St. Paul Teachers' Retirement Fund Association

GASB Statement Nos. 67 and 68 Accounting and Financial Reporting for Pensions

June 30, 2021

| P: 800.521.0498 | www.grsconsulting.com

January 10, 2022

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. GASB Statement No. 82 is an amendment to Statements No. 67, No. 68, and No. 73, intended to improve consistency in the application of accounting statements.

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 Net Pension Liability is not an appropriate measure for measuring the sufficiency of plan assets to cover the estimated cost of settling the employer's benefit obligation. The Net Pension Liability is not an appropriate measure for assessing the need for or amount of future employer contributions. The calculation of the plan's liability for this report is not applicable for purposes of funding 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. GRS is not responsible for unauthorized use of this report.

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 audited.

This report complements the actuarial valuation report for funding purposes that was or will be provided to the Fund and should be considered in conjunction with that report. Please see the actuarial funding valuation report as of June 30, 2021 for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

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

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

To the best of our knowledge, the information contained within this report is accurate and represents the actuarial position of the St. Paul Teachers' Retirement Fund Association according to the disclosed assumptions. 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.

The signing actuaries are independent of the plan sponsor.

Bonita J. Wurst, James D. Anderson and Sheryl L. Christensen are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,
Gabriel, Roeder, Smith & Company

Bonita J. Wurst

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

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BJW/JDA/SLC:sc

Table of Contents

SECTION A

EXECUTIVE SUMMARY

Executive Summary
as of June 30, 2021 (Dollars in Thousands)

		2021
Actuarial Valuation Date		June 30, 2021
Measurement Date of the Net Pension Liability		June 30, 2021
Membership		
Number of		
- Service Retirements		3,782
- Survivors		369
- Disability Retirements		22
- Deferred Retirements		2,414
- Terminated other non-vested		2,941
- Active Members		3,399
- Total		12,927
Covered Payroll	$	279,916
Net Pension Liability		
Total Pension Liability	$	1,729,621
Plan Fiduciary Net Position		1,295,064
Net Pension Liability	$	434,557
Plan Fiduciary Net Position as a Percentage of Total Pension Liability		74.88%
Net Pension Liability as a Percentage of Covered Payroll		155.25%
Development of the Single Discount Rate		
Single Discount Rate		7.50%
Long-Term Expected Rate of Investment Return		7.50%
Long-Term Municipal Bond Rate*		1.92%
Last year ending June 30 in the 2022 to 2121 projection period within which projected benefit payments are fully funded		2121
Total Pension Expense	$	25,065

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

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	$ 13,559	$ 7,580
Changes in assumptions	-	8,361
Net difference between projected and actual earnings on pension plan investments	51,374	186,483
Total	$ 64,933	$ 202,424

** Fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's '20-Year Municipal GO AA Index' as of June 30, 2021.*

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, 2021.

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.

Measurement of the Net Pension Liability

The net pension liability is to be measured as the total pension liability, less the amount of the pension plan's fiduciary net position. In actuarial terms, this will be 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).

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, Chapter 356 required contributions are made, and all actuarial assumptions are met (including the assumption of the plan earning 7.50% on an actuarial value of assets basis, as prescribed by statutes), it is expected that:

(1) The normal cost of the plan is expected to remain approximately level as a percent of pay;
(2) The funded status of the plan is expected to gradually improve and is expected to be 100% funded within the next 27 years; and
(3) The unfunded liability will grow initially as a dollar amount before beginning to decline.

The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. For employer reporting, the net pension liability and pension expense should be measured as of a date (measurement date) no earlier than the end of the employer's prior fiscal year, consistently applied from period to period. 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, 2021 and a measurement date of June 30, 2021.

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 7.50% 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 7.50% 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).

* *Source: Based on the 20-Year Municipal GO Index of mixed maturity general obligation municipal bonds as of the weekly rate closest to but not later than the Measurement Date.*

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.

Statement of Pension Expense under GASB Statement No. 68
Fiscal Year Ended June 30, 2021 (Dollars in Thousands)

A. Expense/(Income)	
1. Service Cost	$ 23,777
2. Interest on the Total Pension Liability	123,262
3. Current-Period Benefit Changes	-
4. Employee Contributions (made negative for addition here)	(21,334)
5. Projected Earnings on Plan Investments (made negative for addition here)	(76,029)
6. Pension Plan Administrative Expense	779
7. Other Changes in Plan Fiduciary Net Position	-
8. Recognition of Outflow (Inflow) of Resources due to Liabilities	16,074
9. Recognition of Outflow (Inflow) of Resources due to Assets	(41,464)
10. **Total Pension Expense / (Income)**	**$ 25,065**

Recognition of Deferred Outflows and Inflows of Resources

Differences between expected and actual experience and changes in assumptions are recognized in pension expense using a systematic and rational method over a closed period equal to the average of the expected remaining service lives of all employees that are provided with pension through the pension plan (active employees and inactive employees) determined as of the beginning of the measurement period.

At the beginning of the current measurement period, the expected remaining service lives of all active employees in the plan was approximately 40,759 years. Additionally, the total plan membership (active employees and inactive employees) was 12,872. As a result, the average of the expected remaining service lives for purposes of recognizing the applicable deferred outflows and inflows of resources established in the current measurement period is 3.0000 years (rounded).

Additionally, differences between projected and actual earnings on plan investments should be recognized in pension expense using a systematic and rational method over a closed 5-year period. For this purpose, the deferred outflows and inflows of resources are recognized in the pension expense as a level dollar amount over the closed period identified above.

Statement of Outflows and Inflows Arising from Current Reporting Period
Fiscal Year Ended June 30, 2021 (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	$	20,339
2. Assumption Changes (gains) or losses	$	(9,741)
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}		3
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	$	6,780
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes	$	(3,247)
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	$	3,533
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	$	13,559
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	$	(6,494)
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	$	7,065
B. Outflows (Inflows) of Resources due to Assets		
1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	$	(229,203)
2. Recognition period for Assets {in years}		5
3. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Assets	$	(45,841)
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	$	(183,362)

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30, 2021 (Dollars in Thousands)

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

	Outflows of Resources	Inflows of Resources	Net Outflows/(Inflows) of Resources
1. Due to Liabilities	$ 36,421	$ 20,347	$ 16,074
2. Due to Assets	18,338	59,802	(41,464)
3. Total	$ 54,759	$ 80,149	$ (25,390)

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

	Outflows of Resources	Inflows of Resources	Net Outflows/(Inflows) of Resources
1. Differences between expected and actual experience	$ 6,780	$ 14,220	$ (7,440)
2. Assumption Changes	29,641	6,127	23,514
3. Net Difference between projected and actual earnings on pension plan investments	18,338	59,802	(41,464)
4. Total	$ 54,759	$ 80,149	$ (25,390)

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

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows/ (Inflows) of Resources
1. Differences between expected and actual experience	$ 13,559	$ 7,580	$ 5,979
2. Assumption Changes	-	8,361	(8,361)
3. Net Difference between projected and actual earnings on pension plan investments	51,374	186,483	(135,109)
4. Total	$ 64,933	$ 202,424	$ (137,491)

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

Year Ending June 30	Net Deferred Outflows/ (Inflows) of Resources
2022	$ (36,538)
2023	(23,971)
2024	(31,142)
2025	(45,840)
2026	-
Thereafter	-
Total	$ (137,491)

Recognition of Deferred Outflows and Inflows of Resources
Fiscal Year Ended June 30, 2021 (Dollars in Thousands)

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
Deferred Outflow (Inflow) due to Differences between Expected and Actual Experience on Liabilities					
2018	$ (13,445)	4.0000	$ (3,362)	$ -	0.0000
2019	(9,831)	3.0000	(3,277)	-	0.0000
2020	(22,742)	3.0000	(7,581)	(7,580)	1.0000
2021	20,339	3.0000	6,780	13,559	2.0000
Total			**$ (7,440)**	**$ 5,979**	
Deferred Outflow (Inflow) due to Assumption Changes					
2018	$ 118,561	4.0000	$ 29,641	$ -	0.0000
2019	(3,037)	3.0000	(1,013)	-	0.0000
2020	(5,601)	3.0000	(1,867)	(1,867)	1.0000
2021	(9,741)	3.0000	(3,247)	(6,494)	2.0000
Total			**$ 23,514**	**$ (8,361)**	
Deferred Outflow (Inflow) due to Differences between Projected and Actual Earnings on Plan Investments					
2017	$ (54,191)	5.0000	$ (10,839)	$ -	0.0000
2018	(15,609)	5.0000	(3,122)	(3,121)	1.0000
2019	18,200	5.0000	3,640	7,280	2.0000
2020	73,490	5.0000	14,698	44,094	3.0000
2021	(229,203)	5.0000	(45,841)	(183,362)	4.0000
Total			**$ (41,464)**	**$ (135,109)**	
Deferred Outflow (Inflow) due to All Sources					
Total			**$ (25,390)**	**$ (137,491)**	

Statement of Fiduciary Net Position as of June 30, 2021 (Dollars in Thousands)

		2021
Assets		
Cash and Deposits	$	17,103
Receivables		
Accounts Receivable - Sale of Investments	$	-
Accrued Interest and Other Dividends		-
Contributions		-
Accounts Receivable - Other		-
Total Receivables	$	-
Investments		
Fixed Income	$	168,406
Equity		840,923
Real Assets		51,922
Cash and Cash Equivalents		73,443
Other		175,653
Total Investments	$	1,310,347
Total Assets	$	1,327,450
Liabilities		
Payables		
Accounts Payable - Purchase of Investments	$	32,386
Accrued Expenses		-
Accounts Payable - Other		-
Total Liabilities	$	32,386
Net Position Restricted for Pensions	$	1,295,064

Statement of Changes in Fiduciary Net Position for Year Ended June 30, 2021 (Dollars in Thousands)

Additions		
Contributions		
Employer	$	35,111
Employer (for Reemployed Annuitants)		140
Employee		21,334
Other		15,665
Total Contributions	$	72,250
Investment Income		
Net Appreciation in Fair Value of Investments	$	297,975
Interest and Dividends		10,237
Less Investment Expense		(2,980)
Net Investment Income	$	305,232
Other		-
Total Additions	$	377,482
Deductions		
Benefit payments, including refunds of employee contributions	$	119,252
Pension Plan Administrative Expense		779
Other		-
Total Deductions	$	120,031
Net Increase in Net Position	$	257,451
Net Position Restricted for Pensions		
Beginning of Year	$	1,037,613
End of Year	$	1,295,064

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, 2021 (Dollars in Thousands)

A. Total Pension Liability		
1. Service Cost	$	23,777
2. Interest on the Total Pension Liability		123,262
3. Changes of benefit terms		-
4. Difference between expected and actual experience of the Total Pension Liability		20,339
5. Changes of assumptions		(9,741)
6. Benefit payments, including refunds of employee contributions		(119,252)
7. Net change in Total Pension Liability	$	38,385
8. Total Pension Liability – Beginning		1,691,236
9. Total Pension Liability – Ending	**$**	**1,729,621**
B. Plan Fiduciary Net Position		
1. Contributions – Employer^	$	50,916
2. Contributions – Employee		21,334
3. Net investment income		305,232
4. Benefit payments, including refunds of employee contributions		(119,252)
5. Pension Plan Administrative Expense		(779)
6. Other		-
7. Net change in Plan Fiduciary Net Position	$	257,451
8. Plan Fiduciary Net Position – Beginning		1,037,613
9. Plan Fiduciary Net Position – Ending	**$**	**1,295,064**
C. Net Pension Liability	**$**	**434,557**
D. Plan Fiduciary Net Position as a Percentage of the Total Pension Liability		**74.88%**
E. Covered-Employee payroll	**$**	**279,916**
F. Net pension liability as a percentage of Covered-Employee payroll		**155.25%**

^ *Includes employer contributions, supplemental contributions, and reemployed annuitant employer contributions.*

Schedules of Required Supplementary Information
Schedule of Changes in Net Pension Liability and Related Ratios Multiyear
(Dollars in Thousands)

Last 10 Fiscal Years (which may be built prospectively)

Fiscal year ending June 30,	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Total Pension Liability										
Service Cost	$ 23,777	$ 23,120	$ 23,279	$ 25,087	$ 24,098	$ 25,596	$ 24,998	$ 22,954		
Interest on the Total Pension Liability	123,262	123,300	122,197	125,256	123,820	124,294	123,108	118,503		
Benefit Changes	-	-	-	(74,376)	-		(5,677)	-		
Difference between Expected and Actual Experience	20,339	(22,742)	(9,831)	(13,445)	7,106	(42,295)	(17,133)	(16,257)		
Assumption Changes	(9,741)	(5,601)	(3,037)	118,561	(22,643)			39,642		
Benefit Payments	(118,665)	(117,306)	(116,379)	(115,298)	(112,771)	(111,167)	(108,878)	(105,742)		
Refunds	(587)	(1,256)	(701)	(800)	(972)	(628)	(875)	(1,103)		
Net Change in Total Pension Liability	38,385	(485)	15,528	64,985	18,638	(4,200)	15,543	57,997		
Total Pension Liability - Beginning	1,691,236	1,691,721	1,676,193	1,611,208	1,592,570	1,596,770	1,581,227	1,523,230		
Total Pension Liability - Ending (a)	$ 1,729,621	$ 1,691,236	$ 1,691,721	$ 1,676,193	$ 1,611,208	$ 1,592,570	$1,596,770	$ 1,581,227		
Plan Fiduciary Net Position										
Employer Contributions*	$ 50,916	$ 49,804	$ 46,981	$ 39,209	$ 38,350	$ 37,228	$ 36,711	$ 35,197		
Employee Contributions	21,334	20,889	20,626	20,112	20,146	18,538	17,567	16,564		
Pension Plan Net Investment Income	305,232	5,726	60,209	95,886	128,719	1,475	25,757	168,176		
Benefit Payments	(118,665)	(117,306)	(116,379)	(115,298)	(112,771)	(111,167)	(108,878)	(105,742)		
Refunds	(587)	(1,256)	(701)	(800)	(972)	(628)	(875)	(1,103)		
Pension Plan Administrative Expense	(779)	(788)	(764)	(786)	(889)	(749)	(748)	(739)		
Other	-	-	-	-	-	-	-	-		
Net Change in Plan Fiduciary Net Position	257,451	(42,931)	9,972	38,323	72,583	(55,303)	(30,466)	112,353		
Plan Fiduciary Net Position - Beginning	1,037,613	1,080,544	1,070,572	1,032,249	959,666	1,014,969	1,045,435	933,082		
Plan Fiduciary Net Position - Ending (b)	$ 1,295,064	$ 1,037,613	$ 1,080,544	$ 1,070,572	$ 1,032,249	$ 959,666	$1,014,969	$ 1,045,435		
Net Pension Liability - Ending (a) - (b)	434,557	653,623	611,177	605,621	578,959	632,904	581,801	535,792		
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	74.88 %	61.35 %	63.87 %	63.87 %	64.07 %	60.26 %	63.56 %	66.12 %		
Covered Employee Payroll	$ 279,916	$ 274,667	$ 268,614	$ 263,122	$ 264,342	$ 258,787	$ 263,844	$ 259,740		
Net Pension Liability as a Percentage of Covered Employee Payroll	155.25 %	237.97 %	227.53 %	230.17 %	219.02 %	244.57 %	220.51 %	206.28 %		

Notes to Schedule:

N/A

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

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)

FY Ending June 30,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll	Net Pension Liability as a % of Covered Payroll
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%
2016	1,592,570	959,666	632,904	60.26%	258,787	244.57%
2017	1,611,208	1,032,249	578,959	64.07%	264,342	219.02%
2018	1,676,193	1,070,572	605,621	63.87%	263,122	230.17%
2019	1,691,721	1,080,544	611,177	63.87%	268,614	227.53%
2020	1,691,236	1,037,613	653,623	61.35%	274,667	237.97%
2021	1,729,621	1,295,064	434,557	74.88%	279,916	155.25%

Schedule of Contributions Multiyear (Dollars in Thousands)

Last 10 Fiscal Years

FY Ending June 30,	Actuarially Determined Contribution	Actual Contribution*	Contribution Deficiency (Excess)	Covered Payroll	Actual Contribution as a % of Covered Payroll
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
2016	39,068	37,228	1,840	258,787	14.39
2017	39,172	38,350	822	264,342	14.51
2018	38,196	39,209	(1,013)	263,122	14.90
2019	37,233	46,981	(9,748)	268,614	17.49
2020	39,181	49,804	(10,623)	274,667	18.13
2021	39,072	50,916	(11,844)	279,916	18.19

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

Notes to Schedule of Contributions

Methods and Assumptions Used to Determine Fiscal Year Ending June 30, 2021 Contribution Rates Reported in this Schedule:

Notes	Actuarially determined contribution rates are calculated as of each June 30 and apply to the fiscal year beginning on the day after the measurement date.
Valuation Date	June 30, 2020
Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Remaining Amortization Period	28 years
Asset Valuation Method	5-Year smoothed market; no corridor
Inflation	2.5%
Salary Increases	3.00% to 9.00%; service based
Investment Rate of Return	7.5%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2018 valuation pursuant to an experience study of the period 2011 - 2016.
Mortality	RP-2014 annuitant generational mortality table, projected with scale MP-2019 from a base year of 2006, white collar adjustment, set back two years for females.

Other Information:

Notes	See separate funding report as of July 1, 2020 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[1]
2012	
2013	
2014	18.50 %
2015	2.65 %
2016	0.34 %
2017	13.93 %
2018	9.75 %
2019	5.73 %
2020	0.10 %
2021	32.65 %

[1] *Annual money-weighted rate of return, net of investment expenses.*

The 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, 2021 was 32.65% (net of fees). The money-weighted rate of return expresses investment performance, net of fees, 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, 2021, 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%
Total	**100%**	

** For purposes of these calculations, SPTRFA's assumed inflation rate is 2.50%.*

The 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 7.50% 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 7.50%. 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 7.50%, 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)

	1% Decrease 6.50%	Current Single Discount Rate Assumption 7.50%	1% Increase 8.50%
Total Pension Liability	$1,934,814	$1,729,621	$1,559,427
Net Position Restricted for Pensions	1,295,064	1,295,064	1,295,064
Net Pension Liability	**$ 639,750**	**$ 434,557**	**$ 264,363**

Note that we believe the 8.5% interest rate assumption does not comply with Actuarial Standards of Practice.

Reconciliation of Members

Summary of Changes in Participant Status
During Fiscal Year Ending June 30, 2021

	Active Participants	Leave of Absence	Vested Terminated	Other Non-Vested	Retired Participants	Disableds	Survivors and Beneficiaries	Alternate Payees[2]	Total
A. Number as of June 30, 2020	3,353	92	2,491	2,834	3,679	20	351	52	12,872
B. Additions	240	3	84	158	154	2	34	4	679
C. Deletions									
1. Retirements	(83)	(1)	(69)						(153)
2. Disability		(1)	(1)						(2)
3. Died with Beneficiary		(1)	(2)		(26)			(1)	(30)
4. Died without Beneficiary				(1)	(67)		(26)	(2)	(96)
5. Terminated - Deferred	(74)	(10)							(84)
6. Terminated - Not Vested	(123)	-							(123)
7. Refunds	(5)	(1)	(20)	(70)					(96)
8. Rehired as Active	50	(40)	(18)	(32)					(40)
9. Leave of Absence	(64)	64							-
10. Repayment of Refund									-
11. Expired Benefits								(1)	(1)
12. Disability to Retirement					1	(1)			-
D. Data Adjustments[1]			(51)	52					1
E. Total on June 30, 2021	3,294	105	2,414	2,941	3,741	21	359	52	12,927

[1] *Includes members not valued in prior valuation who repaid refunds or otherwise restored prior service.*

[2] *Includes alternate payees of retired participants (41), disabled participants (1), and survivors (10).*

GASB Reconciliation (Dollars in Thousands)
Fiscal Year Ended June 30, 2021

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)	Deferred Outflows	Deferred Inflows	Outflows Prior Year	Total Pension Expense
Balance Beginning of Year	**$ 1,691,236**	**$ 1,037,613**	**$ 653,623**				
Changes for the Year:							
Service Cost	$ 23,777		$ 23,777				$ 23,777
Interest on Total Pension Liability	123,262		123,262				123,262
Interest on Fiduciary Net Position [1]		$ 76,029	(76,029)				(76,029)
Changes in Benefit Terms							
Liability Experience Gains and Losses	20,339		20,339	$ 13,559	$ 7,580	$ (21,800)	(7,440)
Changes in Assumptions	(9,741)		(9,741)	-	8,361	24,894	23,514
Contributions - Employer		50,916	(50,916)				
Contributions - Employees		21,334	(21,334)				(21,334)
Asset Gain/(Loss) [1]		229,203	(229,203)	51,374	186,483	52,630	(41,464)
Benefit Payouts	(119,252)	(119,252)					
Administrative Expenses		(779)	779				779
Other changes							
Net Changes	**$ 38,385**	**$ 257,451**	**$ (219,066)**				**$ 25,065**
Balance End of Year	**$ 1,729,621**	**$ 1,295,064**	**$ 434,557**	**$ 64,933**	**$ 202,424**	**$ 55,724**	

[1] *The sum of these items equals the net investment income of $305,232.*

SECTION E

SUMMARY OF BENEFITS

Summary of Benefit Provisions for Basic Members as of June 30, 2021

PARTICIPANTS

Licensed 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 Professional Educator Licensing and Standards Board, who are not covered under the Social Security Act.

There are no remaining active Basic Members.

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.

Summary of Benefit Provisions for Basic Members as of June 30, 2021

AVERAGE SALARY

Average of the highest 5 years of salary during the last 10 years of St. Paul service while making contributions.

NORMAL RETIREMENT BENEFIT

Eligibility

Attainment of age 65 and 5 years of Accredited Service.

Benefit

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

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 percent 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. The ultimate factors for retirements on or after July 1, 2024 will be phased in over a 60-month period starting July 1, 2019.

UNDER AGE 62 OR LESS THAN 30 YEARS OF SERVICE

Age at Retirement	RETIREMENTS PRIOR TO JULY 1, 2019	RETIREMENTS ON OR AFTER JULY 1, 2024	AGE 62 OR OLDER WITH 30 YEARS OF SERVICE
55	0.5376	0.4200	
56	0.5745	0.4600	
57	0.6092	0.5000	
58	0.6419	0.5400	
59	0.6726	0.5800	
60	0.7354	0.6500	
61	0.7947	0.7200	
62	0.8507	0.7900	0.8831
63	0.9035	0.8600	0.9246
64	0.9533	0.9300	0.9635
65	1.0000	1.0000	1.0000

Summary of Benefit Provisions for Basic Members as of June 30, 2021

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.

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 1st of the month following termination until the January 1st 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 1st 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 to June 30, 2019. After June 30, 2019, benefits are not augmented.

PRE-RETIREMENT SURVIVOR BENEFIT (Family Benefit)

Eligibility

Active member with five 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.

Summary of Benefit Provisions for Basic Members as of June 30, 2021

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 death or retirement.

Benefit

Retirement benefit earned at the time of death or retirement, whichever is earlier, reduced by the use of 100 percent joint survivorship tables, based on the ages of the member and survivor at the time of retirement.

REFUND OF CONTRIBUTIONS

Eligibility

Termination or death where no annuity is payable.

Benefit

Member contributions with 6.00 percent interest accrued through June 30, 2011, 4.00 percent interest accrued through June 30, 2018, and 3.00 percent interest thereafter.

REEMPLOYED ANNUITANTS

The School District shall make the regular employer contribution and additional employer contribution, plus a supplemental contribution equal to 2.5 percent 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

2019 and 2020:	0.00 percent
2021 and thereafter:	1.00 percent

For retirements on and after July 1, 2024, the first benefit increase is delayed until the retiree reaches Normal Retirement Age (not applicable to Rule of 90 retirees, Rule of 62/30 retirees, disability benefit recipients, or survivors).

Summary of Benefit Provisions for Basic Members as of June 30, 2021

CHANGES IN PLAN PROVISIONS

There have been no changes in plan provisions since the prior valuation.

Summary of Benefit Provisions for Coordinated Members as of June 30, 2021

STATUTORY CONTRIBUTIONS

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

Contribution after June 30,	Member	Employer Regular	Employer Additional
2019	7.50%	8.170%	3.84%
2020	7.50%	8.380%	3.84%
2021	7.50%	8.590%	3.84%
2022	7.50%	8.800%	3.84%
2023	7.75%	9.000%	3.84%

SUPPLEMENTAL CONTRIBUTIONS

1996 legislation provides for a variable amortization aid contribution paid annually on July 15. The actual contribution during the past fiscal year was $838,000.

Annual supplemental contributions of $14,827,000 will be contributed by the State of Minnesota each October 1. The contributions will continue until the plan is 100% funded or until June 30, 2048, whichever occurs earlier.

PARTICIPANTS

Licensed educators in the public schools of the City of St. Paul, excluding charter schools, whose position requires a license from the Minnesota Professional Educator Licensing and Standards Board, 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.

Summary of Benefit Provisions for Coordinated Members as of June 30, 2021

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 June 30, 2021

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 10 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 10 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 tables listed below. The ultimate factors for retirements on or after July 1, 2024 will be phased in over a sixty-month period starting July 1, 2019.

	UNDER AGE 62 OR LESS THAN 30 YEARS OF SERVICE					
	RETIREMENTS PRIOR TO JULY 1, 2019		RETIREMENTS ON OR AFTER JULY 1, 2024		AGE 62 OR OLDER WITH 30 YEARS OF SERVICE	
Normal Retirement Age:	**65**	**66**	**65**	**66**	**65**	**66**
Age at Retirement						
55	0.5376	0.4592	0.4200	0.3500		
56	0.5745	0.4992	0.4600	0.3900		
57	0.6092	0.5370	0.5000	0.4300		
58	0.6419	0.5726	0.5400	0.4700		
59	0.6726	0.6062	0.5800	0.5100		
60	0.7354	0.6726	0.6500	0.5800		
61	0.7947	0.7354	0.7200	0.6500		
62	0.8507	0.7947	0.7900	0.7200	0.8831	0.8389
63	0.9035	0.8507	0.8600	0.7900	0.9246	0.8831
64	0.9533	0.9035	0.9300	0.8600	0.9635	0.9246
65	1.0000	0.9533	1.0000	0.9300	1.0000	0.9635
66		1.0000		1.0000		1.0000

Summary of Benefit Provisions for Coordinated Members as of June 30, 2021

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 1st of the month following termination until the January 1st 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 1st 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 to June 30, 2019. After June 30, 2019, benefits are not augmented.

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 percent 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 June 30, 2021

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 through June 30, 2011, 4.00 percent interest accrued through June 30, 2018, and 3.00 percent interest thereafter.

REEMPLOYED ANNUITANTS

The School District shall make the regular employer contribution and additional employer contribution, plus a supplemental contribution equal to 2.5 percent 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

2019 and 2020:	0.00 percent
2021 and thereafter:	1.00 percent

For retirements on and after July 1, 2024, the first benefit increase is delayed until the retiree reaches Normal Retirement Age (not applicable to Rule of 90 retirees, Rule of 62/30 retirees, disability benefit recipients, or survivors).

CHANGES IN PLAN PROVISIONS

The member contribution for the July 1, 2022 to June 30, 2023 fiscal year was changed from 7.75 percent of pay to 7.50 percent of pay.

SECTION F

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

Actuarial Cost Method and Actuarial Assumptions

I. 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:

1) 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
2) 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.

II. Current Actuarial Assumptions

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

A. Demographic Assumptions

Mortality:

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

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

Age in 2021	Post-Retirement Mortality Male	Female
55	40	25
56	42	27
57	45	29
58	48	31
59	52	34
60	56	36
61	60	39
62	65	42
63	70	47
64	76	52
65	82	57
66	89	62
67	97	67
68	106	73
69	117	80
70	129	87
71	142	96
72	158	106
73	175	117
74	195	130
75	218	145
76	243	162
77	273	181
78	306	202
79	344	227
80	387	255
81	437	287
82	495	324
83	561	366
84	636	413
85	722	467
86	820	530
87	930	600
88	1053	680
89	1191	771
90	1345	873
91	1509	986
92	1679	1113
93	1852	1251
94	2028	1398

Actuarial Cost Method and Actuarial Assumptions

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

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

Actuarial Cost Method and Actuarial Assumptions

Rates of Disability:

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

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

Actuarial Cost Method and Actuarial Assumptions

Rates of Termination:

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

Rates of Retirement:

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

Age	Male Coordinated 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	2,500	2,500	0	0
55	2,500	2,500	900	500
56	2,500	2,500	700	500
57	2,500	2,500	700	500
58	2,500	2,500	700	600
59	2,500	3,000	700	600
60	2,500	3,000	1,200	900
61	2,500	3,000	1,200	1,100
62	4,500	3,000	2,500	2,000
63	3,500	3,000	2,800	2,300
64	2,500	3,000	2,800	2,600
65	10,000	10,000	3,000*	4,500*
66	10,000	10,000	3,000	4,300
67	10,000	10,000	3,500	3,800
68	10,000	10,000	4,000	3,800
69	10,000	10,000	4,500	3,000
70 & Over	10,000	10,000	10,000	10,000

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

Actuarial Cost Method and Actuarial Assumptions

B. Economic Assumptions

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

Annual Salary Increases

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

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

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 projected payroll.
Refund of Contributions:	All employees withdrawing after becoming eligible for a deferred benefit take the larger of their contributions accumulated with interest or the value of their deferred benefit. Account balances for deferred members accumulate interest until the assumed benefit commencement date and are discounted back to the valuation date.
Allowance for Combined Service Annuity:	20.0% load on liabilities for former, vested members. 9.0% load on liabilities for former, non-vested members.
Missing Salary and Salary Minimums:	Active members with reported salaries of $100 or less were assumed to have the average non-zero active salary. Active members with salaries less than those reported at the prior valuation date are valued using their prior salary amount. Active members who have been hired within one year of the valuation date have had their pay annualized by dividing by months of service credited, not to exceed the average non-zero active salary. For members on leave of absence at valuation date who were not on leave at the prior valuation date, the prior year's valuation pay was used.
Missing Data for Deferred Vested Members:	Deferred vested members without a reported benefit and without salary information were assumed to have a final average salary of $40,000.
Decrement Timing:	Retirement and Termination: end of valuation year – consistent with retirements and terminations occurring at the end of the school year. Death and Disability: middle of valuation year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.

Actuarial Cost Method and Actuarial Assumptions

Service Credit Accruals:	It is assumed that members accrue one year of service credit per year. Exact fractional service is used to determine the amount of benefit payable.
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, annual supplemental contributions equal to $14,827,000 are scheduled to be paid each October 1. The contributions described herein will continue until the plan is 100% funded or until June 30, 2048, whichever occurs earlier.
Projected Annual Payroll Calculation:	The census data as of July 1, 2021 reflects retirements and terminations occurring during the months of May and June; however, it does not necessarily reflect the replacements hired to fill their positions who may have hire dates in August and September. We assumed that May and June retirements are replaced by members coming in at the B.A. entry salary level of $47,271; the Projected Annual Payroll for the fiscal year ending June 30, 2022 includes this replacement salary amount.
Changes in Actuarial Assumptions Since the Prior Valuation:	The mortality improvement scale was updated from MP-2019 to MP-2020.

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. 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 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 7.50%; the municipal bond rate is 1.92%; and the resulting Single Discount Rate is 7.50%.

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 SDR. It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total using the SDR.

Single Discount Rate Development
Projection of Contributions (Dollars in Thousands)

	Payroll			Projected Contributions				
Year	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	$ 279,916	$ -	$ 279,916					
1	297,699	-	297,699	$ 22,327	$ 37,004	$ -	$ 15,665	$ 74,996
2	284,109	22,521	306,630	21,308	35,911	2,633	15,665	75,517
3	274,390	41,438	315,828	21,265	35,232	5,031	15,665	77,193
4	266,304	58,999	325,303	20,639	34,193	7,163	15,665	77,660
5	258,876	76,186	335,062	20,063	33,240	9,249	15,665	78,217
6	251,911	93,203	345,114	19,523	32,345	11,315	15,665	78,848
7	245,172	110,296	355,468	19,001	31,480	13,390	15,665	79,536
8	238,594	127,538	366,132	18,491	30,635	15,483	15,665	80,274
9	231,668	145,448	377,116	17,954	29,746	17,657	15,665	81,022
10	224,146	164,283	388,429	17,371	28,780	19,944	15,665	81,760
11	216,173	183,909	400,082	16,753	27,757	22,327	15,665	82,502
12	207,818	204,267	412,085	16,106	26,684	24,798	15,665	83,253
13	199,103	225,344	424,447	15,430	25,565	27,357	-	68,352
14	190,105	247,075	437,180	14,733	24,409	29,995	-	69,137
15	180,661	269,635	450,296	14,001	23,197	32,734	-	69,932
16	171,043	292,762	463,805	13,256	21,962	35,541	-	70,759
17	161,106	316,613	477,719	12,486	20,686	38,437	-	71,609
18	151,180	340,870	492,050	11,716	19,411	41,382	-	72,509
19	141,317	365,495	506,812	10,952	18,145	44,371	-	73,468
20	131,437	390,579	522,016	10,186	16,877	47,416	-	74,479
21	121,490	416,187	537,677	9,415	15,599	50,525	-	75,539
22	111,508	442,299	553,807	8,642	14,318	53,695	-	76,655
23	101,544	468,877	570,421	7,870	13,038	56,922	-	77,830
24	91,766	495,768	587,534	7,112	11,783	60,186	-	79,081
25	82,178	522,982	605,160	6,369	10,552	63,490	-	80,411
26	73,134	550,181	623,315	5,668	9,390	66,792	-	81,850
27	64,443	577,571	642,014	4,994	8,274	70,117	-	83,385
28	56,348	604,927	661,275	4,367	7,235	73,438	-	85,040
29	48,737	632,376	681,113	3,777	6,258	76,770	-	86,805
30	41,685	659,861	701,546	3,231	5,352	80,107	-	88,690
31	35,096	687,497	722,593	2,720	4,506	83,462	-	90,688
32	28,971	715,300	744,271	2,245	3,720	86,837	-	92,802
33	23,500	743,099	766,599	1,821	3,017	90,212	-	95,050
34	18,665	770,932	789,597	1,447	2,397	93,591	-	97,435
35	14,466	798,818	813,284	1,121	1,857	96,977	-	99,955
36	10,887	826,796	837,683	844	1,398	100,373	-	102,615
37	7,966	854,848	862,814	617	1,023	103,778	-	105,418
38	5,646	883,052	888,698	438	725	107,203	-	108,366
39	3,799	911,560	915,359	294	488	110,663	-	111,445
40	2,459	940,361	942,820	191	316	114,160	-	114,667
41	1,530	969,574	971,104	119	196	117,706	-	118,021
42	889	999,348	1,000,237	69	114	121,321	-	121,504
43	493	1,029,751	1,030,244	38	63	125,012	-	125,113
44	261	1,060,891	1,061,152	20	33	128,792	-	128,845
45	121	1,092,865	1,092,986	9	16	132,674	-	132,699
46	37	1,125,739	1,125,776	3	5	136,665	-	136,673
47	8	1,159,541	1,159,549	1	1	140,768	-	140,770
48	2	1,194,334	1,194,336	-	-	144,992	-	144,992
49	-	1,230,166	1,230,166	-	-	149,342	-	149,342
50	-	1,267,071	1,267,071	-	-	153,822	-	153,822

* *Contributions related to future employees in excess of normal cost and expenses of 8.45% of pay.*

** *Supplemental contributions are equal to $15,665,000 until the earlier of 100% funding (on an AVA basis), or June 30, 2048; this contribution is assumed to end after 12 years.*

For purposes of this projection, based on GASB guidance, we assumed the statutory contribution rates would continue after the plan becomes fully funded unless noted otherwise. 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)

	Payroll			Projected Contributions				
Year	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	$ -	$ 1,305,083	$ 1,305,083	$ -	$ -	$ 158,437	$ -	$ 158,437
52	-	1,344,235	1,344,235	-	-	163,190	-	163,190
53	-	1,384,562	1,384,562	-	-	168,086	-	168,086
54	-	1,426,099	1,426,099	-	-	173,128	-	173,128
55	-	1,468,882	1,468,882	-	-	178,322	-	178,322
56	-	1,512,949	1,512,949	-	-	183,672	-	183,672
57	-	1,558,337	1,558,337	-	-	189,182	-	189,182
58	-	1,605,087	1,605,087	-	-	194,858	-	194,858
59	-	1,653,240	1,653,240	-	-	200,703	-	200,703
60	-	1,702,837	1,702,837	-	-	206,724	-	206,724
61	-	1,753,922	1,753,922	-	-	212,926	-	212,926
62	-	1,806,540	1,806,540	-	-	219,314	-	219,314
63	-	1,860,736	1,860,736	-	-	225,893	-	225,893
64	-	1,916,558	1,916,558	-	-	232,670	-	232,670
65	-	1,974,055	1,974,055	-	-	239,650	-	239,650
66	-	2,033,277	2,033,277	-	-	246,840	-	246,840
67	-	2,094,275	2,094,275	-	-	254,245	-	254,245
68	-	2,157,103	2,157,103	-	-	261,872	-	261,872
69	-	2,221,816	2,221,816	-	-	269,728	-	269,728
70	-	2,288,471	2,288,471	-	-	277,820	-	277,820
71	-	2,357,125	2,357,125	-	-	286,155	-	286,155
72	-	2,427,839	2,427,839	-	-	294,740	-	294,740
73	-	2,500,674	2,500,674	-	-	303,582	-	303,582
74	-	2,575,694	2,575,694	-	-	312,689	-	312,689
75	-	2,652,965	2,652,965	-	-	322,070	-	322,070
76	-	2,732,554	2,732,554	-	-	331,732	-	331,732
77	-	2,814,530	2,814,530	-	-	341,684	-	341,684
78	-	2,898,966	2,898,966	-	-	351,934	-	351,934
79	-	2,985,935	2,985,935	-	-	362,493	-	362,493
80	-	3,075,513	3,075,513	-	-	373,367	-	373,367
81	-	3,167,779	3,167,779	-	-	384,568	-	384,568
82	-	3,262,812	3,262,812	-	-	396,105	-	396,105
83	-	3,360,696	3,360,696	-	-	407,989	-	407,989
84	-	3,461,517	3,461,517	-	-	420,228	-	420,228
85	-	3,565,363	3,565,363	-	-	432,835	-	432,835
86	-	3,672,324	3,672,324	-	-	445,820	-	445,820
87	-	3,782,493	3,782,493	-	-	459,195	-	459,195
88	-	3,895,968	3,895,968	-	-	472,971	-	472,971
89	-	4,012,847	4,012,847	-	-	487,160	-	487,160
90	-	4,133,233	4,133,233	-	-	501,774	-	501,774
91	-	4,257,230	4,257,230	-	-	516,828	-	516,828
92	-	4,384,946	4,384,946	-	-	532,332	-	532,332
93	-	4,516,495	4,516,495	-	-	548,302	-	548,302
94	-	4,651,990	4,651,990	-	-	564,752	-	564,752
95	-	4,791,549	4,791,549	-	-	581,694	-	581,694
96	-	4,935,296	4,935,296	-	-	599,145	-	599,145
97	-	5,083,355	5,083,355	-	-	617,119	-	617,119
98	-	5,235,855	5,235,855	-	-	635,633	-	635,633
99	-	5,392,931	5,392,931	-	-	654,702	-	654,702
100	-	5,554,719	5,554,719	-	-	674,343	-	674,343

* *Contributions related to future employees in excess of normal cost and expenses of 8.45% of pay.*

** *Supplemental contributions are equal to $15,665,000 until the earlier of 100% funding (on an AVA basis), or June 30, 2048; this contribution is assumed to end after 12 years.*

For purposes of this projection, based on GASB guidance, we assumed the statutory contribution rates would continue after the plan becomes fully funded unless noted otherwise. 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 7.50%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
1	$ 1,295,064	$ 74,996	$ 121,624	$ 804	$ 95,383	$ 1,343,015
2	1,343,015	75,517	125,342	767	98,863	1,391,286
3	1,391,286	77,193	127,424	741	102,470	1,442,784
4	1,442,784	77,660	129,416	719	106,277	1,496,586
5	1,496,586	78,217	131,256	699	110,265	1,553,113
6	1,553,113	78,848	132,883	680	114,469	1,612,867
7	1,612,867	79,536	134,347	662	118,922	1,676,316
8	1,676,316	80,274	135,775	644	123,656	1,743,827
9	1,743,827	81,022	137,317	626	128,691	1,815,597
10	1,815,597	81,760	139,097	605	134,037	1,891,692
11	1,891,692	82,502	141,013	584	139,701	1,972,298
12	1,972,298	83,253	143,195	561	145,695	2,057,490
13	2,057,490	68,352	145,317	538	151,458	2,131,445
14	2,131,445	69,137	147,364	513	156,959	2,209,664
15	2,209,664	69,932	149,530	488	162,776	2,292,354
16	2,292,354	70,759	151,674	462	168,931	2,379,908
17	2,379,908	71,609	153,961	435	175,445	2,472,566
18	2,472,566	72,509	156,071	408	182,351	2,570,947
19	2,570,947	73,468	157,951	382	189,697	2,675,779
20	2,675,779	74,479	159,859	355	197,527	2,787,571
21	2,787,571	75,539	161,655	328	205,885	2,907,012
22	2,907,012	76,655	163,562	301	214,815	3,034,619
23	3,034,619	77,830	165,576	274	224,356	3,170,955
24	3,170,955	79,081	167,459	248	234,559	3,316,888
25	3,316,888	80,411	169,225	222	245,489	3,473,341
26	3,473,341	81,850	170,809	197	257,218	3,641,403
27	3,641,403	83,385	172,301	174	269,825	3,822,138
28	3,822,138	85,040	173,720	152	283,390	4,016,696
29	4,016,696	86,805	174,814	132	298,007	4,226,562
30	4,226,562	88,690	175,605	113	313,788	4,453,322
31	4,453,322	90,688	176,467	95	330,838	4,698,286
32	4,698,286	92,802	177,161	78	349,263	4,963,112
33	4,963,112	95,050	177,229	63	369,206	5,250,076
34	5,250,076	97,435	176,871	50	390,830	5,561,420
35	5,561,420	99,955	175,917	39	414,309	5,899,728
36	5,899,728	102,615	174,422	29	439,835	6,267,727
37	6,267,727	105,418	172,367	22	467,614	6,668,370
38	6,668,370	108,366	169,767	15	497,867	7,104,821
39	7,104,821	111,445	166,496	10	530,835	7,580,595
40	7,580,595	114,667	162,616	7	566,780	8,099,419
41	8,099,419	118,021	158,290	4	605,974	8,665,120
42	8,665,120	121,504	153,614	2	648,702	9,281,710
43	9,281,710	125,113	148,628	1	695,263	9,953,457
44	9,953,457	128,845	143,395	1	745,974	10,684,880
45	10,684,880	132,699	137,973	-	801,173	11,480,779
46	11,480,779	136,673	132,399	-	861,217	12,346,270
47	12,346,270	140,770	126,682	-	926,490	13,286,848
48	13,286,848	144,992	120,863	-	997,403	14,308,380
49	14,308,380	149,342	114,968	-	1,074,395	15,417,149
50	15,417,149	153,822	109,013	-	1,157,937	16,619,895

For purposes of this projection, based on GASB guidance, we assumed the statutory contribution rates would continue after the plan becomes fully funded unless noted otherwise. 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 7.50%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
51	$ 16,619,895	$ 158,437	$ 103,016	$ -	$ 1,248,534	$ 17,923,850
52	17,923,850	163,190	96,995	-	1,346,727	19,336,772
53	19,336,772	168,086	90,969	-	1,453,098	20,866,987
54	20,866,987	173,128	84,959	-	1,568,272	22,523,428
55	22,523,428	178,322	78,989	-	1,692,916	24,315,677
56	24,315,677	183,672	73,085	-	1,827,749	26,254,013
57	26,254,013	189,182	67,275	-	1,973,541	28,349,461
58	28,349,461	194,858	61,586	-	2,131,118	30,613,851
59	30,613,851	200,703	56,046	-	2,301,366	33,059,874
60	33,059,874	206,724	50,683	-	2,485,237	35,701,152
61	35,701,152	212,926	45,524	-	2,683,751	38,552,305
62	38,552,305	219,314	40,593	-	2,898,005	41,629,031
63	41,629,031	225,893	35,916	-	3,129,174	44,948,182
64	44,948,182	232,670	31,514	-	3,378,522	48,527,860
65	48,527,860	239,650	27,405	-	3,647,406	52,387,511
66	52,387,511	246,840	23,605	-	3,937,284	56,548,030
67	56,548,030	254,245	20,125	-	4,249,724	61,031,874
68	61,031,874	261,872	16,973	-	4,586,409	65,863,182
69	65,863,182	269,728	14,148	-	4,949,151	71,067,913
70	71,067,913	277,820	11,647	-	5,339,896	76,673,982
71	76,673,982	286,155	9,463	-	5,760,738	82,711,412
72	82,711,412	294,740	7,581	-	6,213,931	89,212,502
73	89,212,502	303,582	5,983	-	6,701,897	96,211,998
74	96,211,998	312,689	4,650	-	7,227,243	103,747,280
75	103,747,280	322,070	3,554	-	7,792,775	111,858,571
76	111,858,571	331,732	2,669	-	8,401,511	120,589,145
77	120,589,145	341,684	1,968	-	9,056,696	129,985,557
78	129,985,557	351,934	1,424	-	9,761,824	140,097,891
79	140,097,891	362,493	1,010	-	10,520,653	150,980,027
80	150,980,027	373,367	701	-	11,337,225	162,689,918
81	162,689,918	384,568	477	-	12,215,888	175,289,897
82	175,289,897	396,105	317	-	13,161,317	188,847,002
83	188,847,002	407,989	206	-	14,178,542	203,433,327
84	203,433,327	420,228	131	-	15,272,969	219,126,393
85	219,126,393	432,835	82	-	16,450,415	236,009,561
86	236,009,561	445,820	50	-	17,717,132	254,172,463
87	254,172,463	459,195	30	-	19,079,843	273,711,471
88	273,711,471	472,971	18	-	20,545,777	294,730,201
89	294,730,201	487,160	10	-	22,122,704	317,340,055
90	317,340,055	501,774	6	-	23,818,982	341,660,805
91	341,660,805	516,828	3	-	25,643,592	367,821,222
92	367,821,222	532,332	2	-	27,606,194	395,959,746
93	395,959,746	548,302	1	-	29,717,172	426,225,219
94	426,225,219	564,752	1	-	31,987,688	458,777,658
95	458,777,658	581,694	-	-	34,429,745	493,789,097
96	493,789,097	599,145	-	-	37,056,245	531,444,487
97	531,444,487	617,119	-	-	39,881,061	571,942,667
98	571,942,667	635,633	-	-	42,919,107	615,497,407
99	615,497,407	654,702	-	-	46,186,414	662,338,523
100	662,338,523	674,343	-	-	49,700,221	712,713,087

For purposes of this projection, based on GASB guidance, we assumed the statutory contribution rates would continue after the plan becomes fully funded unless notes otherwise. 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	$ 1,295,064	$ 121,624	$ 121,624	$ -	$ 117,304	$ -	$ 117,304
2	1,343,016	125,342	125,342	-	112,457	-	112,457
3	1,391,287	127,424	127,424	-	106,348	-	106,348
4	1,442,785	129,416	129,416	-	100,475	-	100,475
5	1,496,586	131,256	131,256	-	94,794	-	94,794
6	1,553,113	132,883	132,883	-	89,273	-	89,273
7	1,612,867	134,347	134,347	-	83,960	-	83,960
8	1,676,317	135,775	135,775	-	78,932	-	78,932
9	1,743,829	137,317	137,317	-	74,259	-	74,259
10	1,815,601	139,097	139,097	-	69,974	-	69,974
11	1,891,696	141,013	141,013	-	65,989	-	65,989
12	1,972,302	143,195	143,195	-	62,335	-	62,335
13	2,057,494	145,317	145,317	-	58,845	-	58,845
14	2,131,450	147,364	147,364	-	55,511	-	55,511
15	2,209,670	149,530	149,530	-	52,397	-	52,397
16	2,292,361	151,674	151,674	-	49,440	-	49,440
17	2,379,915	153,961	153,961	-	46,684	-	46,684
18	2,472,573	156,071	156,071	-	44,022	-	44,022
19	2,570,955	157,951	157,951	-	41,444	-	41,444
20	2,675,788	159,859	159,859	-	39,019	-	39,019
21	2,787,580	161,655	161,655	-	36,704	-	36,704
22	2,907,022	163,562	163,562	-	34,546	-	34,546
23	3,034,629	165,576	165,576	-	32,532	-	32,532
24	3,170,964	167,459	167,459	-	30,606	-	30,606
25	3,316,898	169,225	169,225	-	28,771	-	28,771
26	3,473,350	170,809	170,809	-	27,014	-	27,014
27	3,641,412	172,301	172,301	-	25,349	-	25,349
28	3,822,148	173,720	173,720	-	23,775	-	23,775
29	4,016,706	174,814	174,814	-	22,255	-	22,255
30	4,226,573	175,605	175,605	-	20,796	-	20,796
31	4,453,334	176,467	176,467	-	19,440	-	19,440
32	4,698,298	177,161	177,161	-	18,155	-	18,155
33	4,963,125	177,229	177,229	-	16,895	-	16,895
34	5,250,089	176,871	176,871	-	15,685	-	15,685
35	5,561,432	175,917	175,917	-	14,512	-	14,512
36	5,899,740	174,422	174,422	-	13,384	-	13,384
37	6,267,738	172,367	172,367	-	12,304	-	12,304
38	6,668,382	169,767	169,767	-	11,273	-	11,273
39	7,104,832	166,496	166,496	-	10,284	-	10,284
40	7,580,606	162,616	162,616	-	9,344	-	9,344
41	8,099,429	158,290	158,290	-	8,461	-	8,461
42	8,665,131	153,614	153,614	-	7,638	-	7,638
43	9,281,721	148,628	148,628	-	6,874	-	6,874
44	9,953,468	143,395	143,395	-	6,170	-	6,170
45	10,684,893	137,973	137,973	-	5,522	-	5,522
46	11,480,792	132,399	132,399	-	4,929	-	4,929
47	12,346,282	126,682	126,682	-	4,388	-	4,388
48	13,286,859	120,863	120,863	-	3,894	-	3,894
49	14,308,391	114,968	114,968	-	3,446	-	3,446
50	15,417,161	109,013	109,013	-	3,039	-	3,039

For purposes of this projection, based on GASB guidance, we assumed the statutory contribution rates would continue after the plan becomes fully funded unless noted otherwise. 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	$ 16,619,907	$ 103,016	$ 103,016	$ -	$ 2,672	$ -	$ 2,672
52	17,923,862	96,995	96,995	-	2,340	-	2,340
53	19,336,784	90,969	90,969	-	2,041	-	2,041
54	20,866,999	84,959	84,959	-	1,774	-	1,774
55	22,523,441	78,989	78,989	-	1,534	-	1,534
56	24,315,689	73,085	73,085	-	1,320	-	1,320
57	26,254,025	67,275	67,275	-	1,131	-	1,131
58	28,349,473	61,586	61,586	-	963	-	963
59	30,613,862	56,046	56,046	-	815	-	815
60	33,059,886	50,683	50,683	-	686	-	686
61	35,701,164	45,524	45,524	-	573	-	573
62	38,552,318	40,593	40,593	-	475	-	475
63	41,629,044	35,916	35,916	-	391	-	391
64	44,948,194	31,514	31,514	-	319	-	319
65	48,527,872	27,405	27,405	-	258	-	258
66	52,387,524	23,605	23,605	-	207	-	207
67	56,548,043	20,125	20,125	-	164	-	164
68	61,031,887	16,973	16,973	-	129	-	129
69	65,863,196	14,148	14,148	-	100	-	100
70	71,067,927	11,647	11,647	-	76	-	76
71	76,673,996	9,463	9,463	-	58	-	58
72	82,711,426	7,581	7,581	-	43	-	43
73	89,212,516	5,983	5,983	-	32	-	32
74	96,212,011	4,650	4,650	-	23	-	23
75	103,747,294	3,554	3,554	-	16	-	16
76	111,858,586	2,669	2,669	-	11	-	11
77	120,589,159	1,968	1,968	-	8	-	8
78	129,985,571	1,424	1,424	-	5	-	5
79	140,097,905	1,010	1,010	-	3	-	3
80	150,980,042	701	701	-	2	-	2
81	162,689,933	477	477	-	1	-	1
82	175,289,913	317	317	-	1	-	1
83	188,847,018	206	206	-	1	-	1
84	203,433,342	131	131	-	-	-	-
85	219,126,408	82	82	-	-	-	-
86	236,009,577	50	50	-	-	-	-
87	254,172,480	30	30	-	-	-	-
88	273,711,488	18	18	-	-	-	-
89	294,730,218	10	10	-	-	-	-
90	317,340,071	6	6	-	-	-	-
91	341,660,821	3	3	-	-	-	-
92	367,821,238	2	2	-	-	-	-
93	395,959,763	1	1	-	-	-	-
94	426,225,236	1	1	-	-	-	-
95	458,777,675	-	-	-	-	-	-
96	493,789,114	-	-	-	-	-	-
97	531,444,504	-	-	-	-	-	-
98	571,942,684	-	-	-	-	-	-
99	615,497,424	-	-	-	-	-	-
100	662,338,540	-	-	-	-	-	-
				Totals	$ 1,939,622	$ -	$ 1,939,622

For purposes of this projection, based on GASB guidance, we assumed the statutory contribution rates would continue after the plan becomes fully funded unless noted otherwise. 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

Accrued Service	Service credited under the system which was rendered before the date of the actuarial valuation.
Actuarial Accrued Liability (AAL)	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."
Actuarial Assumptions	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.
Actuarial Cost Method	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.
Actuarial Equivalent	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.
Actuarial Gain (Loss)	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.
Actuarial Present Value (APV)	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.
Actuarial Valuation	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.
Actuarial Valuation Date	The date as of which an actuarial valuation is performed.
Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)	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

Amortization Payment	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
Amortization Method	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).
Cost-of-Living Adjustments	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)	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.
Covered-Employee Payroll	The payroll of employees that are provided with pensions through the pension plan.
Deferred Retirement Option Program (DROP)	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.
Deferred Inflows and Outflows	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.
Discount Rate	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: 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 2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.

Glossary of Terms

Entry Age Actuarial Cost Method (EAN)	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 age(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.
Fiduciary Net Position	The fiduciary net position is the market value of the assets of the trust dedicated to the defined benefit provisions.
GASB	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
Long-Term Expected Rate of Return	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.
Money-Weighted Rate of Return	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.
Multiple-Employer Defined Benefit Pension Plan	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
Municipal Bond Rate	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.
Net Pension Liability (NPL)	The NPL is the liability of employers and non-employer contributing entities to plan members for benefits provided through a defined benefit pension plan.
Non-Employer Contributing Entities	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.
Normal Cost	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

Other Postemployment Benefits (OPEB)	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 postemployment benefits do not include termination benefits.
Real Rate of Return	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
Service Cost	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.
Total Pension Expense	The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year: 1. Service Cost 2. Interest on the Total Pension Liability 3. Current-Period Benefit Changes 4. Employee Contributions (made negative for addition here) 5. Projected Earnings on Plan Investments (made negative for addition here) 6. Pension Plan Administrative Expense 7. Other Changes in Plan Fiduciary Net Position 8. Recognition of Outflow (Inflow) of Resources due to Liabilities 9. Recognition of Outflow (Inflow) of Resources due to Assets
Total Pension Liability (TPL)	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
Unfunded Actuarial Accrued Liability (UAAL)	The UAAL is the difference between actuarial accrued liability and valuation assets.
Valuation Assets	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.