

**ST. PAUL TEACHERS' RETIREMENT FUND ASSOCIATION**  
GASB STATEMENT NOS. 67 AND 68 ACCOUNTING AND  
FINANCIAL REPORTING FOR PENSIONS  
JUNE 30, 2015

December 7, 2015

St. Paul Teachers' Retirement Fund Association  
1619 Dayton Avenue, Room 309  
St. Paul, Minnesota 55104-6206

Dear Trustees:

This report provides accounting and financial reporting information that is intended to comply with the Governmental Accounting Standards Board (GASB) Statement Nos. 67 and 68 for the St. Paul Teachers' Retirement Fund Association ("SPTRFA" or "Fund"). These calculations have been made on a basis that is consistent with our understanding of these Statements.


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

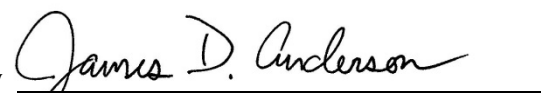
Our calculation of the liability associated with the benefits described in this report was performed for the purpose of providing reporting and disclosure information that satisfies the requirements of GASB Statement Nos. 67 and 68. The calculation of the plan's liability for this report is not applicable for funding purposes of the plan. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Statement No. 67 may produce significantly different results. The information in this report is calculated on a total plan basis. The Fund is responsible for preparing the Schedule of Employer Allocations and the Schedule of Pension Amounts by Employer. This report may be provided to parties other than the St. Paul Teachers' Retirement Fund Association only in its entirety and only with the permission of the Board.

This report is based upon information, furnished to us by the Fund, concerning retirement and ancillary benefits, active members, deferred vested members, retirees and beneficiaries, and financial data. If your understanding of this information is different, please let us know. This information was checked for internal consistency, but it was not otherwise audited.

To the best of our knowledge, the information contained with this report is accurate and fairly represents the actuarial position of the St. Paul Teachers' Retirement Fund Association. All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board. 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.

Respectfully submitted,

By   
\_\_\_\_\_  
Bonita J. Wurst  
ASA, EA, MAAA

By   
\_\_\_\_\_  
James D. Anderson  
FSA, EA, MAAA

**TABLE OF CONTENTS**

	<u>Page</u>
<b>Section A</b>	Executive Summary
	Executive Summary ..... 1
	Discussion ..... 2-4
<b>Section B</b>	Financial Statements
	Statement of Pension Expense ..... 5
	Statement of Outflows and Inflows Arising from Current Period ..... 6
	Statement of Outflows and Inflows Arising from Current and Prior Periods ..... 7
	Statement of Fiduciary Net Position ..... 8
	Statement of Changes in Fiduciary Net Position ..... 9
<b>Section C</b>	Required Supplementary Information
	Schedule of Changes in Net Pension Liability and Related Ratios Current Period.... 10
	Schedule of Changes in Net Pension Liability and Related Ratios Multiyear..... 11
	Schedule of Net Pension Liability Multiyear..... 12
	Schedule of Contributions Multiyear ..... 13
	Notes to Schedule of Contributions ..... 13
	Schedule of Investment Returns Multiyear..... 14
<b>Section D</b>	Notes to Financial Statements
	Asset Allocation..... 15
	Sensitivity of Net Pension Liability to the Single Discount Rate Assumption..... 16
	Reconciliation of Members ..... 17
	GASB Reconciliation..... 18
<b>Section E</b>	Summary of Benefits ..... 19-26
<b>Section F</b>	Actuarial Cost Method and Actuarial Assumptions
	Valuation Methods, Entry Age Normal ..... 27
	Actuarial Assumptions, Input to Discount Rates, Mortality Assumptions, and Experience Studies ..... 28-35
<b>Section G</b>	Calculation of the Single Discount Rate
	Calculation of the Single Discount Rate ..... 36
	Projection of Contributions ..... 37-38
	Projection of Plan Fiduciary Net Position..... 39-40
	Present Values of Projected Benefits ..... 41-42
<b>Section H</b>	Glossary of Terms ..... 43-46

---

## **SECTION A**

### **EXECUTIVE SUMMARY**

---

**EXECUTIVE SUMMARY**  
**AS OF JUNE 30, 2015 (DOLLARS IN THOUSANDS)**

	<u>2015</u>	
Actuarial Valuation Date	June 30, 2015	
Measurement Date of the Net Pension Liability	June 30, 2015	
<b>Membership</b>		
Number of		
- Service Retirements		3,238
- Survivors		323
- Disability Retirements		32
- Alternate Payees		40
- Deferred Retirements		1,892
- Terminated other non-vested		1,981
- Active Members		3,756
- Total		<u>11,262</u>
Covered Payroll	\$	263,844
<b>Net Pension Liability</b>		
Total Pension Liability	\$	1,596,770
Plan Fiduciary Net Position		<u>1,014,969</u>
Net Pension Liability	\$	581,801
Plan Fiduciary Net Position as a Percentage		
of Total Pension Liability		63.56%
Net Pension Liability as a Percentage		
of Covered Payroll		220.51%
<b>Development of the Single Discount Rate</b>		
Single Discount Rate		8.00%
Long-Term Expected Rate of Investment Return		8.00%
Long-Term Municipal Bond Rate*		3.80%
Last year ending June 30 in the 2016 to 2115 projection period		
within which projected benefit payments are fully funded		2115
<b>Total Pension Expense</b>	\$	37,447
<b>Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses</b>		
	<b>Deferred Outflows</b>	<b>Deferred Inflows</b>
	<b>of Resources</b>	<b>of Resources</b>
Difference between expected and actual experience	\$ -	\$ 23,461
Changes in assumptions	23,786	-
Net difference between projected and actual earnings		
on pension plan investments	44,503	57,457
Total	<u>\$ 68,289</u>	<u>\$ 80,918</u>

\* Based on the Bond Buyer 20-Bond Index of general obligation municipal bonds as of June 25, 2015  
(i.e., the weekly rate closest to but not later than the Measurement Date).

## DISCUSSION

### Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67 establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability. Similarly, GASB Statement No. 68 establishes standards for state and local government employers (as well as non-employer contributing entities) to account for and disclose the net pension liability, pension expense, and other information associated with providing retirement benefits to their employees (and former employees) on their basic financial statements.

The following discussion provides a summary of the information that is required to be disclosed under these accounting standards. A number of these disclosure items are provided in this report. However, certain information, such as notes regarding accounting policies and investments, is not included in this report and the retirement system and/or plan sponsor will be responsible for preparing and disclosing that information to comply with these accounting standards.

### Financial Statements

GASB Statement No. 68 requires state or local governments to recognize the net pension liability and the pension expense on their financial statements. The net pension liability is the difference between the total pension liability and the plan's fiduciary net position. In traditional actuarial terms, this is analogous to the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

Paragraph 57 of GASB Statement No. 68 states, "Contributions to the pension plan from the employer subsequent to the measurement date of the collective net pension liability and before the end of the employer's reporting period should be reported as a deferred outflow of resources related to pensions." There were no contributions made to SPTRFA subsequent to the measurement date of June 30, 2015.

The pension expense recognized each fiscal year is equal to the change in the net pension liability from the beginning of the year to the end of the year, adjusted for deferred recognition of the liability and investment experience.

Pension plans that prepare their own, stand-alone financial statements are required to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position in accordance with GASB Statement No. 67. The *statement of fiduciary net position* presents the assets and liabilities of the pension plan at the end of the pension plan's reporting period. The *statement of changes in fiduciary net position* presents the additions, such as contributions and investment income, and deductions, such as benefit payments and expenses, and net increase or decrease in the fiduciary net position.

---

**Notes to Financial Statements**

GASB Statement No. 68 requires the notes of the employer's financial statements to disclose the total pension expense, the pension plan's liabilities and assets, and deferred outflows and inflows of resources related to pensions.

GASB Statement Nos. 67 and 68 require the notes of the financial statements for the employers and pension plans, to include certain additional information. The list of disclosure items should include:

- a description of benefits provided by the plan;
- the type of employees and number of members covered by the pension plan;
- a description of the plan's funding policy, which includes member and employer contribution requirements;
- the pension plan's investment policies;
- the pension plan's fiduciary net position, net pension liability, and the pension plan's fiduciary net position as a percentage of the total pension liability;
- the net pension liability using a discount rate that is 1% higher and 1% lower than used to calculate the total pension liability and net pension liability for financial reporting purposes;
- significant assumptions and methods used to calculate the total pension liability;
- inputs to the discount rates; and
- certain information about mortality assumptions and the dates of experience studies.

Retirement systems that issue stand-alone financial statements are required to disclose additional information in accordance with GASB Statement No. 67. This information includes:

- the composition of the pension plan's board and the authority under which benefit terms may be amended;
- a description of how fair value is determined;
- information regarding certain reserves and investments, which include concentrations of investments greater than or equal to 5%, receivables, and insurance contracts excluded from plan assets; and
- annual money-weighted rate of return.

**Required Supplementary Information**

GASB Statement No. 67 requires a 10-year fiscal history of:

- sources of changes in the net pension liability;
- information about the components of the net pension liability and related ratios, including the pension plan's fiduciary net position as a percentage of the total pension liability, and the net pension liability as a percent of covered-employee payroll; and
- a comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy.

**Timing of the Valuation**

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. The net pension liability and pension expense should be measured as of the pension plan's fiscal year end (measurement date) on a date that is within the employer's prior fiscal year. If the actuarial valuation used to determine the total pension liability is not calculated as of the measurement date, the total pension liability is required to be rolled forward from the actuarial valuation date to the measurement date.

The total pension liability shown in this report is based on an actuarial valuation performed as of June 30, 2015 and a measurement date of June 30, 2015.

**Single Discount Rate**

Projected benefit payments are required to be discounted to their actuarial present values using a single discount rate. This rate differs depending on whether or not the Fund has a projected sufficiency of assets to pay benefits.

Due to the projected sufficiency of assets to pay benefits, the single discount rate is equal to the 8.00% long-term expected rate of return on pension plan investments, for the purposes of this valuation.

Had the Fund been projected to have insufficient assets to pay all projected benefits, the single discount rate would instead reflect a combination of (1) the 8.00% long-term expected rate of return on pension plan investments (for all years where a projected asset sufficiency exists), then (2) a lower tax-exempt municipal bond rate\* (for all remaining years where projected asset insufficiencies exist).

\*Based on an index of 20-year general obligation bonds with an average AA credit rating, published by the Federal Reserve, as of the measurement date. That municipal bond rate, which was not used to discount any projected benefits in this valuation, was 3.80% (based on the weekly rate closest to but not later than the measurement date of the 20-Year Bond Buyer Index as published by the Federal Reserve).

**Effective Date and Transition**

GASB Statement Nos. 67 and 68 were effective for fiscal years beginning after June 15, 2013, and June 15, 2014 respectively.



---

## **SECTION B**

### **FINANCIAL STATEMENTS**

---

Note – Section B is intended to assist in preparation of the financial statements of the St. Paul Teachers' Retirement Fund Association. Financial statements are the responsibility of management, subject to the auditor's review.

**PENSION EXPENSE UNDER GASB STATEMENT NO. 68**  
**FISCAL YEAR ENDED JUNE 30, 2015 (DOLLARS IN THOUSANDS)**

<b>A. Expense/(Income)</b>	
1. Service Cost	\$ 24,998
2. Interest on the Total Pension Liability	123,108
3. Current-Period Benefit Changes	(5,677)
4. Employee Contributions (made negative for addition here)	(17,567)
5. Projected Earnings on Plan Investments (made negative for addition here)	(81,386)
6. Pension Plan Administrative Expense	748
7. Other Changes in Plan Fiduciary Net Position	0
8. Recognition of Outflow (Inflow) of Resources due to Liabilities	1,250
9. Recognition of Outflow (Inflow) of Resources due to Assets	(8,027)
10. <b>Total Pension Expense / (Income)</b>	<u><u>\$ 37,447</u></u>

**STATEMENT OF OUTFLOWS AND INFLOWS ARISING FROM CURRENT  
REPORTING PERIOD  
FISCAL YEAR ENDED JUNE 30, 2015 (DOLLARS IN THOUSANDS)**

**A. Outflows (Inflows) of Resources due to Liabilities**

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	\$ (17,133)
2. Assumption Changes (gains) or losses	\$ -
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years }	5.0000
4. Outflow (Inflow) of Resources to be recognized in the current pension expense for the difference between expected and actual experience of the Total Pension Liability*	\$ (3,427)
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes	\$ -
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	<u>\$ (3,427)</u>
7. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for the difference between expected and actual experience of the Total Pension Liability	\$ (13,706)
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	\$ -
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	<u>\$ (13,706)</u>

**B. Outflows (Inflows) of Resources due to Assets**

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$ 55,629
2. Recognition period for Assets {in years }	5.0000
3. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Assets	\$ 11,126
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$ 44,503

*\* Includes impact of changes in expected timing of future COLA increases (previously treated as an assumption change.)*

**STATEMENT OF OUTFLOWS AND INFLOWS ARISING FROM CURRENT AND PRIOR  
REPORTING PERIODS  
FISCAL YEAR ENDED JUNE 30, 2015 (DOLLARS IN THOUSANDS)**

**A. Outflows and Inflows of Resources due to Liabilities and Assets to be Recognized in Current Pension Expense**

	<u>Outflows of Resources</u>	<u>Inflows of Resources</u>	<u>Net Outflows of Resources</u>
1. Due to Liabilities	\$ 7,928	\$ 6,678	\$ 1,250
2. Due to Assets	11,126	19,153	(8,027)
<b>3. Total</b>	<b>\$ 19,054</b>	<b>\$ 25,831</b>	<b>\$ (6,777)</b>

**B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense**

	<u>Outflows of Resources</u>	<u>Inflows of Resources</u>	<u>Net Outflows of Resources</u>
1. Differences between expected and actual experience	\$ -	\$ 6,678	\$ (6,678)
2. Assumption Changes	7,928	-	7,928
3. Net Difference between projected and actual earnings on pension plan investments	11,126	19,153	(8,027)
<b>4. Total</b>	<b>\$ 19,054</b>	<b>\$ 25,831</b>	<b>\$ (6,777)</b>

**C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses**

	<u>Deferred Outflows of Resources</u>	<u>Deferred Inflows of Resources</u>	<u>Net Deferred Outflows of Resources</u>
1. Differences between expected and actual experience	\$ -	\$ 23,461	\$ (23,461)
2. Assumption Changes	23,786	-	23,786
3. Net Difference between projected and actual earnings on pension plan investments	44,503	57,457	(12,954)
<b>4. Total</b>	<b>\$ 68,289</b>	<b>\$ 80,918</b>	<b>\$ (12,629)</b>

**D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses**

<u>Year Ending June 30</u>	<u>Net Deferred Outflows of Resources</u>
2016	\$ (6,777)
2017	(6,777)
2018	(6,775)
2019	7,700
2020	-
Thereafter	0
<b>Total</b>	<b>\$ (12,629)</b>

**STATEMENT OF FIDUCIARY NET POSITION  
AS OF JUNE 30, 2015 (DOLLARS IN THOUSANDS)**

	<b>2015</b>
<b>Assets</b>	
Cash and Deposits	\$ 30,344
Receivables	
Accounts Receivable - Sale of Investments	\$ -
Accrued Interest and Other Dividends	-
Contributions	-
Accounts Receivable - Other	-
<b>Total Receivables</b>	<b>\$ -</b>
Investments	
Fixed Income	\$ 202,771
Equities	613,018
Real Estate	126,897
Other	47,548
<b>Total Investments</b>	<b>\$ 990,234</b>
<b>Total Assets</b>	<b>\$ 1,020,578</b>
 <b>Liabilities</b>	
Payables	
Accounts Payable - Purchase of Investments	\$ 5,609
Accrued Expenses	-
Accounts Payable - Other	-
<b>Total Liabilities</b>	<b>\$ 5,609</b>
<b>Net Position Restricted for Pensions</b>	<b>\$ 1,014,969</b>

**STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
FOR YEAR ENDED JUNE 30, 2015 (DOLLARS IN THOUSANDS)**

**Additions**

## Contributions

Employer	\$	25,505
Employer (for Reemployed Annuitants)		541
Employee		17,567
Other		10,665
Total Contributions	\$	<u>54,278</u>

## Investment Income

Net Appreciation in Fair Value of Investments	\$	15,625
Interest and Dividends		14,656
Less Investment Expense		<u>(4,524)</u>
Net Investment Income	\$	<u>25,757</u>

Other	\$	-
<b>Total Additions</b>	<b>\$</b>	<b><u>80,035</u></b>

**Deductions**

Benefit payments, including refunds of employee contributions	\$	109,753
Pension Plan Administrative Expense		748
Other		<u>-</u>
<b>Total Deductions</b>	<b>\$</b>	<b>110,501</b>

**Net Increase in Net Position** \$ (30,466)

**Net Position Restricted for Pensions**

Beginning of Year	\$	<u>1,045,435</u>
End of Year	\$	<u><u>1,014,969</u></u>

---

## **SECTION C**

### **REQUIRED SUPPLEMENTARY INFORMATION**

---

Note – Section C is intended to assist in preparation of the financial statements of the St. Paul Teachers' Retirement Fund Association. Financial statements are the responsibility of management, subject to the auditor's review.

**SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS**  
**CURRENT PERIOD**  
**FISCAL YEAR ENDED JUNE 30, 2015 (DOLLARS IN THOUSANDS)**

<b>A. Total pension liability</b>	
1. Service Cost	\$ 24,998
2. Interest on the Total Pension Liability	123,108
3. Changes of benefit terms*	(5,677)
4. Difference between expected and actual experience of the Total Pension Liability <sup>+</sup>	(17,133)
5. Changes of assumptions	0
6. Benefit payments, including refunds of employee contributions	(109,753)
7. Net change in Total Pension Liability	\$ 15,543
8. Total Pension Liability – beginning	1,581,227
9. Total Pension Liability – ending	<u><u>\$ 1,596,770</u></u>
<b>B. Plan fiduciary net position</b>	
1. Contributions – employer	\$ 36,711 <sup>^</sup>
2. Contributions – employee	17,567
3. Net investment income	25,757
4. Benefit payments, including refunds of employee contributions	(109,753)
5. Pension Plan Administrative Expense	(748)
6. Other	-
7. Net change in plan fiduciary net position	\$ (30,466)
8. Plan fiduciary net position – beginning	1,045,435
9. Plan fiduciary net position – ending	<u><u>\$ 1,014,969</u></u>
<b>C. Net pension liability</b>	<u><u>\$ 581,801</u></u>
<b>D. Plan fiduciary net position as a percentage of the Total Pension Liability</b>	<b>63.56%</b>
<b>E. Covered-employee payroll</b>	<b>\$ 263,844</b>
<b>F. Net pension liability as a percentage of covered-employee payroll</b>	<b>220.51%</b>

\* The ultimate COLA changed from inflation up to 5.0% to a flat rate of 2.5%.

+ Includes impact of changes in expected timing of future COLA increase (previously treated as an assumption change).

<sup>^</sup> Includes employer contributions, supplemental contributions, and reemployed annuitant employer contributions

The covered payroll shown represents the annual compensation for active employees on which contributions to the pension plan are based and does not necessarily represent Covered Payroll as defined in GASB Statements No. 67 – 68



**SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS MULTIYEAR (DOLLARS IN THOUSANDS)**  
**Last 10 Fiscal Years (to be completed prospectively, commencing with 2014)**

Fiscal year ending June 30,	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
<b>Total Pension Liability</b>										
Service Cost	\$ 24,998	\$ 22,954								
Interest on the Total Pension Liability	123,108	118,503								
Benefit Changes	(5,677)	-								
Difference between Expected and Actual Experience	(17,133)	(16,257)								
Assumption Changes	-	39,642								
Benefit Payments	(108,878)	(105,742)								
Refunds	(875)	(1,103)								
<b>Net Change in Total Pension Liability</b>	15,543	57,997								
<b>Total Pension Liability - Beginning</b>	1,581,227	1,523,230								
<b>Total Pension Liability - Ending (a)</b>	<u>\$ 1,596,770</u>	<u>\$ 1,581,227</u>								
<b>Plan Fiduciary Net Position</b>										
Employer Contributions	\$ 36,711 *	\$ 35,197								
Employee Contributions	17,567	16,564								
Pension Plan Net Investment Income	25,757	168,176								
Benefit Payments	(108,878)	(105,742)								
Refunds	(875)	(1,103)								
Pension Plan Administrative Expense	(748)	(739)								
Other	-	-								
<b>Net Change in Plan Fiduciary Net Position</b>	(30,466)	112,353								
<b>Plan Fiduciary Net Position - Beginning</b>	1,045,435	933,082								
<b>Plan Fiduciary Net Position - Ending (b)</b>	<u>\$ 1,014,969</u>	<u>\$ 1,045,435</u>								
<b>Net Pension Liability - Ending (a) - (b)</b>	581,801	535,792								
<b>Plan Fiduciary Net Position as a Percentage of Total Pension Liability</b>	63.56 %	66.12 %								
<b>Covered-Employee Payroll</b>	\$ 263,844	\$ 259,740								
<b>Net Pension Liability as a Percentage of Covered-Employee Payroll</b>	220.51 %	206.28 %								
<b>Notes to Schedule:</b>										
N/A										

\* Includes employer contributions, supplemental contributions, and reemployed annuitant employer contributions

The covered payroll shown represents the annual compensation for active employees on which contributions to the pension plan are based and does not necessarily represent Covered Payroll as defined in GASB Statements No. 67 – 68.

**SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF THE NET PENSION LIABILITY MULTIYEAR**  
**(DOLLARS IN THOUSANDS)**

**Last 10 Fiscal Years (to be completed prospectively, commencing with 2014)**

<b>FY Ending June 30,</b>	<b>Total Pension Liability</b>	<b>Plan Net Position</b>	<b>Net Pension Liability</b>	<b>Plan Net Position as a % of Total Pension Liability</b>	<b>Covered Payroll</b>	<b>Net Pension Liability as a % of Covered Payroll</b>
2006			-			
2007			-			
2008			-			
2009			-			
2010			-			
2011			-			
2012			-			
2013			-			
2014	\$ 1,581,227	\$ 1,045,435	\$ 535,792	66.12%	\$ 259,740	206.28%
2015	1,596,770	1,014,969	581,801	63.56%	263,844	220.51%

*The covered payroll shown represents the annual compensation for active employees on which contributions to the pension plan are based and does not necessarily represent Covered Payroll as defined in GASB Statements No. 67 – 68.*

**SCHEDULE OF CONTRIBUTIONS MULTIYEAR (DOLLARS IN THOUSANDS)**  
**Last 10 Fiscal Years**

<b>FY Ending June 30,</b>	<b>Actuarially Determined Contribution</b>	<b>Actual Contribution</b>	<b>Contribution Deficiency (Excess)</b>	<b>Covered Payroll</b>	<b>Actual Contribution as a % of Covered Payroll</b>
2006	\$ 40,373	\$ 24,015	\$ 16,358	\$ 226,351	10.61%
2007	42,823	24,117	18,706	229,172	10.52
2008	41,580	24,285	17,295	235,993	10.29
2009	29,007	24,844	4,163	243,166	10.22
2010	30,328	25,126	5,202	239,996	10.47
2011	33,819	25,090	8,729	239,738	10.47
2012	29,797	25,109	4,688	239,053	10.50
2013	41,424	26,445	14,979	247,432	10.69
2014	40,916	35,197	5,719	259,740	13.55
2015	40,320	36,711 *	3,609	263,844	13.91

\* Includes employer contributions, supplemental contributions, and reemployed annuitant employer contributions

**NOTES TO SCHEDULE OF CONTRIBUTIONS**

**Valuation Date:** June 30, 2015

Notes Actuarially determined contribution rates are calculated as of each July 1.

**Methods and Assumptions Used to Determine Contribution Rates:**

Actuarial Cost Method Entry Age Normal

Amortization Method Level Percentage of Payroll, Closed

Remaining Amortization Period 27 years

Asset Valuation Method 5-Year smoothed market; no corridor

Inflation 3.00%

Salary Increases 4.00% to 8.90%; age and service based

Investment Rate of Return 8.00%

Retirement Age Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2012 valuation pursuant to an experience study of the period 2006 - 2011.

Mortality RP-2000 Combined Mortality Table, projected with scale AA to 2020, set back one year for males and set back three years for females.

**Other Information:**

Notes The plan is assumed to pay a 2.0% post retirement benefit increase beginning January 1, 2041, and a 2.5% post retirement benefit increase beginning January 1, 2051. See separate funding report as of July 1, 2015 for additional detail.

## SCHEDULE OF INVESTMENT RETURNS MULTIYEAR

### Last 10 Fiscal Years (to be completed prospectively, commencing with 2014)

FY Ending June 30,	Annual Return <sup>1</sup>
2006	
2007	
2008	
2009	
2010	
2011	
2012	
2013	
2014	18.50 %
2015	2.65 %

<sup>1</sup> Annual money-weighted rate of return, net of investment expenses.

St. Paul Teachers Retirement Fund Association compiled this data and the related investment notes and furnished this information for inclusion within this report. We did not audit this information. We are not responsible for its accuracy or completeness.

#### **Rate of Return**

The Association's money-weighted rate of return for the year ending June 30, 2015 was 2.65% (net of investment expenses). The money-weighted rate of return expresses investment performance, net of investment expenses, adjusted for the actual cash flows that took place during the performance period.

#### **10-Year Schedule of Money-Weighted Investment Return**

This schedule is presented to illustrate the requirement to show information for 10 years. However, until a full 10-year trend is compiled, SPTRFA will present information for those years for which information is available.

---

## **SECTION D**

### **NOTES TO FINANCIAL STATEMENTS**

---

Note – Section D is intended to assist in preparation of the financial statements of the St. Paul Teachers' Retirement Fund Association. Financial statements are the responsibility of management, subject to the auditor's review.

### Long-Term Expected Return on Plan Assets

The long-term expected rate of return on pension plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These real rates of return are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. For each major asset class that is included in the pension plan's target asset allocation as of June 30, 2015, these best estimates are summarized in the following table:

### Long-Term Expected Real Rate of Return\*

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return (Arithmetic)
Domestic Equity	35%	6.55%
International Equity	20%	6.98%
Fixed Income	20%	3.45%
Real Assets	11%	3.90%
Private Equity & Alternatives	9%	7.47%
Opportunistic	5%	6.08%
<b>Total</b>	<b>100%</b>	

*\*For purposes of these calculations, SPTRFA's assumed inflation rate is 2.75%.*

St. Paul Teachers Retirement Fund Association compiled this data and the related investment notes and furnished this information for inclusion within this report. We did not audit this information. We are not responsible for its accuracy or completeness.

## Single Discount Rate

A Single Discount Rate of 8.00% was used to measure the total pension liability. This Single Discount Rate was based on the expected rate of return on pension plan investments of 8.00%. The projection of cash flows used to determine this Single Discount Rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Regarding the sensitivity of the net pension liability to changes in the Single Discount Rate, the following presents the plan's net pension liability, calculated using a Single Discount Rate of 8.00%, as well as what the plan's net pension liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

**Sensitivity of Net Pension Liability  
to the Single Discount Rate Assumption**  
*(Dollars in Thousands)*

	Current Single Discount		
	1% Decrease 7.00%	Rate Assumption 8.00%	1% Increase 9.00%
Total Pension Liability	\$1,774,401	\$1,596,770	\$1,449,406
Net Position Restricted for Pensions	\$1,014,969	\$1,014,969	\$1,014,969
Net Pension Liability	<b>\$759,432</b>	<b>\$581,801</b>	<b>\$434,437</b>

**RECONCILIATION OF MEMBERS**  
**Summary of Changes in Participant Status**  
**During Fiscal Year Ending June 30, 2015**

	Active Participants	Leave of Absence	Vested Terminated	Other Non-Vested	Retired Participants	Disabled	Survivors and Beneficiaries	Alternate Payees <sup>1</sup>	Total
A. Number as of June 30, 2014	3,876	83	1,829	1,616	3,121	33	339	36	10,933
B. Additions	405	144	170	365	175	3	19	7	1,288
C. Deletions									
1. Retirements	(117)	(3)	(49)	(1)					(170)
2. Disability	(1)		(2)						(3)
3. Died with Beneficiary	(1)				(15)			(2)	(18)
4. Died without Beneficiary			(1)		(43)		(32)		(76)
5. Terminated - Deferred	(138)	(32)							(170)
6. Terminated - Not Vested	(365)								(365)
7. Refunds	(42)		(28)	(120)					(190)
8. Rehired as Active	113	(33)	(26)	(54)					0
9. Leave of Absence	(142)		(2)						(144)
10. Repayment of Refund	9								9
11. Expired Benefits							(3)	(1)	(4)
12. Disability to Retirement						(4)			(4)
13. Write-offs				175					175
D. Data Adjustments			1						1
E. Total on June 30, 2015	3,597	159	1,892	1,981	3,238	32	323	40	11,262

<sup>1</sup> Includes alternate payees of both retired participants and disabled participants.



**GASB RECONCILIATION (DOLLARS IN THOUSANDS)**

	<b>Total Pension Liability</b> <b>(a)</b>	<b>Plan Fiduciary Net Position</b> <b>(b)</b>	<b>Net Pension Liability</b> <b>(a) - (b)</b>	<b>Deferred Outflows</b>	<b>Deferred Inflows</b>	<b>Net Deferred Outflows Prior Year</b>	<b>Total Pension Expense</b>
<b>Balance Beginning of Year</b>	<b>\$ 1,581,227</b>	<b>\$ 1,045,435</b>	<b>\$ 535,792</b>				
<b>Changes for the Year:</b>							
Service Cost	\$ 24,998		\$ 24,998				\$ 24,998
Interest on Total Pension Liability	123,108		123,108				123,108
Interest on Fiduciary Net Position <sup>(1)</sup>		\$ 81,386	(81,386)				(81,386)
Changes in Benefit Terms	(5,677)		(5,677)				(5,677)
Liability Experience Gains and Losses	(17,133)		(17,133)	\$ 23,786	\$ 23,461	\$ (13,006)	(6,678)
Changes in Assumptions						31,714	7,928
Contributions - Employer		36,711	(36,711)				-
Contributions - Employees		17,567	(17,567)				(17,567)
Asset Gain/(Loss) <sup>(1)</sup>		(55,629)	55,629	44,503	57,457	(76,610)	(8,027)
Benefit Payouts	(109,753)	(109,753)					-
Administrative Expenses		(748)	748				748
Other changes							\$ -
<b>Net Changes</b>	<b>\$ 15,543</b>	<b>\$ (30,466)</b>	<b>\$ 46,009</b>	<b>\$ 68,289</b>	<b>\$ 80,918</b>	<b>\$ (57,902)</b>	<b>\$ 37,447</b>
<b>Balance End of Year</b>	<b>\$ 1,596,770</b>	<b>\$ 1,014,969</b>	<b>\$ 581,801</b>	<b>\$ 68,289</b>	<b>\$ 80,918</b>		

---

## **SECTION E**

### **SUMMARY OF BENEFITS**

---

## SUMMARY OF BENEFIT PROVISIONS FOR BASIC MEMBERS

### 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

### 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.

<u>Age at Retirement</u>	<u>Under Age 62 or less than 30 years of service</u>	<u>Age 62 or older with 30 years of service</u>
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

### 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****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.

**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

## SUMMARY OF BENEFIT PROVISIONS FOR COORDINATED MEMBERS

### 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**

**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

### 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.

---

## SUMMARY OF BENEFIT PROVISIONS FOR COORDINATED MEMBERS

### **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.

### **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.

### **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

---

**SECTION F**

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

---

## I. ACTUARIAL METHODS

### Actuarial Cost Method

Normal cost and the allocation of benefit values between service rendered before and after the valuation date were determined using an **Individual Entry-Age Actuarial Cost Method** having the following characteristics:

- (i) the annual normal cost for each individual active member, payable from the date of employment to the date of retirement, is sufficient to accumulate the value of the member's benefit at the time of retirement; and
- (ii) each annual normal cost is a constant percentage of the member's year by year projected covered pay.

Actuarial gains/(losses), as they occur, reduce (increase) the Unfunded Actuarial Accrued Liability.

### Asset Value

Fair market value

### Valuation of Future COLAs

Benefit recipients receive a future annual 1.0% COLA. If the funding ratio reaches 80% for two consecutive years, the COLA will increase to 2.0%. If the funding ratio reaches 90% for two consecutive years, the COLA will increase to 2.5%.

To determine an assumption regarding a future change in the COLA, we performed a projection of liabilities and assets based on the following methods and assumptions:

- Future investment returns of 8.00%
- Liabilities and normal cost based on statutory funding assumptions
  - Discount rate of 8.00%
  - Statutory salary increases
- Open group; stable active population (new member profile based on average new members hired in recent years)
- The COLA is assumed to be 1.00% per year until the funding ratio thresholds required to pay 2.00% or 2.50% are reached

Based on these assumptions and methods, the July 1, 2015 projection indicates that this plan is expected to attain the funding ratio threshold required to increase the COLA from 1% to 2% on January 1, 2041; and from 2% to 2.5% on January 1, 2051. These assumptions are reflected in our calculations.

## 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:

- i. Male: RP-2000 Disabled Life Mortality Table for males
- ii. 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.*

*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

*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

## Rates of Disability:

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

<u>Age</u>	<u>Disability</u>	<u>Age</u>	<u>Disability</u>
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		



## 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	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

**B. Economic Assumptions**

- Investment Return Rate: 8.00%
- Cost-of-Living Increases: 1.00% per year through 2040; 2.00% beginning 2041; 2.50% beginning 2051.
- Wage Inflation: 4.00% per annum
- Future Salary Increases: In addition to the age-based rates shown below, during the first 15 years of employment, a service-based component of  $0.20\% \times (15-T)$ , where T is completed years of service, is included in the salary increase used.

*Annual Salary Increases*

Ultimate Rate of Annual Salary Increases		Ultimate Rate of Annual Salary Increases	
Age	Increases	Age	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		

**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.
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 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.

---

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, 2015 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. Step 1 salary level of \$43,021; and the Projected Annual Payroll for the fiscal year ending June 30, 2015 includes this replacement salary amount.

---

## **SECTION G**

### **CALCULATION OF THE SINGLE DISCOUNT RATE**

---

## CALCULATION OF THE SINGLE DISCOUNT RATE

GASB Statement No. 67 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed valuation discount rate is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a municipal bond rate is required, as described in the following paragraph. As in 2014, the plan is projected to have sufficient assets to pay all benefits.

The Single Discount Rate (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects (1) the long-term expected rate of return on pension plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating (which is published by the Federal Reserve) as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 8.00%; the municipal bond rate is 3.80%; and the resulting Single Discount Rate is 8.00%.

The tables in this section provide background for the development of the Single Discount Rate.

The **Projection of Contributions** table shows the development of expected contributions in future years. Normal Cost contributions for future hires are not included (nor are their liabilities).

The **Projection of Plan Fiduciary Net Position** table shows the development of expected asset levels in future years.

The **Present Values of Projected Benefit Payments** table shows the development of the Single Discount Rate (SDR). It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total at the SDR.

**SINGLE DISCOUNT RATE DEVELOPMENT  
PROJECTION OF CONTRIBUTIONS (DOLLARS IN THOUSANDS)**

Year	Payroll			Projected Contributions				
	Payroll for Current Employees	Payroll for New Employees	Total Employee Payroll	Contributions from Current Employees	Employer Contributions for Current Employees	Employer Contributions on Future Payroll toward current UAL*	Supplemental Contributions	Total Contributions
0	\$ 263,844	\$ -	\$ 263,844					
1	280,488	-	280,488	\$ 19,634	\$ 27,600	\$ -	\$ 10,665	\$ 57,899
2	269,933	21,774	291,707	20,245	27,236	1,786	10,665	59,932
3	263,554	39,822	303,376	19,767	27,251	3,365	10,665	61,048
4	258,664	56,847	315,511	19,400	26,746	4,804	10,665	61,615
5	254,376	73,755	328,131	19,078	26,302	6,232	10,665	62,277
6	250,110	91,146	341,256	18,758	25,861	7,702	10,665	62,986
7	246,264	108,643	354,907	18,470	25,464	9,180	10,665	63,779
8	243,120	125,983	369,103	18,234	25,139	10,646	10,665	64,684
9	240,215	143,652	383,867	18,016	24,838	12,139	10,665	65,658
10	237,304	161,918	399,222	17,798	24,537	13,682	10,665	66,682
11	234,375	180,816	415,191	17,578	24,234	15,279	10,665	67,756
12	231,117	200,681	431,798	17,334	23,898	16,958	10,665	68,855
13	227,510	221,560	449,070	17,063	23,525	18,722	10,665	69,975
14	223,389	243,644	467,033	16,754	23,098	20,588	10,665	71,105
15	218,483	267,231	485,714	16,386	22,591	22,581	10,665	72,223
16	212,752	292,391	505,143	15,956	21,999	24,707	10,665	73,327
17	206,243	319,106	525,349	15,468	21,326	26,964	10,665	74,423
18	198,875	347,487	546,362	14,916	20,564	29,363	10,665	75,508
19	190,731	377,486	568,217	14,305	19,722	31,898	10,665	76,590
20	181,966	408,980	590,946	13,647	18,815	34,559	10,665	77,686
21	172,624	441,960	614,584	12,947	17,849	37,346	10,665	78,807
22	163,016	476,151	639,167	12,226	16,856	40,235	10,665	79,982
23	153,114	511,620	664,734	11,484	15,832	43,232	10,665	81,213
24	142,951	548,372	691,323	10,721	14,781	46,337	10,665	82,504
25	132,773	586,203	718,976	9,958	13,729	49,534	10,665	83,886
26	122,375	625,360	747,735	9,178	12,654	52,843	10,665	85,340
27	112,034	665,610	777,644	8,403	11,584	56,244	10,665	86,896
28	101,640	707,110	808,750	7,623	10,510	59,751	10,665	88,549
29	91,269	749,831	841,100	6,845	9,437	63,361	-	79,643
30	81,034	793,710	874,744	6,078	8,379	67,068	-	81,525
31	71,017	838,717	909,734	5,326	7,343	70,872	-	83,541
32	61,349	884,774	946,123	4,601	6,343	74,763	-	85,707
33	52,184	931,784	983,968	3,914	5,396	78,736	-	88,046
34	43,595	979,732	1,023,327	3,270	4,508	82,787	-	90,565
35	35,664	1,028,596	1,064,260	2,675	3,688	86,916	-	93,279
36	28,375	1,078,455	1,106,830	2,128	2,934	91,129	-	96,191
37	21,863	1,129,240	1,151,103	1,640	2,261	95,421	-	99,322
38	16,380	1,180,768	1,197,148	1,228	1,694	99,775	-	102,697
39	11,811	1,233,222	1,245,033	886	1,221	104,207	-	106,314
40	8,098	1,286,737	1,294,835	607	837	108,729	-	110,173
41	5,228	1,341,400	1,346,628	392	541	113,348	-	114,281
42	3,200	1,397,293	1,400,493	240	331	118,071	-	118,642
43	1,928	1,454,585	1,456,513	145	199	122,912	-	123,256
44	1,027	1,513,747	1,514,774	77	106	127,912	-	128,095
45	468	1,574,896	1,575,364	35	48	133,079	-	133,162
46	184	1,638,195	1,638,379	14	19	138,427	-	138,460
47	38	1,703,876	1,703,914	3	4	143,978	-	143,985
48	5	1,772,066	1,772,071	-	-	149,740	-	149,740
49	-	1,842,954	1,842,954	-	-	155,730	-	155,730
50	-	1,916,672	1,916,672	-	-	161,959	-	161,959

\* Contributions related to future employees in excess of normal cost and expenses of 9.39% of pay.

For purposes of this projection, based on GASB guidance, we assumed the statutory contribution rates would continue after the plan becomes fully funded. If we reflected a decrease in contribution rates due to full funding, future assets and contributions would be less than what is shown herein.

**SINGLE DISCOUNT RATE DEVELOPMENT  
PROJECTION OF CONTRIBUTIONS (CONCLUDED) (DOLLARS IN THOUSANDS)**

Year	Payroll			Projected Contributions				
	Payroll for Current Employees	Payroll for New Employees	Total Employee Payroll	Contributions from Current Employees	Employer Contributions for Current Employees	Employer Contributions on Future Payroll toward current UAL*	Supplemental Contributions	Total Contributions
51	-	1,993,339	1,993,339	\$ -	\$ -	\$ 168,437	\$ -	\$ 168,437
52	-	2,073,072	2,073,072	-	-	175,175	-	175,175
53	-	2,155,995	2,155,995	-	-	182,182	-	182,182
54	-	2,242,235	2,242,235	-	-	189,469	-	189,469
55	-	2,331,924	2,331,924	-	-	197,048	-	197,048
56	-	2,425,201	2,425,201	-	-	204,930	-	204,930
57	-	2,522,209	2,522,209	-	-	213,127	-	213,127
58	-	2,623,098	2,623,098	-	-	221,652	-	221,652
59	-	2,728,022	2,728,022	-	-	230,518	-	230,518
60	-	2,837,142	2,837,142	-	-	239,739	-	239,739
61	-	2,950,628	2,950,628	-	-	249,328	-	249,328
62	-	3,068,653	3,068,653	-	-	259,301	-	259,301
63	-	3,191,399	3,191,399	-	-	269,673	-	269,673
64	-	3,319,055	3,319,055	-	-	280,460	-	280,460
65	-	3,451,817	3,451,817	-	-	291,679	-	291,679
66	-	3,589,890	3,589,890	-	-	303,346	-	303,346
67	-	3,733,486	3,733,486	-	-	315,480	-	315,480
68	-	3,882,825	3,882,825	-	-	328,099	-	328,099
69	-	4,038,138	4,038,138	-	-	341,223	-	341,223
70	-	4,199,664	4,199,664	-	-	354,872	-	354,872
71	-	4,367,650	4,367,650	-	-	369,066	-	369,066
72	-	4,542,356	4,542,356	-	-	383,829	-	383,829
73	-	4,724,051	4,724,051	-	-	399,182	-	399,182
74	-	4,913,013	4,913,013	-	-	415,150	-	415,150
75	-	5,109,533	5,109,533	-	-	431,756	-	431,756
76	-	5,313,914	5,313,914	-	-	449,026	-	449,026
77	-	5,526,471	5,526,471	-	-	466,987	-	466,987
78	-	5,747,530	5,747,530	-	-	485,666	-	485,666
79	-	5,977,431	5,977,431	-	-	505,093	-	505,093
80	-	6,216,528	6,216,528	-	-	525,297	-	525,297
81	-	6,465,189	6,465,189	-	-	546,309	-	546,309
82	-	6,723,797	6,723,797	-	-	568,161	-	568,161
83	-	6,992,749	6,992,749	-	-	590,887	-	590,887
84	-	7,272,459	7,272,459	-	-	614,523	-	614,523
85	-	7,563,357	7,563,357	-	-	639,104	-	639,104
86	-	7,865,891	7,865,891	-	-	664,668	-	664,668
87	-	8,180,527	8,180,527	-	-	691,255	-	691,255
88	-	8,507,748	8,507,748	-	-	718,905	-	718,905
89	-	8,848,058	8,848,058	-	-	747,661	-	747,661
90	-	9,201,980	9,201,980	-	-	777,567	-	777,567
91	-	9,570,060	9,570,060	-	-	808,670	-	808,670
92	-	9,952,862	9,952,862	-	-	841,017	-	841,017
93	-	10,350,977	10,350,977	-	-	874,658	-	874,658
94	-	10,765,016	10,765,016	-	-	909,644	-	909,644
95	-	11,195,616	11,195,616	-	-	946,030	-	946,030
96	-	11,643,441	11,643,441	-	-	983,871	-	983,871
97	-	12,109,179	12,109,179	-	-	1,023,226	-	1,023,226
98	-	12,593,546	12,593,546	-	-	1,064,155	-	1,064,155
99	-	13,097,288	13,097,288	-	-	1,106,721	-	1,106,721
100	-	13,621,179	13,621,179	-	-	1,150,990	-	1,150,990 *

*Contributions related to future employees in excess of normal cost and expenses of 9.39% of pay.*

For purposes of this projection, based on GASB guidance, we assumed the statutory contribution rates would continue after the plan becomes fully funded. If we reflected a decrease in contribution rates due to full funding, future assets and contributions would be less than what is shown herein.



**SINGLE DISCOUNT RATE DEVELOPMENT**  
**PROJECTION OF PLAN FIDUCIARY NET POSITION (DOLLARS IN THOUSANDS)**

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 8.00%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
1	\$ 1,014,969	\$ 57,899	\$ 113,890	\$ 757	\$ 78,971	\$ 1,037,192
2	1,037,192	59,932	116,908	729	80,712	1,060,199
3	1,060,199	61,048	119,823	712	82,482	1,083,194
4	1,083,194	61,615	122,706	698	84,231	1,105,636
5	1,105,636	62,277	125,367	687	85,949	1,127,808
6	1,127,808	62,986	127,981	675	87,648	1,149,786
7	1,149,786	63,779	130,400	665	89,343	1,171,843
8	1,171,843	64,684	132,320	656	91,068	1,194,619
9	1,194,619	65,658	133,948	649	92,865	1,218,545
10	1,218,545	66,682	135,604	641	94,755	1,243,737
11	1,243,737	67,756	137,097	633	96,754	1,270,517
12	1,270,517	68,855	138,717	624	98,876	1,298,907
13	1,298,907	69,975	140,262	614	101,131	1,329,137
14	1,329,137	71,105	141,829	603	103,533	1,361,343
15	1,361,343	72,223	143,674	590	106,081	1,395,383
16	1,395,383	73,327	145,891	574	108,761	1,431,006
17	1,431,006	74,423	148,396	557	111,556	1,468,032
18	1,468,032	75,508	151,348	537	114,446	1,506,101
19	1,506,101	76,590	154,498	515	117,411	1,545,089
20	1,545,089	77,686	157,652	491	120,450	1,585,082
21	1,585,082	78,807	161,027	466	123,562	1,625,958
22	1,625,958	79,982	164,535	440	126,742	1,667,707
23	1,667,707	81,213	168,180	413	129,988	1,710,315
24	1,710,315	82,504	171,614	386	133,314	1,754,133
25	1,754,133	83,886	174,826	358	136,748	1,799,583
26	1,799,583	85,340	178,361	330	140,304	1,846,536
27	1,846,536	86,896	182,948	302	143,942	1,894,124
28	1,894,124	88,549	187,530	274	147,636	1,942,505
29	1,942,505	79,643	192,201	246	150,974	1,980,675
30	1,980,675	81,525	196,639	219	153,929	2,019,271
31	2,019,271	83,541	200,701	192	156,937	2,058,856
32	2,058,856	85,707	204,567	166	160,039	2,099,869
33	2,099,869	88,046	208,274	141	163,267	2,142,767
34	2,142,767	90,565	211,458	118	166,674	2,188,430
35	2,188,430	93,279	213,700	96	170,346	2,238,259
36	2,238,259	96,191	215,727	77	174,368	2,293,014
37	2,293,014	99,322	217,958	59	178,784	2,353,103
38	2,353,103	102,697	219,030	44	183,682	2,420,408
39	2,420,408	106,314	219,054	32	189,208	2,496,844
40	2,496,844	110,173	217,959	22	195,518	2,584,554
41	2,584,554	114,281	215,898	14	202,777	2,685,700
42	2,685,700	118,642	212,879	9	211,158	2,802,612
43	2,802,612	123,256	208,938	5	220,847	2,937,772
44	2,937,772	128,095	204,344	3	232,030	3,093,550
45	3,093,550	133,162	199,099	1	244,897	3,272,509
46	3,272,509	138,460	193,257	-	259,650	3,477,362
47	3,477,362	143,985	186,929	-	276,504	3,710,922
48	3,710,922	149,740	180,148	-	295,680	3,976,194
49	3,976,194	155,730	173,004	-	317,417	4,276,337
50	4,276,337	161,959	165,547	-	341,966	4,614,715

For purposes of this projection, based on GASB guidance, we assumed the statutory contribution rates would continue after the plan becomes fully funded. If we reflected a decrease in contribution rates due to full funding, future assets and contributions would be less than what is shown herein.

**SINGLE DISCOUNT RATE DEVELOPMENT**  
**PROJECTION OF PLAN FIDUCIARY NET POSITION (CONCLUDED)**  
**(DOLLARS IN THOUSANDS)**

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 8.00%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
51	\$ 4,614,715	\$ 168,437	\$ 157,810	\$ -	\$ 369,593	\$ 4,994,935
52	4,994,935	175,175	149,832	-	400,588	5,420,866
53	5,420,866	182,182	141,655	-	435,259	5,896,652
54	5,896,652	189,469	133,325	-	473,934	6,426,730
55	6,426,730	197,048	124,890	-	516,968	7,015,856
56	7,015,856	204,930	116,398	-	564,741	7,669,129
57	7,669,129	213,127	107,901	-	617,658	8,392,013
58	8,392,013	221,652	99,458	-	676,154	9,190,361
59	9,190,361	230,518	91,123	-	740,697	10,070,453
60	10,070,453	239,739	82,946	-	811,787	11,039,033
61	11,039,033	249,328	74,983	-	889,962	12,103,340
62	12,103,340	259,301	67,289	-	975,799	13,271,151
63	13,271,151	269,673	59,915	-	1,069,920	14,550,829
64	14,550,829	280,460	52,907	-	1,172,993	15,951,375
65	15,951,375	291,679	46,311	-	1,285,735	17,482,478
66	17,482,478	303,346	40,169	-	1,408,922	19,154,577
67	19,154,577	315,480	34,510	-	1,543,388	20,978,935
68	20,978,935	328,099	29,354	-	1,690,034	22,967,714
69	22,967,714	341,223	24,718	-	1,849,833	25,134,052
70	25,134,052	354,872	20,601	-	2,023,837	27,492,160
71	27,492,160	369,066	16,988	-	2,213,184	30,057,422
72	30,057,422	383,829	13,859	-	2,419,107	32,846,499
73	32,846,499	399,182	11,186	-	2,642,940	35,877,435
74	35,877,435	415,150	8,933	-	2,886,130	39,169,782
75	39,169,782	431,756	7,059	-	3,150,243	42,744,722
76	42,744,722	449,026	5,518	-	3,436,976	46,625,206
77	46,625,206	466,987	4,268	-	3,748,168	50,836,093
78	50,836,093	485,666	3,267	-	4,085,811	55,404,303
79	55,404,303	505,093	2,472	-	4,452,062	60,358,986
80	60,358,986	525,297	1,849	-	4,849,253	65,731,687
81	65,731,687	546,309	1,366	-	5,279,913	71,556,543
82	71,556,543	568,161	994	-	5,746,773	77,870,483
83	77,870,483	590,887	713	-	6,252,791	84,713,448
84	84,713,448	614,523	503	-	6,801,163	92,128,631
85	92,128,631	639,104	349	-	7,395,348	100,162,734
86	100,162,734	664,668	238	-	8,039,084	108,866,248
87	108,866,248	691,255	159	-	8,736,411	118,293,755
88	118,293,755	718,905	104	-	9,491,698	128,504,254
89	128,504,254	747,661	67	-	10,309,668	139,561,516
90	139,561,516	777,567	42	-	11,195,423	151,534,464
91	151,534,464	808,670	26	-	12,154,480	164,497,588
92	164,497,588	841,017	15	-	13,192,799	178,531,389
93	178,531,389	874,658	9	-	14,316,823	193,722,861
94	193,722,861	909,644	5	-	15,533,513	210,166,013
95	210,166,013	946,030	2	-	16,850,393	227,962,434
96	227,962,434	983,871	1	-	18,275,591	247,221,895
97	247,221,895	1,023,226	-	-	19,817,892	268,063,013
98	268,063,013	1,064,155	-	-	21,486,787	290,613,955
99	290,613,955	1,106,721	-	-	23,292,532	315,013,208
100	315,013,208	1,150,990	-	-	25,246,209	341,410,407

For purposes of this projection, based on GASB guidance, we assumed the statutory contribution rates would continue after the plan becomes fully funded. If we reflected a decrease in contribution rates due to full funding, future assets and contributions would be less than what is shown herein.

**SINGLE DISCOUNT RATE DEVELOPMENT**  
**PRESENT VALUES OF PROJECTED BENEFITS (DOLLARS IN THOUSANDS)**

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^(a)-.5	(g)=(e)*vf^(a)-.5	(h)=((c)/(1+sdr)^(a)-.5)
1	\$ 1,014,969	\$ 113,890	\$ 113,890	\$ -	\$ 109,591	\$ -	\$ 109,591
2	1,037,192	116,908	116,908	-	104,161	-	104,161
3	1,060,199	119,823	119,823	-	98,851	-	98,851
4	1,083,194	122,706	122,706	-	93,731	-	93,731
5	1,105,635	125,367	125,367	-	88,670	-	88,670
6	1,127,808	127,981	127,981	-	83,814	-	83,814
7	1,149,787	130,400	130,400	-	79,072	-	79,072
8	1,171,843	132,320	132,320	-	74,293	-	74,293
9	1,194,618	133,948	133,948	-	69,636	-	69,636
10	1,218,544	135,604	135,604	-	65,275	-	65,275
11	1,243,736	137,097	137,097	-	61,105	-	61,105
12	1,270,516	138,717	138,717	-	57,248	-	57,248
13	1,298,905	140,262	140,262	-	53,597	-	53,597
14	1,329,135	141,829	141,829	-	50,182	-	50,182
15	1,361,340	143,674	143,674	-	47,069	-	47,069
16	1,395,380	145,891	145,891	-	44,255	-	44,255
17	1,431,003	148,396	148,396	-	41,680	-	41,680
18	1,468,029	151,348	151,348	-	39,361	-	39,361
19	1,506,097	154,498	154,498	-	37,204	-	37,204
20	1,545,084	157,652	157,652	-	35,151	-	35,151
21	1,585,077	161,027	161,027	-	33,244	-	33,244
22	1,625,953	164,535	164,535	-	31,452	-	31,452
23	1,667,701	168,180	168,180	-	29,767	-	29,767
24	1,710,308	171,614	171,614	-	28,125	-	28,125
25	1,754,127	174,826	174,826	-	26,529	-	26,529
26	1,799,577	178,361	178,361	-	25,061	-	25,061
27	1,846,529	182,948	182,948	-	23,801	-	23,801
28	1,894,118	187,530	187,530	-	22,590	-	22,590
29	1,942,497	192,201	192,201	-	21,438	-	21,438
30	1,980,668	196,639	196,639	-	20,308	-	20,308
31	2,019,264	200,701	200,701	-	19,192	-	19,192
32	2,058,850	204,567	204,567	-	18,113	-	18,113
33	2,099,864	208,274	208,274	-	17,075	-	17,075
34	2,142,761	211,458	211,458	-	16,052	-	16,052
35	2,188,424	213,700	213,700	-	15,021	-	15,021
36	2,238,252	215,727	215,727	-	14,040	-	14,040
37	2,293,008	217,958	217,958	-	13,134	-	13,134
38	2,353,096	219,030	219,030	-	12,221	-	12,221
39	2,420,401	219,054	219,054	-	11,317	-	11,317
40	2,496,837	217,959	217,959	-	10,426	-	10,426
41	2,584,548	215,898	215,898	-	9,563	-	9,563
42	2,685,693	212,879	212,879	-	8,731	-	8,731
43	2,802,606	208,938	208,938	-	7,934	-	7,934
44	2,937,765	204,344	204,344	-	7,185	-	7,185
45	3,093,544	199,099	199,099	-	6,482	-	6,482
46	3,272,502	193,257	193,257	-	5,826	-	5,826
47	3,477,355	186,929	186,929	-	5,218	-	5,218
48	3,710,914	180,148	180,148	-	4,656	-	4,656
49	3,976,187	173,004	173,004	-	4,140	-	4,140
50	4,276,329	165,547	165,547	-	3,668	-	3,668

For purposes of this projection, based on GASB guidance, we assumed the statutory contribution rates would continue after the plan becomes fully funded. If we reflected a decrease in contribution rates due to full funding, future assets and contributions would be less than what is shown herein.

**SINGLE DISCOUNT RATE DEVELOPMENT**  
**PRESENT VALUES OF PROJECTED BENEFITS (CONCLUDED)**  
**(DOLLARS IN THOUSANDS)**

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^(a)-.5	(g)=(e)*vf^(a)-.5	(h)=[(c)/(1+sdr)^(a)-.5]
51	\$ 4,614,707	\$ 157,810	\$ 157,810	\$ -	\$ 3,238	\$ -	\$ 3,238
52	4,994,927	149,832	149,832	-	2,846	-	2,846
53	5,420,858	141,655	141,655	-	2,492	-	2,492
54	5,896,643	133,325	133,325	-	2,171	-	2,171
55	6,426,721	124,890	124,890	-	1,883	-	1,883
56	7,015,847	116,398	116,398	-	1,625	-	1,625
57	7,669,120	107,901	107,901	-	1,395	-	1,395
58	8,392,004	99,458	99,458	-	1,191	-	1,191
59	9,190,352	91,123	91,123	-	1,010	-	1,010
60	10,070,444	82,946	82,946	-	851	-	851
61	11,039,024	74,983	74,983	-	713	-	713
62	12,103,331	67,289	67,289	-	592	-	592
63	13,271,142	59,915	59,915	-	488	-	488
64	14,550,821	52,907	52,907	-	399	-	399
65	15,951,367	46,311	46,311	-	323	-	323
66	17,482,470	40,169	40,169	-	260	-	260
67	19,154,568	34,510	34,510	-	207	-	207
68	20,978,926	29,354	29,354	-	163	-	163
69	22,967,704	24,718	24,718	-	127	-	127
70	25,134,042	20,601	20,601	-	98	-	98
71	27,492,149	16,988	16,988	-	75	-	75
72	30,057,412	13,859	13,859	-	56	-	56
73	32,846,489	11,186	11,186	-	42	-	42
74	35,877,426	8,933	8,933	-	31	-	31
75	39,169,773	7,059	7,059	-	23	-	23
76	42,744,713	5,518	5,518	-	17	-	17
77	46,625,197	4,268	4,268	-	12	-	12
78	50,836,084	3,267	3,267	-	8	-	8
79	55,404,295	2,472	2,472	-	6	-	6
80	60,358,977	1,849	1,849	-	4	-	4
81	65,731,677	1,366	1,366	-	3	-	3
82	71,556,533	994	994	-	2	-	2
83	77,870,472	713	713	-	1	-	1
84	84,713,437	503	503	-	1	-	1
85	92,128,619	349	349	-	1	-	1
86	100,162,722	238	238	-	-	-	-
87	108,866,235	159	159	-	-	-	-
88	118,293,742	104	104	-	-	-	-
89	128,504,240	67	67	-	-	-	-
90	139,561,502	42	42	-	-	-	-
91	151,534,450	26	26	-	-	-	-
92	164,497,574	15	15	-	-	-	-
93	178,531,374	9	9	-	-	-	-
94	193,722,846	5	5	-	-	-	-
95	210,165,998	2	2	-	-	-	-
96	227,962,419	1	1	-	-	-	-
97	247,221,880	-	-	-	-	-	-
98	268,062,997	-	-	-	-	-	-
99	290,613,939	-	-	-	-	-	-
100	315,013,192	-	-	-	-	-	-
<b>Totals</b>	\$				\$ 1,828,609	\$ -	\$ 1,828,609

For purposes of this projection, based on GASB guidance, we assumed the statutory contribution rates would continue after the plan becomes fully funded. If we reflected a decrease in contribution rates due to full funding, future assets and contributions would be less than what is shown herein.

---

## **SECTION H**

### **GLOSSARY OF TERMS**

---

## GLOSSARY OF TERMS

<b><i>Actuarial Accrued Liability (AAL)</i></b>	The AAL is the difference between the actuarial present value of all benefits and the actuarial value of future normal costs. The definition comes from the fundamental equation of funding which states that the present value of all benefits is the sum of the Actuarial Accrued Liability and the present value of future normal costs. The AAL may also be referred to as "accrued liability" or "actuarial liability."
<b><i>Actuarial Assumptions</i></b>	These assumptions are estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and compensation increases. Actuarial assumptions are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (compensation increases, payroll growth, inflation and investment return) consist of an underlying real rate of return plus an assumption for a long-term average rate of inflation.
<b><i>Accrued Service</i></b>	Service credited under the system which was rendered before the date of the actuarial valuation.
<b><i>Actuarial Equivalent</i></b>	A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.
<b><i>Actuarial Cost Method</i></b>	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of the pension trust benefits between future normal cost and actuarial accrued liability. The actuarial cost method may also be referred to as the actuarial funding method.
<b><i>Actuarial Gain (Loss)</i></b>	The difference in liabilities between actual experience and expected experience during the period between two actuarial valuations is the gain (loss) on the accrued liabilities.
<b><i>Actuarial Present Value (APV)</i></b>	The amount of funds currently required to provide a payment or series of payments in the future. The present value is determined by discounting future payments at predetermined rates of interest and probabilities of payment.
<b><i>Actuarial Valuation</i></b>	The actuarial valuation report determines, as of the actuarial valuation date, the service cost, total pension liability, and related actuarial present value of projected benefit payments for pensions.
<b><i>Actuarial Valuation Date</i></b>	The date as of which an actuarial valuation is performed.
<b><i>Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)</i></b>	A calculated contribution into a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically the Actuarially Determined Contribution has a normal cost payment and an amortization payment.

## GLOSSARY OF TERMS

<b><i>Amortization Payment</i></b>	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
<b><i>Amortization Method</i></b>	The method used to determine the periodic amortization payment may be a level dollar amount, or a level percent of pay amount. The period will typically be expressed in years, and the method will either be “open” (meaning, reset each year) or “closed” (the number of years remaining will decline each year).
<b><i>Cost-of-Living Adjustments</i></b>	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
<b><i>Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)</i></b>	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
<b><i>Covered-Employee Payroll</i></b>	The payroll of employees that are provided with pensions through the pension plan.
<b><i>Deferred Retirement Option Program (DROP)</i></b>	A program that permits a plan member to elect a calculation of benefit payments based on service credits and salary, as applicable, as of the DROP entry date. The plan member continues to provide service to the employer and is paid for the service by the employer after the DROP entry date; however, the pensions that would have been paid to the plan member are credited to an individual member account within the defined benefit pension plan until the end of the DROP period. Other variations for DROP exist and will be more fully detailed in the plan provision section of the valuation report.
<b><i>Deferred Inflows and Outflows</i></b>	The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.
<b><i>Discount Rate</i></b>	For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically: <ol style="list-style-type: none"> <li>1. The benefit payments to be made while the pension plans' fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and</li> <li>2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.</li> </ol>

## GLOSSARY OF TERMS

<b><i>Entry Age Actuarial Cost Method (EAN)</i></b>	The EAN is a cost method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit ages(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.
<b><i>GASB</i></b>	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
<b><i>Fiduciary Net Position</i></b>	The fiduciary net position is the market value of the assets of the trust dedicated to the defined benefit provisions.
<b><i>Long-Term Expected Rate of Return</i></b>	The long-term rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio.
<b><i>Money-Weighted Rate of Return</i></b>	The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.
<b><i>Multiple-Employer Defined Benefit Pension Plan</i></b>	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
<b><i>Municipal Bond Rate</i></b>	The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.
<b><i>Net Pension Liability (NPL)</i></b>	The NPL is the liability of employers and non-employer contributing entities to plan members for benefits provided through a defined benefit pension plan.
<b><i>Non-Employer Contributing Entities</i></b>	Non-employer contributing entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB accounting statements, plan members are not considered non-employer contributing entities.
<b><i>Normal Cost</i></b>	The portion of the actuarial present value allocated to a valuation year is called the normal cost. For purposes of application to the requirements of this Statement, the term normal cost is the equivalent of service cost.



## GLOSSARY OF TERMS

<b><i>Other Postemployment Benefits (OPEB)</i></b>	All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits regardless of the manner in which they are provided. Other post-employment benefits do not include termination benefits.
<b><i>Real Rate of Return</i></b>	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
<b><i>Service Cost</i></b>	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.
<b><i>Total Pension Expense</i></b>	The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year: <ol style="list-style-type: none"> <li>1. Service Cost</li> <li>2. Interest on the Total Pension Liability</li> <li>3. Current-Period Benefit Changes</li> <li>4. Employee Contributions (made negative for addition here)</li> <li>5. Projected Earnings on Plan Investments (made negative for addition here)</li> <li>6. Pension Plan Administrative Expense</li> <li>7. Other Changes in Plan Fiduciary Net Position</li> <li>8. Recognition of Outflow (Inflow) of Resources due to Liabilities</li> <li>9. Recognition of Outflow (Inflow) of Resources due to Assets</li> </ol>
<b><i>Total Pension Liability (TPL)</i></b>	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
<b><i>Unfunded Actuarial Accrued Liability (UAAL)</i></b>	The UAAL is the difference between actuarial accrued liability and valuation assets.
<b><i>Valuation Assets</i></b>	The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of GASB Statement Nos. 67 and 68, the valuation assets are equal to the market value of assets.