Public Employees Retirement Association of Minnesota

General Employees Retirement Plan

GASB Statements No. 67 and No. 68 Accounting and Financial Reporting for Pensions

June 30, 2022

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November 8, 2022

Public Employees Retirement Association of Minnesota
General Employees Retirement Plan
St. Paul, Minnesota

Dear Trustees of the General Employees Retirement Plan:

This report provides accounting and financial reporting information that is intended to comply with the Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68 for the General Employees Retirement Plan, as amended by Statement No. 82. These calculations have been made on a basis that is consistent with our understanding of these accounting standards.

GASB Statement No. 67 is the accounting standard that applies to the 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 the accounting standards.

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 Statements No. 67 and No. 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 obligations. 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 may not be applicable for purposes of funding the plan. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Statements No. 67 and No. 68 may produce significantly different results. The information in this report is calculated on a total plan basis. PERA 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 Public Employees Retirement Association (PERA) only in its entirety and only with the permission of PERA. GRS is not responsible for unauthorized use of this report.

This report is based upon information, furnished to us by PERA, 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 Plan and should be considered in conjunction with that report. Please see the actuarial valuation report as of June 30, 2022 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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To the best of our knowledge, the information contained within this report is accurate and fairly represents the actuarial position of the General Employees Retirement Plan as of the measurement date. 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.

This report reflects the impact of COVID-19 through June 30, 2022. It does not reflect the ongoing impact of COVID-19, which is likely to influence demographic and investment experience, at least in the short term. We will continue to monitor these developments and their impact on the plan.

This report 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.

The signing actuaries are independent of the plan sponsor.

Brian B. Murphy, Bonita J. Wurst 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

Brian B Murphy

Brian B. Murphy, FSA, EA, FCA, MAAA, PhD

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Sheryl Christensen

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

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SECTION A

EXECUTIVE SUMMARY

Executive Summary
as of June 30, 2022 (Dollars in Thousands)

	2022
Actuarial Valuation Date	June 30, 2022
Measurement Date of the Net Pension Liability	June 30, 2022
Employer's Fiscal Year Ending Date (Reporting Date)	Varies by Employer
Membership	
Number of	
- Service Retirements	103,121
- Survivors	9,370
- Disability Retirements	3,489
- Deferred Retirements	68,636
- Terminated Other Non-vested	84,675
- Active Members	149,987
- Total	419,278
Covered Payroll	$ 7,042,154
Net Pension Liability	
Total Pension Liability	$ 33,954,218
Plan Fiduciary Net Position	$ 26,034,185
Net Pension Liability	$ 7,920,033
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	76.67%
Net Pension Liability as a Percentage of Covered Payroll	112.47%
Development of the Single Discount Rate	
Single Discount Rate	6.50%
Long-Term Expected Rate of Investment Return	6.50%
Long-Term Municipal Bond Rate*	3.69%
Last year ending June 30 in the 2023 to 2122 projection period for which projected benefit payments are fully-funded	2122
Total Pension Expense/(Income)	$ 1,042,859

Deferred Outflows and Inflows by Source Arising from Current and Prior Periods to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	$ 66,154	$ 84,605
Changes in assumptions	$ 1,792,447	$ 32,213
Net difference between projected and actual earnings on pension plan investments	$ 3,163,610	$ 3,026,232
Total	$ 5,022,211	$ 3,143,050

* 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.*

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. Governmental Accounting Standards Board (GASB) Statement No. 82, Pension Issues, is an amendment to Statements No. 67, No. 68, and No. 73, intended to improve consistency in the application of the accounting standards.

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." The information contained in this report does not incorporate any contributions made to the General Employees Retirement Plan subsequent to the measurement date of June 30, 2022.

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.

Both GASB Statement No. 67 and No. 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
- Comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy.

Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. 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, 2022 and a measurement date of June 30, 2022.

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), then the following outcomes are expected:

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 26 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.

Limitations of Funded Status Measurements

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

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

Limitation of Project Scope

Actuarial standards do not require the actuary to evaluate the ability of the plan sponsor or other contributing entity to make required contributions to the plan when due. Such an evaluation was not within the scope of this project and is not within the actuary's domain of expertise. Consequently, the actuary performed no such evaluation.

Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a single discount rate that reflects: (1) a long-term expected rate of return on pension plan investments (to the extent that the plan's 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 6.50%; the municipal bond rate is 3.69% (based on the weekly rate closest to but not later than the measurement date of the Fidelity "20-Year Municipal GO AA Index"); and the resulting single discount rate is 6.50%. PERA staff selected the long-term expected rate of investment return of 6.50% based on input from GRS that the proposed selection would be reasonable for the purpose of the measurement.

SECTION B

FINANCIAL STATEMENTS

Statement of Pension Expense under GASB Statement No. 68
Fiscal Year Ended June 30, 2022 (Dollars in Thousands)

A. Expense		
1. Service Cost	$	648,767
2. Interest on the Total Pension Liability	$	2,098,002
3. Current-Period Benefit Changes	$	-
4. Employee Contributions (made negative for addition here)	$	(457,740)
5. Projected Earnings on Plan Investments (made negative for addition here)	$	(1,832,058)
6. Pension Plan Administrative Expense	$	13,398
7. Other Changes in Plan Fiduciary Net Position	$	(142)
8. Recognition of Outflow (Inflow) of Resources due to differences between expected and actual experience in the measurement of the Total Pension Liability		
Arising from Current Reporting Period	$	22,052
9. Recognition of Outflow (Inflow) of Resources due to assumption changes		
Arising from Current Reporting Period	$	18,050
10. Recognition of Outflow (Inflow) of Resources due to the difference between projected (6.50%) and actual earnings on Pension Plan Investments		
Arising from Current Reporting Period	$	716,249
11. **Increase/(Decrease) from Experience in Current Reporting Period**	**$**	**1,226,578**
12. Recognition of Outflow (Inflow) of Resources due to differences between expected and actual experience in the measurement of the Total Pension Liability		
Arising from Prior Reporting Periods	$	(19,847)
13. Recognition of Outflow (Inflow) of Resources due to assumption changes		
Arising from Prior Reporting Periods	$	806,897
14. Recognition of Outflow (Inflow) of Resources due to the difference between projected and actual earnings on Pension Plan Investments		
Arising from Prior Reporting Periods	$	(970,769)
15. Total Pension Expense / (Income)	**$**	**1,042,859**

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 1,562,654 years. Additionally, the total plan membership (active employees and inactive employees) was 408,613. 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 4.0000 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 five-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, 2022 (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	$	88,206
2. Assumption Changes (gains) or losses	$	72,199
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}		4.0000
4. Outflow (Inflow) of Resources to be recognized in the current pension expense for the difference between expected and actual experience of the Total Pension Liability	$	22,052
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes	$	18,050
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	$	40,102
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	$	66,154
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	$	54,149
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	$	120,303
B. Outflows (Inflows) of Resources due to Assets		
1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	$	3,581,244
2. Recognition period for Assets {in years}		5.0000
3. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Assets	$	716,249
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	$	2,864,995

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30, 2022 (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 of Resources
1. Due to Liabilities	$ 935,487	$ 108,335	$ 827,152
2. Due to Assets	$ 870,011	$ 1,124,531	$ (254,520)
3. Total	$ 1,805,498	$ 1,232,866	$ 572,632

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	$ 48,288	$ 46,083	$ 2,205
2. Assumption Changes	$ 887,199	$ 62,252	$ 824,947
3. Net Difference between projected and actual earnings on pension plan investments	$ 870,011	$ 1,124,531	$ (254,520)
4. Total	$ 1,805,498	$ 1,232,866	$ 572,632

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 of Resources
1. Differences between expected and actual experience	$ 66,154	$ 84,605	$ (18,451)
2. Assumption Changes	$ 1,792,447	$ 32,213	$ 1,760,234
3. Net Difference between projected and actual earnings on pension plan investments	$ 3,163,610	$ 3,026,232	$ 137,378
4. Total	$ 5,022,211	$ 3,143,050	$ 1,879,161

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

Year Ending June 30	Net Deferred Outflows of Resources
2023	$ 692,221
2024	$ 723,087
2025	$ (252,395)
2026	$ 716,248
2027	$ -
Thereafter	$ -
Total	$ 1,879,161

Recognition of Deferred Outflows and Inflows of Resources
Fiscal Year Ended June 30, 2022 (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					
2019	$ 104,946	4.0000	$ 26,236	$ 0	0.0000
2020	$ (30,245)	4.0000	$ (7,561)	$ (7,562)	1.0000
2021	$ (154,087)	4.0000	$ (38,522)	$ (77,043)	2.0000
2022	$ 88,206	4.0000	$ 22,052	$ 66,154	3.0000
Total			**$ 2,205**	**$ (18,451)**	
Deferred Outflow (Inflow) Due to Assumption Changes					
2019	$ (120,162)	4.0000	$ (30,040)	$ 0	0.0000
2020	$ (128,849)	4.0000	$ (32,212)	$ (32,213)	1.0000
2021	$ 3,476,596	4.0000	$ 869,149	$ 1,738,298	2.0000
2022	$ 72,199	4.0000	$ 18,050	$ 54,149	3.0000
Total			**$ 824,947**	**$ 1,760,234**	
Deferred Outflow (Inflow) Due to Differences Between Projected and Actual Earnings on Plan Investments					
2018	$ (578,939)	5.0000	$ (115,787)	$ 0	0.0000
2019	$ 44,547	5.0000	$ 8,910	$ 8,910	1.0000
2020	$ 724,261	5.0000	$ 144,852	$ 289,705	2.0000
2021	$ (5,043,720)	5.0000	$ (1,008,744)	$ (3,026,232)	3.0000
2022	$ 3,581,244	5.0000	$ 716,249	$ 2,864,995	4.0000
Total			**$ (254,520)**	**$ 137,378**	
Deferred Outflow (Inflow) Due to All Sources					
Total			**$ 572,632**	**$ 1,879,161**	

Statement of Fiduciary Net Position
(Dollars in Thousands)

	Market Value			
Assets in Trust	**June 30, 2022**		**June 30, 2021**	
Cash, equivalents, short term securities	$	478,533	$	440,891
Fixed income	$	5,965,549	$	6,483,990
Equity	$	13,017,805	$	16,668,905
Private Markets	$	6,547,264	$	4,959,308
Other	$	5,508	$	5,968
Total Assets in Trust	**$**	**26,014,659**	**$**	**28,559,062**
Assets Receivable*	$	30,670	$	40,407
Amounts Payable	$	11,144	$	11,816
Net Position Restricted for Pensions	**$**	**26,034,185**	**$**	**28,587,653**

** Includes Employer Supplemental Contribution receivable to be paid by the City of Minneapolis.*

Statement of Changes in Fiduciary Net Position
(Dollars in Thousands)

Change in Assets		Market Value	
Year Ending		**June 30, 2022**	**June 30, 2021**
1.	Fund balance at market value at beginning of year	$ 28,587,653	$ 22,631,459
2.	Contributions		
	a. Member	$ 457,740	$ 439,488
	b. Employer*	$ 546,291	$ 524,685
	c. Other sources	$ 16,000	$ 16,000
	d. Total contributions	$ 1,020,031	$ 980,173
3.	Investment income		
	a. Investment income/(loss)	$ (1,719,032)	$ 6,739,822
	b. Investment expenses	$ (30,154)	$ (27,112)
	c. Net subtotal	$ (1,749,186)	$ 6,712,710
4.	Other	$ 142	$ 182
5.	**Total additions:** *(2.d.) + (3.c.) + (4.)*	**$ (729,013)**	**$ 7,693,065**
6.	Benefits Paid		
	a. Annuity benefits	$ (1,737,905)	$ (1,666,103)
	b. Refunds	$ (73,152)	$ (58,027)
	c. Total benefits paid	$ (1,811,057)	$ (1,724,130)
7.	Expenses		
	a. Other	$ -	$ -
	b. Administrative	$ (13,398)	$ (12,741)
	c. Total expenses	$ (13,398)	$ (12,741)
8.	**Total deductions:** *(6.c.) + (7.c.)*	**$ (1,824,455)**	**$ (1,736,871)**
9.	Net increase (decrease) in net position: *(5) + (8)*	$ (2,553,468)	$ 5,956,194
10.	**Net position restricted for pensions**	**$ 26,034,185**	**$ 28,587,653**
11.	State Board of Investment calculated investment return#	-6.4%	30.3%

** Includes Employer Supplemental Contribution receivable to be paid by the City of Minneapolis.*
 # Provided by PERA and calculated by the State Board of Investments.

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Changes in Net Pension Liability and Related Ratios
Current Period
Fiscal Year Ended June 30, 2022 (Dollars in Thousands)

A. Total pension liability		
1. Service cost	$	648,767
2. Interest on the total pension liability	$	2,098,002
3. Changes of benefit terms	$	-
4. Difference between expected and actual experience of the total pension liability	$	88,206
5. Changes of assumptions	$	72,199
6. Benefit payments, including refunds of employee contributions	$	(1,811,057)
7. Net change in total pension liability	$	1,096,117
8. Total pension liability – beginning July 1, 2021	$	32,858,101
9. Total pension liability – ending June 30, 2022	**$**	**33,954,218**
B. Plan fiduciary net position		
1. Contributions – employer	$	562,291
2. Contributions – employee	$	457,740
3. Net investment income	$	(1,749,186)
4. Benefit payments, including refunds of employee contributions	$	(1,811,057)
5. Pension Plan administrative expense	$	(13,398)
6. Other	$	142
7. Net change in plan fiduciary net position	$	(2,553,468)
8. Plan fiduciary net position – beginning July 1, 2021	$	28,587,653
9. Plan fiduciary net position – ending June 30, 2022	**$**	**26,034,185**
C. Net pension liability	**$**	**7,920,033**
D. Plan fiduciary net position as a percentage of the total pension liability		**76.67%**
E. Covered-employee payroll^	**$**	**7,042,154**
F. Net pension liability as a percentage of covered-employee payroll		**112.47%**

^ *Assumed equal to actual member contributions divided by employee contribution rate.*

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,	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Total Pension Liability										
Service Cost	$ 648,767	$ 530,547	$ 518,112	$ 494,737	$ 513,422	$ 471,706	$ 434,551	$ 421,602	$ 388,391	
Interest on the Total Pension Liability	$ 2,098,002	$ 2,102,259	$ 2,053,793	$ 1,991,061	$ 1,948,853	$ 1,921,869	$ 1,839,388	$ 1,712,534	$ 1,591,756	
Benefit Changes	$ -	$ -	$ (65,850)	$ -	$ (79,217)	$ -	$ -	$ 1,147,198	$ -	
Difference Between Expected and Actual Experience	$ 88,206	$ (154,087)	$ (30,245)	$ 104,946	$ 8,763	$ 280,527	$ (647,197)	$ (348,383)	$ 96,123	
Assumption Changes	$ 72,199	$ 3,476,596	$ (128,849)	$ (120,162)	$ (262,228)	$ (853,320)	$ 2,119,742	$ -	$ 645,499	
Benefit Payments	$ (1,737,905)	$ (1,666,103)	$ (1,604,842)	$ (1,536,071)	$ (1,470,450)	$ (1,413,448)	$ (1,359,176)	$ (1,235,303)	$ (1,109,866)	
Refunds	$ (73,152)	$ (58,027)	$ (84,947)	$ (65,834)	$ (42,589)	$ (37,234)	$ (37,209)	$ (35,655)	$ (38,264)	
Net Change in Total Pension Liability	$ 1,096,117	$ 4,231,185	$ 657,172	$ 868,677	$ 616,554	$ 370,100	$ 2,350,099	$ 1,661,993	$ 1,573,639	
Total Pension Liability - Beginning	$ 32,858,101	$ 28,626,916	$ 27,969,744	$ 27,101,067	$ 26,484,513	$ 26,114,413	$ 23,764,314	$ 22,102,321	$ 20,528,682	
Total Pension Liability - Ending (a)	$ 33,954,218	$ 32,858,101	$ 28,626,916	$ 27,969,744	$ 27,101,067	$ 26,484,513	$ 26,114,413	$ 23,764,314	$ 22,102,321	
Plan Fiduciary Net Position										
Employer Contributions	$ 562,291	$ 540,685	$ 525,821	$ 531,444	$ 504,819	$ 483,888	$ 465,978	$ 435,115	$ 382,251	
Employee Contributions	$ 457,740	$ 439,488	$ 435,419	$ 424,044	$ 409,423	$ 400,204	$ 375,291	$ 353,765	$ 334,495	
Pension Plan Net Investment Income	$ (1,749,186)	$ 6,712,710	$ 931,041	$ 1,547,224	$ 2,063,582	$ 2,682,901	$ (20,851)	$ 777,504	$ 2,760,854	
Benefit Payments	$ (1,737,905)	$ (1,666,103)	$ (1,604,842)	$ (1,536,071)	$ (1,470,450)	$ (1,413,448)	$ (1,359,176)	$ (1,235,303)	$ (1,109,866)	
Refunds	$ (73,152)	$ (58,027)	$ (84,947)	$ (65,834)	$ (42,589)	$ (37,234)	$ (37,209)	$ (35,655)	$ (38,264)	
Pension Plan Administrative Expense	$ (13,398)	$ (12,741)	$ (12,268)	$ (13,470)	$ (11,943)	$ (11,292)	$ (11,350)	$ (10,367)	$ (9,861)	
Other*	$ 142	$ 182	$ 267	$ 154	$ 56	$ 651	$ 431	$ 891,914	$ 605	
Net Change in Plan Fiduciary Net Position	$ (2,553,468)	$ 5,956,194	$ 190,491	$ 887,491	$ 1,452,898	$ 2,105,670	$ (586,886)	$ 1,176,973	$ 2,320,214	
Plan Fiduciary Net Position - Beginning	$ 28,587,653	$ 22,631,459	$ 22,440,968	$ 21,553,477	$ 20,100,579	$ 17,994,909	$ 18,581,795	$ 17,404,822	$ 15,084,608	
Plan Fiduciary Net Position - Ending (b)	$ 26,034,185	$ 28,587,653	$ 22,631,459	$ 22,440,968	$ 21,553,477	$ 20,100,579	$ 17,994,909	$ 18,581,795	$ 17,404,822	
Net Pension Liability - Ending (a) - (b)	$ 7,920,033	$ 4,270,448	$ 5,995,457	$ 5,528,776	$ 5,547,590	$ 6,383,934	$ 8,119,504	$ 5,182,519	$ 4,697,499	
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	76.67 %	87.00 %	79.06 %	80.23 %	79.53 %	75.90 %	68.91 %	78.19 %	78.75 %	
Covered-employee payroll	$ 7,042,154	$ 6,761,354	$ 6,698,754	$ 6,523,754	$ 6,298,815	$ 6,156,985	$ 5,773,708	$ 5,549,255	$ 5,351,920	
Net Pension Liability as a Percentage of covered-employee payroll	112.47 %	63.16 %	89.50 %	84.75 %	88.07 %	103.69 %	140.63 %	93.39 %	87.77 %	

Notes to Schedule:

N/A

** For fiscal year ending June 30, 2017, includes $411 of other income and $240 due to PERA's restatement of the June 30, 2016 end of year plan fiduciary net position.*

Schedules of Required Supplementary Information
Schedule of the Net Pension Liability Multiyear
(Dollars in Thousands)

Last 10 Fiscal Years (which may be built prospectively)

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
2013						
2014	$ 22,102,321	$ 17,404,822	$ 4,697,499	78.75%	$ 5,351,920	87.77%
2015	$ 23,764,314	$ 18,581,795	$ 5,182,519	78.19%	$ 5,549,255	93.39%
2016	$ 26,114,413	$ 17,994,909	$ 8,119,504	68.91%	$ 5,773,708	140.63%
2017	$ 26,484,513	$ 20,100,579	$ 6,383,934	75.90%	$ 6,156,985	103.69%
2018	$ 27,101,067	$ 21,553,477	$ 5,547,590	79.53%	$ 6,298,815	88.07%
2019	$ 27,969,744	$ 22,440,968	$ 5,528,776	80.23%	$ 6,523,754	84.75%
2020	$ 28,626,916	$ 22,631,459	$ 5,995,457	79.06%	$ 6,698,754	89.50%
2021	$ 32,858,101	$ 28,587,653	$ 4,270,448	87.00%	$ 6,761,354	63.16%
2022	$ 33,954,218	$ 26,034,185	$ 7,920,033	76.67%	$ 7,042,154	112.47%

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
2013	$ 430,773	$ 372,652	$ 58,121	$ 5,246,928	7.10%
2014	$ 476,321	$ 382,251	$ 94,070	$ 5,351,920	7.14
2015	$ 523,017	$ 435,115	$ 87,902	$ 5,549,255	7.84
2016	$ 542,151	$ 465,978	$ 76,173	$ 5,773,708	8.07
2017	$ 615,083	$ 483,888	$ 131,195	$ 6,156,985	7.86
2018	$ 609,725	$ 504,819	$ 104,906	$ 6,298,815	8.01
2019	$ 453,401	$ 531,444	$ (78,043)	$ 6,523,754	8.15
2020	$ 455,515	$ 525,821	$ (70,306)	$ 6,698,754	7.85
2021	$ 448,278	$ 540,685	$ (92,407)	$ 6,761,354	8.00
2022	$ 368,305	$ 562,291	$ (193,986)	$ 7,042,154	7.98

Notes to Schedule of Contributions

Methods and Assumptions Used to Determine Contribution Rates for the Fiscal Year Ending June 30, 2022:

Valuation Date:	June 30, 2021
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.
Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Remaining Amortization Period	27 years
Asset Valuation Method	5-year smoothed market; no corridor
Inflation	2.25%
Payroll Growth	3.00%
Salary Increases	3.00% to 10.25% including inflation
Investment Rate of Return	7.50%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2020 valuation pursuant to an experience study of the period 2014 - 2019.
Mortality	Pub-2010 General annuitant generational mortality tables, projected with scale MP-2020 from a base year of 2010. Male rates are multiplied by a factor of 1.02 and female rates are multiplied by a factor of 0.90.
Other Information:	
Notes	The plan is assumed to pay a 1.25% post retirement benefit increase for all future years. See separate funding report as of June 30, 2021 for additional detail.

Schedule of Investment Returns Multiyear

Last 10 Fiscal Years

FY Ending June 30,	Annual Return[1]
2013	
2014	18.7 %
2015	4.4
2016	(0.1)
2017	15.2
2018	10.5
2019	7.3
2020	4.3
2021	30.3
2022	(6.4)

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

The Minnesota State Board of Investment (SBI) compiled this data and the related investment notes and provided it to PERA for GASB-compliance purposes. PERA furnished this information to us for inclusion within this report. We did not audit this information. We are not responsible for its accuracy or completeness.

Rate of Return

For the fiscal year ended June 30, 2022, the annual money-weighted rate of return for the General Employees Retirement Plan was -6.4%. The money-weighted rate of return is a method of calculating period-by-period returns on pension plan investments that adjusts for the changing amounts actually invested. For purposes of this schedule, the money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.

Ten-Year Schedule of Money-Weighted Investment Return

Ten-year data is not available. Additional years will be provided when they become available.
To request additional information about the computation of the annual money-weighted rate of return and the investments for the Public Employees Retirement Association of Minnesota (including the investments for PERA' defined benefit retirement funds), contact SBI at 60 Empire Drive, Suite 355, St. Paul, Minnesota, 55103, via email at minn.sbi@state.mn.us or telephone at 651.296.3328.

SECTION D

ADDITIONAL FINANCIAL STATEMENT DISCLOSURES

Asset Allocation

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. Estimates for expected future real rates of return (expected returns, net of inflation) were developed for each asset class using both long-term historical returns and long-term capital market expectation from a number of investment management and consulting organizations. The asset class estimates and the target allocations were then combined to produce a geometric, long-term expected rate of return for the portfolio. Inflation expectations were applied to derive the nominal rate of return for the portfolio. For each major asset class that is included in the pension fund's target asset allocation as of June 30, 2022, these estimates are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return (geometric)
Domestic Equity	33.5%	5.10%
International Equity	16.5%	5.30%
Private Markets	25.0%	5.90%
Fixed Income	25.0%	0.75%
Unallocated Cash	0.0%	0.00%
Total	100%	

The Minnesota State Board of Investment (SBI) compiled this data and the related investment notes and provided it to PERA for GASB compliance purposes. PERA furnished this information to us for inclusion within this report. We did not audit this information. We are not responsible for its accuracy or completeness.

For purposes of this valuation, the long-term expected rate of return assumption is 6.50%. This assumption is based on a review of inflation and investment return assumptions in our report dated July 12, 2022.

Single Discount Rate

A single discount rate of 6.50% 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 6.50%. The projection of cash flows used to determine this single discount rate assumed that plan member, employer, and state contributions will be made at the current statutory contribution rates. Based on these assumptions, the pension plan's fiduciary net position and future contributions were sufficient to finance 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 6.50%, as well as what the plan's net pension liability would be if it were calculated using a single discount rate that is 1-percentage-point lower or 1-percentage-point higher:

Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

(Dollars in Thousands)

	1% Decrease 5.50%	Current Single Discount Rate Assumption 6.50%	1% Increase 7.50%
Total Pension Liability	$ 38,544,292	$ 33,954,218	$ 30,189,649
Net Position Restricted for Pensions	$ 26,034,185	$ 26,034,185	$ 26,034,185
Net Pension Liability	**$ 12,510,107**	**$ 7,920,033**	**$ 4,155,464**

Note that we believe the 7.5% interest rate assumption does not comply with Actuarial Standards of Practice.

GASB Statement No. 68 Reconciliation (Dollars in Thousands)
Current Reporting Period

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)	Current Period: Deferred Outflows	Current Period: Deferred Inflows	Current Period: Pension Expense*
Balance Beginning of Year	**$ 32,858,101**	**$ 28,587,653**	**$ 4,270,448**			
Changes for the Year:						
Service Cost	$ 648,767		$ 648,767			$ 648,767
Interest on Total Pension Liability	$ 2,098,002		$ 2,098,002			$ 2,098,002
Interest on Fiduciary Net Position		$ 1,832,058	$ (1,832,058)			$ (1,832,058)
Changes in Benefit Terms	$ -		$ -			$ -
Liability Experience Gains and Losses	$ 88,206		$ 88,206	$ 66,154	$ -	$ 22,052
Changes in Assumptions	$ 72,199		$ 72,199	$ 54,149	$ -	$ 18,050
Contributions - Employer		$ 562,291	$ (562,291)			$ -
Contributions - Employees		$ 457,740	$ (457,740)			$ (457,740)
Asset Gain/(Loss)		$ (3,581,244)	$ 3,581,244	$ 2,864,995	$ -	$ 716,249
Benefit Payouts	$ (1,811,057)	$ (1,811,057)	$ -			$ -
Administrative Expenses		$ (13,398)	$ 13,398			$ 13,398
Other		$ 142	$ (142)			$ (142)
Net Changes	**$ 1,096,117**	**$ (2,553,468)**	**$ 3,649,585**	**$ 2,985,298**	**$ 0**	**$ 1,226,578**
Balance End of Year	**$ 33,954,218**	**$ 26,034,185**	**$ 7,920,033**			

** Pension Expense from Experience in the Current Reporting Period.*

GASB Statement No. 68 Reconciliation (Dollars in Thousands)
Current and Prior Reporting Periods

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)	Deferred Outflows	Deferred Inflows	Net Deferred Outflows Prior Year	Total Pension Expense*
Balance Beginning of Year	**$ 32,858,101**	**$ 28,587,653**	**$ 4,270,448**				
Changes for the Year:							
Service Cost	$ 648,767		$ 648,767				$ 648,767
Interest on Total Pension Liability	$ 2,098,002		$ 2,098,002				$ 2,098,002
Interest on Fiduciary Net Position		$ 1,832,058	$ (1,832,058)				$ (1,832,058)
Changes in Benefit Terms	$ -		$ -				$ -
Liability Experience Gains and Losses	$ 88,206		$ 88,206	$ 66,154	$ 84,605	$ (104,452)	$ 2,205
Changes in Assumptions	$ 72,199		$ 72,199	$ 1,792,447	$ 32,213	$ 2,512,982	$ 824,947
Contributions - Employer		$ 562,291	$ (562,291)				$ -
Contributions - Employees		$ 457,740	$ (457,740)				$ (457,740)
Asset Gain/(Loss)		$ (3,581,244)	$ 3,581,244	$ 3,163,610	$ 3,026,232	$ (3,698,386)	$ (254,520)
Benefit Payouts	$ (1,811,057)	$ (1,811,057)	$ -				$ -
Administrative Expenses		$ (13,398)	$ 13,398				$ 13,398
Other		$ 142	$ (142)				$ (142)
Net Changes	**$ 1,096,117**	**$ (2,553,468)**	**$ 3,649,585**				**$ 1,042,859**
Balance End of Year	**$ 33,954,218**	**$ 26,034,185**	**$ 7,920,033**	**$ 5,022,211**	**$ 3,143,050**	**$ (1,289,856)**	

** Pension Expense from Experience in the Current and Prior Reporting Periods.*

Summary of Population Statistics

		Terminated		Recipients			
	Actives	Deferred Retirement	Other Non-Vested	Service Retirement	Disability Retirement	Survivor	Total
GERP Members on 7/1/2021	**149,281**	**66,048**	**81,052**	**99,441**	**3,577**	**9,214**	**408,613**
New members	21,451	0	0	0	0	0	**21,451**
Return to active	3,128	(1,135)	(1,993)	0	0	0	**0**
Terminated non-vested	(9,253)	0	9,253	0	0	0	**0**
Service retirements	(3,293)	(3,271)	0	6,564	0	0	**0**
Terminated deferred	(7,187)	7,187	0	0	0	0	**0**
Terminated refund/transfer	(3,853)	(1,032)	(5,403)	0	0	0	**(10,288)**
Deaths	(226)	(188)	(219)	(2,944)	(188)	(621)	**(4,386)**
New beneficiary	0	0	0	0	0	796	**796**
Disabled	(61)	0	0	0	61	0	**0**
Data adjustments	0	1,027	1,985	60	39	(19)	**3,092**
Net change	706	2,588	3,623	3,680	(88)	156	**10,665**
GERP Members on 6/30/2022	**149,987**	**68,636**	**84,675**	**103,121**	**3,489**	**9,370**	**419,278**

SECTION E

SUMMARY OF BENEFITS

Summary of Plan Provisions - Basic

Following is a summary of the major plan provisions used in the valuation of this report. PERA is solely responsible for the validity, accuracy and comprehensiveness of this information. If any of the plan provisions shown below are not accurate and complete, the valuation results may differ significantly from those shown in this report and may require a revision of this report. Many of the plan provisions described below are no longer relevant due to the age and/or service of remaining Basic active members.

Plan year	July 1 through June 30
Eligibility	A public employee who is not covered under the Social Security Act. General exceptions are employees covered by other public funds, certain part-time employees and full-time students under age 23.
Contributions	Shown as a percent of salary: <u>Member</u> 9.10% of salary <u>Employer</u> 11.78% of salary Member contributions are "picked up" according to the provisions of Internal Revenue Code 414(h).
Allowable service	Service during which member contributions were made. May also include certain leaves of absence and military service.
Salary	Includes amounts deducted for deferred compensation or supplemental retirement plans, net income from fees and sick leave payments funded by the employer. Excludes unused annual leaves and sick leave payments, severance payments, Workers' Compensation benefits and employer-paid flexible spending accounts and employer-paid deferred compensation deposits, cafeteria plans, healthcare expense accounts, day-care expenses, fringe benefits and the cost of insurance coverage.
Average salary	Average of the five highest successive years of annual salary. Average salary is based on all Allowable Service if less than five years.
Vesting	Hired before July 1, 2010: 100% vested after 3 years of Allowable Service. Hired after June 30, 2010: 100% vested after 5 years of Allowable Service. (Not applicable since all Basic members were hired before 1968.)
Retirement	
<u>Normal retirement benefit</u>	
Age/service requirement	Age 65 and vested. Proportionate retirement annuity is available at age 65 and one year of Allowable Service.
Amount	2.70% of Average Salary for each year of Allowable Service.
<u>Early retirement benefit</u>	
Age/service requirement	(a.) Age 55 and vested. (b.) Any age with 30 years of Allowable Service. (c.) Rule of 90: Age plus Allowable Service totals 90.

Retirement (Continued)

Early retirement benefit (Continued)

Amount	The greater of (a) and (b): (a.) 2.20% of Average Salary for each of the first ten years of Allowable Service and 2.70% of Average Salary for each subsequent year with reduction of 0.25% for each month if the Member is under age 65 at time of retirement and has less than 30 years of Allowable Service or if the Member is under age 62 and has 30 or more years of Allowable Service. No reduction if age plus years of Allowable Service totals 90. (b.) 2.70% of Average Salary for each year of Allowable Service assuming augmentation to age 65 at 3.00% per year and actuarial reduction for each month the Member is under age 65. Augmentation adjustment is phased out over a five-year period starting July 1, 2019, resulting in no augmentation adjustment after June 30, 2024.
Form of payment	Life annuity with return on death of any balance of contributions over aggregate monthly payments. Actuarially equivalent options are: 25%, 50%, 75% or 100% Joint and Survivor. If a Joint and Survivor benefit is elected and the beneficiary predeceases the annuitant, the annuitant's benefit increases to the Life Annuity amount. This "bounce back" is subsidized by the plan.
Benefit increases	Benefit recipients will receive increases each year in January based upon 50% of the current Social Security increase, not less than 1.0% and not more than 1.5%, beginning January 1, 2019. For retirements on or after January 1, 2024, the first benefit increase is delayed until the retiree reaches Normal Retirement Age (not applicable to Rule of 90 retirees, disability benefit recipients, or survivors). A benefit recipient who has been receiving a benefit for at least 12 full months as of June 30 will receive a full increase. Members receiving benefits for at least one month but less than 12 full months as of June 30 will receive a pro rata increase. Members retired under laws in effect before July 1, 1973 receive an additional lump sum payment each year. In 1989, this lump sum payment is the greater of $25 times each full year of Allowable Service or the difference between $400 times each full year of Allowable Service and the sum of benefits paid from any Minnesota public pension plan plus cash payments from the Social Security Administration for the preceding fiscal year July 1, 1988 through June 30, 1989. In each following year, the lump sum payment will increase by the same percentage increase that is applied to regular annuities paid from the fund. Effective January 1, 2002, annual lump sum payment is divided by 12 and paid as a monthly life annuity in the annuity form elected.

Summary of Plan Provisions – Basic (Continued)

Disability

Disability benefit

Age/service requirement	Total and permanent disability before normal retirement age if vested. Since all remaining active Basic members are over normal retirement age, none are eligible for disability benefits.
Amount	Normal Retirement benefit based on Allowable Service and Average Salary at disability without reduction for commencement before Normal Retirement Age. Supplemental benefit of $25 per month payable to the later of the normal retirement age or the five-year anniversary of commencement of disability. The disability benefit is reduced to that amount which, when added to Workers' Compensation, does not exceed the salary the disabled Member received as of the date of the disability or the salary currently payable for the same employment position substantially similar to the one the person held as of the date of the disability, whichever is greater. If a member became disabled prior to July 1, 1997 but did not commence his or her benefit before July 1, 1997, the benefit payable is calculated under the laws in effect at the time the Member became disabled and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%. Payments stop earlier if disability ceases. If death occurs prior to age 65, or within five years of disability, the surviving spouse can receive a refund or a survivor benefit. Dependent children are entitled to dependent child benefits subject to the 70.00% family maximum. Payments revert to a retirement annuity at normal retirement age. Benefits may be reduced on resumption of partial employment.
Form of payment	Same as for retirement.
Benefit increases	Same as for retirement, except benefit increases are paid prior to Normal Retirement.

Summary of Plan Provisions - Basic (Continued)

Disability (Concluded)	
Retirement after disability	
Age/service requirement	Normal retirement age.
Amount	Any optional annuity continues. Otherwise, the larger of the disability benefit paid before normal retirement age or the normal retirement benefit available at normal retirement age, or an actuarially equivalent optional annuity.
Benefit increases	Same as for retirement, except benefit increases are paid prior to Normal Retirement.
Death	
Surviving spouse benefit	
Age/service requirement	Active Member with 18 months of Allowable Service or while Member is receiving a disability benefit.
Amount	50.00% of salary averaged over last six months. Family benefit is maximum of 70.00% and minimum of 50.00% of average salary. Benefit paid until spouse's death but no payments while spouse is remarried prior to July 1, 1991. If a member died prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit as of July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%. Surviving spouse optional annuity may be elected in lieu of this benefit.
Benefit increases	Same as for retirement, except benefit increases are paid prior to Normal Retirement.
Surviving dependent children's benefit	
Age/service requirement	Active Member with 18 months of Allowable Service or while Member is receiving a disability benefit.
Amount	10.00% of salary averaged over last six months for each child. Family benefit minimum (including spouse's benefit) of 50.00% of salary and maximum of 70.00% of average salary. Benefits paid until child marries, dies, or attains age 18 (age 22 if full-time student).

Death (Concluded)	
Surviving dependent children's benefit (Concluded)	
Amount (Concluded)	If a member died prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.
Benefit increases	Same as for retirement, except benefit increases are paid prior to Normal Retirement.
Surviving spouse optional annuity	
Age/service requirement	Member or former Member who dies before retirement benefits commence and other survivor annuity is waived by spouse.
Amount	Survivor's payment of the 100% joint and survivor benefit the Member could have elected if terminated or an actuarial equivalent term certain annuity. If commencement is prior to age 65 (age 62 if 30 years of service), the benefit is reduced the same as early retirement with half the applicable reduction factor used from age 55 to the actual commencement age. If no surviving spouse, then an actuarial equivalent dependent child benefit is paid to age 20 or for five years if longer. If a member died prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit as of July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.
Benefit increases	Same as for retirement, except benefit increases are paid prior to Normal Retirement.
Refund of contributions with interest	
Age/service requirement	Member dies before receiving any retirement benefits and survivor benefits are not payable.
Amount	The excess of the Member's contributions with 6.00% interest until June 30, 2011; 4.00% through June 30, 2018; 3.00% thereafter over any disability or survivor benefits paid.

Summary of Plan Provisions - Basic (Continued)

Termination	
Refund of contributions	
Age/service requirement	Termination of public service.
Amount	Member's contributions with 6.00% interest through June 30, 2011. Beginning July 1, 2011, a member's contributions increase at 4.00% interest. Beginning July 1, 2018, a member's contributions increase at 3.00% interest. If a member is vested, a deferred annuity may be elected in lieu of a refund.
Deferred benefit	
Age/service requirement	Fully vested.
Amount	Benefit computed under law in effect at termination and increased by the following "augmentation" percentage compounded annually for terminations prior to 2012: (a.) 0.00% before July 1, 1971; (b.) 5.00% from July 1, 1971 to January 1, 1981; (c.) 3.00% thereafter until the earlier of January 1 of the year following attainment of age 55 and January 1, 2012; (d.) 5.00% thereafter until the earlier of the date the annuity begins and January 1, 2012; (e.) 1.00% from January 1, 2012 through December 31, 2018; and (f.) 0.00% from January 1, 2019, thereafter. Members who terminate after 2011 will receive no future augmentation. Members active with a public employer the day prior to the privatization of the employer become vested immediately. Members who are privatized after June 30, 2020 will receive no future augmentation.

Termination (Concluded)

Deferred benefit (Concluded)

Amount (Concluded)

Members who are privatized before July 1, 2020 receive enhanced augmentation (unless the enhancement results in a net loss to the Plan). Amount is payable at normal or early retirement. Augmentation is compounded annually through benefit commencement, equal to:

Date of privatization	Augmentation prior to July 1, 2020	July 1, 2020 through December 31, 2023	After December 31, 2023
Prior to January 1, 2007 (or January 1, 2008 for Hutchinson Area Health Care)	5.5% prior to age 55, 7.5% after	2.0%	0.0%
After December 31, 2006 (2007 for Hutchinson Area Health Care) and prior to January 1, 2011	4.0% prior to age 55, 6.0% after	2.0%	0.0%
After December 31, 2010 and prior to July 1, 2020	2.0%*	2.0%*	0.0%

** Reduced to 1% if 2% augmentation resulted in a net loss to the Plan.*

If a member terminated employment prior to July 1, 1997 but was not eligible to commence their pension before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997 and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.

Form of payment

Same as for retirement.

Actuarial equivalent factors

Effective July 1, 2019, actuarially equivalent factors based on the RP-2014 mortality table for healthy annuitants for a member turning age 62 in 2021, reflecting projected mortality improvements using Scale MP-2017, white collar adjustment, male rates set forward two years, female rates multiplied by 0.90, blended 40% males, 6.17% post-retirement interest, and 7.50% pre-retirement interest. Reflecting statutory requirements, joint and survivor factors are based on an interest assumption of 6.50%.

Summary of Plan Provisions - Basic (Concluded)

Combined service annuity	Members are eligible for combined service benefits if they: (a.) Meet minimum retirement age for each plan participated in and total public service meets the vesting requirements of each plan; or (b.) Have three or more years of service under PERA and the covered fund(s) (if hired prior to July 1, 2010). Other requirements for combined service include: (a.) Member must have at least six months of allowable service credit in each plan worked under; and (b.) Member may not be in receipt of a benefit from another plan. Members who meet the above requirements must have their benefits based on the following: (a.) Allowable service in all covered plans is combined in order to determine eligibility for early retirement. (b.) Average salary is based on the high five consecutive years during their entire service in all covered plans.
Changes in plan provisions	There were no changes in plan provisions since the previous valuation.

Summary of Plan Provisions - Coordinated

Following is a summary of the major plan provisions used in the valuation of this report. PERA is solely responsible for the validity, accuracy and comprehensiveness of this information. If any of the plan provisions shown below are not accurate and complete, the valuation results may differ significantly from those shown in this report and may require a revision of this report.

Plan year	July 1 through June 30		
Eligibility	A public employee who is covered under the Social Security Act. General exceptions are employees covered by other public funds, certain part-time employees and full-time students under age 23. City managers and persons holding certain elective office positions may choose to become Members.		
Contributions	Shown as a percent of salary:		
Effective date	**Member**	**Employer**	**Additional Employer**
January 1, 2015	6.50%	6.50%	1.00%
	Additional Employer Contribution remains in effect until the plan is 100% funded on an actuarial value of assets basis (contribution is repealed the following March 31). Member contributions are "picked up" according to the provisions of Internal Revenue Code 414(h).		
Allowable service	Service during which member contributions are deducted. May also include certain leaves of absence and military service.		
Salary	Includes amounts deducted for deferred compensation or supplemental retirement plans, net income from fees and sick leave payments funded by the employer. Excludes unused annual leave and sick leave payments, severance payments, Workers' Compensation benefits and employer-paid flexible spending accounts and employer-paid deferred compensation deposits, cafeteria plans, healthcare expense accounts, day-care expenses, fringe benefits and the cost of insurance coverage.		
Average salary	Average of the five highest successive years of annual salary. Average salary is based on all Allowable Service if less than five years.		
Vesting	Hired before July 1, 2010: 100% vested after three years of Allowable Service. Hired after June 30, 2010: 100% vested after five years of Allowable Service.		
Retirement Normal retirement benefit Age/service requirement	First hired before July 1, 1989: (a.) Age 65 and vested. (b.) Proportionate retirement annuity is available at age 65 and one year of Allowable Service.		
Amount	1.70% of Average Salary for each year of Allowable Service.		

Retirement (Continued)

Normal retirement benefit (Continued)

Age/service requirement	First hired after June 30, 1989: (a.) The greater of age 65 or the age eligible for full Social Security retirement benefits but no later than age 66 and vested. (b.) Proportionate Retirement Annuity is available at normal retirement age and one year of Allowable Service.
Amount	1.70% of Average Salary for each year of Allowable Service.

Early retirement benefit

Age/service requirement	First hired before July 1, 1989: (a.) Age 55 and vested. (b.) Any age with 30 years of Allowable Service. (c.) Rule of 90: Age plus Allowable Service totals 90. First hired after June 30, 1989: (a.) Age 55 and vested.
Amount	First hired before July 1, 1989: The greater of (a) or (b): (a.) 1.20% of Average Salary for each of the first ten years of Allowable Service and 1.70% of Average Salary for each subsequent year with reduction of 0.25% for each month the Member is under age 65 at time of retirement or under age 62 if 30 years of Allowable Service. No reduction if age plus years of Allowable Service totals 90. (b.) 1.70% of Average Salary for each year of Allowable Service assuming augmentation to age 65 at 3.00% per year and actuarial reduction for each month the Member is under age 65. Augmentation adjustment is phased out over a five-year period starting July 1, 2019, resulting in no augmentation adjustment after June 30, 2024. First hired after June 30, 1989: (a.) 1.70% of Average Salary for each year of Allowable Service assuming augmentation to the age eligible for full Social Security retirement benefit (but not higher than age 66) at 3.00% (2.50% if hired after June 30, 2006) per year and actuarial reduction for each month the member is under the normal retirement age. Augmentation adjustment is phased out over a five-year period starting July 1, 2019, resulting in no augmentation adjustment after June 30, 2024.

Summary of Plan Provisions – Coordinated (Continued)

Retirement (Concluded)	
Form of payment	Life annuity with return on death of any balance of contributions over aggregate monthly payments. Actuarially equivalent options are: 25%, 50%, 75% or 100% Joint and Survivor. If a Joint and Survivor benefit is elected and the beneficiary predeceases the annuitant, the annuitant's benefit increases to the Life Annuity amount. This "bounce back" is subsidized by the plan.
Benefit increases	Benefit recipients receive increases each year in January based upon 50% of the current Social Security increase, not less than 1.0% and not more than 1.5%, beginning January 1, 2019. For retirements on or after January 1, 2024, the first benefit increase is delayed until the retiree reaches Normal Retirement Age (not applicable to Rule of 90 retirees, disability benefit recipients, or survivors). A benefit recipient who has been receiving a benefit for at least 12 full months as of June 30 will receive a full increase. Members receiving benefits for at least one month but less than 12 full months as of June 30 will receive a pro rata increase. Members retired under laws in effect before July 1, 1973 will receive an additional lump sum payment each year. In 1989, this lump sum payment is $25 times each full year of Allowable Service. In each following year, the lump sum payment will increase by the same percentage increase that is applied to regular annuities paid from the fund.
Disability	
Disability benefit	
Age/service requirement	Total and permanent disability before normal retirement age if vested.
Amount	Normal Retirement benefit based on Allowable Service and Average Salary at disability without reduction for commencement before normal retirement age. The disability benefit is reduced to that amount which, when added to Workers' Compensation, does not exceed the salary the disabled Member received as of the date of the disability or the salary currently payable for the same employment position substantially similar to the one the person held as of the date of the disability, whichever is greater. If a Member became disabled prior to July 1, 1997 but did not commence his or her benefit before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.

Disability (Concluded)	
Disability benefit (Concluded)	
Amount (Concluded)	Payments stop if disability ceases or death occurs. Payments change to a retirement annuity at normal retirement age. Benefits may be reduced on resumption of partial employment.
Form of payment	Same as for retirement.
Benefit increases	Same as for retirement, except benefit increases are paid prior to Normal Retirement.
Retirement after disability	
Age/service requirement	Normal retirement age.
Amount	Any optional annuity continues. Otherwise, the larger of the disability benefit paid before normal retirement age or the normal retirement benefit available at normal retirement age, or an actuarially equivalent optional annuity.
Benefit increases	Same as for retirement, except benefit increases are paid prior to Normal Retirement.
Death	
Surviving spouse optional annuity	
Age/service requirement	Member or former Member who dies before retirement or disability benefits commence.
Amount	Survivor's payment of the 100% joint and survivor benefit the Member could have elected if terminated or an actuarial equivalent term certain annuity. If commencement is prior to age 65 (age 62 if 30 years of service), the benefit is reduced the same as early retirement with half the applicable reduction factor used from age 55 to the actual commencement age. If no surviving spouse, then an actuarial equivalent dependent child benefit is paid to age 20 or for five years if longer. If a member died prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.
Benefit increases	Same as for retirement, except benefit increases are paid prior to Normal Retirement.

Summary of Plan Provisions – Coordinated (Continued)

Death (Concluded)	
Refund of contributions	
Age/service requirement	Member dies before receiving any retirement benefits and survivor benefits are not payable.
Amount	The excess of the Member's contributions with 6.00% interest until June 30, 2011; 4.00% through June 30, 2018; 3.00% thereafter over any disability or survivor benefits paid.
Termination	
Refund of contributions	
Age/service requirement	Termination of public service.
Amount	Member's contributions with 6.00% interest through June 30, 2011. Beginning July 1, 2011, a member's contributions increase at 4.00% interest. Beginning July 1, 2018, a member's contributions increase at 3.00% interest. If a member is vested, a deferred annuity may be elected in lieu of a refund.
Deferred benefit	
Age/service requirement	Fully vested.
Amount	Benefit computed under law in effect at termination and increased by the following percentage (augmentation) compounded annually for terminations prior to 2012: (a.) 0.00% before July 1, 1971; (b.) 5.00% from July 1, 1971 to January 1, 1981; (c.) 3.00% (2.50% if hired after June 30, 2006) thereafter until the earlier of January 1 of the year following attainment of age 55 and January 1, 2012; (d.) 5.00% (2.50% if hired after June 30, 2006) thereafter until the earlier of the date the annuity begins and January 1, 2012; or (e.) 1.00% from January 1, 2012 through December 31, 2018; and (f.) 0.00% from January 1, 2019, thereafter. Members who terminate after 2011 will receive no future augmentation. Members active with a public employer the day prior to the privatization of the employer become vested immediately. Members who are privatized after June 30, 2020 will receive no future augmentation.

Summary of Plan Provisions – Coordinated (Continued)

Termination (Concluded)

Deferred benefit (Concluded)

Amount (Concluded)

Members who are privatized before July 1, 2020 receive enhanced augmentation (unless the enhancement results in a net loss to the Plan). Amount is payable at normal or early retirement. Augmentation is compounded annually through benefit commencement, equal to:

Date of privatization	Augmentation prior to July 1, 2020	July 1, 2020 through December 31, 2023	After December 31, 2023
Prior to January 1, 2007 (or January 1, 2008 for Hutchinson Area Health Care)	5.5% prior to age 55, 7.5% after	2.0%	0.0%
After December 31, 2006 (2007 for Hutchinson Area Health Care) and prior to January 1, 2011	4.0% prior to age 55, 6.0% after	2.0%	0.0%
After December 31, 2010 and prior to July 1, 2020	2.0%*	2.0%*	0.0%

** Reduced to 1% if 2% augmentation resulted in a net loss to the Plan.*

If a member terminated employment prior to July 1, 1997 but was not eligible to commence their pension before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997 and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.

Form of payment

Same as for retirement.

Actuarial equivalent factors

Effective July 1, 2019, actuarially equivalent factors based on the RP-2014 mortality table for healthy annuitants for a member turning age 62 in 2021, reflecting projected mortality improvements using Scale MP-2017, white collar adjustment, male rates set forward two years, female rates multiplied by 0.90, blended 40% males, 6.17% post-retirement interest, and 7.50% pre-retirement interest. Reflecting statutory requirements, joint and survivor factors are based on an interest assumption of 6.50%.

Summary of Plan Provisions – Coordinated (Concluded)

Combined service annuity	Members are eligible for combined service benefits if they: (a.) Meet minimum retirement age for each plan participated in and total public service meets the vesting requirements of each plan; or (b.) Have three or more years of service under PERA and the covered fund(s) (if hired prior to July 1, 2010). Other requirements for combined service include: (a.) Member must have at least six months of allowable service credit in each plan worked under; and (b.) Member may not be in receipt of a benefit from another plan. Members who meet the above requirements must have their benefit based on the following: (a.) Allowable service in all covered plans is combined in order to determine eligibility for early retirement. (b.) Average salary is based on the high five consecutive years during their entire service in all covered plans.
Changes in plan provisions	There were no changes in plan provisions since the previous valuation.

Summary of Plan Provisions – Minneapolis Employees Retirement Fund (MERF)

Following is a summary of the major plan provisions used in the valuation of this report. PERA is solely responsible for the validity, accuracy and comprehensiveness of this information. If any of the plan provisions shown below are not accurate and complete, the valuation results may differ significantly from those shown in this report and may require a revision of this report.

Plan year	July 1 through June 30
Eligibility/employee rule	An employee of the City of Minneapolis, the Metropolitan Airports Commission, the Met Council/Environmental Services, the Municipal Employees Retirement Fund, and Special School District No. 1 if covered prior to July 1, 1978. Employees covered July 1, 1978 or later are covered by the Public Employees Retirement Association (PERA) Plan. Effective July 1, 1992, licensed peace officers and firefighters who are employed by the Metropolitan Airports Commission and covered by the Minneapolis Employees Retirement Fund will receive the greater of retirement, disability, or survivor benefits under: a) The Minneapolis Employees Retirement Fund; or b) The Public Employees Retirement Association (PERA) Police & Fire Plan.
Full consolidation	The MERF Division fully merged with PERA's General Employees Retirement Plan, effective January 1, 2015. Upon consolidation, state and employer contributions were revised as shown herein.
Contributions	
Member	9.75% of salary
Employer	9.75% of salary (Employer Regular Contributions) Employer Regular and Additional Contributions will be paid as long as there are active members. Employer Supplemental Contributions equal $21,000,000 per year through September 2031.
Contribution allocation	Employer Supplemental Contributions are allocated to the employers in proportion to their share of the actuarial accrued liability of MERF on July 1, 2009, as follows:

Employer	Allocation
City of Minneapolis	54.78%
Minneapolis Park Board	10.33%
Met Council	1.74%
Metropolitan Airport Commission	5.76%
Municipal Building Commission	1.08%
Minneapolis School District No. 1	23.04%
Hennepin County	3.17%
MnSCU	0.10%
Total	100.00%

Summary of Plan Provisions –
Minneapolis Employees Retirement Fund (MERF) (Continued)

State contributions	The State's contributions equal $16,000,000 and are payable by September 30 each year through September 15, 2031.
Allowable service	Service during which member contributions were made. Allowable Service may also include certain leaves of absence, military service and service prior to becoming a member. Allowable service also includes time on duty disability provided that the member returns to active service if the disability ceases.
Salary	All amounts of salary, wages or compensation.
Average salary	Average of the five highest calendar years of salary out of the last ten calendar years.
Retirement	
Normal retirement benefit	
Age/service requirement	Age 60 and 10 years of employment. Any age with 30 years of employment. Proportionate retirement annuity is available at age 65 and one year allowable service.
Amount	2.00% of average salary for the first 10 years of allowable service plus 2.50% of average salary for each subsequent year of allowable service.

Disability	
Disability benefit	
Age/service requirement	Total and permanent disability before age 60 with five years of allowable service, or no allowable service if a work-related disability.
Amount	2.00% of average salary for the first 10 years of disability service plus 2.50% of average salary for each subsequent year of disability service. Disability service is the greater of (a) or (b) where: (a.) equals allowable service plus service projected to age 60, subject to a maximum of 22 years, and (b.) equals allowable service. Benefit is reduced by Workers' Compensation benefits. Payments stop at age 60 or earlier if disability ceases or death occurs. Benefits may be reduced on resumption of partial employment.
Disability after separation	
Age/service requirement	Total and permanent disability after electing to receive a retirement benefit but before age 60.
Amount	Actuarial equivalent of total credit to member's account.
Retirement after disability	
Age/service requirement	Total and permanent disability after electing to receive a retirement benefit but before age 60. Employee is still disabled after age 60.
Amount	Benefit continues according to the option selected.

Summary of Plan Provisions –
Minneapolis Employees Retirement Fund (MERF) (Continued)

Death	
Pre-retirement survivor's spouse benefit	
Age/service requirement	Active member with 18 months of allowable service.
Amount	30% of salary averaged over the last six months to the surviving spouse plus 10% of salary averaged over the last six months to each surviving child. Maximum benefit is $900 per month.
Pre-retirement survivor's spouse annuity	
Age/service requirement	Active member or former member who dies before retirement with 20 years of allowable service.
Amount	Actuarial equivalent of a single life annuity which would have been paid as a retirement benefit on the date of death without regard to eligibility age for retirement benefit. If there is no surviving spouse, the designated beneficiary may be a dependent child or dependent parent.
Refund of accumulated city contributions	
Age/service requirement	Active member or former member dies after 10 years of allowable service and prior to retirement.
Amount	Present value of the City's annual installments of $60 or, in the case of a former member, the net accumulation of city deposits. This benefit is not payable if survivor's benefits are paid.
Lump sum	
Age/service requirement	Death prior to service or disability retirement without an eligible surviving beneficiary.
Amount	$750 with less than 10 years allowable service, or $1,500 with 10 or more years of allowable service.
Refund of member contributions at death	
Age/service requirement	Active member or former member dies before retirement.
Amount	The excess of the member's contributions (exclusive of the contributions to the survivor's account) plus interest to the date of death.

Summary of Plan Provisions –
Minneapolis Employees Retirement Fund (MERF) (Concluded)

Termination	
Deferred benefit	
Age/service requirement	Three years of allowable service.
Amount	Benefit computed under law in effect at termination and increased by the following percentage (augmentation), compounded annually: (a.) 0.00% prior to July 1, 1971, (b.) 5.00% from July 1, 1971 to January 1, 1981, and (c.) 3.00% thereafter until the annuity begins. Amount is payable at or after age 60.
Refund of member contributions upon termination	
Age/service requirement	Termination of public service.
Amount	Member's contributions with interest. A deferred annuity may be elected in lieu of a refund if vested.
Form of payment	▪ Life annuity. ▪ Life annuity with 3, 5, 10 or 15 years guaranteed. ▪ Life annuity with lump sum death benefit. ▪ Joint & Survivor (with or without bounce back feature).
Optional form conversion factors	1986 PET mortality table with a one-year setback, blended 50% male and 50% female, and 5% interest.
Two dollar bill and annuity	Optional Two Dollar Bill money purchase annuity available at age 55 with 20 years of service if member had service prior to June 28, 1973. According to PERA, this option is rarely utilized. We have assumed that remaining active members will not elect this optional benefit.
Benefit increases	Benefit recipients receive increases each year in January based upon 50% of the current Social Security increase, not less than 1.0% and not more than 1.5%, beginning January 1, 2019. For retirements on or after January 1, 2024, the first benefit increase is delayed until the retiree reaches Normal Retirement Age (not applicable to Rule of 90 retirees, disability benefit recipients, or survivors).
Changes in plan provisions	There were no changes on plan provisions since the previous valuation.

SECTION F

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS USED FOR THE DETERMINATION OF TOTAL PENSION LIABILITY AND RELATED VALUES

Actuarial Methods Used for the Determination of Total Pension Liability and Related Values

Actuarial Cost Method

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

(i) the annual normal cost for each individual active member, payable from the date of employment to the date of retirement, is sufficient to accumulate the value of the member's benefit at the time of retirement; and

(ii) each annual normal cost is a constant percentage of the member's year by year projected covered pay.

Actuarial gains/(losses), as they occur, reduce (increase) the Total Pension Liability.

Valuation of Future Post-Retirement Benefit Increases

Benefit increases after retirement will equal 50% of the Social Security Cost of Living Adjustment, not less than 1.0% and not more than 1.5%, beginning January 1, 2019. Stochastic modeling was used to determine the assumption that benefit increases will equal 1.25% per year. This is only an assumption; actual increases will depend on actual experience.

Asset Valuation Method

Fair value of assets.

Summary of Actuarial Assumptions – Basic and Coordinated

The following assumptions were used in valuing the liabilities and benefits under the plan. The assumptions are based on the last experience study dated June 27, 2019, and a review of inflation and investment assumptions dated July 12, 2022. PERA staff selected the long-term expected rate of investment return of 6.50% based on input from GRS that the proposed selection would be reasonable for the purpose of the measurement.

The Allowance for Combined Service Annuity assumptions are based on an analysis completed by the LCPR actuary and documented in a report dated October 2016.

Investment return	6.50% per annum.
Single Discount Rate	6.50% per annum.
Benefit increases after retirement	1.25% per annum.
Salary increases	Reported salary at valuation date increased according to the rate table, to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for members with less than one year of service earned during the year.
Inflation	2.25% per year.
Payroll growth	3.00% per year.
Mortality rates	
Healthy pre-retirement	Pub-2010 General Employee Mortality Table adjusted for mortality improvements using projection scale MP-2021. Rates are multiplied by a factor of 1.07 for males and 0.98 for females.
Healthy post-retirement	Pub-2010 Healthy Retired General Mortality Table adjusted for mortality improvements using projection scale MP-2021. Male rates are multiplied by a factor of 1.02 and female rates are multiplied by a factor of 0.90.
Disabled retirees	Pub-2010 General/Teacher Disabled Retiree Mortality Table, adjusted for mortality improvements using projection scale MP-2021. Rates are set forward two years for males and set forward four years for females.
Notes	The Pub-2010 Employee Mortality Table as published by the Society of Actuaries (SOA) contains mortality rates for ages 18 to 80 and the annuitant mortality table contains mortality rates for ages 50 to 120. We have extended the annuitant mortality table as needed for members and beneficiaries younger than age 50 who are receiving a benefit by deriving rates based on the employee table and the juvenile table. Similarly, we have extended the employee table as needed for members older than age 80 by deriving rates based on the annuitant table.
Retirement	Members retiring from active status are assumed to retire according to the age-related rates shown in the tables. Members who have attained the highest assumed retirement age are assumed to retire in one year. Note that significant plan changes reflected in this report may result in behavior changes that are not anticipated in the current retirement rates.

Summary of Actuarial Assumptions – Basic and Coordinated (Continued)

Withdrawal	Service-related rates based on experience; see table of sample rates.
Disability	Age-related rates based on experience; see table of sample rates.
Allowance for combined service annuity	Liabilities for former members are increased by 15.0% for vested members and 3.0% for non-vested members to account for the effect of some participants having eligibility for a Combined Service Annuity.
Administrative expenses	In the valuation year, equal to prior year administrative expenses expressed as a percentage of prior year payroll. In each subsequent year, equal to the initial administrative expense percentage applied to payroll for the closed group.
Refund of contributions	For non-vested members, account balances accumulate interest until the assumed commencement date and are discounted back to the valuation date. Active members decrementing after becoming eligible for a deferred benefit are assumed to take the contributions accumulated with interest if larger than the value of the benefit.
Commencement of deferred benefits	Members receiving deferred annuities (including current terminated deferred members) are assumed to begin receiving benefits at Normal Retirement.
Percentage married	80% of male and 70% of female active members are assumed to be married. Actual marital status is used for members in payment status.
Age of spouse	Males are assumed to have a beneficiary three years younger, while females are assumed to have a beneficiary one year older. For members in payment status, actual spouse date of birth is used, if provided.
Eligible children	Retiring members are assumed to have no dependent children.
Form of payment	Married members retiring from active status are assumed to elect subsidized joint and survivor form of annuity as follows: Males: 10% elect 25% Joint & Survivor option 15% elect 50% Joint & Survivor option 10% elect 75% Joint & Survivor option 45% elect 100% Joint & Survivor option Females: 10% elect 25% Joint & Survivor option 10% elect 50% Joint & Survivor option 5% elect 75% Joint & Survivor option 30% elect 100% Joint & Survivor option Remaining married members and unmarried members are assumed to elect the Straight Life option. Members receiving deferred annuities (including current terminated deferred members) are assumed to elect a straight life annuity.
Eligibility testing	Eligibility for benefits is determined based upon the age nearest birthday and service on the date the decrement is assumed to occur.
Decrement operation	Withdrawal decrements do not operate during retirement eligibility. Decrements are assumed to occur mid-fiscal year.
Service credit accruals	It is assumed that members accrue one year of service credit per year.

Summary of Actuarial Assumptions – Basic and Coordinated (Continued)

Pay increases	Pay increases are assumed to happen at the beginning of the fiscal year. This is equivalent to assuming that reported earnings are pensionable earnings for the year ending on the valuation date.
Unknown data for certain members	To prepare this report, GRS has used and relied on participant data supplied by the Fund. Although GRS has reviewed the data in accordance with Actuarial Standards of Practice No. 23, GRS has not verified or audited any of the data or information provided. In cases where submitted data was missing or incomplete, the following assumptions, based on average results for applicable members at the time of the last experience study, were applied: <u>Data for active members:</u> There were 4,207 members reported with a salary less than or equal to $100 (after annualization). We used prior year salary (2,125 members), if available; otherwise high five salary with a 10% load to account for salary increases (1,197 members). If neither prior year salary or high five salary was available, we assumed a value of $30,000. There were 3,813 members reported without a gender and 417 members reported with an invalid date of birth. We assumed a date of birth based on an entry age of 36 and female gender. <u>Data for terminated members:</u> We calculated benefits for these members using the reported Average Salary and credited service. If Average Salary was not reported (97 members), we assumed a value of $24,000. If credited service was not reported (170 members), we assumed credited service was elapsed time from hire to termination date (165 members); if elapsed time was not available, we assumed six years. If termination date was invalid or not reported (171 members), we assumed the termination date was equal to hire date plus credited service; otherwise the valuation date unless they are noted as a pre-July 1, 1989 hire, then June 30, 1989. If reported termination date occurs prior to reported hire date, the two dates were swapped. There were 668 members reported without a gender. We assume female gender. There were 87 members reported without a date of birth, we assumed a birth date of July 1, 1970. <u>Data for retired members:</u> There were 224 members reported without a gender. We assumed retirees are female and beneficiaries are male. There were no members reported with an invalid date of birth.

Summary of Actuarial Assumptions – Basic and Coordinated (Continued)

Unknown data for certain members (Concluded)	<u>Data for retired members (Concluded):</u> Because PERA reclassifies disabled members as retirees once the member reaches Normal Retirement Age, we compare the members that PERA reports as retirees to our disabled group from the last valuation. If a member was disabled in the prior valuation, we reclassify that member as a disabled retiree in this year's valuation. We reclassified 2,244 retirees as disabled retirees in this valuation.
Changes in actuarial assumptions	The mortality improvement scale was changed from Scale MP-2020 to Scale MP-2021.

Summary of Actuarial Assumptions – Basic and Coordinated (Continued)

	Percentage of Members Dying Each Year*					
	Healthy Post-Retirement Mortality**		Healthy Pre-Retirement Mortality**		Disability Mortality**	
Age in 2022	Male	Female	Male	Female	Male	Female
20	0.04%	0.01%	0.04%	0.01%	0.36%	0.18%
25	0.03	0.01	0.04	0.01	0.31	0.29
30	0.05	0.02	0.05	0.02	0.55	0.51
35	0.07	0.03	0.08	0.03	0.78	0.80
40	0.09	0.04	0.09	0.04	1.02	1.06
45	0.12	0.06	0.11	0.05	1.31	1.33
50	0.29	0.18	0.15	0.07	1.71	1.55
55	0.42	0.26	0.22	0.12	2.18	1.90
60	0.65	0.36	0.35	0.19	2.76	2.27
65	0.94	0.53	0.51	0.28	3.38	2.58
70	1.44	0.84	0.70	0.42	4.02	3.26
75	2.42	1.50	1.04	0.70	5.27	4.87
80	4.37	2.77	1.66	1.19	7.69	7.83
85	8.06	5.27	7.11	4.93	11.59	12.04
90	14.03	9.88	14.72	10.76	17.94	17.16

* *Generally, mortality rates are expected to increase as age increases (with the exception of young ages, where expected mortality may decrease as age increases). In cases where the application of the projection scale would reverse the nature of this trend, standard mortality rates have been adjusted slightly. This adjustment has no material effect on results.*

** *Rates are adjusted for mortality improvements using Scale MP-2021, from a base year of 2010.*

	Rates of Disability Retirement	
Age	Male	Female
20	0.01%	0.01%
25	0.01	0.01
30	0.01	0.01
35	0.02	0.02
40	0.04	0.04
45	0.06	0.05
50	0.11	0.10
55	0.26	0.14
60	0.53	0.21
65	0.00	0.00
70	0.00	0.00

Summary of Actuarial Assumptions – Basic and Coordinated (Continued)

	Rates of Service Retirement		
Age	Rule of 90 Eligible	Tier 1	Tier 2
55	20.0%	4.0%	4.0%
56	15.0%	4.0%	4.0%
57	15.0%	5.0%	4.0%
58	15.0%	5.0%	5.0%
59	15.0%	6.0%	5.0%
60	15.0%	8.0%	6.0%
61	15.0%	10.0%	8.0%
62	30.0%	20.0%	15.0%
63	25.0%	20.0%	15.0%
64	25.0%	20.0%	15.0%
65	40.0%	40.0%	25.0%
66	35.0%	35.0%	35.0%
67	25.0%	25.0%	25.0%
68	25.0%	25.0%	25.0%
69	25.0%	25.0%	25.0%
70	25.0%	25.0%	25.0%
71+	100.0%	100.0%	100.0%

Summary of Actuarial Assumptions – Basic and Coordinated (Concluded)

Salary Scale			Rates of Termination	
Year	Increase	Year	Male	Female
1	10.25%	1	21.50%	21.50%
2	7.25	2	16.25	17.25
3	6.00	3	11.00	13.00
4	5.50	4	9.00	11.00
5	5.00	5	8.00	9.00
6	4.70	6	7.00	8.50
7	4.50	7	6.25	8.00
8	4.40	8	5.50	7.50
9	4.30	9	5.00	7.00
10	4.20	10	4.50	6.00
11	4.00	11	4.25	5.50
12	3.90	12	4.00	5.25
13	3.80	13	3.75	5.00
14	3.70	14	3.50	4.75
15	3.65	15	3.00	4.25
16	3.60	16	2.75	3.75
17	3.50	17	2.50	3.50
18	3.40	18	2.25	3.00
19	3.40	19	2.00	2.80
20	3.40	20	1.90	2.70
21	3.30	21	1.85	2.60
22	3.30	22	1.80	2.50
23	3.30	23	1.75	2.40
24	3.20	24	1.70	2.30
25	3.20	25	1.65	2.20
26	3.10	26	1.60	2.10
27	3.00	27	1.55	2.00
28	3.00	28	1.50	1.50
29	3.00	29	1.00	1.50
30+	3.00	30	1.00	1.50

Summary of Actuarial Assumptions - MERF

The following assumptions were used in valuing the liabilities and benefits under the plan for MERF members only. Assumptions regarding investment return, mortality, benefit increases, and Combined Service Annuity (CSA) are the same as shown in the Basic and Coordinated Plan assumption summary.

Salary increases	Total reported pay for prior calendar year increased 1.86% (half year of 3.75%, compounded) to prior fiscal year and 3.75% annually for each future year.
Retirement	Active members are assumed to retire at age 61, or immediately if currently age 61 or older.
Withdrawal	Rates are shown in rate table.
Disability	Age-related rates based on experience; see table of sample rates.
Commencement of deferred benefits	Members receiving deferred annuities (including current terminated deferred members) are assumed to begin receiving benefits at age 60.
Percentage married	66.67% of active members are assumed to be married. Actual marital status is used for members in payment status.
Age of spouse	Females are assumed to be three years younger than their male spouses. For members in payment status, actual spouse date of birth is used, if provided.
Eligible children	Retiring members are assumed to have no dependent children.
Form of payment	Members are assumed to elect a life annuity.
Unknown data for certain members	To prepare this report, GRS has used and relied on participant data supplied by the Fund. Although GRS has reviewed the data in accordance with Actuarial Standards of Practice No. 23, GRS has not verified or audited any of the data or information provided. In cases where submitted data was missing or incomplete, the following assumptions were applied: There were no members with missing or invalid dates of birth. <u>Data for active members:</u> There were no active members with missing salary or service. <u>Data for terminated members:</u> Benefits were provided by PERA for all members. <u>Data for Retired members:</u> There were 3 members reported without a gender. We assumed male gender. Because PERA reclassifies disabled members as retirees once the member reaches Normal Retirement Age, we compare the members that PERA reports as retirees to our disabled group from the last valuation. If a member was disabled in the prior valuation, we reclassify that member as a disabled retiree in this year's valuation. We reclassified 56 retirees as disabled retirees in this valuation.

Summary of Actuarial Assumptions – MERF (Concluded)

Age	Rates of Termination		Rates of Disability Retirement	
	Male	Female	Male	Female
20	21.00%	21.00%	0.21%	0.21%
25	11.00	11.00	0.21	0.21
30	5.00	5.00	0.23	0.23
35	1.50	1.50	0.30	0.30
40	1.00	1.00	0.41	0.41
45	1.00	1.00	0.61	0.61
50	1.00	1.00	0.93	0.93
55	1.00	1.00	1.60	1.60
60	1.00	1.00	0.00	0.00
65	0.00	0.00	0.00	0.00
70	0.00	0.00	0.00	0.00

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 long-term expected rate of return 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 *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 6.50%; the municipal bond rate is 3.69%; and **the resulting single discount rate is 6.50%**.

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 Single Discount Rate. It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total at the SDR.

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

	Payroll			Projected Contributions				
Fiscal Year Ending	Payroll for Current Employees	Payroll for New Employees	Total Employee Payroll	Contributions from Current Employees	Employer Contributions for Current Employees*	Contributions on Future Payroll toward Current UAL**	Additional State Contributions	Total Contributions
2022	$ 7,042,154	$ -	$ 7,042,154					
2023	$ 6,874,782	$ 227,559	$ 7,102,341	$ 446,861	$ 515,609	$ 10,080	$ 37,000	$ 1,009,550
2024	$ 6,497,334	$ 818,077	$ 7,315,411	$ 422,327	$ 487,300	$ 36,241	$ 37,000	$ 982,868
2025	$ 6,154,606	$ 1,380,268	$ 7,534,874	$ 400,049	$ 461,595	$ 61,147	$ 37,000	$ 959,791
2026	$ 5,866,670	$ 1,894,250	$ 7,760,920	$ 381,334	$ 440,000	$ 83,915	$ 37,000	$ 942,249
2027	$ 5,597,118	$ 2,396,629	$ 7,993,747	$ 363,813	$ 419,784	$ 106,170	$ 37,000	$ 926,767
2028	$ 5,343,313	$ 2,890,247	$ 8,233,560	$ 347,315	$ 400,748	$ 128,039	$ 37,000	$ 913,102
2029	$ 5,106,340	$ 3,374,227	$ 8,480,567	$ 331,912	$ 382,975	$ 149,479	$ 37,000	$ 901,366
2030	$ 4,882,521	$ 3,852,463	$ 8,734,984	$ 317,364	$ 366,189	$ 170,664	$ 37,000	$ 891,217
2031	$ 4,670,755	$ 4,326,278	$ 8,997,033	$ 303,599	$ 350,307	$ 191,654	$ 37,000	$ 882,560
2032	$ 4,468,630	$ 4,798,314	$ 9,266,944	$ 290,461	$ 335,147	$ 212,566	$ -	$ 838,174
2033	$ 4,273,316	$ 5,271,636	$ 9,544,952	$ 277,766	$ 320,499	$ 233,533	$ -	$ 831,798
2034	$ 4,084,046	$ 5,747,255	$ 9,831,301	$ 265,463	$ 306,303	$ 254,604	$ -	$ 826,370
2035	$ 3,901,119	$ 6,225,121	$ 10,126,240	$ 253,573	$ 292,584	$ 275,773	$ -	$ 821,930
2036	$ 3,723,988	$ 6,706,039	$ 10,430,027	$ 242,059	$ 279,299	$ 297,078	$ -	$ 818,436
2037	$ 3,551,238	$ 7,191,690	$ 10,742,928	$ 230,830	$ 266,343	$ 318,592	$ -	$ 815,765
2038	$ 3,383,255	$ 7,681,961	$ 11,065,216	$ 219,912	$ 253,744	$ 340,311	$ -	$ 813,967
2039	$ 3,219,116	$ 8,178,056	$ 11,397,172	$ 209,243	$ 241,434	$ 362,287	$ -	$ 812,964
2040	$ 3,056,487	$ 8,682,601	$ 11,739,088	$ 198,672	$ 229,236	$ 384,639	$ -	$ 812,547
2041	$ 2,894,173	$ 9,197,087	$ 12,091,260	$ 188,121	$ 217,063	$ 407,431	$ -	$ 812,615
2042	$ 2,731,872	$ 9,722,126	$ 12,453,998	$ 177,572	$ 204,890	$ 430,690	$ -	$ 813,152
2043	$ 2,569,834	$ 10,257,784	$ 12,827,618	$ 167,039	$ 192,738	$ 454,420	$ -	$ 814,197
2044	$ 2,408,611	$ 10,803,836	$ 13,212,447	$ 156,560	$ 180,646	$ 478,609	$ -	$ 815,815
2045	$ 2,248,246	$ 11,360,574	$ 13,608,820	$ 146,136	$ 168,618	$ 503,274	$ -	$ 818,028
2046	$ 2,088,213	$ 11,928,872	$ 14,017,085	$ 135,734	$ 156,616	$ 528,449	$ -	$ 820,799
2047	$ 1,929,020	$ 12,508,577	$ 14,437,597	$ 125,386	$ 144,676	$ 554,131	$ -	$ 824,193
2048	$ 1,772,140	$ 13,098,585	$ 14,870,725	$ 115,189	$ 132,911	$ 580,267	$ -	$ 828,367
2049	$ 1,618,579	$ 13,698,268	$ 15,316,847	$ 105,208	$ 121,393	$ 606,833	$ -	$ 833,434
2050	$ 1,469,225	$ 14,307,127	$ 15,776,352	$ 95,500	$ 110,192	$ 633,805	$ -	$ 839,497
2051	$ 1,324,537	$ 14,925,106	$ 16,249,643	$ 86,095	$ 99,340	$ 661,182	$ -	$ 846,617
2052	$ 1,185,006	$ 15,552,126	$ 16,737,132	$ 77,025	$ 88,875	$ 688,960	$ -	$ 854,860
2053	$ 1,051,787	$ 16,187,459	$ 17,239,246	$ 68,366	$ 78,884	$ 717,105	$ -	$ 864,355
2054	$ 925,813	$ 16,830,610	$ 17,756,423	$ 60,178	$ 69,436	$ 745,596	$ -	$ 875,210
2055	$ 807,617	$ 17,481,499	$ 18,289,116	$ 52,495	$ 60,571	$ 774,431	$ -	$ 887,497
2056	$ 697,432	$ 18,140,357	$ 18,837,789	$ 45,333	$ 52,307	$ 803,618	$ -	$ 901,258
2057	$ 595,686	$ 18,807,237	$ 19,402,923	$ 38,720	$ 38,720	$ 645,087	$ -	$ 722,527
2058	$ 502,546	$ 19,482,465	$ 19,985,011	$ 32,666	$ 32,666	$ 668,248	$ -	$ 733,580
2059	$ 418,365	$ 20,166,196	$ 20,584,561	$ 27,194	$ 27,194	$ 691,700	$ -	$ 746,088
2060	$ 343,076	$ 20,859,022	$ 21,202,098	$ 22,300	$ 22,300	$ 715,464	$ -	$ 760,064
2061	$ 276,751	$ 21,561,410	$ 21,838,161	$ 17,989	$ 17,989	$ 739,556	$ -	$ 775,534
2062	$ 219,309	$ 22,273,997	$ 22,493,306	$ 14,255	$ 14,255	$ 763,998	$ -	$ 792,508
2063	$ 170,158	$ 22,997,947	$ 23,168,105	$ 11,060	$ 11,060	$ 788,830	$ -	$ 810,950
2064	$ 129,093	$ 23,734,055	$ 23,863,148	$ 8,391	$ 8,391	$ 814,078	$ -	$ 830,860
2065	$ 95,382	$ 24,483,661	$ 24,579,043	$ 6,200	$ 6,200	$ 839,789	$ -	$ 852,189
2066	$ 68,609	$ 25,247,805	$ 25,316,414	$ 4,460	$ 4,460	$ 865,999	$ -	$ 874,919
2067	$ 48,040	$ 26,027,866	$ 26,075,906	$ 3,123	$ 3,123	$ 892,755	$ -	$ 899,001
2068	$ 32,397	$ 26,825,786	$ 26,858,183	$ 2,106	$ 2,106	$ 920,124	$ -	$ 924,336
2069	$ 20,937	$ 27,642,992	$ 27,663,929	$ 1,361	$ 1,361	$ 948,154	$ -	$ 950,876
2070	$ 12,831	$ 28,481,016	$ 28,493,847	$ 834	$ 834	$ 976,899	$ -	$ 978,567
2071	$ 7,451	$ 29,341,211	$ 29,348,662	$ 484	$ 484	$ 1,006,404	$ -	$ 1,007,372
2072	$ 4,157	$ 30,224,965	$ 30,229,122	$ 270	$ 270	$ 1,036,717	$ -	$ 1,037,257

* *Employer contributions are 7.5% of payroll until 100% funded on an actuarial value of assets basis and 6.5% of payroll after. The employer contributions are assumed to change after 34 years.*

** *Equal to total contributions (14.00% of payroll for new employees; 13.00% of payroll after 34 years) net of normal cost and expenses (9.57% of payroll).*

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

	Payroll			Projected Contributions				
Fiscal Year Ending	Payroll for Current Employees	Payroll for New Employees	Total Employee Payroll	Contributions from Current Employees	Employer Contributions for Current Employees*	Contributions on Future Payroll toward Current UAL**	Additional State Contributions	Total Contributions
2073	$ 2,092	$ 31,133,904	$ 31,135,996	$ 136	$ 136	$ 1,067,893	$ -	$ 1,068,165
2074	$ 839	$ 32,069,237	$ 32,070,076	$ 55	$ 55	$ 1,099,975	$ -	$ 1,100,085
2075	$ 242	$ 33,031,936	$ 33,032,178	$ 16	$ 16	$ 1,132,995	$ -	$ 1,133,027
2076	$ 63	$ 34,023,080	$ 34,023,143	$ 4	$ 4	$ 1,166,992	$ -	$ 1,167,000
2077	$ 16	$ 35,043,822	$ 35,043,838	$ 1	$ 1	$ 1,202,003	$ -	$ 1,202,005
2078	$ 5	$ 36,095,148	$ 36,095,153	$ -	$ -	$ 1,238,064	$ -	$ 1,238,064
2079	$ 1	$ 37,178,006	$ 37,178,007	$ -	$ -	$ 1,275,206	$ -	$ 1,275,206
2080	$ -	$ 38,293,347	$ 38,293,347	$ -	$ -	$ 1,313,462	$ -	$ 1,313,462
2081	$ -	$ 39,442,148	$ 39,442,148	$ -	$ -	$ 1,352,866	$ -	$ 1,352,866
2082	$ -	$ 40,625,412	$ 40,625,412	$ -	$ -	$ 1,393,452	$ -	$ 1,393,452
2083	$ -	$ 41,844,175	$ 41,844,175	$ -	$ -	$ 1,435,255	$ -	$ 1,435,255
2084	$ -	$ 43,099,500	$ 43,099,500	$ -	$ -	$ 1,478,313	$ -	$ 1,478,313
2085	$ -	$ 44,392,485	$ 44,392,485	$ -	$ -	$ 1,522,662	$ -	$ 1,522,662
2086	$ -	$ 45,724,259	$ 45,724,259	$ -	$ -	$ 1,568,342	$ -	$ 1,568,342
2087	$ -	$ 47,095,987	$ 47,095,987	$ -	$ -	$ 1,615,392	$ -	$ 1,615,392
2088	$ -	$ 48,508,867	$ 48,508,867	$ -	$ -	$ 1,663,854	$ -	$ 1,663,854
2089	$ -	$ 49,964,133	$ 49,964,133	$ -	$ -	$ 1,713,770	$ -	$ 1,713,770
2090	$ -	$ 51,463,057	$ 51,463,057	$ -	$ -	$ 1,765,183	$ -	$ 1,765,183
2091	$ -	$ 53,006,949	$ 53,006,949	$ -	$ -	$ 1,818,138	$ -	$ 1,818,138
2092	$ -	$ 54,597,157	$ 54,597,157	$ -	$ -	$ 1,872,682	$ -	$ 1,872,682
2093	$ -	$ 56,235,072	$ 56,235,072	$ -	$ -	$ 1,928,863	$ -	$ 1,928,863
2094	$ -	$ 57,922,124	$ 57,922,124	$ -	$ -	$ 1,986,729	$ -	$ 1,986,729
2095	$ -	$ 59,659,788	$ 59,659,788	$ -	$ -	$ 2,046,331	$ -	$ 2,046,331
2096	$ -	$ 61,449,581	$ 61,449,581	$ -	$ -	$ 2,107,721	$ -	$ 2,107,721
2097	$ -	$ 63,293,069	$ 63,293,069	$ -	$ -	$ 2,170,952	$ -	$ 2,170,952
2098	$ -	$ 65,191,861	$ 65,191,861	$ -	$ -	$ 2,236,081	$ -	$ 2,236,081
2099	$ -	$ 67,147,617	$ 67,147,617	$ -	$ -	$ 2,303,163	$ -	$ 2,303,163
2100	$ -	$ 69,162,045	$ 69,162,045	$ -	$ -	$ 2,372,258	$ -	$ 2,372,258
2101	$ -	$ 71,236,906	$ 71,236,906	$ -	$ -	$ 2,443,426	$ -	$ 2,443,426
2102	$ -	$ 73,374,014	$ 73,374,014	$ -	$ -	$ 2,516,729	$ -	$ 2,516,729
2103	$ -	$ 75,575,234	$ 75,575,234	$ -	$ -	$ 2,592,231	$ -	$ 2,592,231
2104	$ -	$ 77,842,491	$ 77,842,491	$ -	$ -	$ 2,669,997	$ -	$ 2,669,997
2105	$ -	$ 80,177,766	$ 80,177,766	$ -	$ -	$ 2,750,097	$ -	$ 2,750,097
2106	$ -	$ 82,583,099	$ 82,583,099	$ -	$ -	$ 2,832,600	$ -	$ 2,832,600
2107	$ -	$ 85,060,592	$ 85,060,592	$ -	$ -	$ 2,917,578	$ -	$ 2,917,578
2108	$ -	$ 87,612,409	$ 87,612,409	$ -	$ -	$ 3,005,106	$ -	$ 3,005,106
2109	$ -	$ 90,240,782	$ 90,240,782	$ -	$ -	$ 3,095,259	$ -	$ 3,095,259
2110	$ -	$ 92,948,005	$ 92,948,005	$ -	$ -	$ 3,188,117	$ -	$ 3,188,117
2111	$ -	$ 95,736,445	$ 95,736,445	$ -	$ -	$ 3,283,760	$ -	$ 3,283,760
2112	$ -	$ 98,608,539	$ 98,608,539	$ -	$ -	$ 3,382,273	$ -	$ 3,382,273
2113	$ -	$ 101,566,795	$ 101,566,795	$ -	$ -	$ 3,483,741	$ -	$ 3,483,741
2114	$ -	$ 104,613,799	$ 104,613,799	$ -	$ -	$ 3,588,253	$ -	$ 3,588,253
2115	$ -	$ 107,752,213	$ 107,752,213	$ -	$ -	$ 3,695,901	$ -	$ 3,695,901
2116	$ -	$ 110,984,779	$ 110,984,779	$ -	$ -	$ 3,806,778	$ -	$ 3,806,778
2117	$ -	$ 114,314,322	$ 114,314,322	$ -	$ -	$ 3,920,981	$ -	$ 3,920,981
2118	$ -	$ 117,743,752	$ 117,743,752	$ -	$ -	$ 4,038,611	$ -	$ 4,038,611
2119	$ -	$ 121,276,065	$ 121,276,065	$ -	$ -	$ 4,159,769	$ -	$ 4,159,769
2120	$ -	$ 124,914,347	$ 124,914,347	$ -	$ -	$ 4,284,562	$ -	$ 4,284,562
2121	$ -	$ 128,661,777	$ 128,661,777	$ -	$ -	$ 4,413,099	$ -	$ 4,413,099
2122	$ -	$ 132,521,630	$ 132,521,630	$ -	$ -	$ 4,545,492	$ -	$ 4,545,492

* *Employer contributions are 7.5% of payroll until 100% funded on an actuarial value of assets basis and 6.5% of payroll after. The employer contributions are assumed to change after 34 years.*

** *Equal to total contributions (14.00% of payroll for new employees; 13.00% of payroll after 34 years) net of normal cost and expenses(9.57% of payroll).*

Single Discount Rate Development
Projection of Plan Fiduciary Net Position (Dollars in Thousands)

Fiscal Year Ending		Projected Beginning Plan Net Position		Projected Total Contributions		Projected Benefit Payments		Projected Administrative Expenses		Projected Investment Earnings at 6.50%		Projected Ending Plan Net Position
		(a)		(b)		(c)		(d)		(e)		(f)=(a)+(b)-(c)-(d)+(e)
2023	$	26,034,185	$	1,009,550	$	1,858,330	$	13,062	$	1,664,653	$	26,836,996
2024	$	26,836,996	$	982,868	$	1,934,180	$	12,345	$	1,713,579	$	27,586,918
2025	$	27,586,918	$	959,791	$	2,010,692	$	11,694	$	1,759,159	$	28,283,482
2026	$	28,283,482	$	942,249	$	2,079,223	$	11,147	$	1,801,700	$	28,937,061
2027	$	28,937,061	$	926,767	$	2,147,129	$	10,635	$	1,841,531	$	29,547,595
2028	$	29,547,595	$	913,102	$	2,222,235	$	10,152	$	1,878,392	$	30,106,702
2029	$	30,106,702	$	901,366	$	2,294,355	$	9,702	$	1,912,066	$	30,616,077
2030	$	30,616,077	$	891,217	$	2,363,967	$	9,277	$	1,942,637	$	31,076,687
2031	$	31,076,687	$	882,560	$	2,429,809	$	8,874	$	1,970,207	$	31,490,771
2032	$	31,490,771	$	838,174	$	2,493,660	$	8,490	$	1,993,672	$	31,820,467
2033	$	31,820,467	$	831,798	$	2,555,420	$	8,119	$	2,012,935	$	32,101,661
2034	$	32,101,661	$	826,370	$	2,614,391	$	7,760	$	2,029,164	$	32,335,044
2035	$	32,335,044	$	821,930	$	2,671,100	$	7,412	$	2,042,389	$	32,520,851
2036	$	32,520,851	$	818,436	$	2,727,007	$	7,076	$	2,052,577	$	32,657,781
2037	$	32,657,781	$	815,765	$	2,780,941	$	6,747	$	2,059,677	$	32,745,535
2038	$	32,745,535	$	813,967	$	2,831,405	$	6,428	$	2,063,719	$	32,785,388
2039	$	32,785,388	$	812,964	$	2,876,889	$	6,116	$	2,064,833	$	32,780,180
2040	$	32,780,180	$	812,547	$	2,919,756	$	5,807	$	2,063,120	$	32,730,284
2041	$	32,730,284	$	812,615	$	2,959,561	$	5,499	$	2,058,615	$	32,636,454
2042	$	32,636,454	$	813,152	$	2,996,905	$	5,191	$	2,051,349	$	32,498,859
2043	$	32,498,859	$	814,197	$	3,031,569	$	4,883	$	2,041,339	$	32,317,943
2044	$	32,317,943	$	815,815	$	3,063,845	$	4,576	$	2,028,609	$	32,093,946
2045	$	32,093,946	$	818,028	$	3,093,233	$	4,272	$	2,013,190	$	31,827,659
2046	$	31,827,659	$	820,799	$	3,120,395	$	3,968	$	1,995,110	$	31,519,205
2047	$	31,519,205	$	824,193	$	3,145,722	$	3,665	$	1,974,369	$	31,168,380
2048	$	31,168,380	$	828,367	$	3,168,600	$	3,367	$	1,950,977	$	30,775,757
2049	$	30,775,757	$	833,434	$	3,188,288	$	3,075	$	1,924,998	$	30,342,826
2050	$	30,342,826	$	839,497	$	3,203,801	$	2,792	$	1,896,564	$	29,872,294
2051	$	29,872,294	$	846,617	$	3,216,353	$	2,517	$	1,865,815	$	29,365,856
2052	$	29,365,856	$	854,860	$	3,225,242	$	2,252	$	1,832,884	$	28,826,106
2053	$	28,826,106	$	864,355	$	3,230,279	$	1,998	$	1,797,951	$	28,256,135
2054	$	28,256,135	$	875,210	$	3,230,748	$	1,759	$	1,761,243	$	27,660,081
2055	$	27,660,081	$	887,497	$	3,226,793	$	1,534	$	1,723,026	$	27,042,277
2056	$	27,042,277	$	901,258	$	3,218,214	$	1,325	$	1,683,590	$	26,407,586
2057	$	26,407,586	$	722,527	$	3,204,641	$	1,132	$	1,637,058	$	25,561,398
2058	$	25,561,398	$	733,580	$	3,186,474	$	955	$	1,582,996	$	24,690,545
2059	$	24,690,545	$	746,088	$	3,162,395	$	795	$	1,527,566	$	23,801,009
2060	$	23,801,009	$	760,064	$	3,132,669	$	652	$	1,471,149	$	22,898,901
2061	$	22,898,901	$	775,534	$	3,096,655	$	526	$	1,414,163	$	21,991,417
2062	$	21,991,417	$	792,508	$	3,053,886	$	417	$	1,357,091	$	21,086,713
2063	$	21,086,713	$	810,950	$	3,004,567	$	323	$	1,300,456	$	20,193,229
2064	$	20,193,229	$	830,860	$	2,948,072	$	245	$	1,244,826	$	19,320,598
2065	$	19,320,598	$	852,189	$	2,884,982	$	181	$	1,190,807	$	18,478,431
2066	$	18,478,431	$	874,919	$	2,814,609	$	130	$	1,139,046	$	17,677,657
2067	$	17,677,657	$	899,001	$	2,736,671	$	91	$	1,090,261	$	16,930,157
2068	$	16,930,157	$	924,336	$	2,653,016	$	62	$	1,045,160	$	16,246,575
2069	$	16,246,575	$	950,876	$	2,564,338	$	40	$	1,004,414	$	15,637,487
2070	$	15,637,487	$	978,567	$	2,470,744	$	24	$	968,703	$	15,113,989
2071	$	15,113,989	$	1,007,372	$	2,372,897	$	14	$	938,728	$	14,687,178
2072	$	14,687,178	$	1,037,257	$	2,272,074	$	8	$	915,166	$	14,367,519

For purposes of this projection, we assumed the 13.0% statutory contribution rate would continue after the plan becomes fully funded.

Single Discount Rate Development
Projection of Plan Fiduciary Net Position (Dollars in Thousands) (Concluded)

Fiscal Year Ending		Projected Beginning Plan Net Position		Projected Total Contributions		Projected Benefit Payments		Projected Administrative Expenses		Projected Investment Earnings at 6.50%		Projected Ending Plan Net Position
		(a)		(b)		(c)		(d)		(e)		(f)=(a)+(b)-(c)-(d)+(e)
2073	$	14,367,519	$	1,068,165	$	2,169,238	$	4	$	898,667	$	14,165,109
2074	$	14,165,109	$	1,100,084	$	2,064,879	$	2	$	889,870	$	14,090,182
2075	$	14,090,182	$	1,133,027	$	1,959,262	$	-	$	889,432	$	14,153,379
2076	$	14,153,379	$	1,167,000	$	1,852,778	$	-	$	898,033	$	14,365,634
2077	$	14,365,634	$	1,202,005	$	1,745,913	$	-	$	916,367	$	14,738,093
2078	$	14,738,093	$	1,238,064	$	1,639,053	$	-	$	945,149	$	15,282,253
2079	$	15,282,253	$	1,275,206	$	1,532,586	$	-	$	985,113	$	16,009,986
2080	$	16,009,986	$	1,313,462	$	1,426,923	$	-	$	1,037,020	$	16,933,545
2081	$	16,933,545	$	1,352,866	$	1,322,508	$	-	$	1,101,651	$	18,065,554
2082	$	18,065,554	$	1,393,452	$	1,219,809	$	-	$	1,179,815	$	19,419,012
2083	$	19,419,012	$	1,435,255	$	1,119,309	$	-	$	1,272,342	$	21,007,300
2084	$	21,007,300	$	1,478,313	$	1,021,496	$	-	$	1,380,087	$	22,844,204
2085	$	22,844,204	$	1,522,662	$	926,845	$	-	$	1,503,932	$	24,943,953
2086	$	24,943,953	$	1,568,342	$	835,816	$	-	$	1,644,789	$	27,321,268
2087	$	27,321,268	$	1,615,392	$	748,837	$	-	$	1,803,602	$	29,991,425
2088	$	29,991,425	$	1,663,854	$	666,300	$	-	$	1,981,353	$	32,970,332
2089	$	32,970,332	$	1,713,770	$	588,545	$	-	$	2,179,066	$	36,274,623
2090	$	36,274,623	$	1,765,183	$	515,858	$	-	$	2,397,814	$	39,921,762
2091	$	39,921,762	$	1,818,138	$	448,460	$	-	$	2,638,728	$	43,930,168
2092	$	43,930,168	$	1,872,682	$	386,505	$	-	$	2,903,001	$	48,319,346
2093	$	48,319,346	$	1,928,863	$	330,073	$	-	$	3,191,900	$	53,110,036
2094	$	53,110,036	$	1,986,729	$	279,169	$	-	$	3,506,775	$	58,324,371
2095	$	58,324,371	$	2,046,331	$	233,723	$	-	$	3,849,067	$	63,986,046
2096	$	63,986,046	$	2,107,721	$	193,588	$	-	$	4,220,323	$	70,120,502
2097	$	70,120,502	$	2,170,952	$	158,549	$	-	$	4,622,206	$	76,755,111
2098	$	76,755,111	$	2,236,081	$	128,326	$	-	$	5,056,506	$	83,919,372
2099	$	83,919,372	$	2,303,163	$	102,585	$	-	$	5,525,152	$	91,645,102
2100	$	91,645,102	$	2,372,258	$	80,952	$	-	$	6,030,227	$	99,966,635
2101	$	99,966,635	$	2,443,426	$	63,022	$	-	$	6,573,977	$	108,921,016
2102	$	108,921,016	$	2,516,729	$	48,378	$	-	$	7,158,825	$	118,548,192
2103	$	118,548,192	$	2,592,231	$	36,596	$	-	$	7,787,383	$	128,891,210
2104	$	128,891,210	$	2,669,997	$	27,267	$	-	$	8,462,465	$	139,996,405
2105	$	139,996,405	$	2,750,097	$	20,002	$	-	$	9,187,098	$	151,913,598
2106	$	151,913,598	$	2,832,600	$	14,440	$	-	$	9,964,532	$	164,696,290
2107	$	164,696,290	$	2,917,578	$	10,257	$	-	$	10,798,259	$	178,401,870
2108	$	178,401,870	$	3,005,106	$	7,168	$	-	$	11,692,021	$	193,091,829
2109	$	193,091,829	$	3,095,259	$	4,929	$	-	$	12,649,824	$	208,831,983
2110	$	208,831,983	$	3,188,117	$	3,336	$	-	$	13,675,955	$	225,692,719
2111	$	225,692,719	$	3,283,760	$	2,224	$	-	$	14,774,998	$	243,749,253
2112	$	243,749,253	$	3,382,273	$	1,462	$	-	$	15,951,848	$	263,081,912
2113	$	263,081,912	$	3,483,741	$	950	$	-	$	17,211,733	$	283,776,436
2114	$	283,776,436	$	3,588,253	$	611	$	-	$	18,560,231	$	305,924,309
2115	$	305,924,309	$	3,695,901	$	390	$	-	$	20,003,293	$	329,623,113
2116	$	329,623,113	$	3,806,778	$	248	$	-	$	21,547,267	$	354,976,910
2117	$	354,976,910	$	3,920,981	$	157	$	-	$	23,198,920	$	382,096,654
2118	$	382,096,654	$	4,038,611	$	100	$	-	$	24,965,468	$	411,100,633
2119	$	411,100,633	$	4,159,769	$	63	$	-	$	26,854,603	$	442,114,942
2120	$	442,114,942	$	4,284,562	$	40	$	-	$	28,874,526	$	475,273,990
2121	$	475,273,990	$	4,413,099	$	26	$	-	$	31,033,976	$	510,721,039
2122	$	510,721,039	$	4,545,492	$	39	$	-	$	33,342,269	$	548,608,761

For purposes of this projection, we assumed the 13.0% statutory contribution rate would continue after the plan becomes fully funded.

Single Discount Rate Development
Present Values of Projected Benefit Payments
(Dollars in Thousands)

Fiscal Year Ending	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)
2023	$ 26,034,185	$ 1,858,330	$ 1,858,330	$ -	$ 1,800,728	$ -	$ 1,800,728
2024	$ 26,836,996	$ 1,934,180	$ 1,934,180	$ -	$ 1,759,837	$ -	$ 1,759,837
2025	$ 27,586,918	$ 2,010,692	$ 2,010,692	$ -	$ 1,717,796	$ -	$ 1,717,796
2026	$ 28,283,481	$ 2,079,223	$ 2,079,223	$ -	$ 1,667,928	$ -	$ 1,667,928
2027	$ 28,937,061	$ 2,147,129	$ 2,147,129	$ -	$ 1,617,279	$ -	$ 1,617,279
2028	$ 29,547,596	$ 2,222,235	$ 2,222,235	$ -	$ 1,571,691	$ -	$ 1,571,691
2029	$ 30,106,702	$ 2,294,355	$ 2,294,355	$ -	$ 1,523,660	$ -	$ 1,523,660
2030	$ 30,616,077	$ 2,363,967	$ 2,363,967	$ -	$ 1,474,074	$ -	$ 1,474,074
2031	$ 31,076,687	$ 2,429,809	$ 2,429,809	$ -	$ 1,422,658	$ -	$ 1,422,658
2032	$ 31,490,771	$ 2,493,660	$ 2,493,660	$ -	$ 1,370,932	$ -	$ 1,370,932
2033	$ 31,820,466	$ 2,555,420	$ 2,555,420	$ -	$ 1,319,142	$ -	$ 1,319,142
2034	$ 32,101,659	$ 2,614,391	$ 2,614,391	$ -	$ 1,267,214	$ -	$ 1,267,214
2035	$ 32,335,042	$ 2,671,100	$ 2,671,100	$ -	$ 1,215,682	$ -	$ 1,215,682
2036	$ 32,520,849	$ 2,727,007	$ 2,727,007	$ -	$ 1,165,377	$ -	$ 1,165,377
2037	$ 32,657,779	$ 2,780,941	$ 2,780,941	$ -	$ 1,115,893	$ -	$ 1,115,893
2038	$ 32,745,533	$ 2,831,405	$ 2,831,405	$ -	$ 1,066,800	$ -	$ 1,066,800
2039	$ 32,785,386	$ 2,876,889	$ 2,876,889	$ -	$ 1,017,782	$ -	$ 1,017,782
2040	$ 32,780,178	$ 2,919,756	$ 2,919,756	$ -	$ 969,903	$ -	$ 969,903
2041	$ 32,730,282	$ 2,959,561	$ 2,959,561	$ -	$ 923,123	$ -	$ 923,123
2042	$ 32,636,452	$ 2,996,905	$ 2,996,905	$ -	$ 877,719	$ -	$ 877,719
2043	$ 32,498,857	$ 3,031,569	$ 3,031,569	$ -	$ 833,682	$ -	$ 833,682
2044	$ 32,317,941	$ 3,063,845	$ 3,063,845	$ -	$ 791,134	$ -	$ 791,134
2045	$ 32,093,944	$ 3,093,233	$ 3,093,233	$ -	$ 749,974	$ -	$ 749,974
2046	$ 31,827,658	$ 3,120,395	$ 3,120,395	$ -	$ 710,385	$ -	$ 710,385
2047	$ 31,519,204	$ 3,145,722	$ 3,145,722	$ -	$ 672,442	$ -	$ 672,442
2048	$ 31,168,378	$ 3,168,600	$ 3,168,600	$ -	$ 635,993	$ -	$ 635,993
2049	$ 30,775,755	$ 3,188,288	$ 3,188,288	$ -	$ 600,887	$ -	$ 600,887
2050	$ 30,342,824	$ 3,203,801	$ 3,203,801	$ -	$ 566,959	$ -	$ 566,959
2051	$ 29,872,293	$ 3,216,353	$ 3,216,353	$ -	$ 534,441	$ -	$ 534,441
2052	$ 29,365,855	$ 3,225,242	$ 3,225,242	$ -	$ 503,210	$ -	$ 503,210
2053	$ 28,826,105	$ 3,230,279	$ 3,230,279	$ -	$ 473,235	$ -	$ 473,235
2054	$ 28,256,133	$ 3,230,748	$ 3,230,748	$ -	$ 444,417	$ -	$ 444,417
2055	$ 27,660,078	$ 3,226,793	$ 3,226,793	$ -	$ 416,782	$ -	$ 416,782
2056	$ 27,042,274	$ 3,218,214	$ 3,218,214	$ -	$ 390,304	$ -	$ 390,304
2057	$ 26,407,583	$ 3,204,641	$ 3,204,641	$ -	$ 364,937	$ -	$ 364,937
2058	$ 25,561,395	$ 3,186,474	$ 3,186,474	$ -	$ 340,721	$ -	$ 340,721
2059	$ 24,690,542	$ 3,162,395	$ 3,162,395	$ -	$ 317,509	$ -	$ 317,509
2060	$ 23,801,006	$ 3,132,669	$ 3,132,669	$ -	$ 295,328	$ -	$ 295,328
2061	$ 22,898,898	$ 3,096,655	$ 3,096,655	$ -	$ 274,115	$ -	$ 274,115
2062	$ 21,991,414	$ 3,053,886	$ 3,053,886	$ -	$ 253,830	$ -	$ 253,830
2063	$ 21,086,711	$ 3,004,567	$ 3,004,567	$ -	$ 234,489	$ -	$ 234,489
2064	$ 20,193,226	$ 2,948,072	$ 2,948,072	$ -	$ 216,038	$ -	$ 216,038
2065	$ 19,320,595	$ 2,884,982	$ 2,884,982	$ -	$ 198,511	$ -	$ 198,511
2066	$ 18,478,428	$ 2,814,609	$ 2,814,609	$ -	$ 181,849	$ -	$ 181,849
2067	$ 17,677,654	$ 2,736,671	$ 2,736,671	$ -	$ 166,022	$ -	$ 166,022
2068	$ 16,930,153	$ 2,653,016	$ 2,653,016	$ -	$ 151,124	$ -	$ 151,124
2069	$ 16,246,572	$ 2,564,338	$ 2,564,338	$ -	$ 137,157	$ -	$ 137,157
2070	$ 15,637,485	$ 2,470,744	$ 2,470,744	$ -	$ 124,086	$ -	$ 124,086
2071	$ 15,113,988	$ 2,372,897	$ 2,372,897	$ -	$ 111,898	$ -	$ 111,898
2072	$ 14,687,177	$ 2,272,074	$ 2,272,074	$ -	$ 100,604	$ -	$ 100,604

Single Discount Rate Development
Present Values of Projected Benefit Payments
(Dollars in Thousands) (Concluded)

Fiscal Year Ending	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)
2073	$ 14,367,518	$ 2,169,238	$ 2,169,238	$ -	$ 90,189	$ -	$ 90,189
2074	$ 14,165,108	$ 2,064,879	$ 2,064,879	$ -	$ 80,610	$ -	$ 80,610
2075	$ 14,090,181	$ 1,959,262	$ 1,959,262	$ -	$ 71,819	$ -	$ 71,819
2076	$ 14,153,378	$ 1,852,778	$ 1,852,778	$ -	$ 63,770	$ -	$ 63,770
2077	$ 14,365,632	$ 1,745,913	$ 1,745,913	$ -	$ 56,425	$ -	$ 56,425
2078	$ 14,738,092	$ 1,639,053	$ 1,639,053	$ -	$ 49,738	$ -	$ 49,738
2079	$ 15,282,252	$ 1,532,586	$ 1,532,586	$ -	$ 43,669	$ -	$ 43,669
2080	$ 16,009,985	$ 1,426,923	$ 1,426,923	$ -	$ 38,177	$ -	$ 38,177
2081	$ 16,933,543	$ 1,322,508	$ 1,322,508	$ -	$ 33,224	$ -	$ 33,224
2082	$ 18,065,552	$ 1,219,809	$ 1,219,809	$ -	$ 28,773	$ -	$ 28,773
2083	$ 19,419,011	$ 1,119,309	$ 1,119,309	$ -	$ 24,791	$ -	$ 24,791
2084	$ 21,007,299	$ 1,021,496	$ 1,021,496	$ -	$ 21,244	$ -	$ 21,244
2085	$ 22,844,204	$ 926,845	$ 926,845	$ -	$ 18,099	$ -	$ 18,099
2086	$ 24,943,954	$ 835,816	$ 835,816	$ -	$ 15,325	$ -	$ 15,325
2087	$ 27,321,269	$ 748,837	$ 748,837	$ -	$ 12,893	$ -	$ 12,893
2088	$ 29,991,427	$ 666,300	$ 666,300	$ -	$ 10,771	$ -	$ 10,771
2089	$ 32,970,334	$ 588,545	$ 588,545	$ -	$ 8,934	$ -	$ 8,934
2090	$ 36,274,624	$ 515,858	$ 515,858	$ -	$ 7,352	$ -	$ 7,352
2091	$ 39,921,763	$ 448,460	$ 448,460	$ -	$ 6,002	$ -	$ 6,002
2092	$ 43,930,170	$ 386,505	$ 386,505	$ -	$ 4,857	$ -	$ 4,857
2093	$ 48,319,349	$ 330,073	$ 330,073	$ -	$ 3,895	$ -	$ 3,895
2094	$ 53,110,039	$ 279,169	$ 279,169	$ -	$ 3,093	$ -	$ 3,093
2095	$ 58,324,373	$ 233,723	$ 233,723	$ -	$ 2,431	$ -	$ 2,431
2096	$ 63,986,047	$ 193,588	$ 193,588	$ -	$ 1,891	$ -	$ 1,891
2097	$ 70,120,502	$ 158,549	$ 158,549	$ -	$ 1,454	$ -	$ 1,454
2098	$ 76,755,112	$ 128,326	$ 128,326	$ -	$ 1,105	$ -	$ 1,105
2099	$ 83,919,373	$ 102,585	$ 102,585	$ -	$ 830	$ -	$ 830
2100	$ 91,645,103	$ 80,952	$ 80,952	$ -	$ 615	$ -	$ 615
2101	$ 99,966,637	$ 63,022	$ 63,022	$ -	$ 449	$ -	$ 449
2102	$ 108,921,017	$ 48,378	$ 48,378	$ -	$ 324	$ -	$ 324
2103	$ 118,548,192	$ 36,596	$ 36,596	$ -	$ 230	$ -	$ 230
2104	$ 128,891,210	$ 27,267	$ 27,267	$ -	$ 161	$ -	$ 161
2105	$ 139,996,405	$ 20,002	$ 20,002	$ -	$ 111	$ -	$ 111
2106	$ 151,913,598	$ 14,440	$ 14,440	$ -	$ 75	$ -	$ 75
2107	$ 164,696,290	$ 10,257	$ 10,257	$ -	$ 50	$ -	$ 50
2108	$ 178,401,871	$ 7,168	$ 7,168	$ -	$ 33	$ -	$ 33
2109	$ 193,091,829	$ 4,929	$ 4,929	$ -	$ 21	$ -	$ 21
2110	$ 208,831,983	$ 3,336	$ 3,336	$ -	$ 13	$ -	$ 13
2111	$ 225,692,718	$ 2,224	$ 2,224	$ -	$ 8	$ -	$ 8
2112	$ 243,749,252	$ 1,462	$ 1,462	$ -	$ 5	$ -	$ 5
2113	$ 263,081,911	$ 950	$ 950	$ -	$ 3	$ -	$ 3
2114	$ 283,776,435	$ 611	$ 611	$ -	$ 2	$ -	$ 2
2115	$ 305,924,309	$ 390	$ 390	$ -	$ 1	$ -	$ 1
2116	$ 329,623,114	$ 248	$ 248	$ -	$ 1	$ -	$ 1
2117	$ 354,976,911	$ 157	$ 157	$ -	$ -	$ -	$ -
2118	$ 382,096,655	$ 100	$ 100	$ -	$ -	$ -	$ -
2119	$ 411,100,634	$ 63	$ 63	$ -	$ -	$ -	$ -
2120	$ 442,114,944	$ 40	$ 40	$ -	$ -	$ -	$ -
2121	$ 475,273,992	$ 26	$ 26	$ -	$ -	$ -	$ -
2122	$ 510,721,042	$ 39	$ 39	$ -	$ -	$ -	$ -
				Totals	$ 39,360,746	$ -	$ 39,360,746

SECTION H

GLOSSARY OF TERMS

Glossary of Terms

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.
Accrued Service	Service credited under the system which was rendered before the date of the actuarial valuation.
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 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 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 covered employees, which is typically only the pensionable pay and does not include pay above any pay cap.
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 funding 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.
GASB	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
Fiduciary Net Position	The fiduciary net position is the value of the assets of the trust.
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 contribution entities to plan members for benefits provided through a defined benefit pension plan.
Non-Employer Contribution Entities	Non-employer contribution 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 Statement plan members are not considered non-employer contribution entities.
Normal Cost	The actuarial present value of the pension trust benefits allocated to the current year by the actuarial cost method.

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 the GASB Statement No. 67, the valuation asset is equal to the market value of assets.