

WISCONSIN RETIREMENT SYSTEM
GASB STATEMENT NO. 68 EMPLOYER REPORTING
ACCOUNTING SCHEDULES
DECEMBER 31, 2016

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September 13, 2017

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, 2015 valuation liabilities to December 31, 2016. 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. GRS is not responsible for unauthorized use of this report.

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 audit the data. We are not responsible for the accuracy or completeness of any data provided by DETF.

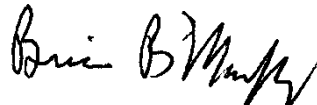
This report complements the actuarial valuation report that we provided to the Board and should be considered in conjunction with that report. Please see the actuarial valuation report as of December 31, 2015 for additional discussion of the nature of actuarial calculations and more information related 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.

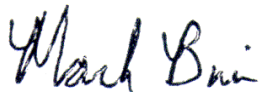
Employee Trust Funds Board
Wisconsin Department of Employee Trust Funds
September 13, 2017
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To the best of our knowledge, the information contained in this report is accurate, and fairly represents the actuarial position of WRS. All calculations have 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.

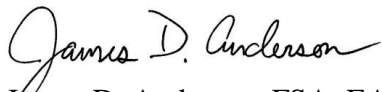
Respectfully submitted,



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



Mark Buis, FSA, EA, FCA, MAAA



James D. Anderson, FSA, EA, MAAA

BBM/MB/JDA:sc

SECTION A
EXECUTIVE SUMMARY

EXECUTIVE SUMMARY
AS OF DECEMBER 31, 2016

	<u>2016</u>	
Actuarial Valuation Date	December 31, 2015	
Measurement Date of the Net Pension Liability	December 31, 2016	
Membership as of December 31, 2015		
Number of		
- Retirees and Beneficiaries	191,795	
- Inactive, Nonretired Members	158,240	
- Active Members	<u>255,014</u>	
- Total	605,049	
Covered Payroll [^]	\$ 13,706,000,000	
Net Pension Liability		
Total Pension Liability	\$ 93,404,341,249	
Plan Fiduciary Net Position	<u>92,580,102,495</u>	
Net Pension Liability	\$ 824,238,754	
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	99.12%	
Net Pension Liability as a Percentage of Covered Payroll	6.01%	
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*	3.78%	
Last year ending December 31 in the 2017 to 2116 projection period for which projected benefit payments are fully funded	2116	
Total Pension Expense	\$ 2,120,883,909	
Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses		
	Deferred Outflows	Deferred Inflows
	of Resources	of Resources
Difference between expected and actual experience	\$ 314,282,358	\$ 2,592,159,617
Changes in assumptions	861,773,538	-
Net difference between projected and actual earnings on pension plan investments	<u>4,102,799,399</u>	-
Total	<u>\$ 5,278,855,295</u>	<u>\$ 2,592,159,617</u>

*Based on the '20-Bond GO Index' rate from the Bond Buyer Index as of December, 2016
(i.e., the weekly rate closest to but not later than the Measurement Date).

[^]Covered payroll is for 2016 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.

General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status

Given the plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the plan earning 7.2% on the actuarial value of assets), it is expected that:

1. The employer normal cost as a percentage of pay will decrease to the level of the future service normal cost as time passes.
2. The unfunded liability is expected to decrease in dollar amount until it is fully funded.
3. The funded status of the plan will remain very close to a 100% funded ratio.

This funding policy results in the expectation that the plan's assets will be able to fully pay for promised benefits through at least 2116. The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

Limitations of Funded Status Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based upon the total pension liability and the market value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

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

require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).

- (3) The measurement would produce a different result if the actuarial value of assets were used instead of the market value of assets.

Limitation of Project Scope

Actuarial standards do not require the actuary to evaluate the ability of the plan sponsor or other contributing entity to make required contributions to the plan when due. Such an evaluation was not within the scope of this project and is not within the actuary's domain of expertise. Consequently, the actuary performed no such evaluation.

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, 2015 with roll-forward to December 31, 2016 and a measurement date of December 31, 2016. The roll-forward included adjustments in the liability due to changes in dividend adjustments for current and future 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 3.78% (based on the weekly rate closest to but not later than the measurement date of the "20-Bond GO Index" rate from Bond Buyer Index); 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, 2016

A. Expense

1. Service Cost	\$ 1,814,134,799
2. Interest on the Total Pension Liability	6,372,404,646
3. Current-Period Benefit Changes	0
4. Employee Contributions (made negative for addition here)	(921,863,806)
5. Projected Earnings on Plan Investments (made negative for addition here)	(6,257,221,334)
6. Pension Plan Administrative Expense	20,426,189
7. Other Changes in Plan Fiduciary Net Position	0
8. Recognition of Outflow (Inflow) of Resources due to Liabilities	(441,485,121)
9. Recognition of Outflow (Inflow) of Resources due to Assets	1,534,488,536
10. Total Pension Expense	\$ 2,120,883,909

**STATEMENT OF OUTFLOWS AND INFLOWS ARISING FROM CURRENT
REPORTING PERIOD
FISCAL YEAR ENDED DECEMBER 31, 2016**

A. Outflows (Inflows) of Resources due to Liabilities

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses *	\$ 150,347,332
2. Assumption Changes (gains) or losses	\$ -
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years }	5.0481
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	\$ 29,782,954
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>\$ 29,782,954</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	\$ 120,564,378
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>\$ 120,564,378</u>

B. Outflows (Inflows) of Resources due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$ (1,015,847,753)
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	\$ (203,169,551)
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$ (812,678,202)

* Starting with 2015, this item includes the impact of known Market Recognition Account deferred gains/losses on the liability for dividend payments. This was a change in method from the prior valuation. See page 22 for a full description.

**STATEMENT OF OUTFLOWS AND INFLOWS ARISING FROM CURRENT AND PRIOR
REPORTING PERIODS
FISCAL YEAR ENDED DECEMBER 31, 2016**

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	\$ 386,099,202	\$ 827,584,323	\$ (441,485,121)
2. Due to Assets	1,534,488,536	-	1,534,488,536
3. Total	\$ 1,920,587,738	\$ 827,584,323	\$ 1,093,003,415

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	\$ 110,965,578	\$ 827,584,323	\$ (716,618,745)
2. Assumption Changes	275,133,624	-	275,133,624
3. Net Difference between projected and actual earnings on pension plan investments	1,534,488,536	-	1,534,488,536
4. Total	\$ 1,920,587,738	\$ 827,584,323	\$ 1,093,003,415

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	\$ 314,282,358	\$ 2,592,159,617	\$ (2,277,877,259)
2. Assumption Changes	861,773,538	-	861,773,538
3. Net Difference between projected and actual earnings on pension plan investments	4,102,799,399	-	4,102,799,399
4. Total	\$ 5,278,855,295	\$ 2,592,159,617	\$ 2,686,695,678

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>
2017	\$ 1,093,003,415
2018	1,093,003,414
2019	745,676,864
2020	(246,420,577)
2021	1,432,562
Thereafter	-
Total	\$ 2,686,695,678

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS
CURRENT PERIOD
FISCAL YEAR ENDED DECEMBER 31, 2016

A. Total pension liability	
1. Service Cost	\$ 1,814,134,799
2. Interest on the total pension liability	6,372,404,646
3. Changes of benefit terms	-
4. Difference between expected and actual experience of the total pension liability	150,347,332
5. Changes of assumptions	-
6. Benefit payments, including refunds of employee contributions	(5,062,196,429)
7. Net change in total pension liability	\$ 3,274,690,348
8. Total pension liability – beginning	90,129,650,901
9. Total pension liability – ending	<u><u>\$ 93,404,341,249</u></u>
B. Plan fiduciary net position	
1. Contributions – employer	\$ 963,121,911
2. Contributions – employee	921,863,806
3. Net investment income	7,273,069,087
4. Benefit payments, including refunds of employee contributions	(5,062,196,429)
5. Pension plan administrative expense	(20,426,189)
6. Other	-
7. Net change in plan fiduciary net position	\$ 4,075,432,186
8. Plan fiduciary net position – beginning	88,504,670,309
9. Plan fiduciary net position – ending	<u><u>\$ 92,580,102,495</u></u>
C. Net pension liability	<u><u>\$ 824,238,754</u></u>
D. Plan fiduciary net position as a percentage of the total pension liability	99.12%
E. Covered-employee payroll[^]	\$ 13,706,000,000
F. Net pension liability as a percentage of covered-employee payroll	6.01%

[^]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,	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Total Pension Liability										
Service Cost	\$ 1,814,134,799	\$ 1,787,870,316	\$ 1,757,020,910							
Interest on the Total Pension Liability	6,372,404,646	6,347,123,575	6,089,287,273							
Benefit Changes	-	-	-							
Difference between Expected and Actual Experience*	150,347,332	(4,247,328,263)	437,265,852							
Assumption Changes	-	1,412,040,786	-							
Benefit Payments	(5,022,920,827)	(4,823,586,513)	(4,540,247,874)							
Refunds	(39,275,602)	(37,642,404)	(34,401,181)							
Net Change in Total Pension Liability	3,274,690,348	438,477,497	3,708,924,980							
Total Pension Liability - Beginning	90,129,650,901	89,691,173,404	85,982,248,424							
Total Pension Liability - Ending (a)	\$ 93,404,341,249	\$ 90,129,650,901	\$ 89,691,173,404							
Plan Fiduciary Net Position										
Employer Contributions	\$ 963,121,911	\$ 977,733,921	\$ 987,792,834							
Employee Contributions	921,863,806	937,225,184	941,903,267							
Pension Plan Net Investment Income	7,273,069,087	(673,122,812)	4,891,014,826							
Benefit Payments	(5,022,920,827)	(4,823,586,513)	(4,540,247,874)							
Refunds	(39,275,602)	(37,642,404)	(34,401,181)							
Pension Plan Administrative Expense	(20,426,189)	(22,708,614)	(24,036,951)							
Other	-	-	-							
Net Change in Plan Fiduciary Net Position	4,075,432,186	(3,642,101,238)	2,222,024,921							
Plan Fiduciary Net Position - Beginning	88,504,670,309	92,146,771,547	89,924,746,626							
Plan Fiduciary Net Position - Ending (b)	\$ 92,580,102,495	\$ 88,504,670,309	\$ 92,146,771,547							
Net Pension Liability - Ending (a) - (b)	824,238,754	1,624,980,592	(2,455,598,143)							
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	99.12 %	98.20 %	102.74 %							
Covered-Employee Payroll[^]	\$ 13,706,000,000	\$ 13,530,500,000	\$ 13,219,500,000							
Net Pension Liability as a Percentage of Covered-Employee Payroll	6.01 %	12.01 %	(18.58)%							
Notes to Schedule:										

[^] Covered payroll provided by DETF.

* Starting with 2015, this item includes the impact of known Market Recognition Account deferred gains/losses on the liability for dividend payments. See page 22 for a full description.

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
2007					0.00%
2008					0.00%
2009					0.00%
2010					0.00%
2011					0.00%
2012					0.00%
2013					0.00%
2014	\$ 977,068,988	\$ 977,068,988	\$ -	\$ 13,219,500,000	7.39%
2015	967,730,052	967,730,052	-	13,530,500,000	7.15%
2016	954,159,009	954,159,009	-	13,706,000,000	6.96%

* Since it is the actuary's understanding that the System's practice is to require employers to contribute the percent-of-payroll employer contribution rate shown in the actuarial valuation report, the Actuarially Determined Contributions shown in the Schedule of Contributions are the actual contributions made by the participating employers in the fiscal year.

^ Covered payroll provided by DETF.

Previously the Annual Determined Contribution (ADC) included Prior Service Contributions, Early Retirement Contributions, Employer Additional Contributions, and Employer Required Contributions. We have updated the amounts for 2014 and 2015 to only include the Employer Required Contributions.

NOTES TO SCHEDULE OF CONTRIBUTIONS

SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS USED IN THE CALCULATION OF THE 2016 CONTRIBUTION RATE

Valuation Date: December 31, 2014

Methods and Assumptions Used to Determine Actuarial Contribution on prior page:

Actuarial Cost Method	Frozen Entry Age
Amortization Method	Level Percentage of Payroll, Closed
Amortization Period	30-Year closed from date of participation in WRS
Asset Valuation Method	5-Year smoothed value
Inflation	2.0% to 2.7% -- approximate; No explicit price inflation assumption is used in this valuation.
Salary Increases	3.2% to 8.8% including inflation
Net Investment Rate of Return	5.50%
Weighted based on assumed rate for:	
Retired participants	5.00%
Active participants	
Post-retirement participants	5.00%
Pre-retirement participants	7.20%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2012 valuation pursuant to an experience study of the period 2009 - 2011.
Mortality	WRS experience projected to 2017 with scale BB

Other Information:

Notes The actuarially determined contribution for calendar year 2016 was determined from the December 31, 2014 actuarial valuation.

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 3.78%. 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 after reflecting known changes in the Market Recognition Account. 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	
Discount Rate	6.20%	7.20%	8.20%	
Ultimate Dividend Rate	2.10%	2.10%	2.10%	
Total Pension Liability	\$ 103,423,491,797	\$ 93,404,341,249	\$ 85,689,141,477	
Plan Fiduciary Net Position	92,580,102,495	92,580,102,495	92,580,102,495	
Net Pension Liability/(Asset)	\$ 10,843,389,302	\$ 824,238,754	\$ (6,890,961,018)	

This schedule is presented because it is required by GASB standards. Users of this report should not conclude that the authors view the upper end of the range as reasonable. 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	
Discount Rate	6.20%	7.20%	8.20%	
Ultimate Dividend Rate	1.10%	2.10%	3.00%	
Total Pension Liability	\$ 96,874,461,363	\$ 93,404,341,249	\$ 89,738,929,000	
Plan Fiduciary Net Position	92,580,102,495	92,580,102,495	92,580,102,495	
Net Pension Liability/(Asset)	\$ 4,294,358,868	\$ 824,238,754	\$ (2,841,173,495)	

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 municipal bond 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 Bond Buyer Index) 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 3.78%; and the resulting SDR is 7.20%.

The tables in this section provide background for the development of the SDR.

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 contribution rate for the first year was developed from the 2015 actuarial valuation (14.10%). Expected contribution rates gradually increase as the unrecognized asset losses from the Market Recognition Account are phased in over the next 5 years. The expected contribution rate then remains level for 20 years and is assumed to migrate to the ultimate contribution rate of 13.4% once the Experience Amortization Reserve (EAR) component is paid down.

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.

The WRS funding policy as it affects the closed group cannot be modelled with 100% accuracy. In reality, assets that appear to be left over after all benefit obligations are satisfied would be assigned to the funding benefits of people who enter the plan after the measurement date.

SINGLE DISCOUNT RATE DEVELOPMENT
PROJECTION OF CONTRIBUTIONS ENDING DECEMBER 31, 2116

Year	Payroll for Current Employees	Contributions from Current Employees	Normal Cost Contributions	UAL Contributions	Total Contributions
0	\$ 13,276,474,329				
1	12,935,200,015	\$ 879,102,063	\$ 944,761,139	\$ -	\$ 1,823,863,202
2	12,634,392,472	852,568,804	916,246,142	-	1,768,814,946
3	12,341,302,304	844,688,095	907,776,832	-	1,752,464,927
4	12,043,512,125	847,526,035	910,826,735	-	1,758,352,770
5	11,738,604,914	843,043,128	906,009,004	-	1,749,052,132
6	11,425,512,815	820,557,479	881,843,930	-	1,702,401,409
7	11,104,965,790	797,536,433	857,103,470	-	1,654,639,903
8	10,777,867,059	774,044,857	831,857,335	-	1,605,902,192
9	10,440,684,744	749,829,097	805,832,930	-	1,555,662,027
10	10,092,957,638	724,856,032	778,994,656	-	1,503,850,688
11	9,735,495,337	699,183,804	751,405,001	-	1,450,588,805
12	9,368,252,300	672,809,144	723,060,449	-	1,395,869,593
13	8,990,986,344	645,714,657	693,942,308	-	1,339,656,965
14	8,605,861,035	618,055,728	664,217,566	-	1,282,273,294
15	8,214,391,932	589,941,200	634,003,198	-	1,223,944,398
16	7,814,568,030	561,226,647	603,143,989	-	1,164,370,636
17	7,408,104,065	532,035,218	571,772,288	-	1,103,807,506
18	6,996,324,876	502,462,060	539,990,347	-	1,042,452,407
19	6,577,368,904	472,373,480	507,654,487	-	980,027,967
20	6,152,974,255	441,894,305	474,898,859	-	916,793,164
21	5,725,794,077	411,215,079	441,928,238	-	853,143,317
22	5,296,465,595	380,381,566	408,791,808	-	789,173,374
23	4,866,445,076	349,498,352	375,601,964	-	725,100,316
24	4,438,782,956	318,784,514	342,594,146	-	661,378,660
25	4,014,728,431	288,329,766	309,864,770	-	598,194,536
26	3,593,365,885	258,068,351	277,343,166	-	535,411,517
27	3,173,499,696	227,914,401	244,937,054	-	472,851,455
28	2,756,210,756	178,018,140	191,314,101	-	369,332,241
29	2,348,195,560	151,665,255	162,992,950	-	314,658,205
30	1,964,055,510	126,854,417	136,329,021	-	263,183,438
31	1,616,231,404	104,389,154	112,185,854	-	216,575,008
32	1,309,598,732	84,584,363	90,901,867	-	175,486,230
33	1,047,105,313	67,630,438	72,681,674	-	140,312,112
34	828,901,725	53,537,105	57,535,726	-	111,072,831
35	650,820,285	42,035,180	45,174,738	-	87,209,918
36	506,161,343	32,691,949	35,133,671	-	67,825,620
37	389,491,641	25,156,486	27,035,394	-	52,191,880
38	296,557,017	19,154,024	20,584,616	-	39,738,640
39	223,575,890	14,440,319	15,518,850	-	29,959,169
40	167,031,119	10,788,206	11,593,964	-	22,382,170
41	123,712,682	7,990,355	8,587,144	-	16,577,499
42	90,888,897	5,870,332	6,308,780	-	12,179,112
43	66,280,269	4,280,910	4,600,646	-	8,881,556
44	47,729,204	3,082,734	3,312,979	-	6,395,713
45	33,835,309	2,185,355	2,348,576	-	4,533,931
46	23,641,258	1,526,942	1,640,987	-	3,167,929
47	16,125,749	1,041,530	1,119,320	-	2,160,850
48	10,634,717	686,875	738,177	-	1,425,052
49	6,534,869	422,074	453,598	-	875,672
50	3,592,075	232,005	249,333	-	481,338

SINGLE DISCOUNT RATE DEVELOPMENT
PROJECTION OF CONTRIBUTIONS ENDING DECEMBER 31, 2116 (CONCLUDED)

Year	Payroll for Current Employees	Contributions from Current Employees	Normal Cost Contributions	UAL Contributions	Total Contributions
51	\$ 1,760,337	\$ 113,697	\$ 122,188	\$ -	\$ 235,885
52	787,037	50,833	54,630	-	105,463
53	340,120	21,968	23,608	-	45,576
54	140,362	9,066	9,743	-	18,809
55	44,395	2,867	3,082	-	5,949
56	8,750	565	608	-	1,173
57	413	27	28	-	55
58	-	-	-	-	-
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, 2116

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	\$ 92,580,102,495	\$ 1,823,863,202	\$ 5,154,635,239	\$ 6,547,943,556	\$ 95,797,274,014
2	95,797,274,014	1,768,814,946	5,294,409,215	6,772,688,199	99,044,367,944
3	99,044,367,944	1,752,464,927	5,418,491,292	7,001,511,271	102,379,852,850
4	102,379,852,850	1,758,352,770	5,578,293,099	7,236,221,581	105,796,134,103
5	105,796,134,103	1,749,052,132	5,817,579,779	7,473,400,222	109,201,006,678
6	109,201,006,678	1,702,401,409	6,091,569,633	7,707,208,602	112,519,047,057
7	112,519,047,057	1,654,639,903	6,380,938,496	7,934,181,749	115,726,930,213
8	115,726,930,213	1,605,902,192	6,677,571,589	8,152,932,076	118,808,192,892
9	118,808,192,892	1,555,662,027	6,981,356,965	8,362,259,573	121,744,757,527
10	121,744,757,527	1,503,850,688	7,291,595,398	8,560,884,960	124,517,897,777
11	124,517,897,777	1,450,588,805	7,605,542,454	8,747,561,288	127,110,505,416
12	127,110,505,416	1,395,869,593	7,918,844,361	8,921,210,538	129,508,741,186
13	129,508,741,186	1,339,656,965	8,226,594,850	9,081,008,563	131,702,811,864
14	131,702,811,864	1,282,273,294	8,525,929,227	9,226,362,990	133,685,518,921
15	133,685,518,921	1,223,944,398	8,823,815,078	9,356,517,041	135,442,165,282
16	135,442,165,282	1,164,370,636	9,117,984,081	9,470,482,166	136,959,034,002
17	136,959,034,002	1,103,807,506	9,403,019,903	9,567,471,383	138,227,292,988
18	138,227,292,988	1,042,452,407	9,678,520,377	9,646,869,990	139,238,095,008
19	139,238,095,008	980,027,967	9,945,539,415	9,707,993,894	139,980,577,454
20	139,980,577,454	916,793,164	10,200,896,419	9,750,182,659	140,446,656,858
21	140,446,656,858	853,143,317	10,437,959,441	9,773,102,860	140,634,943,594
22	140,634,943,594	789,173,374	10,657,113,973	9,776,644,167	140,543,647,162
23	140,543,647,162	725,100,316	10,862,726,756	9,760,530,868	140,166,551,590
24	140,166,551,590	661,378,660	11,053,860,110	9,724,364,662	139,498,434,802
25	139,498,434,802	598,194,536	11,226,595,799	9,667,914,749	138,537,948,287
26	138,537,948,287	535,411,517	11,384,803,064	9,590,942,337	137,279,499,077
27	137,279,499,077	472,851,455	11,529,061,902	9,493,017,914	135,716,306,544
28	135,716,306,544	369,332,241	11,659,019,611	9,372,208,962	133,798,828,136
29	133,798,828,136	314,658,205	11,772,322,735	9,228,208,438	131,569,372,044
30	131,569,372,044	263,183,438	11,861,165,796	9,062,723,950	129,034,113,636
31	129,034,113,636	216,575,008	11,918,150,689	8,876,520,800	126,209,058,755
32	126,209,058,755	175,486,230	11,938,315,621	8,670,950,040	123,117,179,403
33	123,117,179,403	140,312,112	11,922,824,433	8,447,638,456	119,782,305,539
34	119,782,305,539	111,072,831	11,873,478,767	8,208,238,788	116,228,138,391
35	116,228,138,391	87,209,918	11,788,972,661	7,954,483,966	112,480,859,614
36	112,480,859,614	67,825,620	11,672,311,695	7,688,120,990	108,564,494,529
37	108,564,494,529	52,191,880	11,528,133,557	7,410,689,876	104,499,242,728
38	104,499,242,728	39,738,640	11,356,488,127	7,123,623,063	100,306,116,304
39	100,306,116,304	29,959,169	11,157,614,442	6,828,407,041	96,006,868,073
40	96,006,868,073	22,382,170	10,930,223,474	6,526,636,940	91,625,663,709
41	91,625,663,709	16,577,499	10,672,178,224	6,220,113,067	87,190,176,051
42	87,190,176,051	12,179,112	10,384,691,428	5,910,772,018	82,728,435,754
43	82,728,435,754	8,881,556	10,073,258,763	5,600,426,789	78,264,485,337
44	78,264,485,337	6,395,713	9,744,419,300	5,290,566,899	73,817,028,649
45	73,817,028,649	4,533,931	9,401,596,296	4,982,411,292	69,402,377,576
46	69,402,377,576	3,167,929	9,046,237,310	4,677,078,679	65,036,386,874
47	65,036,386,874	2,160,850	8,680,158,704	4,375,641,509	60,734,030,529
48	60,734,030,529	1,425,052	8,304,759,601	4,079,125,315	56,509,821,294
49	56,509,821,294	875,672	7,921,525,174	3,788,519,476	52,377,691,269
50	52,377,691,269	481,338	7,531,479,312	3,504,789,776	48,351,483,070

SINGLE DISCOUNT RATE DEVELOPMENT
PROJECTION OF PLAN FIDUCIARY NET POSITION ENDING DECEMBER 31, 2116
(CONCLUDED)

Year	Projected Beginning		Projected Benefit		Projected Ending Plan	
	Plan Net Position	Total Contributions	Payments Including Dividends	Investment Earnings at 7.20%	Net Position	Net Position
	(a)	(b)	(c)	(d)	(e)=(a)+(b)-(c)+(d)	
51	\$ 48,351,483,070	\$ 235,885	\$ 7,135,597,499	\$ 3,228,898,156	\$ 44,445,019,611	
52	44,445,019,611	105,463	6,735,433,256	2,961,783,714	40,671,475,533	
53	40,671,475,533	45,576	6,332,823,853	2,704,328,460	37,043,025,715	
54	37,043,025,715	18,809	5,929,569,031	2,457,343,994	33,570,819,488	
55	33,570,819,488	5,949	5,527,268,757	2,221,575,793	30,265,132,473	
56	30,265,132,473	1,173	5,127,455,464	1,997,709,286	27,135,387,468	
57	27,135,387,468	55	4,731,803,004	1,786,363,546	24,189,948,065	
58	24,189,948,065	-	4,342,132,997	1,588,076,222	21,435,891,290	
59	21,435,891,290	-	3,960,406,670	1,403,287,447	18,878,772,066	
60	18,878,772,066	-	3,588,716,167	1,232,323,164	16,522,379,064	
61	16,522,379,064	-	3,229,240,619	1,075,379,074	14,368,517,519	
62	14,368,517,519	-	2,884,147,942	932,508,465	12,416,878,042	
63	12,416,878,042	-	2,555,512,165	803,615,692	10,664,981,569	
64	10,664,981,569	-	2,245,198,373	688,456,288	9,108,239,484	
65	9,108,239,484	-	1,954,731,870	586,645,916	7,740,153,530	
66	7,740,153,530	-	1,685,286,543	497,675,174	6,552,542,162	
67	6,552,542,162	-	1,437,737,172	420,924,049	5,535,729,039	
68	5,535,729,039	-	1,212,674,350	355,674,950	4,678,729,638	
69	4,678,729,638	-	1,010,420,169	301,125,599	3,969,435,068	
70	3,969,435,068	-	831,047,216	256,401,588	3,394,789,440	
71	3,394,789,440	-	674,346,614	220,570,281	2,941,013,106	
72	2,941,013,106	-	539,752,860	192,659,549	2,593,919,795	
73	2,593,919,795	-	426,257,584	171,683,649	2,339,345,860	
74	2,339,345,860	-	332,341,644	156,676,539	2,163,680,755	
75	2,163,680,755	-	256,014,420	146,728,676	2,054,395,011	
76	2,054,395,011	-	194,989,281	141,018,826	2,000,424,557	
77	2,000,424,557	-	146,903,942	138,833,940	1,992,354,555	
78	1,992,354,555	-	109,503,768	139,575,906	2,022,426,693	
79	2,022,426,693	-	80,759,324	142,757,915	2,084,425,283	
80	2,084,425,283	-	58,916,794	147,994,478	2,173,502,967	
81	2,173,502,967	-	42,501,856	154,988,739	2,285,989,850	
82	2,285,989,850	-	30,301,685	163,519,367	2,419,207,533	
83	2,419,207,533	-	21,334,703	173,428,242	2,571,301,071	
84	2,571,301,071	-	14,818,781	184,609,473	2,741,091,763	
85	2,741,091,763	-	10,141,178	196,999,870	2,927,950,455	
86	2,927,950,455	-	6,828,478	210,570,880	3,131,692,857	
87	3,131,692,857	-	4,519,359	225,322,016	3,352,495,515	
88	3,352,495,515	-	2,937,753	241,275,756	3,590,833,518	
89	3,590,833,518	-	1,873,637	258,473,735	3,847,433,616	
90	3,847,433,616	-	1,171,612	276,973,775	4,123,235,780	
91	4,123,235,780	-	716,969	296,847,614	4,419,366,425	
92	4,419,366,425	-	427,155	318,179,272	4,737,118,542	
93	4,737,118,542	-	245,486	341,063,851	5,077,936,908	
94	5,077,936,908	-	133,630	365,606,730	5,443,410,008	
95	5,443,410,008	-	66,885	391,923,155	5,835,266,278	
96	5,835,266,278	-	30,004	420,138,111	6,255,374,385	
97	6,255,374,385	-	12,228	450,386,523	6,705,748,679	
98	6,705,748,679	-	4,903	482,813,731	7,188,557,508	
99	7,188,557,508	-	2,687	517,576,045	7,706,130,866	
100	7,706,130,866	-	-	554,841,422	8,260,972,289	

SINGLE DISCOUNT RATE DEVELOPMENT

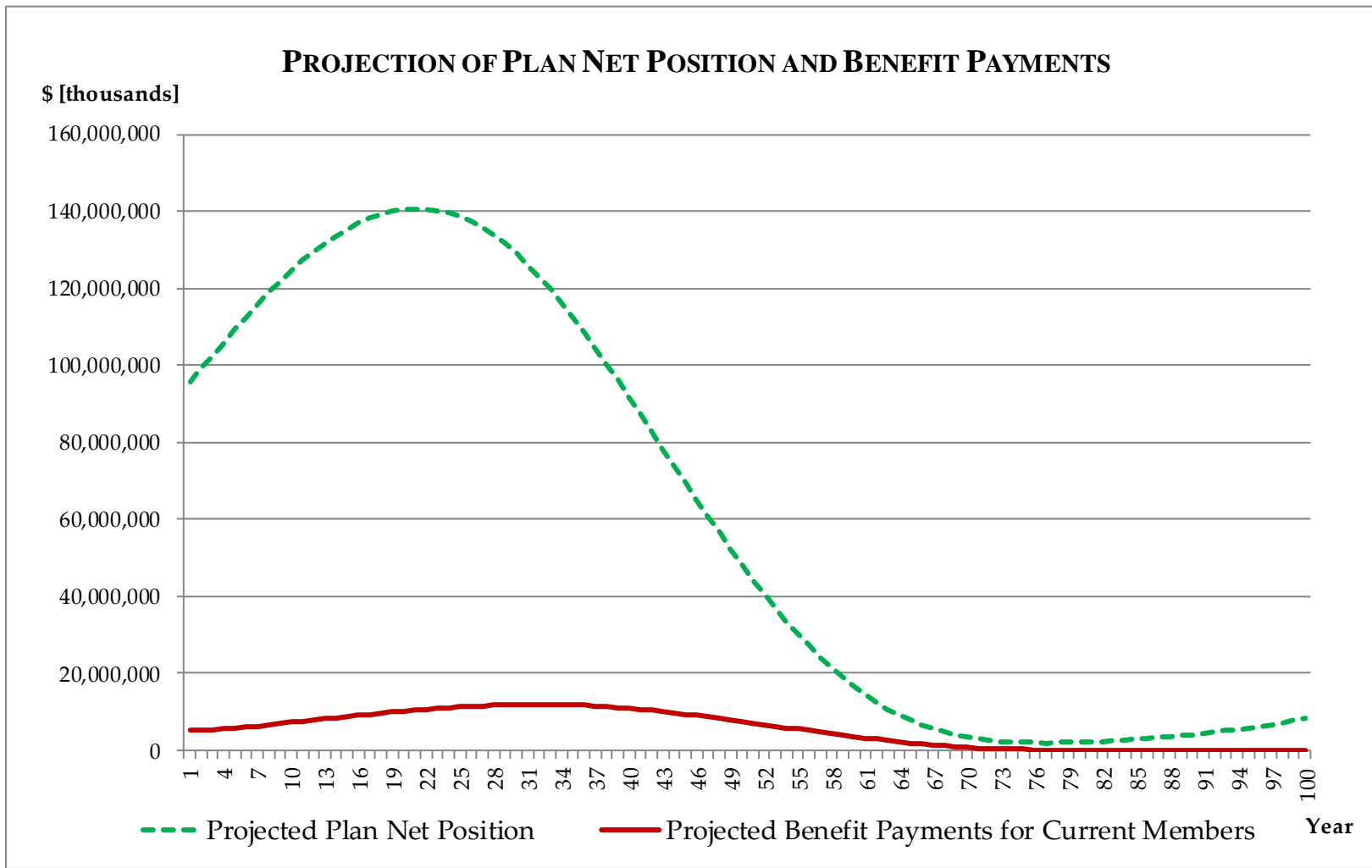
PRESENT VALUES OF PROJECTED BENEFITS ENDING DECEMBER 31, 2116

Year	Projected Beginning Plan Net Position*	Projected Benefit Payments Including Dividends	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	\$ 92,580,102,495	\$ 5,154,635,239	\$ 5,154,635,239	\$ -	\$ 4,978,523,320	\$ -	\$ 4,978,523,320
2	95,797,274,014	5,294,409,215	5,294,409,215	-	4,770,076,320	-	4,770,076,320
3	99,044,367,944	5,418,491,292	5,418,491,292	-	4,553,983,119	-	4,553,983,119
4	102,379,852,850	5,578,293,099	5,578,293,099	-	4,373,403,828	-	4,373,403,828
5	105,796,134,103	5,817,579,779	5,817,579,779	-	4,254,669,339	-	4,254,669,339
6	109,201,006,678	6,091,569,633	6,091,569,633	-	4,155,831,145	-	4,155,831,145
7	112,519,047,057	6,380,938,496	6,380,938,496	-	4,060,864,082	-	4,060,864,082
8	115,726,930,213	6,677,571,589	6,677,571,589	-	3,964,219,218	-	3,964,219,218
9	118,808,192,892	6,981,356,965	6,981,356,965	-	3,866,198,687	-	3,866,198,687
10	121,744,757,527	7,291,595,398	7,291,595,398	-	3,766,796,006	-	3,766,796,006
11	124,517,897,777	7,605,542,454	7,605,542,454	-	3,665,092,574	-	3,665,092,574
12	127,110,505,416	7,918,844,361	7,918,844,361	-	3,559,768,664	-	3,559,768,664
13	129,508,741,186	8,226,594,850	8,226,594,850	-	3,449,731,485	-	3,449,731,485
14	131,702,811,864	8,525,929,227	8,525,929,227	-	3,335,125,039	-	3,335,125,039
15	133,685,518,921	8,823,815,078	8,823,815,078	-	3,219,823,088	-	3,219,823,088
16	135,442,165,282	9,117,984,081	9,117,984,081	-	3,103,699,431	-	3,103,699,431
17	136,959,034,002	9,403,019,903	9,403,019,903	-	2,985,749,698	-	2,985,749,698
18	138,227,292,988	9,678,520,377	9,678,520,377	-	2,866,818,676	-	2,866,818,676
19	139,238,095,008	9,945,539,415	9,945,539,415	-	2,748,051,161	-	2,748,051,161
20	139,980,577,454	10,200,896,419	10,200,896,419	-	2,629,299,285	-	2,629,299,285
21	140,446,656,858	10,437,959,441	10,437,959,441	-	2,509,704,013	-	2,509,704,013
22	140,634,943,594	10,657,113,973	10,657,113,973	-	2,390,296,223	-	2,390,296,223
23	140,543,647,162	10,862,726,756	10,862,726,756	-	2,272,773,646	-	2,272,773,646
24	140,166,551,590	11,053,860,110	11,053,860,110	-	2,157,428,980	-	2,157,428,980
25	139,498,434,802	11,226,595,799	11,226,595,799	-	2,043,976,251	-	2,043,976,251
26	138,537,948,287	11,384,803,064	11,384,803,064	-	1,933,563,752	-	1,933,563,752
27	137,279,499,077	11,529,061,902	11,529,061,902	-	1,826,552,498	-	1,826,552,498
28	135,716,306,544	11,659,019,611	11,659,019,611	-	1,723,079,976	-	1,723,079,976
29	133,798,828,136	11,772,322,735	11,772,322,735	-	1,622,971,064	-	1,622,971,064
30	131,569,372,044	11,861,165,796	11,861,165,796	-	1,525,391,101	-	1,525,391,101
31	129,034,113,636	11,918,150,689	11,918,150,689	-	1,429,775,724	-	1,429,775,724
32	126,209,058,755	11,938,315,621	11,938,315,621	-	1,336,002,644	-	1,336,002,644
33	123,117,179,403	11,922,824,433	11,922,824,433	-	1,244,653,959	-	1,244,653,959
34	119,782,305,539	11,873,478,767	11,873,478,767	-	1,156,252,462	-	1,156,252,462
35	116,228,138,391	11,788,972,661	11,788,972,661	-	1,070,917,131	-	1,070,917,131
36	112,480,859,614	11,672,311,695	11,672,311,695	-	989,104,087	-	989,104,087
37	108,564,494,529	11,528,133,557	11,528,133,557	-	911,274,744	-	911,274,744
38	104,499,242,728	11,356,488,127	11,356,488,127	-	837,412,811	-	837,412,811
39	100,306,116,304	11,157,614,442	11,157,614,442	-	767,488,919	-	767,488,919
40	96,006,868,073	10,930,223,474	10,930,223,474	-	701,350,353	-	701,350,353
41	91,625,663,709	10,672,178,224	10,672,178,224	-	638,799,051	-	638,799,051
42	87,190,176,051	10,384,691,428	10,384,691,428	-	579,842,447	-	579,842,447
43	82,728,435,754	10,073,258,763	10,073,258,763	-	524,676,500	-	524,676,500
44	78,264,485,337	9,744,419,300	9,744,419,300	-	473,459,462	-	473,459,462
45	73,817,028,649	9,401,596,296	9,401,596,296	-	426,121,699	-	426,121,699
46	69,402,377,576	9,046,237,310	9,046,237,310	-	382,476,928	-	382,476,928
47	65,036,386,874	8,680,158,704	8,680,158,704	-	342,349,854	-	342,349,854
48	60,734,030,529	8,304,759,601	8,304,759,601	-	305,544,704	-	305,544,704
49	56,509,821,294	7,921,525,174	7,921,525,174	-	271,870,269	-	271,870,269
50	52,377,691,269	7,531,479,312	7,531,479,312	-	241,122,874	-	241,122,874

SINGLE DISCOUNT RATE DEVELOPMENT

PRESENT VALUES OF PROJECTED BENEFITS ENDING DECEMBER 31, 2116 (CONCLUDED)

Year	Projected Beginning Plan Net Position	Projected Benefit Payments Including Dividends	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^(a)-.5	(g)=(e)*vf^(a)-.5	(h)=(c)/(1+sdr)^(a)-.5
51	\$ 48,351,483,070	\$ 7,135,597,499	\$ 7,135,597,499	\$ -	\$ 213,105,022	\$ -	\$ 213,105,022
52	44,445,019,611	6,735,433,256	6,735,433,256	-	187,643,745	-	187,643,745
53	40,671,475,533	6,332,823,853	6,332,823,853	-	164,577,771	-	164,577,771
54	37,043,025,715	5,929,569,031	5,929,569,031	-	143,748,100	-	143,748,100
55	33,570,819,488	5,527,268,757	5,527,268,757	-	124,995,616	-	124,995,616
56	30,265,132,473	5,127,455,464	5,127,455,464	-	108,166,134	-	108,166,134
57	27,135,387,468	4,731,803,004	4,731,803,004	-	93,115,351	-	93,115,351
58	24,189,948,065	4,342,132,997	4,342,132,997	-	79,708,193	-	79,708,193
59	21,435,891,290	3,960,406,670	3,960,406,670	-	67,817,978	-	67,817,978
60	18,878,772,066	3,588,716,167	3,588,716,167	-	57,325,702	-	57,325,702
61	16,522,379,064	3,229,240,619	3,229,240,619	-	48,118,922	-	48,118,922
62	14,368,517,519	2,884,147,942	2,884,147,942	-	40,090,201	-	40,090,201
63	12,416,878,042	2,555,512,165	2,555,512,165	-	33,136,289	-	33,136,289
64	10,664,981,569	2,245,198,373	2,245,198,373	-	27,157,254	-	27,157,254
65	9,108,239,484	1,954,731,870	1,954,731,870	-	22,055,837	-	22,055,837
66	7,740,153,530	1,685,286,543	1,685,286,543	-	17,738,435	-	17,738,435
67	6,552,542,162	1,437,737,172	1,437,737,172	-	14,116,475	-	14,116,475
68	5,535,729,039	1,212,674,350	1,212,674,350	-	11,106,985	-	11,106,985
69	4,678,729,638	1,010,420,169	1,010,420,169	-	8,632,950	-	8,632,950
70	3,969,435,068	831,047,216	831,047,216	-	6,623,509	-	6,623,509
71	3,394,789,440	674,346,614	674,346,614	-	5,013,613	-	5,013,613
72	2,941,013,106	539,752,860	539,752,860	-	3,743,413	-	3,743,413
73	2,593,919,795	426,257,584	426,257,584	-	2,757,720	-	2,757,720
74	2,339,345,860	332,341,644	332,341,644	-	2,005,710	-	2,005,710
75	2,163,680,755	256,014,420	256,014,420	-	1,441,295	-	1,441,295
76	2,054,395,011	194,989,281	194,989,281	-	1,024,011	-	1,024,011
77	2,000,424,557	146,903,942	146,903,942	-	719,668	-	719,668
78	1,992,354,555	109,503,768	109,503,768	-	500,418	-	500,418
79	2,022,426,693	80,759,324	80,759,324	-	344,272	-	344,272
80	2,084,425,283	58,916,794	58,916,794	-	234,290	-	234,290
81	2,173,502,967	42,501,856	42,501,856	-	157,662	-	157,662
82	2,285,989,850	30,301,685	30,301,685	-	104,856	-	104,856
83	2,419,207,533	21,334,703	21,334,703	-	68,868	-	68,868
84	2,571,301,071	14,818,781	14,818,781	-	44,622	-	44,622
85	2,741,091,763	10,141,178	10,141,178	-	28,486	-	28,486
86	2,927,950,455	6,828,478	6,828,478	-	17,892	-	17,892
87	3,131,692,857	4,519,359	4,519,359	-	11,047	-	11,047
88	3,352,495,515	2,937,753	2,937,753	-	6,698	-	6,698
89	3,590,833,518	1,873,637	1,873,637	-	3,985	-	3,985
90	3,847,433,616	1,171,612	1,171,612	-	2,325	-	2,325
91	4,123,235,780	716,969	716,969	-	1,327	-	1,327
92	4,419,366,425	427,155	427,155	-	738	-	738
93	4,737,118,542	245,486	245,486	-	395	-	395
94	5,077,936,908	133,630	133,630	-	201	-	201
95	5,443,410,008	66,885	66,885	-	94	-	94
96	5,835,266,278	30,004	30,004	-	39	-	39
97	6,255,374,385	12,228	12,228	-	15	-	15
98	6,705,748,679	4,903	4,903	-	6	-	6
99	7,706,133,553	2,687	2,687	-	3	-	3
100	7,706,130,866	-	-	-	-	-	-
Totals					\$ 110,431,172,427	\$ -	\$ 110,431,172,427



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

In determining plan liabilities for accounting purposes, a discount rate of 7.2% is used for both actives and retirees. However, a long-term assumed dividend of 2.1% is also assumed. For retirees, this produces the same result as assuming a 5% discount rate. Dividends are not guaranteed, and this valuation develops dividends that reflect known entries (phased-in gains and losses) in the Market Recognition Account (MRA), based on the 7.2% return assumption. The dividend rates used in developing the Total Pension Liability for accounting purposes is as follows:

- 2016: 0.5% Core, -5% Variable
- 2017: 2.0% Core, 4.0% Variable
- 2018: 0.5% Core, 2.1% Variable
- 2019: 0.0% Core, 2.1% Variable
- 2020: 0.5% Core, 2.1% Variable
- 2021: 1.75% Core, 2.1% Variable
- 2022 and later: 2.1% Core, 2.1% Variable

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 %	3.0 %	5.6 %	4.8 %	5.5 %	2.5 %
2	3.5 %	3.0 %	5.6 %	4.8 %	5.5 %	2.5 %
3	3.1 %	2.9 %	5.2 %	4.1 %	4.7 %	2.0 %
4	2.8 %	2.8 %	4.7 %	3.5 %	3.8 %	1.6 %
5	2.5 %	2.7 %	4.3 %	2.8 %	3.0 %	1.1 %
10	1.5 %	2.2 %	2.6 %	1.1 %	0.9 %	0.2 %
15	1.1 %	1.7 %	1.4 %	0.8 %	0.5 %	0.2 %
20	0.9 %	1.2 %	0.6 %	0.7 %	0.4 %	0.2 %
25	0.6 %	0.9 %	0.3 %	0.6 %	0.3 %	0.2 %
30	0.4 %	0.7 %	0.2 %	0.5 %	0.2 %	0.2 %

DECREMENT PROBABILITIES

The **mortality table** used to measure mortality for retired participants was the Wisconsin 2012 Mortality Table. The rates in this table were based on actual WRS experience and adjusted for future mortality improvements using the MP-2015 fully generational improvement scale (multiplied by 50%). The mortality table was adopted by the Board in connection with the 2012-2014 Experience Study. 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 (without projection)

Sample Attained Ages in 2016	Present Value of \$1 Monthly for Life		Future Life Expectancy (years)	
	Males	Females	Males	Females
40	\$212.18	\$217.30	44.6	47.9
45	203.58	209.85	39.6	42.8
50	192.84	200.64	34.6	37.8
55	179.99	189.45	29.8	32.9
60	165.62	176.13	25.3	28.1
65	148.39	159.99	20.8	23.5
70	128.80	140.83	16.6	19.0
75	107.08	119.17	12.8	14.8
80	84.34	95.93	9.3	11.0
85	63.12	72.84	6.5	7.8

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

Sample Attained Ages in 2016	Present Value of \$1 Monthly for Life		Future Life Expectancy (years)	
	Males	Females	Males	Females
40	\$198.68	\$207.47	37.2	41.4
45	186.71	197.67	32.2	36.4
50	172.91	185.79	27.5	31.6
55	156.89	171.64	22.9	26.8
60	138.23	154.74	18.6	22.2
65	117.74	134.96	14.6	17.8
70	95.51	112.80	11.0	13.7
75	73.23	89.31	7.8	10.0
80	53.78	66.82	5.4	7.0
85	38.08	48.76	3.6	4.8

ACTIVE PARTICIPANT MORTALITY RATES

Sample Attained Ages	Mortality Rates	
	Males	Females
20	0.000138	0.000079
25	0.000165	0.000088
30	0.000206	0.000118
35	0.000359	0.000210
40	0.000485	0.000298
45	0.000642	0.000466
50	0.000866	0.000690
55	0.002011	0.001221
60	0.002854	0.001755
65	0.004354	0.002683
70	0.007198	0.004555
75	0.012242	0.008257
80	0.022508	0.015445

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.	WO S.S.	
50							6%	4%	
51							7%	4%	
52							9%	5%	
53							23%	17%	
54							19%	25%	
55							19%	21%	
56							19%	27%	
57	18%	15%	36%	28%	12%	14%	19%	30%	12%
58	18%	15%	31%	28%	12%	12%	18%	30%	12%
59	18%	15%	24%	28%	12%	10%	16%	30%	12%
60	18%	15%	30%	28%	12%	12%	20%	26%	12%
61	18%	15%	28%	28%	12%	16%	20%	15%	12%
62	25%	25%	37%	36%	12%	14%	22%	20%	12%
63	30%	25%	32%	30%	12%	19%	26%	40%	12%
64	25%	25%	27%	27%	12%	13%	17%	40%	12%
65	25%	28%	29%	35%	15%	18%	30%	40%	12%
66	32%	32%	33%	35%	17%	22%	25%	40%	20%
67	26%	26%	27%	30%	16%	17%	30%	40%	15%
68	19%	22%	24%	30%	16%	16%	30%	40%	15%
69	19%	20%	24%	30%	16%	14%	30%	40%	10%
70	19%	20%	20%	35%	16%	18%	100%	100%	10%
71	19%	20%	20%	30%	18%	18%	100%	100%	10%
72	19%	20%	20%	22%	14%	18%	100%	100%	15%
73	19%	20%	20%	22%	14%	18%	100%	100%	15%
74	19%	20%	20%	22%	10%	18%	100%	100%	15%
75	100%	100%	100%	100%	100%	100%	100%	100%	100%

* Includes early retirements.

Early Retirement

Age	% Retiring Next Year						
	General		Public School		University		Exec. & Elected
	Male	Female	Male	Female	Male	Female	
55	9.0%	7.0%	13.0%	12.0%	4.0%	5.5%	3.0%
56	9.0%	7.0%	13.0%	12.0%	3.0%	5.5%	3.0%
57	4.8%	5.0%	12.0%	12.0%	2.5%	4.0%	3.0%
58	5.8%	6.0%	13.0%	12.0%	2.5%	5.5%	3.0%
59	6.5%	6.0%	14.0%	13.0%	3.0%	6.5%	3.0%
60	8.5%	8.5%	14.0%	17.0%	4.3%	8.0%	5.0%
61	8.5%	8.5%	15.0%	17.0%	5.0%	6.0%	5.0%
62	16.0%	16.0%	21.0%	23.0%	6.0%	12.0%	
63	17.0%	16.0%	21.0%	23.0%	7.0%	12.0%	
64	17.0%	16.0%	21.0%	23.0%	7.0%	12.0%	

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	17.0%	4.0%	18.3%	16.0%	16.0%	16.0%	18.0%	16.8%	20.0%
	1	8.0%	3.5%	11.0%	10.8%	14.0%	15.0%	14.0%	12.7%	14.1%
	2	5.0%	1.5%	7.8%	7.7%	12.0%	13.0%	12.0%	9.0%	11.0%
	3	4.3%	1.3%	5.9%	5.8%	10.0%	10.0%	10.0%	7.3%	8.9%
	4	3.8%	1.2%	4.9%	5.0%	8.5%	9.9%	10.0%	7.0%	8.5%
	5	3.1%	1.1%	3.6%	4.3%	8.0%	8.4%	8.0%	4.8%	6.7%
	6	3.0%	1.0%	3.2%	3.8%	7.5%	6.4%	7.0%	4.3%	5.6%
	7	2.9%	0.9%	2.6%	3.4%	5.7%	5.7%	6.0%	4.2%	5.0%
	8	2.5%	0.8%	2.6%	2.8%	4.6%	4.7%	6.0%	3.4%	4.7%
	9	2.2%	0.7%	2.4%	2.5%	4.0%	4.2%	6.0%	3.1%	4.5%
25	10 & Over	2.0%	0.7%	1.3%	2.2%	4.0%	5.0%	6.0%	2.5%	4.5%
30		1.8%	0.7%	1.3%	1.9%	3.9%	4.6%	5.1%	2.5%	4.3%
35		1.6%	0.7%	1.3%	1.6%	3.6%	4.2%	4.3%	2.4%	3.5%
40		1.3%	0.6%	1.3%	1.3%	3.1%	3.4%	4.1%	2.1%	2.7%
45		1.1%	0.6%	1.3%	1.1%	2.3%	2.6%	3.2%	1.8%	2.2%
50		1.0%	0.5%	1.3%	1.0%	1.9%	2.1%	2.5%	1.5%	1.9%
55		1.0%	0.5%	1.3%	1.0%	1.8%	2.0%	2.4%	1.5%	1.8%
60		1.0%	0.5%	1.3%	1.0%	1.8%	2.0%	2.4%	1.5%	1.8%

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%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%
25	0.01%	0.04%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%
30	0.01%	0.04%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.01%	0.02%
35	0.02%	0.04%	0.01%	0.01%	0.00%	0.02%	0.01%	0.01%	0.01%	0.03%
40	0.02%	0.06%	0.01%	0.02%	0.01%	0.03%	0.01%	0.01%	0.03%	0.04%
45	0.04%	0.11%	0.03%	0.05%	0.01%	0.03%	0.01%	0.01%	0.06%	0.06%
50	0.06%	0.64%	0.08%	0.10%	0.02%	0.06%	0.02%	0.02%	0.13%	0.09%
55	0.87%	0.48%	0.16%	0.14%	0.05%	0.09%	0.09%	0.09%	0.24%	0.16%
60	1.46%	0.14%	0.26%	0.21%	0.07%	0.13%	0.11%	0.11%	0.43%	0.23%

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 AAL 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.