

**PUBLIC EMPLOYEES RETIREMENT ASSOCIATION OF MINNESOTA
GENERAL EMPLOYEES RETIREMENT PLAN**
GASB STATEMENTS NO. 67 AND NO. 68 ACCOUNTING AND
FINANCIAL REPORTING FOR PENSIONS
JUNE 30, 2016

December 2, 2016

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

Dear Trustees of the General Employees Retirement Plan:

This report provides accounting and financial reporting information that is intended to comply with the Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68 for the General Employees Retirement Plan (“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 funding purposes of the plan. A calculation of the plan’s liability for purposes other than satisfying the requirements of GASB Statement No. 67 may produce significantly different results. The information in this report is calculated on a total plan basis. 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.

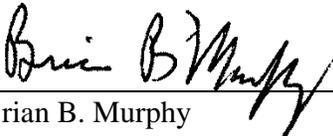
This report complements the actuarial valuation report for funding purposes that was or will be provided to the System and should be considered in conjunction with that report. Please see the actuarial valuation report as of June 30, 2016 for additional discussion of the nature of actuarial calculations and more information related to participant date, 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 General Employees Retirement Plan as of the measurement date. All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

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,

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

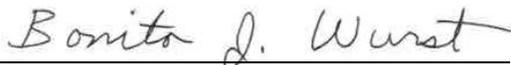
By 
Bonita J. Wurst
ASA, EA, FCA, MAAA

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SECTION A

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY
AS OF JUNE 30, 2016 (DOLLARS IN THOUSANDS)

	2016
Actuarial Valuation Date	June 30, 2016
Measurement Date of the Net Pension Liability	June 30, 2016
Employer's Fiscal Year Ending Date (Reporting Date)	Varies by Employer

Membership

Number of	
- Service Retirements	81,911
- Survivors	8,547
- Disability Retirements	3,830
- Deferred Retirements	52,516
- Terminated other non-vested	132,416
- Active Members	148,745
- Total	427,965
Covered Payroll	\$ 5,773,708

Net Pension Liability

Total Pension Liability	\$ 26,114,413
Plan Fiduciary Net Position	\$ 17,994,909
Net Pension Liability	\$ 8,119,504
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	68.91%
Net Pension Liability as a Percentage of Covered Payroll	140.63%

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*	2.85%
Last year ending June 30 in the 2017 to 2116 projection period for which projected benefit payments are fully-funded	2116

Total Pension Expense/ (Income) \$ 1,029,038

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	\$ 24,030	\$ 659,589
Changes in assumptions	\$ 1,751,180	-
Net difference between projected and actual earnings on pension plan investments	\$ 1,541,117	\$ 634,630
Total	\$ 3,316,327	\$ 1,294,219

* Based on the Bond Buyer 20-Bond Index of general obligation municipal bonds as of June 30, 2016.

DISCUSSION

Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67 establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability. Similarly, GASB Statement No. 68 establishes standards for state and local government employers (as well as non-employer contributing entities) to account for and disclose the net pension liability, pension expense, and other information associated with providing retirement benefits to their employees (and former employees) on their basic financial statements. Governmental Accounting Standards Board (GASB) Statement No. 82, Pension Issues, is an amendment to Statements No. 67, No. 68, and No. 73, intended to improve consistency in the application of the accounting standards.

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

Financial Statements

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

Paragraph 57 of GASB Statement No. 68 states, "Contributions to the pension plan from the employer subsequent to the measurement date of the collective net pension liability and before the end of the employer's reporting period should be reported as a deferred outflow of resources related to pensions." The information contained in this report does not incorporate any contributions made to GERP subsequent to the measurement date of June 30, 2016.

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

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

Notes to Financial Statements

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

Both GASB Statement No. 67 and No. 68 require the notes of the financial statements for the employers and pension plans, to include certain additional information. The list of disclosure items should include:

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

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

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

Required Supplementary Information

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

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

Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. 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, 2016 and a measurement date of June 30, 2016.

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 gradually improve but is not expected to be 100% funded in the next 50 years.

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 expected rate of return on pension plan investments is 7.50%; the municipal bond rate is 2.85% (based on the weekly rate closest to but not later than the measurement date of the Bond Buyer 20-Year GO Index); and the resulting single discount rate is 7.50%. The long-term expected rate of return is based on a review of inflation and investment assumptions, dated September 11, 2014, and a recent asset liability study obtained by the Minnesota State Board of Investment.

Effective Date and Transition

GASB Statements No. 67 and No. 68 are effective for fiscal years beginning after June 15, 2013, and June 15, 2014 respectively. Earlier application is encouraged by the GASB.

SECTION B

FINANCIAL STATEMENTS

PENSION EXPENSE UNDER GASB STATEMENT NO. 68
FISCAL YEAR ENDED JUNE 30, 2016 (DOLLARS IN THOUSANDS)

A. Expense

1. Service Cost	\$	434,551
2. Interest on the Total Pension Liability		1,839,388
3. Current-Period Benefit Changes		0
4. Employee Contributions (made negative for addition here)		(375,291)
5. Projected Earnings on Plan Investments (made negative for addition here)		(1,445,603)
6. Pension Plan Administrative Expense		11,350
7. Other Changes in Plan Fiduciary Net Position		(431)
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>		(161,799)
9. Recognition of Outflow (Inflow) of Resources due to assumption changes		
<i>Arising from Current Reporting Period</i>		529,936
10. Recognition of Outflow (Inflow) of Resources due to the difference between projected (7.90%) and actual earnings on Pension Plan Investments		
<i>Arising from Current Reporting Period</i>		293,291
11. Increase/(Decrease) from Experience in Current Reporting Period	\$	<u>1,125,392</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>		(63,065)
13. Recognition of Outflow (Inflow) of Resources due to assumption changes		
<i>Arising from Prior Reporting Periods</i>		161,375
14. Recognition of Outflow (Inflow) of Resources due to the difference between projected (7.90%) and actual earnings on Pension Plan Investments		
<i>Arising from Prior Reporting Periods</i>		(194,664)
15. Total Pension Expense / (Income)	\$	<u>1,029,038</u>

**STATEMENT OF OUTFLOWS AND INFLOWS ARISING FROM
CURRENT REPORTING PERIOD
FISCAL YEAR ENDED JUNE 30, 2016 (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	\$ (647,197)
2. Assumption Changes (gains) or losses	\$ 2,119,742
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years }	4.0000
4. Outflow (Inflow) of Resources to be recognized in the current pension expense for the difference between expected and actual experience of the Total Pension Liability	\$ (161,799)
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes	\$ 529,936
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	<u>\$ 368,137</u>
7. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for the difference between expected and actual experience of the Total Pension Liability	\$ (485,398)
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	\$ 1,589,806
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	<u>\$ 1,104,408</u>

B. Outflows (Inflows) of Resources due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$ 1,466,454
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	\$ 293,291
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$ 1,173,163

**STATEMENT OF OUTFLOWS AND INFLOWS ARISING FROM
CURRENT AND PRIOR REPORTING PERIODS
FISCAL YEAR ENDED JUNE 30, 2016 (DOLLARS IN THOUSANDS)**

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

	<u>Outflows of Resources</u>	<u>Inflows of Resources</u>	<u>Net Outflows of Resources</u>
1. Due to Liabilities	\$ 715,342	\$ 248,895	\$ 466,447
2. Due to Assets	415,942	317,315	98,627
3. Total	\$ 1,131,284	\$ 566,210	\$ 565,074

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

	<u>Outflows of Resources</u>	<u>Inflows of Resources</u>	<u>Net Outflows of Resources</u>
1. Differences between expected and actual experience	\$ 24,031	\$ 248,895	\$ (224,864)
2. Assumption Changes	691,311	-	691,311
3. Net Difference between projected and actual earnings on pension plan investments	415,942	317,315	98,627
4. Total	\$ 1,131,284	\$ 566,210	\$ 565,074

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

	<u>Deferred Outflows of Resources</u>	<u>Deferred Inflows of Resources</u>	<u>Net Deferred Outflows of Resources</u>
1. Differences between expected and actual experience	\$ 24,030	\$ 659,589	\$ (635,559)
2. Assumption Changes	1,751,180	-	1,751,180
3. Net Difference between projected and actual earnings on pension plan investments	1,541,117	634,630	906,487
4. Total	\$ 3,316,327	\$ 1,294,219	\$ 2,022,108

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

<u>Year Ending June 30</u>	<u>Net Deferred Outflows of Resources</u>
2017	\$ 565,074
2018	379,667
2019	784,080
2020	293,287
2021	-
Thereafter	-
Total	\$ 2,022,108

**STATEMENT OF FIDUCIARY NET POSITION
AS OF JUNE 30, 2016 (DOLLARS IN THOUSANDS)**

Assets in Trust	Market Value	
	June 30, 2016	June 30, 2015
Cash, equivalents, short term securities	\$ 371,576	\$ 355,041
Fixed income	4,437,241	4,364,607
Equity	10,849,195	11,528,261
SBI Alternative	2,300,707	2,288,787
Other	7,014	7,382
Total Assets in Trust	\$ 17,965,733	\$ 18,544,078
Assets Receivable	41,539 *	46,518 **
Amounts Payable	(12,363)	(8,801)
Net Position Restricted for Pensions	\$ 17,994,909	\$ 18,581,795

* Includes \$31 million Employer Supplemental Contribution to be paid in July and December 2016.

** Includes \$31 million Employer Supplemental Contribution paid September 2015.

**STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
FOR YEAR ENDED JUNE 30, 2016 (DOLLARS IN THOUSANDS)**

Change in Assets	Market Value	
	June 30, 2016	June 30, 2015
Year Ending		
1. Fund balance at market value at beginning of year	\$ 18,581,795	\$ 17,404,822
2. Contributions		
a. Member	375,291	353,765
b. Employer	459,978 *	435,115 **
c. Other sources	6,000	0
d. Total contributions	<u>841,269</u>	<u>788,880</u>
3. Investment income		
a. Investment income/(loss)	3,160	803,212
b. Investment expenses	<u>(24,011)</u>	<u>(25,708)</u>
c. Net subtotal	(20,851)	777,504
4. Other	<u>431</u>	<u>278</u>
5. Total additions: (2.d.) + (3.c.) + (4.)	\$ 820,849	\$ 1,566,662
6. Benefits Paid		
a. Annuity benefits	(1,359,176)	(1,235,303)
b. Refunds	<u>(37,209)</u>	<u>(35,655)</u>
c. Total benefits paid	(1,396,385)	(1,270,958)
7. Expenses		
a. Other	0	0
b. Administrative	<u>(11,350)</u>	<u>(10,367)</u>
c. Total expenses	(11,350)	(10,367)
8. Total deductions: (6.c.) + (7.c.)	(1,407,735)	(1,281,325)
9. Net increase (decrease) in net position: (5) + (8)	(586,886)	285,337
10. Transfer between funds	\$ 0	891,636
11. Net position restricted for pensions	\$ 17,994,909	\$ 18,581,795
12. Approximate return on market value of assets	-0.2%	4.4%

* Includes \$31 million Employer Supplemental Contribution to be paid in July and December 2016.

** Includes \$31 million Employer Supplemental Contribution paid September 2015.

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS
CURRENT PERIOD
FISCAL YEAR ENDED JUNE 30, 2016 (DOLLARS IN THOUSANDS)

A. Total pension liability	
1. Service Cost	\$ 434,551
2. Interest on the Total Pension Liability	1,839,388
3. Changes of benefit terms	0
4. Difference between expected and actual experience of the Total Pension Liability*	(647,197)
5. Changes of assumptions	2,119,742
6. Benefit payments, including refunds of employee contributions	(1,396,385)
7. Net change in total pension liability	\$ 2,350,099
8. Total pension liability – beginning July 1, 2015	23,764,314
9. Total pension liability – ending June 30, 2016	<u><u>\$ 26,114,413</u></u>
B. Plan fiduciary net position	
1. Contributions – employer	\$ 465,978
2. Contributions – employee	375,291
3. Net investment income	(20,851)
4. Benefit payments, including refunds of employee contributions	(1,396,385)
5. Pension Plan Administrative Expense	(11,350)
6. Other	431
7. Net change in plan fiduciary net position	\$ (586,886)
8. Plan fiduciary net position – beginning July 1, 2015	18,581,795
9. Plan fiduciary net position – ending June 30, 2016	<u><u>\$ 17,994,909</u></u>
C. Net pension liability	<u><u>\$ 8,119,504</u></u>
D. Plan fiduciary net position as a percentage of the total pension liability	68.91%
E. Covered-employee payroll	\$ 5,773,708
F. Net pension liability as a percentage of covered-employee payroll	140.63%

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

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,	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Total Pension Liability										
Service Cost	\$ 434,551	\$ 421,602	\$ 388,391							
Interest on the Total Pension Liability	1,839,388	1,712,534	1,591,756							
Benefit Changes	-	1,147,198	-							
Difference between Expected and Actual Experience	(647,197)	(348,383)	96,123							
Assumption Changes	2,119,742	-	645,499							
Benefit Payments	(1,359,176)	(1,235,303)	(1,109,866)							
Refunds	(37,209)	(35,655)	(38,264)							
Net Change in Total Pension Liability	2,350,099	1,661,993	1,573,639							
Total Pension Liability - Beginning	23,764,314	22,102,321	20,528,682							
Total Pension Liability - Ending (a)	\$ 26,114,413	\$ 23,764,314	\$ 22,102,321							
Plan Fiduciary Net Position										
Employer Contributions	\$ 465,978	\$ 435,115	\$ 382,251							
Employee Contributions	375,291	353,765	334,495							
Pension Plan Net Investment Income	(20,851)	777,504	2,760,854							
Benefit Payments	(1,359,176)	(1,235,303)	(1,109,866)							
Refunds	(37,209)	(35,655)	(38,264)							
Pension Plan Administrative Expense	(11,350)	(10,367)	(9,861)							
Other	431	891,914	605							
Net Change in Plan Fiduciary Net Position	(586,886)	1,176,973	2,320,214							
Plan Fiduciary Net Position - Beginning	18,581,795	17,404,822	15,084,608							
Plan Fiduciary Net Position - Ending (b)	\$ 17,994,909	\$ 18,581,795	\$ 17,404,822							
Net Pension Liability - Ending (a) - (b)	8,119,504	5,182,519	4,697,499							
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	68.91 %	78.19 %	78.75 %							
Covered-employee payroll	\$ 5,773,708	\$ 5,549,255	\$ 5,351,920							
Net Pension Liability as a Percentage of covered-employee payroll	140.63 %	93.39 %	87.77 %							
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
2007			\$ -			
2008			-			
2009			-			
2010			-			
2011			-			
2012			-			
2013			-			
2014	\$ 22,102,321	\$ 17,404,822	\$ 4,697,499	78.75%	\$ 5,351,920	87.77%
2015	23,764,314	18,581,795	5,182,519	78.19%	5,549,255	93.39%
2016	26,114,413	17,994,909	8,119,504	68.91%	5,773,708	140.63%

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
2007	\$ 335,698	\$ 283,419	\$ 52,279	\$ 4,448,954	6.37%
2008	374,522	303,304	71,218	4,722,432	6.42
2009	381,151	328,603	52,548	4,778,708	6.88
2010	443,548	342,678	100,870	4,804,627	7.13
2011	321,782	357,596	(35,814)	5,079,429	7.04
2012	371,295	368,037	3,258	5,142,592	7.16
2013	430,773	372,652	58,121	5,246,928	7.10
2014	476,321	382,251	94,070	5,351,920	7.14
2015	523,017	435,115	87,902	5,549,255	7.84
2016	542,151	465,978	76,173	5,773,708	8.07

NOTES TO SCHEDULE OF CONTRIBUTIONS

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.

Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Remaining Amortization Period	17 years
Asset Valuation Method	5-year smoothed market; no corridor
Inflation	2.75%
Payroll Growth	3.50%
Salary Increases	3.50% to 11.50% 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 2016 valuation pursuant to an experience study of the period 2008 - 2015.
Mortality	RP-2014 annuitant generational mortality table, projected with scale MP-2015 from a base year of 2014, white collar adjustment, set forward two years for males and rates adjusted by a factor of 0.90 for females.

Other Information:

Notes: The plan is assumed to pay a 2.5% post retirement benefit increase beginning January 1, 2053.
 See separate funding report as of July 1, 2016 for additional detail.

SCHEDULE OF INVESTMENT RETURNS MULTIYEAR
Last 10 Fiscal Years

FY Ending June 30,	Annual Return¹
2007	
2008	
2009	
2010	
2011	
2012	
2013	
2014	
2015	
2016	

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

<u>Asset Class</u>	<u>Target Allocation</u>	<u>Long-Term Expected Real Rate of Return</u>
Domestic Fixed Income		
International Fixed Income		
Domestic Equity		
International Equity		
Private Equity		
Real Estate		
Commodities		
Cash		
Total	<hr/>	

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.

Single Discount Rate

A single discount rate of 7.50% was used to measure the total pension liability. This single discount rate was based on the expected rate of return on pension plan investments of 7.50%. The projection of cash flows used to determine this single discount rate assumed that plan member, employer, and state contributions will be made at the current statutory contribution rates. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Regarding the sensitivity of the net pension liability to changes in the single discount rate, the following presents the plan's net pension liability, calculated using a single discount rate of 7.50%, as well as what the plan's net pension liability would be if it were calculated using a single discount rate that is 1-percentage-point lower or 1-percentage-point higher:

**SENSITIVITY OF NET PENSION LIABILITY
TO THE SINGLE DISCOUNT RATE ASSUMPTION**
(Dollars in Thousands)

	Current Single Discount		
	1% Decrease 6.50%	Rate Assumption 7.50%	1% Increase 8.50%
Total Pension Liability	\$ 29,527,011	\$ 26,114,413	\$ 23,303,361
Net Position Restricted for Pensions	17,994,909	17,994,909	17,994,909
Net Pension Liability	\$ 11,532,102	\$ 8,119,504	\$ 5,308,452

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	\$ 23,764,314	\$ 18,581,795	\$ 5,182,519			
Changes for the Year:						
Service Cost	\$ 434,551		\$ 434,551			\$ 434,551
Interest on Total Pension Liability	1,839,388		1,839,388			1,839,388
Interest on Fiduciary Net Position		\$ 1,445,603	(1,445,603)			(1,445,603)
Changes in Benefit Terms	-		-			-
Liability Experience Gains and Losses	(647,197)		(647,197)		\$ 485,398	(161,799)
Changes in Assumptions	2,119,742		2,119,742	\$ 1,589,806		529,936
Contributions - Employer		465,978	(465,978)			
Contributions - Employees		375,291	(375,291)			(375,291)
Asset Gain/(Loss)		(1,466,454)	1,466,454	\$ 1,173,163		293,291
Benefit Payouts	(1,396,385)	(1,396,385)	-			-
Administrative Expenses		(11,350)	11,350			11,350
Other		431	(431)			(431)
Net Changes	\$ 2,350,099	\$ (586,886)	\$ 2,936,985	\$ 2,762,969	\$ 485,398	\$ 1,125,392
Balance End of Year	\$ 26,114,413	\$ 17,994,909	\$ 8,119,504			

* 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	\$ 23,764,314	\$ 18,581,795	\$ 5,182,519				
Changes for the Year:							
Service Cost	\$ 434,551		\$ 434,551				\$ 434,551
Interest on Total Pension Liability	1,839,388		1,839,388				1,839,388
Interest on Fiduciary Net Position		\$ 1,445,603	(1,445,603)				(1,445,603)
Changes in Benefit Terms	-		-				-
Liability Experience Gains and Losses	(647,197)		(647,197)	\$ 24,030	\$ 659,589	\$ (213,226)	(224,864)
Changes in Assumptions	2,119,742		2,119,742	1,751,180		322,749	691,311
Contributions - Employer		465,978	(465,978)				
Contributions - Employees		375,291	(375,291)				(375,291)
Asset Gain/(Loss)		(1,466,454)	1,466,454	1,541,117	634,630	(461,340)	98,627
Benefit Payouts	(1,396,385)	(1,396,385)	-				11,350
Administrative Expenses		(11,350)	11,350				(431)
Other		431	(431)				
Net Changes	\$ 2,350,099	\$ (586,886)	\$ 2,936,985				\$ 1,029,038
Balance End of Year	\$ 26,114,413	\$ 17,994,909	\$ 8,119,504	\$ 3,316,327	\$ 1,294,219	\$ (351,817)	

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

SUMMARY OF POPULATION STATISTICS

	Terminated			Recipients			Total
	Actives	Deferred Retirement	Other Non-Vested	Service Retirement	Disability Retirement	Survivor	
GERP Members on 7/1/2015	145,650	51,605	125,366	78,372	3,801	8,419	413,213
New members	19,390	0	0	0	0	0	19,390
Return to active	2,918	(980)	(1,938)	0	0	0	0
Terminated non-vested	(8,810)	0	8,810	0	0	0	0
Service retirements	(2,956)	(2,657)	0	5,613	0	0	0
Terminated deferred	(4,952)	4,952	0	0	0	0	0
Terminated refund/transfer	(2,154)	(838)	(1,170)	0	0	0	(4,162)
Deaths	(201)	(140)	(316)	(2,145)	(156)	(509)	(3,467)
New beneficiary	0	0	0	0	0	583	583
Disabled	(112)	0	0	0	112	0	0
Data adjustments	(28)	574	1,664	71	73	54	2,408
Net change	3,095	911	7,050	3,539	29	128	14,752
GERP Members on 6/30/2016	148,745	52,516	132,416	81,911	3,830	8,547	427,965

SECTION E

SUMMARY OF BENEFITS

SUMMARY OF PLAN PROVISIONS - BASIC

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

Plan year	July 1 through June 30				
Eligibility	A public employee who is not covered under the Social Security Act. General exceptions are employees covered by other public funds, certain part-time employees and full-time students under age 23.				
Contributions	Shown as a percent of salary: <table style="margin-left: 40px;"> <tr> <td><u>Member</u></td> <td>9.10% of salary</td> </tr> <tr> <td><u>Employer</u></td> <td>11.78% of salary</td> </tr> </table> <p>Member contributions are “picked up” according to the provisions of Internal Revenue Code 414(h).</p>	<u>Member</u>	9.10% of salary	<u>Employer</u>	11.78% of salary
<u>Member</u>	9.10% of salary				
<u>Employer</u>	11.78% of salary				
Allowable service	Service during which member contributions were made. May also include certain leaves of absence and military service.				
Salary	Includes amounts deducted for deferred compensation or supplemental retirement plans, net income from fees and sick leave payments funded by the employer. Excludes unused annual leaves and sick leave payments, severance payments, Workers’ Compensation benefits and employer-paid flexible spending accounts and employer-paid deferred compensation deposits, cafeteria plans, healthcare expense accounts, day-care expenses, fringe benefits and the cost of insurance coverage.				
Average salary	Average of the five highest successive years of annual salary. Average salary is based on all Allowable Service if less than five years.				
Vesting	Hired before July 1, 2010: 100% vested after 3 years of Allowable Service. Hired after June 30, 2010: 100% vested after 5 years of Allowable Service. (Not applicable since all Basic members were hired before 1968.)				
Retirement					
	<u>Normal retirement benefit</u>				
Age/service requirement	Age 65 and vested. Proportionate retirement annuity is available at age 65 and one year of Allowable Service.				
Amount	2.70% of Average Salary for each year of Allowable Service.				
	<u>Early retirement benefit</u>				
Age/service requirement	(a.) Age 55 and vested. (b.) Any age with 30 years of Allowable Service. (c.) Rule of 90: Age plus Allowable Service totals 90.				

SUMMARY OF PLAN PROVISIONS – BASIC (CONTINUED)

Retirement (Continued)Early retirement benefit
(Continued)

Age/service requirement	The greater of (a) or (b):
Amount	<p>(a.) 2.20% of Average Salary for each of the first ten years of Allowable Service and 2.70% of Average Salary for each subsequent year with reduction of 0.25% for each month if the Member is under age 65 at time of retirement and has less than 30 years of Allowable Service or if the Member is under age 62 and has 30 or more years of Allowable Service. No reduction if age plus years of Allowable Service totals 90.</p> <p>(b.) 2.70% of Average Salary for each year of Allowable Service assuming augmentation to age 65 at 3.00% per year and actuarial reduction for each month the Member is under age 65.</p>
Form of payment	<p>Life annuity with return on death of any balance of contributions over aggregate monthly payments. Actuarially equivalent options are:</p> <p>25%, 50%, 75% or 100% Joint and Survivor. If a Joint and Survivor benefit is elected and the beneficiary predeceases the annuitant, the annuitant's benefit increases to the Life Annuity amount. This "bounce back" is subsidized by the plan.</p>
Benefit increases	<p>Benefit recipients receive a future annual 1.00% post-retirement benefit increase. If the funding ratio reaches 90% 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%.</p> <p>A benefit recipient who has been receiving a benefit for at least 12 full months as of June 30 will receive a full increase. Members receiving benefits for at least one month but less than 12 full months as of June 30 will receive a pro rata increase. Members retired under laws in effect before July 1, 1973 receive an additional lump sum payment each year. In 1989, this lump sum payment is the greater of \$25 times each full year of Allowable Service or the difference between \$400 times each full year of Allowable Service and the sum of benefits paid from any Minnesota public pension plan plus cash payments from the Social Security Administration for the preceding fiscal year July 1, 1988 through June 30, 1989. In each following year, the lump sum payment will increase by the same percentage increase that is applied to regular annuities paid from the fund. Effective January 1, 2002, annual lump sum payment is divided by 12 and paid as a monthly life annuity in the annuity form elected.</p>

SUMMARY OF PLAN PROVISIONS – BASIC (CONTINUED)

DisabilityDisability benefit

Age/service requirement Total and permanent disability before normal retirement age if vested. Since all remaining active Basic members are over normal retirement age, none are eligible for disability benefits.

Amount Normal Retirement benefit based on Allowable Service and Average Salary at disability without reduction for commencement before Normal Retirement Age. Supplemental benefit of \$25 per month payable to the later of the normal retirement age or the five-year anniversary of commencement of disability. The disability benefit is reduced to that amount which, when added to Workers' Compensation, does not exceed the salary the disabled Member received as of the date of the disability or the salary currently payable for the same employment position substantially similar to the one the person held as of the date of the disability, whichever is greater.

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

Payments stop earlier if disability ceases. If death occurs prior to age 65, or within five years of disability, the surviving spouse can receive a refund or a survivor benefit. Dependent children are entitled to dependent child benefits subject to the 70.00% family maximum. Payments revert to a retirement annuity at normal retirement age. Benefits may be reduced on resumption of partial employment.

Form of payment Same as for retirement.

Benefit increases Same as for retirement.

Retirement after disability

Age/service requirement Normal retirement age.

Amount Any optional annuity continues. Otherwise, the larger of the disability benefit paid before normal retirement age or the normal retirement benefit available at normal retirement age, or an actuarially equivalent optional annuity.

Benefit increases Same as for retirement.

SUMMARY OF PLAN PROVISIONS - BASIC (CONTINUED)

DeathSurviving spouse benefit

Age/service requirement Active Member with 18 months of Allowable Service or while Member is receiving a disability benefit.

Amount 50.00% of salary averaged over last six months. Family benefit is maximum of 70.00% and minimum of 50.00% of average salary. Benefit paid until spouse's death but no payments while spouse is remarried prior to July 1, 1991.

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

Surviving spouse optional annuity may be elected in lieu of this benefit.

Benefit increases Same as for retirement.

Surviving dependent children's benefit

Age/service requirement Active Member with 18 months of Allowable Service or while Member is receiving a disability benefit.

Amount 10.00% of salary averaged over last six months for each child. Family benefit minimum (including spouse's benefit) of 50.00% of salary and maximum of 70.00% of average salary. Benefits paid until child marries, dies, or attains age 18 (age 22 if full-time student).

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

Benefit increases Same as for retirement.

SUMMARY OF PLAN PROVISIONS - BASIC (CONTINUED)

Death (Continued)Surviving spouse optional annuity

Age/service requirement Member or former Member who dies before retirement benefits commence and other survivor annuity is waived by spouse.

Amount Survivor's payment of the 100% joint and survivor benefit the Member could have elected if terminated or an actuarial equivalent term certain annuity. If commencement is prior to age 65 (age 62 if 30 years of service), the benefit is reduced the same as early retirement with half the applicable reduction factor used from age 55 to the actual commencement age. If no surviving spouse, then an actuarial equivalent dependent child benefit is paid to age 20 or for five years if longer.

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

Benefit increases Same as for retirement.

Refund of contributions with interest

Age/service requirement Member dies before receiving any retirement benefits and survivor benefits are not payable.

Amount The excess of the Member's contributions with 6.00% interest until June 30, 2011; 4.00% interest thereafter over any disability or survivor benefits paid.

TerminationRefund 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 three or more years of Allowable Service.

SUMMARY OF PLAN PROVISIONS - BASIC (CONTINUED)

Termination (Continued)	
<u>Deferred benefit</u>	
Age/service requirement	Fully vested.
Amount	Benefit computed under law in effect at termination and increased by the following “augmentation” percentage compounded annually for terminations prior to 2012: <ul style="list-style-type: none"> (a.) 0.00% before July 1, 1971; (b.) 5.00% from July 1, 1971 to January 1, 1981; (c.) 3.00% thereafter until the earlier of January 1 of the year following attainment of age 55 and January 1, 2012; (d.) 5.00% thereafter until the earlier of the date the annuity begins and January 1, 2012; and (e.) 1.00% from January 1, 2012 thereafter. <p>Members who terminate after 2011 will receive no future augmentation.</p> <p>Members active with a public employer the day prior to the privatization of the employer become vested immediately and receive enhanced augmentation (unless the enhancement results in a net loss to the Plan). Amount is payable at a normal or early retirement. Augmentation equals 2.00% compounded annually, unless the enhancement results in a net loss to the Plan, in which case augmentation equals 1.00% compounded annually. If privatization occurred prior to January 1, 2011, augmentation occurs at the rate of 4.00% compounded annually through the year the Member turns age 55 and 6.00% thereafter until the annuity begins. If privatization occurred prior to January 1, 2007 (or January 1, 2008 for Hutchinson Area Health Care), augmentation occurs at the rate of 5.50% compounded annually through the year the Member turns age 55 and 7.50% thereafter until the annuity begins.</p> <p>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%.</p>
Form of payment	Same as for retirement.
Optional form conversion factors	Actuarially equivalent factors based on the RP-2000 mortality table for healthy annuitants, white collar adjustment, projected to 2025, females set back two years and no set back for males, blended 45% males and 7.50% interest.

SUMMARY OF PLAN PROVISIONS - BASIC (CONCLUDED)

- Combined service annuity** Members are eligible for combined service benefits if they:
- (a.) Meet minimum retirement age for each plan participated in and total public service meets the vesting requirements of each plan; or
 - (b.) Have three or more years of service under PERA and the covered fund(s) (if hired prior to July 1, 2010).
- Other requirements for combined service include:
- (a.) Member must have at least six months of allowable service credit in each plan worked under; and
 - (b.) Member may not be in receipt of a benefit from another plan.
- Members who meet the above requirements must have their benefit based on the following:
- (a.) Allowable service in all covered plans are combined in order to determine eligibility for early retirement; and
 - (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 to plan provisions since the previous valuation.

SUMMARY OF PLAN PROVISIONS - COORDINATED

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

Plan year	July 1 through June 30	
Eligibility	A public employee who is covered under the Social Security Act. General exceptions are employees covered by other public funds, certain part-time employees and full-time students under age 23. City managers and persons holding certain elective office positions may choose to become Members.	
Contributions	Shown as a percent of salary:	
<u>Effective date</u>	<u>Member</u>	<u>Employer</u>
January 1, 2015	6.50%	7.50%
	Member contributions are "picked up" according to the provisions of Internal Revenue Code 414(h).	
Allowable service	Service during which member contributions are deducted. May also include certain leaves of absence and military service.	
Salary	Includes amounts deducted for deferred compensation or supplemental retirement plans, net income from fees and sick leave payments funded by the employer. Excludes unused annual leave and sick leave payments, severance payments, Workers' Compensation benefits and employer-paid flexible spending accounts and employer-paid deferred compensation deposits, cafeteria plans, healthcare expense accounts, day-care expenses, fringe benefits and the cost of insurance coverage.	
Average salary	Average of the five highest successive years of annual salary. Average salary is based on all Allowable Service if less than five years.	
Vesting	Hired before July 1, 2010: 100% vested after three years of Allowable Service.	
	Hired after June 30, 2010: 100% vested after five years of Allowable Service.	
Retirement		
<u>Normal retirement benefit</u>		
Age/service requirement	First hired before July 1, 1989:	
	(a.) Age 65 and vested.	
	(b.) Proportionate retirement annuity is available at age 65 and one year of Allowable Service.	
Amount	1.70% of Average Salary for each year of Allowable Service.	

SUMMARY OF PLAN PROVISIONS – COORDINATED (CONTINUED)

Retirement (Continued)Normal retirement benefit
(Continued)

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

Early retirement benefit

Age/service requirement	<p>First hired before July 1, 1989:</p> <p>(a.) Age 55 and vested.</p> <p>(b.) Any age with 30 years of Allowable Service.</p> <p>(c.) Rule of 90: Age plus Allowable Service totals 90.</p> <p>First hired after June 30, 1989:</p> <p>(a.) Age 55 and vested.</p>
Amount	<p>First hired before July 1, 1989:</p> <p>The greater of (a) or (b):</p> <p>(a.) 1.20% of Average Salary for each of the first ten years of Allowable Service and 1.70% of Average Salary for each subsequent year with reduction of 0.25% for each month the Member is under age 65 at time of retirement or under age 62 if 30 years of Allowable Service. No reduction if age plus years of Allowable Service totals 90.</p> <p>(b.) 1.70% of Average Salary for each year of Allowable Service assuming augmentation to age 65 at 3.00% per year and actuarial reduction for each month the Member is under age 65.</p> <p>First hired after June 30, 1989:</p> <p>(a.) 1.70% of Average Salary for each year of Allowable Service assuming augmentation to normal retirement age at 3.00% per year (2.50% if hired after June 30, 2006) and actuarial reduction for each month the Member is under normal retirement age.</p>
Form of payment	<p>Life annuity with return on death of any balance of contributions over aggregate monthly payments. Actuarially equivalent options are:</p> <p>25%, 50%, 75% or 100% Joint and Survivor . If a Joint and Survivor benefit is elected and the beneficiary predeceases the annuitant, the annuitant's benefit increases to the Life Annuity amount. This "bounce back" is subsidized by the plan.</p>

SUMMARY OF PLAN PROVISIONS – COORDINATED (CONTINUED)

Retirement (Continued)

Benefit increases

Benefit recipients receive a future annual 1.00% post-retirement benefit increase. If the funding ratio reaches 90% 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%.

A benefit recipient who has been receiving a benefit for at least 12 full months as of June 30 will receive a full increase. Members receiving benefits for at least one month but less than 12 full months as of June 30 will receive a pro rata increase.

Members retired under laws in effect before July 1, 1973 receive an additional lump sum payment each year. In 1989, this lump sum payment is \$25 times each full year of Allowable Service. In each following year, the lump sum payment will increase by the same percentage increase that is applied to regular annuities paid from the fund.

Disability

Disability benefit

Age/service requirement

Total and permanent disability before normal retirement age if vested.

Amount

Normal Retirement benefit based on Allowable Service and Average Salary at disability without reduction for commencement before normal retirement age. The disability benefit is reduced to that amount which, when added to Workers' Compensation, does not exceed the salary the disabled Member received as of the date of the disability or the salary currently payable for the same employment position substantially similar to the one the person held as of the date of the disability, whichever is greater.

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

Payments stop if disability ceases or death occurs. Payments change to a retirement annuity at normal retirement age. Benefits may be reduced on resumption of partial employment.

Form of payment

Same as for retirement.

Benefit increases

Same as for retirement.

SUMMARY OF PLAN PROVISIONS – COORDINATED (CONTINUED)

Disability (Continued)Retirement after disability

Age/service requirement

Normal retirement age.

Amount

Any optional annuity continues. Otherwise, the larger of the disability benefit paid before normal retirement age or the normal retirement benefit available at normal retirement age, or an actuarially equivalent optional annuity.

Benefit increases

Same as for retirement.

DeathSurviving spouse optional annuity

Age/service requirement

Member or former Member who dies before retirement or disability benefits commence.

Amount

Survivor's payment of the 100% joint and survivor benefit the Member could have elected if terminated or an actuarial equivalent term certain annuity. If commencement is prior to age 65 (age 62 if 30 years of service), the benefit is reduced the same as early retirement with half the applicable reduction factor used from age 55 to the actual commencement age. If no surviving spouse, then an actuarial equivalent dependent child benefit is paid to age 20 or for five years if longer.

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

Benefit increases

Same as for retirement.

Refund of contributions

Age/service requirement

Member dies before receiving any retirement benefits and survivor benefits are not payable.

Amount

The excess of the Member's contributions with 6.00% interest until June 30, 2011; 4.00% interest thereafter over any disability or survivor benefits paid.

TerminationRefund of contributions

Age/service requirement

Termination of public service.

Amount

If member terminated before July 1, 2011, member's contributions credited with 6.00% interest compounded annually prior to July 1, 2011 and 4.00% interest thereafter. If member terminated after June 30, 2011, member's contributions credited with 4.00% interest compounded annually.

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

SUMMARY OF PLAN PROVISIONS – COORDINATED (CONTINUED)

Termination (Continued)Deferred benefit

Age/service requirement Fully vested.

Amount Benefit computed under law in effect at termination and increased by the following percentage (augmentation) compounded annually for terminations prior to 2012:

- (a.) 0.00% before July 1, 1971;
- (b.) 5.00% from July 1, 1971 to January 1, 1981;
- (c.) 3.00% (2.50% if hired after June 30, 2006) thereafter until the earlier of January 1 of the year following attainment of age 55 and January 1, 2012;
- (d.) 5.00% (2.50% if hired after June 30, 2006) thereafter until the earlier of the date the annuity begins and January 1, 2012; or
- (e.) 1.00% from January 1, 2012 to when the benefit begins.

Members who terminate after 2011 will receive no future augmentation.

Members active with a public employer the day prior to the privatization of the employer become vested immediately and receive enhanced augmentation (unless the enhancement results in a net loss to the Plan). Amount is payable at a normal or early retirement. Augmentation equals 2.00% compounded annually, unless the enhancement results in a net loss to the Plan, in which case augmentation equals 1.00% compounded annually. If privatization occurred prior to January 1, 2011, augmentation occurs at the rate of 4.00% compounded annually through the year the Member turns age 55 and 6.00% thereafter until the annuity begins. If privatization occurred prior to January 1, 2007 (or January 1, 2008 for Hutchinson Area Health Care), augmentation occurs at the rate of 5.50% compounded annually through the year the Member turns age 55 and 7.50% thereafter until the annuity begins.

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

Form of payment Same as for retirement.

Actuarial equivalent factors

Actuarially equivalent factors based on the RP-2000 mortality table for healthy annuitants, white collar adjustment, projected to 2025, females set back two years and no set back for males, blended 45% males, 7.50% post-retirement interest and 8.50% pre-retirement interest. The post-retirement interest rate will change to 6.50% on the earlier of the effective date of the next mortality adjustment or July 1, 2017.

SUMMARY OF PLAN PROVISIONS – COORDINATED (CONCLUDED)

Combined service annuity	<p>Members are eligible for combined service benefits if they:</p> <ul style="list-style-type: none"> (a.) Meet minimum retirement age for each plan participated in and total public service meets the vesting requirements of each plan; or (b.) Have three or more years of service under PERA and the covered fund(s) (if hired prior to July 1, 2010). <p>Other requirements for combined service include:</p> <ul style="list-style-type: none"> (a.) Member must have at least six months of allowable service credit in each plan worked under; and (b.) Member may not be in receipt of a benefit from another plan. <p>Members who meet the above requirements must have their benefit based on the following:</p> <ul style="list-style-type: none"> (a.) Allowable service in all covered plans are combined in order to determine eligibility for early retirement; and (b.) Average salary is based on the high five consecutive years during their entire service in all covered plans.
Contribution Stabilizer	<p>The following is a summary of contribution stabilizer provisions in Minnesota Statute 353.27:</p> <ul style="list-style-type: none"> • If a contribution sufficiency of more than 1.00% exists, member and employer contributions may be adjusted by the Board of Directors to a level necessary to maintain a 1.00% sufficiency. Member and employer contributions may not be less than the sum of normal cost and administrative expenses. • If a contribution deficiency of at least 0.50% exists, the member and employer contribution rates may be increased by the Board of Directors to eliminate the deficiency. • Any adjustment to the contribution rates must be reported to the Legislative Commission on Pensions and Retirement (LCPR) by January 15 following the most recent valuation report. If the LCPR does not recommend against or alter the change in rates, the adjustment becomes effective on the salary paid after the next January 1st.
Changes in Plan Provisions	<p>There have been no changes to plan provisions since the previous valuation.</p>

SUMMARY OF PLAN PROVISIONS – MINNEAPOLIS EMPLOYEES RETIREMENT FUND (MERF)

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

Plan year	July 1 through June 30																				
Eligibility/employee rule	<p>An employee of the City of Minneapolis, the Metropolitan Airports Commission, the Met Council/Environmental Services, the Municipal Employees Retirement Fund, and Special School District No. 1 if covered prior to July 1, 1978. Employees covered July 1, 1978 or later are covered by the Public Employees Retirement Association (PERA) Plan.</p> <p>Effective July 1, 1992, licensed peace officers and firefighters who are employed by the Metropolitan Airports Commission and covered by the Minneapolis Employees Retirement Fund will receive the greater of retirement, disability, or survivor benefits under:</p> <p>a) The Minneapolis Employees Retirement Fund; or</p> <p>b) The Public Employees Retirement Association (PERA) Police & Fire Plan.</p>																				
Full consolidation	The MERF Division fully merged with PERA’s General Employees Retirement Plan, effective January 1, 2015. Upon consolidation, state and employer contributions were revised as shown herein																				
Contributions																					
Member	9.75% of salary																				
Employer	9.75% of salary (Employer Regular Contributions)																				
	Employer Regular and Additional Contributions will be paid as long as there are active members.																				
	Employer Supplemental Contribution equals \$31,000,000 in calendar years 2015 and 2016 and 21,000,000 in calendar years 2017 to 2031.																				
Contribution allocation	Employer Supplemental Contributions are allocated to the employers in proportion to their share of the actuarial accrued liability of MERF on July 1, 2009, as follows:																				
	<table border="1"> <thead> <tr> <th align="center">Employer</th> <th align="center">Allocation</th> </tr> </thead> <tbody> <tr> <td>City of Minneapolis</td> <td align="right">54.78%</td> </tr> <tr> <td>Minneapolis Park Board</td> <td align="right">10.33%</td> </tr> <tr> <td>Met Council</td> <td align="right">1.74%</td> </tr> <tr> <td>Metropolitan Airport Commission</td> <td align="right">5.76%</td> </tr> <tr> <td>Municipal Building Commission</td> <td align="right">1.08%</td> </tr> <tr> <td>Minneapolis School District No. 1</td> <td align="right">23.04%</td> </tr> <tr> <td>Hennepin County</td> <td align="right">3.17%</td> </tr> <tr> <td>MnSCU</td> <td align="right">0.10%</td> </tr> <tr> <td>Total</td> <td align="right">100.00%</td> </tr> </tbody> </table>	Employer	Allocation	City of Minneapolis	54.78%	Minneapolis Park Board	10.33%	Met Council	1.74%	Metropolitan Airport Commission	5.76%	Municipal Building Commission	1.08%	Minneapolis School District No. 1	23.04%	Hennepin County	3.17%	MnSCU	0.10%	Total	100.00%
Employer	Allocation																				
City of Minneapolis	54.78%																				
Minneapolis Park Board	10.33%																				
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Hennepin County	3.17%																				
MnSCU	0.10%																				
Total	100.00%																				

**SUMMARY OF PLAN PROVISIONS – MINNEAPOLIS EMPLOYEES RETIREMENT FUND
(MERF) (CONTINUED)**

State contributions	The State's contribution equals \$6,000,000 in 2015 and 2016, and \$16,000,000 thereafter. The State's contributions are payable by September 30 each year and end on September 15, 2031.
Allowable service	Service during which member contributions were made. Allowable Service may also include certain leaves of absence, military service and service prior to becoming a member. Allowable service also includes time on duty disability provided that the member returns to active service if the disability ceases.
Salary	All amounts of salary, wages or compensation.
Average salary	Average of the five highest calendar years of salary out of the last ten calendar years.
Retirement	
<u>Normal retirement benefit</u>	
Age/service requirement	Age 60 and 10 years of employment. Any age with 30 years of employment. Proportionate retirement annuity is available at age 65 and 1 year allowable service.
Amount	2.00% of average salary for the first 10 years of allowable service plus 2.50% of average salary for each subsequent year of allowable service.

**SUMMARY OF PLAN PROVISIONS – MINNEAPOLIS EMPLOYEES RETIREMENT FUND
(MERF) (CONTINUED)**

DisabilityDisability benefit

Age/service requirement Total and permanent disability before age 60 with five years of allowable service, or no allowable service if a work-related disability.

Amount 2.00% of average salary for the first 10 years of disability service plus 2.50% of average salary for each subsequent year of disability service. Disability service is the greater of (a) or (b) where:

- (a.) equals allowable service plus service projected to age 60, subject to a maximum of 22 years, and
- (b.) equals allowable service.

Benefit is reduced by Workers' Compensation benefits.

Payments stop at age 60 or earlier if disability ceases or death occurs. Benefits may be reduced on resumption of partial employment.

Disability after separation

Age/service requirement Total and permanent disability after electing to receive a retirement benefit but before age 60.

Amount Actuarial equivalent of total credit to member's account.

Retirement after disability

Age/service requirement Total and permanent disability after electing to receive a retirement benefit but before age 60. Employee is still disabled after age 60.

Amount Benefit continues according to the option selected.

**SUMMARY OF PLAN PROVISIONS – MINNEAPOLIS EMPLOYEES RETIREMENT FUND
(MERF) (CONTINUED)**

DeathPre-retirement survivor's spouse benefit

Age/service requirement Active member with 18 months of allowable service.

Amount 30% of salary averaged over the last six months to the surviving spouse plus 10% of salary averaged over the last six months to each surviving child. Maximum benefit is \$900 per month.

Pre-retirement survivor's spouse annuity

Age/service requirement Active member or former member who dies before retirement with 20 years of allowable service.

Amount Actuarial equivalent of a single life annuity which would have been paid as a retirement benefit on the date of death without regard to eligibility age for retirement benefit. If there is no surviving spouse, the designated beneficiary may be a dependent child or dependent parent.

Refund of accumulated city contributions

Age/service requirement Active member or former member dies after 10 years of allowable service and prior to retirement.

Amount Present value of the City's annual installments of \$60 or, in the case of a former member, the net accumulation of city deposits. This benefit is not payable if survivor's benefits are paid.

Lump sum

Age/service requirement Death prior to service or disability retirement without an eligible surviving beneficiary.

Amount \$750 with less than 10 years allowable service, or \$1,500 with 10 or more years of allowable service.

Refund of member contributions at death

Age/service requirement Active member or former member dies before retirement.

Amount The excess of the member's contributions (exclusive of the contributions to the survivor's account) plus interest to the date of death.

**SUMMARY OF PLAN PROVISIONS – MINNEAPOLIS EMPLOYEES RETIREMENT FUND
(MERF) (CONCLUDED)**

Termination	
<u>Deferred benefit</u>	
Age/service requirement	Three years of allowable service.
Amount	Benefit computed under law in effect at termination and increased by the following percentage (augmentation), compounded annually: <ul style="list-style-type: none"> (a.) 0.00% prior to July 1, 1971, (b.) 5.00% from July 1, 1971 to January 1, 1981, and (c.) 3.00% thereafter until the annuity begins. <p style="text-align: center;">Amount is payable at or after age 60.</p>
<u>Refund of member contributions upon termination</u>	
Age/service requirement	Termination of public service.
Amount	Member's contributions with interest. A deferred annuity may be elected in lieu of a refund if vested.
Form of payment	<ul style="list-style-type: none"> ▪ Life annuity. ▪ Life annuity with 3, 5, 10 or 15 years guaranteed. ▪ Life annuity with lump sum death benefit. ▪ Joint & Survivor (with or without bounce back feature).
Optional form conversion factors	1986 PET mortality table with a one year setback, blended 50% male and 50% female, and 5% interest.
Two dollar bill and annuity	Optional Two Dollar Bill money purchase annuity available at age 55 with 20 years of service if member had service prior to June 28, 1973. According to PERA, this option is rarely utilized. We have assumed that remaining active members will not elect this optional benefit.
Benefit increases	Benefit recipients receive future annual 1.00% benefit increases. If the accrued liability funding ratio of the General Employees Retirement Plan reaches 90% (on a market value of assets basis) for two consecutive years, the benefit increase will change 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%.
Changes in plan provisions	There have been no changes to plan provisions since the previous valuation.

SECTION F

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

ACTUARIAL METHODS USED FOR THE DETERMINATION OF TOTAL PENSION LIABILITY AND RELATED VALUES

Actuarial Cost Method

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

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

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

Valuation of Future Post-Retirement Benefit Increases

Benefit 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 11.50% at year 1 declining to 3.50% at years 26 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 not expected to attain the funding ratio threshold required to pay a 2.50% postretirement benefit increase within the next 75 years. A 1.00% postretirement benefit increase assumption for all years is reflected in our calculations.

Asset Valuation Method

Fair value of assets.

SUMMARY OF ACTUARIAL ASSUMPTIONS – BASIC AND COORDINATED

The following assumptions were used in valuing the liabilities and benefits under the plan. The assumptions are based on the last experience study dated June 30, 2015, a review of inflation and investment assumptions, dated September 11, 2014, and a recent asset liability study obtained by the SBI.

The Allowance for Combined Service Annuity was also based on a recommendation by a former actuary. We are unable to judge the reasonableness of this assumption without performing a substantial amount of additional work beyond the scope of the assignment. We note that the LCPR has recently completed a review of this assumption. This review recommended changes to this assumption, expected to be effective at a future date.

Investment return	7.50% per annum.
Single Discount Rate	7.50% per annum.
Benefit increases after retirement	1.00% per annum.
Salary increases	Reported salary at valuation date increased according to the rate table, to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for members with less than one year of service earned during the year.
Inflation	2.50% per year.
Payroll growth	3.25% per year.
Mortality rates	
Healthy pre-retirement	RP-2014 Employee Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015, from a base year of 2014. Rates are set forward one year for males and set back one year for females.
Healthy post-retirement	RP-2014 Healthy Annuitant Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015, from a base year of 2014. Rates are set forward two years for males. Female rates are multiplied by a factor of 0.90.
Disabled retirees	RP-2014 Disabled Mortality Table, adjusted for mortality improvements using projection scale MP-2015, from a base year of 2014. Rates are set forward one year for males and set forward six years for females.
Retirement	Members retiring from active status are assumed to retire according to the age related rates shown in the tables. Members who have attained the highest assumed retirement age are assumed to retire in one year.
Withdrawal	Service-related rates based on experience; see table of sample rates.
Disability	Age-related rates based on experience; see table of sample rates.
Allowance for combined service annuity	Liabilities for active members are increased by 0.80% and liabilities for former members are increased by 60.00% to account for the effect of some participants having eligibility for a Combined Service Annuity.
Administrative expenses	In the valuation year, equal to prior year administrative expenses expressed as a percentage of prior year projected payroll. In each subsequent year, equal to the initial administrative expense percentage applied to payroll for the closed group.

SUMMARY OF ACTUARIAL ASSUMPTIONS – BASIC AND COORDINATED (CONTINUED)

Refund of contributions	Account balances accumulate interest until normal retirement dates 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 Normal Retirement.
Percentage married	80% of male and 70% of female active members are assumed to be married. Actual marital status is used for members in payment status.
Age of spouse	Males are assumed to have a beneficiary three years younger, while females are assumed to have a beneficiary two years older. For members in payment status, actual spouse date of birth is used, if provided.
Eligible children	Retiring members are assumed to have no dependent children.
Form of payment	<p>Married members retiring from active status are assumed to elect subsidized joint and survivor form of annuity as follows:</p> <p>Males: 10% elect 25% Joint & Survivor option 15% elect 50% Joint & Survivor option 10% elect 75% Joint & Survivor option 35% elect 100% Joint & Survivor option</p> <p>Females: 10% elect 25% Joint & Survivor option 10% elect 50% Joint & Survivor option 5% elect 75% Joint & Survivor option 15% 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.
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.

SUMMARY OF ACTUARIAL ASSUMPTIONS – BASIC AND COORDINATED (CONTINUED)

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 2,889 members reported with a salary less than \$100. We used prior year salary (1,796 members), if available; otherwise high five salary with a 10% load to account for salary increases (993 members). If neither prior year salary or high five salary was available, we assumed a value of \$35,000.</p> <p>There were also 2,074 members reported without a gender and 84 members reported with an invalid date of birth. We assumed a date of birth based on an entry age of 38 (the average age of new entrants in the 2015 valuation) and female gender.</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 (221 members), we assumed a value of \$24,000. If credited service was not reported (133 members), we assumed credited service was elapsed time from hire to termination date (88 members); otherwise nine years. If termination date was invalid or not reported (115 members), we assumed the termination date was equal to hire date plus credited service; otherwise the valuation date unless they are noted as a pre-July 1, 1989 hire, then June 30, 1989. If reported termination date occurs prior to reported hire date, the two dates were swapped.</p> <p>There were 42 members reported with an invalid date of birth and 255 members reported without a gender. We assumed a date of birth of July 1, 1967 and female gender.</p> <p><u>Data for retired members:</u> There were 95 members reported without a gender. We assumed retirees are female and beneficiaries are male. There were six members reported with an invalid date of birth. We assumed a date of birth of July 1, 1945.</p>
Changes in actuarial assumptions	<p>The assumed post-retirement benefit increase rate was changed from 1% through 2035 and 2.50% thereafter to 1.00% for all years.</p> <p>The assumed investment return was changed from 7.90% to 7.50%. The single discount rate was changed from 7.90% to 7.50%</p> <p>Salary increases, retirement, termination, disability, mortality, percent married, and benefit election assumptions were changed pursuant to the experience study dated June 30, 2015. The assumed future salary increases, payroll growth, and inflation were decreased by a further 0.25% from those assumptions.</p>

SUMMARY OF ACTUARIAL ASSUMPTIONS – BASIC AND COORDINATED (CONTINUED)

Age in 2014	Rate (%) *					
	Healthy Post-Retirement Mortality**		Healthy Pre-Retirement Mortality**		Disability Mortality**	
	Male	Female	Male	Female	Male	Female
20	0.03%	0.01%	0.03%	0.01%	0.07%	0.11%
25	0.05	0.02	0.03	0.01	0.25	0.26
30	0.07	0.04	0.03	0.02	0.56	0.47
35	0.10	0.07	0.04	0.02	0.94	0.71
40	0.15	0.10	0.05	0.03	1.36	0.97
45	0.22	0.14	0.08	0.05	1.76	1.25
50	0.32	0.19	0.13	0.08	2.10	1.50
55	0.44	0.24	0.22	0.13	2.40	1.76
60	0.60	0.35	0.37	0.19	2.74	2.20
65	0.91	0.59	0.65	0.29	3.31	3.03
70	1.54	0.95	1.15	0.49	4.26	4.44

* 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.

** The rates shown are RP-2014 mortality with age setbacks, multipliers, and white collar adjustments, if applicable. Rates are further adjusted for mortality improvements using projection scale MP-2015 (from a base year of 2014).

Age	Disability Retirement	
	Male	Female
20	0.01%	0.01%
25	0.01	0.01
30	0.01	0.01
35	0.03	0.02
40	0.05	0.04
45	0.08	0.05
50	0.15	0.10
55	0.34	0.16
60	0.53	0.28
65	0.00	0.00
70	0.00	0.00

SUMMARY OF ACTUARIAL ASSUMPTIONS – BASIC AND COORDINATED (CONCLUDED)

Age	Retirement		
	Rule of 90 Eligible	Tier 1	Tier 2
55	20.0%	5.0%	5.0%
56	15.0%	5.0%	5.0%
57	15.0%	5.0%	5.0%
58	15.0%	6.0%	5.0%
59	15.0%	7.0%	6.0%
60	15.0%	8.0%	7.0%
61	18.0%	10.0%	9.0%
62	35.0%	20.0%	15.0%
63	25.0%	20.0%	15.0%
64	25.0%	25.0%	15.0%
65	32.5%	32.5%	25.0%
66	25.0%	25.0%	25.0%
67	20.0%	20.0%	20.0%
68	17.5%	17.5%	17.5%
69	15.0%	15.0%	15.0%
70	17.5%	17.5%	17.5%
71+	100.0%	100.0%	100.0%

SUMMARY OF ACTUARIAL ASSUMPTIONS – BASIC AND COORDINATED (CONCLUDED)

Salary Scale		% Withdrawals		
Year	Increase	Year	Male	Female
1	11.25%	1	25.00%	25.00%
2	8.25	2	20.00	20.00
3	6.75	3	15.00	15.00
4	5.75	4	10.00	11.00
5	5.25	5	9.00	10.00
6	4.95	6	7.00	9.00
7	4.65	7	5.50	7.50
8	4.55	8	5.00	6.50
9	4.45	9	4.50	5.50
10	4.25	10	4.00	5.00
11	4.00	11	3.25	4.25
12	3.85	12	3.00	4.00
13	3.75	13	2.75	3.75
14	3.65	14	2.50	3.50
15	3.65	15	2.50	3.25
16	3.60	16	2.25	3.00
17	3.55	17	2.00	2.75
18	3.50	18	1.75	2.50
19	3.50	19	1.50	2.50
20	3.50	20	1.50	2.25
21	3.50	21	1.50	2.25
22	3.45	22	1.50	2.25
23	3.35	23	1.00	2.00
24	3.35	24	1.00	2.00
25	3.35	25	1.00	1.75
26+	3.25	26	1.00	1.75
		27	1.00	1.50
		28	1.00	1.50
		29	1.00	1.50
		30	1.00	1.50

SUMMARY OF ACTUARIAL ASSUMPTIONS - MERF

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

Salary increases	Total reported pay for prior calendar year increased 1.73% (half year of 3.50%, compounded) to prior fiscal year and 3.50% annually for each future year.
Retirement	Active members are assumed to retire at age 61, or immediately if currently age 61 or older.
Withdrawal	Rates are shown in rate table.
Disability	Age-related rates based on experience; see table of sample rates.
Allowance for combined service annuity	Liabilities for active members are increased 0.20% and liabilities for former members are increased by 30.00% to account for the effect of some participants having eligibility for a Combined Service Annuity.
Commencement of deferred benefits	Members receiving deferred annuities (including current terminated deferred members) are assumed to begin receiving benefits at age 60.
Percentage married	66.67% of active members are assumed to be married. Actual marital status is used for members in payment status.
Age of spouse	Females are assumed to be three years younger than their male spouses. For members in payment status, actual spouse date of birth is used, if provided.
Eligible children	Retiring members are assumed to have no dependent children.
Form of payment	Members are assumed to elect a life annuity.
Unknown data for certain members	<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>There were no members with missing or invalid dates of birth.</p> <p><u>Data for active members:</u></p> <p>There were no active members with missing salary or service.</p> <p><u>Data for terminated members:</u></p> <p>Benefits were provided by PERA for seven members. For the remaining members, we calculated benefits using the reported Average Salary, credited service and termination date from the 2015 valuation data file.</p> <p><u>Data for Retired members:</u></p> <p>There were no members reported with missing benefits. There was one member reported without a gender. We assumed male gender.</p>

SUMMARY OF ACTUARIAL ASSUMPTIONS – MERF (CONCLUDED)

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

SECTION G

CALCULATION OF THE SINGLE DISCOUNT RATE

CALCULATION OF THE SINGLE DISCOUNT RATE

GASB Statement No. 67 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed long-term expected rate of return is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a “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 2.85%; 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*	Additional State Contributions	Total Contributions
2016	\$ 5,773,708	\$ -	\$ 5,773,708	\$ -	\$ -	\$ -	\$ 37,000	\$ 861,988
2017	5,892,768	-	5,892,768	383,030	441,958	-	37,000	846,086
2018	5,563,390	520,893	6,084,283	361,620	417,254	30,212	37,000	833,753
2019	5,273,114	1,008,908	6,282,022	342,752	395,484	58,517	37,000	825,274
2020	5,025,303	1,460,885	6,486,188	326,645	376,898	84,731	37,000	818,546
2021	4,794,149	1,902,840	6,696,989	311,620	359,561	110,365	37,000	813,284
2022	4,576,038	2,338,603	6,914,641	297,442	343,203	135,639	37,000	809,176
2023	4,366,984	2,772,383	7,139,367	283,854	327,524	160,798	37,000	806,253
2024	4,167,209	3,204,188	7,371,397	270,869	312,541	185,843	37,000	804,704
2025	3,978,878	3,632,089	7,610,967	258,627	298,416	210,661	37,000	804,395
2026	3,800,151	4,058,173	7,858,324	247,010	285,011	235,374	37,000	805,219
2027	3,629,558	4,484,161	8,113,719	235,921	272,217	260,081	37,000	807,083
2028	3,465,777	4,911,638	8,377,415	225,275	259,933	284,875	37,000	809,964
2029	3,308,326	5,341,355	8,649,681	215,041	248,124	309,799	37,000	813,863
2030	3,157,046	5,773,750	8,930,796	205,208	236,778	334,877	37,000	818,705
2031	3,010,781	6,210,265	9,221,046	195,701	225,809	360,195	37,000	817,377
2032	2,867,980	6,652,750	9,520,730	186,419	215,098	385,860	-	793,794
2033	2,727,368	7,102,786	9,830,154	177,279	204,553	411,962	-	800,999
2034	2,589,261	7,560,373	10,149,634	168,302	194,195	438,502	-	809,062
2035	2,454,274	8,025,223	10,479,497	159,528	184,071	465,463	-	817,977
2036	2,322,089	8,497,992	10,820,081	150,936	174,157	492,884	-	827,671
2037	2,191,606	8,980,128	11,171,734	142,454	164,370	520,847	-	838,201
2038	2,063,181	9,471,634	11,534,815	134,107	154,739	549,355	-	849,556
2039	1,936,505	9,973,191	11,909,696	125,873	145,238	578,445	-	861,684
2040	1,810,624	10,486,137	12,296,761	117,691	135,797	608,196	-	874,531
2041	1,684,627	11,011,779	12,696,406	109,501	126,347	638,683	-	888,144
2042	1,558,777	11,550,262	13,109,039	101,321	116,908	669,915	-	902,700
2043	1,434,936	12,100,147	13,535,083	93,271	107,620	701,809	-	918,308
2044	1,314,135	12,660,838	13,974,973	85,419	98,560	734,329	-	934,964
2045	1,196,019	13,233,141	14,429,160	77,741	89,701	767,522	-	952,663
2046	1,080,159	13,817,949	14,898,108	70,210	81,012	801,441	-	971,494
2047	967,340	14,414,956	15,382,296	62,877	72,550	836,067	-	991,548
2048	858,275	15,023,946	15,882,221	55,788	64,371	871,389	-	1,012,940
2049	754,064	15,644,329	16,398,393	49,014	56,555	907,371	-	1,035,792
2050	655,779	16,275,562	16,931,341	42,626	49,183	943,983	-	1,060,140
2051	563,493	16,918,116	17,481,609	36,627	42,262	981,251	-	1,086,056
2052	477,680	17,572,082	18,049,762	31,049	35,826	1,019,181	-	1,113,606
2053	398,739	18,237,640	18,636,379	25,918	29,905	1,057,783	-	1,142,897
2054	327,530	18,914,531	19,242,061	21,289	24,565	1,097,043	-	1,174,057
2055	265,200	19,602,228	19,867,428	17,238	19,890	1,136,929	-	1,207,048
2056	210,816	20,302,304	20,513,120	13,703	15,811	1,177,534	-	1,241,860
2057	163,795	21,016,001	21,179,796	10,647	12,285	1,218,928	-	1,278,559
2058	124,470	21,743,669	21,868,139	8,091	9,335	1,261,133	-	1,317,158
2059	92,489	22,486,365	22,578,854	6,012	6,937	1,304,209	-	1,357,630
2060	67,014	23,245,653	23,312,667	4,356	5,026	1,348,248	-	1,399,932
2061	46,983	24,023,345	24,070,328	3,054	3,524	1,393,354	-	1,444,026
2062	31,401	24,821,213	24,852,614	2,041	2,355	1,439,630	-	1,489,913
2063	19,676	25,640,648	25,660,324	1,279	1,476	1,487,158	-	1,537,607
2064	11,443	26,482,842	26,494,285	744	858	1,536,005	-	1,587,125
2065	6,274	27,349,075	27,355,349	408	471	1,586,246	-	1,637,984
2066	3,299	28,241,099	28,244,398	214	247	1,637,984	-	

* Contributions related to future employee payroll in excess of normal cost and expenses of 8.20% of pay.

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

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*	Additional State Contributions	Total Contributions
2067	\$ 1,503	\$ 29,160,838	\$ 29,162,341	\$ 98	\$ 113	\$ 1,691,329	\$ -	\$ 1,691,540
2068	531	30,109,586	30,110,117	34	40	1,746,356	-	1,746,430
2069	161	31,088,534	31,088,695	10	12	1,803,135	-	1,803,157
2070	62	32,099,016	32,099,078	4	5	1,861,743	-	1,861,752
2071	21	33,142,277	33,142,298	1	2	1,922,252	-	1,922,255
2072	7	34,219,416	34,219,423	-	1	1,984,726	-	1,984,727
2073	2	35,331,552	35,331,554	-	-	2,049,230	-	2,049,230
2074	-	36,479,829	36,479,829	-	-	2,115,830	-	2,115,830
2075	-	37,665,424	37,665,424	-	-	2,184,595	-	2,184,595
2076	-	38,889,550	38,889,550	-	-	2,255,594	-	2,255,594
2077	-	40,153,461	40,153,461	-	-	2,328,901	-	2,328,901
2078	-	41,458,448	41,458,448	-	-	2,404,590	-	2,404,590
2079	-	42,805,848	42,805,848	-	-	2,482,739	-	2,482,739
2080	-	44,197,038	44,197,038	-	-	2,563,428	-	2,563,428
2081	-	45,633,441	45,633,441	-	-	2,646,740	-	2,646,740
2082	-	47,116,528	47,116,528	-	-	2,732,759	-	2,732,759
2083	-	48,647,815	48,647,815	-	-	2,821,573	-	2,821,573
2084	-	50,228,869	50,228,869	-	-	2,913,274	-	2,913,274
2085	-	51,861,308	51,861,308	-	-	3,007,956	-	3,007,956
2086	-	53,546,800	53,546,800	-	-	3,105,714	-	3,105,714
2087	-	55,287,071	55,287,071	-	-	3,206,650	-	3,206,650
2088	-	57,083,901	57,083,901	-	-	3,310,866	-	3,310,866
2089	-	58,939,128	58,939,128	-	-	3,418,469	-	3,418,469
2090	-	60,854,649	60,854,649	-	-	3,529,570	-	3,529,570
2091	-	62,832,426	62,832,426	-	-	3,644,281	-	3,644,281
2092	-	64,874,479	64,874,479	-	-	3,762,720	-	3,762,720
2093	-	66,982,900	66,982,900	-	-	3,885,008	-	3,885,008
2094	-	69,159,844	69,159,844	-	-	4,011,271	-	4,011,271
2095	-	71,407,539	71,407,539	-	-	4,141,637	-	4,141,637
2096	-	73,728,284	73,728,284	-	-	4,276,240	-	4,276,240
2097	-	76,124,453	76,124,453	-	-	4,415,218	-	4,415,218
2098	-	78,598,498	78,598,498	-	-	4,558,713	-	4,558,713
2099	-	81,152,949	81,152,949	-	-	4,706,871	-	4,706,871
2100	-	83,790,420	83,790,420	-	-	4,859,844	-	4,859,844
2101	-	86,513,609	86,513,609	-	-	5,017,789	-	5,017,789
2102	-	89,325,301	89,325,301	-	-	5,180,867	-	5,180,867
2103	-	92,228,373	92,228,373	-	-	5,349,246	-	5,349,246
2104	-	95,225,796	95,225,796	-	-	5,523,096	-	5,523,096
2105	-	98,320,634	98,320,634	-	-	5,702,597	-	5,702,597
2106	-	101,516,055	101,516,055	-	-	5,887,931	-	5,887,931
2107	-	104,815,326	104,815,326	-	-	6,079,289	-	6,079,289
2108	-	108,221,824	108,221,824	-	-	6,276,866	-	6,276,866
2109	-	111,739,034	111,739,034	-	-	6,480,864	-	6,480,864
2110	-	115,370,552	115,370,552	-	-	6,691,492	-	6,691,492
2111	-	119,120,095	119,120,095	-	-	6,908,966	-	6,908,966
2112	-	122,991,498	122,991,498	-	-	7,133,507	-	7,133,507
2113	-	126,988,722	126,988,722	-	-	7,365,346	-	7,365,346
2114	-	131,115,855	131,115,855	-	-	7,604,720	-	7,604,720
2115	-	135,377,121	135,377,121	-	-	7,851,873	-	7,851,873
2116	-	139,776,877	139,776,877	-	-	8,107,059	-	8,107,059

* Contributions related to future employee payroll in excess of normal cost and expenses of 8.20% 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)
2017	\$ 17,994,909	\$ 861,988	\$ 1,469,270	\$ 11,786	\$ 1,326,823	\$ 18,702,664
2018	18,702,664	846,086	1,539,863	11,127	1,376,744	19,374,504
2019	19,374,504	833,753	1,612,279	10,546	1,424,033	20,009,465
2020	20,009,465	825,274	1,685,583	10,051	1,468,661	20,607,766
2021	20,607,766	818,546	1,759,593	9,588	1,510,578	21,167,709
2022	21,167,709	813,284	1,840,754	9,152	1,549,408	21,680,495
2023	21,680,495	809,176	1,922,597	8,734	1,584,717	22,143,057
2024	22,143,057	806,252	2,005,420	8,334	1,616,266	22,551,821
2025	22,551,821	804,704	2,084,168	7,958	1,643,981	22,908,380
2026	22,908,380	804,395	2,158,309	7,600	1,667,995	23,214,861
2027	23,214,861	805,219	2,229,990	7,259	1,688,384	23,471,215
2028	23,471,215	807,084	2,300,239	6,932	1,705,105	23,676,233
2029	23,676,233	809,964	2,366,031	6,617	1,718,176	23,831,725
2030	23,831,725	813,864	2,427,536	6,314	1,727,728	23,939,467
2031	23,939,467	818,705	2,486,113	6,022	1,733,841	23,999,878
2032	23,999,878	787,377	2,541,258	5,736	1,735,198	23,975,459
2033	23,975,459	793,793	2,593,959	5,455	1,731,673	23,901,511
2034	23,901,511	800,998	2,643,697	5,179	1,724,571	23,778,204
2035	23,778,204	809,061	2,690,758	4,909	1,713,897	23,605,495
2036	23,605,495	817,976	2,735,642	4,644	1,699,629	23,382,814
2037	23,382,814	827,672	2,777,782	4,383	1,681,743	23,110,064
2038	23,110,064	838,200	2,814,515	4,126	1,660,331	22,789,954
2039	22,789,954	849,556	2,845,732	3,873	1,635,601	22,425,506
2040	22,425,506	861,683	2,873,740	3,621	1,607,692	22,017,520
2041	22,017,520	874,531	2,898,302	3,369	1,576,671	21,567,051
2042	21,567,051	888,144	2,920,095	3,118	1,542,593	21,074,575
2043	21,074,575	902,700	2,938,156	2,870	1,505,538	20,541,787
2044	20,541,787	918,308	2,952,027	2,628	1,465,652	19,971,092
2045	19,971,092	934,965	2,961,526	2,392	1,423,122	19,365,261
2046	19,365,261	952,663	2,968,243	2,160	1,378,097	18,725,618
2047	18,725,618	971,495	2,971,527	1,935	1,330,705	18,054,356
2048	18,054,356	991,547	2,971,092	1,717	1,281,122	17,354,216
2049	17,354,216	1,012,940	2,966,771	1,508	1,229,566	16,628,443
2050	16,628,443	1,035,792	2,955,913	1,312	1,176,382	15,883,392
2051	15,883,392	1,060,140	2,940,557	1,127	1,121,972	15,123,820
2052	15,123,820	1,086,056	2,920,706	955	1,066,696	14,354,911
2053	14,354,911	1,113,607	2,895,480	797	1,010,977	13,583,218
2054	13,583,218	1,142,897	2,863,837	655	955,348	12,816,971
2055	12,816,971	1,174,057	2,825,527	530	900,442	12,065,413
2056	12,065,413	1,207,048	2,780,791	422	846,942	11,338,190
2057	11,338,190	1,241,859	2,729,880	328	795,560	10,645,401
2058	10,645,401	1,278,559	2,672,021	249	747,086	9,998,776
2059	9,998,776	1,317,158	2,606,649	185	702,419	9,411,519
2060	9,411,519	1,357,630	2,533,697	134	662,553	8,897,871
2061	8,897,871	1,399,932	2,454,612	94	628,501	8,471,598
2062	8,471,598	1,444,026	2,371,464	63	601,217	8,145,314
2063	8,145,314	1,489,912	2,285,001	39	581,620	7,931,806
2064	7,931,806	1,537,607	2,195,730	23	570,651	7,844,311
2065	7,844,311	1,587,125	2,104,603	13	569,268	7,896,088
2066	7,896,088	1,638,446	2,012,726	7	578,424	8,100,225

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

Fiscal Year Ending	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.50%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2067	\$ 8,100,225	\$ 1,691,539	\$ 1,920,885	\$ 3	\$ 599,071	\$ 8,469,947
2068	8,469,947	1,746,430	1,829,380	1	632,191	9,019,187
2069	9,019,187	1,803,158	1,738,396	-	678,823	9,762,772
2070	9,762,772	1,861,752	1,648,195	-	740,071	10,716,400
2071	10,716,400	1,922,255	1,558,966	-	817,107	11,896,796
2072	11,896,796	1,984,727	1,470,775	-	911,184	13,321,932
2073	13,321,932	2,049,230	1,383,691	-	1,023,651	15,011,122
2074	15,011,122	2,115,830	1,297,798	-	1,155,956	16,985,110
2075	16,985,110	2,184,595	1,213,200	-	1,309,652	19,266,157
2076	19,266,157	2,255,594	1,130,026	-	1,486,407	21,878,132
2077	21,878,132	2,328,901	1,048,432	-	1,688,009	24,846,610
2078	24,846,610	2,404,590	968,596	-	1,916,372	28,198,976
2079	28,198,976	2,482,739	890,726	-	2,173,544	31,964,533
2080	31,964,533	2,563,428	815,053	-	2,461,719	36,174,627
2081	36,174,627	2,646,740	741,828	-	2,783,240	40,862,779
2082	40,862,779	2,732,759	671,309	-	3,140,615	46,064,844
2083	46,064,844	2,821,573	603,758	-	3,536,528	51,819,187
2084	51,819,187	2,913,274	539,427	-	3,973,849	58,166,883
2085	58,166,883	3,007,956	478,556	-	4,455,654	65,151,937
2086	65,151,937	3,105,714	421,356	-	4,985,239	72,821,534
2087	72,821,534	3,206,650	368,007	-	5,566,139	81,226,316
2088	81,226,316	3,310,866	318,646	-	6,202,153	90,420,689
2089	90,420,689	3,418,469	273,366	-	6,897,361	100,463,153
2090	100,463,153	3,529,570	232,216	-	7,656,152	111,416,659
2091	111,416,659	3,644,281	195,196	-	8,483,252	123,348,996
2092	123,348,996	3,762,720	162,255	-	9,383,751	136,333,212
2093	136,333,212	3,885,008	133,283	-	10,363,137	150,448,074
2094	150,448,074	4,011,271	108,119	-	11,427,327	165,778,553
2095	165,778,553	4,141,637	86,552	-	12,582,708	182,416,346
2096	182,416,346	4,276,240	68,326	-	13,836,170	200,460,430
2097	200,460,430	4,415,218	53,151	-	15,195,152	220,017,649
2098	220,017,649	4,558,713	40,715	-	16,667,685	241,203,332
2099	241,203,332	4,706,871	30,689	-	18,262,436	264,141,950
2100	264,141,950	4,859,844	22,752	-	19,988,758	288,967,800
2101	288,967,800	5,017,789	16,577	-	21,856,740	315,825,752
2102	315,825,752	5,180,867	11,863	-	23,877,265	344,872,021
2103	344,872,021	5,349,246	8,334	-	26,062,065	376,274,998
2104	376,274,998	5,523,096	5,746	-	28,423,785	410,216,133
2105	410,216,133	5,702,597	3,888	-	30,976,048	446,890,890
2106	446,890,890	5,887,931	2,582	-	33,733,527	486,509,766
2107	486,509,766	6,079,289	1,685	-	36,712,022	529,299,392
2108	529,299,392	6,276,866	1,081	-	39,928,541	575,503,718
2109	575,503,718	6,480,864	683	-	43,401,392	625,385,291
2110	625,385,291	6,691,492	427	-	47,150,275	679,226,631
2111	679,226,631	6,908,966	264	-	51,196,390	737,331,723
2112	737,331,723	7,133,507	162	-	55,562,543	800,027,611
2113	800,027,611	7,365,346	100	-	60,273,274	867,666,131
2114	867,666,131	7,604,720	63	-	65,354,979	940,625,767
2115	940,625,767	7,851,873	40	-	70,836,053	1,019,313,653
2116	1,019,313,653	8,107,059	32	-	76,747,041	1,104,167,721

SINGLE DISCOUNT RATE DEVELOPMENT
PRESENT VALUES OF PROJECTED BENEFIT PAYMENTS (DOLLARS IN THOUSANDS)

Fiscal Year Ending	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^(a)-.5	(g)=(e)*vf^(a)-.5	(h)=(c)/(1+sdr)^(a)-.5
2017	\$ 17,994,909	\$ 1,469,270	\$ 1,469,270	\$ -	\$ 1,417,090	\$ -	\$ 1,417,090
2018	18,702,664	1,539,863	1,539,863	-	1,381,559	-	1,381,559
2019	19,374,504	1,612,279	1,612,279	-	1,345,610	-	1,345,610
2020	20,009,464	1,685,583	1,685,583	-	1,308,641	-	1,308,641
2021	20,607,766	1,759,593	1,759,593	-	1,270,791	-	1,270,791
2022	21,167,709	1,840,754	1,840,754	-	1,236,657	-	1,236,657
2023	21,680,494	1,922,597	1,922,597	-	1,201,526	-	1,201,526
2024	22,143,056	2,005,420	2,005,420	-	1,165,848	-	1,165,848
2025	22,551,820	2,084,168	2,084,168	-	1,127,096	-	1,127,096
2026	22,908,380	2,158,309	2,158,309	-	1,085,758	-	1,085,758
2027	23,214,861	2,229,990	2,229,990	-	1,043,552	-	1,043,552
2028	23,471,215	2,300,239	2,300,239	-	1,001,326	-	1,001,326
2029	23,676,233	2,366,031	2,366,031	-	958,108	-	958,108
2030	23,831,726	2,427,536	2,427,536	-	914,432	-	914,432
2031	23,939,468	2,486,113	2,486,113	-	871,160	-	871,160
2032	23,999,880	2,541,258	2,541,258	-	828,357	-	828,357
2033	23,975,461	2,593,959	2,593,959	-	786,545	-	786,545
2034	23,901,513	2,643,697	2,643,697	-	745,699	-	745,699
2035	23,778,206	2,690,758	2,690,758	-	706,022	-	706,022
2036	23,605,497	2,735,642	2,735,642	-	667,720	-	667,720
2037	23,382,816	2,777,782	2,777,782	-	630,703	-	630,703
2038	23,110,066	2,814,515	2,814,515	-	594,458	-	594,458
2039	22,789,956	2,845,732	2,845,732	-	559,118	-	559,118
2040	22,425,507	2,873,740	2,873,740	-	525,229	-	525,229
2041	22,017,520	2,898,302	2,898,302	-	492,761	-	492,761
2042	21,567,051	2,920,095	2,920,095	-	461,829	-	461,829
2043	21,074,576	2,938,156	2,938,156	-	432,265	-	432,265
2044	20,541,787	2,952,027	2,952,027	-	404,006	-	404,006
2045	19,971,091	2,961,526	2,961,526	-	377,029	-	377,029
2046	19,365,259	2,968,243	2,968,243	-	351,520	-	351,520
2047	18,725,616	2,971,527	2,971,527	-	327,357	-	327,357
2048	18,054,354	2,971,092	2,971,092	-	304,474	-	304,474
2049	17,354,215	2,966,771	2,966,771	-	282,819	-	282,819
2050	16,628,442	2,955,913	2,955,913	-	262,125	-	262,125
2051	15,883,391	2,940,557	2,940,557	-	242,570	-	242,570
2052	15,123,818	2,920,706	2,920,706	-	224,123	-	224,123
2053	14,354,908	2,895,480	2,895,480	-	206,686	-	206,686
2054	13,583,214	2,863,837	2,863,837	-	190,165	-	190,165
2055	12,816,967	2,825,527	2,825,527	-	174,531	-	174,531
2056	12,065,410	2,780,791	2,780,791	-	159,784	-	159,784
2057	11,338,186	2,729,880	2,729,880	-	145,915	-	145,915
2058	10,645,398	2,672,021	2,672,021	-	132,858	-	132,858
2059	9,998,772	2,606,649	2,606,649	-	120,565	-	120,565
2060	9,411,515	2,533,697	2,533,697	-	109,015	-	109,015
2061	8,897,867	2,454,612	2,454,612	-	98,244	-	98,244
2062	8,471,594	2,371,464	2,371,464	-	88,294	-	88,294
2063	8,145,310	2,285,001	2,285,001	-	79,139	-	79,139
2064	7,931,802	2,195,730	2,195,730	-	70,742	-	70,742
2065	7,844,307	2,104,603	2,104,603	-	63,075	-	63,075
2066	7,896,084	2,012,726	2,012,726	-	56,113	-	56,113

SINGLE DISCOUNT RATE DEVELOPMENT
PRESENT VALUES OF PROJECTED BENEFIT PAYMENTS (DOLLARS IN THOUSANDS)
(CONCLUDED)

Fiscal Year Ending	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^(a-.5)	(g)=(e)*vf^(a-.5)	(h)=(c)/(1+sdr)^(a-.5)
2067	\$ 8,100,221	\$ 1,920,885	\$ 1,920,885	\$ -	\$ 49,817	\$ -	\$ 49,817
2068	8,469,944	1,829,380	1,829,380	-	44,133	-	44,133
2069	9,019,184	1,738,396	1,738,396	-	39,013	-	39,013
2070	9,762,769	1,648,195	1,648,195	-	34,408	-	34,408
2071	10,716,397	1,558,966	1,558,966	-	30,274	-	30,274
2072	11,896,793	1,470,775	1,470,775	-	26,569	-	26,569
2073	13,321,930	1,383,691	1,383,691	-	23,252	-	23,252
2074	15,011,121	1,297,798	1,297,798	-	20,287	-	20,287
2075	16,985,108	1,213,200	1,213,200	-	17,642	-	17,642
2076	19,266,155	1,130,026	1,130,026	-	15,286	-	15,286
2077	21,878,130	1,048,432	1,048,432	-	13,193	-	13,193
2078	24,846,608	968,596	968,596	-	11,338	-	11,338
2079	28,198,973	890,726	890,726	-	9,699	-	9,699
2080	31,964,530	815,053	815,053	-	8,256	-	8,256
2081	36,174,624	741,828	741,828	-	6,990	-	6,990
2082	40,862,775	671,309	671,309	-	5,884	-	5,884
2083	46,064,840	603,758	603,758	-	4,923	-	4,923
2084	51,819,183	539,427	539,427	-	4,091	-	4,091
2085	58,166,878	478,556	478,556	-	3,376	-	3,376
2086	65,151,932	421,356	421,356	-	2,765	-	2,765
2087	72,821,530	368,007	368,007	-	2,247	-	2,247
2088	81,226,312	318,646	318,646	-	1,810	-	1,810
2089	90,420,686	273,366	273,366	-	1,444	-	1,444
2090	100,463,149	232,216	232,216	-	1,141	-	1,141
2091	111,416,655	195,196	195,196	-	892	-	892
2092	123,348,991	162,255	162,255	-	690	-	690
2093	136,333,207	133,283	133,283	-	527	-	527
2094	150,448,069	108,119	108,119	-	398	-	398
2095	165,778,548	86,552	86,552	-	296	-	296
2096	182,416,341	68,326	68,326	-	218	-	218
2097	200,460,425	53,151	53,151	-	157	-	157
2098	220,017,644	40,715	40,715	-	112	-	112
2099	241,203,328	30,689	30,689	-	79	-	79
2100	264,141,946	22,752	22,752	-	54	-	54
2101	288,967,796	16,577	16,577	-	37	-	37
2102	315,825,748	11,863	11,863	-	24	-	24
2103	344,872,018	8,334	8,334	-	16	-	16
2104	376,274,994	5,746	5,746	-	10	-	10
2105	410,216,129	3,888	3,888	-	6	-	6
2106	446,890,886	2,582	2,582	-	4	-	4
2107	486,509,762	1,685	1,685	-	2	-	2
2108	529,299,388	1,081	1,081	-	1	-	1
2109	575,503,714	683	683	-	1	-	1
2110	625,385,287	427	427	-	-	-	-
2111	679,226,628	264	264	-	-	-	-
2112	737,331,720	162	162	-	-	-	-
2113	800,027,608	100	100	-	-	-	-
2114	867,666,127	63	63	-	-	-	-
2115	940,625,763	40	40	-	-	-	-
2116	1,019,313,650	32	32	-	-	-	-
Totals	\$ 29,612,375	\$ -	\$ 29,612,375		\$ 29,612,375	\$ -	\$ 29,612,375

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 payments at predetermined rates of interest and 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.
<i>Actuarial Valuation Date</i>	The date as of which an actuarial valuation is performed.
<i>Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)</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 and does not include pay above any pay cap.
<i>Deferred Inflows and Outflows</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</i>	For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically: <ol style="list-style-type: none">1. The benefit payments to be made while the pension plans’ fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.

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<i>Entry Age Actuarial Cost Method (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.
<i>GASB</i>	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
<i>Fiduciary Net Position</i>	The fiduciary net position is the value of the assets of the trust.
<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 Statement 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.

GLOSSARY OF TERMS

<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.
<i>Total Pension Expense</i>	The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year: <ol style="list-style-type: none">1. Service Cost2. Interest on the Total Pension Liability3. Current-Period Benefit Changes4. Employee Contributions (made negative for addition here)5. Projected Earnings on Plan Investments (made negative for addition here)6. Pension Plan Administrative Expense7. Other Changes in Plan Fiduciary Net Position8. Recognition of Outflow (Inflow) of Resources due to Liabilities9. Recognition of Outflow (Inflow) of Resources due to Assets
<i>Total Pension Liability (TPL)</i>	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
<i>Unfunded Actuarial Accrued Liability (UAAL)</i>	The UAAL is the difference between actuarial accrued liability and valuation assets.
<i>Valuation Assets</i>	The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of the GASB Statement No. 67, the valuation asset is equal to the market value of assets.