

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, 2017





November 10, 2017

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 General Employees Retirement Plan ("GERP"), 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 statements.

Our calculation of the liability associated with the benefits described in this report was performed for the purpose of providing reporting and disclosure information that satisfies the requirements of GASB 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 Statement 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.

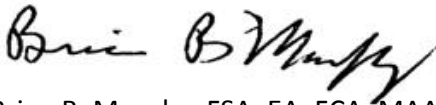
This report complements the actuarial valuation report for funding purposes that was or will be provided to the System and should be considered in conjunction with that report. Please see the actuarial valuation report as of June 30, 2017 for additional discussion of the nature of actuarial calculations 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.

The signing actuaries are independent of the plan sponsor.

Brian B. Murphy and Bonita J. Wurst 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,



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



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



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SECTION A

EXECUTIVE SUMMARY

Executive Summary

as of June 30, 2017 (Dollars in Thousands)

	2017
Actuarial Valuation Date	June 30, 2017
Measurement Date of the Net Pension Liability	June 30, 2017
Employer's Fiscal Year Ending Date (Reporting Date)	Varies by Employer

Membership

Number of		
- Service Retirements		7,408
- Survivors		1,861
- Disability Retirements		1,310
- Deferred Retirements		1,506
- Terminated other non-vested		1,134
- Active Members		11,522
- Total		24,741
Covered Payroll	\$	944,296

Net Pension Liability

Total Pension Liability	\$	9,268,998
Plan Fiduciary Net Position	\$	7,918,879
Net Pension Liability	\$	1,350,119
Plan Fiduciary Net Position as a Percentage of Total Pension Liability		85.43%
Net Pension Liability as a Percentage of Covered Payroll		142.98%

Development of the Single Discount Rate

Single Discount Rate		7.50%
Long-Term Expected Rate of Investment Return		7.50%
Long-Term Municipal Bond Rate*		3.56%
Last year ending June 30 in the 2018 to 2117 projection period for which projected benefit payments are fully funded		2117

Total Pension Expense/ (Income) \$ 255,264

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	\$ 31,682	\$ 360,939
Changes in assumptions	\$ 1,874,881	\$ 1,916,834
Net difference between projected and actual earnings on pension plan investments	\$ 446,957	\$ 561,646
Total	\$ 2,353,520	\$ 2,839,419

* Source: Fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 30, 2017. In describing this index, Fidelity notes that the municipal curves are constructed using option-adjusted analytics of a diverse population of over 10,000 tax-exempt securities.

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 PEPFP subsequent to the measurement date of June 30, 2017.

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

The total pension liability shown in this report is based on an actuarial valuation performed as of June 30, 2017 and a measurement date of June 30, 2017.

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 all actuarial assumptions are met (including the assumption of the plan earning 7.50% on the market value of assets), then the following outcomes are expected:

1. The employer normal cost as a percentage of pay is expected to remain approximately level as a percentage of payroll.
2. The funded status of the plan is expected to increase gradually toward a 100% funded ratio.

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 actuarial value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

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

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 7.50%; the municipal bond rate is 3.56% (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 7.50%. The long-term expected rate of return is based on reviews of inflation and investment assumptions, dated September 11, 2014 and September 11, 2017, and a recent asset liability study obtained by the Minnesota State Board of Investment.

SECTION B

FINANCIAL STATEMENTS

Statement of Pension Expense under GASB Statement No. 68

Fiscal Year Ended June 30, 2017 (Dollars in Thousands)

A. Expense

1. Service Cost		\$ 318,401
2. Interest on the Total Pension Liability		\$ 616,740
3. Current-Period Benefit Changes		\$ -
4. Employee Contributions (made negative for addition here)		\$ (101,984)
5. Projected Earnings on Plan Investments (made negative for addition here)		\$ (523,426)
6. Pension Plan Administrative Expense		\$ 992
7. Other Changes in Plan Fiduciary Net Position		\$ (24)
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>		\$ 6,215
9. Recognition of Outflow (Inflow) of Resources due to assumption changes		
<i>Arising from Current Reporting Period</i>		\$ (383,367)
10. Recognition of Outflow (Inflow) of Resources due to the difference between projected (7.50%) and actual earnings on Pension Plan Investments		
<i>Arising from Current Reporting Period</i>		\$ (107,103)
11. Increase/(Decrease) from Experience in the Current Reporting Period		<u>\$ (173,556)</u>
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>		\$ (99,146)
13. Recognition of Outflow (Inflow) of Resources due to assumption changes		
<i>Arising from Prior Reporting Periods</i>		\$ 495,716
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>		\$ 32,250
15. Total Pension Expense / (Income)		<u>\$ 255,264</u>

Statement of Outflows and Inflows Arising from Current Reporting Period Fiscal Year Ended June 30, 2017 (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	37,292
2. Assumption Changes (gains) or losses	(2,300,201)
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	6,215
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes	(383,367)
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	(377,152)
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	31,077
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	(1,916,834)
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	(1,885,757)

B. Outflows (Inflows) of Resources due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	(535,516)
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	(107,103)
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	(428,413)

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30, 2017 (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	\$ 502,233	\$ 482,815	\$ 19,418
2. Due to Assets	165,482	240,335	(74,853)
3. Total	\$ 667,715	\$ 723,150	\$ (55,435)

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	\$ 6,517	\$ 99,448	\$ (92,931)
2. Assumption Changes	495,716	383,367	112,349
3. Net Difference between projected and actual earnings on pension plan investments	165,482	240,335	(74,853)
4. Total	\$ 667,715	\$ 723,150	\$ (55,435)

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	\$ 31,682	\$ 360,939	\$ (329,257)
2. Assumption Changes	1,874,881	1,916,834	(41,953)
3. Net Difference between projected and actual earnings on pension plan investments	446,957	561,646	(114,689)
4. Total	\$ 2,353,520	\$ 2,839,419	\$ (485,899)

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
2018	\$ (55,435)
2019	77,799
2020	(25,988)
2021	(105,124)
2022	(377,151)
Thereafter	0
Total	\$ (485,899)

Statement of Fiduciary Net Position as of June 30, 2017 (Dollars in Thousands)

Assets in Trust	Market Value	
	June 30, 2017	June 30, 2016
Cash, Equivalents, Short Term Securities	\$ 190,809	\$ 145,521
Fixed Income	\$ 1,535,288	\$ 1,751,552
Equity	\$ 5,141,012	\$ 4,282,601
SBI Alternative	\$ 1,038,994	\$ 908,179
Other	\$ -	\$ -
Total Assets in Trust	\$ 7,906,103	\$ 7,087,853
Assets Receivable	\$ 18,348 *	\$ 15,918 **
Amounts Payable	\$ (5,572)	\$ (5,681)
Net Position Restricted for Pensions	\$ 7,918,879	\$ 7,098,090

* Includes \$13.648 contribution from Minneapolis to be paid by July 15, 2017.

** Includes \$13.648 contribution from Minneapolis paid by July 15, 2016.

Statement of Changes in Fiduciary Net Position for Year Ended June 30, 2017 (Dollars in Thousands)

Change in Assets	Market Value	
	June 30, 2017	June 30, 2016
Year Ending		
1. Fund balance at market value at beginning of year	\$ 7,098,090	\$ 7,348,704
2. Contributions		
a. Member	\$ 101,984	\$ 95,172
b. Employer	\$ 166,329 *	\$ 156,065 **
c. Other sources	\$ 9,000	\$ 9,000
d. Total contributions	\$ 277,313	\$ 260,237
3. Investment income		
a. Investment income/(loss)	\$ 1,067,162	\$ 549
b. Investment expenses	\$ (8,220)	\$ (9,498)
c. Net subtotal	\$ 1,058,942	\$ (8,949)
4. Other	\$ 24	\$ 3
5. Total additions: (2.d.) + (3.c.) + (4.)	\$ 1,336,279	\$ 251,291
6. Benefits Paid		
a. Annuity benefits	\$ (512,379)	\$ (498,608)
b. Refunds	\$ (2,119)	\$ (2,391)
c. Total benefits paid	\$ (514,498)	\$ (500,999)
7. Expenses		
a. Other	\$ -	\$ -
b. Administrative	\$ (992)	\$ (906)
c. Total expenses	\$ (992)	\$ (906)
8. Total deductions: (6.c.) + (7.c.)	\$ (515,490)	\$ (501,905)
9. Net increase (decrease) in net position: (5) + (8)	\$ 820,789	\$ (250,614)
10. Net position restricted for pensions	\$ 7,918,879	\$ 7,098,090
11. Approximate return on market value of assets	15.2%	-0.1%

* Includes \$13.648 contribution from Minneapolis to be paid by July 15, 2017.

** Includes \$13.648 contribution from Minneapolis paid by July 15, 2016.

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Changes in Net Pension Liability and Related Ratios

Current Period

Fiscal Year Ended June 30, 2017 (Dollars in Thousands)

A. Total pension liability	
1. Service cost	\$ 318,401
2. Interest on the total pension liability	\$ 616,740
3. Changes of benefit terms	\$ -
4. Difference between expected and actual experience of the total pension liability*	\$ 37,292
5. Changes of assumptions	\$ (2,300,201)
6. Benefit payments, including refunds of employee contributions	\$ (514,498)
7. Net change in total pension liability	\$ (1,842,266)
8. Total pension liability – beginning	\$ 11,111,264
9. Total pension liability – ending	<u>\$ 9,268,998</u>
B. Plan fiduciary net position	
1. Contributions – employer	\$ 175,329
2. Contributions – employee	\$ 101,984
3. Net investment income	\$ 1,058,942
4. Benefit payments, including refunds of employee contributions	\$ (514,498)
5. Pension Plan Administrative Expense	\$ (992)
6. Other	\$ 24
7. Net change in plan fiduciary net position	\$ 820,789
8. Plan fiduciary net position – beginning	\$ 7,098,090
9. Plan fiduciary net position – ending	<u>\$ 7,918,879</u>
C. Net pension liability	<u>\$ 1,350,119</u>
D. Plan fiduciary net position as a percentage of the total pension liability	85.43%
E. Covered-employee payroll[^]	\$ 944,296
F. Net pension liability as a percentage of covered-employee payroll	142.98%

*Includes impact of changes in expected timing of future COLA increases.

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

Schedules of Required Supplementary Information

Schedule of Changes in Net Pension Liability and Related Ratios Multiyear (Dollars in Thousands)

Last 10 Fiscal Years (which may be built prospectively)

Fiscal year ending June 30,	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Total Pension Liability										
Service Cost	\$ 318,401	\$ 194,352	\$ 187,959	\$ 169,124						
Interest on the Total Pension Liability	\$ 616,740	\$ 658,198	\$ 648,233	\$ 598,165						
Benefit Changes	\$ -	\$ -	\$ -	\$ -						
Difference between Expected and Actual Experience	\$ 37,292	\$ (375,575)	\$ (221,112)	\$ 1,813						
Assumption Changes	\$ (2,300,201)	\$ 2,650,350	\$ -	\$ 323,945						
Benefit Payments	\$ (512,379)	\$ (498,608)	\$ (481,330)	\$ (452,462)						
Refunds	\$ (2,119)	\$ (2,391)	\$ (1,953)	\$ (1,633)						
Net Change in Total Pension Liability	\$ (1,842,266)	\$ 2,626,326	\$ 131,797	\$ 638,952						
Total Pension Liability - Beginning	\$ 11,111,264	\$ 8,484,938	\$ 8,353,141	\$ 7,714,189						
Total Pension Liability - Ending (a)	\$ 9,268,998	\$ 11,111,264	\$ 8,484,938	\$ 8,353,141						
Plan Fiduciary Net Position										
Employer Contributions	\$ 175,329	\$ 165,065	\$ 153,317	\$ 141,632						
Employee Contributions	\$ 101,984	\$ 95,172	\$ 88,733	\$ 81,213						
Pension Plan Net Investment Income	\$ 1,058,942	\$ (8,949)	\$ 317,556	\$ 1,158,389						
Benefit Payments	\$ (512,379)	\$ (498,608)	\$ (481,330)	\$ (452,462)						
Refunds	\$ (2,119)	\$ (2,391)	\$ (1,953)	\$ (1,633)						
Pension Plan Administrative Expense	\$ (992)	\$ (906)	\$ (803)	\$ (798)						
Other	\$ 24	\$ 3	\$ 84	\$ 18						
Net Change in Plan Fiduciary Net Position	\$ 820,789	\$ (250,614)	\$ 75,604	\$ 926,359						
Plan Fiduciary Net Position - Beginning	\$ 7,098,090	\$ 7,348,704	\$ 7,273,100	\$ 6,346,741						
Plan Fiduciary Net Position - Ending (b)	\$ 7,918,879	\$ 7,098,090	\$ 7,348,704	\$ 7,273,100						
Net Pension Liability - Ending (a) - (b)	\$ 1,350,119	\$ 4,013,174	\$ 1,136,234	\$ 1,080,041						
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	85.43 %	63.88 %	86.61 %	87.07 %						
Covered Employee Payroll	\$ 944,296	\$ 881,222	\$ 845,076	\$ 820,333						
Net Pension Liability as a Percentage of Covered Employee Payroll	142.98 %	455.41 %	134.45 %	131.66 %						
Notes to Schedule:										
N/A										

Schedules of Required Supplementary Information

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

Last 10 Fiscal Years (which may be built prospectively)

FY Ending June 30,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll	Net Pension Liability as a % of Covered Payroll
2008						
2009						
2010						
2011						
2012						
2013						
2014	\$ 8,353,141	\$ 7,273,100	\$ 1,080,041	87.07%	\$ 820,333	131.66%
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%

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
2008	\$ 144,548	\$ 87,023	\$ 57,525	\$ 703,701	12.37%
2009	\$ 140,591	\$ 101,548	\$ 39,043	\$ 733,164	13.85
2010	\$ 150,220	\$ 107,066	\$ 43,154	\$ 740,101	14.47
2011	\$ 124,284	\$ 109,604	\$ 14,680	\$ 775,806	14.13
2012	\$ 152,369	\$ 121,891	\$ 30,478	\$ 794,417	15.34
2013	\$ 189,254	\$ 125,995	\$ 63,259	\$ 796,188	15.82
2014	\$ 163,985	\$ 141,632	\$ 22,353	\$ 820,333	17.27
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

Notes to Schedule of Contributions

Methods and Assumptions Used to Determine Contribution Rates for Fiscal Year Ending June 30, 2017:

Valuation Date:	June 30, 2016
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	25 years
Asset Valuation Method	5-Year smoothed market; no corridor
Inflation	2.75%
Payroll Growth	3.50%
Salary Increases	4.25% to 12.75% including inflation
Investment Rate of Return	8.00%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2011 valuation pursuant to an experience study of the period 2004 - 2009, prepared by a former actuary.
Mortality	RP-2000 employee and annuitant generational mortality table, projected with scale AA, white collar adjustment.

Other Information:

Notes	The plan is assumed to pay a 2.50% post retirement benefit increase beginning January 1, 2051. See separate funding report as of July 1, 2016 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>
2008	
2009	
2010	
2011	
2012	
2013	
2014	
2015	
2016	
2017	

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

It is our understanding that this exhibit will be prepared by PERA with assistance from the State Board of Investment. Please provide a copy of the final exhibit for our files.

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. Best 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, 2017, these best 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 Stocks	39.00%	5.10%
International Stocks	19.00%	5.30%
Bonds	20.00%	7.50%
Alternative Assets	20.00%	5.90%
Unallocated Cash	2.00%	0.00%
Total	<u>100.00%</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 7.50%. This assumption is based on reviews of inflation and investment return assumptions dated September 11, 2014, and September 11, 2017, and a recent asset liability study obtained by the SBI.

Single Discount Rate

A single discount rate of 7.50% was used to measure the total pension liability. This single discount rate was based on the expected rate of return on pension plan investments of 7.50% and the municipal bond rate of 3.56%. 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 7.50%, as well as what the plan's net pension liability would be if it were calculated using a single discount rate that is 1-percentage-point lower or 1-percentage-point higher:

Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

(Dollars in Thousands)

	1% Decrease 6.50%	Current Single Discount Rate Assumption 7.50%	1% Increase 8.50%
Total Pension Liability	\$ 10,461,547	\$ 9,268,998	\$ 8,284,483
Net Position Restricted for Pensions	\$ 7,918,879	\$ 7,918,879	\$ 7,918,879
Net Pension Liability	\$ 2,542,668	\$ 1,350,119	\$ 365,604

In interpreting the above results, users should be aware that we do not consider 8.5% to be a reasonable assumption.

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	\$ 11,111,264	\$ 7,098,090	\$ 4,013,174			
Changes for the Year:						
Service Cost	\$ 318,401		\$ 318,401			\$ 318,401
Interest on Total Pension Liability	\$ 616,740		\$ 616,740			\$ 616,740
Interest on Fiduciary Net Position		\$ 523,426	\$ (523,426)			\$ (523,426)
Changes in Benefit Terms						
Liability Experience Gains and Losses	\$ 37,292		\$ 37,292	\$ 31,077	\$ -	\$ 6,215
Changes in Assumptions	\$ (2,300,201)		\$ (2,300,201)	\$ -	\$ 1,916,834	\$ (383,367)
Contributions - Employer		\$ 175,329	\$ (175,329)			
Contributions - Employees		\$ 101,984	\$ (101,984)			\$ (101,984)
Asset Gain/(Loss)		\$ 535,516	\$ (535,516)	\$ -	\$ 428,413	\$ (107,103)
Benefit Payouts	\$ (514,498)	\$ (514,498)				
Administrative Expenses		\$ (992)	\$ 992			\$ 992
Other		\$ 24	\$ (24)			\$ (24)
Net Changes	\$ (1,842,266)	\$ 820,789	\$ (2,663,055)	\$ 31,077	\$ 2,345,247	\$ (173,556)
Balance End of Year	\$ 9,268,998	\$ 7,918,879	\$ 1,350,119			

* 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	\$ 11,111,264	\$ 7,098,090	\$ 4,013,174				
Changes for the Year:							
Service Cost	\$ 318,401		\$ 318,401				\$ 318,401
Interest on Total Pension Liability	\$ 616,740		\$ 616,740				\$ 616,740
Interest on Fiduciary Net Position		\$ 523,426	\$ (523,426)				\$ (523,426)
Changes in Benefit Terms							
Liability Experience Gains and Losses	\$ 37,292		\$ 37,292	\$ 31,682	\$ 360,939	\$ (459,480)	\$ (92,931)
Changes in Assumptions	\$ (2,300,201)		\$ (2,300,201)	\$ 1,874,881	\$ 1,916,834	\$ 2,370,597	\$ 112,349
Contributions - Employer		\$ 175,329	\$ (175,329)				
Contributions - Employees		\$ 101,984	\$ (101,984)				\$ (101,984)
Asset Gain/(Loss)		\$ 535,516	\$ (535,516)	\$ 446,957	\$ 561,646	\$ 345,974	\$ (74,853)
Benefit Payouts	\$ (514,498)	\$ (514,498)					
Administrative Expenses		\$ (992)	\$ 992				\$ 992
Other		\$ 24	\$ (24)				\$ (24)
Net Changes	\$ (1,842,266)	\$ 820,789	\$ (2,663,055)				\$ 255,264
Balance End of Year	\$ 9,268,998	\$ 7,918,879	\$ 1,350,119	\$ 2,353,520	\$ 2,839,419	\$ 2,257,091	

* Pension Expense from Experience in the Current Reporting Period.

Summary of Population Statistics

	Terminated			Recipients			Total
	Actives	Deferred Retirement	Other Non-Vested	Service Retirement	Disability Retirement	Survivor	
Members on 7/1/2016	11,398	1,490	1,059	7,222	1,257	1,873	24,299
New members	656						656
Return to active	45	(24)	(21)	0	0	0	0
Terminated non-vested	(88)	0	88	0	0	0	0
Service retirements	(245)	(95)	0	340	0	0	0
Terminated deferred	(153)	153	0	0	0	0	0
Terminated refund/transfer	(30)	(28)	(14)	0	0	0	(72)
Deaths	(7)	(1)	(3)	(152)	(15)	(98)	(276)
New beneficiary	0	0	0	0	0	104	104
Disabled	(55)	0	0	0	55	0	0
Data adjustments	1	11	25	(2)	13	(18)	30
Net change	124	16	75	186	53	(12)	442
Members on 6/30/2017	11,522	1,506	1,134	7,408	1,310	1,861	24,741

SECTION E

SUMMARY OF BENEFITS

Summary of Plan Provisions – Police & 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>Member</u>	<u>Employer</u>	
	Percent of Salary			
	January 1, 2015 & later	10.80	16.20	
	Member contributions are “picked up” according to the provisions of Internal Revenue Code 414(h).			
State contributions	\$9 million paid annually on October 1 until both PERA P&F and MSRS State Patrol become 90% funded (on a Market Value of Assets basis).			
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 Percent if First Hired</u>		
	<u>Years of Service</u>	<u>Before 7/1/2010</u>	<u>After 6/30/2010 & before 7/1/2014</u>	<u>After 6/30/2014</u>
	<3	0%	0%	0%
	3 – 4	100	0	0
	5	100	50	0
	6	100	60	0
	7	100	70	0
	8	100	80	0
	9	100	90	0
	10	100	100	50
	11	100	100	55
	12	100	100	60
	13	100	100	65
	14	100	100	70
	15	100	100	75
	16	100	100	80
	17	100	100	85
	18	100	100	90
	19	100	100	95
	20+	100	100	100

Summary of Plan Provisions – Police & 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. 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. The change in early retirement factors will be phased-in over a five-year period for retirements occurring between July 1, 2014 and June 30, 2019.

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 a future annual 1.00% post-retirement benefit increase. The annual adjustment will equal 2.50% any time the Fund exceeds a 90% funded ratio for two consecutive years. If the adjustment is increased to 2.50% and the funded ratio falls below 80% for one year or 85% for two consecutive years the post-retirement benefit increase will be lowered to 1.00%.

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 & 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. Members age 55 or older with 20 or more years of Allowable Service are not eligible to apply for duty disability benefits.

Amount 60.0%, 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%.

Benefit increases Same as for retirement.

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.

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

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 becomes deceased 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.

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.
Benefit increases	Same as for retirement.

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

Death (Continued)

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 became deceased 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 became deceased 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 & Fire Plan (Continued)

Termination

Refund of contributions

Age/service requirement Termination of public service.

Amount If member terminated before July 1, 2011, member's contributions credited with 6% interest compounded annually prior to July 1, 2011 and 4% interest thereafter. If member terminated after June 30, 2011, member's contributions credited with 4% interest compounded annually.

A deferred annuity may be elected in lieu of a refund if vested.

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; and
- (e.) 1.00% from January 1, 2012 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.

Optional form conversion factors

Actuarially equivalent factors based on RP-2000 for healthy annuitants, white collar adjustment, projected to 2027 using scale AA, no setbacks, blended 90% males, and 7.00% post-retirement interest. The post-retirement interest rate assumption will change to 6.5% on the earlier of the effective date of the next mortality adjustment or July 1, 2017.

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

Combined service annuity

Members are eligible for combined service benefits if they:

- (a.) Meet minimum retirement age for each plan participated in and total public service meets the vesting requirements of each plan; or
- (b.) Have three or more years of service under PERA and the covered fund(s) (if hired prior to July 1, 2010).

Other requirements for combined service include:

- (a.) Member must have at least six months of allowable service credit in each plan worked under; and
- (b.) Member may not be in receipt of a benefit from another plan.

Members who meet the above requirements must have their benefit based on the following:

- (a.) Allowable service in all covered plans is combined in order to determine eligibility for early retirement.
- (b.) Average salary is based on the high five consecutive years during their entire service in all covered plans.

Changes in plan provisions

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

Summary of Plan Provisions – Minneapolis Police 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>
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	<u>Calendar Year</u>	<u>Unit Value</u>
	2012	\$ 104.651
	2013	109.011
	2014	114.825
	2015	124.031

Unit values after 2015 are assumed to increase the same percentage as the post-retirement benefit increase.

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 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.

Benefit increases Benefit recipients receive a future annual 1.00% post-retirement benefit increase. The annual adjustment will equal 2.50% any time the Fund exceeds a 90% funded ratio for two consecutive years. If the adjustment is increased to 2.50% and the funded ratio falls below 80% for one year or 85% for two consecutive years the post-retirement benefit increase will be lowered to 1.00%.

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.	
Benefit increases	Benefit recipients receive a future annual 1.00% post-retirement benefit increase. The annual adjustment will equal 2.50% any time the Fund exceeds a 90% funded ratio for two consecutive years. If the adjustment is increased to 2.50% and the funded ratio falls below 80% for one year or 85% for two consecutive years the post-retirement benefit increase will be lowered to 1.00%.	

SECTION F

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

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

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

Valuation of Future Post-Retirement Benefit Increases

Benefit recipients receive a future annual 1.00% post-retirement benefit increase. If the funding ratio reaches 90% (based on a 2.50% post-retirement benefit increase assumption) for two consecutive years, the benefit increase will revert to 2.50%. If, after reverting to a 2.50% benefit increase, the funding ratio declines to less than 80% for one year or less than 85% for two consecutive years, the benefit increase will decrease to 1.00%.

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

- Future investment returns of 7.50%
- Liabilities and normal cost based on statutory funding assumptions
 - Discount rate of 8.00%
 - Statutory salary increases (rate of 12.50% at year 1 declining to 3.50% at years 25 and later)
- Open group; stable active population (new member profile based on average new members hired in recent years)
- The postretirement benefit increase rate is assumed to be 1.00% per year until the funding ratio threshold required to pay a 2.50% postretirement benefit increase is reached
- Current statutory contributions (i.e., not including potential contribution increases under the contribution stabilizer statutes) as directed by PERA

Based on these assumptions and methods, the projection indicates that this plan is expected to attain the funding ratio threshold required to pay a 2.50% postretirement benefit increase in 2064. A 1.00% postretirement benefit increase assumption through 2064 and a 2.5% postretirement benefit increase thereafter are assumed in our calculations.

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 August 30, 2016, reviews of inflation and investment assumptions, dated September 11, 2014 and September 11, 2017, and a recent asset liability study obtained by the State Board of Investment.

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	7.50% per annum.								
Single Discount Rate	7.50% per annum.								
Benefit increases after retirement	1.00% per annum through 2064 and 2.50% per annum thereafter.								
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	2.50% per year.								
Payroll growth	3.25% per year.								
Mortality rates									
Healthy pre-retirement	RP-2014 employee generational mortality table projected with mortality improvement scale MP-2016, from a base year of 2006.								
Healthy post-retirement	RP-2014 annuitant generational mortality table projected with mortality improvement scale MP-2016 from a base year of 2006. Male rates are adjusted by a factor of 0.96.								
Disabled	RP-2014 annuitant generational mortality table projected with mortality improvement scale MP-2016 from a base year of 2006. Male rates are adjusted by a factor of 0.96.								
<p>The RP-2014 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 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.</p>									
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.								
Withdrawal	Select and Ultimate rates based on actual experience. Ultimate rates after the third year are shown in rate table. Select rates in the first three years are:								
	<table border="1"> <thead> <tr> <th style="text-align: center;">Year</th> <th style="text-align: center;">Select Withdrawal Rates</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">3.00%</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">3.00%</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">3.00%</td> </tr> </tbody> </table>	Year	Select Withdrawal Rates	1	3.00%	2	3.00%	3	3.00%
Year	Select Withdrawal Rates								
1	3.00%								
2	3.00%								
3	3.00%								

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.
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	Account balances accumulate interest until normal retirement date and are discounted back to the valuation date. All employees withdrawing after becoming eligible for a deferred benefit take the larger of their contributions accumulated with interest or the value of their deferred benefit.
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 60% 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> <p style="margin-left: 40px;">Males: 10% elect 25% Joint & Survivor option 20% elect 50% Joint & Survivor option 20% elect 75% Joint & Survivor option 35% elect 100% Joint & Survivor option</p> <p style="margin-left: 40px;">Females: 20% elect 25% Joint & Survivor option 20% elect 50% Joint & Survivor option 10% elect 75% Joint & Survivor option 20% elect 100% Joint & Survivor option</p> <p>Remaining married members and unmarried members are assumed to elect the Straight Life option.</p> <p>Members receiving deferred annuities (including current terminated deferred members) are assumed to elect a straight life annuity.</p>
Eligibility testing	Eligibility for benefits is determined based upon the age nearest birthday and service on the date the decrement is assumed to occur.
Decrement operation	Withdrawal decrements do not operate during retirement eligibility. Decrements are assumed to occur mid-fiscal year.
Service credit accruals	It is assumed that members accrue one year of service credit per year.

Summary of Actuarial Assumptions (Continued)

Pay Increases	Pay increases are assumed to happen at the beginning of the fiscal year. This is equivalent to assuming that reported earnings are pensionable earnings for the year ending on the valuation date.
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Unknown data for certain members	<p>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.</p> <p>In cases where submitted data was missing or incomplete, the following assumptions were applied:</p> <p><u>Data for active members:</u> There were 33 members reported with a salary less than \$100. We used prior year salary (19 members), if available; otherwise high five salary with a 10% load to account for salary increases (14 members). If neither prior year salary nor high five salary was available, we assumed a value of \$35,000. Note former members of either Minneapolis Police or Minneapolis Fire are excluded from these salary counts as salary is not used to calculate the benefit.</p> <p>There were also 123 members reported without a gender. We assumed male gender. There were 2 members reported without a date of birth. We assumed a date of birth of July 1, 1985.</p> <p><u>Data for terminated members:</u> We calculated benefits for these members using the reported Average Salary and credited service. If Average Salary was not reported (2 members), we assumed a value of \$24,000. If credited service was not reported (15 members), we used elapsed time from hire date to termination date (6 members); otherwise 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.</p> <p>There were 6 members reported without a gender; male was assumed.</p> <p>There were no members reported without a date of birth.</p> <p><u>Data for retired members:</u> There were no members with missing or invalid dates of birth. There were 20 members reported without a gender. We assumed retirees are male and beneficiaries are female.</p> <p>There were 20 members that were active last year, and retirement eligible, and not on the retiree data file this year. At the direction of PERA, we included these members in the 2017 valuation as retirees with an estimated life only monthly benefit.</p>
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Summary of Actuarial Assumptions (Continued)

Unknown data for certain members (Continued)	<u>Data for retired members (Continued):</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 valuation, we reclassify that member as a disabled retiree in this year's valuation. We reclassified 192 retirees as disabled retirees in this valuation.
Changes in actuarial assumptions	<hr/> <p>Assumed salary increases were changed as recommended in the June 30, 2016 experience study. The net effect is proposed rates that average 0.34% lower than the previous rates.</p> <p>Assumed rates of retirement were changed, resulting in fewer retirements.</p> <p>The Combined Service Annuity (CSA) load was 30% for vested and non-vested, deferred members. The CSA has been changed to 33% for vested members and 2% for non-vested members.</p> <p>The base mortality table for healthy annuitants was changed from the RP-2000 fully generational table to the RP-2014 fully generational table (with a base year of 2006), with male rates adjusted by a factor of 0.96. The mortality improvement scale was changed from Scale AA to Scale MP-2016. The base mortality table for disabled annuitants was changed from the RP-2000 disabled mortality table to the mortality tables assumed for healthy retirees.</p> <p>Assumed termination rates were decreased to 3.0% for the first three years of service. Rates beyond the select period of three years were adjusted, resulting in more expected terminations overall.</p> <p>Assumed percentage of married female members was decreased from 65% to 60%.</p> <p>Assumed age difference was changed from separate assumptions for male members (wives assumed to be three years younger) and female members (husbands assumed to be four years older) to the assumption that males are two years older than females.</p> <p>The assumed percentage of female members electing Joint and Survivor annuities was increased.</p> <p>The assumed post-retirement benefit increase rate was changed from 1.00% for all years to 1.00% per year through 2064 and 2.50% thereafter. For accounting purposes, this change was treated as a difference between expected and actual experience.</p> <p>The Single Discount Rate changed from 5.60% per annum to 7.50% per annum.</p>

Summary of Actuarial Assumptions (Continued)

Percentage of Members Dying Each Year*

Age in 2017	Healthy Post- Retirement Mortality		Healthy Pre- Retirement Mortality		Disability Mortality	
	Males	Females	Males	Females	Males	Females
	20	0.03%	0.02%	0.04%	0.02%	0.03%
25	0.05	0.03	0.05	0.02	0.05	0.03
30	0.08	0.06	0.05	0.02	0.08	0.06
35	0.12	0.11	0.06	0.03	0.12	0.11
40	0.18	0.17	0.07	0.04	0.18	0.17
45	0.26	0.21	0.10	0.07	0.26	0.21
50	0.39	0.27	0.17	0.11	0.39	0.27
55	0.55	0.38	0.28	0.17	0.55	0.38
60	0.77	0.56	0.48	0.26	0.77	0.56
65	1.10	0.84	0.86	0.39	1.10	0.84
70	1.65	1.31	1.42	0.64	1.65	1.31

* Generally, mortality rates are expected to increase as age increases. These standard mortality rates have been adjusted slightly to prevent decreasing mortality rates. If the rates were not adjusted as described, we would not expect the valuation results to be materially different.

Age	Withdrawal Rates After Third Year		Disability Retirement	
	Males	Females	Males	Females
	20	3.00%	3.00%	0.11%
25	2.60	2.60	0.13	0.13
30	2.10	2.10	0.16	0.16
35	1.60	1.60	0.19	0.19
40	1.25	1.25	0.29	0.29
45	1.25	1.25	0.54	0.54
50	0.00	0.00	1.04	1.04
55	0.00	0.00	2.03	2.03
60	0.00	0.00	0.00	0.00

Summary of Actuarial Assumptions (Concluded)

Age	Retirement Rate	Salary Scale	
		Year	Increase
50	10.00%	1	12.25%
51	7.00	2	10.50%
52	7.00	3	8.75%
53	10.00	4	7.75%
54	10.00	5	6.25%
55	25.00	6	5.75%
56	22.50	7	5.25%
57	22.50	8	5.00%
58	22.50	9	4.75%
59	20.00	10	4.50%
60	22.50	11	4.25%
61	25.00	12	4.15%
62	30.00	13	4.05%
63	30.00	14	3.95%
64	30.00	15	3.85%
65	50.00	16	3.75%
66	50.00	17	3.75%
67	50.00	18	3.75%
68	50.00	19	3.75%
69	50.00	20	3.75%
70+	100.00	21	3.65%
		22	3.55%
		23	3.45%
		24	3.35%
		25+	3.25%

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 “risk-free” 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 7.50%, the municipal bond rate is 3.56%; and **the resulting single discount rate is 7.50%**.

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

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

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

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

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

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
2017	\$ 944,296	\$ 0	\$ 944,296						
2018	957,928	0	957,928	\$ 103,456	\$ 155,184	\$ 0	\$ 13,677	\$ 9,000	\$ 281,317
2019	953,047	36,014	989,061	102,929	154,394	2,046	13,677	9,000	282,046
2020	944,010	77,195	1,021,205	101,953	152,930	4,385	13,677	9,000	281,945
2021	931,225	123,170	1,054,395	100,572	150,858	6,996	13,677	9,000	281,103
2022	914,731	173,931	1,088,662	98,791	148,186	9,879	13,648	9,000	279,504
2023	895,368	228,676	1,124,044	96,700	145,050	12,989	13,648	9,000	277,387
2024	873,764	286,811	1,160,575	94,366	141,550	16,291	13,648	9,000	274,855
2025	849,998	348,296	1,198,294	91,800	137,700	19,783	13,648	9,000	271,931
2026	824,162	413,077	1,237,239	89,009	133,514	23,463	13,648	9,000	268,634
2027	796,679	480,770	1,277,449	86,041	129,062	27,308	13,648	9,000	265,059
2028	767,789	551,177	1,318,966	82,921	124,382	31,307	13,648	9,000	261,258
2029	738,058	623,774	1,361,832	79,710	119,565	35,430	13,648	9,000	257,353
2030	707,436	698,656	1,406,092	76,403	114,605	39,684	13,648	9,000	253,340
2031	675,517	776,273	1,451,790	72,956	109,434	44,092	13,648	9,000	249,130
2032	642,530	856,443	1,498,973	69,393	104,090	48,646	13,648	9,000	244,777
2033	608,288	939,402	1,547,690	65,695	98,543	53,358	0	9,000	226,596
2034	572,861	1,025,129	1,597,990	61,869	92,804	58,227	0	9,000	221,900
2035	536,252	1,113,672	1,649,924	57,915	86,873	63,257	0	9,000	217,045
2036	498,513	1,205,034	1,703,547	53,839	80,759	68,446	0	9,000	212,044
2037	459,930	1,298,982	1,758,912	49,672	74,509	73,782	0	9,000	206,963
2038	420,807	1,395,270	1,816,077	45,447	68,171	79,251	0	9,000	201,869
2039	381,658	1,493,441	1,875,099	41,219	61,829	84,827	0	9,000	196,875
2040	342,679	1,593,361	1,936,040	37,009	55,514	90,503	0	9,000	192,026
2041	304,341	1,694,620	1,998,961	32,869	49,303	96,254	0	9,000	187,426
2042	267,237	1,796,690	2,063,927	28,862	43,292	102,052	0	9,000	183,206
2043	231,877	1,899,128	2,131,005	25,043	37,564	107,870	0	9,000	179,477
2044	198,736	2,001,527	2,200,263	21,463	32,195	113,687	0	9,000	176,345
2045	167,845	2,103,926	2,271,771	18,127	27,191	119,503	0	9,000	173,821
2046	139,447	2,206,157	2,345,604	15,060	22,590	125,310	0	9,000	171,960
2047	113,762	2,308,074	2,421,836	12,286	18,430	131,099	0	9,000	170,815
2048	90,978	2,409,568	2,500,546	9,826	14,738	136,863	0	9,000	170,427
2049	71,434	2,510,379	2,581,813	7,715	11,572	142,590	0	9,000	170,877
2050	55,142	2,610,580	2,665,722	5,955	8,933	148,281	0	9,000	172,169
2051	41,992	2,710,366	2,752,358	4,535	6,803	153,949	0	9,000	174,287
2052	31,599	2,810,211	2,841,810	3,413	5,119	159,620	0	9,000	177,152
2053	23,417	2,910,752	2,934,169	2,529	3,794	165,331	0	9,000	180,654
2054	17,012	3,012,517	3,029,529	1,837	2,756	171,111	0	9,000	184,704
2055	12,015	3,115,974	3,127,989	1,298	1,946	176,987	0	9,000	189,231
2056	8,186	3,221,463	3,229,649	884	1,326	182,979	0	9,000	194,189
2057	5,340	3,329,272	3,334,612	577	865	189,103	0	9,000	199,545
2058	3,310	3,439,677	3,442,987	358	536	195,374	0	9,000	205,268
2059	1,940	3,552,944	3,554,884	209	314	201,807	0	9,000	211,330
2060	1,061	3,669,357	3,670,418	115	172	208,419	0	9,000	217,706
2061	541	3,789,165	3,789,706	58	88	215,225	0	9,000	224,371
2062	261	3,912,611	3,912,872	28	42	222,236	0	9,000	231,306
2063	118	4,039,922	4,040,040	13	19	229,468	0	9,000	238,500
2064	49	4,171,293	4,171,342	5	8	236,929	0	9,000	245,942
2065	17	4,306,893	4,306,910	2	3	244,632	0	9,000	253,637
2066	5	4,446,880	4,446,885	1	1	252,583	0	0	252,585
2067	2	4,591,407	4,591,409	0	-	260,792	0	0	260,792

*Contributions related to future employees in excess of normal cost and expenses of 21.32% of pay.

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
2068	\$ 1	\$ 4,740,628	\$ 4,740,629	\$ 0	\$ 0	\$ 269,268	\$ 0	\$ 0	\$ 269,268
2069	0	4,894,700	4,894,700	0	0	278,019	0	0	278,019
2070	0	5,053,778	5,053,778	0	0	287,055	0	0	287,055
2071	0	5,218,025	5,218,025	0	0	296,384	0	0	296,384
2072	0	5,387,611	5,387,611	0	0	306,016	0	0	306,016
2073	0	5,562,708	5,562,708	0	0	315,962	0	0	315,962
2074	0	5,743,496	5,743,496	0	0	326,231	0	0	326,231
2075	0	5,930,160	5,930,160	0	0	336,833	0	0	336,833
2076	0	6,122,890	6,122,890	0	0	347,780	0	0	347,780
2077	0	6,321,884	6,321,884	0	0	359,083	0	0	359,083
2078	0	6,527,346	6,527,346	0	0	370,753	0	0	370,753
2079	0	6,739,484	6,739,484	0	0	382,803	0	0	382,803
2080	0	6,958,517	6,958,517	0	0	395,244	0	0	395,244
2081	0	7,184,669	7,184,669	0	0	408,089	0	0	408,089
2082	0	7,418,171	7,418,171	0	0	421,352	0	0	421,352
2083	0	7,659,262	7,659,262	0	0	435,046	0	0	435,046
2084	0	7,908,188	7,908,188	0	0	449,185	0	0	449,185
2085	0	8,165,204	8,165,204	0	0	463,784	0	0	463,784
2086	0	8,430,573	8,430,573	0	0	478,857	0	0	478,857
2087	0	8,704,566	8,704,566	0	0	494,419	0	0	494,419
2088	0	8,987,465	8,987,465	0	0	510,488	0	0	510,488
2089	0	9,279,557	9,279,557	0	0	527,079	0	0	527,079
2090	0	9,581,143	9,581,143	0	0	544,209	0	0	544,209
2091	0	9,892,530	9,892,530	0	0	561,896	0	0	561,896
2092	0	10,214,037	10,214,037	0	0	580,157	0	0	580,157
2093	0	10,545,994	10,545,994	0	0	599,012	0	0	599,012
2094	0	10,888,738	10,888,738	0	0	618,480	0	0	618,480
2095	0	11,242,622	11,242,622	0	0	638,581	0	0	638,581
2096	0	11,608,008	11,608,008	0	0	659,335	0	0	659,335
2097	0	11,985,268	11,985,268	0	0	680,763	0	0	680,763
2098	0	12,374,789	12,374,789	0	0	702,888	0	0	702,888
2099	0	12,776,970	12,776,970	0	0	725,732	0	0	725,732
2100	0	13,192,221	13,192,221	0	0	749,318	0	0	749,318
2101	0	13,620,969	13,620,969	0	0	773,671	0	0	773,671
2102	0	14,063,650	14,063,650	0	0	798,815	0	0	798,815
2103	0	14,520,719	14,520,719	0	0	824,777	0	0	824,777
2104	0	14,992,642	14,992,642	0	0	851,582	0	0	851,582
2105	0	15,479,903	15,479,903	0	0	879,258	0	0	879,258
2106	0	15,983,000	15,983,000	0	0	907,834	0	0	907,834
2107	0	16,502,447	16,502,447	0	0	937,339	0	0	937,339
2108	0	17,038,777	17,038,777	0	0	967,803	0	0	967,803
2109	0	17,592,537	17,592,537	0	0	999,256	0	0	999,256
2110	0	18,164,294	18,164,294	0	0	1,031,732	0	0	1,031,732
2111	0	18,754,634	18,754,634	0	0	1,065,263	0	0	1,065,263
2112	0	19,364,160	19,364,160	0	0	1,099,884	0	0	1,099,884
2113	0	19,993,495	19,993,495	0	0	1,135,631	0	0	1,135,631
2114	0	20,643,283	20,643,283	0	0	1,172,538	0	0	1,172,538
2115	0	21,314,190	21,314,190	0	0	1,210,646	0	0	1,210,646
2116	0	22,006,901	22,006,901	0	0	1,249,992	0	0	1,249,992
2117	0	22,722,126	22,722,126	0	0	1,290,617	0	0	1,290,617

*Contributions related to future employees in excess of normal cost and expenses of 21.32% of pay.

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 7.50%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2018	\$ 7,918,879	\$ 281,318	\$ 537,914	\$ 1,054	\$ 584,429	\$ 8,245,658
2019	8,245,658	282,046	556,072	1,048	608,296	8,578,880
2020	8,578,880	281,945	575,483	1,038	632,569	8,916,873
2021	8,916,873	281,104	595,797	1,024	657,140	9,258,296
2022	9,258,296	279,504	617,943	1,006	681,873	9,600,724
2023	9,600,724	277,386	642,002	985	706,592	9,941,715
2024	9,941,715	274,855	667,542	961	731,133	10,279,200
2025	10,279,200	271,930	694,354	935	755,351	10,611,192
2026	10,611,192	268,634	722,572	907	779,091	10,935,438
2027	10,935,438	265,059	751,563	876	802,211	11,250,269
2028	11,250,269	261,258	780,756	845	824,610	11,554,536
2029	11,554,536	257,354	809,590	812	846,226	11,847,714
2030	11,847,714	253,339	838,619	778	866,998	12,128,654
2031	12,128,654	249,130	867,912	743	886,837	12,395,966
2032	12,395,966	244,777	897,105	707	905,651	12,648,582
2033	12,648,582	226,596	926,431	669	922,849	12,870,927
2034	12,870,927	221,900	955,690	630	938,276	13,074,783
2035	13,074,783	217,045	985,415	590	952,294	13,258,117
2036	13,258,117	212,044	1,015,546	548	964,752	13,418,819
2037	13,418,819	206,963	1,045,358	506	975,521	13,555,439
2038	13,555,439	201,869	1,074,943	463	984,492	13,666,394
2039	13,666,394	196,875	1,103,918	420	991,565	13,750,496
2040	13,750,496	192,026	1,132,077	377	996,659	13,806,727
2041	13,806,727	187,426	1,158,765	335	999,725	13,834,778
2042	13,834,778	183,206	1,183,673	294	1,000,758	13,834,775
2043	13,834,775	179,477	1,206,179	255	999,793	13,807,611
2044	13,807,611	176,345	1,226,091	219	996,909	13,754,555
2045	13,754,555	173,821	1,243,747	185	992,188	13,676,632
2046	13,676,632	171,960	1,258,846	153	985,721	13,575,314
2047	13,575,314	170,814	1,271,019	125	977,632	13,452,616
2048	13,452,616	170,427	1,279,716	100	968,096	13,311,323
2049	13,311,323	170,877	1,284,262	79	957,349	13,155,208
2050	13,155,208	172,169	1,284,521	61	945,680	12,988,475
2051	12,988,475	174,287	1,280,382	46	933,406	12,815,740
2052	12,815,740	177,152	1,272,352	35	920,852	12,641,357
2053	12,641,357	180,653	1,261,172	26	908,314	12,469,126
2054	12,469,126	184,704	1,247,252	19	896,059	12,302,618
2055	12,302,618	189,231	1,230,913	13	884,339	12,145,262
2056	12,145,262	194,189	1,212,303	9	873,406	12,000,545
2057	12,000,545	199,545	1,191,530	6	863,514	11,872,068
2058	11,872,068	205,267	1,168,743	4	854,928	11,763,516
2059	11,763,516	211,331	1,144,076	2	847,918	11,678,687
2060	11,678,687	217,706	1,117,692	1	842,762	11,621,462
2061	11,621,462	224,371	1,089,731	1	839,746	11,595,847
2062	11,595,847	231,307	1,060,341	0	839,162	11,605,975
2063	11,605,975	238,499	1,029,666	0	841,316	11,656,124
2064	11,656,124	245,943	997,820	0	846,524	11,750,771
2065	11,750,771	253,636	972,063	0	854,854	11,887,198
2066	11,887,198	252,584	951,836	0	865,792	12,053,738
2067	12,053,738	260,792	929,877	0	879,394	12,264,047

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

Single Discount Rate Development

Projection of Plan Fiduciary Net Position (Concluded)

(Dollars in Thousands)

Fiscal Year Ending	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.50%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2068	\$ 12,264,047	\$ 269,268	\$ 906,222	\$ 0	\$ 896,350	\$ 12,523,443
2069	12,523,443	278,019	880,912	0	917,059	12,837,609
2070	12,837,609	287,055	853,995	0	941,945	13,212,614
2071	13,212,614	296,384	825,532	0	971,462	13,654,928
2072	13,654,928	306,016	795,594	0	1,006,092	14,171,442
2073	14,171,442	315,962	764,263	0	1,046,351	14,769,492
2074	14,769,492	326,231	731,631	0	1,092,784	15,456,876
2075	15,456,876	336,833	697,808	0	1,145,974	16,241,875
2076	16,241,875	347,780	662,917	0	1,206,537	17,133,275
2077	17,133,275	359,083	627,097	0	1,275,127	18,140,388
2078	18,140,388	370,753	590,505	0	1,352,438	19,273,074
2079	19,273,074	382,803	553,313	0	1,439,202	20,541,766
2080	20,541,766	395,244	515,711	0	1,536,197	21,957,496
2081	21,957,496	408,089	477,908	0	1,644,241	23,531,918
2082	23,531,918	421,352	440,134	0	1,764,202	25,277,338
2083	25,277,338	435,046	402,642	0	1,896,994	27,206,736
2084	27,206,736	449,185	365,705	0	2,043,579	29,333,795
2085	29,333,795	463,784	329,608	0	2,204,975	31,672,946
2086	31,672,946	478,857	294,640	0	2,382,254	34,239,417
2087	34,239,417	494,419	261,077	0	2,576,549	37,049,308
2088	37,049,308	510,488	229,172	0	2,789,057	40,119,681
2089	40,119,681	527,079	199,146	0	3,021,052	43,468,666
2090	43,468,666	544,209	171,181	0	3,273,886	47,115,580
2091	47,115,580	561,896	145,425	0	3,549,004	51,081,055
2092	51,081,055	580,157	121,987	0	3,847,950	55,387,175
2093	55,387,175	599,012	100,939	0	4,172,378	60,057,626
2094	60,057,626	618,480	82,307	0	4,524,065	65,117,864
2095	65,117,864	638,581	66,068	0	4,904,921	70,595,298
2096	70,595,298	659,335	52,152	0	5,317,005	76,519,486
2097	76,519,486	680,763	40,439	0	5,762,540	82,922,350
2098	82,922,350	702,888	30,770	0	6,243,925	89,838,393
2099	89,838,393	725,732	22,950	0	6,763,758	97,304,933
2100	97,304,933	749,318	16,763	0	7,324,845	105,362,333
2101	105,362,333	773,671	11,980	0	7,930,222	114,054,246
2102	114,054,246	798,815	8,371	0	8,583,175	123,427,865
2103	123,427,865	824,777	5,718	0	9,287,250	133,534,174
2104	133,534,174	851,582	3,819	0	10,046,280	144,428,217
2105	144,428,217	879,258	2,498	0	10,864,401	156,169,378
2106	156,169,378	907,834	1,604	0	11,746,073	168,821,681
2107	168,821,681	937,339	1,014	0	12,696,104	182,454,110
2108	182,454,110	967,803	636	0	13,719,672	197,140,949
2109	197,140,949	999,256	398	0	14,822,352	212,962,159
2110	212,962,159	1,031,732	251	0	16,010,143	230,003,783
2111	230,003,783	1,065,263	161	0	17,289,503	248,358,388
2112	248,358,388	1,099,884	105	0	18,667,376	268,125,543
2113	268,125,543	1,135,631	71	0	20,151,230	289,412,333
2114	289,412,333	1,172,538	50	0	21,749,099	312,333,920
2115	312,333,920	1,210,646	36	0	23,469,621	337,014,151
2116	337,014,151	1,249,992	27	0	25,322,088	363,586,204
2117	363,586,204	1,290,617	21	0	27,316,488	392,193,288

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

Single Discount Rate Development

Present Values of Projected Benefits

(Dollars in Thousands)

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})
2018	\$ 7,918,879	\$ 537,914	\$ 537,914	\$ 0	\$ 518,810	\$ 0	\$ 518,810
2019	8,245,658	556,072	556,072	0	498,906	0	498,906
2020	8,578,879	575,483	575,483	0	480,299	0	480,299
2021	8,916,871	595,797	595,797	0	462,561	0	462,561
2022	9,258,293	617,943	617,943	0	446,283	0	446,283
2023	9,600,721	642,002	642,002	0	431,311	0	431,311
2024	9,941,711	667,542	667,542	0	417,180	0	417,180
2025	10,279,197	694,354	694,354	0	403,661	0	403,661
2026	10,611,189	722,572	722,572	0	390,759	0	390,759
2027	10,935,436	751,563	751,563	0	378,081	0	378,081
2028	11,250,267	780,756	780,756	0	365,365	0	365,365
2029	11,554,534	809,590	809,590	0	352,426	0	352,426
2030	11,847,711	838,619	838,619	0	339,593	0	339,593
2031	12,128,651	867,912	867,912	0	326,935	0	326,935
2032	12,395,963	897,105	897,105	0	314,355	0	314,355
2033	12,648,579	926,431	926,431	0	301,983	0	301,983
2034	12,870,924	955,690	955,690	0	289,786	0	289,786
2035	13,074,779	985,415	985,415	0	277,953	0	277,953
2036	13,258,114	1,015,546	1,015,546	0	266,467	0	266,467
2037	13,418,816	1,045,358	1,045,358	0	255,153	0	255,153
2038	13,555,436	1,074,943	1,074,943	0	244,069	0	244,069
2039	13,666,392	1,103,918	1,103,918	0	233,160	0	233,160
2040	13,750,494	1,132,077	1,132,077	0	222,426	0	222,426
2041	13,806,725	1,158,765	1,158,765	0	211,786	0	211,786
2042	13,834,778	1,183,673	1,183,673	0	201,245	0	201,245
2043	13,834,775	1,206,179	1,206,179	0	190,764	0	190,764
2044	13,807,612	1,226,091	1,226,091	0	180,384	0	180,384
2045	13,754,557	1,243,747	1,243,747	0	170,216	0	170,216
2046	13,676,635	1,258,846	1,258,846	0	160,262	0	160,262
2047	13,575,316	1,271,019	1,271,019	0	150,523	0	150,523
2048	13,452,618	1,279,716	1,279,716	0	140,979	0	140,979
2049	13,311,326	1,284,262	1,284,262	0	131,609	0	131,609
2050	13,155,211	1,284,521	1,284,521	0	122,452	0	122,452
2051	12,988,479	1,280,382	1,280,382	0	113,542	0	113,542
2052	12,815,743	1,272,352	1,272,352	0	104,958	0	104,958
2053	12,641,360	1,261,172	1,261,172	0	96,777	0	96,777
2054	12,469,129	1,247,252	1,247,252	0	89,032	0	89,032
2055	12,302,621	1,230,913	1,230,913	0	81,735	0	81,735
2056	12,145,266	1,212,303	1,212,303	0	74,883	0	74,883
2057	12,000,549	1,191,530	1,191,530	0	68,465	0	68,465
2058	11,872,071	1,168,743	1,168,743	0	62,471	0	62,471
2059	11,763,520	1,144,076	1,144,076	0	56,886	0	56,886
2060	11,678,691	1,117,692	1,117,692	0	51,697	0	51,697
2061	11,621,466	1,089,731	1,089,731	0	46,887	0	46,887
2062	11,595,851	1,060,341	1,060,341	0	42,439	0	42,439
2063	11,605,978	1,029,666	1,029,666	0	38,336	0	38,336
2064	11,656,128	997,820	997,820	0	34,559	0	34,559
2065	11,750,774	972,063	972,063	0	31,318	0	31,318
2066	11,887,201	951,836	951,836	0	28,527	0	28,527
2067	12,053,741	929,877	929,877	0	25,924	0	25,924

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 ((a)-.5)	(g)=(e)*vf ^a ((a)-.5)	(h)=((c)/(1+sdr) ^a ((a)-.5)
2068	\$ 12,264,050	\$ 906,222	\$ 906,222	\$ 0	\$ 23,502	\$ 0	\$ 23,502
2069	12,523,445	880,912	880,912	0	21,252	0	21,252
2070	12,837,611	853,995	853,995	0	19,165	0	19,165
2071	13,212,616	825,532	825,532	0	17,234	0	17,234
2072	13,654,929	795,594	795,594	0	15,450	0	15,450
2073	14,171,444	764,263	764,263	0	13,806	0	13,806
2074	14,769,494	731,631	731,631	0	12,295	0	12,295
2075	15,456,878	697,808	697,808	0	10,908	0	10,908
2076	16,241,877	662,917	662,917	0	9,640	0	9,640
2077	17,133,278	627,097	627,097	0	8,483	0	8,483
2078	18,140,390	590,505	590,505	0	7,430	0	7,430
2079	19,273,076	553,313	553,313	0	6,477	0	6,477
2080	20,541,767	515,711	515,711	0	5,615	0	5,615
2081	21,957,497	477,908	477,908	0	4,841	0	4,841
2082	23,531,920	440,134	440,134	0	4,147	0	4,147
2083	25,277,341	402,642	402,642	0	3,529	0	3,529
2084	27,206,738	365,705	365,705	0	2,982	0	2,982
2085	29,333,798	329,608	329,608	0	2,500	0	2,500
2086	31,672,949	294,640	294,640	0	2,079	0	2,079
2087	34,239,421	261,077	261,077	0	1,713	0	1,713
2088	37,049,312	229,172	229,172	0	1,399	0	1,399
2089	40,119,685	199,146	199,146	0	1,131	0	1,131
2090	43,468,669	171,181	171,181	0	904	0	904
2091	47,115,583	145,425	145,425	0	715	0	715
2092	51,081,058	121,987	121,987	0	558	0	558
2093	55,387,178	100,939	100,939	0	429	0	429
2094	60,057,630	82,307	82,307	0	326	0	326
2095	65,117,869	66,068	66,068	0	243	0	243
2096	70,595,303	52,152	52,152	0	179	0	179
2097	76,519,491	40,439	40,439	0	129	0	129
2098	82,922,356	30,770	30,770	0	91	0	91
2099	89,838,399	22,950	22,950	0	63	0	63
2100	97,304,939	16,763	16,763	0	43	0	43
2101	105,362,338	11,980	11,980	0	29	0	29
2102	114,054,252	8,371	8,371	0	19	0	19
2103	123,427,870	5,718	5,718	0	12	0	12
2104	133,534,179	3,819	3,819	0	7	0	7
2105	144,428,221	2,498	2,498	0	4	0	4
2106	156,169,382	1,604	1,604	0	3	0	3
2107	168,821,686	1,014	1,014	0	2	0	2
2108	182,454,115	636	636	0	1	0	1
2109	197,140,953	398	398	0	1	0	1
2110	212,962,163	251	251	0	0	0	0
2111	230,003,787	161	161	0	0	0	0
2112	248,358,393	105	105	0	0	0	0
2113	268,125,548	71	71	0	0	0	0
2114	289,412,337	50	50	0	0	0	0
2115	312,333,924	36	36	0	0	0	0
2116	337,014,155	27	27	0	0	0	0
2117	363,586,209	21	21	0	0	0	0
Totals					\$ 11,125,510	\$ 0	\$ 11,125,510

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 and;2. 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 ages(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.

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 post-employment 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.