

**ST. PAUL TEACHERS' RETIREMENT FUND ASSOCIATION**  
**ACTUARIAL VALUATION**  
**AS OF JULY 1, 2016**

December 19, 2016

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

Dear Ms. Schurtz:

We are pleased to present the report of the actuarial valuation of the St. Paul Teachers' Retirement Fund Association ("Fund") as of July 1, 2016. This report provides, among other things, the required annual contribution rate of the Fund for the Plan Year commencing July 1, 2016 and ending on June 30, 2017.

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

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

The required contribution rate of 22.44% of pay shown on page 5 was designed to comply with Minnesota Statutes. Users of this report should be aware that contributions made at that rate do not guarantee benefit security. Please note that given the importance of benefit security to any retirement system, we encourage all retirement systems to consider implementing funding programs that provide for contributions in excess of the levels listed in their valuation report.

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

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

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

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

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

GRS reviewed the investment return rate assumption in the 2012 Experience Study and recommended an assumed rate of return in the range of 7.04% to 7.98% per year. The impact of using an assumed rate of return of 7.5% was shown in the 2012 valuation report, and, at the Fund's request, updated estimates were provided to the Fund earlier this year. We commend the Fund for actively reviewing the investment return assumption, as the funded status of the plan may be overstated by the current prescribed assumptions. We recommend that the Fund continue to perform projections which include pessimistic scenarios such as investment return lower than assumed, longevity better than expected, etc.

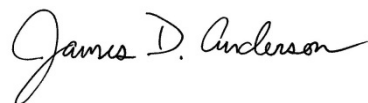
This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. Bonita J. Wurst and James D. Anderson are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The signing actuaries are independent of the plan sponsor.

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

Respectfully submitted,



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



James D. Anderson, FSA, EA, MAAA

BJW/JDA:dj

## Other Observations

### **General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status**

Given the plan's contribution allocation procedure, if there are no changes in benefits or contributions and all actuarial assumptions are met (including the assumption of the plan earning 8.0% on the actuarial value of assets), it is expected that:

- (1) The unfunded actuarial accrued liabilities will increase in the short-term but will be fully amortized after approximately 40 years, and
- (2) The funded status of the plan will continue to increase towards a 100% funded ratio.

### **Limitations of Funded Status Measurements**

Unless otherwise indicated, a funded status measurement presented in this report is based upon the actuarial accrued liability and the actuarial value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

- (1) The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations, in other words of transferring the obligations to an unrelated third party in an arm's length market value type transaction.
- (2) The measurement is dependent upon the actuarial cost method which, in combination with the plan's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement in this report of 100% is not synonymous with no required future contributions. If the funded status were 100%, the plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).
- (3) The measurement would produce a different result if the market value of assets were used instead of the actuarial value of assets.

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## SUMMARY OF VALUATION RESULTS

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This report sets forth the results of the actuarial valuation of the St. Paul Teachers' Retirement Fund Association ("Fund") as of July 1, 2016. The purposes of this valuation are:

1. To develop the Actuarially Determined Contribution (ADC) rates.
2. To compare the ADC rates with the current funding policy in place.
3. To review the funding status of the Fund.

The funding status, in basic terms, is a comparison of the Fund's liabilities to assets expressed as either an unfunded liability (i.e., the difference between the assets and liabilities) or as a ratio of assets to liabilities. This comparison can be measured in various ways. Fund liabilities are dependent on the actuarial assumptions and actuarial cost method. Fund assets can be measured at market value, book value, or some variation to smooth the fluctuations that invariably occur from year to year. The Actuarial Value of Assets is determined from market value with investment gains and losses smoothed over a five-year period.

### Contribution Rates

The required contribution rate (as defined in Section 356 of Minnesota Statutes) increased slightly, from 22.26% of pay for the fiscal year ending June 30, 2016, to 22.44% of pay for the fiscal year ending June 30, 2017. The statutory contribution rate increased from 20.66% of payroll to 21.52% of payroll. The contribution shortfall decreased from 1.60% of pay as of July 1, 2015 to 0.92% of pay. In dollar terms, the deficiency was reduced from \$4.5 million to \$2.5 million per year. The contribution increases that are being phased-in over the next year will ultimately increase the statutory contribution rate (and decrease the contribution shortfall) by 0.25% of pay. On a market value of assets basis, statutory contributions are 2.01% of pay deficient. This deficiency falls to 1.76% of pay once scheduled contribution increases are phased-in.

Current statutory contributions are not sufficient to fully amortize the unfunded actuarial accrued liability over the remaining statutory amortization period of 26 years. Based on current statutory contributions, the actuarial value of assets, and other methods and assumptions described in this report, the unfunded liability is expected to increase in the short-term but be fully amortized after approximately 40 years.

### Assets and Liabilities

On an actuarial value of assets basis, the funding ratio increased from 62.61% at July 1, 2015, to 63.25% at July 1, 2016.

Total actuarial liabilities decreased from \$1,596.8 million to \$1,592.6 million. One of the key assumptions in the valuation is the date COLAs are expected to be paid. In the prior valuation, a 2% COLA was expected to be paid in approximately 26 years and a 2.5% COLA was expected to be paid in 36 years. For the 2016 valuation, a 2% COLA is expected to be paid in 39 years and the 2.5% COLA is expected to be paid in 50 years. This delay in COLA increases was the primary reason for the decrease in actuarial liabilities.

As shown in the table below, on a market value of assets basis, the funding ratio decreased from 63.56% at July 1, 2015, to 60.26% at July 1, 2016. This decrease was primarily due to not meeting the 8% investment return target.

## SUMMARY OF VALUATION RESULTS

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### Market Value of Assets Basis

A 5-year smoothed value of assets, used to determine both the funded status and required contribution level, reduces the volatility of the valuation results. As of July 1, 2016, the actuarial value of assets was 105.0% of market value. This means that if market value returns equal those assumed in the valuation, over the next few years there will be a downward bias in the actuarial value of assets.

The following table shows the July 1, 2016 valuation results, on both a market value and smoothed actuarial value basis:

Results as of July 1, 2016		
	Market Value of Assets	Actuarial Value of Assets
Actuarial Accrued Liability	\$1,592.6 million	\$1,592.6 million
Value of Assets	\$ 959.7 million	\$1,007.4 million
Unfunded Actuarial Accrued Liability	\$ 632.9 million	\$ 585.2 million
Funded Ratio	60.26%	63.25%
Statutory Contribution Rate	21.52% of pay	21.52% of pay
Required Contribution Rate	23.53% of pay	22.44% of pay
Deficiency	2.01% of pay	0.92% of pay
Deficiency based on Ultimate Contribution Rates	1.76% of pay	0.67% of pay

### Changes Reflected in the Valuation

#### Assumption Changes

##### COLA Assumption

Minnesota Statutes were revised in 2014 to establish a process for setting a COLA assumption for purposes of preparing actuarial valuations. Pursuant to this legislation, if the plan has not yet reached the statutory funding ratio threshold triggering payment of a 2.0% or 2.5% COLA, the actuary must perform a projection to determine whether the plan is expected to attain the funding ratio threshold in a timeframe that is actuarially meaningful, and if so, the expected change to a 2.0% or 2.5% COLA rate must be reflected in the liability calculations.



## SUMMARY OF VALUATION RESULTS

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We performed a projection of liabilities and assets, using the 2016 valuation results as a baseline and assuming future experience follows the valuation assumptions prescribed in Minnesota Statutes. In addition, the projection utilized the following methods and assumptions:

- Future investment returns of 8.00%
- Open group; stable active population (new member profile based on average new members hired in recent years)
- The COLA is assumed to be 1.0% per year until the funding ratio threshold required to pay a 2.0% COLA is reached and is assumed to be 2.0% per year until the threshold required to pay a 2.5% COLA is reached
- Current statutory contribution levels including scheduled increases

Based on these assumptions and methods, the projection indicates that this plan is expected to attain the funding ratio threshold to pay the 2.0% COLA in approximately 39 years, and the funding ratio threshold to pay the 2.5% COLA in approximately 50 years. The liabilities in this report are based on the assumption that the COLA will equal 1.0% through 2054, 2.0% for 2055 through 2065, and 2.5% for all years thereafter. This is only an assumption; not a guarantee of benefits to be paid. Actual timing will depend upon actual experience.

### Plan Changes

There have been no plan changes since the previous valuation as of July 1, 2015.

### Effects of Changes (Actuarial Value of Assets Basis)

	<b>Results as of July 1, 2016 (\$000s)</b>	
	<b>Prior to Changes</b>	<b>Reflecting Assumption Changes</b>
<b>A. FUNDING RATIOS</b>		
1. Accrued Liability Funding Ratio		
a. Current Assets	\$ 1,007,360	\$ 1,007,360
b. Actuarial Accrued Liability	1,607,169	1,592,570
c. Funding Ratio	62.68%	63.25%
2. Projected Benefit Funding Ratio		
a. Current and Expected Future Assets	\$ 1,738,354	\$ 1,741,583
b. Current and Expected Future Benefit Obligations	1,839,284	1,815,411
c. Funding Ratio	94.51%	95.93%
<b>B. REQUIRED CONTRIBUTIONS - CHAPTER 356</b>		
1. Normal Cost	9.15%	8.87%
2. Supplemental Contribution Amortization	13.63%	13.30%
3. Allowance for Administrative Expenses	0.27%	0.27%
4. Total	23.05%	22.44%

## SUMMARY OF VALUATION RESULTS

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### **Participants**

Active membership decreased 5.9% during fiscal year 2016 from 3,756 to 3,534 (figures include members on leave of absence). The level of member contributions received during the year increased due to the increase in the member contribution requirement.

Total participants receiving benefits under the Fund, including disabled retirees, beneficiaries, and alternate payees increased 2.5% during fiscal year 2016 from 3,633 to 3,723. Total expenditures for these benefits increased from \$109.8 million to \$111.8 million during fiscal year 2016, or 1.8%.

### **Asset Valuation Method**

The method used to develop the Fund's Actuarial Value of Assets, as set out in the LCPR Standards for Actuarial Work, is as follows: In years when Fund assets earn above the assumed rate (i.e., experience gain) or below the assumed rate (i.e., experience loss) the gain (or loss) will be recognized over five years. This approach both removes volatility of the Fund's level of required contributions and ensures the Fund's assets will track the market value of assets.

### **Experience Analysis**

The experience analysis provides a comparison of actual experience to projected experience based on the actuarial assumptions over the past year. Overall, the Fund had an experience gain of \$14.4 million. In general, salary increases were smaller than predicted under the current valuation assumption and produced an actuarial gain of \$11.4 million. Additionally, demographic experience resulted in an experience gain of \$17.1 million. The plan also experienced an experience loss due to investments. The market value of Fund assets returned 0.34% (net of fees) for the year ended June 30, 2016, lower than the 8.00% assumption. However, only 20% of this asset loss was recognized in the actuarial value of assets. Investment gains from previous years were recognized this year and resulted in a loss of \$14.1 million on the actuarial value of assets. The rate of return on the actuarial value of assets for 2016 is 6.6%.

The changes in unfunded actuarial accrued liabilities are shown in Table 10 in Section 3.

**SUMMARY OF VALUATION RESULTS**  
(dollars in thousands)

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	<b>July 1, 2015</b>	<b>July 1, 2016</b>
	<b>Valuation</b>	<b>Valuation</b>
<b>A. CONTRIBUTIONS % OF PAYROLL (Table 11)</b>		
1. Statutory Contributions - Chapter 354A	20.66%	21.52%
2. Required Contributions - Chapter 356	22.26%	22.44%
3. Sufficiency / (Deficiency)	(1.60%)	(0.92%)
 <b>B. FUNDING RATIOS</b>		
1. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$ 999,736	\$ 1,007,360
b. Actuarial Accrued Liability (Table 9)	1,596,770	1,592,570
c. Funding Ratio	62.61%	63.25%
2. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$ 1,758,646	\$ 1,741,583
b. Current and Expected Future Benefit Obligations	1,833,521	1,815,411
c. Funding Ratio	95.92%	95.93%
 <b>C. PLAN PARTICIPANTS</b>		
1. Active Members		
a. Number (Table 3)	3,597	3,455
b. Projected Annual Earnings	\$ 280,488	\$ 271,781
c. Average Annual Earnings (Projected dollars)	\$ 73,704	\$ 76,094
d. Average Age	44.4	44.8
e. Average Service	12.1	12.7
f. Members on Leave of Absence	159	79
2. Others		
a. Service Retirements (Table 4)	3,277	3,363
b. Disability Retirements (Table 5)	33	32
c. Survivors (Table 6)	323	328
d. Deferred Retirements (Table 7)	1,892	2,020
e. Terminated Other Non-Vested (Table 7)	1,981	2,915
f. Total - Others	7,506	8,658
3. Grand Total (1.a + 1.f + 2.f)	11,262	12,192

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## **SECTION 1**

### **ASSET INFORMATION**

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## ASSETS OF THE PLAN

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The cost value of the plan assets decreased from \$867.0 million as of June 30, 2015 to \$838.7 million as of June 30, 2016. The market value of the plan assets decreased from \$1,015.0 million as of June 30, 2015 to \$959.7 million as of June 30, 2016. The expected return on assets using the valuation investment return rate assumption of 8.0 percent was \$79 million. The actual plan experience showed a return on assets of \$1.5 million. Twenty percent of the asset return below the expected \$79 million is recognized as an actuarial loss in the development of the actuarial value of assets. The recognized loss from the current year, along with the portion of prior gains and losses recognized this year, results in an overall loss of \$14.1 million on the actuarial value of assets.

The 2013 and 2014 asset gains as well as the 2015 and 2016 asset losses (amounts shown on the next page) will be recognized incrementally over the next four years. As of July 1, 2016, there are currently more unrecognized asset losses than gains, which means that if return assumptions are met, over the next few years the actuarial value of assets will grow less than 8.00% per year.

Table 1 shows the composition of assets as of June 30, 2016 and the development of the actuarial value of assets as of June 30, 2016. Table 2 details the development of asset values during fiscal year 2016.

**TABLE 1**  
**ACCOUNTING BALANCE SHEET**  
**AS OF JUNE 30, 2016**  
**(dollars in thousands)**

	<u>Market Value</u>	<u>Cost Value</u>
<b>A. ASSETS</b>		
1. Cash, Equivalents, Short-Term Securities	\$ 45,741	\$ 45,741
2. Investments		
a. Fixed Income	179,666	173,673
b. Equity	585,065	488,791
c. Real Estate	71,970	53,389
d. Alternative	75,598	75,518
3. Other Assets	<u>3,782</u>	<u>3,782</u>
<b>B. TOTAL ASSETS</b>	<u>\$ 961,822</u>	<u>\$ 840,894</u>
<b>C. AMOUNTS CURRENTLY PAYABLE</b>	\$ 2,156	\$ 2,156
<b>D. ASSETS AVAILABLE FOR BENEFITS</b>		
1. Member Reserves	\$ 178,135	\$ 178,135
2. Employer Reserves	<u>781,531</u>	<u>660,603</u>
3. Total Assets Available for Benefits	<u>\$ 959,666</u>	<u>\$ 838,738</u>
<b>E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS</b>	<u>\$ 961,822</u>	<u>\$ 840,894</u>
<b>F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS</b>		
1. Market Value of Assets Available for Benefits (D.3)	\$ 959,666	
2. Unrecognized Asset Returns		
a. June 30, 2016	\$ (77,451)	
b. June 30, 2015	(55,629)	
c. June 30, 2014	95,762	
d. June 30, 2013	46,697	
3. UAR Adjustment: $.80 * 2(a) + .60 * 2(b) + .40 * 2(c) + .20 * 2(d)$	<u>(47,694)</u>	
4. Actuarial Value of Assets: (F.1 - F.3)	<u>\$ 1,007,360</u>	

**DERIVATION OF OTHER ASSETS \***

	<u>Market Value</u>
Accounts Receivable	
Employer Contribution	\$ 119
Employee Contribution	88
Service Purchases Receivable	36
Pensions Receivable	5
State Contributions	838
Real Estate Income Receivable	-
Commission Recapture Receivable	1
Interest Receivable	710
Dividend Receivable	222
Misc. Receivable	-
Escrow Funds receivable	0
Sale of Securities	<u>1,640</u>
Total Accounts Receivable	\$ 3,659
Fixed Assets	<u>123</u>
Total Other Assets	<u>\$ 3,782</u>

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

**TABLE 2**  
**CHANGE(S) IN ASSETS AVAILABLE FOR BENEFITS**  
**AS OF JUNE 30, 2016**  
(dollars in thousands)

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$ 1,014,969	\$ 866,990
B. OPERATING REVENUES		
1. Member Contributions	\$ 18,538	\$ 18,538
2. Employer Contributions	26,433	26,433
3. Supplemental Contributions	10,665	10,665
4. Reemployed Annuitant Employer Contributions	130	130
5. Investment Income	14,033	14,033
6. Investment Expenses	(3,624)	(3,624)
7. Net Realized Gain / (Loss)	18,569	18,117
8. Other	0	0
9. Net Change in Unrealized Gain / (Loss)	<u>(27,503)</u>	<u>0</u>
10. Total Operating Revenue	\$ 57,241	\$ 84,292
C. OPERATING EXPENSES		
1. Service Retirements	\$ 99,671	\$ 99,671
2. Disability Benefits	590	590
3. Survivor Benefits	10,906	10,906
4. Refunds	628	628
5. Administrative Expenses	<u>749</u>	<u>749</u>
6. Total Operating Expenses	\$ 112,544	\$ 112,544
D. OTHER CHANGES IN RESERVES	\$ 0	\$ 0
E. ASSETS AVAILABLE AT END OF PERIOD	<u>\$ 959,666</u>	<u>\$ 838,738</u>
F. DETERMINATION OF CURRENT YEAR UNRECOGNIZED ASSET RETURN		
1. Average Balance		
(a) Assets available at BOY		\$ 1,014,969
(b) Assets available at EOY		959,666
(c) Average balance $\{[(a) + (b) - \text{Net Investment Income}] / 2\}$ {Net investment income: B.5+B.6+B.7+B.9}		\$ 986,580
2. Expected Return: $.080 * F.1$		78,926
3. Actual Return		1,475
4. Current Year Gross Asset Gain/(Loss): F.3 - F.2		\$ (77,451)

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## **SECTION 2**

### **TOTAL MEMBERSHIP DATA**

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**TABLE 3**  
**ACTIVE MEMBERS AS OF JUNE 30, 2016\***

Age	Years of Service								ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35+	
< 25	25	0	0	0	0	0	0	0	25
25-29	255	19	0	0	0	0	0	0	274
30-34	254	149	17	0	0	0	0	0	420
35-39	162	114	170	34	0	0	0	0	480
40-44	133	76	98	220	17	0	0	0	544
45-49	83	41	81	184	150	7	0	0	546
50-54	56	37	56	112	122	81	20	0	484
55-59	44	21	44	75	95	81	60	7	427
60-64	20	11	26	53	58	41	19	22	250
65+	20	6	11	19	9	8	4	7	84
ALL	1,052	474	503	697	451	218	103	36	3,534

**AVERAGE ANNUAL EARNINGS**

Age	Years of Service								ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35+	
< 25	37,102	0	0	0	0	0	0	0	37,102
25-29	47,347	55,794	0	0	0	0	0	0	47,933
30-34	53,481	64,012	71,276	0	0	0	0	0	57,937
35-39	55,813	67,112	77,655	81,661	0	0	0	0	68,063
40-44	54,819	66,888	78,381	81,675	90,558	0	0	0	72,727
45-49	61,628	74,785	77,529	84,789	88,475	96,566	0	6,771	80,604
50-54	49,935	70,290	79,633	84,122	86,794	96,158	96,731	0	81,799
55-59	41,876	68,468	76,860	82,483	88,397	91,178	94,854	91,496	81,881
60-64	45,112	62,911	65,147	82,340	80,749	88,340	86,489	94,300	78,701
65+	20,089	40,093	68,535	78,646	86,608	93,995	104,484	98,256	65,805
ALL	51,308	66,180	76,865	82,945	87,052	92,771	94,049.39	94,524	71,985

**Prior Fiscal Year Earnings (IN THOUSANDS) by Years of Service**

	<5	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	ALL
ALL	53,976	31,369	38,663	57,812	39,260	20,224	9,687	3,403	254,395

\*Including those on leave of absence, pay annualized for new hires.

**TABLE 4**  
**SERVICE RETIREMENTS AS OF JUNE 30, 2016**

Age	Years Retired									ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	
<45	0	0	0	1	0	0	0	0	0	1
45-49	0	0	0	1	0	0	0	0	0	1
50-54	5	0	0	0	0	0	0	0	0	5
55-59	81	2	0	0	0	0	0	0	0	83
60-64	331	132	1	0	0	0	0	0	0	464
65-69	312	416	244	2	0	0	0	0	0	974
70-74	59	215	298	184	3	0	0	0	0	759
75-79	9	33	121	235	80	1	0	0	0	479
80-84	4	6	17	109	144	46	0	0	0	326
85-89	0	0	4	7	68	67	28	0	0	174
90+	0	0	2	1	7	31	44	12	0	97
ALL	801	804	687	540	302	145	72	12	0	3,363

**AVERAGE ANNUAL BENEFIT**

Age	Years Retired									ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	
<45	0	0	0	5,711	0	0	0	0	0	5,711
45-49	0	0	0	5,711	0	0	0	0	0	5,711
50-54	8,866	0	0	0	0	0	0	0	0	8,866
55-59	19,442	20,964	0	0	0	0	0	0	0	19,479
60-64	24,615	26,800	3,153	0	0	0	0	0	0	25,190
65-69	19,695	30,001	36,153	41,260	0	0	0	0	0	28,264
70-74	14,640	25,119	34,443	30,945	37,882	0	0	0	0	29,428
75-79	1,931	20,982	30,346	38,236	37,040	67,287	0	0	0	34,233
80-84	8,002	22,037	19,501	37,195	42,980	28,109	0	0	0	36,909
85-89	0	0	7,585	24,361	48,782	36,069	28,853	0	0	38,751
90+	0	0	27,599	40,110	47,423	29,209	25,789	27,265	0	28,811
ALL	21,004	27,718	33,737	35,256	42,765	32,293	26,981	27,265	0	30,090

**Total Annual Benefit (IN THOUSANDS) by Years RETIRED**

	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	ALL
ALL	16,824	22,286	23,177	19,038	12,915	4,682	1,943	327	0	101,193

**TABLE 5**  
**DISABILITY RETIREMENTS AS OF JUNE 30, 2016\***

Age	Years Disabled									
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	ALL
<45	1	0	0	0	0	0	0	0	0	1
45-49	2	1	0	0	0	0	0	0	0	3
50-54	3	4	0	0	0	0	0	0	0	7
55-59	2	1	1	0	1	0	0	0	0	5
60-64	5	8	3	0	0	0	0	0	0	16
65-69	0	0	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0	0	0
85-89	0	0	0	0	0	0	0	0	0	0
90+	0	0	0	0	0	0	0	0	0	0
ALL	13	14	4	0	1	0	0	0	0	32

**AVERAGE ANNUAL BENEFIT**

Age	Years Disabled									
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	ALL
<45	3,455	0	0	0	0	0	0	0	0	3,455
45-49	24,555	7,875	0	0	0	0	0	0	0	18,995
50-54	21,979	10,933	0	0	0	0	0	0	0	15,667
55-59	19,593	2,303	24,670	0	5,637	0	0	0	0	14,359
60-64	28,780	24,652	12,981	0	0	0	0	0	0	23,754
65-69	0	0	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0	0	0
85-89	0	0	0	0	0	0	0	0	0	0
90+	0	0	0	0	0	0	0	0	0	0
ALL	23,199	17,938	15,904	0	5,637	0	0	0	0	19,436

**Total Annual Benefit (IN THOUSANDS) by Years DISABLED**

	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	ALL
ALL	302	251	64	0	6	0	0	0	0	622

\* Disability benefits convert to normal retirement benefits at normal retirement age (which occurs between ages 65 and 66).

**TABLE 6**  
**SURVIVORS AS OF JUNE 30, 2016**

Age	Years Since Member Death									ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	
<45	2	2	1	0	0	0	0	0	0	5
45-49	0	1	4	0	0	0	0	0	0	5
50-54	3	0	0	0	0	0	0	0	0	3
55-59	5	3	0	0	0	0	0	0	0	8
60-64	2	3	2	3	1	1	0	0	1	13
65-69	8	3	5	3	5	2	1	0	0	27
70-74	9	2	13	10	6	3	2	0	0	45
75-79	10	1	4	15	21	7	3	3	0	64
80-84	18	1	1	6	18	19	6	0	0	69
85-89	9	0	0	0	6	17	19	3	2	56
90+	3	0	0	0	0	7	15	7	1	33
ALL	69	16	30	37	57	56	46	13	4	328

**AVERAGE ANNUAL BENEFIT**

Age	Years Since Member Death									ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	
<45	8,402	7,419	17,861	0	0	0	0	0	0	9,900
45-49	0	537	815	0	0	0	0	0	0	760
50-54	30,704	0	0	0	0	0	0	0	0	30,704
55-59	22,631	8,706	0	0	0	0	0	0	0	17,409
60-64	21,542	15,728	12,292	5,415	48,914	42,302	0	0	3,350	17,359
65-69	29,910	41,680	30,684	34,364	31,222	24,693	20,378	0	0	31,359
70-74	37,031	18,552	20,702	32,062	26,949	23,303	18,624	0	0	27,311
75-79	45,289	64,513	19,251	28,494	43,064	30,173	32,846	20,263	0	35,886
80-84	58,725	3,214	40,284	39,608	47,788	35,816	22,700	0	0	43,697
85-89	38,280	0	0	0	49,291	35,956	34,431	19,383	42,267	36,578
90+	24,390	0	0	0	0	31,396	33,711	23,700	21,026	29,865
ALL	40,077	19,909	19,518	29,865	42,579	33,649	31,570	21,911	27,228	33,328

**Total Annual Benefit (IN THOUSANDS) by Years Since Member Death**

	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	ALL
ALL	2,765	319	586	1,105	2,427	1,884	1,452	285	109	10,932

**TABLE 7**  
**RECONCILIATION OF MEMBERS**  
**AS OF JUNE 30, 2016**

	<b>Active Participants</b>	<b>Leave of Absence</b>	<b>Vested Terminated</b>	<b>Other Non-Vested</b>	<b>Retired Participants</b>	<b>Disabled</b>	<b>Survivors and Beneficiaries</b>	<b>Alternate Payees<sup>2</sup></b>	<b>Total</b>
A. Number as of June 30, 2015	3,597	159	1,892	1,981	3,238	32	323	40	11,262
B. Additions	280	59	220	246	158	2	32		997
C. Deletions									
1. Retirements	(88)	(8)	(55)	(5)					(156)
2. Disability	-	(1)	(1)						(2)
3. Died with Beneficiary					(31)	(1)			(32)
4. Died without Beneficiary	(1)	(2)	(3)	(3)	(41)	(1)	(25)		(76)
5. Terminated - Deferred	(194)	(26)							(220)
6. Terminated - Not Vested	(235)	(6)							(241)
7. Refunds	(30)		(10)	(71)					(111)
8. Rehired as Active	173	(96)	(27)	(50)					0
9. Leave of Absence	(45)		(11)						(56)
10. Repayment of Refund			1						1
11. Expired Benefits							(2)		(2)
12. Disability to Retirement						(1)			(1)
D. Data Adjustments <sup>1</sup>	(2)		14	817					829
E. Total on June 30, 2016	3,455	79	2,020	2,915	3,324	31	328	40	12,192

<sup>1</sup> Includes members not valued in prior valuation who repaid refunds or otherwise restored prior service.

<sup>2</sup> Includes alternate payees of both retired participants and disabled participants.

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**SECTION 3**  
FUNDING STATUS

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**TABLE 8**  
**ACTUARIAL BALANCE SHEET**  
**AS OF JULY 1, 2016**  
(dollars in thousands)

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A. CURRENT ASSETS (TABLE 1; Line F.4)	\$	1,007,360
B. EXPECTED FUTURE ASSETS		
1. Present Value of Expected Future Statutory Supplemental Contributions*	\$	511,382
2. Present Value of Future Normal Costs		<u>222,841</u>
3. Total Expected Future Assets	\$	<u>734,223</u>
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS	\$	<u>1,741,583</u>
D. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS	\$	<u>1,815,411</u>
E. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (D - C)	\$	73,828

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

**TABLE 9**  
**DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)**  
**AND SUPPLEMENTAL CONTRIBUTION RATE**  
**AS OF JULY 1, 2016**  
**(dollars in thousands)**

	<u>Actuarial Present Value of Projected Benefits</u>	<u>Actuarial Present Value of Future Normal Costs</u>	<u>Actuarial Accrued Liability</u>
<b>A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)</b>			
1. Active Members*			
a. Retirement Benefits	\$ 615,473	\$ 160,949	\$ 454,524
b. Disability Benefits	\$ 13,101	\$ 5,054	\$ 8,047
c. Surviving Spouse and Child Benefits	\$ 8,753	\$ 2,992	\$ 5,761
d. Vested Withdrawals	\$ 34,576	\$ 39,925	\$ (5,349)
e. Refund Liability Due to Death or Withdrawal	\$ 2,874	\$ 13,921	\$ (11,047)
f. Total	<u>\$ 674,777</u>	<u>\$ 222,841</u>	<u>\$ 451,936</u>
2. Deferred Retirements	\$ 81,904	\$ 0	\$ 81,904
3. Former Members without Vested Rights	\$ 5,903	\$ 0	\$ 5,903
4. Annuitants	<u>\$ 1,052,827</u>	<u>\$ 0</u>	<u>\$ 1,052,827</u>
5. Total	<u><u>\$ 1,815,411</u></u>	<u><u>\$ 222,841</u></u>	<u><u>\$ 1,592,570</u></u>
<b>B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)</b>			
1. Actuarial Accrued Liability (A.5)			\$ 1,592,570
2. Current Assets (Table 1; Line F.4)			<u>\$ 1,007,360</u>
3. Unfunded Actuarial Accrued Liability (B.1 - B.2)			<u><u>\$ 585,210</u></u>
<b>C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE</b>			
1. Present Value of Future Payrolls Through the Amortization Date of June 30, 2042 <sup>#</sup>			\$ 4,399,371
2. Supplemental Contribution Rate (B.3 / C.1)			13.30%

\*Includes members on leave of absence.

<sup>#</sup> Calculated using 8.0% annual investment return rate.



**TABLE 10**  
**CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)**  
**AS OF JULY 1, 2016**  
(dollars in thousands)

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A. UAAL AT BEGINNING OF YEAR	\$	597,034
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING		
1. Normal Cost and Expenses	\$	26,345
2. Contributions	\$	(55,766)
3. Interest	\$	46,556
4. Total	\$	<u>17,135</u>
C. EXPECTED UAAL AT END OF YEAR (A + B.4)	\$	614,169
D. INCREASE / (DECREASE) DUE TO ACTUARIAL LOSSES / (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED		
1. Age and Service Retirements	\$	305
2. Disability Retirements		(55)
3. Death-in-Service Benefits		(39)
4. Withdrawals		(4,434)
5. Salary Increases		(11,380)
6. Investment Income		14,084
7. Mortality of Annuitants		(3,021)
8. Other Items		(9,820)
9. Total	\$	<u>(14,360)</u>
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTIONS (C + D.9)	\$	599,809
F. CHANGE IN UAAL DUE TO PLAN AMENDMENTS		-
G. CHANGE IN UAAL DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS		(14,599)
H. UAAL AT END OF YEAR (E + F + G)	\$	<u>585,210</u>

**TABLE 11**  
**DETERMINATION OF CONTRIBUTION SUFFICIENCY**  
**AS OF JULY 1, 2016**  
(dollars in thousands)

	<u>Percent-of- Payroll</u>	<u>Dollar Amount</u>
<b>A. STATUTORY CONTRIBUTIONS - CHAPTER 354A</b>		
1. Employee Contributions	7.50%	\$ 20,393
2. Employer Contributions		
a. Regular	6.25%	16,999
b. Additional	3.84%	10,436
3. Supplemental Contribution		
a. 1996 Legislation	0.31%	838
b. 1997 Legislation	1.04%	2,827
c. 2014 Legislation	2.58%	7,000
4. Total	<u>21.52%</u>	<u>\$ 58,493</u>
<b>B. REQUIRED CONTRIBUTIONS - CHAPTER 356</b>		
1. Normal Cost		
a. Retirement Benefits	6.53%	\$ 17,741
b. Disability Benefits	0.19%	511
c. Surviving Spouse and Child Benefits	0.11%	310
d. Vested Withdrawals	1.50%	4,070
e. Refund Liability Due to Death or Withdrawal	0.54%	1,466
f. Total	<u>8.87%</u>	<u>\$ 24,098</u>
2. Supplemental Contribution Amortization	13.30%	36,147
3. Allowance for Administrative Expenses	0.27%	734
4. Total	<u>22.44%</u>	<u>\$ 60,979</u>
<b>C. CONTRIBUTION SUFFICIENCY / (DEFICIENCY) (A.4 - B.4)</b>	<b>(0.92%)</b>	<b>(2,486)</b>
Projected Annual Payroll for Fiscal Year Beginning on the Valuation Date:		\$ 271,781

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## **SECTION 4**

### **ACTUARIAL METHODS AND ASSUMPTIONS**

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**TABLE 12**  
**ACTUARIAL METHODS AND ASSUMPTIONS**  
**AS OF JULY 1, 2016**

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**I. ACTUARIAL COST METHOD**

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

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

**II. CURRENT ACTUARIAL ASSUMPTIONS**

The assumptions were last updated for the July 1, 2013 valuation as a result of an experience study during the five-year period of July 1, 2006 to June 30, 2011, as well as a legislated change to the investment return assumption effective July 1, 2015.

**A. Demographic Assumptions**

Mortality:

1. Healthy Mortality\*:

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

2. Disabled Mortality:

- a. Male: RP-2000 Disabled Life Mortality Table for males
- b. Female: RP-2000 Disabled Life Mortality Table for females

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

**TABLE 12**  
**ACTUARIAL METHODS AND ASSUMPTIONS**  
**AS OF JULY 1, 2016**

---

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

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

**TABLE 12**  
**ACTUARIAL METHODS AND ASSUMPTIONS**  
**AS OF JULY 1, 2016**

---

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

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

**TABLE 12**  
**ACTUARIAL METHODS AND ASSUMPTIONS**  
**AS OF JULY 1, 2016**

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Rates of Disability:

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

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

**TABLE 12**  
**ACTUARIAL METHODS AND ASSUMPTIONS**  
**AS OF JULY 1, 2016**

Rates of Termination:

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

Rates of Retirement:

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

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



**TABLE 12**  
**ACTUARIAL METHODS AND ASSUMPTIONS**  
**AS OF JULY 1, 2016**

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***B. Economic Assumptions***

Investment Return Rate: 8.00%

Cost-of-Living Increases: 1.00% per year through 2054; 2.00% beginning 2055; 2.50% beginning 2066.

Wage Inflation: 4.00% per year

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

*Annual Salary Increases*

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

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

**TABLE 12**  
**ACTUARIAL METHODS AND ASSUMPTIONS**  
**AS OF JULY 1, 2016**

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**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.
Allowance for Combined Service Annuity:	7.00% load on liabilities for active members hired before July 1, 1989;  2.00% load on liabilities for active members hired after June 30, 1989; and  30.00% load on liabilities for former members.  The LCPR Actuary has recently recommended changes to these assumptions, expected to be effective at a later date, pending approval.
Missing Salary and Salary Minimums:	Active members with reported salaries of \$100 or less were assumed to have the average non-zero active salary. Active members with salaries less than those reported at the prior valuation date are valued using their prior salary amount. Active members who have been hired within one year of the valuation date have had their pay annualized by dividing by months of service credited, not to exceed the average non-zero active salary. For members on leave of absence at valuation date who were not on leave at the prior valuation date, the prior year's valuation pay was used.
Missing Data for Deferred Vested Members:	Deferred vested members without a reported benefit and without salary information were assumed to have a final average salary of \$40,000.
Decrement Timing:	Retirement and Termination: end of valuation year – consistent with retirements and terminations occurring at the end of the school year.  Death and Disability: middle of valuation year.

**TABLE 12**  
**ACTUARIAL METHODS AND ASSUMPTIONS**  
**AS OF JULY 1, 2016**

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Valuation of Future Post-Retirement Benefit Increases:	If the plan has reached the funding ratio threshold required to pay a different benefit increase, Minnesota Statutes require the benefit increase rate to be reflected in the liability calculations. If the plan has not yet reached the funding ratio threshold required to pay a benefit increase, Minnesota Statutes require a projection to be performed to determine the expected attainment of the funding ratio thresholds, and the expected payment of benefit increases must be reflected in the liability calculations.
Supplemental Contributions:	1996 legislation provides for a variable amortization aid contribution paid annually on July 15. We assumed the annual amortization aid contribution will equal \$838,000, which was the actual contribution for the most recent fiscal year. Additionally, according to 1997 legislation, annual supplemental contributions currently equal to \$2,827,000 are scheduled to be paid on October 1. According to 2014 legislation, the State of Minnesota will make annual additional supplemental contributions of \$7,000,000 on October 1. The contributions described herein will continue until the plan is 100% funded or until June 30, 2042, whichever occurs earlier.
Projected Annual Payroll Calculation:	The census data as of July 1, 2016 reflects retirements and terminations occurring during the months of May and June; however, it does not necessarily reflect the replacements hired to fill their positions who may have hire dates in August and September. We assumed that May and June retirements are replaced by members coming in at the B.A. entry salary level of \$44,759; and the Projected Annual Payroll for the fiscal year ending June 30, 2017 includes this replacement salary amount.

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**SECTION 5**  
BASIC PLAN

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**TABLE 3A**  
**BASIC ACTIVE MEMBERS AS OF JUNE 30, 2016**

Age	Years of Service								ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35+	
<25	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0	0
65+	0	0	0	0	0	0	0	3	3
ALL	0	0	0	0	0	0	0	3	3

**AVERAGE ANNUAL EARNINGS**

Age	Years of Service								ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35+	
<25	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0	0
65+	0	0	0	0	0	0	0	122,018	122,018
ALL	0	0	0	0	0	0	0	122,018	122,018

**Prior Fiscal Year Earnings (IN THOUSANDS) by Years of Service**

	<5	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	ALL
ALL	0	0	0	0	0	0	0	366	366

**TABLE 4A**  
**BASIC SERVICE RETIREMENTS AS OF JUNE 30, 2016**

Age	Years Retired									ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	
<45	0	0	0	1	0	0	0	0	0	1
45-49	0	0	0	1	0	0	0	0	0	1
50-54	2	0	0	0	0	0	0	0	0	2
55-59	3	1	0	0	0	0	0	0	0	4
60-64	28	33	0	0	0	0	0	0	0	61
65-69	27	157	180	2	0	0	0	0	0	366
70-74	5	49	194	147	3	0	0	0	0	398
75-79	0	4	43	187	68	1	0	0	0	303
80-84	0	1	2	71	125	45	0	0	0	244
85-89	0	0	0	2	54	66	28	0	0	150
90+	0	0	0	1	5	26	41	11	0	84
ALL	65	245	419	412	255	138	69	11	0	1,614

**AVERAGE ANNUAL BENEFIT**

Age	Years Retired									ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	
<45	0	0	0	5,711	0	0	0	0	0	5,711
45-49	0	0	0	5,711	0	0	0	0	0	5,711
50-54	5,142	0	0	0	0	0	0	0	0	5,142
55-59	8,047	10,957	0	0	0	0	0	0	0	8,774
60-64	35,264	45,471	0	0	0	0	0	0	0	40,785
65-69	40,014	46,511	43,587	41,260	0	0	0	0	0	44,565
70-74	21,238	46,329	43,357	35,847	37,882	0	0	0	0	40,630
75-79	0	47,826	54,410	44,536	41,585	67,287	0	0	0	45,393
80-84	0	94,993	59,946	48,794	47,036	28,625	0	0	0	44,455
85-89	0	0	0	44,562	57,112	36,527	28,853	0	0	42,612
90+	0	0	0	40,110	54,152	32,567	27,417	29,388	0	31,011
ALL	33,975	46,409	44,669	41,954	47,748	33,427	28,000	29,388		42,518

**Total Annual Benefit (IN THOUSANDS) by Years RETIRED**

	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	ALL
ALL	2,208	11,370	18,716	17,285	12,176	4,613	1,932	323	0	68,624

**TABLE 5A**  
**BASIC DISABILITY RETIREMENTS AS OF JUNE 30, 2016\***

Age	Years Disabled									ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	
<45	0	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0	0	0
60-64	0	2	0	0	0	0	0	0	0	2
65-69	0	0	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0	0	0
85-89	0	0	0	0	0	0	0	0	0	0
90+	0	0	0	0	0	0	0	0	0	0
ALL	0	2	0	0	0	0	0	0	0	2

**AVERAGE ANNUAL BENEFIT**

Age	Years Disabled									ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	
<45	0	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0	0	0
60-64	0	52,045	0	0	0	0	0	0	0	52,045
65-69	0	0	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0	0	0
85-89	0	0	0	0	0	0	0	0	0	0
90+	0	0	0	0	0	0	0	0	0	0
ALL	0	52,045	0	0	0	0	0	0	0	52,045

**Total Annual Benefit (IN THOUSANDS) by Years DISABLED**

	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	ALL
ALL	0	104	0	0	0	0	0	0	0	104

\* Disability benefits convert to normal retirement benefits at normal retirement age (which occurs between ages 65 and 66).

**TABLE 6A**  
**BASIC SURVIVORS AS OF JUNE 30, 2016**

Age	Years Since Member Death									ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	
<45	0	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0	0	0
50-54	2	0	0	0	0	0	0	0	0	2
55-59	1	0	0	0	0	0	0	0	0	1
60-64	0	0	1	3	1	1	0	0	1	7
65-69	3	1	3	3	4	2	1	0	0	17
70-74	6	0	6	8	6	3	2	0	0	31
75-79	10	1	0	12	20	7	3	3	0	56
80-84	16	0	1	5	18	18	6	0	0	64
85-89	9	0	0	0	6	17	19	3	2	56
90+	3	0	0	0	0	7	15	7	1	33
ALL	50	2	11	31	55	55	46	13	4	267

**AVERAGE ANNUAL BENEFIT**

Age	Years Since Member Death									ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	
<45	0	0	0	0	0	0	0	0	0	
45-49	0	0	0	0	0	0	0	0	0	
50-54	45,095	0	0	0	0	0	0	0	0	45,095
55-59	60,177	0	0	0	0	0	0	0	0	60,177
60-64	0	0	23,890	5,415	48,914	42,302	0	0	3,350	19,243
65-69	45,056	80,595	38,234	34,364	35,623	24,693	20,378	0	0	37,989
70-74	48,892	0	26,724	37,927	26,949	23,303	18,624	0	0	33,095
75-79	45,289	64,513	0	30,495	44,363	30,173	32,846	20,263	0	38,235
80-84	63,539	0	40,284	44,602	47,788	36,327	22,700	0	0	45,784
85-89	38,280	0	0	0	49,291	35,956	34,431	19,383	42,267	36,578
90+	24,390	0	0	0	0	31,396	33,711	23,700	21,026	29,865
ALL	49,322	72,554	30,838	32,636	43,569	33,777	31,570	21,911	27,228	37,686

**Total Annual Benefit (IN THOUSANDS) by Years Since Member Death**

	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	ALL
ALL	2,466	145	339	1,012	2,396	1,858	1,452	285	109	10,061



**TABLE 11A**  
**BASIC DETERMINATION OF CONTRIBUTION SUFFICIENCY**  
**AS OF JULY 1, 2016**  
(dollars in thousands)

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	<b>Percent-of- Payroll</b>	<b>Dollar Amount</b>
<b>A. STATUTORY CONTRIBUTIONS - CHAPTER 354A</b>		
1. Employee Contributions	10.00%	\$ 38
2. Employer Contributions		
a. Regular	9.75%	37
b. Additional	3.64%	14
3. Supplemental Contribution		
a. 1996 Legislation	0.31%	1
b. 1997 Legislation	1.04%	4
c. 2014 Legislation	2.58%	10
4. Total	27.32%	\$ 104
<b>B. REQUIRED CONTRIBUTIONS - CHAPTER 356</b>		
1. Normal Cost		
a. Retirement Benefits	9.38%	\$ 36
b. Disability Benefits	0.45%	2
c. Surviving Spouse and Child Benefits	0.10%	0
d. Deferred Retirements	1.81%	7
e. Refund Liability Due to Death or Withdrawal	1.22%	5
f. Total	12.96%	\$ 50
Projected Annual Payroll for Fiscal Year Beginning on the Valuation Date:		\$ 381

# SUMMARY OF BENEFIT PROVISIONS FOR BASIC MEMBERS AS OF JULY 1, 2016

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## STATUTORY CONTRIBUTIONS

Statutory contribution rates for members and their employers are shown as a percent of pay below:

<u>Contribution After June 30,</u>	<u>Member</u>	<u>Employer Regular</u>	<u>Employer Additional</u>
2014	9.00%	9.00%	3.64%
2015	9.50%	9.50%	3.64%
2016	10.00%	9.75%	3.64%
2017	10.00%	10.00%	3.64%

## PARTICIPANTS

Professional Educators first employed prior to July 1, 1978 by schools in the City of St. Paul or St. Paul College whose position requires a license from the Minnesota Department of Education, who are not covered under the Social Security Act.

## ACCREDITED SERVICE

Service which has been verified and accredited by the Association for the purpose of determining contributions and benefits (may include service earned while working outside of St. Paul Public Schools, previous St. Paul service, military service and governmental service).

## ALLOWABLE ST. PAUL SERVICE

Service earned as a licensed educator in the St. Paul Public Schools, in the St. Paul College, or as an employee of the Association. Also includes service credited after receipt of payment as required, for licensed educators on leave.

## SALARY

Total compensation earned during a school year (July 1 to June 30) excluding lump sum payments for unused leave at termination and employer-paid insurance coverage.

## AVERAGE SALARY

Average of the highest five years of salary during the last 10 years of St. Paul service while making contributions or while disabled.

## NORMAL RETIREMENT BENEFIT

### *Eligibility*

Attainment of age 65 and 5 years of Accredited Service.

### *Benefit*

2.50% of Average Salary for each year of Accredited Service.

# SUMMARY OF BENEFIT PROVISIONS FOR BASIC MEMBERS AS OF JULY 1, 2016

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## EARLY RETIREMENT BENEFIT

### *Eligibility*

Attainment of age 55 and 5 years of Accredited Service.

### *Benefit*

The greater of the following benefits:

- 2.00 percent of Average Salary per year of Accredited Service, subject to a maximum of 40 years with a 0.25% reduction for each month the member is under age 65. If the member has 25 years of Accredited Service, the reduction is taken from age 60, therefore no reduction is required if the member is age 60 or older. No reduction is taken if age plus years of Accredited Service totals at least 90.
- 2.50 percent of Average Salary per year of Accredited Service, subject to a maximum of 40 years, reduced for each month the member is under age 65 using linear interpolation of the table listed below.

Age at Retirement	Under Age 62 or Less Than 30 Years of Service	Age 62 or Older with 30 Years of Service
55	0.5376	
56	0.5745	
57	0.6092	
58	0.6419	
59	0.6726	
60	0.7354	
61	0.7947	
62	0.8507	0.8831
63	0.9035	0.9246
64	0.9533	0.9635
65	1.0000	1.0000

## DISABILITY RETIREMENT BENEFIT

### *Eligibility*

Total and permanent disablement before attaining age 65 and 5 years of Accredited Service.

### *Benefit*

If the member is under age 65, 75 percent of the member's annual contract salary less any Social Security and Workers' Compensation benefits payable until age 65. At age 65, a normal retirement benefit is calculated using the projected service and average salary as if the member had continued to teach in their position held at the time of disability. Members age 65 or older at time of disability receive a normal retirement benefit.

# SUMMARY OF BENEFIT PROVISIONS FOR BASIC MEMBERS AS OF JULY 1, 2016

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## **DEFERRED RETIREMENT BENEFIT**

### ***Eligibility***

5 years of Accredited Service.

### ***Benefit***

Benefit computed under law in effect at termination and payable as a normal or early retirement benefit. For members hired on or before June 30, 2006, the benefit is augmented at 3.00 percent compounded annually from the 1<sup>st</sup> of the month following termination until the January 1<sup>st</sup> after turning age 55 and then augmented at 5.00 percent compounded annually from that date to July 1, 2012. For members hired after June 30, 2006, the benefit is augmented at 2.50 percent compounded annually from the 1<sup>st</sup> of the month following termination to July 1, 2012. Augmentation for all members, regardless of hire date, changed to 2.00 percent as of July 1, 2012 for the portion of benefit deferral which occurs after June 30, 2012.

## **ACTIVE SURVIVOR BENEFIT (Family Benefit)**

### ***Eligibility***

Active member with three years of Accredited Service.

### ***Benefit***

- Children's Benefit: 25 percent of the maximum Bachelor of Arts salary for the year in which the member died for each eligible child up to a maximum of two. Benefits are paid until the child attains age 18, or 22 for full-time students.
- Spousal Benefit: 15 percent of the maximum Bachelor of Arts salary for an eligible spouse who has legal custody of an eligible child. Spousal benefits cease when the spouse remarries, dies, or elects the regular survivor benefit. Electing the regular survivor benefit does not disqualify the child from receiving the family benefit.

## **SURVIVOR BENEFIT (Active or Retired Member)**

### ***Eligibility***

Active member or retired member with five years of Accredited Service. A surviving spouse must have been married to the member for three years at the earlier of his death or retirement.

### ***Benefit***

Retirement benefit earned at the time of death or retirement, whichever is earlier, reduced by the use of one hundred percent joint survivorship tables, based on the ages of the member and survivor at the time of retirement.

# SUMMARY OF BENEFIT PROVISIONS FOR BASIC MEMBERS AS OF JULY 1, 2016

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## **REFUND OF CONTRIBUTIONS**

### ***Eligibility***

Termination or death where no annuity is payable, or prior to age 55, if a refund of contributions is chosen in lieu of an annuity.

### ***Benefit***

Member contributions with 6.00 percent interest accrued before July 1, 2011 with 4.00 percent accrual thereafter.

## **REEMPLOYED ANNUITANTS**

The School District shall make the regular employer contribution and additional employer contribution, plus a supplemental contribution equal to 2.5% of salary, on behalf of any retired member who is reemployed by the School District. Reemployed annuitants do not accrue additional benefits.

## **NORMAL FORM OF RETIREMENT BENEFITS**

Unreduced annuity payments made until the death of the member, with a 100 percent Joint & Survivor adjusted pension payable to the surviving beneficiary.

## **BENEFIT INCREASES**

If the Accrued Liability Funding Ratio, based on Actuarial Value of Assets, as determined by the two consecutive and most recent actuarial valuations are:

Less than 80 percent for two consecutive years, the COLA: 1.00 percent

Between 80 percent and 90 percent for two consecutive years, the COLA: 2.00 percent

If at least 90 percent for two consecutive years, the COLA: 2.50 percent

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**SECTION 6**  
COORDINATED PLAN

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**TABLE 3B**  
**COORDINATED ACTIVE MEMBERS AS OF JUNE 30, 2016\***

Age	Years of Service								ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35+	
<25	25	0	0	0	0	0	0	0	25
25-29	255	19	0	0	0	0	0	0	274
30-34	254	149	17	0	0	0	0	0	420
35-39	162	114	170	34	0	0	0	0	480
40-44	133	76	98	220	17	0	0	0	544
45-49	83	41	81	184	150	7	0	0	546
50-54	56	37	56	112	122	81	20	0	484
55-59	44	21	44	75	95	81	60	7	427
60-64	20	11	26	53	58	41	19	22	250
65+	20	6	11	19	9	8	4	4	81
ALL	1,052	474	503	697	451	218	103	33	3,531

**AVERAGE ANNUAL EARNINGS**

Age	Years of Service								ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35+	
<25	37,102	0	0	0	0	0	0	0	37,102
25-29	47,347	55,794	0	0	0	0	0	0	47,933
30-34	53,481	64,012	71,276	0	0	0	0	0	57,937
35-39	55,813	67,112	77,655	81,661	0	0	0	0	68,063
40-44	54,819	66,888	78,381	81,675	90,558	0	0	0	72,727
45-49	61,628	74,785	77,529	84,790	88,475	96,566	0	0	80,604
50-54	49,935	70,290	79,633	84,122	86,794	96,158	96,731	0	81,799
55-59	41,876	68,468	76,860	82,483	88,397	91,178	94,854	91,496	81,881
60-64	45,112	62,911	65,147	82,340	80,749	88,340	86,489	94,300	78,701
65+	20,089	40,093	68,535	78,646	86,608	93,995	104,484	80,434	63,723
ALL	51,308	66,180	76,865	82,945	87,052	92,771	94,049	92,024	71,943

**Prior Fiscal Year Earnings (In THOUSANDS) by Years of Service**

	<5	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	ALL
ALL	53,976	31,370	38,663	57,813	39,260	20,224	9,687	3,035	254,027

\*Including those on leave of absence, pay annualized for new hires.

**TABLE 4B**  
**COORDINATED SERVICE RETIREMENTS AS OF JUNE 30, 2016**

Age	Years Retired									ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	
<45	0	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0	0	0
50-54	3	0	0	0	0	0	0	0	0	3
55-59	78	1	0	0	0	0	0	0	0	79
60-64	303	99	1	0	0	0	0	0	0	403
65-69	285	259	64	0	0	0	0	0	0	608
70-74	54	166	104	37	0	0	0	0	0	361
75-79	9	29	78	48	12	0	0	0	0	176
80-84	4	5	15	38	19	1	0	0	0	82
85-89	0	0	4	5	14	1	0	0	0	24
90+	0	0	2	0	2	5	3	1	0	13
ALL	736	559	268	128	47	7	3	1	0	1,749

**AVERAGE ANNUAL BENEFIT**

Age	Years Retired									ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	
<45	0	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0	0	0
50-54	11,348	0	0	0	0	0	0	0	0	11,348
55-59	19,880	30,970	0	0	0	0	0	0	0	20,021
60-64	23,631	20,576	3,153	0	0	0	0	0	0	22,829
65-69	17,770	19,993	15,247	0	0	0	0	0	0	18,451
70-74	14,029	18,858	17,814	11,472	0	0	0	0	0	17,078
75-79	1,931	17,279	17,081	13,696	11,284	0	0	0	0	15,020
80-84	8,002	7,445	14,108	15,524	16,297	4,854	0	0	0	14,454
85-89	0	0	7,585	16,281	16,654	5,863	0	0	0	14,615
90+	0	0	27,599	0	30,601	11,749	3,545	3,907	0	14,591
ALL	19,859	19,526	16,646	13,697	15,732	9,923	3,545	3,907	0	18,621

**Total Annual Benefit (IN THOUSANDS) by Years RETIRED**

	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	ALL
ALL	14,616	10,915	4,461	1,753	739	69	11	4	0	32,569



**TABLE 5B**  
**COORDINATED DISABILITY RETIREMENTS AS OF JUNE 30, 2016\***

Age	Years Disabled									ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	
<45	1	0	0	0	0	0	0	0	0	1
45-49	2	1	0	0	0	0	0	0	0	3
50-54	3	4	0	0	0	0	0	0	0	7
55-59	2	1	1	0	1	0	0	0	0	5
60-64	5	6	3	0	0	0	0	0	0	14
65-69	0	0	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0	0	0
85-89	0	0	0	0	0	0	0	0	0	0
90+	0	0	0	0	0	0	0	0	0	0
ALL	13	12	4	0	1	0	0	0	0	30

**AVERAGE ANNUAL BENEFIT**

Age	Years Disabled									ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	
<45	3,455	0	0	0	0	0	0	0	0	3,455
45-49	24,555	7,875	0	0	0	0	0	0	0	18,995
50-54	21,979	10,933	0	0	0	0	0	0	0	15,667
55-59	19,593	2,303	24,670	0	5,637	0	0	0	0	14,359
60-64	28,780	15,521	12,981	0	0	0	0	0	0	19,712
65-69	0	0	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0	0	0
85-89	0	0	0	0	0	0	0	0	0	0
90+	0	0	0	0	0	0	0	0	0	0
ALL	23,199	12,253	15,904	0	5,637	0	0	0	0	17,263

**Total Annual Benefit (IN THOUSANDS) by Years DISABLED**

	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	ALL
ALL	302	147	64	0	6	0	0	0	0	518

\* Disability benefits convert to normal retirement benefits at normal retirement age (which occurs between ages 65 and 66).

**TABLE 6B**  
**COORDINATED SURVIVORS AS OF JUNE 30, 2016**

Age	Years Since Member Death									ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	
<45	2	2	1	0	0	0	0	0	0	5
45-49	0	1	4	0	0	0	0	0	0	5
50-54	1	0	0	0	0	0	0	0	0	1
55-59	4	3	0	0	0	0	0	0	0	7
60-64	2	3	1	0	0	0	0	0	0	6
65-69	5	2	2	0	1	0	0	0	0	10
70-74	3	2	7	2	0	0	0	0	0	14
75-79	0	0	4	3	1	0	0	0	0	8
80-84	2	1	0	1	0	1	0	0	0	5
85-89	0	0	0	0	0	0	0	0	0	0
90+	0	0	0	0	0	0	0	0	0	0
ALL	19	14	19	6	2	1	0	0	0	61

**AVERAGE ANNUAL BENEFIT**

Age	Years Since Member Death									ALL
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	
<45	8,402	7,419	17,861	0	0	0	0	0	0	9,900
45-49	0	537	815	0	0	0	0	0	0	760
50-54	1,921	0	0	0	0	0	0	0	0	1,921
55-59	13,244	8,706	0	0	0	0	0	0	0	11,300
60-64	21,542	15,728	694	0	0	0	0	0	0	15,160
65-69	20,822	22,222	19,360	0	13,615	0	0	0	0	20,089
70-74	13,309	18,552	15,540	8,605	0	0	0	0	0	14,501
75-79	0	0	19,251	20,487	17,088	0	0	0	0	19,444
80-84	20,212	3,214	0	14,636	0	26,610	0	0	0	16,977
85-89	0	0	0	0	0	0	0	0	0	0
90+	0	0	0	0	0	0	0	0	0	0
ALL	15,750	12,389	12,964	15,551	15,352	26,610	0	0	0	14,256

**Total Annual Benefit (IN THOUSANDS) by Years Since Member Death**

	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	ALL
ALL	299	173	246	94	31	27	0	0	0	870

**TABLE 11B**  
**COORDINATED DETERMINATION OF CONTRIBUTION SUFFICIENCY**  
**AS OF JULY 1, 2016**  
(dollars in thousands)

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	<b>Percent-of- Payroll</b>	<b>Dollar Amount</b>
<b>A. STATUTORY CONTRIBUTIONS - CHAPTER 354A</b>		
1. Employee Contributions	7.50%	\$ 20,355
2. Employer Contributions		
a. Regular	6.25%	16,961
b. Additional	3.84%	10,422
3. Supplemental Contribution		
a. 1996 Legislation	0.31%	837
b. 1997 Legislation	1.04%	2,823
c. 2014 Legislation	2.58%	6,990
4. Total	21.52%	\$ 58,387
<b>B. REQUIRED CONTRIBUTIONS - CHAPTER 356</b>		
1. Normal Cost		
a. Retirement Benefits	6.52%	\$ 17,705
b. Disability Benefits	0.19%	509
c. Surviving Spouse and Child Benefits	0.11%	310
d. Deferred Retirements	1.50%	4,063
e. Refund Liability Due to Death or Withdrawal	0.54%	1,461
f. Total	8.86%	\$ 24,048
Projected Annual Payroll for Fiscal Year Beginning on the Valuation Date:		\$ 271,400

# SUMMARY OF BENEFIT PROVISIONS FOR COORDINATED MEMBERS AS OF JULY 1, 2016

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## STATUTORY CONTRIBUTIONS

Statutory contribution rates for members and their employers are shown as a percent-of-pay below.

<u>Contribution After June 30,</u>	<u>Member</u>	<u>Employer Regular</u>	<u>Employer Additional</u>
2014	6.50%	5.50%	3.84%
2015	7.00%	6.00%	3.84%
2016	7.50%	6.25%	3.84%
2017	7.50%	6.50%	3.84%

## PARTICIPANTS

Professional educators in the public schools of the City of St. Paul, excluding charter schools, whose position requires a license from the Minnesota Department of Education, and who are covered under the Social Security Act and make contributions to the St. Paul Teachers' Retirement Fund Association, are covered under the Coordinated Plan.

## ALLOWABLE SERVICE

Service earned as a licensed educator in the St. Paul Public Schools, in the St. Paul College, or in certain charter schools, or as an employee of the Association. Also includes service credited after receipt of payment as required, for licensed educators on leave. Service is granted on a proportional basis for part-time teachers.

## SALARY

Total compensation excluding lump sum payments for unused leave at termination and employer-paid insurance coverage.

## AVERAGE SALARY

Average of the highest five successive years of salary while making contributions. In cases where the Allowable Service is less than five years, Average Salary is based on the Allowable Service years.

## NORMAL RETIREMENT BENEFIT

### *Eligibility*

Three years of Allowable Service. The eligibility age is 65 for those hired before July 1, 1989 and the earlier of eligibility for full Social Security retirement benefits to a maximum of age 66 for those hired on or after July 1, 1989. A Proportionate Retirement Annuity is available at Normal Retirement Age with one year of Allowable Service.

### *Benefit*

1.70 percent of Average Salary for each year of Allowable Service rendered before July 1, 2015 and 1.90 percent of Average Salary for each year of Allowable Service rendered after June 30, 2015.

# SUMMARY OF BENEFIT PROVISIONS FOR COORDINATED MEMBERS AS OF JULY 1, 2016

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## EARLY RETIREMENT BENEFIT

### *Eligibility*

Attainment of age 55 and 3 years of Allowable Service.

### *Benefit*

Members hired before July 1, 1989 are eligible for the greater of the following benefits. Members hired after July 1, 1989 are eligible for the benefits shown in item (b):

- a) For the first ten years of Allowable Service, 1.20 percent of Average Salary for each year of Allowable Service rendered prior to July 1, 2015, plus 1.40 percent of Average Salary for each year of Allowable Service rendered after June 30, 2015. Additionally, for each subsequent year of Allowable Service in excess of ten years, 1.70 percent of Average Salary for each year rendered prior to July 1, 2015, plus 1.90 percent of Average Salary for each year rendered after June 30, 2015. There is a reduction of 0.25 percent for each month the member is under age 65, or under age 62 with 30 years of Allowable Service. No reduction applies if the age plus years of service totals at least 90.
- b) 1.70 percent of Average Salary per year of Allowable Service rendered before July 1, 2015 and 1.90 percent of Average Salary for each year of service rendered after June 30, 2015 reduced for each month the member is under the Normal Retirement Age using linear interpolation of the factors in the table listed below.

Normal Retirement Age:	Under Age 62 or Less Than 30 Years of Service		Age 62 or Older with 30 Years of Service	
	65	66	65	66
<b>Age at Retirement</b>				
<b>55</b>	0.5376	0.4592		
<b>56</b>	0.5745	0.4992		
<b>57</b>	0.6092	0.5370		
<b>58</b>	0.6419	0.5726		
<b>59</b>	0.6726	0.6062		
<b>60</b>	0.7354	0.6726		
<b>61</b>	0.7947	0.7354		
<b>62</b>	0.8507	0.7947	0.8831	0.8389
<b>63</b>	0.9035	0.8507	0.9246	0.8831
<b>64</b>	0.9533	0.9035	0.9635	0.9246
<b>65</b>	1.0000	0.9533	1.0000	0.9635
<b>66</b>		1.0000		1.0000

# SUMMARY OF BENEFIT PROVISIONS FOR COORDINATED MEMBERS AS OF JULY 1, 2016

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## **DISABILITY RETIREMENT BENEFIT**

### ***Eligibility***

Total and permanent disablement and three years of Allowable Service with service earned within the current fiscal year and at least two years of Allowable Service since the last interruption in service.

### ***Benefit***

Calculated as a normal retirement benefit payable for life without reduction for early commencement. At normal retirement age, the benefit converts from a disability benefit to a retirement benefit. The disability benefit is reduced by any Workers' Compensation benefits payable.

## **DEFERRED RETIREMENT BENEFIT**

### ***Eligibility***

Three years of Allowable Service.

### ***Benefit***

Benefit computed under law in effect at termination and payable as a normal or early retirement benefit. For members hired on or before June 30, 2006, the benefit is augmented at 3.00 percent compounded annually from the 1<sup>st</sup> of the month following termination until the January 1<sup>st</sup> after turning age 55 and then augmented at 5.00 percent compounded annually from that date to July 1, 2012. For members hired after June 30, 2006, the benefit is augmented at 2.50 percent compounded annually from the 1<sup>st</sup> of the month following termination to July 1, 2012. Augmentation for all members, regardless of hire date, changed to 2.00 percent as of July 1, 2012 for the portion of benefit deferral which occurs after June 30, 2012.

## **SURVIVOR BENEFIT (Active Members)**

### ***Eligibility***

Active member with three years of Allowable service. A surviving spouse is defined as the person legally married to the member at the time of death. If none, a dependent child who is the legal child of the member, who is less than 20 years of age and unmarried.

### ***Benefit***

Retirement benefit earned at the time of death with choices for either a reduced for 100 percent joint survivorship, or 5-, 10-, 15-, or 20-year term certain. The benefit is available immediately upon application. Actuarial reductions assuming 2.5% augmentation for the calculation of the survivorship portion of a 100 percent joint and survivor benefit are actuarially determined based on the member's and survivor's ages at the death of the member.

Early retirement reductions apply to the survivor benefit based on the member's age when deceased. If the deceased member had not yet attained age 55 at time of death, the additional early retirement reduction from age 55 to the age of the member at death applies at only one-half of the actuarial rate.

# SUMMARY OF BENEFIT PROVISIONS FOR COORDINATED MEMBERS AS OF JULY 1, 2016

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## **REFUND OF CONTRIBUTIONS**

### ***Eligibility***

Termination or death where no annuity is payable or a refund of contributions is chosen in lieu of an annuity.

### ***Benefit***

Member contributions with 6.00 percent interest accrued until July 1, 2011 with 4.00 percent accrual thereafter.

## **REEMPLOYED ANNUITANTS**

The School District shall make the regular employer contribution and additional employer contribution, plus a supplemental contribution equal to 2.5% of salary, on behalf of any retired member who is reemployed by the School District. Reemployed annuitants do not accrue additional benefits.

## **NORMAL FORM OF RETIREMENT BENEFITS**

Straight life annuity. Actuarially equivalent options are available to provide post-retirement beneficiary or survivor benefits.

## **BENEFIT INCREASES**

If the Accrued Liability Funding Ratio, based on Actuarial Value of Assets, as determined by the two consecutive and most recent actuarial valuations are:

Less than 80 percent for two consecutive years, the COLA: 1.00 percent

Between 80 percent and 90 percent for two consecutive years, the COLA: 2.00 percent

If at least 90 percent for two consecutive years, the COLA: 2.50 percent

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**SECTION 7**

**ADDITIONAL DISCLOSURES**

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**TABLE 14**  
**ADDITIONAL DISCLOSURES – SCHEDULE OF FUNDING PROGRESS**  
(dollars in thousands)

<b>Actuarial Valuation Date</b>	<b>Actuarial Value of Assets (A)</b>	<b>Actuarial Accrued Liability (B)</b>	<b>Unfunded AAL (UAAL) (B)-(A)</b>	<b>Funded Ratio (A)/(B)</b>	<b>Actual Covered Payroll (Previous FY) (C)</b>	<b>UAAL as % of Covered Payroll ((B)-(A))/(C)</b>
07/01/96	\$ 494,931	\$ 664,072	\$ 169,141	74.53%	\$ 145,677	116.11%
07/01/97	556,406	805,066	248,660	69.11%	151,363	164.28%
07/01/98	625,053	861,584	236,531	72.55%	168,564	140.32%
07/01/99	704,233	938,847	234,614	75.01%	178,254	131.62%
07/01/00	801,823	998,253	196,430	80.32%	187,950	104.51%
07/01/01	869,045	1,060,931	191,886	81.91%	202,915	94.56%
07/01/02	899,572	1,141,300	241,728	78.82%	201,456	119.99%
07/01/03	898,760	1,189,361	290,601	75.57%	205,655	141.31%
07/01/04	898,860	1,251,460	352,600	71.82%	221,685	159.05%
07/01/05	905,292	1,299,832	394,540	69.65%	223,762	176.32%
07/01/06	938,919	1,346,072	407,153	69.75%	226,351	179.88%
07/01/07	1,015,722	1,380,151	364,429	73.59%	229,172	159.02%
07/01/08	1,075,951	1,432,040	356,089	75.13%	235,993	150.89%
07/01/09	1,049,954	1,454,314	404,360	72.20%	243,166	166.29%
07/01/10	1,001,444	1,471,630	470,185	68.05%	239,996	195.91%
07/01/11	972,718	1,389,875	417,157	69.99%	239,738	174.01%
07/01/12	911,930	1,471,216	559,286	61.98%	239,053	233.96%
07/01/13	886,296	1,467,350	581,054	60.40%	247,432	234.83%
07/01/14	947,972	1,533,603	585,631	61.81%	259,740	225.47%
07/01/15	999,736	1,596,770	597,034	62.61%	263,844	226.28%
07/01/16	1,007,360	1,592,570	585,210	63.25%	258,787	226.14%

**TABLE 15**  
**ADDITIONAL DISCLOSURES – SCHEDULE OF EMPLOYER CONTRIBUTIONS**  
(dollars in thousands)

<b>Year Ended June 30</b>	<b>Actuarially Required Contribution Rate (A)</b>	<b>Actual Covered Payroll (B)</b>	<b>Actual Member Contributions (C)</b>	<b>Annual Required Contributions (D) = [(A)*(B)]-(C)</b>	<b>Actual Employer Contributions <sup>(1)</sup> (E)</b>	<b>Percentage Contributed (E) / (D)</b>
1997	16.97%	\$ 151,363	\$ 9,484	\$ 16,202	\$ 16,043	99.02%
1998	20.35%	168,564	11,057	23,246	21,702	93.36
1999	18.82%	178,254	11,649	21,898	21,066	96.20
2000	18.09%	187,950	13,184	20,816	22,622	108.68
2001	16.57%	202,915	13,170	20,453	23,569	115.23
2002	15.81%	201,456	14,468	17,382	24,216	139.32
2003	18.56% <sup>(2)</sup>	205,655	14,222	23,948	23,370	97.59
2004	20.36%	221,685	14,308	30,827	23,771	77.11
2005	21.59%	223,762	13,587	34,723	23,833	68.64
2006	23.78%	226,351	13,453	40,373	24,015	59.48
2007	24.55%	229,172	13,438	42,823	24,117	56.32
2008	23.40%	235,993	13,642	41,580	24,285	58.40
2009	17.63%	243,166	13,864	29,007	24,844	85.65
2010	18.40%	239,996	13,832	30,328	25,126	82.85
2011	19.84%	239,738	13,745	33,819	25,090	74.19
2012	18.37%	239,053	14,117	29,797	25,109	84.27
2013	22.87%	247,432	15,164	41,424	26,445	63.84
2014	22.13%	259,740	16,564	40,916	35,197	86.02
2015	21.94%	263,844	17,567	40,320	36,711	91.05
2016	22.26%	258,787	18,538	39,068	37,228	95.29

<sup>(1)</sup> Includes contributions from other sources (if applicable).

<sup>(2)</sup> Actuarially Required Contribution Rate prior to change in Actuarial Assumptions is 16.19%.

**TABLE 16**  
**ADDITIONAL DISCLOSURES – DEVELOPMENT OF THE FUND**  
(dollars in thousands)

<u>Year Ended June 30</u>	<u>Employer Contributions</u>	<u>Employee Contributions</u>	<u>Supplemental Contributions*</u>	<u>Actuarial Net Investment Return</u>	<u>Administrative Expenses</u>	<u>Benefit Payments</u>	<u>Actuarial Value of Assets EOY</u>
2006	\$ 19,815	\$ 13,453	\$ 4,200	\$ 76,317	\$ 591	\$ 79,567	\$ 938,919
2007	19,666	13,438	4,451	124,214	696	84,271	1,015,722
2008	20,775	13,642	3,509	112,804	691	89,810	1,075,951
2009	21,501	13,864	3,343	28,924	605	93,024	1,049,954
2010	21,018	13,832	4,108	9,496	602	96,362	1,001,444
2011	21,013	13,745	4,077	31,391	722	98,230	972,718
2012	21,452	14,117	3,658	3,447	736	102,726	911,930
2013	22,780	15,164	3,665	37,919	751	104,411	886,296
2014	24,532	16,564	10,665	117,499	739	106,845	947,972
2015	25,505	17,567	11,206	107,987	748	109,753	999,736
2016	26,433	18,538	10,795	64,402	749	111,795	1,007,360

\* Includes employer contributions for reemployed annuitants.

**TABLE 17**  
**ADDITIONAL DISCLOSURES – SUPPLEMENTARY INFORMATION**

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<b>Valuation Date</b>	July 1, 2016
<b>Actuarial Cost Method</b>	Entry Age Normal
<b>Amortization Method</b>	Level Percent of Pay, Closed, Assuming Four Percent Payroll Growth
<b>Amortization Period</b>	Closed Period ending June 30, 2042
<b>Asset Valuation Method</b>	5-Year Smoothed Market
<b>Actuarial Assumptions:</b>	
Investment rate of return	8.00%
Projected salary increases	4.00% - 8.90%; age and service based
Cost-of-living adjustments	1% per year through 2054; 2% beginning January 1, 2055; 2.5% beginning January 1, 2066
<b>Plan Membership:</b>	
Active Members	3,534
Retirees and Beneficiaries	3,723
Terminated Vested Members	2,020
Other Non-Vested Terminated Members	<u>2,915</u>
Total	12,192