

WISCONSIN RETIREMENT SYSTEM
GASB STATEMENT NO. 68 EMPLOYER REPORTING
ACCOUNTING SCHEDULES
DECEMBER 31, 2014

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July 27, 2015

Employee Trust Funds Board
Wisconsin Department of Employee
Trust Funds
801 West Badger Road
Madison, Wisconsin 53713

This report provides certain information requested by the Wisconsin Retirement System (“WRS”) in connection with the Governmental Accounting Standards Board (GASB) Statement No. 68 “Accounting and Financial Reporting for Pension Plans.”

The actuarial calculations in connection with this report were prepared for the purpose of complying with the requirements of GASB Statement No. 68. These calculations have been made on a basis that is consistent with our understanding of this Statement.

The total pension liability shown in this report is based on a roll-forward of the December 31, 2013 valuation liabilities to December 31, 2014. The calculation of the plan’s liability for this report is not 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. 68 may produce significantly different results. This report may be provided to parties other than the WRS only in its entirety and only with the permission of the WRS.

The report was based upon information, furnished by the Department of Employee Trust Funds (DETF), concerning Retirement System benefits, financial transactions, and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not otherwise audit the data. We are not responsible for the accuracy or completeness of any data provided by DETF.

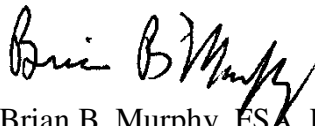
This report complements the actuarial valuation report that we provided to the Board and should be considered in conjunction with that report. Please see the actuarial valuation report as of December 31, 2013 for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

This system-wide report is intended to assist in preparation of the financial statements of WRS and its participating employers. Financial statements are the responsibility of the reporting entity and not the actuary. The statements are subject to an auditor’s review. Please let us know if the plan’s auditor recommends any changes.

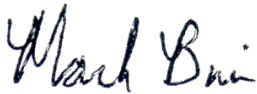
Employee Trust Funds Board
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To the best of our knowledge, the information contained in this report is accurate, and fairly represents the actuarial position of WRS. All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board. Brian B. Murphy, Mark Buis and James D. Anderson are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the Academy of Actuaries to render the actuarial opinions herein. The signing actuaries are independent of the plan sponsor.

Respectfully submitted,



Brian B. Murphy, FSA, EA, MAAA



Mark Buis, FSA, EA, MAAA



James D. Anderson, FSA, EA, MAAA

BBM/MB/JDA:sc

SECTION A
EXECUTIVE SUMMARY

EXECUTIVE SUMMARY
AS OF DECEMBER 31, 2014

	<u>2014</u>	
Actuarial Valuation Date	December 31, 2013	
Measurement Date of the Net Pension Liability	December 31, 2014	
Employer's Fiscal Year Ending Date (Reporting Date)	December 31, 2014	
 Membership as of December 31, 2013		
Number of		
- Retirees and Beneficiaries	180,056	
- Inactive, Nonretired Members	151,648	
- Active Members	<u>255,396</u>	
- Total	587,100	
Covered Payroll [^]	\$ 13,219,500,000	
 Net Pension Liability		
Total Pension Liability	\$ 89,691,173,404	
Plan Fiduciary Net Position	<u>92,147,446,988</u>	
Net Pension Liability	\$ (2,456,273,584)	
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	102.74%	
Net Pension Liability as a Percentage of Covered Payroll	-18.58%	
 Development of the Single Discount Rate		
Single Discount Rate	7.20%	
Long-Term Expected Rate of Investment Return	7.20%	
Long-Term Municipal Bond Rate*	3.56%	
Last year ending December 31 in the 2015 to 2114 projection period for which projected benefit payments are fully funded	2114	
 Total Pension Expense	 \$ 963,891,810	
 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	\$ 356,083,228	\$ -
Changes in assumptions	-	0
Net difference between projected and actual earnings on pension plan investments	<u>1,189,446,282</u>	<u>0</u>
Total	<u>\$ 1,545,529,510</u>	<u>\$ -</u>

*Based on the Bond Buyer 20-Bond Index of general obligation municipal bonds as of December 31, 2014 (i.e., the weekly rate closest to but not later than the Measurement Date).

[^]Covered payroll is for 2014 and was provided by DETF.

DISCUSSION

Accounting Standard

For state and local government employers (as well as certain non-employers) that contribute to a defined benefit (DB) pension plan administered through a trust or equivalent arrangement, Governmental Accounting Standards Board (GASB) Statement No. 68 establishes standards for pension accounting and financial reporting. Under GASB Statement No. 68, the employer must 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 is not included in this report if it is not actuarial in nature, such as the notes to the financial statements regarding accounting policies and investments. As a result, the retirement system and/or plan sponsor is responsible for preparing and disclosing the non-actuarial information needed to comply with these accounting standards.

Financial Statements

GASB Statement No. 68 requires state and local government employers that contribute to DB pension plans to recognize the net pension liability and the pension expense on their financial statements, along with the related deferred outflows of resources and deferred inflows of resources. 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 certain changes in the liability and investment experience.

It is our understanding that the WRS is a cost sharing multiple employer plan. The purpose of this report is to develop the required information in aggregate. Reporting for individual employers will be developed by DETF staff in accordance with each employer's proportionate share and reported to each employer by the DETF.

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 of resources and inflows of resources related to pensions.

In addition, GASB Statement No. 68 requires the notes of the financial statements for the employers to include certain additional information, including:

- a description of the types of benefits provided by the plan, as well as automatic or ad hoc COLAs;
- the number and classes of employees covered by the benefit terms;
- for the current year, sources of changes in the net pension liability;
- significant assumptions and methods used to calculate the total pension liability;
- inputs to the Single Discount Rate;
- certain information about mortality assumptions and the dates of experience studies;
- the date of the valuation used to determine the total pension liability;
- information about changes of assumptions or other inputs and benefit terms;
- the basis for determining contributions to the plan, including a description of the plan's funding policy, as well as member and employer contribution requirements;
- the total pension liability, 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; and
- a description of the system that administers the pension plan.

Required Supplementary Information

The financial statements of employers also include required supplementary information showing the 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 actual employer contributions to the actuarially determined contributions based on the plan's funding policy.

While the first two tables may be built prospectively as the information becomes available, sufficient information is currently available for the third table.

Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. For the employer's financial reporting purposes, the net pension liability and pension expense should be measured as of the employer's "measurement date" which may not be earlier than the employer's prior fiscal year-end date. 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 December 31, 2013 with roll forward to December 31, 2014 and a measurement date of December 31, 2014. The roll forward included adjustments in the liability due to changes in account balances for active members and dividend adjustments for retired members.

Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a Single Discount Rate that reflects (1) a long-term expected rate of return on pension plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the plan's projected fiduciary net position is not sufficient to pay benefits).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.20%; the municipal bond rate is 3.56% (based on the weekly rate closest to but not later than the measurement date of the "state & local bonds" rate from Federal Reserve statistical release (H.15)); and the resulting Single Discount Rate is 7.20%.

Effective Date and Transition

GASB Statement No. 68 is effective for an employer's fiscal years beginning after June 15, 2014; however, earlier application is encouraged by the GASB.

SECTION B

FINANCIAL STATEMENTS

Auditor's Note – This information is presented in draft form for review by the Plan's auditor. Please let us know if there are any items that the auditor changes so that we may maintain consistency with the Plan's financial statements.

PENSION EXPENSE UNDER GASB STATEMENT NO. 68
FISCAL YEAR ENDED DECEMBER 31, 2014

A. Expense

1. Service Cost	\$ 1,757,020,910
2. Interest on the Total Pension Liability	6,089,287,273
3. Current-Period Benefit Changes	0
4. Employee Contributions (made negative for addition here)	(906,499,398)
5. Projected Earnings on Plan Investments (made negative for addition here)	(6,378,498,120)
6. Pension Plan Administrative Expense	24,036,951
7. Other Changes in Plan Fiduciary Net Position	0
8. Recognition of Outflow (Inflow) of Resources due to Liabilities	81,182,624
9. Recognition of Outflow (Inflow) of Resources due to Assets	297,361,570
10. Total Pension Expense	\$ 963,891,810

**STATEMENT OF OUTFLOWS AND INFLOWS ARISING FROM CURRENT
REPORTING PERIOD
FISCAL YEAR ENDED DECEMBER 31, 2014**

A. Outflows (Inflows) of Resources due to Liabilities

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	\$ 437,265,852
2. Assumption Changes (gains) or losses	\$ -
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years }	5.3862
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	\$ 81,182,624
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes	\$ -
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	<u>\$ 81,182,624</u>
7. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for the Difference between expected and actual experience of the Total Pension Liability	\$ 356,083,228
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	\$ -
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	<u>\$ 356,083,228</u>

B. Outflows (Inflows) of Resources due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$ 1,486,807,852
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	\$ 297,361,570
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$ 1,189,446,282

**STATEMENT OF OUTFLOWS AND INFLOWS ARISING FROM CURRENT AND PRIOR
REPORTING PERIODS
FISCAL YEAR ENDED DECEMBER 31, 2014**

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

	<u>Outflows of Resources</u>	<u>Inflows of Resources</u>	<u>Net Outflows of Resources</u>
1. due to Liabilities	\$ 81,182,624	\$ 0	\$ 81,182,624
2. due to Assets	297,361,570	-	297,361,570
3. Total	\$ 378,544,194	\$ 0	\$ 378,544,194

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

	<u>Outflows of Resources</u>	<u>Inflows of Resources</u>	<u>Net Outflows of Resources</u>
1. Differences between expected and actual experience	\$ 81,182,624	\$ 0	\$ 81,182,624
2. Assumption Changes	-	-	0
3. Net Difference between projected and actual earnings on pension plan investments	297,361,570	-	297,361,570
4. Total	\$ 378,544,194	\$ 0	\$ 378,544,194

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

	<u>Deferred Outflows of Resources</u>	<u>Deferred Inflows of Resources</u>	<u>Net Deferred Outflows of Resources</u>
1. Differences between expected and actual experience	\$ 356,083,228	\$ 0	\$ 356,083,228
2. Assumption Changes	-	-	0
3. Net Difference between projected and actual earnings on pension plan investments	1,189,446,282	-	1,189,446,282
4. Total	\$ 1,545,529,510	\$ 0	\$ 1,545,529,510

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

<u>Year Ending December 31</u>	<u>Net Deferred Outflows of Resources</u>
2015	\$ 378,544,195
2016	378,544,195
2017	378,544,195
2018	378,544,195
2019	31,352,730
Thereafter	0
Total	\$ 1,545,529,510

**SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS
CURRENT PERIOD
FISCAL YEAR ENDED DECEMBER 31, 2014**

A. Total pension liability	
1. Service Cost	\$ 1,757,020,910
2. Interest on the Total Pension Liability	6,089,287,273
3. Changes of benefit terms	0
4. Difference between expected and actual experience of the Total Pension Liability	437,265,852
5. Changes of assumptions	0
6. Benefit payments, including refunds of employee contributions	(4,574,649,055)
7. Net change in total pension liability	\$ 3,708,924,980
8. Total pension liability – beginning	85,982,248,424
9. Total pension liability – ending	<u><u>\$ 89,691,173,404</u></u>
B. Plan fiduciary net position	
1. Contributions – employer	\$ 1,023,196,702
2. Contributions – employee	906,499,398
3. Net investment income	4,891,690,268
4. Benefit payments, including refunds of employee contributions	(4,574,649,055)
5. Pension Plan Administrative Expense	(24,036,951)
6. Other	-
7. Net change in plan fiduciary net position	\$ 2,222,700,362
8. Plan fiduciary net position – beginning	89,924,746,626
9. Plan fiduciary net position – ending	<u><u>\$ 92,147,446,988</u></u>
C. Net pension liability	<u><u>\$ (2,456,273,584)</u></u>
D. Plan fiduciary net position as a percentage of the total pension liability	102.74 %
E. Covered-employee payroll[^]	\$ 13,219,500,000
F. Net pension liability as a percentage of covered employee payroll	-18.58 %

[^]Covered payroll provided by DETF.

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS MULTIYEAR
Last 10 Fiscal Years (which may be built prospectively)

Fiscal year ending December 31,	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Total Pension Liability										
Service Cost	\$ 1,757,020,910									
Interest on the Total Pension Liability	6,089,287,273									
Benefit Changes	-									
Difference between Expected and Actual Experience	437,265,852									
Assumption Changes	-									
Benefit Payments	(4,540,247,874)									
Refunds	(34,401,181)									
Net Change in Total Pension Liability	3,708,924,980									
Total Pension Liability - Beginning	85,982,248,424									
Total Pension Liability - Ending (a)	\$ 89,691,173,404									
Plan Fiduciary Net Position										
Employer Contributions	\$ 1,023,196,702									
Employee Contributions	906,499,398									
Pension Plan Net Investment Income	4,891,690,268									
Benefit Payments	(4,540,247,874)									
Refunds	(34,401,181)									
Pension Plan Administrative Expense	(24,036,951)									
Other	-									
Net Change in Plan Fiduciary Net Position	2,222,700,362									
Plan Fiduciary Net Position - Beginning	89,924,746,626									
Plan Fiduciary Net Position - Ending (b)	\$ 92,147,446,988									
Net Pension Liability - Ending (a) - (b)	(2,456,273,584)									
Plan Fiduciary Net Position as a Percentage										
of Total Pension Liability	102.74 %									
Covered Employee Payroll[^]	\$ 13,219,500,000									
Net Pension Liability as a Percentage										
of Covered Employee Payroll	(18.58)%									

Notes to Schedule:

N/A

[^]Covered payroll provided by DETF.

SCHEDULE OF CONTRIBUTIONS MULTIYEAR
Last 10 Fiscal Years

FY Ending December 31,	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll[^]	Actual Contribution as a % of Covered Payroll
2005			\$ -		0.00%
2006			-		0.00%
2007			-		0.00%
2008			-		0.00%
2009			-		0.00%
2010			-		0.00%
2011			-		0.00%
2012			-		0.00%
2013			-		0.00%
2014	\$ 1,023,196,702	\$ 1,023,196,702	-	\$ 13,219,500,000	7.74%

[^]Covered payroll provided by DETF.

Single Discount Rate

A single discount rate of 7.20% 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 7.20% and a long term bond rate of 3.56%. Because of the unique structure of WRS, the 7.20% expected rate of return implies that a dividend of approximately 2.1% will always be paid. For purposes of the single discount rate, it was assumed that the dividend would always be paid. The projection of cash flows used to determine this single discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments (including expected dividends) 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 7.20%, as well as what the plan's net pension liability would be if it were calculated using a single discount rate that is 100 basis points lower or 100 basis points higher:

Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

	Current Single Discount		
	1% Decrease	Rate Assumption	1% Increase
	6.20%	7.20%	8.20%
Total Pension Liability	\$ 99,077,017,710	\$ 89,691,173,404	\$ 82,278,613,077
Plan Fiduciary Net Position	92,147,446,988	92,147,446,988	92,147,446,988
Net Pension Liability/(Asset)	\$ 6,929,570,722	\$ (2,456,273,584)	\$ (9,868,833,911)

For the WRS, the determination of liabilities also depends on the assumed dividend which is linked to the interest rate used in the liability calculation. Therefore, we have also shown an alternative set of Sensitivity Analysis which varies the assumed dividend in conjunction with the change in the discount rate. For the liabilities shown below, the assumed dividend was 1.1% for the 6.2% discount rate, 2.1% for the 7.2% discount rate, and 3.0% for the 8.2% discount rate.

Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

	Current Single Discount		
	1% Decrease	Rate Assumption	1% Increase
	6.20%	7.20%	8.20%
Total Pension Liability	\$ 90,957,979,669	\$ 89,691,173,404	\$ 88,560,566,835
Plan Fiduciary Net Position	92,147,446,988	92,147,446,988	92,147,446,988
Net Pension Liability/(Asset)	\$ (1,189,467,319)	\$ (2,456,273,584)	\$ (3,586,880,153)

SECTION C

CALCULATION OF THE SINGLE DISCOUNT RATE

Auditor's Note – This information is presented in draft form for review by the Plan's auditor. Please let us know if there are any items that the auditor changes so that we may maintain consistency with the Plan's financial statements.

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 valuation discount rate 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 7.20%; the municipal bond rate is 3.56%; and the resulting Single Discount Rate is 7.20%.

The tables in this section provide background for the development of the Single Discount Rate.

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

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

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

SINGLE DISCOUNT RATE DEVELOPMENT
PROJECTION OF CONTRIBUTIONS ENDING DECEMBER 31, 2114

Year	Payroll for Current Employees	Contributions from Current Employees	Normal Cost Contributions	UAL Contributions	Total Contributions
0	\$ 12,733,793,262				
1	12,484,948,693	\$ 849,872,523	\$ 870,376,661	\$ -	\$ 1,720,249,184
2	12,267,152,679	835,013,729	852,520,551	-	1,687,534,280
3	12,048,732,267	820,113,563	834,503,248	-	1,654,616,811
4	11,821,475,378	804,613,681	815,788,913	-	1,620,402,594
5	11,582,664,356	788,328,591	796,256,103	-	1,584,584,694
6	11,329,210,258	771,049,345	775,745,027	-	1,546,794,372
7	11,059,915,172	752,695,545	754,224,110	-	1,506,919,655
8	10,774,963,916	733,276,926	731,702,411	-	1,464,979,337
9	10,474,999,433	712,836,735	708,240,596	-	1,421,077,331
10	10,160,743,705	691,427,499	683,947,592	-	1,375,375,091
11	9,829,778,622	668,884,130	658,710,293	-	1,327,594,423
12	9,482,124,477	645,206,621	632,540,874	-	1,277,747,494
13	9,119,755,362	620,529,384	605,611,958	-	1,226,141,342
14	8,744,299,123	594,965,512	578,042,790	-	1,173,008,302
15	8,356,735,029	568,579,307	549,890,193	-	1,118,469,500
16	7,959,546,466	541,540,531	521,381,471	-	1,062,922,002
17	7,554,096,565	513,943,280	492,572,357	-	1,006,515,637
18	7,138,480,138	485,654,833	463,348,587	-	949,003,420
19	6,715,355,571	456,855,796	433,875,728	-	890,731,525
20	6,287,700,701	427,751,911	404,344,838	-	832,096,749
21	5,853,522,035	398,206,313	374,609,068	-	772,815,381
22	5,413,574,731	368,269,044	344,754,503	-	713,023,547
23	4,970,146,997	338,097,728	314,917,056	-	653,014,784
24	4,524,241,985	307,759,352	285,164,300	-	592,923,652
25	4,079,647,902	277,512,187	255,722,198	-	533,234,384
26	3,641,138,940	247,680,851	226,920,144	-	474,600,996
27	3,209,817,939	218,338,801	198,830,724	-	417,169,525
28	2,784,436,863	189,402,042	171,412,292	-	360,814,334
29	2,368,092,447	161,081,022	144,861,700	-	305,942,722
30	1,975,527,991	134,378,280	120,079,597	-	254,457,876
31	1,620,080,206	110,200,585	97,880,145	-	208,080,730
32	1,306,573,245	88,875,212	78,508,071	-	167,383,284
33	1,039,427,708	70,703,666	62,142,218	-	132,845,885
34	819,356,798	55,734,801	48,761,099	-	104,495,901
35	641,398,774	43,629,474	38,002,039	-	81,631,513
36	498,455,530	33,905,704	29,410,026	-	63,315,730
37	384,397,761	26,147,603	22,586,559	-	48,734,161
38	294,059,677	20,002,633	17,205,277	-	37,207,910
39	223,752,744	15,220,124	13,030,611	-	28,250,735
40	169,490,448	11,529,048	9,819,226	-	21,348,274
41	127,279,984	8,657,729	7,325,423	-	15,983,152
42	94,832,674	6,450,719	5,414,592	-	11,865,312
43	70,379,353	4,787,420	3,982,762	-	8,770,182
44	51,925,047	3,532,084	2,906,817	-	6,438,901
45	37,882,405	2,576,790	2,097,139	-	4,673,929
46	27,002,203	1,836,642	1,475,329	-	3,311,970
47	18,688,449	1,271,123	1,007,470	-	2,278,593
48	12,464,582	847,714	662,251	-	1,509,965
49	7,759,006	527,612	407,179	-	934,791
50	4,356,628	296,251	223,976	-	520,227

SINGLE DISCOUNT RATE DEVELOPMENT
PROJECTION OF CONTRIBUTIONS ENDING DECEMBER 31, 2114 (CONCLUDED)

Year	Payroll for Current Employees	Contributions from Current Employees	Normal Cost Contributions	UAL Contributions	Total Contributions
51	\$ 2,131,146	\$ 144,918	\$ 106,690	\$ -	\$ 251,608
52	949,578	64,571	46,166	-	110,737
53	446,446	30,358	21,321	-	51,680
54	200,514	13,635	9,518	-	23,153
55	66,790	4,542	3,170	-	7,712
56	11,772	800	560	-	1,360
57	1,509	103	73	-	176
58	257	17	14	-	32
59	-	-	-	-	-
60	-	-	-	-	-
61	-	-	-	-	-
62	-	-	-	-	-
63	-	-	-	-	-
64	-	-	-	-	-
65	-	-	-	-	-
66	-	-	-	-	-
67	-	-	-	-	-
68	-	-	-	-	-
69	-	-	-	-	-
70	-	-	-	-	-
71	-	-	-	-	-
72	-	-	-	-	-
73	-	-	-	-	-
74	-	-	-	-	-
75	-	-	-	-	-
76	-	-	-	-	-
77	-	-	-	-	-
78	-	-	-	-	-
79	-	-	-	-	-
80	-	-	-	-	-
81	-	-	-	-	-
82	-	-	-	-	-
83	-	-	-	-	-
84	-	-	-	-	-
85	-	-	-	-	-
86	-	-	-	-	-
87	-	-	-	-	-
88	-	-	-	-	-
89	-	-	-	-	-
90	-	-	-	-	-
91	-	-	-	-	-
92	-	-	-	-	-
93	-	-	-	-	-
94	-	-	-	-	-
95	-	-	-	-	-
96	-	-	-	-	-
97	-	-	-	-	-
98	-	-	-	-	-
99	-	-	-	-	-
100	-	-	-	-	-

SINGLE DISCOUNT RATE DEVELOPMENT
PROJECTION OF PLAN FIDUCIARY NET POSITION ENDING DECEMBER 31, 2114

Year	Projected Beginning Plan Net Position*	Projected Total Contributions	Projected Benefit Payments	Projected Investment Earnings at 7.20 %	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)=(a)+(b)-(c)+(d)
1	\$ 89,691,173,404	\$ 1,720,249,184	\$ 4,818,044,661	\$ 6,348,182,050	\$ 92,941,559,977
2	92,941,559,977	1,687,534,280	5,007,503,467	6,574,350,638	96,195,941,428
3	96,195,941,428	1,654,616,811	5,210,866,807	6,800,307,827	99,439,999,259
4	99,439,999,259	1,620,402,594	5,433,774,434	7,024,784,479	102,651,411,898
5	102,651,411,898	1,584,584,694	5,678,498,535	7,246,082,204	105,803,580,260
6	105,803,580,260	1,546,794,372	5,938,606,878	7,462,500,361	108,874,268,115
7	108,874,268,115	1,506,919,655	6,214,978,338	7,672,402,890	111,838,612,322
8	111,838,612,322	1,464,979,337	6,502,113,005	7,874,194,866	114,675,673,520
9	114,675,673,520	1,421,077,331	6,796,489,741	8,066,496,889	117,366,758,000
10	117,366,758,000	1,375,375,091	7,102,115,031	8,247,826,996	119,887,845,057
11	119,887,845,057	1,327,594,423	7,413,048,319	8,416,655,999	122,219,047,160
12	122,219,047,160	1,277,747,494	7,715,294,142	8,572,047,506	124,353,548,018
13	124,353,548,018	1,226,141,342	8,013,300,046	8,713,364,276	126,279,753,591
14	126,279,753,591	1,173,008,302	8,308,313,055	8,839,735,645	127,984,184,483
15	127,984,184,483	1,118,469,500	8,602,863,029	8,950,105,888	129,449,896,842
16	129,449,896,842	1,062,922,002	8,892,496,767	9,043,426,623	130,663,748,699
17	130,663,748,699	1,006,515,637	9,172,898,622	9,118,909,592	131,616,275,307
18	131,616,275,307	949,003,420	9,442,530,729	9,175,918,997	132,298,666,995
19	132,298,666,995	890,731,525	9,699,672,133	9,213,893,665	132,703,620,053
20	132,703,620,053	832,096,749	9,942,907,056	9,232,371,848	132,825,181,594
21	132,825,181,594	772,815,381	10,172,831,192	9,230,893,828	132,656,059,611
22	132,656,059,611	713,023,547	10,387,286,361	9,209,015,742	132,190,812,539
23	132,190,812,539	653,014,784	10,580,494,738	9,166,560,566	131,429,893,151
24	131,429,893,151	592,923,652	10,752,871,092	9,103,550,989	130,373,496,700
25	130,373,496,700	533,234,384	10,906,963,923	9,019,928,047	129,019,695,208
26	129,019,695,208	474,600,996	11,041,574,932	8,915,618,448	127,368,339,720
27	127,368,339,720	417,169,525	11,154,129,438	8,790,707,713	125,422,087,521
28	125,422,087,521	360,814,334	11,248,450,566	8,645,247,481	123,179,698,770
29	123,179,698,770	305,942,722	11,323,842,650	8,479,187,501	120,640,986,343
30	120,640,986,343	254,457,876	11,372,727,020	8,292,849,712	117,815,566,912
31	117,815,566,912	208,080,730	11,390,386,347	8,087,154,266	114,720,415,561
32	114,720,415,561	167,383,284	11,373,270,874	7,863,469,172	111,377,997,142
33	111,377,997,142	132,845,885	11,318,003,641	7,623,548,350	107,816,387,736
34	107,816,387,736	104,495,901	11,223,798,862	7,369,442,042	104,066,526,816
35	104,066,526,816	81,631,513	11,094,906,832	7,103,202,712	100,156,454,210
36	100,156,454,210	63,315,730	10,937,200,558	6,826,608,330	96,109,177,711
37	96,109,177,711	48,734,161	10,751,019,859	6,541,274,626	91,948,166,639
38	91,948,166,639	37,207,910	10,538,021,563	6,248,808,767	87,696,161,753
39	87,696,161,753	28,250,735	10,300,551,339	5,950,747,911	83,374,609,059
40	83,374,609,059	21,348,274	10,038,501,848	5,648,621,772	79,006,077,256
41	79,006,077,256	15,983,152	9,751,010,110	5,344,067,521	74,615,117,820
42	74,615,117,820	11,865,312	9,437,110,765	5,038,876,755	70,228,749,122
43	70,228,749,122	8,770,182	9,101,319,677	4,734,827,105	65,871,026,732
44	65,871,026,732	6,438,901	8,750,471,885	4,433,399,630	61,560,393,378
45	61,560,393,378	4,673,929	8,387,886,658	4,135,797,803	57,312,978,451
46	57,312,978,451	3,311,970	8,015,340,023	3,843,114,337	53,144,064,735
47	53,144,064,735	2,278,593	7,634,090,813	3,556,402,429	49,068,654,944
48	49,068,654,944	1,509,965	7,245,634,578	3,276,687,113	45,101,217,443
49	45,101,217,443	934,791	6,851,542,746	3,004,952,000	41,255,561,489
50	41,255,561,489	520,227	6,452,924,512	2,742,150,959	37,545,308,162

SINGLE DISCOUNT RATE DEVELOPMENT
PROJECTION OF PLAN FIDUCIARY NET POSITION ENDING DECEMBER 31, 2114
(CONCLUDED)

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Investment Earnings at 7.20 %	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)=(a)+(b)-(c)+(d)
51	\$ 37,545,308,162	\$ 251,608	\$ 6,051,050,297	\$ 2,489,219,248	\$ 33,983,728,721
52	33,983,728,721	110,737	5,647,488,761	2,247,056,263	30,583,406,960
53	30,583,406,960	51,680	5,244,521,762	2,016,485,694	27,355,422,572
54	27,355,422,572	23,153	4,844,728,895	1,798,212,213	24,308,929,043
55	24,308,929,043	7,712	4,450,250,081	1,592,818,556	21,451,505,230
56	21,451,505,230	1,360	4,063,015,521	1,400,781,979	18,789,273,048
57	18,789,273,048	176	3,684,975,952	1,222,474,116	16,326,771,388
58	16,326,771,388	32	3,318,144,386	1,058,150,412	14,066,777,445
59	14,066,777,445	-	2,964,557,408	907,938,749	12,010,158,785
60	12,010,158,785	-	2,626,306,473	771,827,605	10,155,679,917
61	10,155,679,917	-	2,305,483,700	649,654,016	8,499,850,234
62	8,499,850,234	-	2,004,089,473	541,095,898	7,036,856,658
63	7,036,856,658	-	1,723,918,375	445,671,225	5,758,609,508
64	5,758,609,508	-	1,466,402,059	362,746,897	4,654,954,346
65	4,654,954,346	-	1,232,481,069	291,558,523	3,714,031,799
66	3,714,031,799	-	1,022,571,507	231,237,509	2,922,697,801
67	2,922,697,801	-	836,614,195	180,839,576	2,266,923,183
68	2,266,923,183	-	674,165,189	139,370,328	1,732,128,323
69	1,732,128,323	-	534,457,935	105,807,149	1,303,477,536
70	1,303,477,536	-	416,420,806	79,119,776	966,176,506
71	966,176,506	-	318,677,112	58,291,720	705,791,114
72	705,791,114	-	239,534,611	42,343,584	508,600,087
73	508,600,087	-	176,981,466	30,358,606	361,977,227
74	361,977,227	-	128,727,839	21,508,699	254,758,087
75	254,758,087	-	92,338,159	15,076,182	177,496,111
76	177,496,111	-	65,432,924	10,465,074	122,528,261
77	122,528,261	-	45,872,885	7,199,312	83,854,689
78	83,854,689	-	31,855,203	4,910,681	56,910,167
79	56,910,167	-	21,928,742	3,321,818	38,303,243
80	38,303,243	-	14,970,010	2,228,279	25,561,513
81	25,561,513	-	10,136,274	1,481,865	16,907,103
82	16,907,103	-	6,807,188	976,512	11,076,427
83	11,076,427	-	4,532,226	637,178	7,181,379
84	7,181,379	-	2,989,303	411,315	4,603,391
85	4,603,391	-	1,951,169	262,423	2,914,645
86	2,914,645	-	1,258,920	165,321	1,821,047
87	1,821,047	-	802,274	102,735	1,121,508
88	1,121,508	-	504,719	62,894	679,683
89	679,683	-	313,398	37,851	404,136
90	404,136	-	191,907	22,309	234,538
91	234,538	-	115,464	12,802	131,877
92	131,877	-	67,958	7,091	71,010
93	71,010	-	38,777	3,741	35,974
94	35,974	-	21,001	1,847	16,820
95	16,820	-	10,438	842	7,225
96	7,225	-	4,628	356	2,953
97	2,953	-	1,904	145	1,195
98	1,195	-	813	57	439
99	439	-	455	16	-
100	-	-	-	-	-

SINGLE DISCOUNT RATE DEVELOPMENT

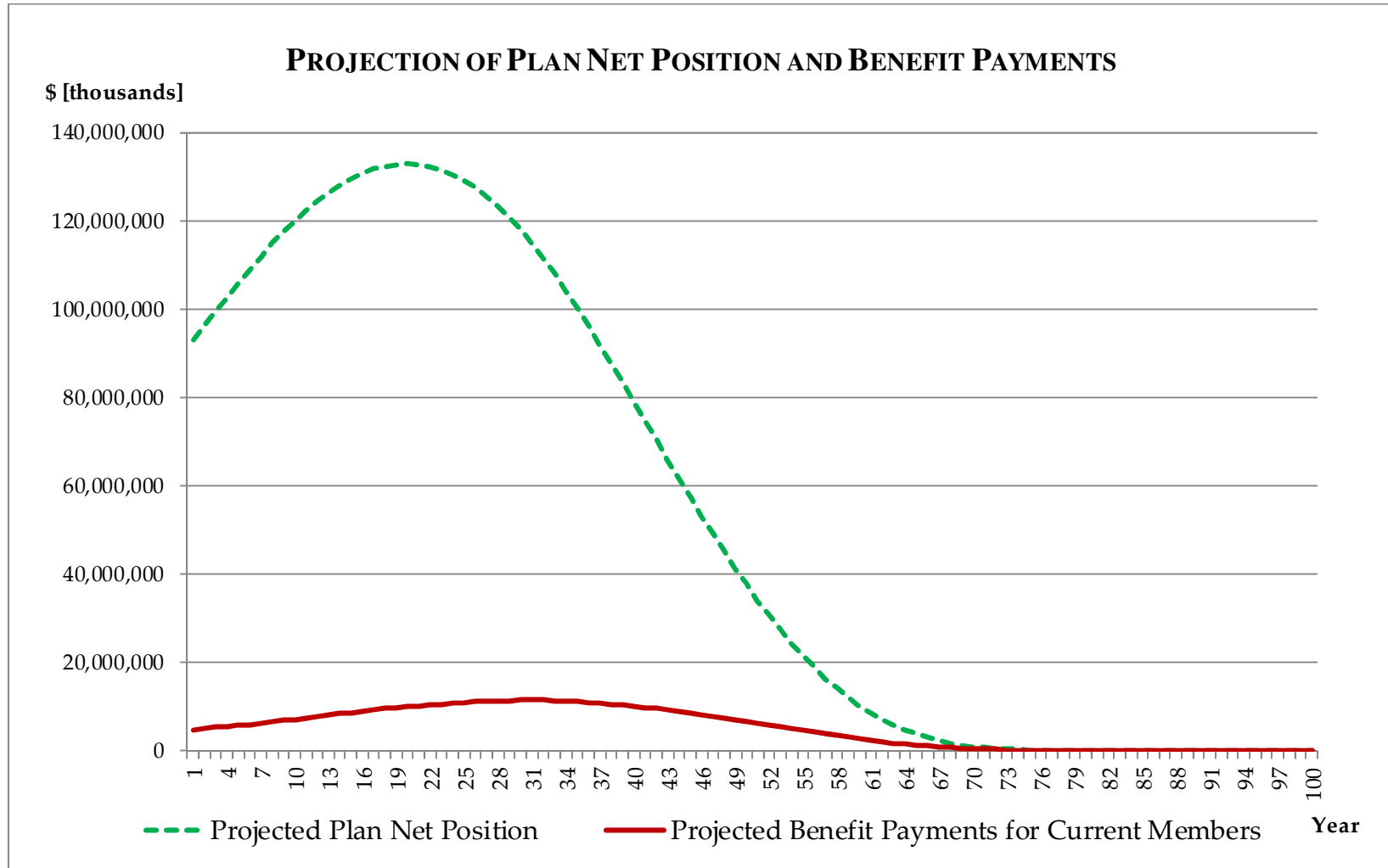
PRESENT VALUES OF PROJECTED BENEFITS ENDING DECEMBER 31, 2114

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)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v ^{-(a)-.5}	(g)=(e)*vf ^{-(a)-.5}
1	\$ 89,691,173,404	\$ 4,818,044,661	\$ 4,818,044,661	\$ -	\$ 4,653,432,608	\$ -
2	92,941,559,977	5,007,503,467	5,007,503,467	-	4,511,584,341	-
3	96,195,941,428	5,210,866,807	5,210,866,807	-	4,379,484,656	-
4	99,439,999,259	5,433,774,434	5,433,774,434	-	4,260,100,624	-
5	102,651,411,898	5,678,498,535	5,678,498,535	-	4,152,952,693	-
6	105,803,580,260	5,938,606,878	5,938,606,878	-	4,051,475,878	-
7	108,874,268,115	6,214,978,338	6,214,978,338	-	3,955,246,131	-
8	111,838,612,322	6,502,113,005	6,502,113,005	-	3,860,056,157	-
9	114,675,673,520	6,796,489,741	6,796,489,741	-	3,763,821,252	-
10	117,366,758,000	7,102,115,031	7,102,115,031	-	3,668,911,545	-
11	119,887,845,057	7,413,048,319	7,413,048,319	-	3,572,330,114	-
12	122,219,047,160	7,715,294,142	7,715,294,142	-	3,468,266,463	-
13	124,353,548,018	8,013,300,046	8,013,300,046	-	3,360,288,670	-
14	126,279,753,591	8,308,313,055	8,308,313,055	-	3,249,999,169	-
15	127,984,184,483	8,602,863,029	8,602,863,029	-	3,139,197,361	-
16	129,449,896,842	8,892,496,767	8,892,496,767	-	3,026,945,091	-
17	130,663,748,699	9,172,898,622	9,172,898,622	-	2,912,679,072	-
18	131,616,275,307	9,442,530,729	9,442,530,729	-	2,796,917,544	-
19	132,298,666,995	9,699,672,133	9,699,672,133	-	2,680,115,593	-
20	132,703,620,053	9,942,907,056	9,942,907,056	-	2,562,802,065	-
21	132,825,181,594	10,172,831,192	10,172,831,192	-	2,445,956,551	-
22	132,656,059,611	10,387,286,361	10,387,286,361	-	2,329,776,281	-
23	132,190,812,539	10,580,494,738	10,580,494,738	-	2,213,723,141	-
24	131,429,893,151	10,752,871,092	10,752,871,092	-	2,098,683,671	-
25	130,373,496,700	10,906,963,923	10,906,963,923	-	1,985,782,300	-
26	129,019,695,208	11,041,574,932	11,041,574,932	-	1,875,270,827	-
27	127,368,339,720	11,154,129,438	11,154,129,438	-	1,767,151,843	-
28	125,422,087,521	11,248,450,566	11,248,450,566	-	1,662,402,207	-
29	123,179,698,770	11,323,842,650	11,323,842,650	-	1,561,142,128	-
30	120,640,986,343	11,372,727,020	11,372,727,020	-	1,462,576,014	-
31	117,815,566,912	11,390,386,347	11,390,386,347	-	1,366,461,820	-
32	114,720,415,561	11,373,270,874	11,373,270,874	-	1,272,769,161	-
33	111,377,997,142	11,318,003,641	11,318,003,641	-	1,181,515,179	-
34	107,816,387,736	11,223,798,862	11,223,798,862	-	1,092,985,916	-
35	104,066,526,816	11,094,906,832	11,094,906,832	-	1,007,867,787	-
36	100,156,454,210	10,937,200,558	10,937,200,558	-	926,811,248	-
37	96,109,177,711	10,751,019,859	10,751,019,859	-	849,845,538	-
38	91,948,166,639	10,538,021,563	10,538,021,563	-	777,060,140	-
39	87,696,161,753	10,300,551,339	10,300,551,339	-	708,534,880	-
40	83,374,609,059	10,038,501,848	10,038,501,848	-	644,132,010	-
41	79,006,077,256	9,751,010,110	9,751,010,110	-	583,661,168	-
42	74,615,117,820	9,437,110,765	9,437,110,765	-	526,933,076	-
43	70,228,749,122	9,101,319,677	9,101,319,677	-	474,052,009	-
44	65,871,026,732	8,750,471,885	8,750,471,885	-	425,165,788	-
45	61,560,393,378	8,387,886,658	8,387,886,658	-	380,175,920	-
46	57,312,978,451	8,015,340,023	8,015,340,023	-	338,890,361	-
47	53,144,064,735	7,634,090,813	7,634,090,813	-	301,092,407	-
48	49,068,654,944	7,245,634,578	7,245,634,578	-	266,577,888	-
49	45,101,217,443	6,851,542,746	6,851,542,746	-	235,147,996	-
50	41,255,561,489	6,452,924,512	6,452,924,512	-	206,592,575	-

*For purposes of this projection, the amount of overfunding as of December 31, 2014 was ignored.

SINGLE DISCOUNT RATE DEVELOPMENT
PRESENT VALUES OF PROJECTED BENEFITS ENDING DECEMBER 31, 2114
(CONCLUDED)

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)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v ⁿ ((a)-.5)	(g)=(e)*vf ⁿ ((a)-.5)
51	\$ 37,545,308,162	\$ 6,051,050,297	\$ 6,051,050,297	\$ -	\$ 180,714,958	\$ -
52	33,983,728,721	5,647,488,761	5,647,488,761	-	157,334,487	-
53	30,583,406,960	5,244,521,762	5,244,521,762	-	136,294,917	-
54	27,355,422,572	4,844,728,895	4,844,728,895	-	117,448,767	-
55	24,308,929,043	4,450,250,081	4,450,250,081	-	100,639,533	-
56	21,451,505,230	4,063,015,521	4,063,015,521	-	85,711,263	-
57	18,789,273,048	3,684,975,952	3,684,975,952	-	72,515,239	-
58	16,326,771,388	3,318,144,386	3,318,144,386	-	60,910,915	-
59	14,066,777,445	2,964,557,408	2,964,557,408	-	50,765,062	-
60	12,010,158,785	2,626,306,473	2,626,306,473	-	41,952,290	-
61	10,155,679,917	2,305,483,700	2,305,483,700	-	34,354,018	-
62	8,499,850,234	2,004,089,473	2,004,089,473	-	27,857,222	-
63	7,036,856,658	1,723,918,375	1,723,918,375	-	22,353,350	-
64	5,758,609,508	1,466,402,059	1,466,402,059	-	17,737,164	-
65	4,654,954,346	1,232,481,069	1,232,481,069	-	13,906,460	-
66	3,714,031,799	1,022,571,507	1,022,571,507	-	10,763,047	-
67	2,922,697,801	836,614,195	836,614,195	-	8,214,327	-
68	2,266,923,183	674,165,189	674,165,189	-	6,174,735	-
69	1,732,128,323	534,457,935	534,457,935	-	4,566,366	-
70	1,303,477,536	416,420,806	416,420,806	-	3,318,905	-
71	966,176,506	318,677,112	318,677,112	-	2,369,292	-
72	705,791,114	239,534,611	239,534,611	-	1,661,273	-
73	508,600,087	176,981,466	176,981,466	-	1,145,001	-
74	361,977,227	128,727,839	128,727,839	-	776,883	-
75	254,758,087	92,338,159	92,338,159	-	519,840	-
76	177,496,111	65,432,924	65,432,924	-	343,629	-
77	122,528,261	45,872,885	45,872,885	-	224,727	-
78	83,854,689	31,855,203	31,855,203	-	145,574	-
79	56,910,167	21,928,742	21,928,742	-	93,481	-
80	38,303,243	14,970,010	14,970,010	-	59,530	-
81	25,561,513	10,136,274	10,136,274	-	37,601	-
82	16,907,103	6,807,188	6,807,188	-	23,556	-
83	11,076,427	4,532,226	4,532,226	-	14,630	-
84	7,181,379	2,989,303	2,989,303	-	9,001	-
85	4,603,391	1,951,169	1,951,169	-	5,481	-
86	2,914,645	1,258,920	1,258,920	-	3,299	-
87	1,821,047	802,274	802,274	-	1,961	-
88	1,121,508	504,719	504,719	-	1,151	-
89	679,683	313,398	313,398	-	667	-
90	404,136	191,907	191,907	-	381	-
91	234,538	115,464	115,464	-	214	-
92	131,877	67,958	67,958	-	117	-
93	71,010	38,777	38,777	-	62	-
94	35,974	21,001	21,001	-	32	-
95	16,820	10,438	10,438	-	15	-
96	7,225	4,628	4,628	-	6	-
97	2,953	1,904	1,904	-	2	-
98	1,195	813	813	-	1	-
99	455	455	455	-	0	-
100	-	-	-	-	-	-
Totals					\$ 106,156,315,290	\$ -



SECTION D

SUMMARY OF ASSUMPTIONS

**SUMMARY OF ASSUMPTIONS
USED TO DEVELOP TOTAL PENSION LIABILITY
ASSUMPTIONS ADOPTED BY ETF BOARD AFTER
CONSULTING WITH ACTUARY**

Economic Assumptions

For determining plan liabilities, the discount rate is 5.0% for retired participants, 5.0% for active and inactive participants following retirement, and 7.2% for active participants prior to their retirement. A valuation performed assuming 5.5% discount rate for all participants at all stages of life, reproduces the results of an actuarial valuation using the 5% post-retirement and 7.2% pre-retirement assumptions. Thus, it can be said that **the net discount rate assumed in the valuations was 5.5% per year, compounded annually (net after administrative expenses).**

The **Wage Inflation Rate** assumed in this valuation was 3.20% per year. The wage inflation rate is defined to be the portion of total pay increases for an individual that are due to macro economic forces including productivity, price inflation, and labor market conditions. The wage inflation rate does not include pay changes rated to individual merit and seniority effects.

No specific **Price Inflation** assumption is required to perform this valuation, since there are no benefits that are linked to price increases. However, a price inflation assumption on the order of 2.0% to 2.7% would be consistent with the other economic assumptions.

The assumed **Real Rate of Return** over wage inflation is defined to be the portion of total investment return that is more than the assumed total wage growth rate. Considering other economic assumptions, the 7.2% pre-retirement investment return rate translates to an assumed real rate of return over wage inflation of 4.0%. The assumed real rate of return over price inflation would be higher – on the order of 4.5% to 5.2%, considering both an inflation assumption and an average expense provision.

Pay increase assumptions for individual active members are shown for sample services below. Part of the assumption for each age is for merit and/or seniority increase, and the other 3.2% recognizes wage inflation, including price inflation, productivity increases, and other macro economic forces.

Service	% Merit and Longevity Increase Next Year					
	Gen.	University Teachers	Public School Teachers	Protective		Exec. & Elec.
				With S.S.	w/o S.S.	
1	3.5 %	3.2 %	5.8 %	4.8 %	5.5 %	2.0 %
2	3.5 %	3.2 %	5.8 %	4.8 %	5.5 %	2.0 %
3	3.1 %	3.1 %	5.4 %	4.1 %	4.7 %	2.0 %
4	2.8 %	3.0 %	5.1 %	3.5 %	3.8 %	1.9 %
5	2.5 %	2.9 %	4.7 %	2.8 %	3.0 %	1.9 %
10	1.5 %	2.4 %	3.2 %	1.1 %	0.9 %	1.6 %
15	1.1 %	1.7 %	1.8 %	0.8 %	0.5 %	1.2 %
20	0.9 %	1.1 %	0.8 %	0.7 %	0.4 %	0.7 %
25	0.6 %	0.8 %	0.4 %	0.6 %	0.3 %	0.4 %
30	0.4 %	0.6 %	0.2 %	0.5 %	0.2 %	0.3 %

DECREMENT PROBABILITIES

The **mortality table** used to measure mortality for retired participants was the Wisconsin 2012 Mortality Table, as adopted by the Board in connection with the 2009-2011 Experience Study. The rates in this table were based on actual WRS experience projected to 2017 with scale BB to allow for future improvements (margin) in mortality. Sample retirement values from this table are shown below. This assumption is used to measure the probabilities of participants dying before retirement and the probabilities of each benefit payment being made after retirement.

Single Life Retirement Values Wisconsin 2012 Mortality Table with 5% Interest

Sample Attained Ages	Present Value of \$1 Monthly for Life		Future Life Expectancy (years)	
	Males	Females	Males	Females
	40	\$209.20	\$214.70	42.9
45	200.43	207.06	38.1	41.3
50	189.60	197.69	33.3	36.5
55	176.75	186.37	28.7	31.8
60	162.35	172.92	24.4	27.2
65	145.13	156.75	20.1	22.7
70	125.71	137.76	16.1	18.4
75	104.34	116.43	12.4	14.3
80	82.05	93.57	9.0	10.7
85	61.28	70.89	6.3	7.6

The values shown above are for non-disabled participants. For disabled participants, the following table was used:

Sample Attained Ages	Present Value of \$1 Monthly for Life		Future Life Expectancy (years)	
	Males	Females	Males	Females
	40	\$195.27	\$204.53	35.7
45	183.23	194.56	30.9	35.1
50	169.52	182.61	26.4	30.4
55	153.66	168.39	22.1	25.8
60	135.14	151.44	18.0	21.4
65	114.76	131.73	14.1	17.2
70	92.83	109.91	10.6	13.2
75	71.03	86.92	7.6	9.7
80	52.06	64.92	5.2	6.8
85	36.73	47.23	3.5	4.7

ACTIVE PARTICIPANT MORTALITY RATES

Sample Attained Ages	Mortality Rates	
	Males	Females
20	0.000155	0.000089
25	0.000184	0.000097
30	0.000229	0.000129
35	0.000398	0.000230
40	0.000540	0.000329
45	0.000717	0.000519
50	0.000966	0.000765
55	0.002228	0.001345
60	0.003147	0.001935
65	0.004814	0.002974
70	0.007979	0.005057
75	0.013576	0.009155
80	0.024949	0.017103

This assumption is used to measure the probability of participants dying while in service.

Rates of Retirement for Those Eligible To Retire

Normal Retirement

Age	General		Public School		University		Protective*		Exec. & Elected
	Male	Female	Male	Female	Male	Female	With S.S.	W/O S.S.	
50							6%	4%	
51							7%	4%	
52							8%	5%	
53							23%	17%	
54							18%	25%	
55							17%	21%	
56							16%	27%	
57	20%	17%	40%	27%	13%	14%	16%	30%	15%
58	20%	17%	35%	27%	13%	14%	16%	30%	15%
59	20%	17%	25%	27%	13%	13%	16%	30%	15%
60	20%	20%	28%	27%	13%	13%	18%	26%	10%
61	20%	20%	25%	27%	13%	19%	18%	15%	13%
62	27%	27%	36%	34%	15%	19%	22%	20%	13%
63	32%	28%	32%	27%	15%	19%	29%	40%	12%
64	24%	25%	24%	23%	15%	18%	16%	40%	12%
65	24%	25%	24%	28%	15%	22%	30%	40%	12%
66	30%	29%	25%	30%	20%	23%	20%	40%	20%
67	24%	20%	24%	28%	18%	17%	15%	40%	17%
68	17%	18%	24%	26%	18%	17%	25%	40%	15%
69	17%	18%	24%	20%	18%	17%	20%	40%	15%
70	17%	18%	20%	20%	20%	20%	100%	100%	13%
71	17%	18%	20%	20%	20%	20%	100%	100%	13%
72	17%	15%	20%	20%	15%	20%	100%	100%	25%
73	17%	15%	20%	20%	15%	20%	100%	100%	10%
74	17%	15%	20%	20%	15%	20%	100%	100%	10%
75	100%	100%	100%	100%	100%	100%	100%	100%	100%

* Includes early retirements.

Early Retirement

Age	% Retiring Next Year							Exec. & Elected
	General		Public School		University			
	Male	Female	Male	Female	Male	Female		
55	8.0%	6.1%	12.0%	11.0%	4.8%	5.5%	4.5%	
56	8.0%	6.4%	12.0%	11.0%	3.0%	5.5%	4.5%	
57	4.3%	4.2%	12.0%	11.0%	2.0%	4.0%	4.5%	
58	5.3%	5.5%	12.0%	11.0%	2.5%	4.0%	4.5%	
59	5.5%	5.3%	12.0%	11.0%	4.0%	6.5%	4.5%	
60	7.5%	8.1%	12.0%	15.0%	4.0%	6.5%	4.5%	
61	8.0%	7.0%	12.0%	15.0%	7.5%	7.5%	4.5%	
62	14.0%	15.0%	20.0%	20.0%	7.0%	10.0%		
63	16.0%	15.0%	20.0%	20.0%	7.5%	10.0%		
64	17.0%	15.0%	20.0%	20.0%	8.0%	13.0%		

The assumed rates of separation from employment prior to service retirement due to disability and other causes are shown below for sample ages. For other terminations it was assumed that a percentage depending on age of participants terminating after age 35 with 5 or more years service will leave their contributions on deposit and be paid a benefit at normal retirement age and that the remaining participants would take a separation benefit. The percentage taking a separation benefit is 25% at age 35, grading downward to 0% at retirement eligibility. All participants terminating prior to normal retirement age with less than 5 years of service were assumed to take a separation benefit.

**Assumed Termination Rates
by Attained Age and Years of Service**

Age	Service	% of Active Participants Terminating								
		Protective		Public Schools		University		Exec. & Elected	General	
		With Soc. Sec.	Without Soc. Sec.	Males	Females	Males	Females		Males	Females
	0	15.0%	4.0%	17.7%	15.0%	18.3%	22.0%	20.0%	17.5%	19.5%
	1	7.0%	3.5%	11.4%	10.5%	15.0%	15.0%	14.0%	13.0%	13.5%
	2	4.3%	2.1%	7.3%	7.1%	11.3%	12.5%	14.0%	8.5%	10.0%
	3	3.8%	1.3%	5.2%	5.5%	9.6%	10.0%	10.0%	6.8%	8.0%
	4	3.4%	1.2%	3.9%	4.6%	8.5%	9.5%	10.0%	6.0%	7.4%
	5	2.6%	1.1%	3.0%	4.0%	7.5%	8.0%	9.0%	4.5%	6.0%
	6	2.5%	1.0%	2.8%	3.5%	7.0%	7.0%	8.5%	4.0%	5.0%
	7	2.3%	0.9%	2.5%	3.0%	5.5%	6.0%	8.0%	3.5%	4.5%
	8	2.0%	0.8%	2.0%	2.5%	4.3%	5.0%	7.5%	3.0%	4.0%
	9	1.7%	0.7%	1.8%	2.3%	3.2%	4.0%	7.0%	2.5%	3.8%
25	10 & Over	1.7%	0.7%	1.8%	2.2%	3.2%	5.0%	6.0%	2.5%	3.8%
30		1.6%	0.7%	1.4%	1.9%	3.2%	4.5%	5.1%	2.5%	3.3%
35		1.4%	0.7%	1.2%	1.4%	3.1%	4.0%	4.2%	2.1%	2.8%
40		1.2%	0.6%	1.1%	1.1%	2.7%	3.4%	3.7%	1.6%	2.2%
45		1.1%	0.6%	1.0%	0.9%	2.1%	2.6%	3.3%	1.3%	1.8%
50		1.0%	0.5%	1.0%	0.9%	1.6%	1.8%	3.1%	1.1%	1.6%
55		1.0%	0.5%	1.0%	0.9%	1.4%	1.5%	3.0%	1.1%	1.5%
60		1.0%	0.5%	1.0%	0.9%	1.4%	1.5%	3.0%	1.1%	1.5%

Disability Rates

Age	% of Active Participants Becoming Disabled									
	Protective		Public Schools		University		Exec. & Elected		General	
	With SS	W/O SS	Males	Females	Males	Females	Males	Females	Males	Females
20	0.01%	0.04%	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%	0.01%	0.01%
25	0.01%	0.04%	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%	0.01%	0.01%
30	0.01%	0.04%	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%	0.01%	0.03%
35	0.02%	0.04%	0.01%	0.01%	0.01%	0.03%	0.01%	0.01%	0.01%	0.04%
40	0.03%	0.07%	0.02%	0.02%	0.01%	0.04%	0.01%	0.01%	0.04%	0.05%
45	0.05%	0.13%	0.04%	0.06%	0.02%	0.04%	0.01%	0.01%	0.07%	0.07%
50	0.08%	0.74%	0.11%	0.12%	0.04%	0.07%	0.02%	0.02%	0.15%	0.11%
55	1.21%	0.54%	0.21%	0.17%	0.11%	0.10%	0.09%	0.09%	0.29%	0.20%
60	2.04%	0.16%	0.34%	0.25%	0.14%	0.15%	0.11%	0.11%	0.51%	0.29%

SECTION E

PLAN PROVISIONS

SUMMARY OF BENEFIT PROVISIONS

Normal Retirement Eligibility

The age a participant becomes eligible for an unreduced age and service annuity is:

General		Protective		Executive & Elected	
Age	Service	Age	Service	Age	Service
65	Any*	54	Any*	62	Any*
57	30	53	25	57	30

* Participants first employed after 1989 and terminated before April 24, 1998 must have creditable service in 5 calendar years.

Normal Retirement Annuity

The age and service annuity payable at Normal Retirement Age is based on Final Average Earnings (FAE) and Creditable Service (CS) as follows:

Multiplier for Service Rendered			Group
Before 2000	Between 2000 and 2011	After 2011	
2.165%	2.0%	1.6%	Executive group and elected officials
2.165%	2.0%	2.0%	Protective occupation participants covered by Social Security
2.665%	2.5%	2.5%	Protective occupation participants not covered by Social Security
1.765%	1.6%	1.6%	All other participants

FAE is generally the average of the 3 highest years of earnings (July 1 - June 30 for teachers, educational support staff, and judges; calendar year for others) preceding retirement. These years do not have to be consecutive. For legislators and state constitutional officers who are ineligible to receive pay increases during their term, FAE is the statutory rate of earnings at termination.

Maximum formula annuity is 85% of FAE for protective occupation participants not covered by Social Security, 65% of FAE for protectives covered by Social Security, and 70% for all other participants. If greater than the formula amount, an annuity equal to the actuarial equivalent of two times the required accumulated contributions is paid in lieu of the formula amount.

Early Retirement. Any participant who has attained age 55 and any Protective occupation participant who has attained age 50 may apply for an early retirement annuity. The benefit is reduced 0.4% for each month that the annuity effective date precedes the Normal Retirement Age. For Non-Protective participants terminating after 6/30/90, the 0.4% is reduced for months after the attainment of age 57 and before the annuity effective date by .001111% for each month of creditable service.

Voluntary Termination Before Immediate Benefit Eligibility. Participant may either (i) receive a refund of accumulated contributions, or (ii) leave contributions on deposit and apply for a retirement annuity on or after the minimum retirement age based upon age and accrued service at time of termination.

Post-Retirement Adjustments. Annuities are increased annually if the investment income credited to retired life funds is in excess of the assumed benefit rate (presently 5%), other plan experiences are within projected ranges, and the resulting adjustment would be at least 0.5%.

Disability Annuity. Eligibility: generally total and permanent incapacity to engage in gainful employment. Participant must have completed at least 6 months of creditable service (in at least 5 out of the last 7 calendar years) preceding application for disability. Service requirement is waived if disability is from service-related causes.

For protective occupations, eligibility also can be met if a member has 15 years of service, is between the ages of 50 and 55 and unable to safely and efficiently perform one's duties.

Disability Amounts. Amounts payable in case of disability depend upon the plan from which payment is made and are described below.

	Pre-10/16/92 WRS Plan	Post-10/15/92 LTDI Plan
Participants covered	Participants hired before 10/16/92 who do not elect LTDI coverage.	Participants entering after 10/15/92 and participants on 10/15/92 who elect LTDI coverage.
Benefit to age 65*	WRS formula benefit based on service projected to normal retirement age.	40% of FAE for participants covered by Social Security; 50% of FAE for non-covered participants who cannot qualify for Social Security disability benefits.
Benefit at age 65*	Continuation of pre-65 amount.	WRS benefit accrued to date of disability plus 7% of FAE money purchase benefit during disability period, both of which are adjusted in accordance with dividend rate.

* Conversion age is later for participants becoming disabled after age 61.

Death-in-Service.

- (a) Prior to age 50 for Protective participants, age 55 for others, the benefit is the equivalent of twice the accumulated employee contributions required and all additional contributions and employer amounts contributed prior to 1974 for teachers, or 1966 for others.
- (b) After age 50 for Protective participants, age 55 for others, the benefit is the amount that would have been paid if participant had retired and elected 100% survivor option. Benefit is payable to any natural living person.

Interest Credits. For years after 1999, and for people with some active service after 1999, participant core accounts (including the variable at core accounts) are credited with interest at the full (core) effective rate. For others, accounts are credited with interest as follows:

Date of Participation	Rate Credited For Purpose of	
	Money Purchase	Refunds
	Minimum	
Prior to 1982	Actual	Actual
January 1, 1982 & Later	5%	3%

Participant variable accounts are credited with interest based on the earnings in the variable portfolio.

Contribution Rates. The financial objective of WRS is to establish and receive contributions that will remain level from year to year and decade to decade.

Statutory required participant contributions prior to July 1, 2011 were as follows:

General	5.0%
Executives & Elected	
Officials	5.5
Protectives	
- With Social Security	6.0
- Without Social Security	8.0

Statutory required participant contributions after July 1, 2011 are set equal to one-half of the actuarially determined rate for General participants and Executive and Elected Officials. Participant contributions for Protective participants are set equal to the participant contribution for General members.

Normal Form of Benefit. The normal form of benefit is a straight life annuity with no death benefits. Optional forms of benefit which are actuarially reduced are listed below:

- A life annuity with 60 or 180 monthly payments guaranteed.
- A joint survivorship annuity with 75% continued to beneficiary.
- A joint survivorship annuity with 100% continued to beneficiary.
- A joint survivorship annuity reduced 25% upon either your death or your beneficiary's death.
- A joint survivorship annuity with 100% continued to beneficiary combined with 180 monthly payments guaranteed.

For formula benefit calculations, optional forms are calculated at the lower of the current age or age 62 (Normal Retirement Age for Protective occupations).

Vesting. Participants hired prior to July 1, 2011 vest immediately. After July 1, 2011, participants vest after 5 years of service.

SECTION F

GLOSSARY OF TERMS

Auditor's Note – This information is presented in draft form for review by the Plan's auditor. Please let us know if there are any items that the auditor changes so that we may maintain consistency with the Plan's financial statements.

GLOSSARY OF TERMS

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

GLOSSARY OF TERMS

<i>Amortization Payment</i>	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
<i>Amortization Method</i>	The method used to determine the periodic amortization payment may be a level dollar amount, or a level percent of pay amount. The period will typically be expressed in years, and the method will either be “open” (meaning, reset each year) or “closed” (the number of years remaining will decline each year).
<i>Cost-of-Living Adjustments</i>	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
<i>Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)</i>	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
<i>Covered-Employee Payroll</i>	The payroll of covered employees, which is typically only the pensionable pay and does not include pay above any pay cap.
<i>Deferred Retirement Option Program (DROP)</i>	A program that permits a plan member to elect a calculation of benefit payments based on service credits and salary, as applicable, as of the DROP entry date. The plan member continues to provide service to the employer and is paid for the service by the employer after the DROP entry date; however, the pensions that would have been paid to the plan member are credited to an individual member account within the defined benefit pension plan until the end of the DROP period. Other variations for DROP exist and will be more fully detailed in the plan provision section of the valuation report.
<i>Deferred Inflows and Outflows</i>	The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.
<i>Discount Rate</i>	For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically: <ol style="list-style-type: none"> 1. The benefit payments to be made while the pension plans’ fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and 2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.

GLOSSARY OF TERMS

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

GLOSSARY OF TERMS

<i>Other Postemployment Benefits (OPEB)</i>	All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits regardless of the manner in which they are provided. Other post-employment benefits do not include termination benefits.
<i>Real Rate of Return</i>	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
<i>Service Cost</i>	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.
<i>Total Pension Expense</i>	The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year: <ol style="list-style-type: none"> 1. Service 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
<i>Total Pension Liability (TPL)</i>	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
<i>Unfunded Actuarial Accrued Liability (UAAL)</i>	The UAAL is the difference between actuarial accrued liability and valuation assets.
<i>Valuation Assets</i>	The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of GASB Statement Nos. 67 and 68, the valuation assets are equal to the market value of assets.

