GRS Gabriel Roeder Smith & Company
Consultants & Actuaries

GENERAL EMPLOYEES RETIREMENT PLAN

GASB STATEMENTS NO. 67 AND NO. 68 ACCOUNTING AND FINANCIAL REPORTING FOR PENSIONS

JUNE 30, 2014

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December 3, 2014

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"). 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.

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 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.

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 otherwise audited.

To the best of our knowledge, the information contained with 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. 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 opinion contained herein.

Respectfully submitted,

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

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

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SECTION A

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY
as of June 30, 2014 *(Dollars in Thousands)*

		2014
Actuarial Valuation Date		June 30, 2014
Measurement Date of the Net Pension Liability		June 30, 2014
Employer's Fiscal Year Ending Date (Reporting Date)		variable
Membership		
Number of		
- Service Retirements		71,740
- Survivors		7,690
- Disability Retirements		3,704
- Deferred Retirements		48,505
- Terminated other non-vested		121,019
- Active Members		143,343
- Total		396,001
Covered Payroll	$	5,351,920
Net Pension Liability		
Total Pension Liability	$	22,102,321
Plan Fiduciary Net Position		17,404,822
Net Pension Liability	$	4,697,499
Plan Fiduciary Net Position as a Percentage of Total Pension Liability		78.75%
Net Pension Liability as a Percentage of Covered Payroll		87.77%
Development of the Single Discount Rate		
Single Discount Rate		7.90%
Long-Term Expected Rate of Investment Return		7.90%
Long-Term Municipal Bond Rate*		4.29%
Last year ending June 30 in the 2015 to 2114 projection period for which projected benefit payments are fully funded		2114
Total Pension Expense/ (Income)	$	348,720

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

		Deferred Outflows of Resources		Deferred Inflows of Resources
Difference between expected and actual experience	$	72,092	$	-
Changes in assumptions		484,124		-
Net difference between projected and actual earnings on pension plan investments		-		1,269,260
Total	$	556,216	$	1,269,260

** Based on the Bond Buyer 20-Bond Index of general obligation municipal bonds as of June 26, 2014 (i.e., the weekly rate closest to but not later than the Measurement Date).*

DISCUSSION

Accounting Standard

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

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).

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 Statements, 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, 2014 and a measurement date of June 30, 2014.

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 (which is published by the Federal Reserve) 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 7.90%; the municipal bond rate is 4.29% (based on the weekly rate closest to but not later than the measurement date of the 20-Year Bond Buyer Index as published by the Federal Reserve); and the resulting single discount rate is 7.90%.

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, 2014 *(Dollars in Thousands)*

A. Expense

1. Service Cost	$	388,391
2. Interest on the Total Pension Liability		1,591,756
3. Current-Period Benefit Changes		0
4. Employee Contributions (made negative for addition here)		(334,495)
5. Projected Earnings on Plan Investments (made negative for addition here)		(1,174,279)
6. Pension Plan Administrative Expense		9,861
7. Other Changes in Plan Fiduciary Net Position		(605)
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		185,406
9. Recognition of Outflow (Inflow) of Resources due to Assets		(317,315)
10. Total Pension Expense/ (Income)	**$**	**348,720**

Statement of Outflows and Inflows Arising from Current Reporting Period

Fiscal Year Ended June 30, 2014 *(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	$	96,123
2. Assumption Changes (gains) or losses	$	645,499
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	$	24,031
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes	$	161,375
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	$	185,406
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	$	72,092
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	$	484,124
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	$	556,216
B. Outflows (Inflows) of Resources due to Assets		
1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	$	(1,586,575)
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	$	(317,315)
3. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	$	(1,269,260)

STATEMENT OF OUTFLOWS AND INFLOWS ARISING FROM CURRENT AND PRIOR REPORTING PERIODS

Fiscal Year Ended June 30, 2014 *(Dollars in Thousands)*

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	$ 185,406	$ -	$ 185,406
2. Due to Assets	-	317,315	(317,315)
3. Total	$ 185,406	$ 317,315	$ (131,909)

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	$ 24,031	$ -	$ 24,031
2. Assumption Changes	161,375	-	161,375
3. Net Difference between projected and actual earnings on pension plan investments	-	317,315	(317,315)
4. Total	$ 185,406	$ 317,315	$ (131,909)

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

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	$ 72,092	$ -	$ 72,092
2. Assumption Changes	484,124	-	484,124
3. Net Difference between projected and actual earnings on pension plan investments	-	1,269,260	(1,269,260)
4. Total	$ 556,216	$ 1,269,260	$ (713,044)

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

Year Ending June 30	Net Deferred Outflows of Resources
2015	$ (131,909)
2016	(131,909)
2017	(131,911)
2018	(317,315)
2019	0
Thereafter	0
Total	$ (713,044)

STATEMENT OF FIDUCIARY NET POSITION
as of June 30, 2014 *(Dollars in Thousands)*

	Market Value	
Assets in Trust	**June 30, 2014**	**June 30, 2013**
Cash, equivalents, short term securities	$ 457,676	$ 391,295
Fixed income	4,061,777	3,462,343
Equity	10,675,284	9,029,914
SBI Alternative	2,195,599	2,186,034
Other	7,626	8,066
Total Assets in Trust	**$ 17,397,962**	**$ 15,077,652**
Assets Receivable	16,199	17,569
Amounts Payable	(9,339)	(10,613)
Net Position Restricted for Pensions	**$ 17,404,822**	**$ 15,084,608**

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
for Year Ended June 30, 2014 *(Dollars in Thousands)*

Change in Assets		**Market Value**	
Year Ending		**June 30, 2014**	**June 30, 2013**
1.	Fund balance at market value at beginning of year	$ 15,084,608	$ 13,577,653
2.	Contributions		
	a. Member	334,495	327,933
	b. Employer	382,251	372,652
	c. Other sources	0	0
	d. Total contributions	716,746	700,585
3.	Investment income		
	a. Investment income/(loss)	2,785,047	1,924,422
	b. Investment expenses	(24,193)	(20,676)
	c. Net subtotal	2,760,854	1,903,746
4.	Other	605	0
5.	**Total additions:** *(2.d.) + (3.c.) + (4.)*	**$ 3,478,205**	**$ 2,604,331**
6.	Benefits Paid		
	a. Annuity benefits	(1,109,866)	(1,051,591)
	b. Refunds	(38,264)	(35,865)
	c. Total benefits paid	(1,148,130)	(1,087,456)
7.	Expenses		
	a. Other	0	(23)
	b. Administrative	(9,861)	(9,897)
	c. Total expenses	(9,861)	(9,920)
8.	**Total deductions:** *(6.c.) + (7.c.)*	**(1,157,991)**	**(1,097,376)**
9.	Net increase (decrease) in net position: *(5) + (8)*	2,320,214	1,506,955
10.	**Net position restricted for pensions**	**$ 17,404,822**	**$ 15,084,608**
11.	Approximate return on market value of assets	18.5%	14.2%

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS CURRENT PERIOD

Fiscal Year Ended June 30, 2014 *(Dollars in Thousands)*

A. Total pension liability		
1. Service Cost	$	388,391
2. Interest on the Total Pension Liability		1,591,756
3. Changes of benefit terms		0
4. Difference between expected and actual experience of the Total Pension Liability		96,123
5. Changes of assumptions		645,499
6. Benefit payments, including refunds of employee contributions		(1,148,130)
7. Net change in total pension liability	$	1,573,639
8. Total pension liability – beginning		20,528,682
9. Total pension liability – ending	**$**	**22,102,321**
B. Plan fiduciary net position		
1. Contributions – employer	$	382,251
2. Contributions – employee		334,495
3. Net investment income		2,760,854
4. Benefit payments, including refunds of employee contributions		(1,148,130)
5. Pension Plan Administrative Expense		(9,861)
6. Other		605
7. Net change in plan fiduciary net position	$	2,320,214
8. Plan fiduciary net position – beginning		15,084,608
9. Plan fiduciary net position – ending	**$**	**17,404,822**
C. Net pension liability	**$**	**4,697,499**
D. Plan fiduciary net position as a percentage of the total pension liability		**78.75%**
E. Covered employee payroll	**$**	**5,351,920**
F. Net pension liability as a percentage of covered employee payroll		**87.77%**

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,	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Total Pension Liability										
Service Cost	$ 388,391									
Interest on the Total Pension Liability	1,591,756									
Benefit Changes	-									
Difference between Expected and Actual Experience	96,123									
Assumption Changes	645,499									
Benefit Payments	(1,109,866)									
Refunds	(38,264)									
Net Change in Total Pension Liability	1,573,639									
Total Pension Liability - Beginning	20,528,682									
Total Pension Liability - Ending (a)	$ 22,102,321									
Plan Fiduciary Net Position										
Employer Contributions	$ 382,251									
Employee Contributions	334,495									
Pension Plan Net Investment Income	2,760,854									
Benefit Payments	(1,109,866)									
Refunds	(38,264)									
Pension Plan Administrative Expense	(9,861)									
Other	605									
Net Change in Plan Fiduciary Net Position	2,320,214									
Plan Fiduciary Net Position - Beginning	15,084,608									
Plan Fiduciary Net Position - Ending (b)	$ 17,404,822									
Net Pension Liability - Ending (a) - (b)	4,697,499									
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	78.75 %									
Covered employee payroll	$ 5,351,920									
Net Pension Liability as a Percentage of Covered employee payroll	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
2005			$ -			
2006			-			
2007			-			
2008			-			
2009			-			
2010			-			
2011			-			
2012			-			
2013			-			
2014	$ 22,102,321	$ 17,404,822	$ 4,697,499	78.75%	$ 5,351,920	87.77%

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
2005	$ 304,328	$ 232,963	$ 71,365	$ 4,096,138	5.69%
2006	327,266	255,531	71,735	4,247,109	6.02
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

NOTES TO SCHEDULE OF CONTRIBUTIONS

Valuation Date:	June 30, 2014
Notes	Actuarially determined contribution rates are calculated as of each July 1.

Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Remaining Amortization Period	19 years
Asset Valuation Method	5 Year smoothed market; no corridor
Inflation	3.00%
Salary Increases	3.50% to 12.03% including inflation
Investment Rate of Return	8.00% through June 30, 2017; 8.50% thereafter
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2010 valuation pursuant to an experience study of the period 2004 - 2008, prepared by a former actuary.
Mortality	RP-2000 annuitant generational mortality table, projected with scale AA, white collar adjustment, no adjustment for males and set back 2 years for females.

Other Information:

Notes	The plan is assumed to pay a 2.5% post retirement benefit increase beginning January 1, 2027. See separate funding report as of July 1, 2014 for additional detail.

SCHEDULE OF INVESTMENT RETURNS MULTIYEAR

Last 10 Fiscal Years

FY Ending June 30,	Annual Return[1]
2005	
2006	
2007	
2008	
2009	
2010	
2011	
2012	
2013	
2014	

[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

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

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 7.90% 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 7.90%. The projection of cash flows used to determine this single discount rate assumed that plan member and employer contributions will be made at the current statutory 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 7.90%, 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

1% Decrease 6.90%	Current Single Discount Rate Assumption 7.90%	1% Increase 8.90%
$7,572,558	$4,697,499	$2,332,002

GASB Statement No. 68 Reconciliation (*Dollars in Thousands*)

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)	Deferred Outflows	Deferred Inflows	Pension Expense
Balance Beginning of Year	**$ 20,528,682**	**$ 15,084,608**	**$ 5,444,074**			
Changes for the Year:						
Service Cost	$ 388,391		$ 388,391			$ 388,391
Interest on Total Pension Liability	1,591,756		1,591,756			1,591,756
Interest on Fiduciary Net Position		$ 1,174,279	(1,174,279)			(1,174,279)
Changes in Benefit Terms	-		-			-
Liability Experience Gains and Losses	96,123		96,123	$ 72,092	$ -	24,031
Changes in Assumptions	645,499		645,499	484,124	-	161,375
Contributions - Employer		382,251	(382,251)			
Contributions - Employees		334,495	(334,495)			(334,495)
Asset Gain/(Loss)		1,586,575	(1,586,575)	-	1,269,260	(317,315)
Benefit Payouts	(1,148,130)	(1,148,130)	-			-
Administrative Expenses		(9,861)	9,861			9,861
Other		605	(605)			(605)
			-			-
Net Changes	**$ 1,573,639**	**$ 2,320,214**	**$ (746,575)**	**$ 556,216**	**$ 1,269,260**	**$ 348,720**
Balance End of Year	**$ 22,102,321**	**$ 17,404,822**	**$ 4,697,499**	**$ 556,216**	**$ 1,269,260**	

SUMMARY OF POPULATION STATISTICS

		Terminated		Recipients			
	Actives	Deferred Retirement	Other Non-Vested	Service Retirement	Disability Retirement	Survivor	Total
Members on 7/1/2013	**139,763**	**45,946**	**119,509**	**67,861**	**3,683**	**7,539**	**384,301**
New members	16,814	0	0	0	0	0	**16,814**
Return to active	2,537	(868)	(1,666)	(1)	(2)	0	**0**
Terminated non-vested	(5,359)	0	5,359	0	0	0	**0**
Service retirements	(3,033)	(2,369)	0	5,402	0	0	**0**
Terminated deferred	(4,890)	4,890	0	0	0	0	**0**
Terminated refund/transfer	(2,156)	(1,095)	(1,128)	0	(1)	0	**(4,380)**
Deaths	(186)	(137)	(329)	(1,801)	(142)	(439)	**(3,034)**
New beneficiary	0	0	0	0	0	532	**532**
Disabled	(123)	0	0	0	123	0	**0**
Data adjustments	(24)	2,138	(726)	279	43	58	**1,768**
Net change	3,580	2,559	1,510	3,879	21	151	**11,700**
Members on 6/30/2014	**143,343**	**48,505**	**121,019**	**71,740**	**3,704**	**7,690**	**396,001**

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: <u>Member</u> 9.10% of salary <u>Employer</u> 11.78% of salary Member contributions are "picked up" according to the provisions of Internal Revenue Code 414(h).
Allowable service	Service during which member contributions were made. May also include certain leaves of absence and military service.
Salary	Includes amounts deducted for deferred compensation or supplemental retirement plans, net income from fees and sick leave payments funded by the employer. Excludes unused annual leaves and sick leave payments, severance payments, Workers' Compensation benefits and employer-paid flexible spending accounts and employer-paid deferred compensation deposits, cafeteria plans, healthcare expense accounts, day-care expenses, fringe benefits and the cost of insurance coverage.
Average salary	Average of the five highest successive years of annual salary. Average salary is based on all Allowable Service if less than five years.
Vesting	Hired before July 1, 2010: 100% vested after 3 years of Allowable Service. Hired after June 30, 2010: 100% vested after 5 years of Allowable Service. (Not applicable since all Basic members were hired before 1968.)

Retirement

<u>Normal retirement benefit</u>

Age/service requirement	Age 65 and vested. Proportionate retirement annuity is available at age 65 and one year of Allowable Service.
Amount	2.70% of Average Salary for each year of Allowable Service.

<u>Early retirement benefit</u>

Age/service requirement	(a.) Age 55 and vested. (b.) Any age with 30 years of Allowable Service. (c.) Rule of 90: Age plus Allowable Service totals 90.

Summary of Plan Provisions – Basic (Continued)

Retirement (Continued)

Early retirement benefit (Continued)

Age/service requirement	The greater of (a) or (b):
Amount	(a.) 2.20% of Average Salary for each of the first ten years of Allowable Service and 2.70% of Average Salary for each subsequent year with reduction of 0.25% for each month if the Member is under age 65 at time of retirement and has less than 30 years of Allowable Service or if the Member is under age 62 and has 30 or more years of Allowable Service. No reduction if age plus years of Allowable Service totals 90. (b.) 2.70% of Average Salary for each year of Allowable Service assuming augmentation to age 65 at 3.00% per year and actuarial reduction for each month the Member is under age 65.
Form of payment	Life annuity with return on death of any balance of contributions over aggregate monthly payments. Actuarially equivalent options are: 25%, 50%, 75% or 100% Joint and Survivor. If a Joint and Survivor benefit is elected and the beneficiary predeceases the annuitant, the annuitant's benefit increases to the Life Annuity amount. This "bounce back" is subsidized by the plan.
Benefit increases	Benefit recipients receive a future annual 1.0% post-retirement benefit increase. If the funding ratio reaches 90% for two consecutive years, the benefit increase will revert to 2.5%. If, after reverting to a 2.5% 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 1.0%. A benefit recipient who has been receiving a benefit for at least 12 full months as of June 30 will receive a full increase. Members receiving benefits for at least one month but less than 12 full months as of June 30 will receive a pro rata increase. Members retired under laws in effect before July 1, 1973 receive an additional lump sum payment each year. In 1989, this lump sum payment is the greater of $25 times each full year of Allowable Service or the difference between $400 times each full year of Allowable Service and the sum of benefits paid from any Minnesota public pension plan plus cash payments from the Social Security Administration for the preceding fiscal year July 1, 1988 through June 30, 1989. In each following year, the lump sum payment will increase by the same percentage increase that is applied to regular annuities paid from the fund. Effective January 1, 2002, annual lump sum payment is divided by 12 and paid as a monthly life annuity in the annuity form elected.

Summary of Plan Provisions – Basic (Continued)

Disability	
Disability benefit	
Age/service requirement	Total and permanent disability before normal retirement age if vested. Since all remaining active Basic members are over normal retirement age, none are eligible for disability benefits.
Amount	Normal Retirement benefit based on Allowable Service and Average Salary at disability without reduction for commencement before Normal Retirement Age. Supplemental benefit of $25 per month payable to the later of the normal retirement age or the five-year anniversary of commencement of disability. The disability benefit is reduced to that amount which, when added to Workers' Compensation, does not exceed the salary the disabled Member received as of the date of the disability or the salary currently payable for the same employment position substantially similar to the one the person held as of the date of the disability, whichever is greater. If a member 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)

Death

Surviving spouse benefit

Age/service requirement	Active Member with 18 months of Allowable Service or while Member is receiving a disability benefit.
Amount	50.00% of salary averaged over last six months. Family benefit is maximum of 70.00% and minimum of 50.00% of average salary. Benefit paid until spouse's death but no payments while spouse is remarried prior to July 1, 1991. If a member 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.
Termination	
Refund of contributions	
Age/service requirement	Termination of public service.
Amount	If member terminated before July 1, 2011, member's contributions credited with 6% interest compounded annually prior to July 1, 2011 and 4% interest thereafter. If member terminated after June 30, 2011, member's contributions credited with 4% interest compounded annually. A deferred annuity may be elected in lieu of a refund if three or more years of Allowable Service.

Summary of Plan Provisions - Basic (Continued)

Termination (Continued)	
Deferred benefit	
Age/service requirement	Fully vested.
Amount	Benefit computed under law in effect at termination and increased by the following "augmentation" percentage compounded annually for terminations prior to 2012: (a.) 0.00% before July 1, 1971; (b.) 5.00% from July 1, 1971 to January 1, 1981; (c.) 3.00% thereafter until the earlier of January 1 of the year following attainment of age 55 and January 1, 2012; (d.) 5.00% thereafter until the earlier of the date the annuity begins and January 1, 2012; and (e.) 1.00% from January 1, 2012 thereafter. Members who terminate after 2011 will receive no future augmentation. Members active with a public employer the day prior to the privatization of the employer become vested immediately 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% compounded annually, unless the enhancement results in a net loss to the Plan, in which case augmentation equals 1% compounded annually. If privatization occurred prior to January 1, 2011, augmentation occurs at the rate of 4.0% compounded annually through the year the Member turns age 55 and 6.0% 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 5.5% compounded annually through the year the Member turns age 55 and 7.5% 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.
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 setback for males, blended 45% males and 7.5% 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; (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. (b.) Average salary is based on the high five consecutive years during their entire service in all covered plans.
Changes in plan provisions	None.

Summary of Plan Provisions - Coordinated

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

Plan year	July 1 through June 30.	
Eligibility	A public employee who is covered under the Social Security Act. General exceptions are employees covered by other public funds, certain part-time employees and full-time students under age 23. City managers and persons holding certain elective office positions may choose to become Members.	
Contributions	Shown as a percent of salary:	
Effective date	**Member**	**Employer**
July 1, 2010 to December 31, 2014	6.25%	7.25%
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		
Normal retirement benefit		
Age/service requirement	First hired before July 1, 1989: (a.) Age 65 and vested. (b.) Proportionate retirement annuity is available at age 65 and one year of Allowable Service.	
Amount	1.70% of Average Salary for each year of Allowable Service.	

Summary of Plan Provisions – Coordinated (Continued)

Retirement (Continued)

Normal retirement benefit (Continued)

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

Early retirement benefit

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

Summary of Plan Provisions – Coordinated (Continued)

Retirement (Continued)	
Benefit increases	Benefit recipients receive a future annual 1.0% post-retirement benefit increase. If the funding ratio reaches 90% for two consecutive years, the benefit increase will revert to 2.5%. If, after reverting to a 2.5% 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 1.0%. 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.
Death	
Surviving spouse optional annuity	
Age/service requirement	Member or former Member who dies before retirement or disability benefits commence.
Amount	Survivor's payment of the 100% joint and survivor benefit the Member could have elected if terminated or an actuarial equivalent term certain annuity. If commencement is prior to age 65 (age 62 if 30 years of service), the benefit is reduced the same as early retirement with half the applicable reduction factor used from age 55 to the actual commencement age. If no surviving spouse, then an actuarial equivalent dependent child benefit is paid to age 20 or for five years if longer. If a member 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.
Termination	
Refund of contributions	
Age/service requirement	Termination of public service.
Amount	If member terminated before July 1, 2011, member's contributions credited with 6% interest compounded annually prior to July 1, 2011 and 4% interest thereafter. If member terminated after June 30, 2011, member's contributions credited with 4% interest compounded annually. A deferred annuity may be elected in lieu of a refund if vested.

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; (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% compounded annually, unless the enhancement results in a net loss to the Plan, in which case augmentation equals 1% compounded annually. If privatization occurred prior to January 1, 2011, augmentation occurs at the rate of 4.0% compounded annually through the year the Member turns age 55 and 6.0% 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 5.5% compounded annually through the year the Member turns age 55 and 7.5% 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.
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 setback for males, blended 45% males and 7.5% interest. The interest rate will change to 6.5% on the earlier of the effective date of the next mortality adjustment or July 1, 2017.

Summary of Plan Provisions – Coordinated (Concluded)

Combined service annuity	Members are eligible for combined service benefits if they: (a.) Meet minimum retirement age for each plan participated in and total public service meets the vesting requirements of each plan; or (b.) Have three or more years of service under PERA and the covered fund(s) (if hired prior to July 1, 2010). Other requirements for combined service include: (a.) Member must have at least six months of allowable service credit in each plan worked under; (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. (b.) Average salary is based on the high five consecutive years during their entire service in all covered plans
Changes in plan provisions	Member contribution rates will increase from 6.25% to 6.50% of pay and employer contribution rates will increase from 7.25% to 7.50% of pay effective January 1, 2015. The interest rate assumption used to determine optional form conversion factors was changed (with a future effective date).

SECTION F

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

Actuarial Methods

Actuarial Cost Method

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

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

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

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

Valuation of Future Post-Retirement Benefit Increases

Benefit recipients receive a future annual 1.0% post-retirement benefit increase. If the funding ratio reaches 90% (based on a 2.5% post-retirement benefit increase assumption) for two consecutive years, the benefit increase will revert to 2.5%. If, after reverting to a 2.5% 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 1.0%.

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 7.90%
- Liabilities and normal cost based on statutory funding assumptions
  - Discount rate of 8.00% through June 30, 2017; 8.50% thereafter
  - Statutory salary increases (rate of 12.03% at year 1 declining to 3.50% at years 18 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 1.0% per year until the funding ratio threshold required to pay a 2.5% postretirement benefit increase is reached
- Current statutory contributions (i.e. not including potential contribution increases under the contribution stabilizer statutes) as directed by PERA

Based on these assumptions and methods, the projection indicates that this plan is expected to attain the funding ratio threshold required to pay a 2.5% postretirement benefit increase in the year 2030, and that the plan would begin paying 2.5% benefit increases on January 1, 2031. This assumption is reflected in our calculations.

To determine liabilities as of July 1, 2013, we performed a similar projection, and assumed the plan would begin paying 2.5% benefit increases on January 1, 2046.

Decrement Timing

All decrements are assumed to occur mid-year.

Asset Valuation Method

Fair value of assets.

Summary of Actuarial Assumptions

The following assumptions were used in valuing the liabilities and benefits under the plan. All demographic actuarial assumptions are prescribed by Minnesota Statutes, the Legislative Commission on Pensions and Retirement (LCPR), or the Board of Trustees. These parties are responsible for selecting the assumptions used for this valuation. The demographic assumptions are based on the last experience study, dated August 2009, prepared by a former actuary. The economic assumptions are based on a review of inflation and investment return assumptions dated September 11, 2014.

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.

Investment return	7.90% per annum
Benefit increases after retirement	1.00% per annum through 2030 and 2.5% per annum thereafter
Salary increases	Reported salary at valuation date increased according to the rate table, to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for members with less than one year of service earned during the year.
Payroll growth	3.50% per year.
Mortality rates	
Healthy Pre-retirement	RP-2000 employee generational mortality table, projected with scale AA, white collar adjustment, set forward 5 years for males and set back 3 years for females.
Healthy Post-retirement	RP-2000 annuitant generational mortality table, projected with scale AA, white collar adjustment, no adjustment for males and set back 2 years for females. The RP-2000 employee mortality table as published by the Society of Actuaries (SOA) contains mortality rates for ages 15 to 70 and the annuitant mortality table contains mortality rates for ages 50 to 95. We have applied the annuitant mortality table for active members beyond age 70 until the assumed retirement age and the employee mortality table for annuitants younger than age 50.
Disabled	RP-2000 disabled mortality table set back 4 years for males and set forward 7 years for females.
Retirement	Members retiring from active status are assumed to retire according to the age related rates shown in the rate table. Members who have attained the highest assumed retirement age are assumed to retire in one year.
Withdrawal	Select and Ultimate rates based on actual experience. Ultimate rates after the third year are shown in rate table. Select rates in the first three years are: Year — Select Withdrawal Rates 1 — 40.00% 2 — 15.00% 3 — 10.00%
Disability	Age-related rates based on experience; see table of sample rates.

Summary of Actuarial Assumptions (Continued)

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	Total prior year administrative expenses expressed as a percentage of prior year projected payroll are assumed to increase 3.50% per year and are allocated to the closed group based on the ratio of closed group payroll to total payroll.
Refund of contributions	Account balances accumulate interest until normal retirement date and are discounted back to the valuation date. All employees withdrawing after becoming eligible for a deferred benefit take the larger of their contributions accumulated with interest or the value of their deferred benefit.
Commencement of deferred benefits	Members receiving deferred annuities (including current terminated deferred members) are assumed to begin receiving benefits at Normal Retirement.
Percentage married	75% 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 3 years younger, while females are assumed to have a beneficiary 2 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	Married members retiring from active status are assumed to elect subsidized joint and survivor form of annuity as follows: Males: 5% elect 25% Joint & Survivor option 15% elect 50% Joint & Survivor option 10% elect 75% Joint & Survivor option 30% elect 100% Joint & Survivor option Females: 5% elect 25% Joint & Survivor option 5% elect 50% Joint & Survivor option 5% elect 75% Joint & Survivor option 15% elect 100% Joint & Survivor option Remaining married members and unmarried members are assumed to elect the Straight Life option. Members receiving deferred annuities (including current terminated deferred members) are assumed to elect a straight life annuity.
Eligibility testing	Eligibility for benefits is determined based upon the age nearest birthday and service on the date the decrement is assumed to occur.
Decrement operation	Withdrawal decrements do not operate during retirement eligibility.
Service credit accruals	It is assumed that members accrue one year of service credit per year.

Summary of Actuarial Assumptions (Continued)

Unknown data for certain members	To prepare this report, GRS has used and relied on participant data supplied by the Fund. Although GRS has reviewed the data in accordance with Actuarial Standards of Practice No. 23, GRS has not verified or audited any of the data or information provided. In cases where submitted data was missing or incomplete, the following assumptions were applied: <u>Data for active members:</u> There were 2,671 members reported with zero salary. We used prior year salary (1,904 members), if available; otherwise high five salary with a 10% load to account for salary increases (702 members). If neither prior year salary or high five salary was available, we assumed a value of $35,000. There were also 1,760 members reported without a gender and 56 members reported with an invalid date of birth. We assumed a date of birth of July 1, 1967 and female gender. <u>Data for terminated members:</u> We calculated benefits for these members using the reported Average Salary and credited service. If Average Salary was not reported (256 members), we assumed a value of $24,000. If credited service was not reported (168 members), we assumed credited service was elapsed time from hire to termination date (121 members); otherwise nine years. If termination date was not reported (113 members), we assumed the termination date was equal to hire date plus credited service; otherwise the valuation date unless they are noted as a pre-July 1, 1989 hire, then June 30, 1989. If reported termination date occurs prior to reported hire date, the two dates were swapped. There were 20 members reported with an invalid date of birth and 174 members reported without a gender. We assumed a date of birth of July 1, 1967 and female gender. <u>Data for retired members:</u> There were eight members reported with an invalid date of birth and 68 members reported without a gender. We assumed a date of birth of July 1, 1945 and female gender.
Changes in actuarial assumptions	As of July 1, 2013, the postretirement benefit increase rate was assumed to increase from 1.0% to 2.5% on January 1, 2046. As of July 1, 2014, the postretirement benefit increase rate was assumed to increase from 1.0% to 2.5% on January 1, 2031.

Summary of Actuarial Assumptions (Continued)

	Rate (%)*					
	Healthy Post-Retirement Mortality**		Healthy Pre-Retirement Mortality**		Disability Mortality	
Age	Male	Female	Male	Female	Male	Female
20	0.03%	0.02%	0.04%	0.02%	2.26%	0.75%
25	0.04	0.02	0.04	0.02	2.26	0.75
30	0.04	0.02	0.06	0.02	2.26	0.75
35	0.06	0.04	0.09	0.04	2.26	0.75
40	0.09	0.06	0.13	0.05	2.26	0.90
45	0.13	0.08	0.20	0.08	2.26	1.35
50	0.60	0.13	0.27	0.12	2.38	1.87
55	0.54	0.29	0.43	0.19	3.03	2.41
60	0.66	0.47	0.67	0.28	3.67	3.13
65	1.16	0.74	0.98	0.45	4.35	4.29
70	1.93	1.24	3.36	0.70	5.22	5.95

* *Generally, mortality rates are expected to increase as age increases. Due to the combination of pre-retirement rates, post-retirement rates, the white collar adjustment, and Projection Scale AA, the prescribed mortality tables have a few ages where assumed mortality decreases slightly instead of increases. We have used the rates as prescribed, but note that the prescribed assumption may not be reasonable at every age. If the rates were reasonably adjusted so that they decreased at all ages, we would not expect the valuation results to be materially different.*

** *These rates were adjusted for mortality improvements using projection scale AA.*

	Withdrawal Rates After Third Year		Disability Retirement	
Age	Male	Female	Male	Female
20	8.40%	8.40%	0.01%	0.01%
25	6.90	6.90	0.01	0.01
30	5.40	5.40	0.02	0.02
35	3.90	4.20	0.05	0.04
40	3.00	3.50	0.09	0.06
45	2.50	3.00	0.14	0.09
50	2.00	2.50	0.23	0.16
55	0.00	0.00	0.49	0.26
60	0.00	0.00	0.82	0.46
65	0.00	0.00	0.00	0.00
70	0.00	0.00	0.00	0.00

Summary of Actuarial Assumptions (Concluded)

	Retirement	
Age	Rule of 90 Eligible	Other
55	20%	6%
56	20	6
57	20	6
58	20	7
59	20	8
60	20	8
61	25	12
62	35	20
63	25	16
64	25	18
65	35	35
66	25	25
67	20	20
68	20	20
69	20	20
70	20	20
71+	100	100

Salary Scale	
Year	Increase
1	11.78%
2	8.65
3	7.21
4	6.33
5	5.72
6	5.27
7	4.91
8	4.62
9	4.38
10	4.17
11	3.99
12	3.83
13	3.69
14	3.57
15	3.45
16	3.35
17	3.26
18+	3.25

SECTION G

CALCULATION OF THE SINGLE DISCOUNT RATE

CALCULATION OF THE SINGLE DISCOUNT RATE

GASB Statement No. 67 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed long-term 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 (which is published by the Federal Reserve) 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 7.90%; the municipal bond rate is 4.29%; and the resulting single discount rate is 7.90%.

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.

We performed a similar analysis as of July 1, 2013. Based on an expected rate of return of 7.90% and a municipal bond rate of 4.63%, the plan is projected to have sufficient assets to pay future benefits. **The resulting single discount rate as of July 1, 2013 is 7.90%.**

SINGLE DISCOUNT RATE DEVELOPMENT

Projection of Contributions *(Dollars in Thousands)*

	Payroll			Projected Contributions			
Year	Payroll for Current Employees	Payroll for New Employees	Total Employee Payroll	Contributions from Current Employees	Employer Contributions for Current Employees	Contributions on Future Payroll toward Current UAL*	Total Contributions
0	$ 5,351,920	$ -	$ 5,351,920				
1	5,379,802	-	5,379,802	$ 342,962	$ 396,760	$ -	$ 739,722
2	5,127,565	440,530	5,568,095	333,292	384,567	26,805	744,664
3	4,905,343	857,635	5,762,978	318,847	367,901	52,185	738,933
4	4,701,461	1,263,222	5,964,683	305,595	352,610	76,863	735,068
5	4,492,674	1,680,772	6,173,446	292,024	336,951	102,270	731,245
6	4,282,953	2,106,564	6,389,517	278,392	321,221	128,178	727,791
7	4,077,453	2,535,697	6,613,150	265,034	305,809	154,290	725,133
8	3,877,810	2,966,800	6,844,610	252,058	290,836	180,521	723,415
9	3,683,371	3,400,801	7,084,172	239,419	276,253	206,929	722,601
10	3,495,185	3,836,933	7,332,118	227,187	262,139	233,467	722,793
11	3,314,983	4,273,759	7,588,742	215,474	248,624	260,046	724,144
12	3,141,950	4,712,398	7,854,348	204,227	235,646	286,736	726,609
13	2,975,287	5,153,963	8,129,250	193,394	223,147	313,604	730,145
14	2,814,296	5,599,478	8,413,774	182,929	211,072	340,712	734,713
15	2,658,626	6,049,630	8,708,256	172,811	199,397	368,103	740,311
16	2,508,087	6,504,958	9,013,045	163,026	188,107	395,808	746,941
17	2,361,829	6,966,672	9,328,501	153,519	177,137	423,902	754,558
18	2,218,775	7,436,224	9,654,999	144,220	166,408	452,473	763,101
19	2,078,375	7,914,549	9,992,924	135,094	155,878	481,578	772,550
20	1,941,638	8,401,038	10,342,676	126,206	145,623	511,180	783,009
21	1,809,166	8,895,504	10,704,670	117,596	135,687	541,266	794,549
22	1,680,762	9,398,571	11,079,333	109,250	126,057	571,877	807,184
23	1,556,057	9,911,053	11,467,110	101,144	116,704	603,060	820,908
24	1,435,372	10,433,087	11,868,459	93,299	107,653	634,824	835,776
25	1,318,224	10,965,631	12,283,855	85,685	98,867	667,228	851,780
26	1,203,905	11,509,885	12,713,790	78,254	90,293	700,344	868,891
27	1,092,430	12,066,342	13,158,772	71,008	81,932	734,203	887,143
28	984,063	12,635,267	13,619,330	63,964	73,805	768,820	906,589
29	879,736	13,216,270	14,096,006	57,183	65,980	804,173	927,336
30	780,255	13,809,111	14,589,366	50,717	58,519	840,246	949,482
31	685,860	14,414,134	15,099,994	44,581	51,440	877,059	973,080
32	596,547	15,031,947	15,628,494	38,776	44,741	914,652	998,169
33	512,663	15,662,828	16,175,491	33,323	38,450	953,039	1,024,812
34	434,951	16,306,682	16,741,633	28,272	32,621	992,216	1,053,109
35	364,169	16,963,422	17,327,591	23,671	27,313	1,032,176	1,083,160
36	300,331	17,633,725	17,934,056	19,522	22,525	1,072,963	1,115,010
37	243,367	18,318,381	18,561,748	15,819	18,253	1,114,622	1,148,694
38	193,404	19,018,005	19,211,409	12,571	14,505	1,157,192	1,184,268
39	150,367	19,733,442	19,883,809	9,774	11,278	1,200,724	1,221,776
40	114,536	20,465,206	20,579,742	7,445	8,590	1,245,250	1,261,285
41	85,573	21,214,460	21,300,033	5,562	6,418	1,290,840	1,302,820
42	62,338	21,983,196	22,045,534	4,052	4,675	1,337,616	1,346,343
43	44,258	22,772,870	22,817,128	2,877	3,319	1,385,665	1,391,861
44	30,674	23,585,053	23,615,727	1,994	2,301	1,435,084	1,439,379
45	20,475	24,421,803	24,442,278	1,331	1,536	1,485,998	1,488,865
46	12,944	25,284,813	25,297,757	841	971	1,538,510	1,540,322
47	7,539	26,175,640	26,183,179	490	565	1,592,714	1,593,769
48	3,919	27,095,671	27,099,590	255	294	1,648,695	1,649,244
49	1,895	28,046,181	28,048,076	123	142	1,706,531	1,706,796
50	880	29,028,879	29,029,759	57	66	1,766,326	1,766,449

* *Contributions related to future employee payroll in excess of normal cost and expenses of 7.92% of pay.*

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

SINGLE DISCOUNT RATE DEVELOPMENT

Projection of Contributions *(Dollars in Thousands)*

	Payroll			Projected Contributions			
Year	Payroll for Current Employees	Payroll for New Employees	Total Employee Payroll	Contributions from Current Employees	Employer Contributions for Current Employees	Contributions on Future Payroll toward Current UAL*	Total Contributions
51	347	30,045,453	30,045,800	$ 23	$ 26	$ 1,828,181	$ 1,828,230
52	113	31,097,290	31,097,403	7	9	1,892,183	1,892,199
53	29	32,185,783	32,185,812	2	2	1,958,414	1,958,418
54	9	33,312,307	33,312,316	1	1	2,026,960	2,026,962
55	4	34,478,243	34,478,247	-	-	2,097,904	2,097,904
56	2	35,684,983	35,684,985	-	-	2,171,331	2,171,331
57	1	36,933,959	36,933,960	-	-	2,247,327	2,247,327
58	-	38,226,648	38,226,648	-	-	2,325,984	2,325,984
59	-	39,564,581	39,564,581	-	-	2,407,393	2,407,393
60	-	40,949,341	40,949,341	-	-	2,491,652	2,491,652
61	-	42,382,568	42,382,568	-	-	2,578,860	2,578,860
62	-	43,865,958	43,865,958	-	-	2,669,120	2,669,120
63	-	45,401,267	45,401,267	-	-	2,762,539	2,762,539
64	-	46,990,311	46,990,311	-	-	2,859,228	2,859,228
65	-	48,634,972	48,634,972	-	-	2,959,301	2,959,301
66	-	50,337,196	50,337,196	-	-	3,062,877	3,062,877
67	-	52,098,998	52,098,998	-	-	3,170,077	3,170,077
68	-	53,922,463	53,922,463	-	-	3,281,030	3,281,030
69	-	55,809,749	55,809,749	-	-	3,395,866	3,395,866
70	-	57,763,090	57,763,090	-	-	3,514,721	3,514,721
71	-	59,784,798	59,784,798	-	-	3,637,737	3,637,737
72	-	61,877,266	61,877,266	-	-	3,765,057	3,765,057
73	-	64,042,971	64,042,971	-	-	3,896,835	3,896,835
74	-	66,284,475	66,284,475	-	-	4,033,224	4,033,224
75	-	68,604,431	68,604,431	-	-	4,174,387	4,174,387
76	-	71,005,586	71,005,586	-	-	4,320,490	4,320,490
77	-	73,490,782	73,490,782	-	-	4,471,707	4,471,707
78	-	76,062,959	76,062,959	-	-	4,628,217	4,628,217
79	-	78,725,163	78,725,163	-	-	4,790,205	4,790,205
80	-	81,480,543	81,480,543	-	-	4,957,862	4,957,862
81	-	84,332,362	84,332,362	-	-	5,131,387	5,131,387
82	-	87,283,995	87,283,995	-	-	5,310,985	5,310,985
83	-	90,338,935	90,338,935	-	-	5,496,870	5,496,870
84	-	93,500,798	93,500,798	-	-	5,689,260	5,689,260
85	-	96,773,326	96,773,326	-	-	5,888,384	5,888,384
86	-	100,160,392	100,160,392	-	-	6,094,478	6,094,478
87	-	103,666,006	103,666,006	-	-	6,307,785	6,307,785
88	-	107,294,316	107,294,316	-	-	6,528,557	6,528,557
89	-	111,049,617	111,049,617	-	-	6,757,057	6,757,057
90	-	114,936,354	114,936,354	-	-	6,993,554	6,993,554
91	-	118,959,126	118,959,126	-	-	7,238,328	7,238,328
92	-	123,122,695	123,122,695	-	-	7,491,669	7,491,669
93	-	127,431,990	127,431,990	-	-	7,753,878	7,753,878
94	-	131,892,109	131,892,109	-	-	8,025,264	8,025,264
95	-	136,508,333	136,508,333	-	-	8,306,148	8,306,148
96	-	141,286,125	141,286,125	-	-	8,596,863	8,596,863
97	-	146,231,139	146,231,139	-	-	8,897,753	8,897,753
98	-	151,349,229	151,349,229	-	-	9,209,175	9,209,175
99	-	156,646,452	156,646,452	-	-	9,531,496	9,531,496
100	-	162,129,078	162,129,078	-	-	9,865,098	9,865,098

* *Contributions related to future employee payroll in excess of normal cost and expenses of 7.92% of pay*.

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

Single Discount Rate Development

Projection of Plan Fiduciary Net Position *(Dollars in Thousands)*

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.90%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
1	$ 17,404,822	$ 739,723	$ 1,209,592	$ 10,222	$ 1,356,378	$ 18,281,109
2	18,281,109	744,664	1,284,321	9,742	1,422,919	19,154,629
3	19,154,629	738,933	1,363,556	9,320	1,488,651	20,009,337
4	20,009,337	735,068	1,444,260	8,933	1,552,911	20,844,123
5	20,844,123	731,245	1,525,956	8,536	1,615,560	21,656,436
6	21,656,436	727,792	1,607,025	8,138	1,676,473	22,445,538
7	22,445,538	725,133	1,685,092	7,747	1,735,699	23,213,531
8	23,213,531	723,415	1,761,479	7,368	1,793,359	23,961,458
9	23,961,458	722,601	1,834,081	6,998	1,849,615	24,692,595
10	24,692,595	722,792	1,904,444	6,641	1,904,669	25,408,971
11	25,408,971	724,144	1,971,675	6,298	1,958,724	26,113,866
12	26,113,866	726,609	2,034,254	5,970	2,012,094	26,812,345
13	26,812,345	730,144	2,092,113	5,653	2,065,181	27,509,904
14	27,509,904	734,714	2,147,254	5,347	2,118,340	28,210,357
15	28,210,357	740,311	2,197,819	5,051	2,171,945	28,919,743
16	28,919,743	746,941	2,243,860	4,765	2,226,470	29,644,529
17	29,644,529	754,558	2,305,158	4,487	2,281,659	30,371,101
18	30,371,101	763,102	2,377,093	4,216	2,336,612	31,089,506
19	31,089,506	772,551	2,446,335	3,949	2,391,060	31,802,833
20	31,802,833	783,009	2,512,451	3,689	2,445,266	32,514,968
21	32,514,968	794,550	2,574,920	3,437	2,499,561	33,230,722
22	33,230,722	807,183	2,634,855	3,193	2,554,282	33,954,139
23	33,954,139	820,908	2,690,658	2,957	2,609,811	34,691,243
24	34,691,243	835,776	2,740,410	2,727	2,666,699	35,450,581
25	35,450,581	851,779	2,783,212	2,505	2,725,657	36,242,300
26	36,242,300	868,891	2,821,178	2,287	2,787,403	37,075,129
27	37,075,129	887,143	2,853,187	2,076	2,852,672	37,959,681
28	37,959,681	906,589	2,881,405	1,870	2,922,220	38,905,215
29	38,905,215	927,336	2,903,848	1,671	2,996,859	39,923,891
30	39,923,891	949,481	2,921,190	1,482	3,077,528	41,028,228
31	41,028,228	973,080	2,932,129	1,303	3,165,268	42,233,144
32	42,233,144	998,168	2,937,698	1,133	3,261,219	43,553,700
33	43,553,700	1,024,812	2,938,420	974	3,366,553	45,005,671
34	45,005,671	1,053,109	2,933,833	826	3,482,539	46,606,660
35	46,606,660	1,083,160	2,923,121	692	3,610,602	48,376,609
36	48,376,609	1,115,009	2,904,419	571	3,752,391	50,339,019
37	50,339,019	1,148,693	2,879,952	462	3,909,679	52,516,977
38	52,516,977	1,184,269	2,849,662	367	4,084,294	54,935,511
39	54,935,511	1,221,776	2,812,385	286	4,278,259	57,622,875
40	57,622,875	1,261,285	2,767,696	218	4,493,826	60,610,072
41	60,610,072	1,302,820	2,715,982	163	4,733,430	63,930,177
42	63,930,177	1,346,343	2,657,290	118	4,999,681	67,618,793
43	67,618,793	1,391,861	2,591,177	84	5,295,409	71,714,802
44	71,714,802	1,439,378	2,516,422	58	5,623,732	76,261,432
45	76,261,432	1,488,864	2,434,984	39	5,987,990	81,303,263
46	81,303,263	1,540,322	2,349,207	25	6,391,613	86,885,966
47	86,885,966	1,593,769	2,259,971	14	6,838,176	93,057,926
48	93,057,926	1,649,244	2,168,274	7	7,331,464	99,870,353
49	99,870,353	1,706,796	2,074,839	4	7,875,496	107,377,802
50	107,377,802	1,766,449	1,980,600	2	8,474,548	115,638,197

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

SINGLE DISCOUNT RATE DEVELOPMENT

Projection of Plan Fiduciary Net Position (Concluded) *(Dollars in Thousands)*

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.90%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
51	$ 115,638,197	$ 1,828,230	$ 1,886,097	$ 1	$ 9,133,175	$ 124,713,504
52	124,713,504	1,892,198	1,791,497	-	9,856,269	134,670,474
53	134,670,474	1,958,418	1,696,965	-	10,649,099	145,581,026
54	145,581,026	2,026,961	1,602,639	-	11,517,343	157,522,691
55	157,522,691	2,097,905	1,508,638	-	12,467,126	170,579,084
56	170,579,084	2,171,331	1,415,058	-	13,505,053	184,840,410
57	184,840,410	2,247,328	1,322,063	-	14,638,246	200,403,921
58	200,403,921	2,325,984	1,229,870	-	15,874,383	217,374,418
59	217,374,418	2,407,393	1,138,720	-	17,221,739	235,864,830
60	235,864,830	2,491,652	1,048,892	-	18,689,228	255,996,818
61	255,996,818	2,578,860	960,727	-	20,286,450	277,901,401
62	277,901,401	2,669,120	874,608	-	22,023,747	301,719,660
63	301,719,660	2,762,539	790,946	-	23,912,251	327,603,504
64	327,603,504	2,859,228	710,179	-	25,963,951	355,716,504
65	355,716,504	2,959,301	632,787	-	28,191,755	386,234,773
66	386,234,773	3,062,877	559,254	-	30,609,561	419,347,957
67	419,347,957	3,170,077	490,020	-	33,232,339	455,260,353
68	455,260,353	3,281,030	425,490	-	36,076,218	494,192,111
69	494,192,111	3,395,866	365,999	-	39,158,582	536,380,560
70	536,380,560	3,514,721	311,762	-	42,498,177	582,081,696
71	582,081,696	3,637,737	262,871	-	46,115,228	631,571,790
72	631,571,790	3,765,057	219,317	-	50,031,567	685,149,097
73	685,149,097	3,896,835	181,008	-	54,270,764	743,135,688
74	743,135,688	4,033,224	147,757	-	58,858,279	805,879,434
75	805,879,434	4,174,387	119,256	-	63,821,609	873,756,174
76	873,756,174	4,320,490	95,143	-	69,190,467	947,171,988
77	947,171,988	4,471,707	75,033	-	74,996,955	1,026,565,617
78	1,026,565,617	4,628,217	58,505	-	81,275,757	1,112,411,086
79	1,112,411,086	4,790,205	45,098	-	88,064,345	1,205,220,538
80	1,205,220,538	4,957,862	34,351	-	95,403,205	1,305,547,254
81	1,305,547,254	5,131,387	25,849	-	103,336,069	1,413,988,861
82	1,413,988,861	5,310,985	19,216	-	111,910,172	1,531,190,802
83	1,531,190,802	5,496,870	14,113	-	121,176,526	1,657,850,085
84	1,657,850,085	5,689,260	10,236	-	131,190,215	1,794,719,324
85	1,794,719,324	5,888,384	7,332	-	142,010,713	1,942,611,089
86	1,942,611,089	6,094,478	5,185	-	153,702,232	2,102,402,614
87	2,102,402,614	6,307,785	3,621	-	166,334,088	2,275,040,866
88	2,275,040,866	6,528,557	2,497	-	179,981,109	2,461,548,035
89	2,461,548,035	6,757,057	1,702	-	194,724,060	2,663,027,450
90	2,663,027,450	6,993,554	1,146	-	210,650,119	2,880,669,977
91	2,880,669,977	7,238,328	763	-	227,853,379	3,115,760,921
92	3,115,760,921	7,491,669	501	-	246,435,390	3,369,687,479
93	3,369,687,479	7,753,878	325	-	266,505,755	3,643,946,787
94	3,643,946,787	8,025,264	208	-	288,182,761	3,940,154,604
95	3,940,154,604	8,306,148	131	-	311,594,066	4,260,054,687
96	4,260,054,687	8,596,863	81	-	336,877,439	4,605,528,908
97	4,605,528,908	8,897,753	49	-	364,181,563	4,978,608,175
98	4,978,608,175	9,209,175	29	-	393,666,893	5,381,484,214
99	5,381,484,214	9,531,496	18	-	425,506,591	5,816,522,283
100	5,816,522,283	9,865,098	13	-	459,887,525	6,286,274,893

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

SINGLE DISCOUNT RATE DEVELOPMENT

Present Values of Projected Benefit Payments *(Dollars in Thousands)*

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^((a)-.5)	(g)=(e)*vf ^((a)-.5)	(h)=((c)/(1+sdr)^(a-.5)
1	$ 17,404,822	$ 1,209,592	$ 1,209,592	$ -	$ 1,164,470	$ -	$ 1,164,470
2	18,281,109	1,284,321	1,284,321	-	1,145,886	-	1,145,886
3	19,154,629	1,363,556	1,363,556	-	1,127,508	-	1,127,508
4	20,009,336	1,444,260	1,444,260	-	1,106,803	-	1,106,803
5	20,844,121	1,525,956	1,525,956	-	1,083,791	-	1,083,791
6	21,656,434	1,607,025	1,607,025	-	1,057,803	-	1,057,803
7	22,445,536	1,685,092	1,685,092	-	1,027,979	-	1,027,979
8	23,213,530	1,761,479	1,761,479	-	995,902	-	995,902
9	23,961,457	1,834,081	1,834,081	-	961,029	-	961,029
10	24,692,593	1,904,444	1,904,444	-	924,836	-	924,836
11	25,408,970	1,971,675	1,971,675	-	887,381	-	887,381
12	26,113,864	2,034,254	2,034,254	-	848,513	-	848,513
13	26,812,343	2,092,113	2,092,113	-	808,755	-	808,755
14	27,509,902	2,147,254	2,147,254	-	769,297	-	769,297
15	28,210,355	2,197,819	2,197,819	-	729,762	-	729,762
16	28,919,740	2,243,860	2,243,860	-	690,499	-	690,499
17	29,644,526	2,305,158	2,305,158	-	657,426	-	657,426
18	30,371,098	2,377,093	2,377,093	-	628,305	-	628,305
19	31,089,504	2,446,335	2,446,335	-	599,265	-	599,265
20	31,802,831	2,512,451	2,512,451	-	570,400	-	570,400
21	32,514,966	2,574,920	2,574,920	-	541,782	-	541,782
22	33,230,719	2,634,855	2,634,855	-	513,802	-	513,802
23	33,954,136	2,690,658	2,690,658	-	486,268	-	486,268
24	34,691,241	2,740,410	2,740,410	-	458,999	-	458,999
25	35,450,578	2,783,212	2,783,212	-	432,037	-	432,037
26	36,242,298	2,821,178	2,821,178	-	405,867	-	405,867
27	37,075,127	2,853,187	2,853,187	-	380,419	-	380,419
28	37,959,679	2,881,405	2,881,405	-	356,053	-	356,053
29	38,905,214	2,903,848	2,903,848	-	332,554	-	332,554
30	39,923,889	2,921,190	2,921,190	-	310,047	-	310,047
31	41,028,225	2,932,129	2,932,129	-	288,422	-	288,422
32	42,233,141	2,937,698	2,937,698	-	267,813	-	267,813
33	43,553,697	2,938,420	2,938,420	-	248,266	-	248,266
34	45,005,668	2,933,833	2,933,833	-	229,730	-	229,730
35	46,606,657	2,923,121	2,923,121	-	212,132	-	212,132
36	48,376,606	2,904,419	2,904,419	-	195,343	-	195,343
37	50,339,017	2,879,952	2,879,952	-	179,516	-	179,516
38	52,516,975	2,849,662	2,849,662	-	164,622	-	164,622
39	54,935,508	2,812,385	2,812,385	-	150,574	-	150,574
40	57,622,873	2,767,696	2,767,696	-	137,332	-	137,332
41	60,610,070	2,715,982	2,715,982	-	124,899	-	124,899
42	63,930,176	2,657,290	2,657,290	-	113,253	-	113,253
43	67,618,792	2,591,177	2,591,177	-	102,350	-	102,350
44	71,714,800	2,516,422	2,516,422	-	92,119	-	92,119
45	76,261,431	2,434,984	2,434,984	-	82,612	-	82,612
46	81,303,263	2,349,207	2,349,207	-	73,866	-	73,866
47	86,885,967	2,259,971	2,259,971	-	65,858	-	65,858
48	93,057,927	2,168,274	2,168,274	-	58,559	-	58,559
49	99,870,353	2,074,839	2,074,839	-	51,933	-	51,933
50	107,377,803	1,980,600	1,980,600	-	45,945	-	45,945

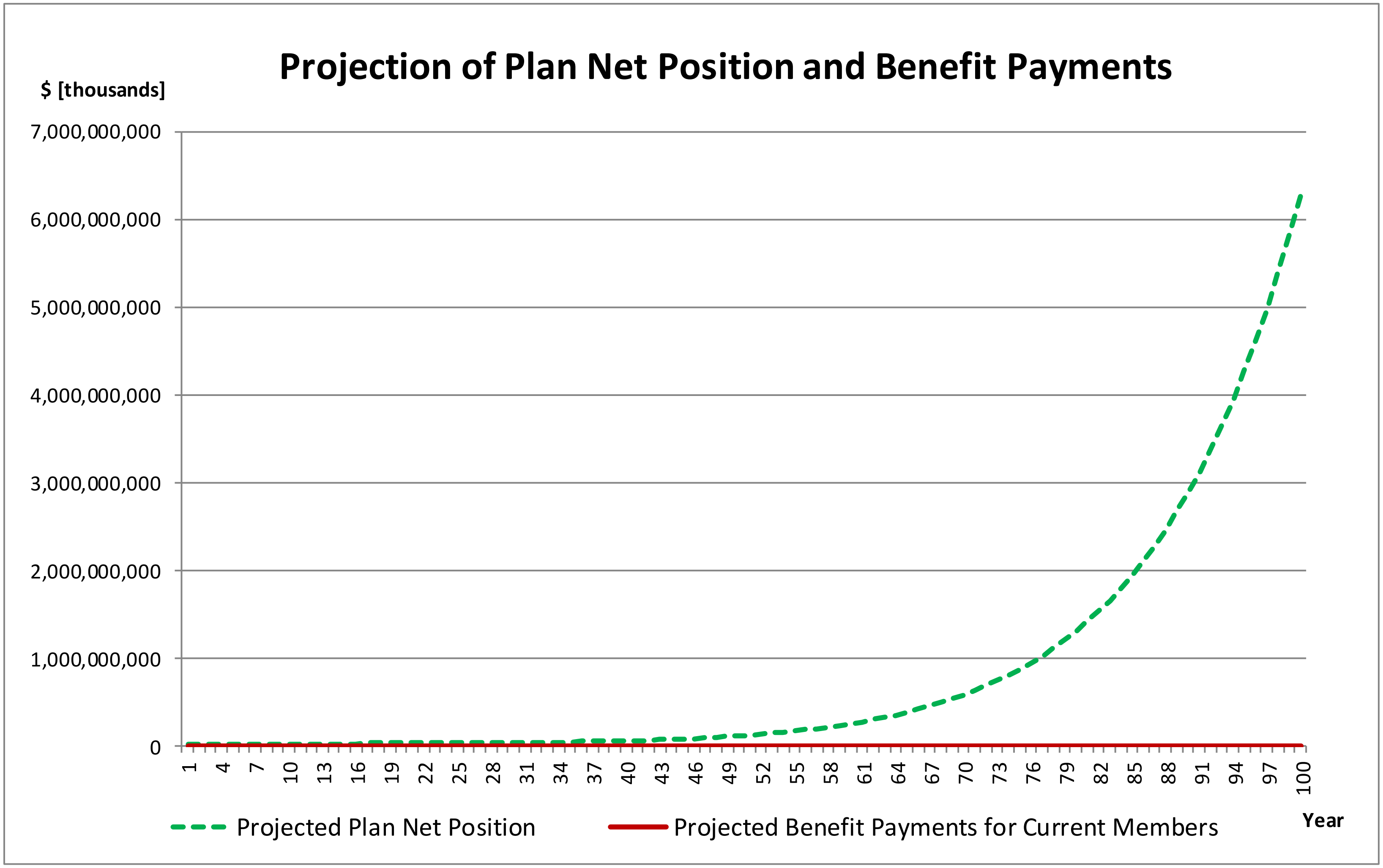
For purposes of this projection, based on GASB guidance, we assumed the current contribution rates would continue after the plan becomes fully funded. If we reflected a decrease in contribution rates due to full funding, future assets and contributions would be less than what is shown herein.

SINGLE DISCOUNT RATE DEVELOPMENT

Present Values of Projected Benefit Payments (Concluded) *(Dollars in Thousands)*

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^((a)-.5)	(g)=(e)*vf ^((a)-.5)	(h)=((c)/(1+sdr)^(a-.5)
51	$ 115,638,198	$ 1,886,097	$ 1,886,097	$ -	$ 40,549	$ -	$ 40,549
52	124,713,505	1,791,497	1,791,497	-	35,695	-	35,695
53	134,670,475	1,696,965	1,696,965	-	31,336	-	31,336
54	145,581,027	1,602,639	1,602,639	-	27,428	-	27,428
55	157,522,693	1,508,638	1,508,638	-	23,929	-	23,929
56	170,579,086	1,415,058	1,415,058	-	20,801	-	20,801
57	184,840,411	1,322,063	1,322,063	-	18,011	-	18,011
58	200,403,922	1,229,870	1,229,870	-	15,528	-	15,528
59	217,374,419	1,138,720	1,138,720	-	13,325	-	13,325
60	235,864,832	1,048,892	1,048,892	-	11,375	-	11,375
61	255,996,820	960,727	960,727	-	9,656	-	9,656
62	277,901,403	874,608	874,608	-	8,147	-	8,147
63	301,719,662	790,946	790,946	-	6,828	-	6,828
64	327,603,507	710,179	710,179	-	5,682	-	5,682
65	355,716,508	632,787	632,787	-	4,692	-	4,692
66	386,234,777	559,254	559,254	-	3,843	-	3,843
67	419,347,960	490,020	490,020	-	3,121	-	3,121
68	455,260,356	425,490	425,490	-	2,512	-	2,512
69	494,192,115	365,999	365,999	-	2,002	-	2,002
70	536,380,564	311,762	311,762	-	1,581	-	1,581
71	582,081,700	262,871	262,871	-	1,235	-	1,235
72	631,571,794	219,317	219,317	-	955	-	955
73	685,149,102	181,008	181,008	-	731	-	731
74	743,135,692	147,757	147,757	-	553	-	553
75	805,879,438	119,256	119,256	-	413	-	413
76	873,756,177	95,143	95,143	-	306	-	306
77	947,171,991	75,033	75,033	-	223	-	223
78	1,026,565,620	58,505	58,505	-	161	-	161
79	1,112,411,089	45,098	45,098	-	115	-	115
80	1,205,220,541	34,351	34,351	-	81	-	81
81	1,305,547,256	25,849	25,849	-	57	-	57
82	1,413,988,863	19,216	19,216	-	39	-	39
83	1,531,190,805	14,113	14,113	-	27	-	27
84	1,657,850,088	10,236	10,236	-	18	-	18
85	1,794,719,327	7,332	7,332	-	12	-	12
86	1,942,611,093	5,185	5,185	-	8	-	8
87	2,102,402,618	3,621	3,621	-	5	-	5
88	2,275,040,869	2,497	2,497	-	3	-	3
89	2,461,548,038	1,702	1,702	-	2	-	2
90	2,663,027,452	1,146	1,146	-	1	-	1
91	2,880,669,979	763	763	-	1	-	1
92	3,115,760,922	501	501	-	-	-	-
93	3,369,687,481	325	325	-	-	-	-
94	3,643,946,789	208	208	-	-	-	-
95	3,940,154,605	131	131	-	-	-	-
96	4,260,054,688	81	81	-	-	-	-
97	4,605,528,909	49	49	-	-	-	-
98	4,978,608,177	29	29	-	-	-	-
99	5,381,484,216	18	18	-	-	-	-
100	5,816,522,284	13	13	-	-	-	-
				Totals	$ 25,179,569	$ -	$ 25,179,569

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



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

SECTION H

GLOSSARY OF TERMS

GLOSSARY OF TERMS

Actuarial Accrued Liability (AAL)	The AAL is the difference between the actuarial present value of all benefits and the actuarial value of future normal costs. The definition comes from the fundamental equation of funding which states that the present value of all benefits is the sum of the Actuarial Accrued Liability and the present value of future normal costs. The AAL may also be referred to as "accrued liability" or "actuarial liability".
Actuarial Assumptions	These assumptions are estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and compensation increases. Actuarial assumptions are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (compensation increases, payroll growth, inflation and investment return) consist of an underlying real rate of return plus an assumption for a long-term average rate of inflation.
Accrued Service	Service credited under the system which was rendered before the date of the actuarial valuation.
Actuarial Equivalent	A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.
Actuarial Cost Method	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of the pension trust benefits between future normal cost and actuarial accrued liability. The actuarial cost method may also be referred to as the actuarial funding method.
Actuarial Gain (Loss)	The difference in liabilities between actual experience and expected experience during the period between two actuarial valuations is the gain (loss) on the accrued liabilities.
Actuarial Present Value (APV)	The amount of funds currently required to provide a payment or series of payments in the future. The present value is determined by discounting future payments at predetermined rates of interest and probabilities of payment.
Actuarial Valuation	The actuarial valuation report determines, as of the actuarial valuation date, the service cost, total pension liability, and related actuarial present value of projected benefit payments for pensions.
Actuarial Valuation Date	The date as of which an actuarial valuation is performed.
Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)	A calculated contribution into a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically the Actuarially Determined Contribution has a normal cost payment and an amortization payment.

GLOSSARY OF TERMS

Amortization Payment	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
Amortization Method	The method used to determine the periodic amortization payment may be a level dollar amount, or a level percent of pay amount. The period will typically be expressed in years, and the method will either be “open” (meaning, reset each year) or “closed” (the number of years remaining will decline each year).
Cost-of-Living Adjustments	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
Covered-Employee Payroll	The payroll of covered employees, which is typically only the pensionable pay and does not include pay above any pay cap.
Deferred Inflows and Outflows	The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.
Discount Rate	For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically: 1. The benefit payments to be made while the pension plans’ fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and 2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.

GLOSSARY OF TERMS

Entry Age Actuarial Cost Method (EAN)	The EAN is a funding method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit 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.
GASB	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
Fiduciary Net Position	The fiduciary net position is the value of the assets of the trust.
Long-Term Expected Rate of Return	The long-term rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio.
Money-Weighted Rate of Return	The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.
Multiple-Employer Defined Benefit Pension Plan	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
Municipal Bond Rate	The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.
Net Pension Liability (NPL)	The NPL is the liability of employers and non-employer contribution entities to plan members for benefits provided through a defined benefit pension plan.
Non-Employer Contribution Entities	Non-employer contribution entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB Accounting Statement plan members are not considered non-employer contribution entities.
Normal Cost	The actuarial present value of the pension trust benefits allocated to the current year by the actuarial cost method.

GLOSSARY OF TERMS

Other Postemployment Benefits (OPEB) All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits regardless of the manner in which they are provided. Other post-employment benefits do not include termination benefits.

Real Rate of Return The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.

Service Cost The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.

Total Pension Expense The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year:

1. Service Cost
2. Interest on the Total Pension Liability
3. Current-Period Benefit Changes
4. Employee Contributions (made negative for addition here)
5. Projected Earnings on Plan Investments (made negative for addition here)
6. Pension Plan Administrative Expense
7. Other Changes in Plan Fiduciary Net Position
8. Recognition of Outflow (Inflow) of Resources due to Liabilities
9. Recognition of Outflow (Inflow) of Resources due to Assets

Total Pension Liability (TPL) The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.

Unfunded Actuarial Accrued Liability (UAAL) The UAAL is the difference between actuarial accrued liability and valuation assets.

Valuation Assets The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of the GASB Statement No. 67, the valuation asset is equal to the market value of assets.