

Public Employees Retirement Association of Minnesota

Public Employees Police and Fire Plan

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

June 30, 2024





November 22, 2024

Public Employees Retirement Association of Minnesota
Public Employees Police and Fire Plan
St. Paul, Minnesota

Dear Trustees of the Public Employees Police and Fire 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 Public Employees Police and Fire 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, 2024 for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

To the best of our knowledge, the information contained within this report is accurate and fairly represents the actuarial position of the Public Employees Police and Fire 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 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. We are not aware of any relationship that would impair the objectivity of our work.

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

Bonita J. Wurst

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

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SECTION A

EXECUTIVE SUMMARY

Executive Summary

as of June 30, 2024 (Dollars in Thousands)

	2024
Actuarial Valuation Date	June 30, 2024
Measurement Date of the Net Pension Liability	June 30, 2024
Employer's Fiscal Year Ending Date (Reporting Date)	Varies by Employer

Membership

Number of	
- Service Retirements	8,680
- Survivors	2,026
- Disability Retirements	2,186
- Deferred Retirements	1,940
- Terminated Other Non-Vested	894
- Active Members	11,994
- Total	27,720
Covered Payroll	\$ 1,296,500

Net Pension Liability

Total Pension Liability	\$ 13,380,841
Plan Fiduciary Net Position	\$ 12,065,232
Net Pension Liability	\$ 1,315,609
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	90.17%
Net Pension Liability as a Percentage of Covered Payroll	101.47%

Development of the Single Discount Rate

Single Discount Rate	7.00%
Long-Term Expected Rate of Investment Return	7.00%
Long-Term Municipal Bond Rate*	3.97%
Last year ending June 30 in the 2025 to 2124 projection period for which projected benefit payments are fully funded	2124

Total Pension Expense/(Income) \$ 237,645

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	\$ 512,703	\$ -
Changes in assumptions	\$ 1,446,194	\$ 1,937,268
Net difference between projected and actual earnings on pension plan investments	\$ 573,065	\$ 1,000,837
Total	\$ 2,531,962	\$ 2,938,105

* 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, *Financial Reporting for Pension Plans* 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, *Accounting and Financial Reporting for Pensions* 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 and local governmental employers 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 Public Employees Police and Fire Plan subsequent to the measurement date of June 30, 2024.

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 to 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 Statements No. 67 and No. 68 require the notes to the financial statements for the employers and pension plans to include certain descriptive information about the pension plans through which the pension benefits are provided. The list of disclosure items should include:

- A description of benefits provided by the plan;
- The classes 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 the current discount rate 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

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, 2024 and a measurement date of June 30, 2024.

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 7.00% 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 24 years, and
3. The unfunded liability will grow initially as a dollar amount for 2 years (based on the current 24-year amortization period and if contributions are equal to the required contribution 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 long-term expected rate of return on pension plan investments is 7.00%; the municipal bond rate is 3.97% (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 7.00%.

SECTION B

FINANCIAL STATEMENTS

Statement of Pension Expense under GASB Statement No. 68

Fiscal Year Ended June 30, 2024 (Dollars in Thousands)

A. Expense

1. Service Cost	\$	280,316
2. Interest on the Total Pension Liability	\$	878,035
3. Current-Period Benefit Changes	\$	-
4. Employee Contributions (made negative for addition here)	\$	(152,987)
5. Projected Earnings on Plan Investments (made negative for addition here)	\$	(762,191)
6. Pension Plan Administrative Expense	\$	1,747
7. Other Changes in Plan Fiduciary Net Position	\$	616
8. Recognition of Outflow (Inflow) of Resources due to differences between expected and actual experience in the measurement of the Total Pension Liability <i>Arising from Current Reporting Period</i>	\$	30,317
9. Recognition of Outflow (Inflow) of Resources due to assumption changes <i>Arising from Current Reporting Period</i>	\$	-
10. Recognition of Outflow (Inflow) of Resources due to the difference between projected (7.00%) and actual earnings on Pension Plan Investments <i>Arising from Current Reporting Period</i>	\$	(113,017)
11. Increase/(Decrease) from Experience in the Current Reporting Period	\$	162,836
12. Recognition of Outflow (Inflow) of Resources due to differences between expected and actual experience in the measurement of the Total Pension Liability <i>Arising from Prior Reporting Periods</i>	\$	115,037
13. Recognition of Outflow (Inflow) of Resources due to assumption changes <i>Arising from Prior Reporting Periods</i>	\$	66,965
14. Recognition of Outflow (Inflow) of Resources due to the difference between projected and actual earnings on Pension Plan Investments <i>Arising from Prior Reporting Periods</i>	\$	(107,193)
15. Total Pension Expense / (Income)	\$	237,645

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 155,315 years. Additionally, the total plan membership (active employees and inactive employees) was 27,143. 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 6.00 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, 2024 (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	\$	181,901
2. Assumption Changes (gains) or losses		0
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}		6.0000
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	\$	30,317
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes		0
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities		30,317
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	\$	151,584
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes		0
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities		151,584

B. Outflows (Inflows) of Resources due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$	(565,085)
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	\$	(113,017)
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$	(452,068)

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30, 2024 (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	\$ 703,051	\$ 490,732	\$ 212,319
2. Due to Assets	343,612	563,822	(220,210)
3. Total	\$ 1,046,663	\$ 1,054,554	\$ (7,891)

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	\$ 145,354	\$ -	\$ 145,354
2. Assumption Changes	557,697	490,732	66,965
3. Net Difference between projected and actual earnings on pension plan investments	343,612	563,822	(220,210)
4. Total	\$ 1,046,663	\$ 1,054,554	\$ (7,891)

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	\$ 512,703	\$ -	\$ 512,703
2. Assumption Changes	1,446,194	1,937,268	(491,074)
3. Net Difference between projected and actual earnings on pension plan investments	573,065	1,000,837	(427,772)
4. Total	\$ 2,531,962	\$ 2,938,105	\$ (406,143)

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
2025	\$ (64,069)
2026	336,825
2027	(198,068)
2028	(511,147)
2029	30,316
Thereafter	0
Total	\$ (406,143)

Recognition of Deferred Outflows and Inflows of Resources Fiscal Year Ended June 30, 2024 (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	\$ 14,491	6.0000	\$ 2,416	\$ 0	0.0000
2020	30,348	6.0000	5,058	5,058	1.0000
2021	128,782	6.0000	21,464	42,926	2.0000
2022	187,572	6.0000	31,262	93,786	3.0000
2023	329,023	6.0000	54,837	219,349	4.0000
2024	181,901	6.0000	30,317	151,584	5.0000
Total			\$ 145,354	\$ 512,703	
Deferred Outflow (Inflow) Due to Assumption Changes					
2019	\$ (19,898)	6.0000	\$ (3,317)	\$ 0	0.0000
2020	(24,785)	6.0000	(4,131)	(4,130)	1.0000
2021	1,361,379	6.0000	226,896	453,792	2.0000
2022	1,984,805	6.0000	330,801	992,402	3.0000
2023	(2,899,706)	6.0000	(483,284)	(1,933,138)	4.0000
2024	0	6.0000	0	0	5.0000
Total			\$ 66,965	\$ (491,074)	
Deferred Outflow (Inflow) Due to Differences Between Projected and Actual Earnings on Plan Investments					
2020	\$ 285,391	5.0000	\$ 57,079	\$ 0	0.0000
2021	(2,009,123)	5.0000	(401,824)	(401,824)	1.0000
2022	1,432,664	5.0000	286,533	573,065	2.0000
2023	(244,907)	5.0000	(48,981)	(146,945)	3.0000
2024	(565,085)	5.0000	(113,017)	(452,068)	4.0000
Total			\$ (220,210)	\$ (427,772)	
Deferred Outflow (Inflow) Due to All Sources					
Total			\$ (7,891)	\$ (406,143)	

Statement of Fiduciary Net Position (Dollars in Thousands)

	Market Value	
	June 30, 2024	June 30, 2023
Assets in Trust		
Cash, Equivalents, Short Term Securities	\$ 207,797	\$ 328,611
Fixed Income	\$ 2,817,784	\$ 2,337,364
Equity	\$ 6,096,214	\$ 5,576,844
SBI Alternative	\$ 2,941,285	\$ 2,782,680
Other	\$ -	\$ -
Total Assets in Trust	\$ 12,063,080	\$ 11,025,499
Assets Receivable	\$ 19,120	\$ 19,787
Amounts Payable	\$ (16,968)	\$ (6,358)
Net Position Restricted for Pensions	\$ 12,065,232	\$ 11,038,928

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

Change in Assets	Market Value	
Year Ending	June 30, 2024	June 30, 2023
1. Fund balance at market value at beginning of year	\$ 11,038,928	\$ 10,415,493
2. Contributions		
a. Member	\$ 152,987	\$ 144,470
b. Employer	\$ 236,216	\$ 223,305
c. Other sources	\$ 37,397	\$ 18,000
d. Total contributions	\$ 426,600	\$ 385,775
3. Investment income		
a. Investment income/(loss)	\$ 1,372,483	\$ 916,285
b. Investment expenses	\$ (45,207)	\$ (3,766)
c. Net subtotal	\$ 1,327,276	\$ 912,519
4. Other	\$ (616)	\$ (61)
5. Total additions: (2.d.) + (3.c.) + (4.)	\$ 1,753,260	\$ 1,298,233
6. Benefits Paid		
a. Annuity benefits	\$ (720,158)	\$ (669,804)
b. Refunds	\$ (5,051)	\$ (3,747)
c. Total benefits paid	\$ (725,209)	\$ (673,551)
7. Expenses		
a. Other	\$ -	\$ -
b. Administrative	\$ (1,747)	\$ (1,247)
c. Total expenses	\$ (1,747)	\$ (1,247)
8. Total deductions: (6.c.) + (7.c.)	\$ (726,956)	\$ (674,798)
9. Net increase (decrease) in net position: (5) + (8)	\$ 1,026,304	\$ 623,435
10. Net position restricted for pensions	\$ 12,065,232	\$ 11,038,928
11. State Board of Investment calculated investment return [#]	12.3%	8.9%

[#] Provided by PERA and calculated by the State Board of Investment.

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Changes in Net Pension Liability and Related Ratios

Current Period

Fiscal Year Ended June 30, 2024 (Dollars in Thousands)

A. Total pension liability	
1. Service cost	\$ 280,316
2. Interest on the total pension liability	\$ 878,035
3. Changes of benefit terms	\$ -
4. Difference between expected and actual experience of the total pension liability	\$ 181,901
5. Changes of assumptions	\$ -
6. Benefit payments, including refunds of employee contributions	\$ (725,209)
7. Net change in total pension liability	\$ 615,043
8. Total pension liability – beginning	\$ 12,765,798
9. Total pension liability – ending	<u><u>\$ 13,380,841</u></u>
B. Plan fiduciary net position	
1. Contributions – employer	\$ 273,613
2. Contributions – employee	\$ 152,987
3. Net investment income	\$ 1,327,276
4. Benefit payments, including refunds of employee contributions	\$ (725,209)
5. Pension Plan administrative expense	\$ (1,747)
6. Other	\$ (616)
7. Net change in plan fiduciary net position	\$ 1,026,304
8. Plan fiduciary net position – beginning	\$ 11,038,928
9. Plan fiduciary net position – ending	<u><u>\$ 12,065,232</u></u>
C. Net pension liability	<u><u>\$ 1,315,609</u></u>
D. Plan fiduciary net position as a percentage of the total pension liability	90.17%
E. Covered-employee payroll*	\$ 1,296,500
F. Net pension liability as a percentage of covered-employee payroll	101.47%

*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

Fiscal year ending June 30,	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
Total Pension Liability										
Service Cost	\$ 280,316	\$ 385,544	\$ 282,658	\$ 226,012	\$ 217,127	\$ 209,098	\$ 203,131	\$ 318,401	\$ 194,352	\$ 187,959
Interest on the Total Pension Liability	\$ 878,035	\$ 789,647	\$ 779,519	\$ 758,002	\$ 729,945	\$ 703,640	\$ 682,903	\$ 616,740	\$ 658,198	\$ 648,233
Benefit Changes	\$ -	\$ 67,743	\$ -	\$ -	\$ -	\$ -	\$ (50,771)	\$ -	\$ -	\$ -
Difference between Expected and Actual Experience	\$ 181,901	\$ 329,023	\$ 187,572	\$ 128,782	\$ 30,348	\$ 14,491	\$ 21,720	\$ 37,292	\$ (375,575)	\$ (221,112)
Assumption Changes	\$ -	\$ (2,899,706)	\$ 1,984,805	\$ 1,361,379	\$ (24,785)	\$ (19,898)	\$ (42,807)	\$ (2,300,201)	\$ 2,650,350	\$ -
Benefit Payments	\$ (720,158)	\$ (669,804)	\$ (633,255)	\$ (592,687)	\$ (567,040)	\$ (547,699)	\$ (528,468)	\$ (512,379)	\$ (498,608)	\$ (481,330)
Refunds	\$ (5,051)	\$ (3,747)	\$ (4,196)	\$ (3,060)	\$ (3,181)	\$ (3,283)	\$ (1,902)	\$ (2,119)	\$ (2,391)	\$ (1,953)
Net Change in Total Pension Liability	\$ 615,043	\$ (2,001,300)	\$ 2,597,103	\$ 1,878,428	\$ 382,414	\$ 356,349	\$ 283,806	\$ (1,842,266)	\$ 2,626,326	\$ 131,797
Total Pension Liability - Beginning	\$ 12,765,798	\$ 14,767,098	\$ 12,169,995	\$ 10,291,567	\$ 9,909,153	\$ 9,552,804	\$ 9,268,998	\$ 11,111,264	\$ 8,484,938	\$ 8,353,141
Total Pension Liability - Ending (a)	\$ 13,380,841	\$ 12,765,798	\$ 14,767,098	\$ 12,169,995	\$ 10,291,567	\$ 9,909,153	\$ 9,552,804	\$ 9,268,998	\$ 11,111,264	\$ 8,484,938
Plan Fiduciary Net Position										
Employer Contributions	\$ 273,613	\$ 241,305	\$ 224,416	\$ 219,129	\$ 207,319	\$ 188,317	\$ 179,781	\$ 175,329	\$ 165,065	\$ 153,317
Employee Contributions	\$ 152,987	\$ 144,470	\$ 133,023	\$ 129,351	\$ 123,525	\$ 111,762	\$ 105,479	\$ 101,984	\$ 95,172	\$ 88,733
Pension Plan Net Investment Income	\$ 1,327,276	\$ 912,519	\$ (700,942)	\$ 2,672,826	\$ 368,949	\$ 609,512	\$ 813,966	\$ 1,058,942	\$ (8,949)	\$ 317,556
Benefit Payments	\$ (720,158)	\$ (669,804)	\$ (633,255)	\$ (592,687)	\$ (567,040)	\$ (547,699)	\$ (528,468)	\$ (512,379)	\$ (498,608)	\$ (481,330)
Refunds	\$ (5,051)	\$ (3,747)	\$ (4,196)	\$ (3,060)	\$ (3,181)	\$ (3,283)	\$ (1,902)	\$ (2,119)	\$ (2,391)	\$ (1,953)
Pension Plan Administrative Expense	\$ (1,747)	\$ (1,247)	\$ (1,634)	\$ (941)	\$ (924)	\$ (1,018)	\$ (886)	\$ (992)	\$ (906)	\$ (803)
Other	\$ (616)	\$ (61)	\$ (20)	\$ 23	\$ 260	\$ 54	\$ 58	\$ 24	\$ 3	\$ 84
Net Change in Plan Fiduciary Net Position	\$ 1,026,304	\$ 623,435	\$ (982,608)	\$ 2,424,641	\$ 128,908	\$ 357,645	\$ 568,028	\$ 820,789	\$ (250,614)	\$ 75,604
Plan Fiduciary Net Position - Beginning	\$ 11,038,928	\$ 10,415,493	\$ 11,398,101	\$ 8,973,460	\$ 8,844,552	\$ 8,486,907	\$ 7,918,879	\$ 7,098,090	\$ 7,348,704	\$ 7,273,100
Plan Fiduciary Net Position - Ending (b)	\$ 12,065,232	\$ 11,038,928	\$ 10,415,493	\$ 11,398,101	\$ 8,973,460	\$ 8,844,552	\$ 8,486,907	\$ 7,918,879	\$ 7,098,090	\$ 7,348,704
Net Pension Liability - Ending (a) - (b)	\$ 1,315,609	\$ 1,726,870	\$ 4,351,605	\$ 771,894	\$ 1,318,107	\$ 1,064,601	\$ 1,065,897	\$ 1,350,119	\$ 4,013,174	\$ 1,136,234
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	90.17 %	86.47 %	70.53 %	93.66 %	87.19 %	89.26 %	88.84 %	85.43 %	63.88 %	86.61 %
Covered Employee Payroll	\$ 1,296,500	\$ 1,224,322	\$ 1,127,314	\$ 1,096,195	\$ 1,069,481	\$ 1,011,421	\$ 976,657	\$ 944,296	\$ 881,222	\$ 845,076
Net Pension Liability as a Percentage of Covered Employee Payroll	101.47 %	141.05 %	386.02 %	70.42 %	123.25 %	105.26 %	109.14 %	142.98 %	455.41 %	134.45 %
Notes to Schedule:										
N/A										



Schedules of Required Supplementary Information

Schedule of the Net Pension Liability Multiyear (Dollars in Thousands)

Last 10 Fiscal Years

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
2015	\$ 8,484,938	\$ 7,348,704	\$ 1,136,234	86.61%	\$ 845,076	134.45%
2016	\$ 11,111,264	\$ 7,098,090	\$ 4,013,174	63.88%	\$ 881,222	455.41%
2017	\$ 9,268,998	\$ 7,918,879	\$ 1,350,119	85.43%	\$ 944,296	142.98%
2018	\$ 9,552,804	\$ 8,486,907	\$ 1,065,897	88.84%	\$ 976,657	109.14%
2019	\$ 9,909,153	\$ 8,844,552	\$ 1,064,601	89.26%	\$ 1,011,421	105.26%
2020	\$ 10,291,567	\$ 8,973,460	\$ 1,318,107	87.19%	\$ 1,069,481	123.25%
2021	\$ 12,169,995	\$ 11,398,101	\$ 771,894	93.66%	\$ 1,096,195	70.42%
2022	\$ 14,767,098	\$ 10,415,493	\$ 4,351,605	70.53%	\$ 1,127,314	386.02%
2023	\$ 12,765,798	\$ 11,038,928	\$ 1,726,870	86.47%	\$ 1,224,322	141.05%
2024	\$ 13,380,841	\$ 12,065,232	\$ 1,315,609	90.17%	\$ 1,296,500	101.47%

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
2015	\$ 197,325	\$ 153,317	\$ 44,008	\$ 845,076	18.14%
2016	\$ 189,375	\$ 165,065	\$ 24,310	\$ 881,222	18.73
2017	\$ 165,252	\$ 175,329	\$ (10,077)	\$ 944,296	18.57
2018	\$ 193,183	\$ 179,781	\$ 13,402	\$ 976,657	18.41
2019	\$ 173,459	\$ 188,317	\$ (14,858)	\$ 1,011,421	18.62
2020	\$ 177,855	\$ 207,319	\$ (29,464)	\$ 1,069,481	19.39
2021	\$ 174,405	\$ 219,129	\$ (44,724)	\$ 1,096,195	19.99
2022	\$ 153,766	\$ 224,416	\$ (70,650)	\$ 1,127,314	19.91
2023	\$ 161,733	\$ 241,305	\$ (79,572)	\$ 1,224,322	19.71
2024	\$ 260,208	\$ 273,613	\$ (13,405)	\$ 1,296,500	21.10

Notes to Schedule of Contributions

Methods and Assumptions Used to Determine Contribution Rates for Fiscal Year Ending June 30, 2024:

Valuation Date	June 30, 2023
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	26 years
Asset Valuation Method	5-Year smoothed market; no corridor
Inflation	2.25%
Payroll Growth	3.00%
Salary Increases	3.00% to 11.75% including inflation
Investment Rate of Return	7.00%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2021 valuation pursuant to an experience study of the period 2015 - 2019.
Mortality	Pub-2010 Public Safety Mortality Tables projected with mortality improvement scale MP-2021, from a base year of 2010. Male retiree rates adjusted by a factor of 0.98.

Other Information:

Notes	The plan is assumed to pay a 1.00% post retirement benefit increase for all future years. See separate funding report as of June 30, 2023 for additional detail.
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Schedule of Investment Returns Multiyear

Last 10 Fiscal Years

<u>FY Ending June 30,</u>	<u>Annual Return¹</u>
2015	4.5 %
2016	(0.1)
2017	15.2
2018	10.5
2019	7.3
2020	4.2
2021	30.3
2022	(6.4)
2023	8.9
2024	12.3

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, 2024, the annual money-weighted rate of return for the Public Employees Police and Fire Plan was 12.3%. 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.

To request additional information about the computation of the annual money-weighted rate of return and the investments for the Minnesota Retirement Systems (including the investments for PERA's defined benefit retirement funds), contact SBI at 60 Empire Drive, Suite 100, 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, 2024, these estimates are summarized in the following table:

<u>Asset Class</u>	<u>Target Allocation</u>	<u>Long-Term Expected Real Rate of Return (geometric)</u>
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	<u>100%</u>	

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 7.00%. This assumption is based on reviews of inflation and investment return assumptions included in the General Employees Retirement Plan Experience Study report dated June 29, 2023.

Single Discount Rate

A single discount rate of 7.00% was used to measure the total pension liability. This single discount rate was based on the expected rate of return on pension plan investments of 7.00%. The projection of cash flows used to determine this single discount rate assumed that plan member and employer contributions will be made at the current statutory 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 7.00%, 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 6.00%	Current Single Discount Rate Assumption 7.00%	1% Increase 8.00%
Total Pension Liability	\$ 15,174,273	\$ 13,380,841	\$ 11,908,058
Net Position Restricted for Pensions	\$ 12,065,232	\$ 12,065,232	\$ 12,065,232
Net Pension Liability	\$ 3,109,041	\$ 1,315,609	\$ (157,174)

For more information on the calculation of the single discount rate, refer to Section G of this report.

Note that we believe the 8.00% interest rate assumption does not comply with the 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		Pension Expense*
				Deferred Outflows	Deferred Inflows	
Balance Beginning of Year	\$ 12,765,798	\$ 11,038,928	\$ 1,726,870			
Changes for the Year:						
Service Cost	\$ 280,316		\$ 280,316			\$ 280,316
Interest on Total Pension Liability	\$ 878,035		\$ 878,035			\$ 878,035
Interest on Fiduciary Net Position		\$ 762,191	\$ (762,191)			\$ (762,191)
Changes in Benefit Terms	\$ -		\$ -			\$ -
Liability Experience Gains and Losses	\$ 181,901		\$ 181,901	\$ 151,584	\$ -	\$ 30,317
Changes in Assumptions	\$ -		\$ -	\$ -	\$ -	\$ -
Contributions - Employer		\$ 273,613	\$ (273,613)			
Contributions - Employees		\$ 152,987	\$ (152,987)			\$ (152,987)
Asset Gain/(Loss)		\$ 565,085	\$ (565,085)	\$ -	\$ 452,068	\$ (113,017)
Benefit Payouts	\$ (725,209)	\$ (725,209)				
Administrative Expenses		\$ (1,747)	\$ 1,747			\$ 1,747
Other		\$ (616)	\$ 616			\$ 616
Net Changes	\$ 615,043	\$ 1,026,304	\$ (411,261)	\$ 151,584	\$ 452,068	\$ 162,836
Balance End of Year	\$ 13,380,841	\$ 12,065,232	\$ 1,315,609			

* 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	\$ 12,765,798	\$ 11,038,928	\$ 1,726,870				
Changes for the Year:							
Service Cost	\$ 280,316		\$ 280,316				\$ 280,316
Interest on Total Pension Liability	\$ 878,035		\$ 878,035				\$ 878,035
Interest on Fiduciary Net Position		\$ 762,191	\$ (762,191)				\$ (762,191)
Changes in Benefit Terms	\$ -		\$ -				\$ -
Liability Experience Gains and Losses	\$ 181,901		\$ 181,901	\$ 512,703	\$ -	\$ 476,156	\$ 145,354
Changes in Assumptions	\$ -		\$ -	\$ 1,446,194	\$ 1,937,268	\$ (424,109)	\$ 66,965
Contributions - Employer		\$ 273,613	\$ (273,613)				
Contributions - Employees		\$ 152,987	\$ (152,987)				\$ (152,987)
Asset Gain/(Loss)		\$ 565,085	\$ (565,085)	\$ 573,065	\$ 1,000,837	\$ (82,897)	\$ (220,210)
Benefit Payouts	\$ (725,209)	\$ (725,209)	\$ -				\$ -
Administrative Expenses		\$ (1,747)	\$ 1,747				\$ 1,747
Other		\$ (616)	\$ 616				\$ 616
Net Changes	\$ 615,043	\$ 1,026,304	\$ (411,261)				\$ 237,645
Balance End of Year	\$ 13,380,841	\$ 12,065,232	\$ 1,315,609	\$ 2,531,962	\$ 2,938,105	\$ (30,850)	

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

Summary of Population Statistics

	Terminated			Recipients			Total
	Actives	Deferred Retirement	Other Non-Vested	Service Retirement	Disability Retirement	Survivor	
Members on 7/1/2023	11,635	1,966	941	8,492	2,111	1,998	27,143
New members	897						897
Return to active	109	(55)	(53)	0	(1)	0	0
Terminated non-vested	(77)	0	77	0	0	0	0
Service retirements	(242)	(148)	0	390	0	0	0
Terminated deferred	(201)	201	0	0	0	0	0
Terminated refund/transfer	(46)	(42)	(80)	0	0	0	(168)
Deaths	(10)	(4)	(3)	(204)	(35)	(122)	(378)
New beneficiary	0	0	0	0	0	150	150
Disabled	(71)	0	0	0	71	0	0
Data adjustments	0	22	12	2	40	0	76
Net change	359	(26)	(47)	188	75	28	577
Members on 6/30/2024	11,994	1,940	894	8,680	2,186	2,026	27,720

SECTION E

SUMMARY OF BENEFITS

Summary of Plan Provisions – Police and Fire Plan

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	All full-time and certain part-time police officers and fire fighters, and certain paramedics, who are not contributing to any other local retirement fund.		
Contributions	<u>Effective as of</u>	<u>Member</u>	<u>Employer</u> <u>Total</u>
	January 1, 2020 and later	11.80%	17.70% 29.50%
	Member contributions are “picked up” according to the provisions of Internal Revenue Code 414(h).		
State contributions	<p>\$9 million paid annually on October 1 until both PERA P&F and MSRS State Patrol achieve 90% funded status for three years (on an actuarial value of assets basis), or July 1, 2048, if earlier.</p> <p>In addition, \$9.0 million paid annually until the plan reaches 100% funding ratio for three years on an actuarial value of assets basis, or July 1, 2048, if earlier.</p>		
Allowable service	Police and Fire 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, 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 salary. Average Salary is based on all Allowable Service if less than five years.		
Vesting		<u>Vesting if First Hired</u>	
	Years of Service	Before 7/1/2010	After 6/30/2010
	<3	0%	0%
	3 – 4	100	0
	5	100	50
	6	100	60
	7	100	70
	8	100	80
	9	100	90
	10+	100	100

Summary of Plan Provisions – Police and Fire Plan (Continued)

Retirement

Normal retirement benefit

Age/service requirement Age 55 and at least partially vested. Proportionate Retirement Annuity is available at age 65 and one year of Allowable Service.

Amount 3.00% of Average Salary for each year of Allowable Service (up to 33 years if hired after June 30, 2014), pro-rata for completed months, adjusted for partial vesting if applicable. A pro-rata share of member contributions will be refunded at retirement for excess service.

Early Retirement

Age/service requirement Age 50 and at least partially vested.

Amount Normal Retirement Benefit based on Allowable Service and Average Salary at retirement date and 0.10% (0.20% for members enrolled in the plan after June 30, 2007) reduction for each month the member is under age 55. If the effective date of retirement is after June 30, 2019, the reduction is 5/12% for each month that the member is under age 55 at the time of retirement.

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 with bounce back feature. The Joint and Survivor options are determined on an actuarially equivalent basis, but with no actuarial reduction for the bounce back feature.

Benefit increases

Benefit recipients receive 1.00% increases each year in January.

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. For retirements after May 31, 2014, the first increase will be delayed two years.

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 – Police and Fire Plan (Continued)

Disability

Duty disability benefit

Age/service requirement Physically or mentally unable to perform normal duties as a police officer or fire fighter as a direct result of an act of duty specific to protecting property and personal safety of others. Psychological treatment is required prior to approval for a duty disability benefit for a psychological condition relating to the member's occupation. Members age 55 or older with 20 or more years of Allowable Service are not eligible to apply for duty disability benefits.

Amount 60.00%, plus an additional 3.00% for each year of service in excess of 20 years, of Average Salary paid until Normal Retirement Age, or for 60 months, whichever is later. The retirement benefit is then recalculated but is never lower than the disability benefit.

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

Regular disability benefit

Age/service requirement Physically or mentally unable to perform normal duties as a police officer or fire fighter with one year of Allowable Service. Members age 55 or older with 15 or more years of Allowable Service are not eligible to apply for regular disability benefits.

Amount 45.00% of Average Salary, paid until Normal Retirement Age, or for 60 months, whichever is later. The retirement benefit is then recalculated but is never lower than the disability benefit. Benefits for total and permanent regular disability are calculated as 3.00% of Average Salary for each year of Allowable Service, with a minimum of 45.00% of Average Salary.

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 post-retirement interest rates from 5.00% to 6.00%.

Total and permanent duty disability benefit

Age/service requirement Member who cannot perform any substantial gainful activity as a direct result of a disability (physical or psychological) relating to an act of duty, which is expected to persist for a period of 12 months or more. If condition no longer qualifies as total and permanent, benefit will be recalculated under the duty disability benefit provisions.

Amount 99% of member's average monthly salary.

Summary of Plan Provisions – Police and Fire Plan (Continued)

Disability (Concluded)

Retirement benefit

Age/service requirement	Upon cessation of disability benefits.
Amount	Any optional annuity continues. Otherwise, the larger of the disability benefit paid before age 55 or the normal retirement benefit available at age 55, or an actuarially equivalent optional annuity.
Form of payment	Same as for retirement.
Benefit increases	Same as for retirement.

Death

Surviving spouse benefit

Age/service requirement	Death of active member or regular disabled member with surviving spouse whose disability benefit accrued before July 1, 2007, who is vested at death (service requirement is waived if death occurs in the line of duty).
Amount	50.00% of salary (60.00% if death occurs in the line of duty after June 30, 2007) averaged over last six months. 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 benefits 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%.

Surviving dependent children's benefit

Age/service requirement	Non-duty related death of active member or regular disabled member with eligible dependent child.
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 salary. Benefits paid until child marries, dies, or attains age 18 (age 23 if full-time student).

Duty disability surviving spouse benefit

Age/service requirement	Member who is totally and permanently disabled who dies before age 55 or within five years of the effective date of the disability benefit, whichever is later.
Amount	60.00% of salary averaged over last six months. Benefits paid until spouse's death but no payments while spouse is remarried prior to July 1, 1991.

Summary of Plan Provisions – Police and Fire Plan (Continued)

Death (Concluded)

Duty disability surviving dependent children's benefit

Age/service requirement Death of a member with an eligible dependent child who was disabled in the line of duty and died as a direct result of the disability.

Amount 10.00% of salary averaged over last six months for each child. Family benefit minimum (including spouse's benefit) of 60.00% of salary and maximum of 80.00% of salary. Benefits paid until child marries, dies, or attains age 18 (age 23 if full-time student).

If a member died prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefits 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%.

Surviving spouse optional annuity

Age/service requirement Active member dies before age 55. Benefits commence when member would have been age 55 or as early as age 50 if qualified for early retirement, benefits commence immediately if member had 30 years of service.

Amount Survivor's payment of the 100% joint and survivor benefit the member could have elected if terminated. Alternatively, spouse may elect refund of deceased's contributions with interest if there are no dependent children.

If a member died prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefits 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.

Summary of Plan Provisions – Police and Fire Plan (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 Partially or 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;
- (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.

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 55 in 2021, reflecting projected mortality improvements using Scale MP-2017, male rates multiplied by 0.96, blended 90% males, and 6.50% interest.

Summary of Plan Provisions – Police and Fire Plan (Concluded)

Combined service annuity	<p>Members are eligible for combined service benefits if they:</p> <ul style="list-style-type: none">(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). <p>Other requirements for combined service include:</p> <ul style="list-style-type: none">(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. <p>Members who meet the above requirements must have their benefits based on the following:</p> <ul style="list-style-type: none">(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.
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Changes in plan provisions	<p>The state contribution of \$9.0 million per year will continue until the earlier of 1) both the Public Employees Retirement Association Police and Fire Plan and the State Patrol Retirement Fund attaining 90% funded status for three consecutive years (on an actuarial value of assets basis) or 2) July 1, 2048. The contribution was previously due to expire upon attainment of 90% funded status for one year.</p>
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The additional \$9.0 million contribution will continue until the Plan is fully funded for a minimum of three consecutive years on an actuarial value of assets basis or July 1, 2048 if earlier. This contribution was previously due to expire upon attainment of fully funded status on an actuarial value of assets basis for one year (or July 1, 2048 if earlier).

Summary of Plan Provisions – Minneapolis Police Relief Association

Normal retirement benefit	<p>Monthly benefits are equal to the number of units multiplied by the unit values described herein. Units are based on service, as follows:</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;"><u>Service</u></th> <th style="text-align: center;"><u>Units</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">20</td> <td style="text-align: center;">35.0 units</td> </tr> <tr> <td style="text-align: center;">21</td> <td style="text-align: center;">36.6 units</td> </tr> <tr> <td style="text-align: center;">22</td> <td style="text-align: center;">38.2 units</td> </tr> <tr> <td style="text-align: center;">23</td> <td style="text-align: center;">39.8 units</td> </tr> <tr> <td style="text-align: center;">24</td> <td style="text-align: center;">41.4 units</td> </tr> <tr> <td style="text-align: center;">25 or more</td> <td style="text-align: center;">43.0 units</td> </tr> </tbody> </table>	<u>Service</u>	<u>Units</u>	20	35.0 units	21	36.6 units	22	38.2 units	23	39.8 units	24	41.4 units	25 or more	43.0 units
<u>Service</u>	<u>Units</u>														
20	35.0 units														
21	36.6 units														
22	38.2 units														
23	39.8 units														
24	41.4 units														
25 or more	43.0 units														
Members must be at least age 50 with 5 years of service to receive this benefit.															
Unit values	<table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;"><u>Calendar Year</u></th> <th style="text-align: center;"><u>Unit Value</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">2012</td> <td style="text-align: center;">\$ 104.651</td> </tr> <tr> <td style="text-align: center;">2013</td> <td style="text-align: center;">109.011</td> </tr> <tr> <td style="text-align: center;">2014</td> <td style="text-align: center;">114.825</td> </tr> <tr> <td style="text-align: center;">2015</td> <td style="text-align: center;">124.031</td> </tr> </tbody> </table> <p style="margin-left: 40px;">Unit values after 2015 are assumed to increase the same percentage as the post-retirement benefit increase.</p>	<u>Calendar Year</u>	<u>Unit Value</u>	2012	\$ 104.651	2013	109.011	2014	114.825	2015	124.031				
<u>Calendar Year</u>	<u>Unit Value</u>														
2012	\$ 104.651														
2013	109.011														
2014	114.825														
2015	124.031														
Surviving spouse's benefit	Annual benefit based on 23 units for the surviving spouse of an active or retired member. Upon retirement, members may choose an alternative form of payment that provides 50%, 75%, or 100% of their benefit to their spouse after their death. The units are adjusted if one of these alternate forms is selected.														
Surviving children's benefit	Annual benefit based on 8 units for each surviving child of an active or retired member. Benefits continue to age 18 or if the child is a full-time student, to age 22. The total benefit for surviving children and spouse combined is limited to 41 units.														
Contributions	<p>Member and employer contributions equal to 8.00% of the monthly unit value multiplied by 80 are required for each member. After 25 years of service, member contributions are paid to a separate health insurance account.</p> <p>Until July 15, 2018, the employer contributed annually an amount to amortize the unfunded liability by December 31, 2031. Beginning July 15, 2019, the employer will contribute \$4,489,837 each July 15 through 2031.</p>														
Benefit increases	Benefit recipients receive 1.00% increases each year in January.														

Summary of Plan Provisions – Minneapolis Firefighters’ Relief Association

Normal retirement benefit	Monthly benefits are equal to the number of units multiplied by the unit values described herein. Units are based on service, as follows:	
	<u>Service</u>	<u>Units</u>
	15	25.0 units
	16	26.6 units
	17	28.2 units
	18	29.8 units
	19	31.4 units
	20	35.0 units
	21	36.6 units
	22	38.2 units
	23	39.8 units
	24	41.4 units
	25 or more	43.0 units
	Members must be at least age 50 with 5 years of service to receive this benefit. Members may choose among alternative survivor payment forms which modify the number of units payable to the member and their spouse. A member who is single at the time of retirement and who has at least 25 years of service may choose to receive 43.3 units on the condition of a reduced survivor payment to any future spouse.	
Unit values	<u>Calendar Year</u>	<u>Unit Value</u>
	2013	\$100.775
	2014	104.264
	2015	124.031
	Unit values after 2015 are assumed to increase the same percentage as the post-retirement benefit increase.	
Disability benefit	Annual benefit based on 41 units for the disabled member.	
Surviving spouse’s benefit	Annual benefit based on 23 units for the surviving spouse of an active or retired member and 22 units for the surviving spouse of a disabled member. Upon retirement, members may choose an alternative form of payment that provides 50%, 75% or 100% of their benefit to their spouse after their death. The units are adjusted if one of these alternate forms is selected.	
Surviving children’s benefit	Annual benefit based on 8 units for each surviving child of an active or retired member. Benefits continue to age 18 or if the child is a full-time student, to age 22. The total benefit for surviving children and spouse combined is limited to 43 units.	
Contributions	Member and employer contributions equal to 8.00% of the monthly unit value multiplied by 80 are required for each member. After 25 years of service, member contributions are paid to a separate health insurance account. Until July 15, 2018, the employer contributed annually an amount to amortize the unfunded liability by December 31, 2031. Beginning July 15, 2019, the employer will contribute \$3,188,735 each July 15 through 2031.	
Benefit increases	Benefit recipients receive 1.00% increases each year in January.	



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.

Asset Valuation Method

Fair value of assets.

Summary of Actuarial Assumptions

The following assumptions were used in valuing the liabilities and benefits under the plan. The assumptions are based on the last experience study dated July 14, 2020, and a review of inflation and investment assumptions in the General Employees Retirement Plan Experience Study, dated June 29, 2023. An experience study for the 2019-2023 period was issued on July 31, 2024. This report recommended changes to demographic assumptions, expected to be effective at a future date. 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	7.00% per annum.
Single Discount Rate	7.00% 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 Public Safety Employee Mortality Table adjusted for mortality improvements using projection scale MP-2021.
Healthy post-retirement	Pub-2010 Healthy Retired Public Safety Mortality Table adjusted for mortality improvements using projection scale MP-2021. Male rates are multiplied by a factor of 0.98.
Disabled	Pub-2010 Public Safety Disabled Retiree Mortality Table, adjusted for mortality improvements using projection scale MP-2021. Male rates are multiplied by a factor of 1.05.
Notes	Pre-retirement deaths are assumed to be duty related. 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 rate table. Members who have attained the highest assumed retirement age are assumed to retire in one year. Note that plan changes reflected in this report may ultimately result in behavior changes that are not anticipated in the current retirement rates.
Withdrawal	Service-related rates based on actual experience; see table of sample rates

Summary of Actuarial Assumptions (Continued)

Disability	Age-related rates based on experience; see table of sample rates. All incidences are assumed to be duty-related. There is no assumed incidence of the total and permanent duty disability benefit; actual incidence of this benefit will be monitored and may be included in future valuations.																
Allowance for combined service annuity	Liabilities for former members are increased by 33.0% for vested members and 2.0% 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 percentage of prior year projected 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 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 age 55.																
Percentage married	85% 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 be two years older than females. 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	<p>Married members retiring from active status are assumed to elect subsidized joint and survivor form of annuity as follows:</p> <table style="margin-left: 40px;"> <tr> <td>Males:</td> <td>7.5% elect 25% Joint & Survivor option</td> </tr> <tr> <td></td> <td>15.0% elect 50% Joint & Survivor option</td> </tr> <tr> <td></td> <td>12.5% elect 75% Joint & Survivor option</td> </tr> <tr> <td></td> <td>55.0% elect 100% Joint & Survivor option</td> </tr> <tr> <td>Females:</td> <td>15.0% elect 25% Joint & Survivor option</td> </tr> <tr> <td></td> <td>30.0% elect 50% Joint & Survivor option</td> </tr> <tr> <td></td> <td>5.0% elect 75% Joint & Survivor option</td> </tr> <tr> <td></td> <td>20.0% elect 100% Joint & Survivor option</td> </tr> </table> <p>Remaining married members and unmarried members are assumed to elect the Straight Life option.</p> <p>Disabled members younger than Normal Retirement Age who are reported with a life annuity are assumed to instead have the 100% Joint & Survivor option to account for survivor benefits payable prior to Normal Retirement Age.</p> <p>Members receiving deferred annuities (including current terminated deferred members) are assumed to elect a straight life annuity.</p>	Males:	7.5% elect 25% Joint & Survivor option		15.0% elect 50% Joint & Survivor option		12.5% elect 75% Joint & Survivor option		55.0% elect 100% Joint & Survivor option	Females:	15.0% elect 25% Joint & Survivor option		30.0% elect 50% Joint & Survivor option		5.0% elect 75% Joint & Survivor option		20.0% elect 100% Joint & Survivor option
Males:	7.5% elect 25% Joint & Survivor option																
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	12.5% elect 75% Joint & Survivor option																
	55.0% elect 100% Joint & Survivor option																
Females:	15.0% elect 25% Joint & Survivor option																
	30.0% elect 50% Joint & Survivor option																
	5.0% elect 75% Joint & Survivor option																
	20.0% elect 100% Joint & Survivor option																
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.																

Summary of Actuarial Assumptions (Continued)

Service credit accruals	It is assumed that members accrue one year of service credit per year.
Benefit service	Exact fractional service is used to determine the amount of benefit payable.
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.
Final average salary	For present value of future benefit purposes, final average salary was calculated in accordance with pay increase assumptions, but was not permitted to fall below the final average salary reported in the data.
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:

Data for active members:

There were 42 members reported with a salary less than \$100 after annualization. We used prior year salary (33 members), if available; otherwise high five salary with a 10% load to account for salary increases (9 members). If neither prior year salary nor high five salary was available, we assumed a value of \$60,000 (0 members).

There were also 312 members reported without a gender. We assumed male gender. There were 9 members reported without a date of birth. We assumed these members were hired at age 30.

Data for terminated members:

We calculated benefits for these members using the reported Average Salary and credited service. If credited service was not reported (14 members), we used elapsed time from hire date to termination date (5 members); if elapsed time was not available, we assumed nine years of service. If termination date was invalid or not reported (8 members), we assumed the termination date was equal to the hire date plus credited service, otherwise the valuation date. If the reported termination date occurs prior to the reported hire date, the two dates were swapped.

There were 39 members reported without a gender; male was assumed.

There were 20 members reported without a date of birth.

Data for retired members:

There were no members with missing or invalid dates of birth. There were no members reported with a \$0 benefit amount. There were 30 members reported without a gender. We assumed retirees are male and beneficiaries are female.

Summary of Actuarial Assumptions (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 400 retirees as disabled retirees in this valuation.
Changes in actuarial assumptions since the prior valuation	There were no changes in actuarial assumptions since the prior valuation.

Summary of Actuarial Assumptions (Continued)

Age in 2024	Percentage of Members Dying Each Year*					
	Healthy Post- Retirement Mortality**		Healthy Pre- Retirement Mortality**		Disability Mortality**	
	Males	Females	Males	Females	Males	Females
20	0.04%	0.02%	0.04%	0.02%	0.13%	0.06%
25	0.04	0.02	0.04	0.02	0.13	0.08
30	0.06	0.04	0.06	0.04	0.18	0.12
35	0.07	0.05	0.07	0.05	0.22	0.17
40	0.09	0.06	0.08	0.06	0.25	0.20
45	0.13	0.08	0.09	0.07	0.28	0.22
50	0.18	0.13	0.11	0.08	0.35	0.27
55	0.28	0.25	0.17	0.12	0.48	0.45
60	0.51	0.46	0.27	0.17	0.78	0.72
65	0.86	0.73	0.41	0.22	1.24	1.00
70	1.41	1.15	0.70	0.39	1.84	1.40
75	2.43	1.98	1.26	0.78	2.99	2.11
80	4.41	3.56	2.36	1.62	5.19	3.56
85	8.12	6.37	7.41	5.58	8.77	6.37
90	14.43	11.20	14.72	11.20	15.46	11.20

* Generally, mortality rates are expected to increase as age increases. These standard mortality rates have been adjusted slightly to prevent decreasing mortality rates. The adjustment has no material effect on results.

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

Age	Rates of Disability Retirement	
	Males	Females
	20	0.11%
25	0.14	0.14
30	0.21	0.21
35	0.34	0.34
40	0.54	0.54
45	0.62	0.62
50	0.95	0.95
55	1.30	1.30
60	1.30	1.30

Summary of Actuarial Assumptions (Concluded)

Age	Rates of Service	Year	Withdrawal	Salary Scale	
	Retirement		Rates	Year	Increase
50	7.50%	1	6.00%	1	11.75%
51	5.00	2	4.00	2	9.25%
52	5.00	3	2.75	3	8.00%
53	7.50	4	2.50	4	7.00%
54	10.00	5	2.50	5	5.50%
55	30.00	6	2.25	6	4.80%
56	20.00	7	2.25	7	4.60%
57	22.50	8	2.00	8	4.30%
58	25.00	9	2.00	9	4.10%
59	25.00	10	2.00	10	4.00%
60	20.00	11	1.75	11	3.90%
61	25.00	12	1.50	12	3.80%
62	30.00	13	1.50	13	3.70%
63	27.50	14	1.50	14	3.60%
64	27.50	15	1.50	15	3.50%
65	50.00	16	1.50	16	3.50%
66	40.00	17	1.50	17	3.50%
67	50.00	18	1.25	18	3.50%
68	50.00	19	1.25	19	3.40%
69	50.00	20	1.25	20	3.40%
70+	100.00	21+	1.00	21	3.40%
				22	3.30%
				23	3.15%
				24	3.00%
				25+	3.00%

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 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 7.00%, the municipal bond rate is 3.97%; and **the resulting single discount rate is 7.00%**.

The tables in this section provide background for the development of the single discount rate.

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

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

The **Present Values of Projected Benefit Payments** table shows the development of the Single Discount Rate. 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)

Fiscal Year Ending	Payroll			Projected Contributions					
	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*	Contributions due from Mergers	Additional State Contributions**	Total Contributions
2024	\$ 1,296,500	\$ 0	\$ 1,296,500						
2025	1,287,342	12,292	1,299,634	\$ 151,906	\$ 227,859	\$ 739	\$ 7,679	\$ 18,000	\$ 406,183
2026	1,274,415	64,208	1,338,623	150,381	225,572	3,856	7,679	18,000	405,488
2027	1,256,617	122,164	1,378,781	148,281	222,421	7,338	7,679	18,000	403,719
2028	1,234,640	185,505	1,420,145	145,688	218,531	11,142	7,679	9,000	392,040
2029	1,209,742	253,007	1,462,749	142,750	214,124	15,197	7,679	9,000	388,750
2030	1,182,946	323,686	1,506,632	139,588	209,381	19,442	7,679	9,000	385,090
2031	1,154,511	397,320	1,551,831	136,232	204,348	23,865	7,679	9,000	381,124
2032	1,124,645	473,741	1,598,386	132,708	199,062	28,455	7,679	9,000	376,904
2033	1,093,246	553,091	1,646,337	129,003	193,504	33,222	0	9,000	364,729
2034	1,060,395	635,332	1,695,727	125,127	187,690	38,160	0	9,000	359,977
2035	1,025,829	720,770	1,746,599	121,048	181,572	43,292	0	9,000	354,912
2036	989,451	809,546	1,798,997	116,755	175,133	48,625	0	9,000	349,513
2037	950,930	902,037	1,852,967	112,210	168,315	54,180	0	9,000	343,705
2038	910,353	998,203	1,908,556	107,422	161,132	59,957	0	9,000	337,511
2039	868,352	1,097,461	1,965,813	102,466	153,698	65,918	0	9,000	331,082
2040	825,131	1,199,656	2,024,787	97,366	146,048	72,056	0	9,000	324,470
2041	781,143	1,304,388	2,085,531	92,175	138,262	78,348	0	9,000	317,785
2042	736,584	1,411,513	2,148,097	86,917	130,375	84,782	0	9,000	311,074
2043	691,307	1,521,232	2,212,539	81,574	122,361	91,373	0	9,000	304,308
2044	645,419	1,633,497	2,278,916	76,159	114,239	98,116	0	9,000	297,514
2045	598,765	1,748,518	2,347,283	70,654	105,981	105,024	0	9,000	290,659
2046	551,225	1,866,477	2,417,702	65,045	97,567	112,108	0	9,000	283,720
2047	502,629	1,987,604	2,490,233	59,310	88,965	119,385	0	9,000	276,660
2048	453,378	2,111,562	2,564,940	53,499	80,248	126,829	0	0	260,576
2049	404,585	2,237,303	2,641,888	47,741	71,611	134,383	0	0	253,735
2050	357,221	2,363,923	2,721,144	42,152	63,228	141,988	0	0	247,368
2051	311,509	2,491,270	2,802,779	36,758	55,137	149,637	0	0	241,532
2052	267,526	2,619,336	2,886,862	31,568	47,352	157,329	0	0	236,249
2053	225,898	2,747,570	2,973,468	26,656	39,984	165,031	0	0	231,671
2054	187,306	2,875,366	3,062,672	22,102	33,153	172,708	0	0	227,963
2055	152,392	3,002,160	3,154,552	17,982	26,973	180,324	0	0	225,279
2056	121,522	3,127,667	3,249,189	14,340	21,509	187,862	0	0	223,711
2057	95,036	3,251,628	3,346,664	11,214	16,821	195,308	0	0	223,343
2058	73,089	3,373,975	3,447,064	8,624	12,937	202,656	0	0	224,217
2059	55,381	3,495,095	3,550,476	6,535	9,802	209,931	0	0	226,268
2060	41,434	3,615,557	3,656,991	4,889	7,334	217,166	0	0	229,389
2061	30,563	3,736,137	3,766,700	3,606	5,410	224,409	0	0	233,425
2062	22,126	3,857,575	3,879,701	2,611	3,916	231,703	0	0	238,230
2063	15,627	3,980,465	3,996,092	1,844	2,766	239,085	0	0	243,695
2064	10,706	4,105,269	4,115,975	1,263	1,895	246,581	0	0	249,739
2065	7,076	4,232,378	4,239,454	835	1,252	254,216	0	0	256,303
2066	4,476	4,362,162	4,366,638	528	792	262,011	0	0	263,331
2067	2,685	4,494,952	4,497,637	317	475	269,987	0	0	270,779
2068	1,517	4,631,049	4,632,566	179	268	278,162	0	0	278,609
2069	798	4,770,745	4,771,543	94	141	286,553	0	0	286,788
2070	391	4,914,299	4,914,690	46	69	295,175	0	0	295,290
2071	176	5,061,954	5,062,130	21	31	304,043	0	0	304,095
2072	69	5,213,925	5,213,994	8	12	313,172	0	0	313,192
2073	22	5,370,392	5,370,414	3	4	322,569	0	0	322,576
2074	5	5,531,521	5,531,526	1	1	332,247	0	0	332,249

* Equal to contributions (29.50% of payroll for new employees) net of normal cost and expenses (23.49% of payroll).

** State contributions equal to \$9.0 million are assumed to end after 3 years. Additional state contributions of \$9.0 million until 100% funded for three consecutive years (or until 2048 if earlier) on an actuarial value of assets basis are assumed to stop after 23 years. Actual end dates will depend on the funding status of this plan and the MSRS State Patrol Plan.



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

Fiscal Year Ending	Payroll			Projected Contributions					
	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*	Contributions due from Mergers	Additional State Contributions**	Total Contributions
2075	\$ 1	\$ 5,697,471	\$ 5,697,472	\$ 0	\$ 0	\$ 342,216	\$ 0	\$ 0	\$ 342,216
2076	0	5,868,396	5,868,396	0	0	352,482	0	0	352,482
2077	0	6,044,448	6,044,448	0	0	363,057	0	0	363,057
2078	0	6,225,782	6,225,782	0	0	373,948	0	0	373,948
2079	0	6,412,555	6,412,555	0	0	385,167	0	0	385,167
2080	0	6,604,932	6,604,932	0	0	396,722	0	0	396,722
2081	0	6,803,080	6,803,080	0	0	408,623	0	0	408,623
2082	0	7,007,172	7,007,172	0	0	420,882	0	0	420,882
2083	0	7,217,387	7,217,387	0	0	433,509	0	0	433,509
2084	0	7,433,909	7,433,909	0	0	446,514	0	0	446,514
2085	0	7,656,926	7,656,926	0	0	459,909	0	0	459,909
2086	0	7,886,634	7,886,634	0	0	473,706	0	0	473,706
2087	0	8,123,233	8,123,233	0	0	487,918	0	0	487,918
2088	0	8,366,930	8,366,930	0	0	502,555	0	0	502,555
2089	0	8,617,938	8,617,938	0	0	517,632	0	0	517,632
2090	0	8,876,476	8,876,476	0	0	533,161	0	0	533,161
2091	0	9,142,770	9,142,770	0	0	549,156	0	0	549,156
2092	0	9,417,053	9,417,053	0	0	565,630	0	0	565,630
2093	0	9,699,565	9,699,565	0	0	582,599	0	0	582,599
2094	0	9,990,552	9,990,552	0	0	600,077	0	0	600,077
2095	0	10,290,269	10,290,269	0	0	618,080	0	0	618,080
2096	0	10,598,977	10,598,977	0	0	636,622	0	0	636,622
2097	0	10,916,946	10,916,946	0	0	655,721	0	0	655,721
2098	0	11,244,454	11,244,454	0	0	675,392	0	0	675,392
2099	0	11,581,788	11,581,788	0	0	695,654	0	0	695,654
2100	0	11,929,242	11,929,242	0	0	716,524	0	0	716,524
2101	0	12,287,119	12,287,119	0	0	738,019	0	0	738,019
2102	0	12,655,732	12,655,732	0	0	760,160	0	0	760,160
2103	0	13,035,404	13,035,404	0	0	782,965	0	0	782,965
2104	0	13,426,467	13,426,467	0	0	806,454	0	0	806,454
2105	0	13,829,261	13,829,261	0	0	830,647	0	0	830,647
2106	0	14,244,138	14,244,138	0	0	855,567	0	0	855,567
2107	0	14,671,463	14,671,463	0	0	881,234	0	0	881,234
2108	0	15,111,606	15,111,606	0	0	907,671	0	0	907,671
2109	0	15,564,955	15,564,955	0	0	934,901	0	0	934,901
2110	0	16,031,903	16,031,903	0	0	962,948	0	0	962,948
2111	0	16,512,860	16,512,860	0	0	991,836	0	0	991,836
2112	0	17,008,246	17,008,246	0	0	1,021,591	0	0	1,021,591
2113	0	17,518,494	17,518,494	0	0	1,052,239	0	0	1,052,239
2114	0	18,044,048	18,044,048	0	0	1,083,806	0	0	1,083,806
2115	0	18,585,370	18,585,370	0	0	1,116,320	0	0	1,116,320
2116	0	19,142,931	19,142,931	0	0	1,149,810	0	0	1,149,810
2117	0	19,717,219	19,717,219	0	0	1,184,304	0	0	1,184,304
2118	0	20,308,735	20,308,735	0	0	1,219,833	0	0	1,219,833
2119	0	20,917,997	20,917,997	0	0	1,256,428	0	0	1,256,428
2120	0	21,545,537	21,545,537	0	0	1,294,121	0	0	1,294,121
2121	0	22,191,903	22,191,903	0	0	1,332,945	0	0	1,332,945
2122	0	22,857,661	22,857,661	0	0	1,372,933	0	0	1,372,933
2123	0	23,543,390	23,543,390	0	0	1,414,121	0	0	1,414,121
2124	0	24,249,692	24,249,692	0	0	1,456,545	0	0	1,456,545

* Equal to contributions (29.50% of payroll for new employees) net of normal cost and expenses (23.49% of payroll).

** State contributions equal to \$9.0 million are assumed to end after 3 years. Additional state contributions of \$9.0 million until 100% funded for three consecutive years (or until 2048 if earlier) on an actuarial value of assets basis are assumed to stop after 23 years. Actual end dates will depend on the funding status of this plan and the MSRS State Patrol Plan.



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 7.00%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2025	\$ 12,065,232	\$ 406,183	\$ 736,975	\$ 1,802	\$ 833,122	\$ 12,565,760
2026	12,565,760	405,488	765,463	1,784	867,156	13,071,158
2027	13,071,158	403,719	795,555	1,759	901,438	13,579,000
2028	13,579,000	392,040	826,661	1,728	935,516	14,078,167
2029	14,078,167	388,750	857,262	1,694	969,293	14,577,254
2030	14,577,254	385,090	889,808	1,656	1,002,984	15,073,865
2031	15,073,865	381,124	922,351	1,616	1,036,492	15,567,514
2032	15,567,514	376,904	955,194	1,575	1,069,774	16,057,423
2033	16,057,423	364,729	988,459	1,531	1,102,506	16,534,668
2034	16,534,668	359,977	1,022,123	1,485	1,134,593	17,005,631
2035	17,005,631	354,912	1,056,511	1,436	1,166,204	17,468,801
2036	17,468,801	349,513	1,091,976	1,385	1,197,222	17,922,174
2037	17,922,174	343,705	1,128,393	1,331	1,227,507	18,363,661
2038	18,363,661	337,511	1,165,000	1,274	1,256,940	18,791,837
2039	18,791,837	331,082	1,202,304	1,216	1,285,410	19,204,809
2040	19,204,809	324,470	1,240,000	1,155	1,312,795	19,600,920
2041	19,600,920	317,785	1,277,520	1,094	1,339,004	19,979,095
2042	19,979,095	311,074	1,314,651	1,031	1,363,970	20,338,458
2043	20,338,458	304,308	1,351,477	968	1,387,628	20,677,948
2044	20,677,948	297,514	1,387,815	904	1,409,910	20,996,654
2045	20,996,654	290,659	1,424,412	838	1,430,727	21,292,790
2046	21,292,790	283,720	1,461,178	772	1,449,955	21,564,515
2047	21,564,515	276,660	1,498,395	704	1,467,454	21,809,531
2048	21,809,531	260,576	1,535,735	635	1,482,770	22,016,507
2049	22,016,507	253,735	1,572,208	566	1,495,770	22,193,237
2050	22,193,237	247,368	1,606,576	500	1,506,742	22,340,270
2051	22,340,270	241,532	1,638,920	436	1,515,723	22,458,169
2052	22,458,169	236,249	1,669,254	375	1,522,752	22,547,542
2053	22,547,542	231,671	1,696,865	316	1,527,903	22,609,934
2054	22,609,934	227,963	1,720,613	262	1,531,327	22,648,349
2055	22,648,349	225,279	1,739,500	213	1,533,276	22,667,190
2056	22,667,190	223,711	1,753,000	170	1,534,078	22,671,808
2057	22,671,808	223,343	1,760,498	133	1,534,131	22,668,652
2058	22,668,652	224,217	1,761,574	102	1,533,905	22,665,098
2059	22,665,098	226,268	1,756,457	78	1,533,903	22,668,734
2060	22,668,734	229,389	1,745,672	58	1,534,637	22,687,031
2061	22,687,031	233,425	1,730,062	43	1,536,594	22,726,945
2062	22,726,945	238,230	1,710,331	31	1,540,233	22,795,047
2063	22,795,047	243,695	1,686,946	22	1,545,993	22,897,767
2064	22,897,767	249,739	1,660,248	15	1,554,310	23,041,553
2065	23,041,553	256,303	1,630,525	10	1,565,624	23,232,945
2066	23,232,945	263,331	1,598,072	6	1,580,380	23,478,578
2067	23,478,578	270,779	1,563,150	4	1,599,032	23,785,236
2068	23,785,236	278,609	1,525,998	2	1,622,046	24,159,891
2069	24,159,891	286,788	1,486,844	1	1,649,901	24,609,735
2070	24,609,735	295,290	1,445,883	1	1,683,092	25,142,233
2071	25,142,233	304,095	1,403,293	0	1,722,135	25,765,170
2072	25,765,170	313,192	1,359,210	0	1,767,570	26,486,723
2073	26,486,723	322,576	1,313,732	0	1,819,967	27,315,534
2074	27,315,534	332,249	1,266,944	0	1,879,926	28,260,765

For purposes of this projection, we assumed the 29.50% statutory contribution rate would continue after the plan becomes fully funded.

Totals may not add due to rounding.



Single Discount Rate Development

Projection of Plan Fiduciary Net Position (Concluded)

(Dollars in Thousands)

Fiscal Year Ending	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.00%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2075	\$ 28,260,765	\$ 342,216	\$ 1,218,923	\$ 0	\$ 1,948,088	\$ 29,332,146
2076	29,332,146	352,482	1,169,746	0	2,025,130	30,540,012
2077	30,540,012	363,057	1,119,496	0	2,111,773	31,895,345
2078	31,895,345	373,948	1,068,268	0	2,208,784	33,409,809
2079	33,409,809	385,167	1,016,168	0	2,316,975	35,095,783
2080	35,095,783	396,722	963,314	0	2,437,209	36,966,400
2081	36,966,400	408,623	909,840	0	2,570,402	39,035,586
2082	39,035,586	420,882	855,895	0	2,717,523	41,318,095
2083	41,318,095	433,509	801,646	0	2,879,600	43,829,558
2084	43,829,558	446,514	747,282	0	3,057,720	46,586,510
2085	46,586,510	459,909	693,016	0	3,253,035	49,606,438
2086	49,606,438	473,706	639,088	0	3,466,760	52,907,817
2087	52,907,817	487,918	585,765	0	3,700,180	56,510,150
2088	56,510,150	502,555	533,333	0	3,954,651	60,434,023
2089	60,434,023	517,632	482,101	0	4,231,604	64,701,159
2090	64,701,159	533,161	432,389	0	4,532,548	69,334,479
2091	69,334,479	549,156	384,527	0	4,859,078	74,358,187
2092	74,358,187	565,630	338,843	0	5,212,876	79,797,850
2093	79,797,850	582,599	295,654	0	5,595,723	85,680,518
2094	85,680,518	600,077	255,253	0	6,009,501	92,034,844
2095	92,034,844	618,080	217,892	0	6,456,209	98,891,241
2096	98,891,241	636,622	183,769	0	6,937,969	106,282,063
2097	106,282,063	655,721	153,015	0	7,457,042	114,241,810
2098	114,241,810	675,392	125,685	0	8,015,841	122,807,359
2099	122,807,359	695,654	101,758	0	8,616,950	132,018,204
2100	132,018,204	716,524	81,138	0	9,263,137	141,916,727
2101	141,916,727	738,019	63,661	0	9,957,374	152,548,460
2102	152,548,460	760,160	49,105	0	10,702,858	163,962,373
2103	163,962,373	782,965	37,205	0	11,503,026	176,211,158
2104	176,211,158	806,454	27,667	0	12,361,578	189,351,522
2105	189,351,522	830,647	20,178	0	13,282,493	203,444,484
2106	203,444,484	855,567	14,426	0	14,270,056	218,555,681
2107	218,555,681	881,234	10,107	0	15,328,871	234,755,679
2108	234,755,679	907,671	6,939	0	16,463,890	252,120,301
2109	252,120,301	934,901	4,671	0	17,680,428	270,730,959
2110	270,730,959	962,948	3,087	0	18,984,194	290,675,014
2111	290,675,014	991,836	2,007	0	20,381,309	312,046,152
2112	312,046,152	1,021,591	1,289	0	21,878,337	334,944,792
2113	334,944,792	1,052,239	822	0	23,482,313	359,478,522
2114	359,478,522	1,083,806	524	0	25,200,770	385,762,575
2115	385,762,575	1,116,320	336	0	27,041,779	413,920,338
2116	413,920,338	1,149,810	220	0	29,013,979	444,083,907
2117	444,083,907	1,184,304	147	0	31,126,618	476,394,682
2118	476,394,682	1,219,833	100	0	33,389,596	511,004,012
2119	511,004,012	1,256,428	70	0	35,813,510	548,073,880
2120	548,073,880	1,294,121	50	0	38,409,698	587,777,650
2121	587,777,650	1,332,945	35	0	41,190,298	630,300,858
2122	630,300,858	1,372,933	25	0	44,168,299	675,842,065
2123	675,842,065	1,414,121	17	0	47,357,601	724,613,770
2124	724,613,770	1,456,545	30	0	50,773,080	776,843,365

For purposes of this projection, we assumed the 29.50% statutory contribution rate would continue after the plan becomes fully funded.

Totals may not add due to rounding.



Single Discount Rate Development

Present Values of Projected Benefits

(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}
2025	\$ 12,065,232	\$ 736,975	\$ 736,975	\$ 0	\$ 712,460	\$ 0	\$ 712,460
2026	12,565,760	765,463	765,463	0	691,589	0	691,589
2027	13,071,158	795,555	795,555	0	671,755	0	671,755
2028	13,579,000	826,661	826,661	0	652,355	0	652,355
2029	14,078,167	857,262	857,262	0	632,247	0	632,247
2030	14,577,254	889,808	889,808	0	613,318	0	613,318
2031	15,073,865	922,351	922,351	0	594,158	0	594,158
2032	15,567,514	955,194	955,194	0	575,060	0	575,060
2033	16,057,423	988,459	988,459	0	556,156	0	556,156
2034	16,534,668	1,022,123	1,022,123	0	537,474	0	537,474
2035	17,005,631	1,056,511	1,056,511	0	519,211	0	519,211
2036	17,468,801	1,091,976	1,091,976	0	501,533	0	501,533
2037	17,922,174	1,128,393	1,128,393	0	484,354	0	484,354
2038	18,363,661	1,165,000	1,165,000	0	467,353	0	467,353
2039	18,791,837	1,202,304	1,202,304	0	450,764	0	450,764
2040	19,204,809	1,240,000	1,240,000	0	434,483	0	434,483
2041	19,600,920	1,277,520	1,277,520	0	418,346	0	418,346
2042	19,979,095	1,314,651	1,314,651	0	402,341	0	402,341
2043	20,338,458	1,351,477	1,351,477	0	386,553	0	386,553
2044	20,677,948	1,387,815	1,387,815	0	370,978	0	370,978
2045	20,996,654	1,424,412	1,424,412	0	355,851	0	355,851
2046	21,292,790	1,461,178	1,461,178	0	341,155	0	341,155
2047	21,564,515	1,498,395	1,498,395	0	326,958	0	326,958
2048	21,809,531	1,535,735	1,535,735	0	313,183	0	313,183
2049	22,016,507	1,572,208	1,572,208	0	299,645	0	299,645
2050	22,193,237	1,606,576	1,606,576	0	286,164	0	286,164
2051	22,340,270	1,638,920	1,638,920	0	272,827	0	272,827
2052	22,458,169	1,669,254	1,669,254	0	259,698	0	259,698
2053	22,547,542	1,696,865	1,696,865	0	246,723	0	246,723
2054	22,609,934	1,720,613	1,720,613	0	233,809	0	233,809
2055	22,648,349	1,739,500	1,739,500	0	220,912	0	220,912
2056	22,667,190	1,753,000	1,753,000	0	208,062	0	208,062
2057	22,671,808	1,760,498	1,760,498	0	195,282	0	195,282
2058	22,668,652	1,761,574	1,761,574	0	182,618	0	182,618
2059	22,665,098	1,756,457	1,756,457	0	170,176	0	170,176
2060	22,668,734	1,745,672	1,745,672	0	158,066	0	158,066
2061	22,687,031	1,730,062	1,730,062	0	146,404	0	146,404
2062	22,726,945	1,710,331	1,710,331	0	135,266	0	135,266
2063	22,795,047	1,686,946	1,686,946	0	124,688	0	124,688
2064	22,897,767	1,660,248	1,660,248	0	114,687	0	114,687
2065	23,041,553	1,630,525	1,630,525	0	105,265	0	105,265
2066	23,232,945	1,598,072	1,598,072	0	96,421	0	96,421
2067	23,478,578	1,563,150	1,563,150	0	88,143	0	88,143
2068	23,785,236	1,525,998	1,525,998	0	80,419	0	80,419
2069	24,159,891	1,486,844	1,486,844	0	73,230	0	73,230
2070	24,609,735	1,445,883	1,445,883	0	66,554	0	66,554
2071	25,142,233	1,403,293	1,403,293	0	60,367	0	60,367
2072	25,765,170	1,359,210	1,359,210	0	54,646	0	54,646
2073	26,486,723	1,313,732	1,313,732	0	49,362	0	49,362
2074	27,315,534	1,266,944	1,266,944	0	44,490	0	44,490

Totals may not add due to rounding.



Single Discount Rate Development

Present Values of Projected Benefits (Concluded)

(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)
2075	\$ 28,260,765	\$ 1,218,923	\$ 1,218,923	\$ 0	\$ 40,003	\$ 0	\$ 40,003
2076	29,332,146	1,169,746	1,169,746	0	35,878	0	35,878
2077	30,540,012	1,119,496	1,119,496	0	32,090	0	32,090
2078	31,895,345	1,068,268	1,068,268	0	28,619	0	28,619
2079	33,409,809	1,016,168	1,016,168	0	25,442	0	25,442
2080	35,095,783	963,314	963,314	0	22,541	0	22,541
2081	36,966,400	909,840	909,840	0	19,897	0	19,897
2082	39,035,586	855,895	855,895	0	17,493	0	17,493
2083	41,318,095	801,646	801,646	0	15,312	0	15,312
2084	43,829,558	747,282	747,282	0	13,340	0	13,340
2085	46,586,510	693,016	693,016	0	11,562	0	11,562
2086	49,606,438	639,088	639,088	0	9,965	0	9,965
2087	52,907,817	585,765	585,765	0	8,536	0	8,536
2088	56,510,150	533,333	533,333	0	7,263	0	7,263
2089	60,434,023	482,101	482,101	0	6,136	0	6,136
2090	64,701,159	432,389	432,389	0	5,143	0	5,143
2091	69,334,479	384,527	384,527	0	4,275	0	4,275
2092	74,358,187	338,843	338,843	0	3,520	0	3,520
2093	79,797,850	295,654	295,654	0	2,871	0	2,871
2094	85,680,518	255,253	255,253	0	2,316	0	2,316
2095	92,034,844	217,892	217,892	0	1,848	0	1,848
2096	98,891,241	183,769	183,769	0	1,457	0	1,457
2097	106,282,063	153,015	153,015	0	1,133	0	1,133
2098	114,241,810	125,685	125,685	0	870	0	870
2099	122,807,359	101,758	101,758	0	658	0	658
2100	132,018,204	81,138	81,138	0	491	0	491
2101	141,916,727	63,661	63,661	0	360	0	360
2102	152,548,460	49,105	49,105	0	259	0	259
2103	163,962,373	37,205	37,205	0	184	0	184
2104	176,211,158	27,667	27,667	0	128	0	128
2105	189,351,522	20,178	20,178	0	87	0	87
2106	203,444,484	14,426	14,426	0	58	0	58
2107	218,555,681	10,107	10,107	0	38	0	38
2108	234,755,679	6,939	6,939	0	24	0	24
2109	252,120,301	4,671	4,671	0	15	0	15
2110	270,730,959	3,087	3,087	0	9	0	9
2111	290,675,014	2,007	2,007	0	6	0	6
2112	312,046,152	1,289	1,289	0	3	0	3
2113	334,944,792	822	822	0	2	0	2
2114	359,478,522	524	524	0	1	0	1
2115	385,762,575	336	336	0	1	0	1
2116	413,920,338	220	220	0	0	0	0
2117	444,083,907	147	147	0	0	0	0
2118	476,394,682	100	100	0	0	0	0
2119	511,004,012	70	70	0	0	0	0
2120	548,073,880	50	50	0	0	0	0
2121	587,777,650	35	35	0	0	0	0
2122	630,300,858	25	25	0	0	0	0
2123	675,842,065	17	17	0	0	0	0
2124	724,613,770	30	30	0	0	0	0
Totals					\$ 16,303,394	\$ 0	\$ 16,303,394

Totals may not add due to rounding.



SECTION H

GLOSSARY OF TERMS

Glossary of Terms

<i>Actuarial Accrued Liability (AAL)</i>	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.”
<i>Actuarial Assumptions</i>	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.
<i>Accrued Service</i>	Service credited under the system which was rendered before the date of the actuarial valuation.
<i>Actuarial Equivalent</i>	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.
<i>Actuarial Cost Method</i>	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.
<i>Actuarial Gain (Loss)</i>	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.
<i>Actuarial Present Value (APV)</i>	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 benefit payments at predetermined rates of interest to reflect the expected effects of the time value (present value) of money and the probabilities of payment.
<i>Actuarial Valuation</i>	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 performed in conformity with Actuarial Standards of Practice unless otherwise specified by the GASB.
<i>Actuarial Valuation Date</i>	The date as of which an actuarial valuation is performed.
<i>Actuarially Determined Contribution (ADC)</i>	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

<i>Amortization Payment</i>	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
<i>Amortization Method</i>	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).
<i>Cost-of-Living Adjustments</i>	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
<i>Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)</i>	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.
<i>Covered-Employee Payroll</i>	The payroll of covered employees, which is typically only the pensionable pay (meets the statutory salary definition) and does not include pay above any pay cap.
<i>Deferred Inflows and Outflows of Resources</i>	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.
<i>Discount Rate or Single Discount Rate</i>	For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically: <ol style="list-style-type: none">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; and2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.
<i>Entry Age Actuarial Cost Method or Entry Age Normal (EAN)</i>	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.

Glossary of Terms

<i>GASB</i>	The Governmental Accounting Standards Board is an organization that exists with authority to promulgate accounting standards for state and local governmental entities.
<i>Fiduciary Net Position</i>	The fiduciary net position is the value of the net assets of the trust restricted for pension benefits.
<i>Long-Term Expected Rate of Return</i>	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.
<i>Money-Weighted Rate of Return</i>	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.
<i>Multiple-Employer Defined Benefit Pension Plan</i>	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
<i>Municipal Bond Rate</i>	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.
<i>Net Pension Liability (NPL)</i>	The NPL is the liability of employers and non-employer contribution entities to plan members for benefits provided through a defined benefit pension plan.
<i>Non-Employer Contribution Entities</i>	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 Statements No. 67 and No. 68 plan members are not considered non-employer contribution entities.
<i>Normal Cost</i>	The actuarial present value of the pension trust benefits allocated to the current year by the actuarial cost method.
<i>Other Postemployment Benefits (OPEB)</i>	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.
<i>Real Rate of Return</i>	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
<i>Service Cost</i>	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.

Glossary of Terms

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 Changes in Benefit Terms
4. Employee Contributions
5. Projected Earnings on Plan Investments
6. Pension Plan Administrative Expense
7. Other Changes in Plan Fiduciary Net Position
8. Recognition of Outflow (Inflow) of Resources due to the difference between expected and actual in measurement of the Total Pension Liability
9. Recognition of Outflows (Inflow) of Resources due to Assumption Changes
10. Recognition of Outflow (Inflow) of Resources due to the difference between projected and actual earnings on pension plan investments

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 plan fiduciary net position used in determining the net position liability of the plan. For purposes of the GASB Statement No. 67, the asset valuation method is equal to the market value of assets.