

Wisconsin Retirement System

GASB Statement No. 68

Employer Reporting Accounting Schedules

December 31, 2024



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July 18, 2025

Employee Trust Funds Board
Wisconsin Department of Employee
Trust Funds
4822 Madison Yards Way
Madison, Wisconsin 53705

Dear Board Members:

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 Pensions."

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. Calculations for purposes of complying with the requirements of GASB Statement No. 67 will be provided in a separate report.

The total pension liability shown in this report is based on a roll-forward of the December 31, 2023 valuation liabilities to December 31, 2024. 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, 2023 for additional discussion of the nature of actuarial calculations and more information related to participant data and benefit provisions. This valuation reflects revised demographic assumptions adopted by the Board pursuant to the three-year experience study covering the period January 1, 2021 through December 31, 2023 of the Wisconsin Retirement System. See the experience study report dated November 19, 2024 for additional discussion regarding the demographic assumptions used in this valuation.

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. Employer level schedules are developed by GRS and provided to DETF separately from this report.

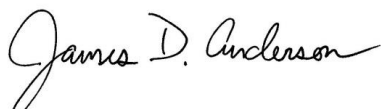
This report was prepared using our proprietary valuation model and related software which, in our professional judgment, has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

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. Mark Buis, James D. Anderson and Richard C. Koch Jr. are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the Academy of Actuaries to render the actuarial opinions contained herein. The signing actuaries are independent of the plan sponsor.

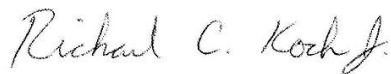
Respectfully submitted,
Gabriel, Roeder, Smith & Company



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SECTION A

EXECUTIVE SUMMARY

Executive Summary as of December 31, 2024

	<u>2024</u>	<u>2023</u>
Actuarial Valuation Date	December 31, 2023	December 31, 2022
Measurement Date of the Net Pension Liability/(Asset)	December 31, 2024	December 31, 2023
Membership as of the Actuarial Valuation Date		
Number of		
- Retirees and Beneficiaries	238,111	233,804
- Inactive, Nonretired Members	186,977	181,758
- Active Members	263,737	259,592
- Total	688,825	675,154
Covered Payroll ⁽¹⁾	\$ 18,602,523,765	\$ 17,435,263,354
Net Pension Liability/(Asset)		
Total Pension Liability	\$ 136,184,378,378	\$ 129,184,614,374
Plan Fiduciary Net Position	134,541,212,975	127,697,808,319
Net Pension Liability/(Asset)	\$ 1,643,165,403	\$ 1,486,806,055
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	98.79%	98.85%
Net Pension Liability/(Asset) as a Percentage of Covered Payroll	8.83%	8.53%
Development of the Single Discount Rate		
Single Discount Rate	6.80%	6.80%
Long-Term Expected Rate of Investment Return	6.80%	6.80%
Long-Term Municipal Bond Rate ⁽²⁾	4.08%	3.77%
Last year ending December 31 in the 2025 to 2124 projection period for which projected benefit payments are fully funded	2124	2123
Total Pension Expense/(Income)	\$ 2,210,055,362	\$ 1,026,477,776

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

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	\$ 5,102,928,087	\$ 4,795,151,765
Changes in assumptions	487,559,034	0
Net difference between projected and actual earnings on pension plan investments	2,496,876,758	0
Total	\$ 8,087,363,879	\$ 4,795,151,765

⁽¹⁾ Covered payroll is for 2024 and was provided by DETF.

⁽²⁾ Source: "20-Bond GO Index" is the Bond Buyer Index, general obligation, 20 years to maturity, mixed quality. In describing this index, the Bond Buyer notes that the bonds' average quality is roughly equivalent to Moody's Investors Service's Aa2 rating and Standard and Poor's Corp.'s AA. The rate shown is as of December 26, 2024, the most recent date available on or before the measurement date.



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/(asset), pension expense/(income), 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/(asset) and the pension expense/(income) on their financial statements, along with the related deferred outflows of resources and deferred inflows of resources. The net pension liability/(asset) 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/(income) recognized each fiscal year is equal to the change in the net pension liability/(asset) 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 GRS 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/(income), 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/(asset);
- 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/(asset), and the pension plan's fiduciary net position as a percentage of the total pension liability;
- The net pension liability/(asset) using a discount rate that is 1% higher and 1% lower than used to calculate the total pension liability and net pension liability/(asset) 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/(asset);
- Information about the components of the net pension liability/(asset) and related ratios, including the pension plan's fiduciary net position as a percentage of the total pension liability, and the net pension liability/(asset) 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.

These schedules may be built prospectively.

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 6.80% 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 2124. 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 an unrelated third party in an arm's length market value type transaction.
- (2) The measurement is dependent upon the actuarial cost method which, in combination with the plan's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement in this report of 100% is not synonymous with no required future contributions. If the funded status were 100%, the plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).
- (3) The measurement would produce a different result if the 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/(asset) and pension expense/(income) 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, 2023 with roll-forward to December 31, 2024 and a measurement date of December 31, 2024. The roll-forward included adjustments in the liability due to changes in dividend adjustments, if any, 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 6.80%; the municipal bond rate is 4.08% (based on the weekly rate closest to but not later than the measurement date of the "20-Bond GO Index" from the Bond Buyer Index); and the resulting Single Discount Rate is 6.80%.

Actuarial Assumptions and Methods and Member Census Data

The actuarial assumptions used in this study were adopted by the Board pursuant to the three-year experience study covering the period January 1, 2021 through December 31, 2023. The actuarial assumptions and methods employed for purposes of our Actuarial Study are shown in Section D of this report.

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, 2023 Actuarial Valuation Report of the Retirement System.

The Wisconsin Retirement System uses the Frozen Entry Age Cost Method for determining funding requirements. GASB Statement No. 68 requires the use of the Entry Age Normal Cost 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 Pension Expense/(Income)
under GASB Statement No. 68
Fiscal Year Ended December 31, 2024**

A. Expense/(Income)

1. Service Cost	\$ 2,444,808,116
2. Interest on the Total Pension Liability	8,608,304,000
3. Current-Period Benefit Changes	0
4. Employee Contributions (made negative for addition here)	(1,307,218,567)
5. Projected Earnings on Plan Investments (made negative for addition here)	(8,517,181,566)
6. Pension Plan Administrative Expense	30,789,981
7. Other Changes in Plan Fiduciary Net Position	0
8. Recognition of Outflow (Inflow) of Resources due to Liabilities	1,482,652,404
9. Recognition of Outflow (Inflow) of Resources due to Assets	<u>(532,099,006)</u>
10. Total Pension Expense/(Income)	\$ 2,210,055,362

Statement of Outflows and Inflows Arising from Current Reporting Period Fiscal Year Ended December 31, 2024

A. Outflows (Inflows) of Resources Due to Liabilities

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses ⁽¹⁾	\$ 3,275,022,118
2. Assumption Changes (gains) or losses	\$ 300,254,857
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}	4.4774
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	\$ 731,456,229
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes	\$ 67,060,092
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	<u>\$ 798,516,321</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	\$ 2,543,565,889
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	\$ 233,194,765
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	<u>\$ 2,776,760,654</u>

B. Outflows (Inflows) of Resources Due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$ (3,216,499,539)
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	\$ (643,299,908)
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$ (2,573,199,631)

⁽¹⁾ Starting with 2015, this item includes the impact of known Market Recognition Account deferred gains/losses on the liability for dividend payments. See page 23 for a full description.



Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended December 31, 2024

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	\$ 4,627,632,901	\$ 3,144,980,497	\$ 1,482,652,404
2. Due to Assets	0	532,099,006	(532,099,006)
3. Total	\$ 4,627,632,901	\$ 3,677,079,503	\$ 950,553,398

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	\$ 4,166,881,015	\$ 3,144,980,497	\$ 1,021,900,518
2. Assumption Changes	460,751,886	0	460,751,886
3. Net Difference between projected and actual earnings on pension plan investments	0	532,099,006	(532,099,006)
4. Total	\$ 4,627,632,901	\$ 3,677,079,503	\$ 950,553,398

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

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	\$ 5,102,928,087	\$ 4,795,151,765	\$ 307,776,322
2. Assumption Changes	487,559,034	0	487,559,034
3. Net Difference between projected and actual earnings on pension plan investments	2,496,876,758	0	2,496,876,758
4. Total	\$ 8,087,363,879	\$ 4,795,151,765	\$ 3,292,212,114

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

Year Ending December 31	Net Deferred Outflows of Resources
2025	\$ 990,039,429
2026	3,406,920,297
2027	(842,659,396)
2028	(262,088,216)
2029	0
Thereafter	0
Total	\$ 3,292,212,114



Recognition of Deferred Outflows and Inflows of Resources

Actuarial Valuation Date – December 31, 2023

Measurement Date – December 31, 2024

Reporting Date – December 31, 2024

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
Deferred Outflow (Inflow) Due to Differences between Expected and Actual Experience on Liabilities					
2020	\$ 6,376,708,179	4.6559	\$ 898,318,883	\$ 0	0.0000
2021	9,453,083,785	4.6461	2,034,627,706	1,314,572,961	0.6461
2022	(14,230,093,256)	4.5247	(3,144,980,497)	(4,795,151,765)	1.5247
2023	2,249,745,631	4.4773	502,478,197	1,244,789,237	2.4773
2024	3,275,022,118	4.4774	731,456,229	2,543,565,889	3.4774
Total			\$ 1,021,900,518	\$ 307,776,322	
Deferred Outflow (Inflow) Due to Assumption Changes					
2020	\$ 0	4.6559	\$ 0	\$ 0	0.0000
2021	1,829,131,445	4.6461	393,691,794	254,364,269	0.6461
2022	0	4.5247	0	0	1.5247
2023	0	4.4773	0	0	2.4773
2024	300,254,857	4.4774	67,060,092	233,194,765	3.4774
Total			\$ 460,751,886	\$ 487,559,034	
Deferred Outflow (Inflow) Due to Differences between Projected and Actual Earnings on Plan Investments					
2020	\$ (8,985,935,923)	5.0000	\$ (1,797,187,183)	\$ 0	0.0000
2021	(12,455,044,344)	5.0000	(2,491,008,869)	(2,491,008,868)	1.0000
2022	28,185,528,026	5.0000	5,637,105,605	11,274,211,211	2.0000
2023	(6,188,543,256)	5.0000	(1,237,708,651)	(3,713,125,954)	3.0000
2024	(3,216,499,539)	5.0000	(643,299,908)	(2,573,199,631)	4.0000
Total			\$ (532,099,006)	\$ 2,496,876,758	

Recognition of Deferred Outflows and Inflows of Resources

According to Paragraph 33 of GASB Statement No. 68, *differences between expected and actual experience* and *changes in assumptions* are recognized in pension expense using a systematic and rational method over a closed period equal to the average of the expected remaining service lives of all employees that are provided with pensions through the pension plan (active employees and inactive employees) determined as of the beginning of the measurement period.

At the beginning of the current measurement period, the expected remaining service lives of all active employees in the plan was approximately 3,084,148 years. Additionally, the total plan membership (active employees and inactive employees) was 688,825. As a result, the average of the expected remaining service lives for purposes of recognizing the applicable deferred outflows and inflows of resources established in the current measurement period is 4.4774 years.

Additionally, *differences between projected and actual earnings on pension plan investments* should be recognized in pension expense using a systematic and rational method over a closed five-year period.

In accordance with the requirements of GASB Statement No. 68, the deferred outflows and inflows of resources are recognized in the pension expense as level dollar amounts over the various remaining closed periods shown above.

Schedule of Changes in Net Pension Liability/(Asset) and Related Ratios Current Period Fiscal Year Ended December 31, 2024

A. Total pension liability

1. Service Cost	\$ 2,444,808,116
2. Interest on the total pension liability	8,608,304,000
3. Changes of benefit terms	0
4. Difference between expected and actual experience of the total pension liability	3,275,022,118
5. Changes of assumptions	300,254,857
6. Benefit payments, including refunds of employee contributions	(7,628,625,087)
7. Net change in total pension liability	\$ 6,999,764,004
8. Total pension liability – beginning	129,184,614,374
9. Total pension liability – ending	\$ 136,184,378,378

B. Plan fiduciary net position

1. Contributions – employer	\$ 1,461,920,052
2. Contributions – employee	1,307,218,567
3. Net investment income	11,733,681,105
4. Benefit payments, including refunds of employee contributions	(7,628,625,087)
5. Pension plan administrative expense	(30,789,981)
6. Other	0
7. Net change in plan fiduciary net position	\$ 6,843,404,656
8. Plan fiduciary net position – beginning	127,697,808,319
9. Plan fiduciary net position – ending	\$ 134,541,212,975

C. Net pension liability/(asset)

\$ 1,643,165,403

D. Plan fiduciary net position as a percentage of the total pension liability

98.79%

E. Covered-employee payroll⁽¹⁾

\$ 18,602,523,765

F. Net pension liability/(asset) as a percentage of covered-employee payroll

8.83%

⁽¹⁾ Covered payroll provided by DETF.



Schedule of Changes in Net Pension Liability/(Asset) and Related Ratios Multiyear

Last 10 Fiscal Years

Fiscal year ending December 31,	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
Total Pension Liability										
Service Cost	\$ 2,444,808,116	\$ 2,278,256,377	\$ 2,178,921,078	\$ 2,019,309,706	\$ 1,975,773,133	\$ 1,902,507,977	\$ 1,860,937,125	\$ 1,842,879,321	\$ 1,814,134,799	\$ 1,787,870,316
Interest on the Total Pension Liability	8,608,304,000	8,240,258,360	8,933,501,306	8,157,487,429	7,480,695,373	6,888,058,586	7,169,731,242	6,627,171,441	6,372,404,646	6,347,123,575
Benefit Changes	0	0	0	0	0	0	0	0	0	0
Experience ⁽¹⁾	3,275,022,118	2,249,745,631	(14,230,093,256)	9,453,083,785	6,376,708,179	5,473,337,212	(4,968,302,189)	4,459,497,323	150,347,332	(4,247,328,263)
Assumption Changes	300,254,857	0	0	1,829,131,445	0	0	361,481,239	0	0	1,412,040,786
Benefit Payments	(7,559,665,846)	(7,195,376,514)	(6,949,119,380)	(6,352,709,068)	(5,939,365,686)	(5,646,263,647)	(5,516,188,518)	(5,211,266,989)	(5,022,920,827)	(4,823,586,513)
Refunds	(68,959,241)	(54,199,095)	(54,796,982)	(42,041,646)	(38,857,677)	(44,106,052)	(40,234,768)	(38,358,098)	(39,275,602)	(37,642,404)
Net Change in Total Pension Liability	6,999,764,004	5,518,684,759	(10,121,587,234)	15,064,261,651	9,854,953,322	8,573,534,076	(1,132,575,869)	7,679,922,998	3,274,690,348	438,477,497
Total Pension Liability - Beginning⁽²⁾	129,184,614,374	123,665,929,615	133,787,516,849	118,723,255,198	108,868,301,876	100,294,767,800	101,427,343,669	93,747,420,671	90,129,650,901	89,691,173,404
Total Pension Liability - Ending (a)	\$ 136,184,378,378	\$ 129,184,614,374	\$ 123,665,929,615	\$ 133,787,516,849	\$ 118,723,255,198	\$ 108,868,301,876	\$ 100,294,767,800	\$ 101,427,343,669	\$ 93,404,341,249	\$ 90,129,650,901
Plan Fiduciary Net Position										
Employer Contributions ⁽³⁾	\$ 1,461,920,052	\$ 1,327,552,576	\$ 1,175,881,349	\$ 1,164,586,150	\$ 1,133,315,516	\$ 1,046,942,283	\$ 1,030,507,544	\$ 1,017,558,990	\$ 963,121,911	\$ 977,733,921
Employee Contributions	1,307,218,567	1,204,469,156	1,082,039,863	1,086,781,945	1,053,242,596	987,662,027	972,950,131	965,452,633	921,863,806	937,225,184
Pension Plan Net Investment Income	11,733,681,105	14,076,197,695	(18,702,308,045)	21,056,558,127	16,698,556,768	19,049,541,932	(4,049,354,577)	14,875,414,636	7,273,069,087	(673,122,812)
Benefit Payments	(7,559,665,846)	(7,195,376,514)	(6,949,119,380)	(6,352,709,068)	(5,939,365,686)	(5,646,263,647)	(5,516,188,518)	(5,211,266,989)	(5,022,920,827)	(4,823,586,513)
Refunds	(68,959,241)	(54,199,095)	(54,796,982)	(42,041,646)	(38,857,677)	(44,106,052)	(40,234,768)	(38,358,098)	(39,275,602)	(37,642,404)
Pension Plan Administrative Expense	(30,789,981)	(29,061,321)	(31,171,842)	(31,868,580)	(33,256,008)	(34,197,722)	(31,612,198)	(26,132,873)	(20,426,189)	(22,708,614)
Other	0	0	0	0	0	(3,901,654)	(25,448,686)	0	0	0
Net Change in Plan Fiduciary Net Position	6,843,404,656	9,329,582,497	(23,479,475,037)	16,881,306,928	12,873,635,509	15,355,677,167	(7,659,381,072)	11,582,668,299	4,075,432,186	(3,642,101,238)
Plan Fiduciary Net Position - Beginning⁽⁴⁾	127,697,808,319	118,368,225,822	141,847,700,859	124,966,393,931	112,092,758,422	96,737,081,255	104,396,462,327	92,813,794,028	88,504,670,309	92,146,771,547
Plan Fiduciary Net Position - Ending (b)	\$ 134,541,212,975	\$ 127,697,808,319	\$ 118,368,225,822	\$ 141,847,700,859	\$ 124,966,393,931	\$ 112,092,758,422	\$ 96,737,081,255	\$ 104,396,462,327	\$ 92,580,102,495	\$ 88,504,670,309
Net Pension Liability/(Asset) - Ending (a) - (b)	1,643,165,403	1,486,806,055	5,297,703,793	(8,060,184,010)	(6,243,138,733)	(3,224,456,546)	3,557,686,545	(2,969,118,658)	824,238,754	1,624,980,592
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	98.79 %	98.85 %	95.72 %	106.02 %	105.26 %	102.96 %	96.45 %	102.93 %	99.12 %	98.20 %
Covered-Employee Payroll⁽⁵⁾	\$ 18,602,523,765	\$ 17,435,263,354	\$ 16,361,316,730	\$ 15,780,837,258	\$ 15,359,928,023	\$ 14,832,491,878	\$ 14,301,446,269	\$ 13,943,116,649	\$ 13,706,000,000	\$ 13,530,500,000
Net Pension Liability/(Asset) as a Percentage of Covered-Employee Payroll	8.83 %	8.53 %	32.38 %	(51.08)%	(40.65)%	(21.74)%	24.88 %	(21.29)%	6.01 %	12.01 %

Notes to Schedule:

⁽¹⁾ Includes the impact of known Market Recognition Account deferred gains/losses on the liability for dividend payments. See page 23 for a full description.

⁽²⁾ In 2017, beginning of year liabilities were adjusted by \$343,079,422 to reflect the Long-Term Disability Insurance (LTDI) program -- this amount was provided in Milliman Inc.'s December 31, 2016 actuarial valuation of the Long-Term Disability Insurance Plan dated April 21, 2017.

⁽³⁾ Employer contributions shown in the above table includes Employer Required Contributions in addition to contributions paid by specific employers for unique circumstances such as Prior Service Contributions, Early Retirement Contributions, and Employer Additional Contributions.

⁽⁴⁾ As of calendar year 2017, the LTDI program is reported within the Wisconsin Retirement System (WRS). Accordingly, there is an adjustment to the calendar year 2017 beginning net position of \$233,691,533 to reflect LTDI assets.

⁽⁵⁾ Covered payroll provided by DETF.



Schedule of Contributions Multiyear

Last 10 Fiscal Years

FY Ending December 31,	Actuarially Determined Contribution ^{(1),(2)}	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll ⁽³⁾	Actual Contribution as a % of Covered Payroll
2015	\$ 967,730,052	\$ 967,730,052	\$ 0	\$ 13,530,500,000	7.15%
2016	954,159,009	954,159,009	0	13,706,000,000	6.96%
2017	1,014,870,679	1,014,870,679	0	13,943,116,649	7.28%
2018	1,028,390,526	1,028,390,526	0	14,301,446,269	7.19%
2019	1,044,964,610	1,044,964,610	0	14,832,491,878	7.05%
2020	1,131,486,002	1,131,486,002	0	15,359,928,023	7.37%
2021	1,162,794,127	1,162,794,127	0	15,780,837,258	7.37%
2022	1,174,661,864	1,174,661,864	0	16,361,316,730	7.18%
2023	1,326,113,389	1,326,113,389	0	17,435,263,354	7.61%
2024	1,459,931,764	1,459,931,764	0	18,602,523,765	7.85%

⁽¹⁾ 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.

⁽²⁾ Starting with 2016, Actuarially Determined Contributions includes Employer Required Contributions, paid by each employer based on a percentage of payroll. This amount excludes contributions paid by specific employers for unique circumstances such as Prior Service Contributions, Early Retirement Contributions, and Employer Additional Contributions.

⁽³⁾ Covered payroll provided by DETF.

Notes to Schedule of Contributions

Summary of Actuarial Methods and Assumptions Used in the Calculation of the 2024 Actuarially Determined Contribution (ADC)

Valuation Date: December 31, 2022

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

Actuarial Cost Method	Frozen Entry Age
Amortization Method	Level Percent of Payroll - Closed Amortization Period
Amortization Period	30-Year closed from date of participation in WRS
Asset Valuation Method	5-Year smoothed value
Inflation	No specific price inflation assumption is required to perform this valuation. The price inflation assumption used to evaluate the investment return assumption is 2.5%.
Salary Increases	3.1% to 8.6% including inflation
Net Investment Rate of Return	5.40%
Weighted based on assumed rate for:	
Retired participants	5.00%
Active participants	
Post-retirement participants	5.00%
Pre-retirement participants	6.80%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2021 valuation pursuant to an experience study of the period 2018-2020.
Mortality	Wisconsin 2020 mortality table adjusted for future mortality improvements using the MP-2021 fully generational improvement scale.

Other Information:

Notes The actuarially determined contribution for calendar year 2024 was determined from the December 31, 2022 actuarial valuation.

Single Discount Rate

A single discount rate of 6.80% was used to measure the total pension liability, which was based on the expected rate of return on pension plan investments. Because of the unique structure of WRS, the 6.80% expected rate of return implies that a dividend of approximately 1.7% 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/(asset) to changes in the single discount rate, the following presents the plan's net pension liability/(asset), calculated using a single discount rate of 6.80%, as well as what the plan's net pension liability/(asset) 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/(Asset) to the Single Discount Rate Assumption

	Current Single Discount		
	1% Decrease	Rate Assumption	1% Increase
Discount Rate	5.80%	6.80%	7.80%
Ultimate Dividend Rate	1.7%	1.7%	1.7%
Total Pension Liability	\$ 149,956,251,011	\$ 136,184,378,378	\$ 126,399,858,143
Plan Fiduciary Net Position	134,541,212,975	134,541,212,975	134,541,212,975
Net Pension Liability/(Asset)	\$ 15,415,038,036	\$ 1,643,165,403	\$ (8,141,354,832)

This schedule above 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 0.8% for the 5.80% discount rate, 1.7% for the 6.80% discount rate, and 2.7% for the 7.80% discount rate.

Sensitivity of Net Pension Liability/(Asset) to the Single Discount Rate Assumption

	Current Single Discount		
	1% Decrease	Rate Assumption	1% Increase
Discount Rate	5.80%	6.80%	7.80%
Ultimate Dividend Rate	0.8%	1.7%	2.7%
Total Pension Liability	\$ 141,844,480,487	\$ 136,184,378,378	\$ 131,980,487,088
Plan Fiduciary Net Position	134,541,212,975	134,541,212,975	134,541,212,975
Net Pension Liability/(Asset)	\$ 7,303,267,512	\$ 1,643,165,403	\$ (2,560,725,887)

SECTION C

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 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 6.80%; the municipal bond rate is 4.08%; and the resulting SDR is 6.80%.

We deemed administrative expenses to be immaterial for the purpose of developing the single discount rate and, consequently, did not include them in the calculation.

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 2023 actuarial valuation (14.9%). Future expected contribution rates vary as assumption changes and unrecognized asset gains/losses from the Market Recognition Account are phased in over the next five years. The expected contribution rate then decreases over time as the Experience Amortization Reserve (EAR) component is paid down and is assumed to migrate to the ultimate contribution rate of 14.2% by the end of the projection period.

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, if any, 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, 2124

Year	Payroll for Current Employees	Contributions from Current Employees	Normal Cost Contributions	UAL Contributions	Total Contributions
1	\$ 16,567,775,953	\$ 1,151,460,429	\$ 1,317,138,188	\$ 0	\$ 2,468,598,617
2	16,057,730,472	1,116,012,268	1,292,647,303	0	2,408,659,571
3	15,585,186,527	1,083,170,464	1,270,192,702	0	2,353,363,166
4	15,132,127,411	1,051,682,855	1,324,061,149	0	2,375,744,004
5	14,693,485,947	1,021,197,273	1,241,599,563	0	2,262,796,836
6	14,266,118,815	991,495,258	1,191,220,921	0	2,182,716,179
7	13,845,310,214	962,249,060	1,156,083,403	0	2,118,332,463
8	13,426,831,303	933,164,776	1,121,140,413	0	2,054,305,189
9	13,009,160,233	904,136,636	1,073,255,719	0	1,977,392,355
10	12,588,670,210	874,912,580	1,038,565,292	0	1,913,477,872
11	12,155,927,004	844,836,927	990,708,051	0	1,835,544,978
12	11,708,938,306	813,771,212	954,278,472	0	1,768,049,684
13	11,248,987,350	781,804,621	916,792,469	0	1,698,597,090
14	10,776,136,721	748,941,502	867,479,006	0	1,616,420,508
15	10,292,090,367	715,300,280	828,513,275	0	1,543,813,555
16	9,799,142,242	681,040,386	788,830,950	0	1,469,871,336
17	9,297,363,570	646,166,768	748,437,767	0	1,394,604,535
18	8,784,025,943	610,489,803	698,330,063	0	1,308,819,866
19	8,256,516,475	573,827,895	656,393,060	0	1,230,220,955
20	7,715,197,289	536,206,212	613,358,184	0	1,149,564,396
21	7,164,702,869	497,946,849	569,593,879	0	1,067,540,728
22	6,609,591,669	459,366,621	518,852,946	0	978,219,567
23	6,053,630,351	420,727,309	475,209,983	0	895,937,292
24	5,501,306,121	382,340,775	431,852,531	0	814,193,306
25	4,956,077,566	344,447,391	389,052,089	0	733,499,480
26	4,421,963,420	307,326,458	342,702,165	0	650,028,623
27	3,900,549,275	271,088,175	302,292,568	0	573,380,743
28	3,390,018,252	235,606,269	262,726,414	0	498,332,683
29	2,893,962,191	201,130,372	224,282,070	0	425,412,442
30	2,427,616,296	168,719,333	188,140,262	0	356,859,595
31	2,003,474,953	139,241,509	155,269,309	0	294,510,818
32	1,623,944,589	112,864,149	124,231,761	0	237,095,910
33	1,293,368,852	89,889,135	98,942,717	0	188,831,852
34	1,015,083,844	70,548,327	77,653,914	0	148,202,241
35	788,049,541	54,769,443	60,285,790	0	115,055,233
36	605,477,828	42,080,709	46,319,054	0	88,399,763
37	459,371,367	31,926,310	35,141,910	0	67,068,220
38	343,640,384	23,883,007	25,944,849	0	49,827,856
39	253,668,598	17,629,968	19,151,979	0	36,781,947
40	185,318,028	12,879,603	13,991,511	0	26,871,114
41	133,794,662	9,298,729	10,101,497	0	19,400,226
42	95,358,765	6,627,434	7,199,587	0	13,827,021
43	67,488,068	4,690,421	5,095,349	0	9,785,770
44	47,552,723	3,304,914	3,590,231	0	6,895,145
45	33,297,341	2,314,165	2,513,949	0	4,828,114
46	23,086,683	1,604,524	1,743,045	0	3,347,569
47	15,697,600	1,090,983	1,169,471	0	2,260,454
48	10,397,470	722,624	774,612	0	1,497,236
49	6,602,878	458,900	491,914	0	950,814
50	3,873,596	269,215	288,583	0	557,798

Single Discount Rate Development Projection of Contributions Ending December 31, 2124 (Concluded)

Year	Payroll for Current Employees	Contributions from Current Employees	Normal Cost Contributions	UAL Contributions	Total Contributions
51	\$ 2,005,408	\$ 139,376	\$ 149,403	\$ 0	\$ 288,779
52	905,551	62,936	67,463	0	130,399
53	407,504	28,322	30,359	0	58,681
54	193,321	13,436	14,402	0	27,838
55	73,200	5,087	5,454	0	10,541
56	16,186	1,125	1,206	0	2,331
57	401	28	30	0	58
58	6	0	1	0	1
59	0	0	0	0	0
60	0	0	0	0	0
61	0	0	0	0	0
62	0	0	0	0	0
63	0	0	0	0	0
64	0	0	0	0	0
65	0	0	0	0	0
66	0	0	0	0	0
67	0	0	0	0	0
68	0	0	0	0	0
69	0	0	0	0	0
70	0	0	0	0	0
71	0	0	0	0	0
72	0	0	0	0	0
73	0	0	0	0	0
74	0	0	0	0	0
75	0	0	0	0	0
76	0	0	0	0	0
77	0	0	0	0	0
78	0	0	0	0	0
79	0	0	0	0	0
80	0	0	0	0	0
81	0	0	0	0	0
82	0	0	0	0	0
83	0	0	0	0	0
84	0	0	0	0	0
85	0	0	0	0	0
86	0	0	0	0	0
87	0	0	0	0	0
88	0	0	0	0	0
89	0	0	0	0	0
90	0	0	0	0	0
91	0	0	0	0	0
92	0	0	0	0	0
93	0	0	0	0	0
94	0	0	0	0	0
95	0	0	0	0	0
96	0	0	0	0	0
97	0	0	0	0	0
98	0	0	0	0	0
99	0	0	0	0	0
100	0	0	0	0	0

Single Discount Rate Development

Projection of Plan Fiduciary Net Position

Ending December 31, 2124

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments Including Dividends	Projected Investment Earnings at 6.80%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)=(a)+(b)-(c)+(d)
1	\$ 134,541,212,975	\$ 2,468,598,617	\$ 7,977,136,071	\$ 8,964,592,282	\$ 137,997,267,803
2	137,997,267,803	2,408,659,571	8,186,892,568	9,190,585,161	141,409,619,967
3	141,409,619,967	2,353,363,166	8,250,744,977	9,418,640,670	144,930,878,825
4	144,930,878,825	2,375,744,004	8,478,059,190	9,651,233,125	148,479,796,765
5	148,479,796,765	2,262,796,836	8,769,637,328	9,879,031,873	151,851,988,146
6	151,851,988,146	2,182,716,179	9,036,113,531	10,096,751,729	155,095,342,524
7	155,095,342,524	2,118,332,463	9,297,667,903	10,306,400,179	158,222,407,262
8	158,222,407,262	2,054,305,189	9,561,921,428	10,508,062,591	161,222,853,614
9	161,222,853,614	1,977,392,355	9,823,610,828	10,700,769,794	164,077,404,935
10	164,077,404,935	1,913,477,872	10,094,505,681	10,883,682,974	166,780,060,100
11	166,780,060,100	1,835,544,978	10,370,718,662	11,055,620,584	169,300,507,001
12	169,300,507,001	1,768,049,684	10,644,259,393	11,215,606,438	171,639,903,729
13	171,639,903,729	1,698,597,090	10,904,634,376	11,363,655,699	173,797,522,142
14	173,797,522,142	1,616,420,508	11,152,278,294	11,499,344,272	175,761,008,628
15	175,761,008,628	1,543,813,555	11,400,923,385	11,622,118,410	177,526,017,208
16	177,526,017,208	1,469,871,336	11,649,451,985	11,731,355,294	179,077,791,852
17	179,077,791,852	1,394,604,535	11,889,764,335	11,826,322,733	180,408,954,785
18	180,408,954,785	1,308,819,866	12,128,531,841	11,905,988,510	181,495,231,320
19	181,495,231,320	1,230,220,955	12,365,444,825	11,969,304,327	182,329,311,777
20	182,329,311,777	1,149,564,396	12,600,831,159	12,015,453,054	182,893,498,068
21	182,893,498,068	1,067,540,728	12,835,826,876	12,043,216,322	183,168,428,242
22	183,168,428,242	978,219,567	13,069,293,719	12,051,117,268	183,128,471,357
23	183,128,471,357	895,937,292	13,298,394,014	12,037,987,300	182,764,001,935
24	182,764,001,935	814,193,306	13,518,338,146	12,003,114,671	182,062,971,766
25	182,062,971,766	733,499,480	13,729,845,393	11,945,673,166	181,012,299,019
26	181,012,299,019	650,028,623	13,934,952,185	11,864,577,136	179,591,952,592
27	179,591,952,592	573,380,743	14,127,924,576	11,758,977,246	177,796,386,006
28	177,796,386,006	498,332,683	14,310,094,386	11,628,277,133	175,612,901,436
29	175,612,901,436	425,412,442	14,482,359,455	11,471,600,976	173,027,555,399
30	173,027,555,399	356,859,595	14,630,715,010	11,288,543,843	170,042,243,828
31	170,042,243,828	294,510,818	14,746,885,061	11,079,572,834	166,669,442,418
32	166,669,442,418	237,095,910	14,825,869,129	10,845,661,040	162,926,330,240
33	162,926,330,240	188,831,852	14,861,427,069	10,588,326,333	158,842,061,356
34	158,842,061,356	148,202,241	14,851,467,617	10,309,570,412	154,448,366,392
35	154,448,366,392	115,055,233	14,795,408,650	10,011,565,350	149,779,578,326
36	149,779,578,326	88,399,763	14,694,842,343	9,696,559,403	144,869,695,149
37	144,869,695,149	67,068,220	14,555,402,271	9,366,636,997	139,747,998,096
38	139,747,998,096	49,827,856	14,380,537,136	9,023,632,705	134,440,921,520
39	134,440,921,520	36,781,947	14,171,413,632	8,669,308,500	128,975,598,336
40	128,975,598,336	26,871,114	13,928,805,876	8,305,448,108	123,379,111,682
41	123,379,111,682	19,400,226	13,652,861,695	7,933,864,991	117,679,515,204
42	117,679,515,204	13,827,021	13,337,930,997	7,556,637,610	111,912,048,838
43	111,912,048,838	9,785,770	12,983,359,037	7,176,171,943	106,114,647,514
44	106,114,647,514	6,895,145	12,600,162,165	6,794,666,419	100,316,046,913
45	100,316,046,913	4,828,114	12,196,226,722	6,413,800,402	94,538,448,707
46	94,538,448,707	3,347,569	11,773,294,183	6,035,017,438	88,803,519,531
47	88,803,519,531	2,260,454	11,333,175,293	5,659,723,852	83,132,328,545
48	83,132,328,545	1,497,236	10,878,559,286	5,289,260,090	77,544,526,585
49	77,544,526,585	950,814	10,411,761,951	4,924,881,386	72,058,596,833
50	72,058,596,833	557,798	9,934,176,236	4,567,795,895	66,692,774,290



Single Discount Rate Development

Projection of Plan Fiduciary Net Position

Ending December 31, 2124 (Concluded)

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments Including Dividends	Projected Investment Earnings at 6.80%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)=(a)+(b)-(c)+(d)
51	\$ 66,692,774,290	\$ 288,779	\$ 9,447,138,451	\$ 4,219,197,925	\$ 61,465,122,543
52	61,465,122,543	130,399	8,952,086,279	3,880,267,278	56,393,433,941
53	56,393,433,941	58,681	8,450,825,423	3,552,152,646	51,494,819,845
54	51,494,819,845	27,838	7,945,623,863	3,235,940,228	46,785,164,048
55	46,785,164,048	10,541	7,438,744,549	2,932,633,533	42,279,063,572
56	42,279,063,572	2,331	6,932,343,628	2,643,152,905	37,989,875,180
57	37,989,875,180	58	6,428,682,759	2,368,330,869	33,929,523,348
58	33,929,523,348	1	5,930,146,678	2,108,898,415	30,108,275,086
59	30,108,275,086	0	5,439,187,399	1,865,471,631	26,534,559,318
60	26,534,559,318	0	4,958,295,797	1,638,540,385	23,214,803,906
61	23,214,803,906	0	4,489,998,696	1,428,457,272	20,153,262,482
62	20,153,262,482	0	4,036,811,730	1,235,427,415	17,351,878,166
63	17,351,878,166	0	3,601,200,899	1,059,500,480	14,810,177,747
64	14,810,177,747	0	3,185,543,671	900,564,784	12,525,198,861
65	12,525,198,861	0	2,792,073,641	758,344,194	10,491,469,413
66	10,491,469,413	0	2,422,833,018	632,398,313	8,701,034,708
67	8,701,034,708	0	2,079,636,251	522,125,547	7,143,524,004
68	7,143,524,004	0	1,764,014,610	426,769,476	5,806,278,870
69	5,806,278,870	0	1,477,150,779	345,429,779	4,674,557,870
70	4,674,557,870	0	1,219,820,895	277,078,082	3,731,815,057
71	3,731,815,057	0	992,321,765	220,579,336	2,960,072,628
72	2,960,072,628	0	794,389,940	174,719,860	2,340,402,549
73	2,340,402,549	0	625,148,731	138,241,865	1,853,495,683
74	1,853,495,683	0	483,096,625	109,882,542	1,480,281,601
75	1,480,281,601	0	366,178,318	88,413,833	1,202,517,116
76	1,202,517,116	0	271,926,043	72,677,725	1,003,268,798
77	1,003,268,798	0	197,603,315	61,614,255	867,279,737
78	867,279,737	0	140,345,795	54,281,739	781,215,681
79	781,215,681	0	97,304,323	49,868,727	733,780,084
80	733,780,084	0	65,774,298	47,697,497	715,703,282
81	715,703,282	0	43,295,792	47,219,975	719,627,465
82	719,627,465	0	27,719,750	48,007,696	739,915,411
83	739,915,411	0	17,242,275	49,737,652	772,410,787
84	772,410,787	0	10,408,627	52,175,860	814,178,020
85	814,178,020	0	6,091,913	55,160,387	863,246,493
86	863,246,493	0	3,453,845	58,585,262	918,377,910
87	918,377,910	0	1,895,749	62,386,302	978,868,463
88	978,868,463	0	1,007,179	66,529,375	1,044,390,658
89	1,044,390,658	0	518,073	71,001,240	1,114,873,825
90	1,114,873,825	0	258,147	75,802,787	1,190,418,465
91	1,190,418,465	0	124,687	80,944,286	1,271,238,063
92	1,271,238,063	0	58,429	86,442,234	1,357,621,869
93	1,357,621,869	0	26,596	92,317,398	1,449,912,671
94	1,449,912,671	0	11,766	98,593,668	1,548,494,573
95	1,548,494,573	0	5,040	105,297,462	1,653,786,996
96	1,653,786,996	0	2,065	112,457,447	1,766,242,377
97	1,766,242,377	0	802	120,104,455	1,886,346,031
98	1,886,346,031	0	300	128,271,520	2,014,617,250
99	2,014,617,250	0	141	136,993,968	2,151,611,078
100	2,151,611,078	0	0	146,309,553	2,297,920,631



Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31, 2124

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	\$ 134,541,212,975	\$ 7,977,136,071	\$ 7,977,136,071	\$ 0	\$ 7,719,005,917	\$ 0	\$ 7,719,005,917
2	137,997,267,803	8,186,892,568	8,186,892,568	0	7,417,579,546	0	7,417,579,546
3	141,409,619,967	8,250,744,977	8,250,744,977	0	6,999,467,993	0	6,999,467,993
4	144,930,878,825	8,478,059,190	8,478,059,190	0	6,734,371,335	0	6,734,371,335
5	148,479,796,765	8,769,637,328	8,769,637,328	0	6,522,453,569	0	6,522,453,569
6	151,851,988,146	9,036,113,531	9,036,113,531	0	6,292,740,012	0	6,292,740,012
7	155,095,342,524	9,297,667,903	9,297,667,903	0	6,062,627,531	0	6,062,627,531
8	158,222,407,262	9,561,921,428	9,561,921,428	0	5,837,955,436	0	5,837,955,436
9	161,222,853,614	9,823,610,828	9,823,610,828	0	5,615,850,026	0	5,615,850,026
10	164,077,404,935	10,094,505,681	10,094,505,681	0	5,403,288,495	0	5,403,288,495
11	166,780,060,100	10,370,718,662	10,370,718,662	0	5,197,693,899	0	5,197,693,899
12	169,300,507,001	10,644,259,393	10,644,259,393	0	4,995,121,352	0	4,995,121,352
13	171,639,903,729	10,904,634,376	10,904,634,376	0	4,791,488,498	0	4,791,488,498
14	173,797,522,142	11,152,278,294	11,152,278,294	0	4,588,298,743	0	4,588,298,743
15	175,761,008,628	11,400,923,385	11,400,923,385	0	4,391,944,700	0	4,391,944,700
16	177,526,017,208	11,649,451,985	11,649,451,985	0	4,201,951,922	0	4,201,951,922
17	179,077,791,852	11,889,764,335	11,889,764,335	0	4,015,573,478	0	4,015,573,478
18	180,408,954,785	12,128,531,841	12,128,531,841	0	3,835,405,711	0	3,835,405,711
19	181,495,231,320	12,365,444,825	12,365,444,825	0	3,661,352,721	0	3,661,352,721
20	182,329,311,777	12,600,831,159	12,600,831,159	0	3,493,492,095	0	3,493,492,095
21	182,893,498,068	12,835,826,876	12,835,826,876	0	3,332,062,744	0	3,332,062,744
22	183,168,428,242	13,069,293,719	13,069,293,719	0	3,176,655,985	0	3,176,655,985
23	183,128,471,357	13,298,394,014	13,298,394,014	0	3,026,537,162	0	3,026,537,162
24	182,764,001,935	13,518,338,146	13,518,338,146	0	2,880,705,537	0	2,880,705,537
25	182,062,971,766	13,729,845,393	13,729,845,393	0	2,739,491,491	0	2,739,491,491
26	181,012,299,019	13,934,952,185	13,934,952,185	0	2,603,385,845	0	2,603,385,845
27	179,591,952,592	14,127,924,576	14,127,924,576	0	2,471,383,662	0	2,471,383,662
28	177,796,386,006	14,310,094,386	14,310,094,386	0	2,343,867,457	0	2,343,867,457
29	175,612,901,436	14,482,359,455	14,482,359,455	0	2,221,051,459	0	2,221,051,459
30	173,027,555,399	14,630,715,010	14,630,715,010	0	2,100,939,742	0	2,100,939,742
31	170,042,243,828	14,746,885,061	14,746,885,061	0	1,982,791,681	0	1,982,791,681
32	166,669,442,414	14,825,869,129	14,825,869,129	0	1,866,490,150	0	1,866,490,150
33	162,926,330,240	14,861,427,069	14,861,427,069	0	1,751,841,467	0	1,751,841,467
34	158,842,061,356	14,851,467,617	14,851,467,617	0	1,639,201,744	0	1,639,201,744
35	154,448,366,392	14,795,408,650	14,795,408,650	0	1,529,039,649	0	1,529,039,649
36	149,779,578,326	14,694,842,343	14,694,842,343	0	1,421,953,716	0	1,421,953,716
37	144,869,695,149	14,555,402,271	14,555,402,271	0	1,318,783,453	0	1,318,783,453
38	139,747,998,096	14,380,537,136	14,380,537,136	0	1,219,981,182	0	1,219,981,182
39	134,440,921,520	14,171,413,632	14,171,413,632	0	1,125,692,949	0	1,125,692,949
40	128,975,598,336	13,928,805,876	13,928,805,876	0	1,035,975,308	0	1,035,975,308
41	123,379,111,682	13,652,861,695	13,652,861,695	0	950,797,337	0	950,797,337
42	117,679,515,204	13,337,930,997	13,337,930,997	0	869,724,050	0	869,724,050
43	111,912,048,838	12,983,359,037	12,983,359,037	0	792,699,944	0	792,699,944
44	106,114,647,514	12,600,162,165	12,600,162,165	0	720,321,939	0	720,321,939
45	100,316,046,913	12,196,226,722	12,196,226,722	0	652,836,976	0	652,836,976
46	94,538,448,707	11,773,294,183	11,773,294,183	0	590,073,347	0	590,073,347
47	88,803,519,531	11,333,175,293	11,333,175,293	0	531,849,011	0	531,849,011
48	83,132,328,545	10,878,559,286	10,878,559,286	0	478,009,888	0	478,009,888
49	77,544,526,585	10,411,761,951	10,411,761,951	0	428,369,434	0	428,369,434
50	72,058,596,833	9,934,176,236	9,934,176,236	0	382,696,819	0	382,696,819



Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31, 2124 (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	\$ 66,692,774,290	\$ 9,447,138,451	\$ 9,447,138,451	\$ 0	\$ 340,762,675	\$ 0	\$ 340,762,675
52	61,465,122,543	8,952,086,279	8,952,086,279	0	302,346,361	0	302,346,361
53	56,393,433,941	8,450,825,423	8,450,825,423	0	267,244,246	0	267,244,246
54	51,494,819,845	7,945,623,863	7,945,623,863	0	235,269,692	0	235,269,692
55	46,785,164,048	7,438,744,549	7,438,744,549	0	206,236,901	0	206,236,901
56	42,279,063,572	6,932,343,628	6,932,343,628	0	179,959,823	0	179,959,823
57	37,989,875,180	6,428,682,759	6,428,682,759	0	156,259,424	0	156,259,424
58	33,929,523,348	5,930,146,678	5,930,146,678	0	134,964,144	0	134,964,144
59	30,108,275,086	5,439,187,399	5,439,187,399	0	115,908,621	0	115,908,621
60	26,534,559,318	4,958,295,797	4,958,295,797	0	98,933,391	0	98,933,391
61	23,214,803,906	4,489,998,696	4,489,998,696	0	83,885,216	0	83,885,216
62	20,153,262,482	4,036,811,730	4,036,811,730	0	70,616,543	0	70,616,543
63	17,351,878,166	3,601,200,899	3,601,200,899	0	58,985,336	0	58,985,336
64	14,810,177,747	3,185,543,671	3,185,543,671	0	48,855,000	0	48,855,000
65	12,525,198,861	2,792,073,641	2,792,073,641	0	40,094,155	0	40,094,155
66	10,491,469,413	2,422,833,018	2,422,833,018	0	32,576,651	0	32,576,651
67	8,701,034,708	2,079,636,251	2,079,636,251	0	26,181,774	0	26,181,774
68	7,143,524,004	1,764,014,610	1,764,014,610	0	20,794,219	0	20,794,219
69	5,806,278,870	1,477,150,779	1,477,150,779	0	16,303,994	0	16,303,994
70	4,674,557,870	1,219,820,895	1,219,820,895	0	12,606,485	0	12,606,485
71	3,731,815,057	992,321,765	992,321,765	0	9,602,387	0	9,602,387
72	2,960,072,628	794,389,940	794,389,940	0	7,197,624	0	7,197,624
73	2,340,402,549	625,148,731	625,148,731	0	5,303,561	0	5,303,561
74	1,853,495,683	483,096,625	483,096,625	0	3,837,487	0	3,837,487
75	1,480,281,601	366,178,318	366,178,318	0	2,723,543	0	2,723,543
76	1,202,517,116	271,926,043	271,926,043	0	1,893,744	0	1,893,744
77	1,003,268,798	197,603,315	197,603,315	0	1,288,527	0	1,288,527
78	867,279,737	140,345,795	140,345,795	0	856,894	0	856,894
79	781,215,681	97,304,323	97,304,323	0	556,274	0	556,274
80	733,780,084	65,774,298	65,774,298	0	352,080	0	352,080
81	715,703,282	43,295,792	43,295,792	0	217,000	0	217,000
82	719,627,465	27,719,750	27,719,750	0	130,086	0	130,086
83	739,915,411	17,242,275	17,242,275	0	75,765	0	75,765
84	772,410,787	10,408,627	10,408,627	0	42,825	0	42,825
85	814,178,020	6,091,913	6,091,913	0	23,468	0	23,468
86	863,246,493	3,453,845	3,453,845	0	12,458	0	12,458
87	918,377,910	1,895,749	1,895,749	0	6,403	0	6,403
88	978,868,463	1,007,179	1,007,179	0	3,185	0	3,185
89	1,044,390,658	518,073	518,073	0	1,534	0	1,534
90	1,114,873,825	258,147	258,147	0	716	0	716
91	1,190,418,465	124,687	124,687	0	324	0	324
92	1,271,238,063	58,429	58,429	0	142	0	142
93	1,357,621,869	26,596	26,596	0	61	0	61
94	1,449,912,671	11,766	11,766	0	25	0	25
95	1,548,494,573	5,040	5,040	0	10	0	10
96	1,653,786,996	2,065	2,065	0	4	0	4
97	1,766,242,377	802	802	0	1	0	1
98	1,886,346,031	300	300	0	0	0	0
99	2,151,611,219	141	141	0	0	0	0
100	2,151,611,078	0	0	0	0	0	0
Totals					\$ 158,445,784,887	\$ 0	\$ 158,445,784,887



SECTION D

SUMMARY OF ASSUMPTIONS

Summary of Assumptions Used to Develop Total Pension Liability Assumptions Adopted by DETF Board After Consulting with Actuary

The actuarial assumptions were developed based on an Experience Study covering January 1, 2021 through December 31, 2023. Separate demographic assumptions were first developed for State and Non-State employees in conjunction with the 2018-2020 Experience Study. While sample rates are illustrated in this section, please refer to the Wisconsin Experience Study report dated November 19, 2024 which supplies a full listing of actuarial assumptions at every age and a rationale for the selection of assumptions.

Economic Assumptions

In determining plan liabilities for accounting purposes, a discount rate of 6.80% is used for both actives and retirees. However, a long-term assumed dividend of 1.7% 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 6.80% return assumption. The dividend rates used in developing the Total Pension Liability for accounting purposes is as follows:

2024: 3.6% Core, 15.0% Variable
2025: 2.3% Core, 15.0% Variable
2026: 0.9% Core, 1.7% Variable
2027: -1.0% Core, 1.7% Variable
2028: 2.5% Core, 1.7% Variable
2029: 2.1% Core, 1.7% Variable
2030 and later: 1.7% Core, 1.7% Variable

The **Wage Inflation Rate** assumed in this valuation was 3.00% 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. The price inflation assumption used to evaluate the investment return assumption is 2.4%.

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 6.8% pre-retirement investment return rate translates to an assumed real rate of return over wage inflation of 3.8%. The assumed real rate of return over price inflation would be 4.4%, considering an inflation assumption of 2.4%.



Merit and Longevity Pay Increase Assumptions for individual active members are shown for sample services below. An additional 3.0% recognizes wage inflation, including price inflation, productivity increases, and other macroeconomic forces.

Service	% Merit Increases in Salaries Next Year								
	General Non-State (Not Including Schools)	General State (Not Including Schools)	Executive & Elected Non-State	Executive & Elected State	University Teachers State	Public School Teachers Non-State	Protective With SS Non-State	Protective With SS State	Protective Without SS Non-State
1	3.6%	3.6%	2.6%	2.6%	3.1%	5.7%	4.9%	4.9%	5.5%
2	3.6%	3.6%	2.6%	2.6%	3.1%	5.7%	4.9%	4.9%	5.5%
3	3.2%	3.2%	2.1%	2.1%	3.0%	5.3%	4.2%	4.2%	4.7%
4	2.9%	2.9%	1.7%	1.7%	2.9%	4.8%	3.6%	3.6%	3.8%
5	2.6%	2.6%	1.2%	1.2%	2.8%	4.4%	2.9%	2.9%	3.0%
10	1.6%	1.6%	0.3%	0.3%	2.3%	2.7%	1.2%	1.2%	0.9%
15	1.2%	1.2%	0.3%	0.3%	1.8%	1.5%	0.9%	0.9%	0.5%
20	1.0%	1.0%	0.3%	0.3%	1.3%	0.7%	0.8%	0.8%	0.4%
25	0.7%	0.7%	0.3%	0.3%	1.0%	0.4%	0.7%	0.7%	0.3%
30	0.5%	0.5%	0.3%	0.3%	0.8%	0.3%	0.6%	0.6%	0.2%

Decrement Probabilities

The **mortality table** used was the 2020 WRS Experience Mortality Table originally adopted by the Board in connection with the 2018-2020 Experience Study and not adjusted for the 2021-2023 Experience Study. The rates in this table were based on actual WRS experience adjusted for future mortality improvements using the MP-2021 fully generational improvement scale from a base year of 2010. 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
2020 WRS Experience Mortality Table with 5% Interest

Sample Attained Ages in 2023	Present Value of \$1 Monthly for Life		Future Life Expectancy (years)		Mortality Rates ¹	
	Males	Females	Males	Females	Males	Females
40	\$216.74	\$219.82	47.2	49.3	0.000652	0.000433
45	208.80	212.54	42.0	44.0	0.000831	0.000546
50	198.73	203.22	36.8	38.8	0.001224	0.000862
55	186.28	191.78	31.7	33.7	0.002419	0.002222
60	171.45	178.39	26.7	28.8	0.004164	0.003473
65	154.03	162.27	22.0	24.0	0.006785	0.004964
70	133.88	142.87	17.5	19.3	0.011257	0.007859
75	111.37	120.45	13.4	15.0	0.020453	0.014926
80	87.79	96.46	9.8	11.0	0.039021	0.029941
85	65.19	73.04	6.8	7.8	0.075327	0.059093

¹ With a fully generational mortality table, the mortality rate depends on the year of birth. Later years of birth will typically correspond to a lower mortality rate at a given age.

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

Sample Attained Ages in 2023	Present Value of \$1 Monthly for Life		Future Life Expectancy (years)		Mortality Rates ¹	
	Males	Females	Males	Females	Males	Females
40	\$175.71	\$182.52	32.3	35.1	0.010009	0.008791
45	165.16	172.90	28.3	31.0	0.012486	0.011210
50	153.72	162.61	24.6	27.3	0.017241	0.015782
55	142.05	152.43	21.3	23.8	0.022935	0.020053
60	130.34	142.10	18.3	20.7	0.029197	0.023669
65	118.28	130.04	15.5	17.6	0.034886	0.025111
70	104.86	114.54	12.9	14.4	0.041042	0.029211
75	89.25	96.25	10.2	11.3	0.052285	0.040895
80	72.37	77.37	7.8	8.5	0.074551	0.063825
85	56.23	60.33	5.7	6.3	0.112584	0.102376

¹ With a fully generational mortality table, the mortality rate depends on the year of birth. Later years of birth will typically correspond to a lower mortality rate at a given age.

Active Participant Mortality Rates

Sample Attained Ages in 2023	Mortality Rates ¹	
	Males	Females
20	0.000400	0.000166
25	0.000215	0.000130
30	0.000353	0.000227
35	0.000521	0.000330
40	0.000652	0.000433
45	0.000831	0.000546
50	0.001192	0.000777
55	0.001866	0.001232
60	0.003079	0.001948
65	0.004985	0.003006
70	0.007459	0.004950
75	0.010846	0.009409
80	0.021611	0.019401

¹ With a fully generational mortality table, the mortality rate depends on the year of birth. Later years of birth will typically correspond to a lower mortality rate at a given age.

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	% of Active Participants Retiring												
	General Non-State		General State		Executive & Elected Non-State	Executive & Elected State	University State		Public Schools Non-State		Protective		
	Male	Female	Male	Female			Male	Female	Male	Female	With SS Non-State ¹	With SS State ¹	Without SS Non-State ¹
50											6.0%	7.5%	3.0%
51											8.0%	9.0%	4.0%
52											11.0%	11.0%	5.0%
53											34.0%	25.0%	20.0%
54											32.0%	20.0%	28.0%
55											26.0%	20.0%	30.0%
56											23.0%	20.0%	32.0%
57	20.0%	17.0%	19.0%	19.0%	10.0%	12.0%	12.0%	10.0%	32.0%	27.5%	27.0%	20.0%	26.0%
58	20.0%	18.0%	19.0%	19.0%	10.0%	12.0%	16.0%	20.0%	30.0%	27.5%	21.0%	20.0%	30.0%
59	20.0%	15.0%	19.0%	19.0%	10.0%	12.0%	9.0%	12.0%	29.0%	26.0%	23.0%	20.0%	40.0%
60	20.0%	20.0%	19.0%	21.0%	10.0%	12.0%	15.0%	14.0%	29.0%	29.0%	22.0%	20.0%	30.0%
61	20.0%	18.0%	19.0%	25.0%	10.0%	12.0%	9.0%	13.0%	28.0%	27.0%	30.0%	20.0%	33.0%
62	30.0%	24.0%	28.0%	29.0%	10.0%	18.0%	10.0%	15.0%	38.0%	36.0%	35.0%	25.0%	33.0%
63	30.0%	29.0%	30.0%	28.0%	10.0%	18.0%	11.0%	19.0%	34.0%	31.0%	27.0%	25.0%	33.0%
64	30.0%	24.0%	25.0%	31.0%	15.0%	18.0%	15.5%	17.0%	30.0%	30.0%	30.0%	36.0%	40.0%
65	30.0%	36.0%	27.0%	31.0%	15.0%	18.0%	15.5%	21.0%	34.0%	38.5%	34.0%	38.0%	40.0%
66	40.0%	39.0%	35.0%	36.0%	15.0%	18.0%	21.0%	25.0%	36.0%	44.0%	35.0%	38.0%	100.0%
67	32.0%	35.0%	32.0%	33.0%	15.0%	18.0%	18.0%	25.0%	30.0%	31.0%	35.0%	38.0%	100.0%
68	32.0%	30.0%	21.0%	25.0%	10.0%	18.0%	19.0%	18.0%	29.0%	30.0%	35.0%	38.0%	100.0%
69	28.0%	23.0%	21.0%	27.0%	10.0%	18.0%	14.0%	16.5%	22.0%	30.0%	35.0%	38.0%	100.0%
70	28.0%	24.0%	21.0%	29.0%	10.0%	18.0%	21.0%	22.0%	29.0%	32.0%	100.0%	100.0%	100.0%
71	28.0%	29.0%	21.0%	34.0%	10.0%	15.0%	24.0%	16.5%	23.0%	25.0%	100.0%	100.0%	100.0%
72	28.0%	28.0%	21.0%	33.0%	10.0%	15.0%	24.0%	17.0%	23.0%	25.0%	100.0%	100.0%	100.0%
73	18.0%	28.0%	30.0%	24.0%	20.0%	15.0%	24.0%	21.0%	24.0%	25.0%	100.0%	100.0%	100.0%
74	18.0%	16.0%	30.0%	18.0%	20.0%	15.0%	24.0%	14.0%	25.0%	25.0%	100.0%	100.0%	100.0%
75	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

¹ Includes reduced retirements for Protective with 20+ years of service.

Reduced Retirement

Age	% of Active Participants Retiring									
	General Non-State		General State		Executive & Elected Non-State	Executive & Elected State	University State		Public Schools Non-State	
	Male	Female	Male	Female			Male	Female	Male	Female
55	7.3%	7.0%	5.0%	6.0%	2.5%	6.0%	3.3%	5.0%	12.0%	11.0%
56	6.0%	7.0%	7.0%	8.0%	2.5%	6.0%	3.3%	5.0%	13.0%	13.0%
57	5.2%	5.5%	6.0%	6.0%	2.5%	6.0%	4.0%	5.0%	13.0%	12.0%
58	5.6%	6.5%	6.0%	9.0%	2.5%	6.0%	4.0%	5.5%	12.0%	13.0%
59	5.9%	7.0%	7.0%	8.0%	2.5%	6.0%	4.4%	6.0%	14.3%	13.5%
60	9.3%	9.5%	9.0%	10.0%	5.0%	6.0%	4.8%	7.5%	16.0%	17.0%
61	8.0%	9.5%	12.5%	11.0%	5.0%	6.0%	4.8%	9.0%	16.0%	17.0%
62	19.0%	16.0%	15.0%	18.0%	1.0%	6.0%	7.0%	11.0%	23.0%	24.0%
63	20.0%	18.0%	17.0%	20.0%	1.0%	3.0%	8.3%	12.0%	21.0%	24.0%
64	18.0%	18.0%	20.0%	19.0%	1.0%	3.0%	11.5%	14.5%	21.0%	24.0%



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 of 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 Withdrawing												
		General Non-State		General State		Executive & Elected Non-State	Executive & Elected State	University State		Public Schools Non-State		Protective		
		Male	Female	Male	Female			Male	Female	Male	Female	With SS Non-State	With SS State	Without SS Non-State
Under 30	0-1	17.7%	20.0%	17.2%	19.5%	29.0%	19.0%	14.0%	14.1%	12.6%	12.0%	15.6%	21.0%	5.5%
	1-2	12.5%	15.0%	12.9%	15.5%	25.0%	16.0%	13.8%	14.0%	11.6%	10.0%	9.4%	17.0%	4.2%
	2-3	9.0%	11.5%	9.5%	12.5%	22.0%	13.0%	12.6%	12.7%	8.5%	8.5%	5.3%	11.0%	2.4%
	3-4	7.1%	9.6%	7.4%	10.0%	19.0%	12.5%	11.0%	10.0%	6.0%	6.2%	4.4%	7.0%	2.2%
	4-5	6.6%	9.0%	7.3%	8.7%	15.0%	12.0%	8.6%	9.3%	5.6%	5.8%	4.2%	6.0%	1.6%
	5-6	5.3%	7.4%	6.1%	7.8%	7.0%	6.0%	8.5%	8.1%	4.5%	4.8%	3.3%	5.5%	1.4%
	6-7	4.8%	6.3%	5.2%	6.9%	4.0%	6.0%	7.0%	7.0%	3.7%	4.1%	3.2%	4.9%	1.3%
	7-8	4.6%	6.0%	5.1%	6.0%	4.0%	6.0%	5.6%	5.6%	2.9%	3.5%	3.0%	4.1%	1.2%
	8-9	4.1%	5.7%	4.5%	5.6%	4.0%	6.0%	4.6%	4.9%	2.6%	3.4%	2.7%	3.5%	1.1%
	9-10	4.0%	5.0%	3.6%	5.5%	4.0%	6.0%	4.3%	4.3%	2.5%	3.0%	2.3%	3.4%	1.0%
	10 & Up	3.2%	4.9%	3.4%	4.8%	3.8%	4.5%	3.9%	4.0%	2.0%	2.2%	2.1%	2.9%	0.7%
	35	2.8%	4.1%	3.3%	3.9%	3.5%	4.5%	3.5%	4.0%	1.6%	1.9%	1.8%	2.4%	0.6%
	40	2.4%	3.2%	3.0%	3.0%	3.1%	4.5%	3.1%	3.7%	1.4%	1.6%	1.5%	1.8%	0.6%
	45	2.0%	2.9%	2.5%	2.7%	2.9%	4.2%	2.6%	3.2%	1.4%	1.4%	1.4%	1.4%	0.5%
	50	1.7%	2.5%	2.0%	2.1%	2.7%	3.7%	2.2%	2.7%	1.3%	1.2%	1.3%	1.2%	0.5%
	54	1.6%	2.2%	1.9%	1.8%	2.7%	3.5%	2.0%	2.5%	1.3%	1.2%	1.3%	1.2%	0.5%

Disability Rates

Age	% of Active Participants Becoming Disabled												
	General Non-State		General State		Executive & Elected Non-State	Executive & Elected State	University State		Public Schools Non-State		Protective		
	Male	Female	Male	Female			Male	Female	Male	Female	With SS Non-State	With SS State	Without SS Non-State
20	0.01%	0.00%	0.01%	0.01%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.04%
25	0.01%	0.00%	0.01%	0.01%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.04%
30	0.01%	0.02%	0.01%	0.04%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.04%
35	0.01%	0.02%	0.01%	0.05%	0.01%	0.01%	0.00%	0.03%	0.01%	0.01%	0.03%	0.03%	0.04%
40	0.03%	0.03%	0.03%	0.07%	0.01%	0.01%	0.01%	0.04%	0.01%	0.02%	0.05%	0.05%	0.06%
45	0.06%	0.05%	0.06%	0.11%	0.01%	0.01%	0.02%	0.04%	0.03%	0.06%	0.07%	0.07%	0.11%
50	0.13%	0.07%	0.13%	0.17%	0.02%	0.02%	0.03%	0.07%	0.08%	0.10%	0.11%	0.11%	0.64%
55	0.24%	0.13%	0.25%	0.30%	0.09%	0.09%	0.08%	0.11%	0.14%	0.15%	1.73%	1.73%	0.48%
60	0.43%	0.18%	0.45%	0.43%	0.11%	0.11%	0.11%	0.17%	0.24%	0.22%	2.92%	2.92%	0.14%

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, Public School, and University		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.

These conditions apply to those people hired on or before December 31, 2016. For others, the General eligibility conditions apply.

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 (i.e., the Money Purchase Minimum).



Reduced Retirement. Any participant who has attained age 55 and any Protective occupation participant who has attained age 50 may apply for a reduced 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% (2.0% for the variable fund).

Disability Benefits. Generally, disability means the inability to engage in any substantial gainful activity by reason of a medically determinable physical or mental impairment which can be expected to result in death or to be of long-continued and indefinite duration. Disability applicants must be participating employees who are under normal retirement age, have not already taken a WRS benefit and who meet a service requirement.

For this purpose **normal retirement age** is:

- 65 for general employees and executives and elected officials hired after December 31, 2016;
- 62 for executives and elected officials hired on or before December 31, 2016;
- 53 for protective occupation employees with 25 or more years of creditable service; and
- 54 for other protective occupation employees.

The **service requirement** is that during the seven years preceding application the individual must have earned:

- At least 6 months of service credit in five of those years; or
- A total of five years of service credit.

Protective occupation employees who become disabled between the ages of 50 and 55, who have at least 15 years of service, and who can no longer perform the duties of their position may apply for a special disability benefit until age 55.

Disability Amount: The disability benefit is the WRS formula benefit based upon service projected to normal retirement age as described above, without regard to the reduced retirement reduction.

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. If there is no eligible beneficiary, a refund of contributions is paid to the estate.

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 Minimum	Refunds
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, Public School, and University	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; and
- 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). If a retiree (and beneficiary if in receipt of a joint survivorship annuity) dies prior to receiving benefits which, in total, are at least equal to the members contributions, a "residual refund" for the difference is paid.

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

Glossary of Terms

<i>Accrued Service</i>	Service credited under the system which was rendered before the date of the actuarial valuation.
<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>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 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 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 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>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>Cost-of-Living Adjustments</i>	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
<i>Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)</i>	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
<i>Covered-Employee Payroll</i>	The payroll of covered employees, which is typically only the pensionable pay and does not include pay above any pay cap.
<i>Deferred Inflows and Outflows</i>	The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense/(income). 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/(income) should be included in the deferred inflows or outflows of resources.
<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>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: 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 age(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>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>GASB</i>	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
<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/(Asset) (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.

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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 health care benefits regardless of the manner in which they are provided. Other postemployment 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/(Income)</i>	The total pension expense/(income) is the sum of the following items that are recognized at the end of the employer's fiscal year: 1. Service Cost 2. Interest on the Total Pension Liability 3. Current-Period Benefit Changes 4. Employee Contributions (made negative for addition here) 5. Projected Earnings on Plan Investments (made negative for addition here) 6. Pension Plan Administrative Expense 7. Other Changes in Plan Fiduciary Net Position 8. Recognition of Outflow (Inflow) of Resources due to Liabilities 9. Recognition of Outflow (Inflow) of Resources due to Assets
<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.