



**STATE OF WISCONSIN POSTRETIREMENT
LIFE INSURANCE PLAN (STATE)**

**GASB 74 and 75 DISCLOSURE
Fiscal Year Ending: December 31, 2022**

Prepared by

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Table of Contents

Certification	1
Executive Summary	3
Statement of Fiduciary Net Position	8
Statement of Changes in Fiduciary Net Position	9
Money-Weighted Rate of Return	10
Long-Term Expected Rate of Return	11
Depletion Date Projection	12
Projection of Fiduciary Net Position	13
Actuarial Present Value of Projected Benefit Payments	14
Net OPEB Liability	16
Changes in Net OPEB Liability	17
Schedule of Changes in Net OPEB Liability and Related Ratios	18
OPEB Expense and Deferred Inflows/Outflows of Resources	19
Schedule of Deferred Inflows and Outflows of Resources	20
OPEB Liability and Expense Summary	21
Actuarial Assumptions	22
Summary of Plan Provisions	29
Summary of Participant Data	31
Summary of Demographic Information	32
Glossary	33

Certification

Actuarial computations presented in this report under Statements No. 74 and 75 of the Governmental Accounting Standards Board are for purposes of assisting the Department of Employee Trust Funds (ETF) in fulfilling its financial accounting requirements. No attempt is being made to offer any accounting opinion or advice. This report is for the fiscal year ending December 31, 2022. The reporting date for determining plan assets and obligations is December 31, 2022. The calculations enclosed in this report have been made on a basis consistent with our understanding of the plan provisions. Determinations for purposes other than meeting financial reporting requirements may be significantly different than the results contained in this report. Accordingly, additional determinations may be needed for other purposes, such as judging benefit security or meeting employer funding requirements.

In preparing this report, we relied, without audit, on information as of January 1, 2022 and December 31, 2022 furnished by the ETF and Securian. This information includes, but is not limited to, statutory provisions, member census data, and financial information. The membership as of January 1, 2022 includes 49,293 active participants and 36,388 retirees.

We performed a limited review of the census and financial information used directly in our analysis and have found them to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

We hereby certify that, to the best of our knowledge, this report, including all costs and liabilities based on actuarial assumptions and methods, is complete and accurate and determined in conformance with generally recognized and accepted actuarial principles and practices, which are consistent with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board and the applicable Code of Professional Conduct, amplifying Opinions and supporting Recommendations of the American Academy of Actuaries.

This valuation report is only an estimate of the plan's financial condition as of a single date. It can neither predict the plan's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of plan benefits, only the timing of plan contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as, but not limited to, the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the actuarial assignment, we did not perform an analysis of the potential range of such future measurements.

Certification

The valuation results were developed using models intended for valuations that use standard actuarial techniques. In addition to the models described previously, Milliman has developed certain models to estimate the claim costs and trend used in this analysis. We have reviewed the models, including their inputs, calculations, and outputs for consistency, reasonableness, and appropriateness to the intended purpose and in compliance with generally accepted actuarial practice and relevant actuarial standards of practice. The models, including all input, calculations, and output may not be appropriate for any other purpose.

Milliman's work is prepared solely for the internal use and benefit of the Wisconsin Department of Employee Trust Funds. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions: (a) the Plan Sponsor may provide a copy of Milliman's work, in its entirety, to the Plan Sponsor's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the Fund; and (b) the Plan Sponsor may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

This report and its use are subject to the terms of our Consulting Services Agreement with the Wisconsin Department of Employee Trust Funds dated October 1, 2014.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and has been prepared in accordance with generally recognized accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.



John M. Chmielewski, FSA, EA, MAAA
Principal and Consulting Actuary



Daniel W. Colby, FSA, EA, MAAA
Consulting Actuary

Executive Summary

Overview of GASB 74 and GASB 75

The Governmental Accounting Standards Board (GASB) released accounting standards for public postemployment benefit plans other than pension (OPEB) and participating employers in 2015. These standards, GASB Statements No. 74 and 75, have substantially revised the accounting requirements previously mandated under GASB Statements No. 43 and 45. The most notable change is that the Annual Required Contribution (ARC) has been eliminated and the Net OPEB Liability will be an item on the employer's financial statement rather than a footnote entry.

GASB 74 applies to financial reporting for public OPEB plans and is required to be implemented for plan fiscal years beginning after June 15, 2016. Note that a plan's fiscal year might not be the same as the employer's fiscal year. Even if the plan does not issue standalone financial statements, but rather is considered a trust fund of a government, it is subject to GASB 74. Under GASB 74, enhancements to the financial statement disclosures are required, along with certain required supplementary information.

GASB 75 governs the specifics of accounting for public OPEB plan obligations for participating employers and is required to be implemented for employer fiscal years beginning after June 15, 2017. GASB 75 requires a liability for OPEB obligations, known as the Net OPEB Liability (Total OPEB Liability for unfunded plans), to be recognized on the balance sheets of participating employers. Changes in the Net OPEB Liability (Total OPEB Liability for unfunded plans) will be immediately recognized as OPEB Expense on the income statement or reported as deferred inflows/outflows of resources depending on the nature of the change.

Notes to Financial Statements

Statement No. 74 - Notes to Stand-Alone Plan Financial Statements

OPEB Plan description	<ul style="list-style-type: none"> ▪ Plan name, administrator, and classification ▪ Identification of board of trustees ▪ Participating employers and nonemployer contributing entities as applicable ▪ Plan eligibility and coverage, key benefit terms, and membership counts ▪ Contribution requirements, bases, amounts, sources, and authority
Significant assumptions and inputs	<ul style="list-style-type: none"> ▪ Items such as (but not limited to) discount rate basis and derivation, mortality assumptions, benefit levels, cost sharing, cash flows, and healthcare cost trend rates, including discount rate and trend rate sensitivity
OPEB plan investments	<ul style="list-style-type: none"> ▪ Investment policies, authority, and changes during period ▪ Asset allocations of five percent or more in non-U.S. government investments ▪ Money-weighted rates of return
OPEB liabilities	<ul style="list-style-type: none"> ▪ Total OPEB Liability (TOL), Fiduciary Net Position (FNP), Net OPEB Liability (NOL), FNP as a percentage of TOL
Dates and roll forward details	<ul style="list-style-type: none"> ▪ Valuation and measurement dates, and any update procedures used

Statement No. 75 - Notes to Financial Statements for Employers and Nonemployer Contributing Entities

Description of associated OPEB plans	<ul style="list-style-type: none"> ▪ Plan name, administrator, and classification ▪ Plan eligibility and coverage, key benefit terms, and membership counts ▪ Contribution requirements, bases, amounts, sources, and authority ▪ Availability of stand-alone plan financial statements
Significant assumptions and inputs for associated OPEB plans	<ul style="list-style-type: none"> ▪ Items such as (but not limited to) discount rate basis and derivation, mortality assumptions, benefit levels, cost sharing, cash flows, and healthcare cost trend rates, including discount rate and health trend rate sensitivity ▪ Proportionate share of collective NOL or TOL as applicable, including sensitivity to discount rate and health trend rate
Asset information and FNP for associated OPEB plans	<p>Either:</p> <ul style="list-style-type: none"> ▪ included, or ▪ if part of a plan's standalone statements or included in the financial report of another government, provide information as to how to obtain the report, or ▪ disclosure that there are no assets in trust
OPEB liabilities and changes in NOL/TOL for associated OPEB plans (as applicable)	<ul style="list-style-type: none"> ▪ Beginning and ending balances of TOL, FNP, and NOL ▪ OPEB expense and expenditures ▪ Disclosure of special funding situations
Dates and roll forward details	<ul style="list-style-type: none"> ▪ Valuation and measurement dates, and any update procedures used
Other items	<ul style="list-style-type: none"> ▪ Changes in assumptions and benefit terms ▪ Determination basis of proportionate share and changes in the employer's or nonemployer contributing entities' portion ▪ Significant events affecting NOL or TOL ▪ OPEB expense recognized for the period ▪ Balances of deferred outflows and inflows of resources related to OPEB, including a five-year schedule of net amounts to be recognized ▪ Insurance purchases and support by nonemployer contributing entities, if any ▪ Experience studies

Required Supplementary Information (RSI)

The financial statements of employers also include RSI showing a 10-year fiscal history of the following. The first two tables may be built prospectively as the information becomes available. The reader should note that an actuarially determined contribution is not calculated for this plan.

- sources of changes in the net OPEB liability/(asset)
- information about the components of the net OPEB liability/(asset) and related ratios
- comparison of actual employer contributions to the actuarially determined contributions, if an actuarially determined contribution is calculated
- collective amounts, proportions, and proportionate share information as applicable for the above schedules
- the annual money-weighted rate of return on OPEB plan investments

Overview of Postretirement Life Insurance program

After an employee satisfies the Enrollment Eligibility, both the employee and the employer pay premiums for life insurance coverage. These premiums support life insurance coverage for death while an active employee and in retirement after the employee satisfies the Retirement Eligibility.

Both the employee and employer pay the applicable premiums until the employee retires. If an employee retires before age 65, the retired employee must continue to pay the employee premiums until reaching age 65 in order to maintain the life insurance coverage after age 65. This report continues prior practice of identifying retired employees before age 65 as “Pre-65 Annuitants”, and retired employees on or after age 65 as “Post-64 Retirees”.

This GASB 74 report presents the results of the actuarial valuation in accordance with GASB 74 as of December 31, 2022 for the State of Wisconsin Retiree Life Insurance Programs for State employees. Under GASB 74, an actuarial valuation is required for post-employment benefits. Consequently, the death benefits provided prior to retirement are excluded from the actuarial valuation. There are several differences in actuarial assumptions and methods specified by GASB 74 compared to those used to determine the financial reporting prepared by Securian. These differences include treatment of assets, actuarial methods, and the discount rate. Reconciliation of these differences is outside the scope of our assignment with the ETF.

The actuarial liability for the Postretirement Life Insurance program for state employees discussed in this report consists of the following components:

- Actives: The liability for actives represents the expected present value of future death benefits payable to active members based upon expected future retirements. There were 49,293 active members as of 1/1/2022.
- Disabled Participants: The liability for disabled participants represents the expected present value of future death benefits payable to disabled participants. There were 1,062 disabled members as of 1/1/2022.
- Pre-65 Annuitants: The liability for pre-65 annuitants represents the expected present value of future death benefits payable less the present value of expected future employee premiums payable before age 65 to pre-65 annuitants who retired on or before 1/1/2022. There were 6,360 pre-65 annuitants reported as of 1/1/2022.
- Post-64 Retirees: The liability for post-64 retirees represents the expected present value of future death benefits payable to post-64 retirees as of 1/1/2022. There were 28,966 post-64 retirees reported as of 1/1/2022.

Summary of Results

This report presents the results of the actuarial valuation in accordance with GASB 74 as of December 31, 2022 for the State of Wisconsin Retiree Life Insurance Programs for State employees. Under GASB 74, an actuarial valuation is required for post-employment benefits. Consequently, the death benefits provided prior to retirement are excluded from the actuarial valuation. Both the employee and employer pay the applicable premiums until the employee retires. If an employee retires before age 65, the retired employee must continue to pay the employee premiums until reaching age 65 in order to maintain the life insurance coverage after age 65. The table below compares the 12/31/2021 to 12/31/2022 GASB 74 results.

(\$ in millions)		
Valuation Date	01/01/2021	01/01/2022
Measurement Date	12/31/2021	12/31/2022
Funded Status		
Total OPEB Liability (TOL)	\$1,267	\$963
Fiduciary Net Position (FNP)	(320)	(303)
Net OPEB Liability (NOL) ⁽¹⁾	\$948	\$660
FNP as a % of TOL	25%	31%
OPEB Expense	\$110	\$59
Discount Rate	2.15%	3.75%

⁽¹⁾ May not add due to rounding.

Net OPEB Liability

Under GASB 74, the Net OPEB Liability is equal to the Total OPEB Liability less the fiduciary net position. The Net OPEB Liability decreased from \$948 million as of December 31, 2021 to \$660 million as of December 31, 2022 for the state plan. There are two significant factors impacting the change in the Net OPEB Liability:

- (1) Municipal bond rate
- (2) Level of employer contributions

Each of these factors is discussed in further detail below.

1. Municipal Bond Rate

At implementation of GASB 74, the State of Wisconsin chose the Bond Buyer GO 20-Bond Municipal Bond Index. The bond index increased from 2.06% at December 31, 2021 to 3.72% at December 31, 2022. The impact due to the change in the municipal bond index was a decrease in the net OPEB liability of approximately \$350.1 million for the state plan.

2. Level of Employer Contributions

Employer contributions to the postretirement life insurance program are a specified percentage of the employer premiums to the life insurance plan. GASB 74 requires depletion date projections using projections of future contributions according to the "funding policy". The depletion date projections indicate the current level of employer contributions are not large enough to cover the cost of benefits earned by active employees and reduce the Net OPEB Liability. Absent additional monies from other sources, contributions under the current funding policy will not be sufficient to accumulate sufficient money to pay benefits when due under the current actuarial assumptions. As of December 31, 2022, the fiduciary net position is projected to be insufficient by December 31, 2034 for the state plan.

Assets for the postretirement life insurance program are held in the Retiree Premium Deposit Fund and the Contingent Liability Reserve. These assets are held in an irrevocable trust for the exclusive purpose

of providing postretirement life insurance benefits to plan participants. The 2022 asset activity is reported on pages 8 and 9. The Active Premium Deposit Fund and Active Stabilization Reserve are two accounts maintained separately by Securian, the plan's insurance carrier, but are not included in the plan assets in the GASB 74 valuation. It is our understanding that these funds are discretionary funds that the Group Insurance Board may use to (1) hold as a reserve to mitigate current premium fluctuations pertaining to coverage for active employees, retirees or both, (2) use to mitigate future premium fluctuations pertaining to coverage for active employees, retirees or both, or (3) transfer to the postretirement life insurance program assets. As of 12/31/2022, the total value in the Active Premium Deposit Fund plus the Active Stabilization Reserve was \$68 million.

Overall Net OPEB Liability Impact

The discount rate is determined as the single equivalent rate that results in the same actuarial present value as the long-term expected rate of return applied to benefit payments, to the extent that the plan's fiduciary net position is projected to be sufficient to make projected benefit payments, and the municipal bond rate applied to benefit payments, to the extent that the plan's fiduciary net position is projected to be insufficient. The factors above play a key role in the calculation of the single equivalent rate.

Because the projections result in a date of depletion, the GASB 74 discount rate is lower than the investment return assumption of 4.25% as of December 31, 2022. After assets are expected to be depleted, projected benefit payments are discounted using the municipal bond index. The net result of the increase in the municipal bond rate is an increase in the single equivalent rate from 2.15% as of December 31, 2021 to 3.75% as of December 31, 2022, which caused a decrease in the Net OPEB Liability of \$350.1 million.

The Net OPEB Liability is \$660 million resulting in a funded ratio of 31.5% for the state plan as of December 31, 2022.

Statement of Fiduciary Net Position

December 31, 2022

Assets

Receivables:

Due From Other Benefit Programs	\$0
Miscellaneous Receivables	122,355
Total Receivables	122,355

Investments:

Investment Contract	305,771,491
Total Investments	305,771,491

Total Assets	305,893,846
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Liabilities

Benefits Payable	2,169,938
Unearned Revenue	355,764
Due to Other Benefit Programs	20,744
Miscellaneous Payables	101,346
Total Liabilities	2,647,792

Net Position Restricted For Postemployment Benefits Other Than Pensions

\$303,246,054

Statement of Changes in Fiduciary Net Position

	<u>December 31, 2022</u>
Additions	
Employer Contributions	\$1,776,716
Total Contributions	1,776,716
Investment Income (loss):	
Other Investment Income	8,753,360
Net Investment Income	8,753,360
Service Reimbursement Income	122,355
Total Additions	10,652,431
Deductions	
Other Benefit Expenses	26,020,876
Carrier Administrative Expenses	869,608
Administrative Expenses	122,355
Total Deductions	27,012,839
Transfer from Active Life Insurance Program	0
Net Increase/(Decrease) in Net Position	(16,360,408)
Net Position Restricted For Postemployment Benefits Other Than Pensions	
Beginning of Year (January 1, 2022)	319,606,462
End of Year (December 31, 2022)	\$303,246,054

Money-Weighted Rate of Return

The money-weighted rate of return shown in the table below is calculated by Securian, the plan's insurance carrier.

Fiscal Year Ending December 31	Net Money-Weighted Rate of Return
2013	N/A
2014	N/A
2015	N/A
2016	N/A
2017	3.19%
2018	3.16%
2019	3.09%
2020	2.86%
2021	2.67%
2022	2.82%

Long-Term Expected Rate of Return

Milliman’s capital market assumptions underlie the “building block” method used in our estimate of expected return. The building block method in our model considers asset allocation, expected return and variance of each class, and correlation between asset classes. We then analyze the output ranges and Securian’s assumption in order to arrive at our recommended investment return assumption.

Generally speaking, we recommend the expected return be set using a geometric return reasonably close to the 50th percentile over an appropriate time horizon. Due to the long-term nature of the retiree life insurance obligation, we looked at results compounded over a 30 year time period. Based on Milliman’s capital market assumptions as of December 31, 2022 and the target asset allocation for the retiree life insurance program, the 50th percentile return over this time period is 5.00%.

The discount rate assumption Securian uses in the post-retirement funding analysis is determined by the following process:

- Securian projects a discount rate for each year in the projection based on a projection of new money rates blended with returns on current assets.
- The new money rates are projected based on a method agreed upon between Securian and ETF.
- The current projection assumption is that new money crediting rates grade from the current new money rate to an ultimate rate of 5.0% over 10 years.
- The projected new money rates are blended with the existing asset returns using the 10-year IYM method used to credit interest on plan assets.
- Securian’s 30-year geometric average projected crediting rate as of December 31, 2022 is 4.58%.

Investments for the Retiree Life Insurance Funds are held with the insurance carrier. Interest is calculated and credited to the Retiree Life Insurance Funds based on the rate of return for a segment of the insurance carrier’s general fund, specifically 10 Year A- Bonds (as a proxy, and not tied to any specific investments). The funds invested during the year earn interest based on that year’s rate of return for 10 Year A- Bonds. The overall aggregate interest rate is calculated using a tiered approach based on the year the funds were invested and the rate of return for that year. Investment interest is credited based on the aggregate rate of return and assets are not adjusted to fair market value.

The difference between the Milliman and Securian results are that the Securian results are capped at 5% for any given year. Although the expected rates have increased over last year, the Long-Term Rate of Return assumption remains unchanged due to the long-term nature of the plan and factoring in historical investment losses.

Asset Class	Index	Target Allocation	Expected Geometric Real Rate of Return
US Intermediate Credit Bonds	Bloomberg US Interm Credit	50.00%	2.45%
US Mortgages	Bloomberg US MBS	50.00%	2.83%
Inflation			2.30%
Long-Term Expected Rate of Return			4.25%

Depletion Date Projection

In order to determine if the plan's fiduciary net position is projected to be sufficient to make projected benefit payments, we have prepared a depletion date projection using the following techniques and assumptions:

- The employer and pre-65 annuitants contribute according to the premium schedule on page 30 of this report.
- Benefit payments are projected based on the actuarial assumptions and the current plan provisions.
- Members are assumed to terminate, retire, become disabled, die, and so forth according to the actuarial assumptions as listed in the Actuarial Assumptions section beginning on page 22 of this report.
- Terminating and retiring members will not be replaced with new employees, as mandated by the GASB 74/75 standards.
- All cash flows are assumed to occur on average halfway through the year.
- The long-term expected rate of return on plan investments is 4.25%.
- The 20 year tax-exempt municipal bond index rate is 3.72% as of December 31, 2022, based on the Bond Buyer GO 20-Bond Municipal Bond Index.
- The actuarial assumptions do not change.
- The plan provisions do not change except if any material future changes have been agreed upon as of the measurement date.

Actual results at each point in time will yield different values, reflecting the actual experience of the plan membership and assets.

The projection results to determine the December 31, 2022 discount rate are shown on pages 13 through 15.

Projection of Fiduciary Net Position

Year	Projected Beginning Fiduciary Net Position	Projected Employer Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings	Projected Ending Fiduciary Net Position
2023	\$303,246,054	\$2,009,717	\$26,156,787	\$820,000	\$12,357,407	\$290,636,391
2024	290,636,391	1,967,368	27,465,172	838,860	11,792,393	276,092,120
2025	276,092,120	1,922,965	28,860,604	858,154	11,143,255	259,439,582
2026	259,439,582	1,875,944	30,308,757	877,891	10,403,330	240,532,208
2027	240,532,208	1,824,678	31,837,344	898,083	9,565,765	219,187,224
2028	219,187,224	1,768,332	33,457,310	918,739	8,622,543	195,202,050
2029	195,202,050	1,627,770	35,281,345	939,870	7,560,976	168,169,582
2030	168,169,582	1,495,589	37,172,473	961,487	6,368,642	137,899,853
2031	137,899,853	1,370,457	39,136,525	983,601	5,037,313	104,187,497
2032	104,187,497	1,251,003	41,153,179	1,006,224	3,558,665	66,837,762
2033	66,837,762	1,140,264	43,205,226	1,029,367	1,924,850	25,668,283
2034	25,668,283	1,038,080	45,287,106	1,053,042	128,233	(19,505,552)

Actuarial Present Value of Projected Benefit Payments

Year	Projected Beginning Fiduciary Net Position	Projected Benefit Payments	"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	Present Value of "Funded" Benefit Payments at 4.25%*	Present Value of "Unfunded" Benefit Payments at 3.72%**	Present Value of Total Benefit Payments at 3.75%***
2023	\$303,246,054	\$26,156,787	\$26,156,787	\$0	\$25,618,067	\$0	\$25,679,782
2024	290,636,391	27,465,172	27,465,172	0	25,802,883	0	25,989,813
2025	276,092,120	28,860,604	28,860,604	0	26,008,497	0	26,323,288
2026	259,439,582	30,308,757	30,308,757	0	26,200,037	0	26,645,062
2027	240,532,208	31,837,344	31,837,344	0	26,399,430	0	26,977,353
2028	219,187,224	33,457,310	33,457,310	0	26,611,703	0	27,325,456
2029	195,202,050	35,281,345	35,281,345	0	26,918,492	0	27,773,807
2030	168,169,582	37,172,473	37,172,473	0	27,205,141	0	28,204,969
2031	137,899,853	39,136,525	39,136,525	0	27,474,875	0	28,622,023
2032	104,187,497	41,153,179	41,153,179	0	27,712,824	0	29,009,173
2033	66,837,762	43,205,226	43,205,226	0	27,908,572	0	29,355,003
2034	25,668,283	45,287,106	0	45,287,106	0	29,754,710	29,657,484
2035	0	47,390,882	0	47,390,882	0	30,020,190	29,913,582
2036	0	49,469,790	0	49,469,790	0	30,213,164	30,097,303
2037	0	51,446,012	0	51,446,012	0	30,293,214	30,168,459
2038	0	53,359,392	0	53,359,392	0	30,292,980	30,159,641
2039	0	55,201,561	0	55,201,561	0	30,214,817	30,073,262
2040	0	56,967,945	0	56,967,945	0	30,063,301	29,913,941
2041	0	58,603,725	0	58,603,725	0	29,817,335	29,660,754
2042	0	60,162,624	0	60,162,624	0	29,512,627	29,349,292
2043	0	61,568,945	0	61,568,945	0	29,119,257	28,949,859
2044	0	62,863,862	0	62,863,862	0	28,665,342	28,490,475
2045	0	64,001,337	0	64,001,337	0	28,137,313	27,957,708
2046	0	65,002,475	0	65,002,475	0	27,552,496	27,368,835
2047	0	65,904,830	0	65,904,830	0	26,933,066	26,745,921
2048	0	66,667,265	0	66,667,265	0	26,267,496	26,077,553
2049	0	67,331,528	0	67,331,528	0	25,577,730	25,385,549
2050	0	67,903,880	0	67,903,880	0	24,869,990	24,676,103
2051	0	68,417,659	0	68,417,659	0	24,159,433	23,964,263
2052	0	68,855,614	0	68,855,614	0	23,442,038	23,246,047
2053	0	69,237,080	0	69,237,080	0	22,726,484	22,530,062
2054	0	69,562,283	0	69,562,283	0	22,014,297	21,817,820
2055	0	69,815,602	0	69,815,602	0	21,302,029	21,105,902
2056	0	70,010,068	0	70,010,068	0	20,595,222	20,399,796
2057	0	70,125,767	0	70,125,767	0	19,889,373	19,695,038
2058	0	70,138,696	0	70,138,696	0	19,179,560	18,986,757
2059	0	70,047,556	0	70,047,556	0	18,467,642	18,276,792
2060	0	69,869,321	0	69,869,321	0	17,759,980	17,571,442
2061	0	69,590,836	0	69,590,836	0	17,054,755	16,868,902
2062	0	69,205,080	0	69,205,080	0	16,351,926	16,169,129
2063	0	68,709,563	0	68,709,563	0	15,652,568	15,473,185
2064	0	68,101,544	0	68,101,544	0	14,957,633	14,782,007
2065	0	67,400,972	0	67,400,972	0	14,272,813	14,101,213
2066	0	66,622,355	0	66,622,355	0	13,601,941	13,434,583
2067	0	65,760,999	0	65,760,999	0	12,944,545	12,781,638
2068	0	64,820,745	0	64,820,745	0	12,301,835	12,143,560
2069	0	63,801,023	0	63,801,023	0	11,674,036	11,520,558
2070	0	62,692,551	0	62,692,551	0	11,059,788	10,911,280
2071	0	61,481,528	0	61,481,528	0	10,457,142	10,313,791
2072	0	60,153,064	0	60,153,064	0	9,864,239	9,726,247
2073	0	58,685,879	0	58,685,879	0	9,278,483	9,146,081
2074	0	57,066,661	0	57,066,661	0	8,698,879	8,572,309
2075	0	55,280,058	0	55,280,058	0	8,124,316	8,003,827

This work product was prepared solely for the ETF for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

Actuarial Present Value of Projected Benefit Payments (Continued)

Year	Projected Beginning Fiduciary Net Position	Projected Benefit Payments	"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	Present Value of "Funded" Benefit Payments at 4.25%*	Present Value of "Unfunded" Benefit Payments at 3.72%**	Present Value of Total Benefit Payments at 3.75%***
2076	\$0	\$53,318,328	\$0	\$53,318,328	\$0	\$7,554,963	\$7,440,800
2077	0	51,179,521	0	51,179,521	0	6,991,809	6,884,196
2078	0	48,864,917	0	48,864,917	0	6,436,177	6,335,313
2079	0	46,384,565	0	46,384,565	0	5,890,359	5,796,399
2080	0	43,752,788	0	43,752,788	0	5,356,875	5,269,925
2081	0	40,989,337	0	40,989,337	0	4,838,538	4,758,647
2082	0	38,117,867	0	38,117,867	0	4,338,198	4,265,354
2083	0	35,167,346	0	35,167,346	0	3,858,850	3,792,975
2084	0	32,171,154	0	32,171,154	0	3,403,474	3,344,420
2085	0	29,163,315	0	29,163,315	0	2,974,611	2,922,167
2086	0	26,179,486	0	26,179,486	0	2,574,494	2,528,385
2087	0	23,254,907	0	23,254,907	0	2,204,869	2,164,764
2088	0	20,424,119	0	20,424,119	0	1,867,020	1,832,539
2089	0	17,720,692	0	17,720,692	0	1,561,794	1,532,514
2090	0	15,175,977	0	15,175,977	0	1,289,548	1,265,011
2091	0	12,815,052	0	12,815,052	0	1,049,877	1,029,608
2092	0	10,658,091	0	10,658,091	0	841,851	825,363
2093	0	8,721,476	0	8,721,476	0	664,176	650,982
2094	0	7,014,534	0	7,014,534	0	515,026	504,652
2095	0	5,539,702	0	5,539,702	0	392,152	384,143
2096	0	4,291,776	0	4,291,776	0	292,916	286,852
2097	0	3,257,871	0	3,257,871	0	214,376	209,879
2098	0	2,420,330	0	2,420,330	0	153,552	150,288
2099	0	1,757,832	0	1,757,832	0	107,522	105,206
2100	0	1,246,584	0	1,246,584	0	73,515	71,911
2101	0	862,077	0	862,077	0	49,016	47,933
2102	0	580,627	0	580,627	0	31,829	31,117
2103	0	380,390	0	380,390	0	20,105	19,649
2104	0	242,101	0	242,101	0	12,337	12,054
2105	0	149,514	0	149,514	0	7,346	7,175
2106	0	89,491	0	89,491	0	4,239	4,139
2107	0	51,858	0	51,858	0	2,368	2,312
2108	0	29,063	0	29,063	0	1,280	1,249
2109	0	15,746	0	15,746	0	668	652
2110	0	8,245	0	8,245	0	337	329
2111	0	4,173	0	4,173	0	165	161
2112	0	2,043	0	2,043	0	78	76
2113	0	970	0	970	0	36	35
2114	0	447	0	447	0	16	15
2115	0	200	0	200	0	7	7
2116	0	88	0	88	0	3	3
2117	0	38	0	38	0	1	1
2118	0	15	0	15	0	0	0
2119	0	6	0	6	0	0	0
2120	0	2	0	2	0	0	0
2121	0	1	0	1	0	0	0
Total					293,860,521	+ 948,712,358	= 1,242,572,879

* Discounted at the long-term expected rate of return, 4.25%

** Discounted at the municipal bond rate, 3.72%

*** Discounted at the single interest rate that produces a total actuarial present value equal to the sum of the actuarial present values of "funded" and "unfunded" benefit payments, 3.75%

Net OPEB Liability

Net OPEB Liability	December 31, 2021	December 31, 2022
Total OPEB liability	\$1,267,361,689	\$962,995,891
Fiduciary net position	319,606,462	303,246,054
Net OPEB liability	947,755,227	659,749,837
Fiduciary net position as a % of total OPEB liability	25.22%	31.49%
Covered payroll	3,529,342,000	3,645,194,000
Net OPEB liability as a % of covered payroll	26.85%	18.10%

The total OPEB liability was determined by an actuarial valuation as of the valuation date, calculated based on the discount rate and actuarial assumptions below, and was then projected forward to the measurement date. Any significant changes during this period have been reflected as prescribed by GASB 74 and 75.

Discount Rate

Discount rate	2.15%	3.75%
Long-term expected rate of return, net of investment expense	4.25%	4.25%
20 Year Tax-Exempt Municipal Bond Yield	2.06%	3.72%

The plan's fiduciary net position was projected to be insufficient to make all projected future benefit payments of current active and inactive employees. Therefore, the discount rate for calculating the total OPEB liability is equal to the single equivalent rate that results in the same actuarial present value as the long-term expected rate of return applied to benefit payments, to the extent that the plan's fiduciary net position is projected to be sufficient to make projected benefit payments, and the municipal bond rate applied to benefit payments, to the extent that the plan's fiduciary net position is projected to be insufficient.

Other Key Actuarial Assumptions

Valuation date	January 1, 2021	January 1, 2022
Measurement date	December 31, 2021	December 31, 2022
Salary increases including inflation	WRS; see "Actuarial Assumptions" for details	WRS; see "Actuarial Assumptions" for details
Mortality	WRS; see "Actuarial Assumptions" for details	WRS; see "Actuarial Assumptions" for details
Actuarial cost method	Entry Age Normal	Entry Age Normal

Changes in Net OPEB Liability

Changes in Net OPEB Liability	Increase (Decrease)		
	Total OPEB Liability (a)	Plan Fiduciary Net Position (b)	Net OPEB Liability (a) - (b)
Balances as of December 31, 2021	\$1,267,361,689	\$319,606,462	\$947,755,227
Changes for the year:			
Service cost	48,989,977		48,989,977
Interest on total OPEB liability	28,023,324		28,023,324
Effect of plan changes	0		0
Effect of economic/demographic gains or losses	(5,251,680)		(5,251,680)
Effect of assumptions changes or inputs	(350,106,543)		(350,106,543)
Benefit payments	(26,020,876)	(26,020,876)	0
Employer contributions		1,776,716	(1,776,716)
Transfer from active life insurance program		0	0
Net investment income		8,875,715	(8,875,715)
Administrative expenses		(991,963)	991,963
Balances as of December 31, 2022	962,995,891	303,246,054	659,749,837

Sensitivity Analysis

The following presents the net OPEB liability, calculated using the discount rate of 3.75%, as well as what the net OPEB liability would be if it were calculated using a discount rate that is 1 percentage point lower (2.75%) or 1 percentage point higher (4.75%) than the current rate.

	Current		
	1% Decrease 2.75%	Discount Rate 3.75%	1% Increase 4.75%
Total OPEB liability	\$1,164,214,971	\$962,995,891	\$807,076,058
Fiduciary net position	303,246,054	303,246,054	303,246,054
Net OPEB liability	860,968,917	659,749,837	503,830,004

Healthcare trend rates do not affect the retiree life insurance liabilities. Thus, sensitivity analysis of healthcare trend rates is not included.

Schedule of Changes in Net OPEB Liability and Related Ratios (in 1,000s)

	Fiscal Year Ending December 31									
	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Total OPEB Liability										
Service cost	\$48,990	\$46,315	\$36,280	\$25,430	\$30,668	\$26,146	N/A	N/A	N/A	N/A
Interest on total OPEB liability	28,023	27,422	29,966	33,225	31,194	30,731	N/A	N/A	N/A	N/A
Changes of benefit terms	0	0	0	0	0	0	N/A	N/A	N/A	N/A
Effect of economic/demographic (gains) or losses	(5,252)	3,203	(10,409)	(6,128)	(17,528)	(5,266)	N/A	N/A	N/A	N/A
Effect of assumption changes or inputs	(350,107)	13,429	138,486	223,009	(94,851)	49,008	N/A	N/A	N/A	N/A
Benefit payments	(26,021)	(23,746)	(24,729)	(19,857)	(19,538)	(17,670)	N/A	N/A	N/A	N/A
Net change in total OPEB liability	(304,366)	66,623	169,595	255,680	(70,054)	82,949	N/A	N/A	N/A	N/A
Total OPEB liability, beginning	1,267,362	1,200,738	1,031,144	775,464	845,519	762,570	N/A	N/A	N/A	N/A
Total OPEB liability, ending (a)	962,996	1,267,362	1,200,738	1,031,144	775,464	845,519	N/A	N/A	N/A	N/A
Fiduciary Net Position										
Employer contributions	\$1,777	\$1,670	\$1,535	\$1,149	\$1,387	\$1,376	N/A	N/A	N/A	N/A
Transfer from active life insurance program	0	0	0	13140	0	\$0	N/A	N/A	N/A	N/A
Net Investment income	8,876	8,803	9,833	10,411	10,897	\$11,530	N/A	N/A	N/A	N/A
Benefit payments	(26,021)	(23,746)	(24,729)	(19,857)	(19,538)	(\$17,670)	N/A	N/A	N/A	N/A
Administrative expenses	(992)	(872)	(906)	(808)	(735)	(\$699)	N/A	N/A	N/A	N/A
Net change in plan fiduciary net position	(16,360)	(14,145)	(14,268)	4,036	(7,989)	(5,462)	N/A	N/A	N/A	N/A
Fiduciary net position, beginning	319,606	333,752	348,020	343,984	351,972	357,435	N/A	N/A	N/A	N/A
Fiduciary net position, ending (b)	303,246	319,606	333,752	348,020	343,984	351,972	N/A	N/A	N/A	N/A
Net OPEB liability, ending = (a) - (b)	\$659,750	\$947,755	\$866,987	\$683,124	\$431,481	\$493,547	N/A	N/A	N/A	N/A
Fiduciary net position as a % of total OPEB liability	31.49%	25.22%	27.80%	33.75%	44.36%	41.63%	N/A	N/A	N/A	N/A
Covered payroll	\$3,645,194	\$3,529,342	\$3,456,544	\$3,299,478	\$3,182,513	\$3,183,994	N/A	N/A	N/A	N/A
Net OPEB liability as a % of covered payroll	18.10%	26.85%	25.08%	20.70%	13.56%	15.50%	N/A	N/A	N/A	N/A

This schedule is presented to illustrate the requirement to show information for 10 years. However, recalculations of prior years are not required, and if prior years are not reported in accordance with the current GASB standards, they should not be reported.

Notes to Schedule:

* May not add due to rounding

OPEB Expense and Deferred Inflows/Outflows of Resources

OPEB Expense	January 1, 2021 to December 31, 2021	January 1, 2022 to December 31, 2022
Service cost	\$46,314,884	\$48,989,977
Interest on total OPEB liability	27,422,449	28,023,324
Effect of plan changes	0	0
Administrative expenses	871,755	991,963
Expected investment return net of investment expenses	(13,701,882)	(13,052,587)
Recognition of Deferred Inflows/Outflows of Resources		
Recognition of economic/demographic gains or losses	(5,291,535)	(6,100,731)
Recognition of assumption changes or inputs	48,585,632	(5,359,906)
Recognition of investment gains or losses	5,562,932	5,213,800
OPEB Expense	<u>109,764,235</u>	<u>58,705,840</u>

As of December 31, 2022, the deferred inflows and outflows of resources to be recognized in future OPEB expense are as follows:

Deferred Inflows / Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources
Differences between expected and actual experience	(\$18,133,560)	\$2,235,489
Changes of assumptions	(321,268,641)	184,376,177
Net difference between projected and actual earnings	<u>0</u>	<u>9,322,692</u>
Total	(339,402,201)	195,934,358
Total net deferrals		(143,467,843)

Amounts currently reported as deferred outflows of resources and deferred inflows of resources related to other postemployment benefits will be recognized in OPEB expense as follows:

Year ended December 31:	
2023	(\$7,493,981)
2024	(11,556,440)
2025	(7,382,838)
2026	(37,007,716)
2027	(53,197,049)
Thereafter*	(26,829,819)
Total net deferrals	(\$143,467,843)

* Note that additional future deferred inflows and outflows of resources may impact these numbers.

Schedule of Deferred Inflows and Outflows of Resources

	Original Amount	Date Established	Original Recognition Period*	Remaining Recognition Period	Amount Recognized Expense in 12/31/2022	Balance of Deferred Inflows 12/31/2022	Balance of Deferred Outflows 12/31/2022
Investment (gains) or losses	\$4,176,872	12/31/2022	5.00	5.00	\$835,374	\$0	\$3,341,498
	4,899,237	12/31/2021	5.00	4.00	979,847	0	2,939,543
	4,451,072	12/31/2020	5.00	3.00	890,214	0	1,780,430
	6,306,113	12/31/2019	5.00	2.00	1,261,223	0	1,261,221
	6,235,702	12/31/2018	5.00	1.00	<u>1,247,142</u>	<u>0</u>	<u>0</u>
		Total			5,213,800	0	9,322,692
Differences between expected and actual experience	(5,251,680)	12/31/2022	6.49	6.49	(809,196)	(4,442,484)	0
	3,203,233	12/31/2021	6.62	5.62	483,872	0	2,235,489
	(10,408,858)	12/31/2020	6.76	4.76	(1,539,772)	(5,789,542)	0
	(6,128,118)	12/31/2019	6.75	3.75	(907,869)	(2,496,642)	0
	(17,528,066)	12/31/2018	6.80	2.80	(2,577,657)	(4,639,781)	0
	(5,265,765)	12/31/2017	7.02	2.02	<u>(750,109)</u>	<u>(765,111)</u>	<u>0</u>
		Total			(6,100,731)	(18,133,560)	2,235,489
Assumption changes or inputs	(350,106,543)	12/31/2022	6.49	6.49	(53,945,538)	(296,161,005)	0
	13,428,792	12/31/2021	6.62	5.62	2,028,518	0	9,371,756
	138,486,426	12/31/2020	6.76	4.76	20,486,158	0	77,027,952
	223,009,201	12/31/2019	6.75	3.75	33,038,400	0	90,855,601
	(94,851,066)	12/31/2018	6.80	2.80	(13,948,686)	(25,107,636)	0
	49,008,320	12/31/2017	7.02	2.02	<u>6,981,242</u>	<u>0</u>	<u>7,120,868</u>
		Total			(5,359,906)	(321,268,641)	184,376,177
Subtotal of Deferred Inflows/Outflows						(339,402,201)	195,934,358
Total net deferrals							(143,467,843)

* Investment (gains)/losses are recognized in OPEB expense over a period of five years; differences between expected and actual experience and assumption changes or inputs are recognized over the average remaining service life for all active and inactive members.

OPEB Liability and Expense Summary

	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability	Deferred Inflows	Deferred Outflows	Net Deferrals	Net OPEB Liability plus Net Deferrals	Annual Expense
Balances as of December 31, 2021	(\$1,267,361,689)	\$319,606,462	(\$947,755,227)	(\$58,522,805)	\$259,989,476	\$201,466,671	(\$746,288,556)	
Service cost	(48,989,977)		(48,989,977)					48,989,977
Interest on total OPEB liability	(28,023,324)		(28,023,324)					28,023,324
Effect of plan changes	0		0					0
Effect of liability gains or losses	5,251,680		5,251,680	(5,251,680)		(5,251,680)		
Effect of assumption changes or inputs	350,106,543		350,106,543	(350,106,543)		(350,106,543)		
Benefit payments	26,020,876	(26,020,876)	0					
Transfer from active life insurance program		0	0				0	
Administrative expenses		(991,963)	(991,963)					991,963
Expected investment income (net of inv expenses)		13,052,587	13,052,587					(13,052,587)
Investment gains or losses		(4,176,872)	(4,176,872)		4,176,872	4,176,872		
Employer contributions		1,776,716	1,776,716				1,776,716	
Recognition of liability gains or losses				6,584,603	(483,872)	6,100,731		(6,100,731)
Recognition of assumption changes or inputs				67,894,224	(62,534,318)	5,359,906		(5,359,906)
Recognition of investment gains or losses					(5,213,800)	(5,213,800)		5,213,800
Annual expense							(58,705,840)	58,705,840
Balances as of December 31, 2022	(962,995,891)	303,246,054	(659,749,837)	(339,402,201)	195,934,358	(143,467,843)	(803,217,680)	

Actuarial Assumptions

The following assumptions were used in the actuarial valuation of the State of Wisconsin Postretirement Life Insurance Plan. Where consistent with the terms of the plan, we have utilized the assumptions adopted by the Employee Trust Funds Board in connection with a study of experience during 2018-2020 for the Wisconsin Retirement System. All assumptions are based on estimates of future experience.

Valuation Date:	January 1, 2022
Census Date:	January 1, 2022
Discount Rate:	3.75% (net of expenses)
Expected Return on Plan Assets:	4.25%
Inflation Rate:	2.30%
Salary Increases:	Salary increase assumptions adopted by the Employee Trust Funds Board in connection with a study of experience during 2018-2020 for the Wisconsin Retirement System. Assumed rates for individual active members are shown below. Part of the assumption for each age is for merit and longevity increase, and another 3.00% recognizes wage inflation, including price inflation, productivity increases, and other macroeconomic forces. Given that the price inflation assumption of 2.4% and the current wage inflation of 3.0% results in a spread of 60 basis points, GRS recommended no change in the wage inflation with the most recent experience study.

% of Merit & Longevity Increase Next Year

Service	Protective with Social Security	Protective w/o Social Security	Executive & Elected	General	Public Schools	University
1	4.8%	5.5%	2.5%	3.5%	5.6%	3.0%
2	4.8	5.5	2.5	3.5	5.6	3.0
3	4.1	4.7	2.0	3.1	5.2	2.9
4	3.5	3.8	1.6	2.8	4.7	2.8
5	2.8	3.0	1.1	2.5	4.3	2.7
10	1.1	0.9	0.2	1.5	2.6	2.2
15	0.8	0.5	0.2	1.1	1.4	1.7
20	0.7	0.4	0.2	0.9	0.6	1.2
25	0.6	0.3	0.2	0.6	0.3	0.9
30	0.5	0.2	0.2	0.4	0.2	0.7

Expected Premium Rate Change:	5.00% annual increases to life insurance premiums effective April 1, 2020 for nine years. Current rates shown on page 30.
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Pre-Retirement Mortality:

This assumption applies to death while in service. These rates are the assumptions adopted by the Employee Trust Funds Board in connection with a study of experience during 2018-2020 for the Wisconsin Retirement System. Rates are based on the 2018-2020 experience study as the base table and project future improvements with MP-2021 generational improvement scale from a base year of 2010. This assumption includes a margin for improvements in longevity beyond the valuation date. Sample rates of the mortality with attained ages in 2020 are as follows:

Age	Males	Females
20	0.0396%	0.0163%
25	0.0211	0.0126
30	0.0339	0.0218
35	0.0484	0.0311
40	0.0604	0.0414
45	0.0792	0.0542
50	0.1188	0.0796
55	0.1905	0.1269
60	0.3127	0.1974
65	0.5010	0.3023
70	0.7534	0.5060
75	1.1093	0.9717
80	2.2172	1.9931

Post-Retirement Mortality:

This assumption applies to death while retired. These rates are the assumptions adopted by the Employee Trust Funds Board in connection with a study of experience during 2018-2020 for the Wisconsin Retirement System. Rates are based on the 2018-2020 experience study as the base table and project future improvements with MP-2021 generational improvement scale from a base year of 2010. This assumption includes a margin for improvements in longevity beyond the valuation date. Sample rates of the mortality with attained ages in 2020 are as follows:

Age	Males	Females
40	0.0604%	0.0414%
45	0.0792	0.0542
50	0.1220	0.0883
55	0.2469	0.2291
60	0.4228	0.3519
65	0.6818	0.4995
70	1.1370	0.8033
75	2.0920	1.5414
80	4.0033	3.0758
85	7.6830	6.0133

Post-Disability Mortality:

This assumption applies to death after disablement. These rates are the assumptions adopted by the Employee Trust Funds Board in connection with a study of experience during 2018-2020 for the Wisconsin Retirement System. Rates are based on the 2018-2020 experience study as the base table and project future improvements with MP-2021 generational improvement scale from a base year of 2010. This assumption includes a margin for improvements in longevity beyond the valuation date. Sample rates of the mortality with attained ages in 2020 are as follows:

Age	Males	Females
45	1.1907%	1.1104%
55	2.3406	2.0673
65	3.5058	2.5264
75	5.3480	4.2232
85	11.4832	10.4179

Disability:

Percent of employees expected to become disabled each year. These rates are the assumptions adopted by the Employee Trust Funds Board in connection with a study of experience during 2018-2020 for the Wisconsin Retirement System. Sample rates are as follows:

Age	Protective with Social Security	Protective w/o Social Security	Executive & Elected	General		Public Schools		University	
				Male	Female	Male	Female	Male	Female
20	0.02%	0.03%	0.00%	0.01%	0.01%	0.01%	0.01%	0.00%	0.01%
25	0.02	0.03	0.00	0.01	0.01	0.01	0.01	0.00	0.01
30	0.02	0.03	0.00	0.01	0.04	0.01	0.01	0.00	0.01
35	0.03	0.03	0.01	0.01	0.05	0.01	0.01	0.00	0.03
40	0.05	0.05	0.01	0.03	0.07	0.01	0.02	0.01	0.04
45	0.07	0.10	0.01	0.06	0.10	0.03	0.05	0.02	0.04
50	0.11	0.55	0.02	0.13	0.16	0.08	0.10	0.03	0.07
55	1.73	0.41	0.09	0.24	0.29	0.14	0.14	0.08	0.11
60	2.92	0.12	0.11	0.43	0.41	0.24	0.21	0.11	0.17

Withdrawal:

Percent of employees expected to terminate each year within the first 10 years of employment. These rates are the assumptions adopted by the Employee Trust Funds Board in connection with a study of experience during 2018-2020 for the Wisconsin Retirement System. Sample rates are as follows:

Service	Protective with Social Security	Protective w/o Social Security	Executive & Elected	General		Public Schools		University	
				Male	Female	Male	Female	Male	Female
0	18.8%	4.5%	19.0%	17.2%	19.5%	12.6%	12.0%	14.0%	14.1%
1	15.5	4.0	16.0	12.9	15.5	11.6	10.0	13.8	14.0
2	10.5	2.0	13.0	9.5	12.5	8.5	8.5	12.6	12.7
3	6.5	1.8	12.5	7.4	10.0	6.0	6.2	11.0	10.0
4	5.5	1.7	12.0	7.3	8.7	5.6	5.8	8.6	9.3
5	5.0	1.3	6.0	6.1	7.8	4.5	4.8	8.5	8.1
6	4.5	1.2	6.0	5.2	6.9	3.7	4.1	7.0	7.0
7	4.0	0.9	6.0	5.1	6.0	2.9	3.5	5.6	5.6
8	3.5	0.8	6.0	4.5	5.6	2.6	3.4	4.6	4.9
9	3.3	0.7	6.0	3.6	5.5	2.5	3.0	4.3	4.3

Percent of employees expected to terminate each year after the first 10 years of employment. These rates are the assumptions adopted by the Employee Trust Funds Board in connection with a study of experience during 2018-2020 for the Wisconsin Retirement System. Sample rates are as follows:

Age	Protective with Social Security	Protective w/o Social Security	Executive & Elected	General		Public Schools		University	
				Male	Female	Male	Female	Male	Female
25	2.9%	0.7%	4.5%	3.1%	4.8%	2.0%	2.2%	4.2%	4.0%
30	2.9	0.7	4.5	3.1	4.8	2.0	2.2	4.2	4.0
35	2.4	0.6	4.5	2.7	3.9	1.6	1.9	4.0	4.0
40	1.8	0.6	4.5	2.6	3.0	1.4	1.6	3.4	3.7
45	1.4	0.5	4.2	2.4	2.7	1.4	1.4	2.8	3.2
50	1.2	0.5	3.7	1.9	2.1	1.3	1.2	2.3	2.7
54+	1.2	0.5	3.5	1.7	1.8	1.3	1.2	2.2	2.5

Normal Retirement:

Percent of employees expected to retire each year. These rates are the assumptions adopted by the Employee Trust Funds Board in connection with a study of experience during 2018-2020 for the Wisconsin Retirement System. Sample rates are as follows:

Age	Protective with Social Security	Protective w/o Social Security	Executive & Elected	General		Public Schools		University	
				Male	Female	Male	Female	Male	Female
50	8.0%	3.0%							
51	9.0	4.0							
52	11.0	5.0							
53	25.0	17.0							
54	20.0	24.0							
55	20.0	29.0							
56	20.0	32.0							
57	20.0	23.0	12.0%	19.0%	19.0%	31.0%	28.0%	12.0%	10.0%
58	20.0	27.0	12.0	19.0	19.0	29.0	28.0	16.0	20.0
59	20.0	40.0	12.0	19.0	19.0	28.0	26.0	9.0	12.0
60	20.0	25.0	12.0	19.0	21.0	27.0	29.0	15.0	14.0
61	20.0	25.0	12.0	19.0	25.0	26.0	27.0	9.0	13.0
62	25.0	31.0	18.0	28.0	29.0	39.0	36.0	10.0	15.0
63	25.0	40.0	18.0	30.0	28.0	33.0	31.0	11.0	19.0
64	36.0	40.0	18.0	25.0	31.0	30.0	30.0	16.0	17.0
65	38.0	40.0	18.0	27.0	31.0	32.0	39.0	16.0	21.0
66	38.0	100.0	18.0	35.0	36.0	35.0	44.0	21.0	25.0
67	38.0	100.0	18.0	32.0	33.0	31.0	31.0	18.0	25.0
68	38.0	100.0	18.0	21.0	25.0	28.0	30.0	19.0	18.0
69	38.0	100.0	18.0	21.0	27.0	20.0	30.0	14.0	17.0
70	100.0	100.0	18.0	21.0	29.0	30.0	32.0	21.0	22.0
71	100.0	100.0	15.0	21.0	34.0	25.0	25.0	24.0	17.0
72	100.0	100.0	15.0	21.0	33.0	25.0	25.0	24.0	17.0
73	100.0	100.0	15.0	30.0	24.0	25.0	25.0	24.0	21.0
74	100.0	100.0	15.0	30.0	18.0	25.0	25.0	24.0	14.0
75	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

WRS Pension Benefit Normal Retirement Eligibility:

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 five calendar years.

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

Reduced Retirement: These rates are the assumptions adopted by the Employee Trust Funds Board in connection with a study of experience during 2018-2020 for the Wisconsin Retirement System.

Age	Executive & Elected	General		Public Schools		University	
		Male	Female	Male	Female	Male	Female
55	6.0%	6.0%	6.0%	12.0%	11.0%	3.0%	5.0%
56	6.0	7.0	8.0	13.0	13.0	3.0	5.0
57	6.0	6.0	6.0	13.0	12.0	4.0	5.0
58	6.0	6.0	9.0	12.0	13.0	4.0	6.0
59	6.0	7.0	8.0	14.0	14.0	4.0	6.0
60	6.0	9.0	10.0	16.0	17.0	5.0	8.0
61	6.0	13.0	11.0	16.0	17.0	5.0	9.0
62	6.0	16.0	18.0	23.0	24.0	7.0	11.0
63	3.0	17.0	20.0	21.0	24.0	8.0	12.0
64	3.0	21.0	18.0	21.0	24.0	12.0	15.0

Any participant who has attained age 55 and any Protective occupation participant who has attained age 50 may apply for a reduced pension retirement benefit.

Expenses: *Benefit payment expense:* 2.1% of benefits paid after age 65

Administrative expense: \$820,000. This is equal to the average of the actual administrative expenses paid in the prior two years. For depletion date projection purposes, we assume that this figure will increase with price inflation.

Missing Data Assumptions: The following assumptions were used for any missing data.

1. Gender – 50% male; 50% female
2. Employment code – 100% General

Changes Since Prior Valuation: The discount rate has changed from 2.15% to 3.75%. An increase in the discount rate decreases the liabilities.

The administrative expense assumption was updated from \$790,000 to \$820,000 as part of the annual review of administrative expenses. This change had no impact on the determination of the discount rate because assets were projected to deplete in the same future date under either assumption.

Rationale for Significant Assumptions: With any valuation of future benefits, assumptions of anticipated future events are required. If actual events differ from the assumptions made, the actual cost of the plan will vary as well. The following assumptions should be reviewed for appropriateness.

Discount Rate: We have discounted future benefit payments back to the present using an interest rate of 3.75%. This rate is the single equivalent rate that results in the same actuarial present value as the long-term expected rate of return while funded and the municipal bond rate while unfunded.

Expected Premium Rate Change: At their August 21, 2019 meeting, the State of Wisconsin Group Insurance Board approved a premium rate increase of 5% during each of the next nine years effective April 1, 2020 for the Wisconsin State Plan. The new premium rates were first reflected in the December 31, 2019 GASB 74 valuation.

Expected Return on Plan Assets: The expected return on plan assets, 4.25%, has been selected by the plan sponsor to reflect the plan's investment policy, including target asset allocations, and capital market expectations.

Demographic Assumptions: All demographic assumptions are based upon assumptions adopted by the Employee Trust Funds Board in connection with a study of experience during 2018-2020 for the Wisconsin Retirement System.

Expenses: Based on recent history of the plan.

For the post-65 portion of the plan, employer contributions to premium deposit fund are not treated as premiums; therefore, no state premium tax is applied. However, when benefits are paid from the premium deposit fund, they are cleared as premiums, and the state premium tax is applied. Furthermore, other administrative expenses including state premium taxes are also cleared as premiums and subject to state premium tax.

The Department of Employee Trust Funds classifies the state premium tax for the post-65 portion of the plan as a benefit payment expense and all other expenses as administrative expenses. The expense assumptions used in this report follow this classification.

Summary of Plan Provisions

This summary of plan provisions is intended only to describe the essential features of the plan used in the actuarial valuation. All eligibility requirements and benefit amounts shall be determined in strict accordance with the plan document itself.

Enrollment Eligibility:

Generally, members may enroll during a 30-day enrollment period. They may enroll after the initial 30-day enrollment period with evidence of insurability. Members under evidence of insurability enrollment must enroll in group life insurance coverage before age 55 to be eligible for Basic or Supplemental coverage.

Retirement Eligibility:

At retirement, the member must satisfy one of the following –

- WRS coverage prior to January 1, 1990, or
- at least one month of group life insurance coverage in each of 5 calendar years after 1989

and one of the following –

- eligible for an immediate WRS benefit, or
- at least 20 years from their WRS creditable service as of 1/1/1990 plus their years of group life insurance coverage after 1989, or
- at least 20 years on the payroll of their last employer.

In addition, terminating members and retirees must continue to pay Employee Premiums until age 65 (age 70 if active).

Basic Coverage Benefits:

After retirement, Basic coverage is continued for life in these amounts of the insurance in force before retirement (one times WRS earnings):

<u>Age</u>	<u>Percent of Basic Coverage Continuing</u>
Before age 65	100%
While age 65	75
While age 66 and later	50

Supplemental Coverage Benefits:

After retirement, Supplemental coverage may be continued until age 65 at 100% of the amount of the insurance in force before retirement at the employee's expense (this benefit is not included in the valuation as it is entirely employee paid).

Additional Coverage:

After retirement, Additional coverage may be continued until age 65 at 100% of the amount of the insurance in force before retirement at the employee's expense (this benefit is not included in the valuation as it is entirely employee paid).

Spouse & Dependent Coverage:

After retirement, the coverage is terminated and not included in the Postretirement Life Insurance Plan.

Employee Premiums:

The employee must pay these monthly premiums per \$1,000 of insurance until age 65 (age 70 if active):

Attained Age	April 1, 2021 – March 31, 2022*		April 1, 2022 – March 31, 2023*	
	Basic	Basic	Basic	Supplemental
Under 30	\$0.0463	\$0.0463	\$0.0486	\$0.0486
30-34	0.0463	0.0463	0.0486	0.0486
35-39	0.0463	0.0463	0.0486	0.0486
40-44	0.0695	0.0695	0.0730	0.0730
45-49	0.1158	0.1158	0.1216	0.1216
50-54	0.1852	0.1852	0.1945	0.1945
55-59	0.2547	0.2547	0.2674	0.2674
60-64	0.3473	0.3473	0.3647	0.3647
65-69	0.4515	0.4515	0.4741	0.4741

Disabled members under age 70 receive a waiver-of-premium benefit.

*Additional premium increase of 5% for nine years, effective April 1, 2020.

Employer Premiums:

The employer must pay these premiums while actively employed:

- 63% of the Employee Premiums for Basic coverage
 - 35% is paid to fund pre-retirement coverage
 - 28% is paid to fund retiree coverage
- 35% of the Employee Premiums for Supplemental coverage

Summary of Participant Data

The participant data used in the valuation was provided by Securian and the State of Wisconsin. While the participant data was checked for reasonableness, the data was not audited, and the valuation results presented in this report are dependent upon the accuracy of the participant data provided. The table below presents a summary of the basic participant information for the active and inactive participants covered under the terms of the Plan.

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
A. Active Participants										
Count	49,293	50,777	50,469	49,813	50,060	49,125	N/A	N/A	N/A	N/A
Average Age	45.5	45.3	45.3	45.4	45.4	45.8	N/A	N/A	N/A	N/A
Average Service	10.2	10.1	10.1	10.2	10.1	10.7	N/A	N/A	N/A	N/A
Average Projected Salary	\$74,762	\$71,094	\$68,319	\$66,774	\$65,711	\$64,814	N/A	N/A	N/A	N/A
B. Disabled Participants										
Count	1,062	1,122	1,205	1,268	1,328	1,337	N/A	N/A	N/A	N/A
Average Age	57.1	57.6	57.5	57.3	57.3	57.0	N/A	N/A	N/A	N/A
Average Current Insurance	\$48,334	\$47,448	\$46,461	\$45,705	\$45,325	\$44,847	N/A	N/A	N/A	N/A
C. Pre-65 Annuitants										
Count	6,360	6,389	6,600	6,859	7,032	7,127	N/A	N/A	N/A	N/A
Average Age	60.6	61.2	61.2	61.3	61.2	61.3	N/A	N/A	N/A	N/A
Average Current Insurance	\$71,520	\$69,533	\$68,260	\$67,136	\$65,986	\$65,518	N/A	N/A	N/A	N/A
D. Post-64 Annuitants										
Count	28,966	28,136	27,091	26,049	24,972	23,760	N/A	N/A	N/A	N/A
Average Age	74.3	74.7	74.5	74.4	74.3	74.3	N/A	N/A	N/A	N/A
Average Current Insurance	\$30,534	\$30,027	\$29,558	\$28,982	\$28,445	\$28,843	N/A	N/A	N/A	N/A

Summary of Demographic Information

Active Members as of January 1, 2022											
	Years of Service										
Age	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	ALL
<25	336	533	9	-	-	-	-	-	-	-	878
25-29	678	2,393	520	1	-	-	-	-	-	-	3,592
30-34	590	2,842	2,105	214	1	-	-	-	-	-	5,752
35-39	503	2,524	2,341	1,092	337	18	-	-	-	-	6,815
40-44	411	2,076	1,971	1,180	1,013	448	3	-	-	-	7,102
45-49	301	1,410	1,524	906	1,025	1,175	201	2	-	-	6,544
50-54	282	1,313	1,330	857	994	1,360	798	133	-	-	7,067
55-59	178	1,070	1,142	727	788	1,091	643	396	60	2	6,097
60-64	82	592	835	509	520	742	411	311	138	46	4,186
65-69	16	157	228	151	167	162	138	117	82	42	1,260
70+	-	-	-	-	-	-	-	-	-	-	-
ALL	3,377	14,910	12,005	5,637	4,845	4,996	2,194	959	280	90	49,293

Average Projected Salary											
	Years of Service										
Age	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	ALL
<25	\$46,915	\$50,123	*	-	-	-	-	-	-	-	\$48,914
25-29	52,049	56,647	64,063	*	-	-	-	-	-	-	56,850
30-34	62,566	63,257	68,066	72,415	*	-	-	-	-	-	65,289
35-39	60,806	69,684	74,621	75,966	73,989	*	-	-	-	-	71,946
40-44	66,979	70,716	77,739	83,194	78,442	75,578	*	-	-	-	75,929
45-49	60,756	72,110	79,133	85,657	89,033	79,280	79,362	*	-	-	79,256
50-54	62,191	69,296	77,492	86,027	91,011	87,686	85,610	80,050	-	-	81,222
55-59	62,839	69,714	74,540	81,130	87,421	89,739	88,544	86,380	70,649	*	80,724
60-64	67,554	69,450	72,760	75,478	80,974	88,365	91,700	102,566	82,621	72,046	80,698
65-69	*	71,208	70,437	86,044	85,214	87,202	97,720	115,385	121,610	90,829	87,587
70+	-	-	-	-	-	-	-	-	-	-	-
ALL	59,114	66,015	74,183	81,318	84,916	85,095	87,775	94,233	91,474	80,528	74,762

* Compensation shown for groups of 20 or more.

Glossary

Actuarially Determined Contribution	A target or recommended contribution to a defined benefit OPEB plan for the reporting period, determined based on the funding policy and most recent measurement available when the contribution for the reporting period was adopted.
Deferred Inflows/Outflows of Resources	Portion of changes in net OPEB liability that is not immediately recognized in OPEB Expense. These changes include differences between expected and actual experience, changes in assumptions, and differences between expected and actual earnings on plan investments.
Discount Rate	Single rate of return that, when applied to all projected benefit payments, results in an actuarial present value of projected benefit payments equal to the sum of: <ol style="list-style-type: none">1. The actuarial present value of benefit payments projected to be made in future periods where the plan assets are projected to be sufficient to meet benefit payments, calculated using the Long-Term Expected Rate of Return.2. The actuarial present value of projected benefit payments not included in (1), calculated using the Municipal Bond Rate.
Fiduciary Net Position	Equal to market value of assets.
Long-Term Expected Rate of Return	Long-term expected rate of return on plan investments expected to be used to finance the payment of benefits, net of investment expenses.
Money-Weighted Rate of Return	The internal rate of return on plan investments, net of investment expenses.
Municipal Bond Rate	Yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher.
Net OPEB Liability	Total OPEB Liability minus the Plan's Fiduciary Net Position.
Projected Benefit Payments	All benefits estimated to be payable through the OPEB plan to current active and inactive employees as a result of their past service and expected future service.
Service Cost	The portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.
Total OPEB Liability	The portion of actuarial present value of projected benefit payments that is attributable to past periods of member service using the Entry Age Normal cost method based on the requirements of GASB 74 and 75.