62         | 30                             |                                                                                                   |
|                     | 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.                  |
| *Tier 1 Multipliers |            |                                |                                                                                                   |
|                     |            | First 10 YOS                   | Over 10 YOS                                                                                       |
|                     |            | Service Prior to July 1, 2015  | 1.2%                                                                                              |
|                     |            | Service Effective July 1, 2015 | 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: |   |                                                              |
| Reduced                                                                                                                                                                                  | 66                                          | 3 | FAS x YOS x Multiplier*                                      |
|                                                                                                                                                                                          | 55                                          | 3 | Reduced for early retirement by the use of actuarial tables. |
| <div> <div>*Tier 2 Multipliers</div> <div> <div>Service Prior to July 1, 2015</div> <div>Service Effective July 1, 2015</div> </div> </div> <div> <div>1.7%</div> <div>1.9%</div> </div> |                                             |   |                                                              |

### Deferred Retirement

|         |    |                                                |
|---------|----|------------------------------------------------|
| 55      | 3  | Annual Benefit (see above) with augmentation.* |
| Any Age | 30 |                                                |

\* 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.

Augmentation was eliminated as of July 1, 2019, for the portion of benefit deferral occurring after June 30, 2019.

## Retirement History Record

| Fiscal Year<br>Ending | Pensions<br>Granted | Persons<br>On Payroll | Benefits<br>Paid (\$) | Fiscal Year<br>Ending | Pensions<br>Granted | Persons On<br>Payroll | Benefits<br>Paid (\$) |
|-----------------------|---------------------|-----------------------|-----------------------|-----------------------|---------------------|-----------------------|-----------------------|
| 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             | June 2018             | 138                 | 3,914                 | 115,315,754           |
| December 1973         | 36                  | 744                   | 3,039,253             | June 2019             | 154                 | 4,007                 | 116,389,114           |
| December 1974         | 46                  | 754                   | 3,372,453             | June 2020             | 175                 | 4,102                 | 117,305,464           |
|                       |                     |                       |                       | June 2021             | 156                 | 4,172                 | 118,664,956           |

\*Pensions Granted - Does not include survivors or beneficiaries.

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## INVESTMENTS

## Investment Returns for Fiscal Year End June 30, 2021

|                                              | <b>Assets Under<br/>Management<br/>(Market Value)</b> | <b>Fiscal Year<br/>Investment<br/>Performance</b> |
|----------------------------------------------|-------------------------------------------------------|---------------------------------------------------|
| <b>Domestic Equity</b>                       |                                                       |                                                   |
| Barrow, Hanley, Mewhinney & Strauss, Inc.    | 68,956,325                                            | 49.06%                                            |
| BlackRock S&P 500                            | 13,610,481                                            | 40.83%                                            |
| Newton Investment Management                 | 31,884,372                                            | 53.74%                                            |
| Dimensional Fund Advisors, Inc.              | 45,930,031                                            | 83.98%                                            |
| State Board of Investments - Domestic Equity | 341,971,152                                           | 44.72%                                            |
| Wellington Management Company, LLP           | 74,209,919                                            | 40.22%                                            |
|                                              | <b>576,562,280</b>                                    |                                                   |
| <b>International Equity</b>                  |                                                       |                                                   |
| State Board of Investments - Int'l Equity    | 114,412,725                                           | 37.17%                                            |
|                                              | <b>114,412,725</b>                                    |                                                   |
| <b>Global Equity</b>                         |                                                       |                                                   |
| BlackRock iShares ETF                        | 22,006,282                                            | 43.43%                                            |
| Morgan Stanley Global Franchise              | 87,330,330                                            | 24.77%                                            |
| JP Morgan Focus                              | 129,041                                               |                                                   |
|                                              | <b>109,465,653</b>                                    |                                                   |
| <b>Fixed Income</b>                          |                                                       |                                                   |
| Brandywine Global Opportunistic Fixed        | 34,926,042                                            | 13.14%                                            |
| Guggenheim Core Plus                         | 124,398,290                                           | 5.36%                                             |
| Vanguard Short Term Bond Index               | 14,035,859                                            | 0.28%                                             |
|                                              | <b>173,360,191</b>                                    |                                                   |
| <b>Real Assets</b>                           |                                                       |                                                   |
| Securian                                     | 42,740,765                                            | 38.66%                                            |
| UBS Trumbull Fund                            | 32,624,654                                            | 2.01%                                             |
| Private Real Estate - Dune III and Dune IV   | 4,874,778                                             | 3.25%                                             |
| Parametric - TIPS                            | 14,681,133                                            | 6.33%                                             |
|                                              | <b>94,921,330</b>                                     |                                                   |
| <b>Private Equity</b>                        |                                                       |                                                   |
| Go Secure Edgewage (GSEW)                    | 86,980                                                |                                                   |
| Franklin Park                                | 100,813,740                                           |                                                   |
| North Sky                                    | 3,215,345                                             |                                                   |
| TCW LLC                                      | 3,563,068                                             |                                                   |
| VIA Partners                                 | 2,383,788                                             |                                                   |
|                                              | <b>110,062,920</b>                                    | 40.22%                                            |
| <b>Opportunistic</b>                         |                                                       |                                                   |
| Entrust                                      | 12,505,530                                            | 47.06%                                            |
| Parametric Defensive Equity                  | 29,332,901                                            | 24.38%                                            |
|                                              | <b>41,838,431</b>                                     |                                                   |
| <b>Cash</b>                                  |                                                       |                                                   |
| Cash - US Bank Custody                       | 59,932,618                                            | 0.03%                                             |
| Parametric Cash Overlay                      | 6,039,334                                             | 32.97%                                            |
|                                              | <b>65,971,953</b>                                     |                                                   |
| <b>Total Fund (net of fees)</b>              | <b>1,286,595,483</b>                                  | <b>32.65%</b>                                     |
| <b>Total Fund Benchmark</b>                  |                                                       | <b>26.93%</b>                                     |
| Cash - US Bank Checking                      | 14,486,791                                            |                                                   |
| <b>Total Investable Assets</b>               | <b>1,301,082,274</b>                                  |                                                   |

## ACTUARIAL SECTION



January 10, 2022

Ms. Jill E. Schurtz, Executive Director  
St. Paul Teachers' Retirement Fund Association  
2550 University Avenue W, Suite 312N  
St. Paul, Minnesota 55114

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, 2021. This report provides, among other things, the required annual contribution rate of the Fund for the Plan Year commencing July 1, 2021 and ending on June 30, 2022, according to prescribed assumptions.

The valuation was based upon data and information through June 30, 2021 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.

Based on analysis of long-term rate of investment return and inflation assumptions, GRS has determined the current investment return assumption of 7.50% is within a reasonable range for the July 1, 2021 valuation, but cautions that declining capital market expectations may result in 7.5% being deemed unreasonable for future valuations. Please see our letter dated September 28, 2021 for additional information. For informational purposes, results based on various discount rates are shown on page 5.

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 10, 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.

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.



Ms. Jill E. Schurtz  
St. Paul Teachers' Retirement Fund Association  
January 10, 2022  
Page 2

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 was prepared using our proprietary valuation model and related software which, in our professional judgment, has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

This report reflects the impact of COVID-19 through June 30, 2021. It does not reflect the ongoing impact of COVID-19, which is likely to influence demographic and investment experience, at least in the short term. We will continue to monitor these developments and their impact on the plan.

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.

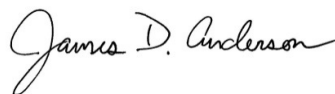
This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. Bonita J. Wurst, James D. Anderson, and Sheryl L. Christensen are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

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

Respectfully submitted,  
Gabriel, Roeder, Smith & Company



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



James D. Anderson, FSA, EA, FCA, MAAA



Sheryl L. Christensen, ASA, EA, FCA, MAAA

BJW/JDA/SLC:sc

## Summary of Valuation Results

### (Dollars in Thousands)

|                                                    | July 1, 2020     | July 1, 2021     |
|----------------------------------------------------|------------------|------------------|
|                                                    | <u>Valuation</u> | <u>Valuation</u> |
| A. CONTRIBUTIONS % OF PAYROLL (Table 11)           |                  |                  |
| 1. Statutory Contributions - Chapter 354A          | 25.16%           | 25.13%           |
| 2. Required Contributions - Chapter 356            | <u>21.58%</u>    | <u>20.51%</u>    |
| 3. Sufficiency / (Deficiency)                      | 3.58%            | 4.62%            |
| B. FUNDING RATIOS                                  |                  |                  |
| 1. Accrued Liability Funding Ratio                 |                  |                  |
| a. Current Assets (Table 1)                        | \$ 1,090,243     | \$ 1,159,954     |
| b. Actuarial Accrued Liability (Table 9)           | <u>1,691,236</u> | <u>1,729,621</u> |
| c. Funding Ratio                                   | 64.46%           | 67.06%           |
| 2. Projected Benefit Funding Ratio (Table 8)       |                  |                  |
| a. Current and Expected Future Assets              | \$ 2,026,327     | \$ 2,125,802     |
| b. Current and Expected Future Benefit Obligations | <u>1,889,239</u> | <u>1,939,622</u> |
| c. Funding Ratio                                   | 107.26%          | 109.60%          |
| C. PLAN PARTICIPANTS                               |                  |                  |
| 1. Active Members                                  |                  |                  |
| a. Number (Table 3)                                | 3,353            | 3,294            |
| b. Projected Annual Earnings*                      | \$ 287,501       | \$ 301,753       |
| c. Average Annual Earnings (Projected dollars)*    | \$ 82,247        | \$ 87,651        |
| d. Average Age                                     | 44.9             | 45.0             |
| e. Average Service                                 | 13.1             | 13.4             |
| f. Members on Leave of Absence                     | 92               | 105              |
| 2. Others                                          |                  |                  |
| a. Service Retirements (Table 4)                   | 3,721            | 3,782            |
| b. Disability Retirements (Table 5)                | 21               | 22               |
| c. Survivors (Table 6)                             | 360              | 369              |
| d. Deferred Retirements (Table 7)                  | 2,491            | 2,414            |
| e. Terminated Other Non-Vested (Table 7)           | <u>2,834</u>     | <u>2,941</u>     |
| f. Total - Others                                  | 9,427            | 9,528            |
| 3. Grand Total (1.a + 1.f + 2.f)                   | 12,872           | 12,927           |

\* Projected Annual Earnings includes expected payroll for teachers hired after the valuation date to replace retirements in May and June of 2021; Average Annual Earnings excludes this new teacher payroll. See page 38 for additional information.

# Table 1

## Accounting Balance Sheet

### as of June 30, 2021

### (Dollars in Thousands)

|                                                                         | <u>Market<br/>Value</u> |
|-------------------------------------------------------------------------|-------------------------|
| A. ASSETS                                                               |                         |
| 1. Cash, Equivalents, Short-Term Securities                             | \$ 17,103               |
| 2. Investments                                                          |                         |
| a. Fixed Income                                                         | 168,406                 |
| b. Equity                                                               | 840,923                 |
| c. Real Assets                                                          | 51,922                  |
| d. Alternative                                                          | 151,901                 |
| e. Cash and Cash Equivalents                                            | 73,443                  |
| 3. Other Assets                                                         | <u>23,752</u>           |
| B. TOTAL ASSETS                                                         | <u>\$ 1,327,450</u>     |
| C. AMOUNTS CURRENTLY PAYABLE                                            | \$ 32,386               |
| D. ASSETS AVAILABLE FOR BENEFITS                                        |                         |
| 1. Member Reserves                                                      | \$ 228,685              |
| 2. Employer Reserves                                                    | <u>1,066,379</u>        |
| 3. Total Assets Available for Benefits                                  | <u>\$ 1,295,064</u>     |
| E. TOTAL AMOUNTS CURRENTLY PAYABLE AND<br>ASSETS AVAILABLE FOR BENEFITS | <u>\$ 1,327,450</u>     |
| F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS                           |                         |
| 1. Market Value of Assets Available for Benefits (D.3)                  | \$ 1,295,064            |
| 2. Unrecognized Asset Returns                                           |                         |
| a. June 30, 2021                                                        | \$ 229,203              |
| b. June 30, 2020                                                        | (73,490)                |
| c. June 30, 2019                                                        | (18,200)                |
| d. June 30, 2018                                                        | 15,610                  |
| 3. UAR Adjustment: $.80 * 2(a) + .60 * 2(b) + .40 * 2(c) + .20 * 2(d)$  | <u>135,110</u>          |
| 4. Actuarial Value of Assets: (F.1 - F.3)                               | <u>\$ 1,159,954</u>     |
| DERIVATION OF OTHER ASSETS *                                            | <u>Market Value</u>     |
| Accounts Receivable                                                     |                         |
| Employer Contribution                                                   | \$ 1,979                |
| Employee Contribution                                                   | 1,180                   |
| Service Purchases Receivable                                            | 116                     |
| Pensions Receivable                                                     | 39                      |
| State Contributions                                                     | 838                     |
| Real Estate Income Receivable                                           | 115                     |
| Interest Receivable                                                     | 61                      |
| Dividend Receivable                                                     | 694                     |
| Sale of Securities                                                      | <u>18,729</u>           |
| Total Accounts Receivable                                               | \$ 23,752               |
| Fixed Assets                                                            | <u>-</u>                |
| Total Other Assets                                                      | <u>\$ 23,752</u>        |

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

## Change(s) in Assets Available for Benefits as of June 30, 2021 (Dollars in Thousands)

|                                                                          | <u>Market Value</u>        |
|--------------------------------------------------------------------------|----------------------------|
| A. ASSETS AVAILABLE AT BEGINNING OF PERIOD                               | \$ 1,037,613               |
| B. OPERATING REVENUES                                                    |                            |
| 1. Member Contributions                                                  | \$ 21,334                  |
| 2. Employer Contributions                                                | 35,111                     |
| 3. Supplemental Contributions                                            | 15,665                     |
| 4. Reemployed Annuitant Employer Contributions                           | 140                        |
| 5. Investment Income                                                     | 10,237                     |
| 6. Investment Expenses                                                   | (2,980)                    |
| 7. Net Realized Gain / (Loss)                                            | 103,225                    |
| 8. Other                                                                 | 0                          |
| 9. Net Change in Unrealized Gain / (Loss)                                | <u>194,750</u>             |
| 10. Total Operating Revenue                                              | \$ 377,482                 |
| C. OPERATING EXPENSES                                                    |                            |
| 1. Service Retirements                                                   | \$ 106,488                 |
| 2. Disability Benefits                                                   | 392                        |
| 3. Survivor Benefits                                                     | 11,785                     |
| 4. Refunds                                                               | 587                        |
| 5. Administrative Expenses                                               | <u>779</u>                 |
| 6. Total Operating Expenses                                              | <u>\$ 120,031</u>          |
| D. OTHER CHANGES IN RESERVES                                             | \$ 0                       |
| E. ASSETS AVAILABLE AT END OF PERIOD                                     | <u><u>\$ 1,295,064</u></u> |
| F. DETERMINATION OF CURRENT YEAR UNRECOGNIZED ASSET RETURN               |                            |
| 1. Average Balance                                                       |                            |
| (a) Assets available at BOY                                              | \$ 1,037,613               |
| (b) Assets available at EOY                                              | 1,295,064                  |
| (c) Average balance $\{[(a) + (b) - \text{Net Investment Income}] / 2\}$ | \$ 1,013,722               |
| {Net investment income: B.5+B.6+B.7+B.9}                                 |                            |
| 2. Expected Return: $.075 * F.1$                                         | 76,029                     |
| 3. Actual Return                                                         | 305,232                    |
| 4. Current Year Gross Asset Gain/(Loss): $F.3 - F.2$                     | \$ 229,203                 |

# Actuarial Balance Sheet

## as of July 1, 2021

### (Dollars in Thousands)

|                                                                            |                     |
|----------------------------------------------------------------------------|---------------------|
| A. CURRENT ASSETS (TABLE 1; Line F.4)                                      | \$ 1,159,954        |
| B. EXPECTED FUTURE ASSETS                                                  |                     |
| 1. Present Value of Expected Future Statutory Supplemental Contributions * | \$ 755,847          |
| 2. Present Value of Future Normal Costs                                    | 210,001             |
| 3. Total Expected Future Assets                                            | <u>\$ 965,848</u>   |
| C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS                                | <u>\$ 2,125,802</u> |
| D. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS                   | <u>\$ 1,939,622</u> |
| E. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (D - C)                 | \$ (186,180)        |

\* 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, 2021 (Dollars in Thousands)

|                                                                                          | Actuarial<br>Present Value<br>of Projected<br>Benefits | Actuarial<br>Present Value<br>of Future<br>Normal Costs | Actuarial<br>Accrued<br>Liability |
|------------------------------------------------------------------------------------------|--------------------------------------------------------|---------------------------------------------------------|-----------------------------------|
| A. DETERMINATION OF ACTUARIAL<br>ACCRUED LIABILITY (AAL)                                 |                                                        |                                                         |                                   |
| 1. Active Members*                                                                       |                                                        |                                                         |                                   |
| a. Retirement Benefits                                                                   | \$ 625,440                                             | \$ 133,914                                              | \$ 491,526                        |
| b. Disability Benefits                                                                   | \$ 16,102                                              | \$ 5,022                                                | \$ 11,080                         |
| c. Surviving Spouse and Child Benefits                                                   | \$ 6,754                                               | \$ 1,844                                                | \$ 4,910                          |
| d. Vested Withdrawals                                                                    | \$ 45,225                                              | \$ 51,846                                               | \$ (6,621)                        |
| e. Refund Liability Due to Death or Withdrawal                                           | \$ 2,268                                               | \$ 17,375                                               | \$ (15,107)                       |
| f. Total                                                                                 | <u>\$ 695,789</u>                                      | <u>\$ 210,001</u>                                       | <u>\$ 485,788</u>                 |
| 2. Deferred Retirements                                                                  | \$ 89,673                                              | \$ 0                                                    | \$ 89,673                         |
| 3. Former Members without Vested Rights                                                  | \$ 2,815                                               | \$ 0                                                    | \$ 2,815                          |
| 4. Annuitants                                                                            | <u>\$ 1,151,345</u>                                    | <u>\$ 0</u>                                             | <u>\$ 1,151,345</u>               |
| 5. Total                                                                                 | <u><u>\$ 1,939,622</u></u>                             | <u><u>\$ 210,001</u></u>                                | <u><u>\$ 1,729,621</u></u>        |
| B. DETERMINATION OF UNFUNDED ACTUARIAL<br>ACCRUED LIABILITY (UAAL)                       |                                                        |                                                         |                                   |
| 1. Actuarial Accrued Liability (A.5)                                                     |                                                        |                                                         | \$ 1,729,621                      |
| 2. Current Assets (Table 1; Line F.4)                                                    |                                                        |                                                         | <u>\$ 1,159,954</u>               |
| 3. Unfunded Actuarial Accrued Liability (B.1 - B.2)                                      |                                                        |                                                         | <u><u>\$ 569,667</u></u>          |
| C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE**                                     |                                                        |                                                         |                                   |
| 1. Present Value of Future Payrolls Through the<br>Amortization Date of June 30, 2048*** |                                                        |                                                         | \$ 4,748,877                      |
| 2. Supplemental Contribution Rate (B.3 / C.1)                                            |                                                        |                                                         | 12.00%                            |

\* Includes members on leave of absence.

\*\* The amortization of the unfunded actuarial accrued liability (UAAL) using the current amortization method would result in initial payments less than the "interest only" payment on the UAAL; however, expected contributions to the plan are projected to reduce the UAAL due to the current contribution sufficiency. Payments less than the interest only amount would result in the UAAL increasing for an initial period of time.

\*\*\*Calculated using 7.5% annual investment return rate.

# Changes in Unfunded Actuarial Accrued Liability (UAAL) as of July 1, 2021 (Dollars in Thousands)

| Year Ending June 30, 2021                                                                                 |                                |                |                                         |
|-----------------------------------------------------------------------------------------------------------|--------------------------------|----------------|-----------------------------------------|
|                                                                                                           | Actuarial Accrued<br>Liability | Current Assets | Unfunded Actuarial<br>Accrued Liability |
| A. UAAL AT BEGINNING OF YEAR                                                                              | \$ 1,691,236                   | \$ 1,090,243   | \$ 600,993                              |
| B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING                                        |                                |                |                                         |
| 1. Normal Cost and Expenses                                                                               | 24,556                         | -              | 24,556                                  |
| 2. Benefit Payments                                                                                       | (119,252)                      | (119,252)      | -                                       |
| 3. Contributions                                                                                          | -                              | 72,250         | (72,250)                                |
| 4. Interest on A., B.1., B.2. and B.3.                                                                    | 123,292                        | 80,006         | 43,286                                  |
| 5. Total (B.1. + B.2. + B.3. + B.4.)                                                                      | \$ 28,596                      | \$ 33,004      | \$ (4,408)                              |
| C. EXPECTED UAAL AT END OF YEAR (A + B.5)                                                                 |                                |                | \$ 596,585                              |
| D. INCREASE / (DECREASE) DUE TO ACTUARIAL LOSSES / (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED |                                |                |                                         |
| 1. Age and Service Retirements                                                                            |                                |                | \$ 1,058                                |
| 2. Disability Retirements                                                                                 |                                |                | (217)                                   |
| 3. Death-in-Service Benefits                                                                              |                                |                | 103                                     |
| 4. Withdrawals                                                                                            |                                |                | (71)                                    |
| 5. Salary Increases                                                                                       |                                |                | 10,504                                  |
| 6. Investment Income                                                                                      |                                |                | (36,707)                                |
| 7. Mortality of Annuitants                                                                                |                                |                | (3,368)                                 |
| 8. Other Items                                                                                            |                                |                | 11,521                                  |
| 9. Total                                                                                                  |                                |                | \$ (17,177)                             |
| E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTIONS (C + D.9)              |                                |                | \$ 579,408                              |
| F. CHANGE IN UAAL DUE TO PLAN AMENDMENTS                                                                  |                                |                | -                                       |
| G. CHANGE IN UAAL DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS                                                 |                                |                | (9,741)                                 |
| H. UAAL AT END OF YEAR (E + F + G)                                                                        |                                |                | <u>\$ 569,667</u>                       |

# Determination of Contribution Sufficiency as of July 1, 2021 (Dollars in Thousands)

|                                                        | <u>Percent-of-<br/>Payroll</u> | <u>Dollar Amount</u> |
|--------------------------------------------------------|--------------------------------|----------------------|
| A. STATUTORY CONTRIBUTIONS - CHAPTER 354A              |                                |                      |
| 1. Employee Contributions                              | 7.50%                          | \$ 22,631            |
| 2. Employer Contributions                              |                                |                      |
| a. Regular                                             | 8.59%                          | 25,921               |
| b. Additional                                          | 3.84%                          | 11,587               |
| 3. Supplemental Contribution                           |                                |                      |
| a. 1996 Legislation                                    | 0.28%                          | 838                  |
| b. 1997 Legislation                                    | 0.94%                          | 2,827                |
| c. 2014 Legislation                                    | 2.32%                          | 7,000                |
| d. 2018 Legislation                                    | 1.66%                          | 5,000                |
| 4. Total                                               | <u>25.13%</u>                  | <u>\$ 75,804</u>     |
| B. REQUIRED CONTRIBUTIONS - CHAPTER 356                |                                |                      |
| 1. Normal Cost                                         |                                |                      |
| a. Retirement Benefits                                 | 5.43%                          | \$ 16,385            |
| b. Disability Benefits                                 | 0.19%                          | 573                  |
| c. Surviving Spouse and Child Benefits                 | 0.07%                          | 211                  |
| d. Vested Withdrawals                                  | 1.90%                          | 5,733                |
| e. Refund Liability Due to Death or Withdrawal         | 0.65%                          | 1,961                |
| f. Total                                               | <u>8.24%</u>                   | <u>\$ 24,863</u>     |
| 2. Supplemental Contribution Amortization              | 12.00%                         | 36,210               |
| 3. Allowance for Administrative Expenses               | 0.27%                          | 815                  |
| 4. Total                                               | <u>20.51%</u>                  | <u>\$ 61,888</u>     |
| C. CONTRIBUTION SUFFICIENCY / (DEFICIENCY) (A.4 - B.4) | 4.62%                          | 13,916               |

Projected Annual Payroll for Fiscal Year Beginning on the Valuation Date  
(determined by increasing reported pay for each member by one full year of  
assumed pay increase, according to the actuarial salary scale, as prescribed  
by the LCPR Standards for Actuarial Work), plus replacement payroll (described  
in the Actuarial Methods and Assumptions.)

\$ 301,753



# Actuarial Methods and Assumptions as of July 1, 2021

## 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, 2048 using level percent-of-payroll assuming total payroll increases 3.00% 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

Assumptions are based on an experience study for the five-year period of July 1, 2011 to June 30, 2016, as well as a legislated change to the investment return assumption effective July 1, 2018. Note that the significant plan changes effective July 1, 2018 may ultimately result in behavior changes not anticipated in the actuarial assumptions.

### A. Demographic Assumptions

Mortality:

#### 1. Healthy and Disabled Annuitant Mortality:

- a. Male: RP-2014 Healthy Annuitant Mortality Table for males adjusted for white collar and projected with Scale MP-2020 from 2006
- b. Female: RP-2014 Healthy Annuitant Mortality Table for females adjusted for white collar and projected with Scale MP-2020 from 2006, set back 2 years

#### 2. Employee Mortality:

- a. Male: RP-2014 Employee Mortality Table for males adjusted for white collar and projected with Scale MP-2020 from 2006
- b. Female: RP-2014 Employee Mortality Table for females adjusted for white collar and projected with Scale MP-2020 from 2006

## Actuarial Methods and Assumptions as of July 1, 2021

| Age in<br><u>2021</u> | Post-Retirement<br>Mortality |               |
|-----------------------|------------------------------|---------------|
|                       | <u>Male</u>                  | <u>Female</u> |
| 55                    | 40                           | 25            |
| 56                    | 42                           | 27            |
| 57                    | 45                           | 29            |
| 58                    | 48                           | 31            |
| 59                    | 52                           | 34            |
| 60                    | 56                           | 36            |
| 61                    | 60                           | 39            |
| 62                    | 65                           | 42            |
| 63                    | 70                           | 47            |
| 64                    | 76                           | 52            |
| 65                    | 82                           | 57            |
| 66                    | 89                           | 62            |
| 67                    | 97                           | 67            |
| 68                    | 106                          | 73            |
| 69                    | 117                          | 80            |
| 70                    | 129                          | 87            |
| 71                    | 142                          | 96            |
| 72                    | 158                          | 106           |
| 73                    | 175                          | 117           |
| 74                    | 195                          | 130           |
| 75                    | 218                          | 145           |
| 76                    | 243                          | 162           |
| 77                    | 273                          | 181           |
| 78                    | 306                          | 202           |
| 79                    | 344                          | 227           |
| 80                    | 387                          | 255           |
| 81                    | 437                          | 287           |
| 82                    | 495                          | 324           |
| 83                    | 561                          | 366           |
| 84                    | 636                          | 413           |
| 85                    | 722                          | 467           |
| 86                    | 820                          | 530           |
| 87                    | 930                          | 600           |
| 88                    | 1,053                        | 680           |
| 89                    | 1,191                        | 771           |
| 90                    | 1,345                        | 873           |
| 91                    | 1,509                        | 986           |
| 92                    | 1,679                        | 1,113         |
| 93                    | 1,852                        | 1,251         |
| 94                    | 2,028                        | 1,398         |

## Actuarial Methods and Assumptions as of July 1, 2021

| Age in<br><u>2021</u> | Pre-Retirement<br>Mortality |               |
|-----------------------|-----------------------------|---------------|
|                       | <u>Male</u>                 | <u>Female</u> |
| 25                    | 4                           | 2             |
| 26                    | 4                           | 2             |
| 27                    | 4                           | 2             |
| 28                    | 4                           | 2             |
| 29                    | 4                           | 2             |
| 30                    | 5                           | 2             |
| 31                    | 5                           | 3             |
| 32                    | 5                           | 3             |
| 33                    | 5                           | 3             |
| 34                    | 5                           | 3             |
| 35                    | 6                           | 3             |
| 36                    | 6                           | 4             |
| 37                    | 6                           | 4             |
| 38                    | 6                           | 4             |
| 39                    | 6                           | 4             |
| 40                    | 6                           | 4             |
| 41                    | 6                           | 5             |
| 42                    | 7                           | 5             |
| 43                    | 7                           | 5             |
| 44                    | 7                           | 6             |
| 45                    | 8                           | 6             |
| 46                    | 9                           | 6             |
| 47                    | 9                           | 7             |
| 48                    | 10                          | 8             |
| 49                    | 11                          | 8             |
| 50                    | 12                          | 9             |
| 51                    | 14                          | 10            |
| 52                    | 15                          | 11            |
| 53                    | 16                          | 12            |
| 54                    | 18                          | 13            |
| 55                    | 20                          | 15            |
| 56                    | 22                          | 16            |
| 57                    | 25                          | 18            |
| 58                    | 28                          | 20            |
| 59                    | 31                          | 22            |
| 60                    | 35                          | 24            |
| 61                    | 40                          | 25            |
| 62                    | 45                          | 27            |
| 63                    | 50                          | 29            |
| 64                    | 56                          | 31            |

## Actuarial Methods and Assumptions as of July 1, 2021

Rates of Disability:

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

| Age | Disability | Age | Disability |
|-----|------------|-----|------------|
| 20  | 1          | 45  | 4          |
| 21  | 1          | 46  | 4          |
| 22  | 1          | 47  | 4          |
| 23  | 1          | 48  | 4          |
| 24  | 1          | 49  | 4          |
| 25  | 1          | 50  | 9          |
| 26  | 1          | 51  | 9          |
| 27  | 1          | 52  | 9          |
| 28  | 1          | 53  | 9          |
| 29  | 1          | 54  | 9          |
| 30  | 2          | 55  | 17         |
| 31  | 2          | 56  | 17         |
| 32  | 2          | 57  | 17         |
| 33  | 2          | 58  | 17         |
| 34  | 2          | 59  | 17         |
| 35  | 2          | 60  | 35         |
| 36  | 2          | 61  | 35         |
| 37  | 2          | 62  | 35         |
| 38  | 2          | 63  | 35         |
| 39  | 2          | 64  | 35         |
| 40  | 3          |     |            |
| 41  | 3          |     |            |
| 42  | 3          |     |            |
| 43  | 3          |     |            |
| 44  | 3          |     |            |

## Actuarial Methods and Assumptions as of July 1, 2021

### Rates of Termination:

| Year      | Number of Terminations<br>per 1,000 Active Members |        |
|-----------|----------------------------------------------------|--------|
|           | Male                                               | Female |
| 1         | 400                                                | 400    |
| 2         | 260                                                | 220    |
| 3         | 160                                                | 150    |
| 4         | 110                                                | 120    |
| 5         | 80                                                 | 100    |
| 6         | 50                                                 | 85     |
| 7         | 48                                                 | 70     |
| 8         | 45                                                 | 55     |
| 9         | 43                                                 | 45     |
| 10        | 40                                                 | 40     |
| 11        | 38                                                 | 38     |
| 12        | 35                                                 | 35     |
| 13        | 33                                                 | 30     |
| 14        | 30                                                 | 25     |
| 15 & Over | 25                                                 | 20     |

### Rates of Retirement:

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

| Age       | Male Coordinated<br>Members Eligible<br>for Rule of 90<br>Provision | Female Coordinated<br>Members Eligible<br>for Rule of 90<br>Provision | Male Coordinated<br>Members Not<br>Eligible for Rule<br>of 90 Provision | Female Coordinated<br>Members Not<br>Eligible for Rule<br>of 90 Provision |
|-----------|---------------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------------------|
| 55        | 2,500                                                               | 2,500                                                                 | 900                                                                     | 500                                                                       |
| 56        | 2,500                                                               | 2,500                                                                 | 700                                                                     | 500                                                                       |
| 57        | 2,500                                                               | 2,500                                                                 | 700                                                                     | 500                                                                       |
| 58        | 2,500                                                               | 2,500                                                                 | 700                                                                     | 600                                                                       |
| 59        | 2,500                                                               | 3,000                                                                 | 700                                                                     | 600                                                                       |
| 60        | 2,500                                                               | 3,000                                                                 | 1,200                                                                   | 900                                                                       |
| 61        | 2,500                                                               | 3,000                                                                 | 1,200                                                                   | 1,100                                                                     |
| 62        | 4,500                                                               | 3,000                                                                 | 2,500                                                                   | 2,000                                                                     |
| 63        | 3,500                                                               | 3,000                                                                 | 2,800                                                                   | 2,300                                                                     |
| 64        | 2,500                                                               | 3,000                                                                 | 2,800                                                                   | 2,600                                                                     |
| 65        | 10,000                                                              | 10,000                                                                | 3,000*                                                                  | 4,500*                                                                    |
| 66        | 10,000                                                              | 10,000                                                                | 3,000                                                                   | 4,300                                                                     |
| 67        | 10,000                                                              | 10,000                                                                | 3,500                                                                   | 3,800                                                                     |
| 68        | 10,000                                                              | 10,000                                                                | 4,000                                                                   | 3,800                                                                     |
| 69        | 10,000                                                              | 10,000                                                                | 4,500                                                                   | 3,000                                                                     |
| 70 & Over | 10,000                                                              | 10,000                                                                | 10,000                                                                  | 10,000                                                                    |

\* 2,800 for male members and 3,000 for female members hired after June 30, 1989 with a Normal Retirement Age equal to 66.

## Actuarial Methods and Assumptions as of July 1, 2021

### B. Economic Assumptions

|                                  |                                  |
|----------------------------------|----------------------------------|
| Investment Return Rate:          | 7.50%                            |
| Price Inflation:                 | 2.50% per year                   |
| Payroll Growth (Wage Inflation): | 3.00% per year                   |
| Future Salary Increases:         | Service-based rates shown below: |

#### Annual Salary Increases

| Ultimate Rate of<br>Annual Salary<br>Increases |       | Ultimate Rate of<br>Annual Salary<br>Increases |       |
|------------------------------------------------|-------|------------------------------------------------|-------|
| Year                                           |       | Year                                           |       |
| 1                                              | 9.00% | 21                                             | 3.40% |
| 2                                              | 8.00% | 22                                             | 3.20% |
| 3                                              | 7.00% | 23 & Over                                      | 3.00  |
| 4                                              | 6.80% |                                                |       |
| 5                                              | 6.60% |                                                |       |
| 6                                              | 6.40% |                                                |       |
| 7                                              | 6.20% |                                                |       |
| 8                                              | 6.00% |                                                |       |
| 9                                              | 5.75% |                                                |       |
| 10                                             | 5.50% |                                                |       |
| 11                                             | 5.25% |                                                |       |
| 12                                             | 5.00% |                                                |       |
| 13                                             | 4.75% |                                                |       |
| 14                                             | 4.50% |                                                |       |
| 15                                             | 4.25% |                                                |       |
| 16                                             | 4.00% |                                                |       |
| 17                                             | 3.90% |                                                |       |
| 18                                             | 3.80% |                                                |       |
| 19                                             | 3.70% |                                                |       |
| 20                                             | 3.60% |                                                |       |

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Asset Value: | The assets are valued based on a five-year moving average of expected and market values (five-year average actuarial value). At the end of each plan year, an average asset value is calculated as the average of the market asset value at the beginning and end of the fiscal year net of investment income for the fiscal year. The investment gain or (loss) is taken as the excess of actual investment income over the expected investment income based on the average asset value as calculated above. The investment gain or (loss) is recognized over five years at 20% per year. The asset value is the sum of the market asset value plus the scheduled recognition of investment gains or (losses) during the current and the preceding four fiscal years. |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Actuarial Methods and Assumptions as of July 1, 2021

### 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.<br>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.<br>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, 2021

|                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supplemental Contributions:                                             | <p>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, annual supplemental contributions equal to \$14,827,000 are scheduled to be paid each October 1.</p> <p>The contributions described herein will continue until the plan is 100% funded or until June 30, 2048, whichever occurs earlier.</p> |
| Projected Annual Payroll Calculation:                                   | <p>The census data as of July 1, 2021 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 \$47,271; the Projected Annual Payroll for the fiscal year ending June 30, 2022 includes this replacement salary amount.</p> |
| Changes in Actuarial Methods and Assumptions Since the Prior Valuation: | <p>The mortality improvement scale was updated from MP-2019 to MP-2020.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                 |



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

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# STATE OF MINNESOTA

## Office of the State Auditor



Julie Blaha  
**State Auditor**

The Office of the State Auditor (OSA) 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. This report will be made publicly available on the website of the Minnesota Office of the State Auditor, <https://www.osa.state.mn.us>.

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

**FOR THE YEAR ENDED JUNE 30, 2021**

**St. Paul Teachers' Retirement Fund Association**  
**2550 UNIVERSITY AVE W 312N**  
**ST. PAUL, MN 55114-1005**