

WISCONSIN RETIREMENT SYSTEM

**GASB STATEMENT NO. 67 PLAN REPORTING AND
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. 67 “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. 67. These calculations have been made on a basis that is consistent with our understanding of this Statement.

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. 67 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.

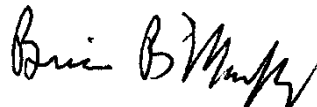
This report complements the actuarial valuation report that we provided to the Board and should be considered in conjunction with that report. Please see the actuarial valuation report as of December 31, 2014 for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

This 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

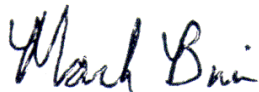
Employee Trust Funds Board
Wisconsin Department of Employee
Trust Funds
July 27, 2015
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To the best of our knowledge, the information contained in this report is accurate, and fairly represents the actuarial position of WRS. All calculations have been 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.

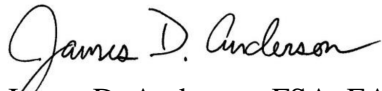
Respectfully submitted,



Brian B. Murphy, FSA, EA, MAAA



Mark Buis, FSA, EA, MAAA



James D. Anderson, FSA, EA, MAAA

BBM/MB/JDA:mrp

SECTION A
EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

AS OF DECEMBER 31, 2014

	2014
Actuarial Valuation Date	December 31, 2014
Pension Plan's Fiscal Year Ending Date (Measurement Date & Reporting Date)	December 31, 2014
 Membership	
Number of	
- Retirees and Beneficiaries	185,605
- Inactive, Nonretired Members	154,286
- Active Members	256,100
- Total	595,991
Covered Payroll	\$ 13,219,500,000
 Net Pension Liability	
Total Pension Liability	\$ 89,727,009,098
Plan Fiduciary Net Position	92,147,446,988
Net Pension Liability	\$ (2,420,437,890)
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	102.70%
Net Pension Liability as a Percentage of Covered Payroll	-18.31%
 Development of the Single Discount Rate	
Single Discount Rate	7.20%
Long-Term Expected Rate of 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

DISCUSSION

Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67, “Financial Reporting for Pension Plans,” replaces the requirements of GASB Statement No. 25, “Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans,” and GASB Statement No. 50, “Pension Disclosures.” GASB Statement No. 67 establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability of employers and non-employer contributing entities for benefits provided through the pension plan.

The following discussion provides a summary of the information that is required to be disclosed under this new accounting standard. 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 your internal staff will be responsible for preparing that information to comply with this accounting standard.

Financial Statements

GASB Statement No. 67 requires defined benefit pension plans to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position.

The *statement of fiduciary net position* presents the following items as of the end of the pension plan’s reporting period, such as:

- assets;
- deferred inflows and outflows of resources;
- liabilities; and
- fiduciary net position (assets, plus deferred outflows, minus liabilities, minus deferred inflows).

The *statement of changes in fiduciary net position* presents the following for the plan’s reporting period:

- additions, such as contributions and investment income;
- deductions, such as benefit payments and expenses; and
- net increase or decrease in the fiduciary net position (the difference between additions and deductions).

Notes to Financial Statements

GASB Statement No. 67 also requires the notes of the plan's financial statements to include additional disclosure information. This disclosure information should include:

- 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;
- the composition of the pension plan's Board and the authority under which benefit terms may be amended;
- a description of the plan's funding policy, which includes member and employer contribution requirements;
- the pension plan's investment policies;
- a description of how fair value is determined;
- concentrations of investments greater than or equal to 5%;
- annual money-weighted rate of return on pension plan investments;
- the portion of the present value of benefits to be provided through the pension plan to current active and inactive plan members;
- the pension plan's fiduciary net position;
- the net pension liability;
- the pension plan's fiduciary net position as a percentage of the total pension liability;
- 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.

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;
- comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy; and
- the annual money-weighted rate of return on pension plan investments for each year.

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

Measurement of the Net Pension Liability

The net pension liability is to be measured as the total pension liability, less the amount of the pension plan's fiduciary net position. In actuarial terms, this will be the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. If the actuarial valuation is not calculated as of the plan's fiscal year end, the total pension liability is required to be rolled forward from the actuarial valuation date to the pension plan's fiscal year end.

The total pension liability shown in this report is based on an actuarial valuation performed as of December 31, 2014 and a measurement date of December 31, 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 7.20%; the municipal bond rate is 3.56% (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 7.20%.

Effective Date and Transition

GASB Statement No. 67 is effective for a pension plan's fiscal years beginning after June 15, 2013.

Actuarial Assumptions and Methods and Member Census Data

The liability and asset values used in this study are taken from the December 31, 2013 and 2014 Actuarial Valuation Reports of the Wisconsin Retirement System. Therefore, the actuarial assumptions and methods employed for purposes of our Actuarial Study are the same actuarial assumptions and methods shown in the Actuarial Valuation Reports.

The member census data employed for purposes of our Actuarial Study was provided by DETF and is the same member census data used for the December 31, 2013 and December 31, 2014 Actuarial Valuation Reports of the Retirement System.

The Wisconsin Retirement System uses the Frozen Initial Liability cost method for determining funding requirements. GASB Statement No. 67 requires the use of the Entry Age Normal method for accounting purposes. Therefore, we developed the Entry Age Normal Accrued Liability to reflect the Total Pension Liability for GASB purposes.

SECTION B

FINANCIAL STATEMENTS

STATEMENT OF FIDUCIARY NET POSITION
AS OF DECEMBER 31, 2014

	2014
Assets	
Cash and Deposits	\$ 4,409,130,994
Receivables	
Accounts Receivable - Sale of Investments	\$ 527,889,398
Accrued Interest and Other Dividends	233,038,119
Contributions	198,145,579
Accounts Receivable - Other	16,610,433
Total Receivables	\$ 975,683,529
Investments	
Fixed Income	\$ 27,139,271,349
Domestic and International Equities	50,725,324,156
Real Estate	1,017,432,558
Other	14,676,108,417
Total Investments	\$ 93,558,136,480
Total Assets	\$ 98,942,951,003
Liabilities	
Payables	
Accounts Payable - Purchase of Investments	\$ 6,318,950,347
Accrued Expenses	43,285,927
Accounts Payable - Other	433,267,741
Total Liabilities	\$ 6,795,504,015
Net Position Restricted for Pensions	\$ 92,147,446,988

**STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
FOR YEAR ENDED DECEMBER 31, 2014**

	2014
Additions	
Contributions	
Employer	\$ 1,023,196,702
Employee	906,499,398
Other	-
Total Contributions	\$ 1,929,696,100
Investment Income	
Net Appreciation in Fair Value of Investments	\$ 3,230,266,284
Interest and Dividends	2,020,642,457
Less Investment Expense	(359,218,473)
Net Investment Income	\$ 4,891,690,268
Other	\$ -
Total Additions	\$ 6,821,386,368
 Deductions	
Benefit payments, including refunds of employee contributions	\$ 4,574,649,055
Pension Plan Administrative Expense	24,036,951
Other Benefit Expenses	-
Total Deductions	\$ 4,598,686,006
Net Increase in Net Position	\$ 2,222,700,362
 Net Position Restricted for Pensions	
Beginning of Year	\$ 89,924,746,626
End of Year	\$ 92,147,446,988

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

MULTIYEAR SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

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	\$ 1,745,048,505								
Interest on the Total Pension Liability	6,089,287,273	5,680,664,977								
Benefit Changes	-	-								
Difference between Expected and Actual Experience	473,101,546	2,659,920,220								
Assumption Changes	-	-								
Benefit Payments	(4,540,247,874)	(4,224,700,261)								
Refunds	(34,401,181)	(33,271,143)								
Net Change in Total Pension Liability	3,744,760,674	5,827,662,298								
Total Pension Liability - Beginning	85,982,248,424	80,154,586,126								
Total Pension Liability - Ending (a)	\$ 89,727,009,098	\$ 85,982,248,424								
Plan Fiduciary Net Position										
Employer Contributions	\$ 1,023,196,702	\$ 914,698,118								
Employee Contributions	906,499,398	871,259,789								
Pension Plan Net Investment Income	4,891,690,268	11,347,296,075								
Benefit Payments	(4,540,247,874)	(4,224,700,261)								
Refunds	(34,401,181)	(33,271,143)								
Pension Plan Administrative Expense	(24,036,951)	(22,857,502)								
Other	-	-								
Net Change in Plan Fiduciary Net Position	2,222,700,362	8,852,425,076								
Plan Fiduciary Net Position - Beginning	89,924,746,626	81,072,321,550								
Plan Fiduciary Net Position - Ending (b)	\$ 92,147,446,988	\$ 89,924,746,626								
Net Pension Liability - Ending (a) - (b)	(2,420,437,890)	(3,942,498,202)								
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	102.70 %	104.59 %								
Covered Employee Payroll*	\$ 13,219,500,000	\$ 12,884,800,000								
Net Pension Liability as a Percentage of Covered Employee Payroll	(18.31)%	(30.60)%								

Notes to Schedule:

N/A

* Provided by DETF.

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION
MULTIYEAR SCHEDULE OF THE NET PENSION LIABILITY

Last 10 Fiscal Years (which may be built prospectively)

FY Ending December 31,	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	\$ 85,982,248,424	\$ 89,924,746,626	\$ (3,942,498,202)	104.59%	\$ 12,884,800,000	(30.60)%
2014	89,727,009,098	92,147,446,988	(2,420,437,890)	102.70%	13,219,500,000	(18.31)%

* *Provided by DETF.*

MULTIYEAR SCHEDULE OF CONTRIBUTIONS

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					
2006					
2007					
2008					
2009					
2010					
2011					
2012					
2013	\$ 914,698,118	\$ 914,698,118	-	\$ 12,884,800,000	7.10%
2014	1,023,196,702	1,023,196,702	-	13,219,500,000	7.74%

* Provided by DETF.

MULTIYEAR SCHEDULE OF INVESTMENT RETURNS

Last 10 Fiscal Years

FY Ending December 31,	Core Annual Return¹	Variable Annual Return¹
2005		
2006		
2007		
2008		
2009		
2010		
2011		
2012		
2013	13.18 %	28.78 %
2014	5.43 %	8.03 %

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

The money weighted rate of return expresses investment performance net of pension plan investment expense, adjusted for the changing amounts actually invested.

SECTION D

NOTES TO FINANCIAL STATEMENTS

Long-Term Expected Return on Plan Assets

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The long-term expected rate of return is reviewed every three years in conjunction with the WRS experience study. For each major asset class that is included in the pension plan's target asset allocation as of December 31, 2014, these best estimates of geometric real rates of return were provided by DETF and are summarized in the following tables:

Core Asset Allocation

<u>Asset Class</u>	<u>Target Allocation</u>	<u>Long-Term Expected Real Rate of Return</u>
Domestic Equity	21.00%	5.30%
International Equity	23.00%	5.70%
Fixed Income	36.00%	1.70%
Inflation Sens. Assets	20.00%	2.30%
Real Estate	7.00%	4.20%
Private Equity/Debt	7.00%	6.90%
Multi-asset	6.00%	3.90%
Cash	-20.00%	0.90%
Total	<u>100.00%</u>	

Variable Asset Allocation

<u>Asset Class</u>	<u>Target Allocation</u>	<u>Long-Term Expected Real Rate of Return</u>
Domestic Equity	70.00%	5.30%
International Equity	30.00%	5.70%
Fixed Income	N/A	N/A
Inflation Sens. Assets	N/A	N/A
Real Estate	N/A	N/A
Private Equity/Debt	N/A	N/A
Multi-asset	N/A	N/A
Cash	N/A	N/A
Total	<u>100.00%</u>	

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 7.2% 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	\$ 99,168,814,841	\$ 89,727,009,098	\$ 82,303,914,056
Plan Fiduciary Net Position	92,147,446,988	92,147,446,988	92,147,446,988
Net Pension Liability/(Asset)	\$ 7,021,367,853	\$ (2,420,437,890)	\$ (9,843,532,932)

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	\$ 91,417,368,770	\$ 89,727,009,098	\$ 88,199,708,639
Plan Fiduciary Net Position	92,147,446,988	92,147,446,988	92,147,446,988
Net Pension Liability/(Asset)	\$ (730,078,218)	\$ (2,420,437,890)	\$ (3,947,738,349)

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	185,605
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	154,286
Active Plan Members	<u>256,100</u>
Total Plan Members	595,991

SECTION E

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 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. Please note, that for the purposes of this projection, we have reduced the Plan Fiduciary Net Position as of December 31, 2013 to the Actuarial Accrued Liability as of December 31, 2013 (the amount of overfunding was set to zero to simplify the projection).

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	\$ 13,037,365,472				
1	13,074,274,310	\$ 870,576,245	\$ 917,834,699	\$ -	\$ 1,788,410,943
2	12,809,047,581	852,871,872	896,364,423	-	1,749,236,295
3	12,578,508,496	837,481,285	877,466,341	-	1,714,947,627
4	12,350,886,349	822,284,711	858,668,229	-	1,680,952,940
5	12,116,103,183	806,614,480	839,265,952	-	1,645,880,432
6	11,868,355,176	790,084,070	818,917,314	-	1,609,001,384
7	11,606,743,948	772,634,069	797,644,154	-	1,570,278,223
8	11,331,674,294	754,289,361	775,511,240	-	1,529,800,600
9	11,043,649,711	735,082,865	752,544,118	-	1,487,626,982
10	10,743,304,355	715,060,416	728,846,527	-	1,443,906,944
11	10,427,721,835	694,026,878	704,258,593	-	1,398,285,471
12	10,095,403,343	671,880,953	678,751,745	-	1,350,632,698
13	9,747,694,448	648,711,855	652,416,672	-	1,301,128,527
14	9,385,968,648	624,614,791	625,377,842	-	1,249,992,634
15	9,010,603,255	599,612,934	597,644,869	-	1,197,257,803
16	8,624,047,463	573,868,988	569,448,987	-	1,143,317,975
17	8,227,972,521	547,495,757	540,874,260	-	1,088,370,017
18	7,820,623,299	520,373,394	511,806,043	-	1,032,179,437
19	7,404,115,407	492,642,444	482,363,210	-	975,005,655
20	6,980,516,253	464,443,826	452,670,524	-	917,114,350
21	6,548,009,673	435,655,134	422,604,304	-	858,259,438
22	6,107,639,460	406,344,146	392,261,691	-	798,605,837
23	5,661,570,643	376,657,529	361,813,920	-	738,471,449
24	5,210,561,197	346,644,365	331,271,424	-	677,915,790
25	4,757,389,152	316,489,860	300,824,847	-	617,314,707
26	4,306,262,595	286,473,556	270,750,718	-	557,224,275
27	3,858,219,345	256,662,979	241,120,670	-	497,783,649
28	3,411,485,817	226,941,698	211,873,786	-	438,815,484
29	2,965,444,633	197,267,956	182,986,282	-	380,254,238
30	2,525,334,375	167,989,989	154,789,295	-	322,779,284
31	2,108,577,608	140,266,585	128,386,389	-	268,652,974
32	1,730,717,970	115,130,280	104,723,520	-	219,853,800
33	1,397,535,204	92,966,339	84,084,185	-	177,050,524
34	1,113,280,387	74,058,105	66,639,791	-	140,697,896
35	877,855,958	58,396,931	52,303,670	-	110,700,601
36	687,321,872	45,721,698	40,773,915	-	86,495,614
37	534,366,125	35,547,288	31,567,421	-	67,114,709
38	411,902,687	27,400,825	24,235,589	-	51,636,414
39	315,157,150	20,965,160	18,463,379	-	39,428,539
40	239,718,609	15,946,843	13,982,986	-	29,929,829
41	181,175,032	12,052,248	10,508,827	-	22,561,075
42	136,087,234	9,053,019	7,841,102	-	16,894,121
43	101,727,072	6,767,369	5,816,445	-	12,583,814
44	75,714,774	5,036,840	4,291,155	-	9,327,995
45	55,935,044	3,720,906	3,135,930	-	6,856,836
46	40,635,310	2,703,059	2,250,336	-	4,953,395
47	28,880,474	1,921,095	1,575,009	-	3,496,104
48	20,044,007	1,333,264	1,075,844	-	2,409,108
49	13,360,499	888,634	706,012	-	1,594,646
50	8,309,889	552,668	431,988	-	984,656

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	\$ 4,619,345	\$ 307,186	\$ 235,372	\$ -	\$ 542,558
52	2,227,710	148,143	110,403	-	258,546
53	966,204	64,253	46,468	-	110,721
54	427,359	28,419	20,126	-	48,545
55	181,174	12,048	8,530	-	20,578
56	55,084	3,663	2,567	-	6,230
57	10,733	714	510	-	1,224
58	1,139	76	54	-	130
59	338	22	19	-	41
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		Projected Ending Plan Net Position
			Payments Including Dividends	Projected Investment Earnings at 7.20%	
	(a)	(b)	(c)	(d)	(e)=(a)+(b)-(c)+(d)
1	\$ 89,727,009,098	\$ 1,788,410,943	\$ 4,809,585,044	\$ 6,353,472,650	\$ 93,059,307,647
2	93,059,307,647	1,749,236,295	5,002,787,604	6,585,177,958	96,390,934,297
3	96,390,934,297	1,714,947,627	5,205,528,291	6,816,670,322	99,717,023,955
4	99,717,023,955	1,680,952,940	5,421,402,350	7,047,309,839	103,023,884,383
5	103,023,884,383	1,645,880,432	5,655,039,690	7,275,898,359	106,290,623,485
6	106,290,623,485	1,609,001,384	5,910,602,815	7,500,758,629	109,489,780,682
7	109,489,780,682	1,570,278,223	6,182,182,760	7,720,121,183	112,597,997,328
8	112,597,997,328	1,529,800,600	6,466,665,452	7,932,417,529	115,593,550,006
9	115,593,550,006	1,487,626,982	6,760,784,894	8,136,201,181	118,456,593,275
10	118,456,593,275	1,443,906,944	7,059,764,803	8,330,217,515	121,170,952,931
11	121,170,952,931	1,398,285,471	7,371,641,177	8,513,005,164	123,710,602,389
12	123,710,602,389	1,350,632,698	7,681,303,233	8,683,220,153	126,063,152,007
13	126,063,152,007	1,301,128,527	7,988,694,831	8,839,978,778	128,215,564,482
14	128,215,564,482	1,249,992,634	8,293,025,295	8,982,378,092	130,154,909,912
15	130,154,909,912	1,197,257,803	8,589,870,720	9,109,644,796	131,871,941,792
16	131,871,941,792	1,143,317,975	8,883,950,935	9,220,960,116	133,352,268,948
17	133,352,268,948	1,088,370,017	9,173,561,808	9,315,355,134	134,582,432,291
18	134,582,432,291	1,032,179,437	9,452,990,615	9,392,054,585	135,553,675,698
19	135,553,675,698	975,005,655	9,720,859,800	9,450,485,933	136,258,307,485
20	136,258,307,485	917,114,350	9,976,345,589	9,490,133,918	136,689,210,165
21	136,689,210,165	858,259,438	10,219,833,298	9,510,463,743	136,838,100,049
22	136,838,100,049	798,605,837	10,449,006,994	9,510,966,743	136,698,665,635
23	136,698,665,635	738,471,449	10,657,592,081	9,491,421,695	136,270,966,697
24	136,270,966,697	677,915,790	10,846,242,125	9,451,811,887	135,554,452,249
25	135,554,452,249	617,314,707	11,019,002,629	9,391,967,837	134,544,732,164
26	134,544,732,164	557,224,275	11,174,303,676	9,311,648,662	133,239,301,425
27	133,239,301,425	497,783,649	11,309,400,207	9,210,776,027	131,638,460,895
28	131,638,460,895	438,815,484	11,428,589,927	9,089,213,294	129,737,899,745
29	129,737,899,745	380,254,238	11,533,093,544	8,946,604,581	127,531,665,021
30	127,531,665,021	322,779,284	11,620,448,470	8,782,632,421	125,016,628,256
31	125,016,628,256	268,652,974	11,684,337,536	8,597,375,059	122,198,318,752
32	122,198,318,752	219,853,800	11,715,534,673	8,391,626,959	119,094,264,838
33	119,094,264,838	177,050,524	11,709,980,163	8,166,817,427	115,728,152,626
34	115,728,152,626	140,697,896	11,664,475,979	7,924,781,078	112,129,155,622
35	112,129,155,622	110,700,601	11,581,343,815	7,667,532,904	108,326,045,312
36	108,326,045,312	86,495,614	11,464,334,104	7,396,991,867	104,345,198,688
37	104,345,198,688	67,114,709	11,314,205,442	7,114,996,024	100,213,103,979
38	100,213,103,979	51,636,414	11,134,031,068	6,823,311,218	95,954,020,544
39	95,954,020,544	39,428,539	10,926,719,543	6,523,558,871	91,590,288,411
40	91,590,288,411	29,929,829	10,692,933,947	6,217,304,156	87,144,588,449
41	87,144,588,449	22,561,075	10,432,449,551	5,906,167,554	82,640,867,527
42	82,640,867,527	16,894,121	10,143,144,673	5,591,933,149	78,106,550,124
43	78,106,550,124	12,583,814	9,825,341,724	5,276,551,888	73,570,344,102
44	73,570,344,102	9,327,995	9,484,087,097	4,961,901,535	69,057,486,535
45	69,057,486,535	6,856,836	9,126,378,690	4,649,542,069	64,587,506,751
46	64,587,506,751	4,953,395	8,755,994,885	4,340,738,270	60,177,203,530
47	60,177,203,530	3,496,104	8,374,189,349	4,036,651,002	55,843,161,287
48	55,843,161,287	2,409,108	7,982,497,999	3,738,417,327	51,601,489,723
49	51,601,489,723	1,594,646	7,582,774,647	3,447,128,109	47,467,437,831
50	47,467,437,831	984,656	7,176,485,860	3,163,826,988	43,455,763,615

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

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		Projected Ending Plan Net Position
			Payments Including Dividends	Projected Investment Earnings at 7.20%	
	(a)	(b)	(c)	(d)	(e)=(a)+(b)-(c)+(d)
51	\$ 43,455,763,615	\$ 542,558	\$ 6,764,907,380	\$ 2,889,530,117	\$ 39,580,928,911
52	39,580,928,911	258,546	6,349,299,561	2,625,233,819	35,857,121,715
53	35,857,121,715	110,721	5,931,388,771	2,371,897,786	32,297,741,450
54	32,297,741,450	48,545	5,513,572,170	2,130,400,189	28,914,618,014
55	28,914,618,014	20,578	5,098,433,311	1,901,499,570	25,717,704,852
56	25,717,704,852	6,230	4,688,118,307	1,685,835,933	22,715,428,707
57	22,715,428,707	1,224	4,284,577,475	1,483,946,859	19,914,799,315
58	19,914,799,315	130	3,889,889,379	1,296,263,331	17,321,173,397
59	17,321,173,397	41	3,506,220,540	1,123,094,289	14,938,047,187
60	14,938,047,187	-	3,135,816,923	964,611,980	12,766,842,243
61	12,766,842,243	-	2,780,970,556	820,837,676	10,806,709,363
62	10,806,709,363	-	2,443,967,874	691,629,352	9,054,370,841
63	9,054,370,841	-	2,126,985,330	576,674,023	7,504,059,534
64	7,504,059,534	-	1,831,942,919	475,488,536	6,147,605,150
65	6,147,605,150	-	1,560,364,078	387,430,739	4,974,671,812
66	4,974,671,812	-	1,313,262,830	311,720,580	3,973,129,562
67	3,973,129,562	-	1,091,104,363	247,468,244	3,129,493,443
68	3,129,493,443	-	893,888,311	193,702,829	2,429,307,960
69	2,429,307,960	-	721,239,514	149,396,810	1,857,465,256
70	1,857,465,256	-	572,437,828	113,487,895	1,398,515,323
71	1,398,515,323	-	446,441,063	84,900,550	1,036,974,811
72	1,036,974,811	-	341,896,120	62,567,841	757,646,531
73	757,646,531	-	257,107,054	45,455,561	545,995,038
74	545,995,038	-	190,006,888	32,590,277	388,578,427
75	388,578,427	-	138,204,326	23,088,762	273,462,862
76	273,462,862	-	99,125,252	16,182,837	190,520,447
77	190,520,447	-	70,233,001	11,233,027	131,520,473
78	131,520,473	-	49,234,316	7,727,843	90,014,001
79	90,014,001	-	34,189,353	5,271,583	61,096,230
80	61,096,230	-	23,536,724	3,566,333	41,125,839
81	41,125,839	-	16,069,379	2,392,617	27,449,076
82	27,449,076	-	10,882,277	1,591,380	18,158,179
83	18,158,179	-	7,309,272	1,048,828	11,897,735
84	11,897,735	-	4,867,279	684,460	7,714,917
85	7,714,917	-	3,210,908	441,890	4,945,899
86	4,945,899	-	2,096,158	281,955	3,131,696
87	3,131,696	-	1,352,679	177,632	1,956,649
88	1,956,649	-	862,092	110,383	1,204,939
89	1,204,939	-	542,449	67,567	730,058
90	730,058	-	336,874	40,647	433,831
91	433,831	-	206,136	23,944	251,639
92	251,639	-	124,034	13,730	141,335
93	141,335	-	73,031	7,593	75,897
94	75,897	-	41,606	3,993	38,283
95	38,283	-	22,456	1,962	17,790
96	17,790	-	11,125	887	7,552
97	7,552	-	4,918	370	3,004
98	3,004	-	1,981	146	1,168
99	1,168	-	807	56	417
100	417	-	432	15	-

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

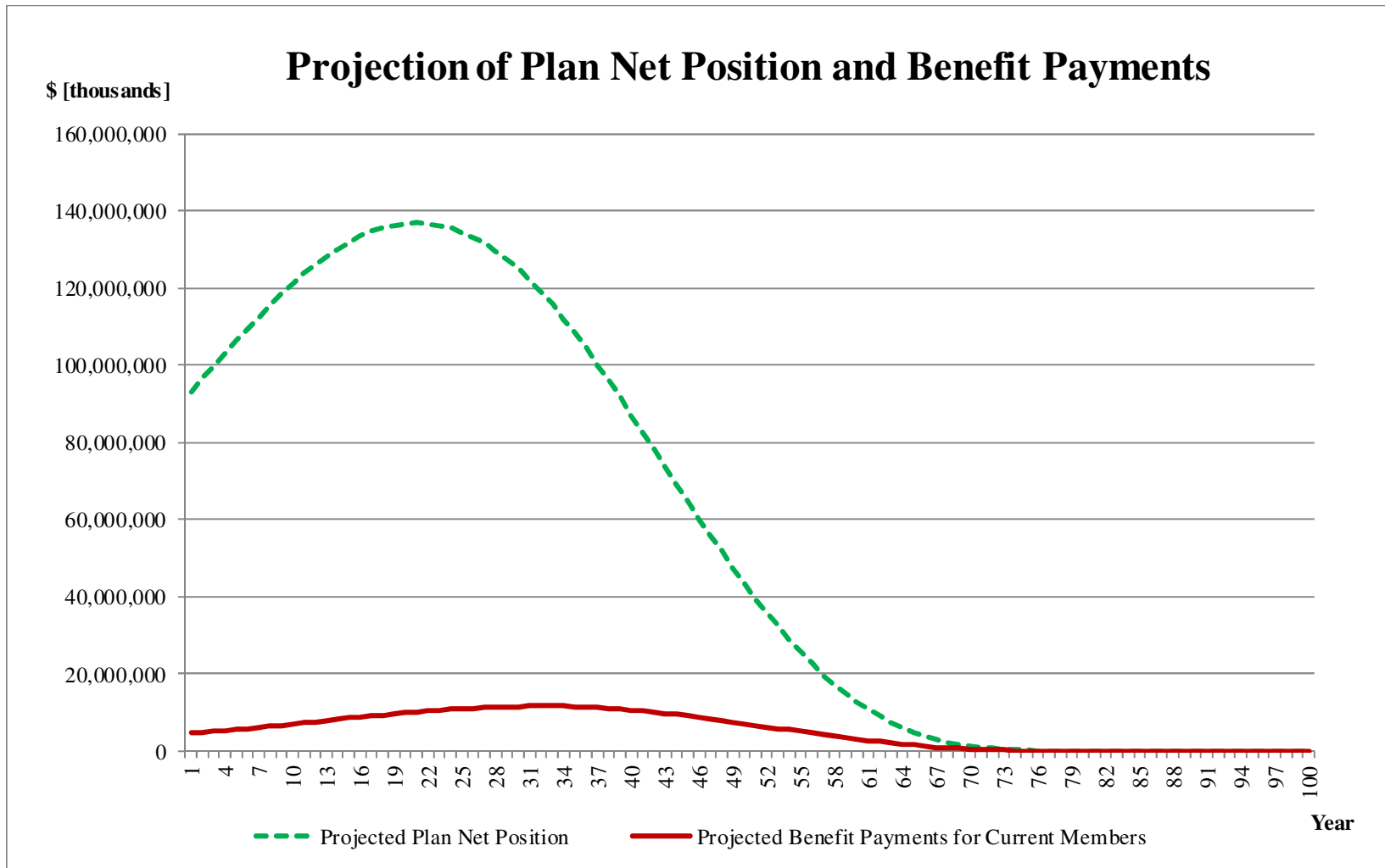
Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value 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	\$ 89,727,009,098	\$ 4,809,585,044	\$ 4,809,585,044	\$ -	\$ 4,645,262,020	\$ -	\$ 4,645,262,020
2	93,059,307,647	5,002,787,604	5,002,787,604	-	4,507,335,514	-	4,507,335,514
3	96,390,934,297	5,205,528,291	5,205,528,291	-	4,374,997,888	-	4,374,997,888
4	99,717,023,955	5,421,402,350	5,421,402,350	-	4,250,400,862	-	4,250,400,862
5	103,023,884,383	5,655,039,690	5,655,039,690	-	4,135,796,137	-	4,135,796,137
6	106,290,623,485	5,910,602,815	5,910,602,815	-	4,032,370,760	-	4,032,370,760
7	109,489,780,682	6,182,182,760	6,182,182,760	-	3,934,374,847	-	3,934,374,847
8	112,597,997,328	6,466,665,452	6,466,665,452	-	3,839,012,299	-	3,839,012,299
9	115,593,550,006	6,760,784,894	6,760,784,894	-	3,744,048,301	-	3,744,048,301
10	118,456,593,275	7,059,764,803	7,059,764,803	-	3,647,033,662	-	3,647,033,662
11	121,170,952,931	7,371,641,177	7,371,641,177	-	3,552,376,113	-	3,552,376,113
12	123,710,602,389	7,681,303,233	7,681,303,233	-	3,452,986,484	-	3,452,986,484
13	126,063,152,007	7,988,694,831	7,988,694,831	-	3,349,970,745	-	3,349,970,745
14	128,215,564,482	8,293,025,295	8,293,025,295	-	3,244,018,989	-	3,244,018,989
15	130,154,909,912	8,589,870,720	8,589,870,720	-	3,134,456,448	-	3,134,456,448
16	131,871,941,792	8,883,950,935	8,883,950,935	-	3,024,036,149	-	3,024,036,149
17	133,352,268,948	9,173,561,808	9,173,561,808	-	2,912,889,654	-	2,912,889,654
18	134,582,432,291	9,452,990,615	9,452,990,615	-	2,800,015,806	-	2,800,015,806
19	135,553,675,698	9,720,859,800	9,720,859,800	-	2,685,969,955	-	2,685,969,955
20	136,258,307,485	9,976,345,589	9,976,345,589	-	2,571,420,907	-	2,571,420,907
21	136,689,210,165	10,219,833,298	10,219,833,298	-	2,457,257,742	-	2,457,257,742
22	136,838,100,049	10,449,006,994	10,449,006,994	-	2,343,619,672	-	2,343,619,672
23	136,698,665,635	10,657,592,081	10,657,592,081	-	2,229,853,972	-	2,229,853,972
24	136,270,966,697	10,846,242,125	10,846,242,125	-	2,116,907,294	-	2,116,907,294
25	135,554,452,249	11,019,002,629	11,019,002,629	-	2,006,180,688	-	2,006,180,688
26	134,544,732,164	11,174,303,676	11,174,303,676	-	1,897,813,113	-	1,897,813,113
27	133,239,301,425	11,309,400,207	11,309,400,207	-	1,791,751,434	-	1,791,751,434
28	131,638,460,895	11,428,589,927	11,428,589,927	-	1,689,024,902	-	1,689,024,902
29	129,737,899,745	11,533,093,544	11,533,093,544	-	1,589,990,143	-	1,589,990,143
30	127,531,665,021	11,620,448,470	11,620,448,470	-	1,494,433,936	-	1,494,433,936
31	125,016,628,256	11,684,337,536	11,684,337,536	-	1,401,726,039	-	1,401,726,039
32	122,198,318,752	11,715,534,673	11,715,534,673	-	1,311,071,494	-	1,311,071,494
33	119,094,264,838	11,709,980,163	11,709,980,163	-	1,222,434,604	-	1,222,434,604
34	115,728,152,626	11,664,475,979	11,664,475,979	-	1,135,899,540	-	1,135,899,540
35	112,129,155,622	11,581,343,815	11,581,343,815	-	1,052,056,006	-	1,052,056,006
36	108,326,045,312	11,464,334,104	11,464,334,104	-	971,480,201	-	971,480,201
37	104,345,198,688	11,314,205,442	11,314,205,442	-	894,364,175	-	894,364,175
38	100,213,103,979	11,134,031,068	11,134,031,068	-	821,009,113	-	821,009,113
39	95,954,020,544	10,926,719,543	10,926,719,543	-	751,606,556	-	751,606,556
40	91,590,288,411	10,692,933,947	10,692,933,947	-	686,124,398	-	686,124,398
41	87,144,588,449	10,432,449,551	10,432,449,551	-	624,449,736	-	624,449,736
42	82,640,867,527	10,143,144,673	10,143,144,673	-	566,355,376	-	566,355,376
43	78,106,550,124	9,825,341,724	9,825,341,724	-	511,763,475	-	511,763,475
44	73,570,344,102	9,484,087,097	9,484,087,097	-	460,810,505	-	460,810,505
45	69,057,486,535	9,126,378,690	9,126,378,690	-	413,647,627	-	413,647,627
46	64,587,506,751	8,755,994,885	8,755,994,885	-	370,205,414	-	370,205,414
47	60,177,203,530	8,374,189,349	8,374,189,349	-	330,282,267	-	330,282,267
48	55,843,161,287	7,982,497,999	7,982,497,999	-	293,688,211	-	293,688,211
49	51,601,489,723	7,582,774,647	7,582,774,647	-	260,244,200	-	260,244,200
50	47,467,437,831	7,176,485,860	7,176,485,860	-	229,757,638	-	229,757,638

* For the 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 (CONTINUED)

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 ((a)-.5)	(g)=(e)*vf ^a ((a)-.5)	(h)=((c)/(1+sdr) ^a ((a)-.5)
51	\$ 43,455,763,615	\$ 6,764,907,380	\$ 6,764,907,380	\$ -	\$ 202,034,341	\$ -	\$ 202,034,341
52	39,580,928,911	6,349,299,561	6,349,299,561	-	176,886,371	-	176,886,371
53	35,857,121,715	5,931,388,771	5,931,388,771	-	154,145,255	-	154,145,255
54	32,297,741,450	5,513,572,170	5,513,572,170	-	133,663,259	-	133,663,259
55	28,914,618,014	5,098,433,311	5,098,433,311	-	115,297,779	-	115,297,779
56	25,717,704,852	4,688,118,307	4,688,118,307	-	98,898,106	-	98,898,106
57	22,715,428,707	4,284,577,475	4,284,577,475	-	84,314,570	-	84,314,570
58	19,914,799,315	3,889,889,379	3,889,889,379	-	71,406,393	-	71,406,393
59	17,321,173,397	3,506,220,540	3,506,220,540	-	60,040,498	-	60,040,498
60	14,938,047,187	3,135,816,923	3,135,816,923	-	50,091,146	-	50,091,146
61	12,766,842,243	2,780,970,556	2,780,970,556	-	41,439,249	-	41,439,249
62	10,806,709,363	2,443,967,874	2,443,967,874	-	33,971,615	-	33,971,615
63	9,054,370,841	2,126,985,330	2,126,985,330	-	27,579,755	-	27,579,755
64	7,504,059,534	1,831,942,919	1,831,942,919	-	22,158,638	-	22,158,638
65	6,147,605,150	1,560,364,078	1,560,364,078	-	17,606,064	-	17,606,064
66	4,974,671,812	1,313,262,830	1,313,262,830	-	13,822,710	-	13,822,710
67	3,973,129,562	1,091,104,363	1,091,104,363	-	10,713,048	-	10,713,048
68	3,129,493,443	893,888,311	893,888,311	-	8,187,197	-	8,187,197
69	2,429,307,960	721,239,514	721,239,514	-	6,162,213	-	6,162,213
70	1,857,465,256	572,437,828	572,437,828	-	4,562,373	-	4,562,373
71	1,398,515,323	446,441,063	446,441,063	-	3,319,187	-	3,319,187
72	1,036,974,811	341,896,120	341,896,120	-	2,371,194	-	2,371,194
73	757,646,531	257,107,054	257,107,054	-	1,663,382	-	1,663,382
74	545,995,038	190,006,888	190,006,888	-	1,146,707	-	1,146,707
75	388,578,427	138,204,326	138,204,326	-	778,055	-	778,055
76	273,462,862	99,125,252	99,125,252	-	520,569	-	520,569
77	190,520,447	70,233,001	70,233,001	-	344,065	-	344,065
78	131,520,473	49,234,316	49,234,316	-	224,995	-	224,995
79	90,014,001	34,189,353	34,189,353	-	145,747	-	145,747
80	61,096,230	23,536,724	23,536,724	-	93,597	-	93,597
81	41,125,839	16,069,379	16,069,379	-	59,610	-	59,610
82	27,449,076	10,882,277	10,882,277	-	37,657	-	37,657
83	18,158,179	7,309,272	7,309,272	-	23,594	-	23,594
84	11,897,735	4,867,279	4,867,279	-	14,656	-	14,656
85	7,714,917	3,210,908	3,210,908	-	9,019	-	9,019
86	4,945,899	2,096,158	2,096,158	-	5,492	-	5,492
87	3,131,696	1,352,679	1,352,679	-	3,306	-	3,306
88	1,956,649	862,092	862,092	-	1,966	-	1,966
89	1,204,939	542,449	542,449	-	1,154	-	1,154
90	730,058	336,874	336,874	-	668	-	668
91	433,831	206,136	206,136	-	382	-	382
92	251,639	124,034	124,034	-	214	-	214
93	141,335	73,031	73,031	-	118	-	118
94	75,897	41,606	41,606	-	63	-	63
95	38,283	22,456	22,456	-	31	-	31
96	17,790	11,125	11,125	-	15	-	15
97	7,552	4,918	4,918	-	6	-	6
98	3,004	1,981	1,981	-	2	-	2
99	1,168	807	807	-	1	-	1
100	417	432	417	-	0	-	0
Totals					\$ 107,108,329,044	\$ -	\$ 107,108,329,044



SECTION F

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, approximately 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.

% Merit and Longevity Increase Next Year						
Service	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	46.1
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	39.9
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 G

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 H

GLOSSARY OF TERMS

GLOSSARY OF TERMS

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

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<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.

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

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<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 the GASB Statement No. 67, the valuation asset is equal to the market value of assets.