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

**GASB 74 and 75 DISCLOSURE**  
**Fiscal Year Ending: December 31, 2021**

**Prepared by**

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## 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, 2021. The reporting date for determining plan assets and obligations is December 31, 2021. 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, 2021 and December 31, 2021 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, 2021 includes 50,777 active participants and 35,647 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.



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



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## Executive Summary

### Overview of GASB 74 and GASB 75

The Governmental Accounting Standards Board (GASB) released new 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"> <li>▪ Plan name, administrator, and classification</li> <li>▪ Identification of board of trustees</li> <li>▪ Participating employers and nonemployer contributing entities as applicable</li> <li>▪ Plan eligibility and coverage, key benefit terms, and membership counts</li> <li>▪ Contribution requirements, bases, amounts, sources, and authority</li> </ul>
Significant assumptions and inputs	<ul style="list-style-type: none"> <li>▪ 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</li> </ul>
OPEB plan investments	<ul style="list-style-type: none"> <li>▪ Investment policies, authority, and changes during period</li> <li>▪ Asset allocations of five percent or more in non-U.S. government investments</li> <li>▪ Money-weighted rates of return</li> </ul>
OPEB liabilities	<ul style="list-style-type: none"> <li>▪ Total OPEB Liability (TOL), Fiduciary Net Position (FNP), Net OPEB Liability (NOL), FNP as a percentage of TOL</li> </ul>
Dates and roll forward details	<ul style="list-style-type: none"> <li>▪ Valuation and measurement dates, and any update procedures used</li> </ul>

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

Description of associated OPEB plans	<ul style="list-style-type: none"> <li>▪ Plan name, administrator, and classification</li> <li>▪ Plan eligibility and coverage, key benefit terms, and membership counts</li> <li>▪ Contribution requirements, bases, amounts, sources, and authority</li> <li>▪ Availability of stand-alone plan financial statements</li> </ul>
Significant assumptions and inputs for associated OPEB plans	<ul style="list-style-type: none"> <li>▪ 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</li> <li>▪ Proportionate share of collective NOL or TOL as applicable, including sensitivity to discount rate and health trend rate</li> </ul>
Asset information and FNP for associated OPEB plans	<p>Either:</p> <ul style="list-style-type: none"> <li>▪ included, or</li> <li>▪ 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</li> <li>▪ disclosure that there are no assets in trust</li> </ul>
OPEB liabilities and changes in NOL/TOL for associated OPEB plans (as applicable)	<ul style="list-style-type: none"> <li>▪ Beginning and ending balances of TOL, FNP, and NOL</li> <li>▪ OPEB expense and expenditures</li> <li>▪ Disclosure of special funding situations</li> </ul>
Dates and roll forward details	<ul style="list-style-type: none"> <li>▪ Valuation and measurement dates, and any update procedures used</li> </ul>
Other items	<ul style="list-style-type: none"> <li>▪ Changes in assumptions and benefit terms</li> <li>▪ Determination basis of proportionate share and changes in the employer's or nonemployer contributing entities' portion</li> <li>▪ Significant events affecting NOL or TOL</li> <li>▪ OPEB expense recognized for the period</li> <li>▪ Balances of deferred outflows and inflows of resources related to OPEB, including a five-year schedule of net amounts to be recognized</li> <li>▪ Insurance purchases and support by nonemployer contributing entities, if any</li> <li>▪ Experience studies</li> </ul>

### 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, 2021 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 50,777 active members as of 1/1/2021.
- Disabled Participants: The liability for disabled participants represents the expected present value of future death benefits payable to disabled participants. There were 1,122 disabled members as of 1/1/2021.
- 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 1/1/2021. There were 6,389 pre-65 annuitants reported as of 1/1/2021.
- 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 1/1/2021. There were 28,136 post-64 retirees reported as of 1/1/2021.

**Summary of Results**

This report presents the results of the actuarial valuation in accordance with GASB 74 as of December 31, 2021 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 12/31/2020 to 12/31/2021 GASB 74 results.

(\$ in millions)		
Valuation Date	01/01/2020	01/01/2021
Measurement Date	12/31/2020	12/31/2021
Funded Status		
Total OPEB Liability (TOL)	\$1,201	\$1,267
Fiduciary Net Position (FNP)	(334)	(320)
Net OPEB Liability (NOL) <sup>(1)</sup>	\$867	\$948
FNP as a % of TOL	28%	25%
OPEB Expense	\$98	\$110
Discount Rate	2.22%	2.15%

<sup>(1)</sup> 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 increased from \$867 million as of December 31, 2020 to \$948 million as of December 31, 2021 for the state plan. There are three significant factors impacting the change in the Net OPEB Liability:

- (1) Municipal bond rate
- (2) Revised assumptions used in the Wisconsin Retirement System
- (3) 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 decreased from 2.12% at December 31, 2020 to 2.06% at December 31, 2021. The impact due to the change in the municipal bond index was an increase in the net OPEB liability of approximately \$18.0 million for the state plan.

**2. Demographic and salary increase assumptions for Wisconsin Retirement System**

The State of Wisconsin Employee Trust Funds Board approved changes to the economic and demographic assumptions for the Wisconsin Retirement System (WRS). These new assumptions are based on the WRS Three-Year Experience Study prepared by the fund actuary for the WRS and are reflected in this December 31, 2021 GASB 74 report. The net impact of these assumption changes is a decrease in the net OPEB liability of approximately \$4.6 million for the state plan.

3. 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, 2021, 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 2021 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 12/31/2021, the total value in the Active Premium Deposit Fund plus the Active Stabilization Reserve was \$61 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, 2021. After assets are expected to be depleted, projected benefit payments are discounted using the municipal bond index. The net result of the decrease in the municipal bond rate is a decrease in the single equivalent rate from 2.22% as of December 31, 2020 to 2.15% as of December 31, 2021, which caused an increase in the Net OPEB Liability of \$18.0 million.

The Net OPEB Liability is \$948 million resulting in a funded ratio of 25.2% for the state plan as of December 31, 2021.

## Statement of Fiduciary Net Position

December 31, 2021

### Assets

Receivables:

Due From Other Benefit Programs	\$9,797
Miscellaneous Receivables	96,429
Total Receivables	<u>106,226</u>

Investments:

Investment Contract	320,852,553
Total Investments	<u>320,852,553</u>

Total Assets	<u>320,958,779</u>
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### Liabilities

Benefits Payable	914,943
Unearned Revenue	331,413
Due to Other Benefit Programs	0
Miscellaneous Payables	105,961
Total Liabilities	<u>1,352,317</u>

### Net Position Restricted For Postemployment Benefits Other Than Pensions

\$319,606,462

## Statement of Changes in Fiduciary Net Position

	<u>December 31, 2021</u>
<b>Additions</b>	
Employer Contributions	\$1,669,854
Total Contributions	1,669,854
Investment Income (loss):	
Other Investment Income	8,706,216
Net Investment Income	8,706,216
Service Reimbursement Income	96,429
Total Additions	10,472,499
<b>Deductions</b>	
Other Benefit Expenses	23,746,133
Carrier Administrative Expenses	775,326
Administrative Expenses	96,429
Total Deductions	24,617,888
Transfer from Active Life Insurance Program	0
Net Increase/(Decrease) in Net Position	(14,145,389)
<b>Net Position Restricted For Postemployment Benefits Other Than Pensions</b>	
Beginning of Year (January 1, 2021)	333,751,851
End of Year (December 31, 2021)	\$319,606,462

## 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.

<b>Fiscal Year Ending December 31</b>	<b>Net Money-Weighted Rate of Return</b>
2012	N/A
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%

## 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, 2021 and the target asset allocation for the retiree life insurance program, the 50th percentile return over this time period is 4.18%.

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, 2021 is 4.20%.

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.

Asset Class	Index	Target Allocation	Expected Geometric Real Rate of Return
US Intermediate Credit Bonds	Bloomberg US Interm Credit	45.00%	1.68%
US Long Credit Bonds	Bloomberg US Long Credit	5.00%	1.82%
US Mortgages	Bloomberg US MBS	50.00%	1.94%
Inflation			2.30%
<b>Long-Term Expected Rate of Return</b>			<b>4.25%</b>

\* Milliman's internal model no longer calculates the geometric return over a 40 or 50 year time period.

## 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 2.06% as of December 31, 2021, 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, 2021 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
2022	\$319,606,462	\$1,870,057	\$24,999,014	\$790,000	\$13,074,997	\$308,762,502
2023	308,762,502	1,830,469	26,250,659	808,170	12,586,304	296,120,446
2024	296,120,446	1,788,761	27,562,741	826,758	12,019,853	281,539,561
2025	281,539,561	1,744,283	28,955,360	845,773	11,369,223	264,851,934
2026	264,851,934	1,696,300	30,418,308	865,226	10,627,478	245,892,178
2027	245,892,178	1,642,221	31,969,164	885,126	9,787,161	224,467,269
2028	224,467,269	1,584,831	33,593,821	905,484	8,840,426	200,393,221
2029	200,393,221	1,456,049	35,411,337	926,310	7,775,478	173,287,101
2030	173,287,101	1,333,895	37,306,863	947,616	6,580,139	142,946,656
2031	142,946,656	1,218,383	39,270,251	969,411	5,246,031	109,171,409
2032	109,171,409	1,109,691	41,266,244	991,707	3,765,384	71,788,532
2033	71,788,532	1,010,307	43,314,390	1,014,516	2,130,492	30,600,425
2034	30,600,425	918,038	45,384,913	1,037,850	333,543	(14,570,757)

## 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 2.06%**	Present Value of Total Benefit Payments at 2.15%***
2022	\$319,606,462	\$24,999,014	\$24,999,014	\$0	\$24,484,140	\$0	\$24,735,062
2023	308,762,502	26,250,659	26,250,659	0	24,661,876	0	25,427,904
2024	296,120,446	27,562,741	27,562,741	0	24,838,893	0	26,138,039
2025	281,539,561	28,955,360	28,955,360	0	25,030,109	0	26,881,891
2026	264,851,934	30,418,308	30,418,308	0	25,222,769	0	27,646,880
2027	245,892,178	31,969,164	31,969,164	0	25,428,043	0	28,446,091
2028	224,467,269	33,593,821	33,593,821	0	25,630,967	0	29,263,816
2029	200,393,221	35,411,337	35,411,337	0	25,916,231	0	30,199,109
2030	173,287,101	37,306,863	37,306,863	0	26,190,404	0	31,147,326
2031	142,946,656	39,270,251	39,270,251	0	26,444,848	0	32,097,851
2032	109,171,409	41,266,244	41,266,244	0	26,656,079	0	33,020,790
2033	71,788,532	43,314,390	43,314,390	0	26,838,452	0	33,931,649
2034	30,600,425	45,384,913	0	45,384,913	0	35,173,611	34,806,833
2035	0	47,479,353	0	47,479,353	0	36,054,102	35,648,235
2036	0	49,550,332	0	49,550,332	0	36,867,262	36,421,686
2037	0	51,508,420	0	51,508,420	0	37,550,609	37,065,678
2038	0	53,401,640	0	53,401,640	0	38,145,015	37,620,846
2039	0	55,223,252	0	55,223,252	0	38,650,010	38,086,949
2040	0	56,952,107	0	56,952,107	0	39,055,469	38,454,240
2041	0	58,548,555	0	58,548,555	0	39,339,848	38,701,773
2042	0	60,057,927	0	60,057,927	0	39,539,509	38,865,590
2043	0	61,397,770	0	61,397,770	0	39,605,725	38,898,044
2044	0	62,620,268	0	62,620,268	0	39,578,992	38,839,204
2045	0	63,672,277	0	63,672,277	0	39,431,621	38,662,152
2046	0	64,584,030	0	64,584,030	0	39,188,968	38,392,025
2047	0	65,379,541	0	65,379,541	0	38,870,935	38,048,539
2048	0	66,032,263	0	66,032,263	0	38,466,594	37,621,191
2049	0	66,568,323	0	66,568,323	0	37,996,151	37,129,938
2050	0	67,008,218	0	67,008,218	0	37,475,246	36,590,211
2051	0	67,382,086	0	67,382,086	0	36,923,709	36,021,479
2052	0	67,669,874	0	67,669,874	0	36,332,950	35,415,444
2053	0	67,903,039	0	67,903,039	0	35,722,262	34,790,989
2054	0	68,059,635	0	68,059,635	0	35,081,955	34,138,735
2055	0	68,150,377	0	68,150,377	0	34,419,683	33,466,193
2056	0	68,177,455	0	68,177,455	0	33,738,349	32,776,235
2057	0	68,111,911	0	68,111,911	0	33,025,587	32,056,905
2058	0	67,949,899	0	67,949,899	0	32,282,022	31,308,883
2059	0	67,675,666	0	67,675,666	0	31,502,781	30,527,521
2060	0	67,308,889	0	67,308,889	0	30,699,635	29,724,302
2061	0	66,851,416	0	66,851,416	0	29,875,545	28,902,146
2062	0	66,295,377	0	66,295,377	0	29,029,055	28,059,696
2063	0	65,643,076	0	65,643,076	0	28,163,266	27,199,999
2064	0	64,909,359	0	64,909,359	0	27,286,375	26,331,010
2065	0	64,108,249	0	64,108,249	0	26,405,651	25,459,763
2066	0	63,244,022	0	63,244,022	0	25,523,891	24,588,960
2067	0	62,307,754	0	62,307,754	0	24,638,481	23,716,086
2068	0	61,307,607	0	61,307,607	0	23,753,666	22,845,230
2069	0	60,238,761	0	60,238,761	0	22,868,451	21,975,433
2070	0	59,089,740	0	59,089,740	0	21,979,470	21,103,463
2071	0	57,847,397	0	57,847,397	0	21,083,048	20,225,800
2072	0	56,498,466	0	56,498,466	0	20,175,796	19,339,212
2073	0	55,022,127	0	55,022,127	0	19,251,999	18,438,252
2074	0	53,407,203	0	53,407,203	0	18,309,763	17,521,143

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 2.06%**	Present Value of Total Benefit Payments at 2.15%***
2075	\$0	\$51,638,886	\$0	\$51,638,886	\$0	\$17,346,194	\$16,585,162
2076	0	49,709,921	0	49,709,921	0	16,361,188	15,630,258
2077	0	47,618,095	0	47,618,095	0	15,356,358	14,658,021
2078	0	45,364,956	0	45,364,956	0	14,334,453	13,671,119
2079	0	42,959,118	0	42,959,118	0	13,300,269	12,674,159
2080	0	40,415,996	0	40,415,996	0	12,260,348	11,673,399
2081	0	37,753,858	0	37,753,858	0	11,221,613	10,675,436
2082	0	34,995,119	0	34,995,119	0	10,191,682	9,687,506
2083	0	32,169,033	0	32,169,033	0	9,179,538	8,718,119
2084	0	29,305,410	0	29,305,410	0	8,193,606	7,775,222
2085	0	26,437,954	0	26,437,954	0	7,242,684	6,867,096
2086	0	23,600,916	0	23,600,916	0	6,334,976	6,001,424
2087	0	20,827,356	0	20,827,356	0	5,477,655	5,184,894
2088	0	18,152,631	0	18,152,631	0	4,677,831	4,424,106
2089	0	15,610,483	0	15,610,483	0	3,941,538	3,724,625
2090	0	13,232,258	0	13,232,258	0	3,273,617	3,090,868
2091	0	11,043,918	0	11,043,918	0	2,677,081	2,525,514
2092	0	9,065,602	0	9,065,602	0	2,153,175	2,029,568
2093	0	7,311,562	0	7,311,562	0	1,701,521	1,602,497
2094	0	5,788,276	0	5,788,276	0	1,319,839	1,241,986
2095	0	4,493,584	0	4,493,584	0	1,003,943	943,932
2096	0	3,417,394	0	3,417,394	0	748,093	702,786
2097	0	2,542,775	0	2,542,775	0	545,397	511,936
2098	0	1,849,315	0	1,849,315	0	388,651	364,501
2099	0	1,313,167	0	1,313,167	0	270,404	253,389
2100	0	909,330	0	909,330	0	183,468	171,779
2101	0	613,327	0	613,327	0	121,248	113,428
2102	0	402,464	0	402,464	0	77,957	72,868
2103	0	256,640	0	256,640	0	48,708	45,490
2104	0	158,841	0	158,841	0	29,538	27,563
2105	0	95,316	0	95,316	0	17,367	16,193
2106	0	55,390	0	55,390	0	9,889	9,212
2107	0	31,136	0	31,136	0	5,446	5,070
2108	0	16,917	0	16,917	0	2,899	2,697
2109	0	8,882	0	8,882	0	1,492	1,386
2110	0	4,507	0	4,507	0	742	689
2111	0	2,210	0	2,210	0	356	331
2112	0	1,049	0	1,049	0	166	154
2113	0	482	0	482	0	75	69
2114	0	215	0	215	0	33	30
2115	0	94	0	94	0	14	13
2116	0	41	0	41	0	6	6
2117	0	16	0	16	0	2	2
2118	0	6	0	6	0	1	1
2119	0	2	0	2	0	0	0
2120	0	1	0	1	0	0	0
<b>Total</b>					307,342,811	+ 1,499,064,118	= 1,806,406,929

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

\*\* Discounted at the municipal bond rate, 2.06%

\*\*\* 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, 2.15%

## Net OPEB Liability

Net OPEB Liability	December 31, 2020	December 31, 2021
Total OPEB liability	\$1,200,738,464	\$1,267,361,689
Fiduciary net position	333,751,851	319,606,462
Net OPEB liability	866,986,613	947,755,227
Fiduciary net position as a % of total OPEB liability	27.80%	25.22%
Covered payroll	3,456,544,000	3,529,342,000
Net OPEB liability as a % of covered payroll	25.08%	26.85%

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	2.22%	2.15%
Long-term expected rate of return, net of investment expense	4.25%	4.25%
20 Year Tax-Exempt Municipal Bond Yield	2.12%	2.06%

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, 2020	January 1, 2021
Measurement date	December 31, 2020	December 31, 2021
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	Plan Fiduciary Net Position	Net OPEB Liability
	(a)	(b)	(a) - (b)
Balances as of December 31, 2020	\$1,200,738,464	\$333,751,851	\$866,986,613
Changes for the year:			
Service cost	46,314,884		46,314,884
Interest on total OPEB liability	27,422,449		27,422,449
Effect of plan changes	0		0
Effect of economic/demographic gains or losses	3,203,233		3,203,233
Effect of assumptions changes or inputs	13,428,792		13,428,792
Benefit payments	(23,746,133)	(23,746,133)	0
Employer contributions		1,669,854	(1,669,854)
Transfer from active life insurance program		0	0
Net investment income		8,802,645	(8,802,645)
Administrative expenses		(871,755)	871,755
Balances as of December 31, 2021	1,267,361,689	319,606,462	947,755,227

### Sensitivity Analysis

The following presents the net OPEB liability, calculated using the discount rate of 2.15%, as well as what the net OPEB liability would be if it were calculated using a discount rate that is 1 percentage point lower (1.15%) or 1 percentage point higher (3.15%) than the current rate.

	Current		
	1% Decrease	Discount Rate	1% Increase
	1.15%	2.15%	3.15%
Total OPEB liability	\$1,566,293,143	\$1,267,361,689	\$1,039,628,192
Fiduciary net position	319,606,462	319,606,462	319,606,462
Net OPEB liability	1,246,686,681	947,755,227	720,021,730

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									
	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
<b>Total OPEB Liability</b>										
Service cost	\$46,315	\$36,280	\$25,430	\$30,668	\$26,146	N/A	N/A	N/A	N/A	N/A
Interest on total OPEB liability	27,422	29,966	33,225	31,194	30,731	N/A	N/A	N/A	N/A	N/A
Changes of benefit terms	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
Effect of economic/demographic (gains) or losses	3,203	(10,409)	(6,128)	(17,528)	(5,266)	N/A	N/A	N/A	N/A	N/A
Effect of assumption changes or inputs	13,429	138,486	223,009	(94,851)	49,008	N/A	N/A	N/A	N/A	N/A
Benefit payments	(23,746)	(24,729)	(19,857)	(19,538)	(17,670)	N/A	N/A	N/A	N/A	N/A
Net change in total OPEB liability	66,623	169,595	255,680	(70,054)	82,949	N/A	N/A	N/A	N/A	N/A
Total OPEB liability, beginning	1,200,738	1,031,144	775,464	845,519	762,570	N/A	N/A	N/A	N/A	N/A
Total OPEB liability, ending (a)	1,267,362	1,200,738	1,031,144	775,464	845,519	N/A	N/A	N/A	N/A	N/A
<b>Fiduciary Net Position</b>										
Employer contributions	\$1,670	\$1,535	\$1,149	\$1,387	\$1,376	N/A	N/A	N/A	N/A	N/A
Transfer from active life insurance program	0	0	13,140	0	0	N/A	N/A	N/A	N/A	N/A
Net Investment income	8,803	9,833	10,411	10,897	11,530	N/A	N/A	N/A	N/A	N/A
Benefit payments	(23,746)	(24,729)	(19,857)	(19,538)	(17,670)	N/A	N/A	N/A	N/A	N/A
Administrative expenses	(872)	(906)	(808)	(735)	(699)	N/A	N/A	N/A	N/A	N/A
Net change in plan fiduciary net position	(14,145)	(14,268)	4,036	(7,989)	(5,462)	N/A	N/A	N/A	N/A	N/A
Fiduciary net position, beginning	333,752	348,020	343,984	351,972	357,435	N/A	N/A	N/A	N/A	N/A
Fiduciary net position, ending (b)	319,606	333,752	348,020	343,984	351,972	N/A	N/A	N/A	N/A	N/A
Net OPEB liability, ending = (a) - (b)	\$947,755	\$866,987	\$683,124	\$431,481	\$493,547	N/A	N/A	N/A	N/A	N/A
Fiduciary net position as a % of total OPEB liability	25.22%	27.80%	33.75%	44.36%	41.63%	N/A	N/A	N/A	N/A	N/A
Covered payroll	\$3,529,342	\$3,456,544	\$3,299,478	\$3,182,513	\$3,183,994	N/A	N/A	N/A	N/A	N/A
Net OPEB liability as a % of covered payroll	26.85%	25.08%	20.70%	13.56%	15.50%	N/A	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, 2020 to December 31, 2020	January 1, 2021 to December 31, 2021
Service cost	\$36,280,118	\$46,314,884
Interest on total OPEB liability	29,966,145	27,422,449
Effect of plan changes	0	0
Administrative expenses	906,292	871,755
Expected investment return net of investment expenses	(14,284,023)	(13,701,882)
Recognition of Deferred Inflows/Outflows of Resources		
Recognition of economic/demographic gains or losses	(5,775,407)	(5,291,535)
Recognition of assumption changes or inputs	46,557,114	48,585,632
Recognition of investment gains or losses	4,583,086	5,562,932
OPEB Expense	98,233,325	109,764,235

As of December 31, 2021, 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	(\$19,466,483)	\$2,719,361
Changes of assumptions	(39,056,322)	246,910,495
Net difference between projected and actual earnings	0	10,359,620
Total	(58,522,805)	259,989,476
<b>Total net deferrals</b>		201,466,671

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:	
2022	\$47,672,523
2023	46,425,379
2024	42,362,920
2025	46,536,522
2026	16,911,642
Thereafter*	1,557,685
<b>Total net deferrals</b>	<b>\$201,466,671</b>

\* 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 12/31/2021	Balance of Deferred Inflows 12/31/2021	Balance of Deferred Outflows 12/31/2021
<b>Investment (gains) or losses</b>	\$4,899,237	12/31/2021	5.00	5.00	\$979,847	\$0	\$3,919,390
	4,451,072	12/31/2020	5.00	4.00	890,214	0	2,670,644
	6,306,113	12/31/2019	5.00	3.00	1,261,223	0	2,522,444
	6,235,702	12/31/2018	5.00	2.00	1,247,140	0	1,247,142
	5,922,544	12/31/2017	5.00	1.00	<u>1,184,508</u>	<u>0</u>	<u>0</u>
		Total			5,562,932	0	10,359,620
<b>Differences between expected and actual experience</b>	3,203,233	12/31/2021	6.62	6.62	483,872	0	2,719,361
	(10,408,858)	12/31/2020	6.76	5.76	(1,539,772)	(7,329,314)	0
	(6,128,118)	12/31/2019	6.75	4.75	(907,869)	(3,404,511)	0
	(17,528,066)	12/31/2018	6.80	3.80	(2,577,657)	(7,217,438)	0
	(5,265,765)	12/31/2017	7.02	3.02	<u>(750,109)</u>	<u>(1,515,220)</u>	<u>0</u>
		Total			(5,291,535)	(19,466,483)	2,719,361
<b>Assumption changes or inputs</b>	13,428,792	12/31/2021	6.62	6.62	2,028,518	0	11,400,274
	138,486,426	12/31/2020	6.76	5.76	20,486,158	0	97,514,110
	223,009,201	12/31/2019	6.75	4.75	33,038,400	0	123,894,001
	(94,851,066)	12/31/2018	6.80	3.80	(13,948,686)	(39,056,322)	0
	49,008,320	12/31/2017	7.02	3.02	<u>6,981,242</u>	<u>0</u>	<u>14,102,110</u>
		Total			48,585,632	(39,056,322)	246,910,495
<b>Subtotal of Deferred Inflows/Outflows</b>						(58,522,805)	259,989,476
<b>Total net deferrals</b>							201,466,671

\* 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
<b>Balances as of December 31, 2020</b>	(\$1,200,738,464)	\$333,751,851	(\$866,986,613)	(\$78,246,898)	\$307,039,336	\$228,792,438	(\$638,194,175)	
Service cost	(46,314,884)		(46,314,884)					46,314,884
Interest on total OPEB liability	(27,422,449)		(27,422,449)					27,422,449
Effect of plan changes	0		0					0
Effect of liability gains or losses	(3,203,233)		(3,203,233)		3,203,233	3,203,233		
Effect of assumption changes or inputs	(13,428,792)		(13,428,792)		13,428,792	13,428,792		
Benefit payments	23,746,133	(23,746,133)	0					
Transfer from active life insurance program		0	0				0	
Administrative expenses		(871,755)	(871,755)					871,755
Expected investment income (net of inv expenses)		13,701,882	13,701,882					(13,701,882)
Investment gains or losses		(4,899,237)	(4,899,237)		4,899,237	4,899,237		
Employer contributions		1,669,854	1,669,854				1,669,854	
Recognition of liability gains or losses				5,775,407	(483,872)	5,291,535		(5,291,535)
Recognition of assumption changes or inputs				13,948,686	(62,534,318)	(48,585,632)		48,585,632
Recognition of investment gains or losses					(5,562,932)	(5,562,932)		5,562,932
Annual expense							(109,764,235)	109,764,235
<b>Balances as of December 31, 2021</b>	(1,267,361,689)	319,606,462	(947,755,227)	(58,522,805)	259,989,476	201,466,671	(746,288,556)	

## 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.

<b>Valuation Date:</b>	January 1, 2021
<b>Census Date:</b>	January 1, 2021
<b>Discount Rate:</b>	2.15% (net of expenses)
<b>Expected Return on Plan Assets:</b>	4.25%
<b>Inflation Rate:</b>	2.30%
<b>Salary Increases:</b>	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

<b>Expected Premium Rate Change:</b>	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 <sup>#</sup>	
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:* \$790,000. 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 2.22% to 2.15%. A decrease in the discount rate increases the liabilities.

The administrative expense assumption was updated from \$760,000 to \$790,000 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.

The demographic and salary increase assumptions have been updated as a result of the WRS Three-Year Experience Study for 2018-2020.

The inflation assumption was updated from 2.20% to 2.30%.

**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 2.15%. 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:	<p>Based on recent history of the plan.</p> <p>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.</p> <p>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.</p>

## 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, 2020 – March 31, 2021*		April 1, 2021 – March 31, 2022*	
	Basic	Supplemental	Basic	Supplemental
Under 30	\$0.0441	\$0.0441	\$0.0463	\$0.0463
30-34	0.0441	0.0441	0.0463	0.0463
35-39	0.0441	0.0441	0.0463	0.0463
40-44	0.0662	0.0662	0.0695	0.0695
45-49	0.1103	0.1103	0.1158	0.1158
50-54	0.1764	0.1764	0.1852	0.1852
55-59	0.2426	0.2426	0.2547	0.2547
60-64	0.3308	0.3308	0.3473	0.3473
65-69	0.4300	0.4300	0.4515	0.4515

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.

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
<b>A. Active Participants</b>										
Count	50,777	50,469	49,813	50,060	49,125	N/A	N/A	N/A	N/A	N/A
Average Age	45.3	45.3	45.4	45.4	45.8	N/A	N/A	N/A	N/A	N/A
Average Service	10.1	10.1	10.2	10.1	10.7	N/A	N/A	N/A	N/A	N/A
Average Projected Salary	\$71,094	\$68,319	\$66,774	\$65,711	\$64,814	N/A	N/A	N/A	N/A	N/A
<b>B. Disabled Participants</b>										
Count	1,122	1,205	1,268	1,328	1,337	N/A	N/A	N/A	N/A	N/A
Average Age	57.6	57.5	57.3	57.3	57.0	N/A	N/A	N/A	N/A	N/A
Average Current Insurance	\$47,448	\$46,461	\$45,705	\$45,325	\$44,847	N/A	N/A	N/A	N/A	N/A
<b>C. Pre-65 Annuitants</b>										
Count	6,389	6,600	6,859	7,032	7,127	N/A	N/A	N/A	N/A	N/A
Average Age	61.2	61.2	61.3	61.2	61.3	N/A	N/A	N/A	N/A	N/A
Average Current Insurance	\$69,533	\$68,260	\$67,136	\$65,986	\$65,518	N/A	N/A	N/A	N/A	N/A
<b>D. Post-64 Annuitants</b>										
Count	28,136	27,091	26,049	24,972	23,760	N/A	N/A	N/A	N/A	N/A
Average Age	74.7	74.5	74.4	74.3	74.3	N/A	N/A	N/A	N/A	N/A
Average Current Insurance	\$30,027	\$29,558	\$28,982	\$28,445	\$28,843	N/A	N/A	N/A	N/A	N/A

## Summary of Demographic Information

Active Members as of January 1, 2021											
	Years of Service										
Age	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	ALL
<25	363	663	4	-	-	-	-	-	-	-	1,030
25-29	596	2,942	488	-	-	-	-	-	-	-	4,026
30-34	580	3,277	1,933	265	7	-	-	-	-	-	6,062
35-39	482	2,788	2,162	1,202	339	7	-	-	-	-	6,980
40-44	395	2,061	1,724	1,266	1,105	410	5	-	-	-	6,966
45-49	302	1,526	1,401	995	1,067	1,195	180	1	-	-	6,667
50-54	232	1,418	1,254	944	1,105	1,357	722	131	1	-	7,164
55-59	180	1,118	1,114	754	928	1,114	646	372	75	5	6,306
60-64	83	644	774	548	575	728	416	304	166	56	4,294
65-69	9	129	219	180	167	192	130	121	80	54	1,281
70+	-	-	-	-	-	1	-	-	-	-	1
ALL	3,222	16,566	11,073	6,154	5,293	5,004	2,099	929	322	115	50,777

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	\$43,313	\$45,409	*	-	-	-	-	-	-	-	\$44,665
25-29	50,603	54,286	61,121	-	-	-	-	-	-	-	54,569
30-34	58,562	60,746	65,583	68,557	*	-	-	-	-	-	62,422
35-39	64,040	65,653	72,085	72,129	66,347	*	-	-	-	-	68,687
40-44	63,000	66,372	75,741	80,188	74,460	69,633	*	-	-	-	72,489
45-49	67,004	66,085	77,105	83,162	83,711	75,976	74,406	*	-	-	75,807
50-54	62,739	65,034	74,474	80,642	85,176	83,945	78,378	75,853	*	-	76,901
55-59	60,965	66,628	72,507	76,714	82,341	86,262	83,652	80,240	70,275	*	77,072
60-64	64,650	65,896	69,594	72,337	77,493	84,016	86,871	99,765	81,294	67,374	77,030
65-69	*	64,844	70,354	85,411	75,722	85,396	95,185	105,480	118,805	92,053	84,549
70+	-	-	-	-	-	*	-	-	-	-	*
ALL	58,112	61,999	71,766	77,692	79,777	81,421	82,367	89,264	88,009	78,373	71,094

\* Compensation shown for groups of 20 or more.

## Glossary

<b>Actuarially Determined Contribution</b>	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.
<b>Deferred Inflows/Outflows of Resources</b>	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.
<b>Discount Rate</b>	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"><li>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.</li><li>2. The actuarial present value of projected benefit payments not included in (1), calculated using the Municipal Bond Rate.</li></ol>
<b>Fiduciary Net Position</b>	Equal to market value of assets.
<b>Long-Term Expected Rate of Return</b>	Long-term expected rate of return on plan investments expected to be used to finance the payment of benefits, net of investment expenses.
<b>Money-Weighted Rate of Return</b>	The internal rate of return on plan investments, net of investment expenses.
<b>Municipal Bond Rate</b>	Yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher.
<b>Net OPEB Liability</b>	Total OPEB Liability minus the Plan's Fiduciary Net Position.
<b>Projected Benefit Payments</b>	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.
<b>Service Cost</b>	The portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.
<b>Total OPEB Liability</b>	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.