



STATE OF WISCONSIN POSTRETIREMENT LIFE INSURANCE PLAN (LOCAL)

GASB 74 and 75 DISCLOSURE
Fiscal Year Ending: December 31, 2017

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, 2017. The reporting date for determining plan assets and obligations is December 31, 2017. 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, 2017 and December 31, 2017 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, 2017 includes 74,447 active participants and 43,729 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

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.

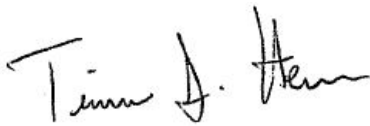
This report and its use are subject to the terms of our Consulting Services Agreement with the Wisconsin Department of Employee Trust Funds dated October 1, 2014.

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.



Timothy J. Herman, 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"> ▪ Plan name, administrator, and classification ▪ Identification of board of trustees ▪ Participating employers and NCEs 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, FNP, Net OPEB Liability, FNP as a percentage of Total OPEB Liability
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 NCE's 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 NCEs , 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, 2017 for the State of Wisconsin Retiree Life Insurance Programs for Local 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 ETF.

The actuarial liability for the Postretirement Life Insurance program for local 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 74,447 active members as of 1/1/2017.
- Disabled Participants: The liability for disabled participants represents the expected present value of future death benefits payable to disabled participants. There were 1,234 disabled members as of 1/1/2017.
- Pre-65 Annuitants: The liability for pre-65 annuitants represents the expected present value of future death benefits payable less the present value of future employee premiums paid before age 65 to pre-65 annuitants who retired on or before 1/1/2017. There were 10,571 pre-65 annuitants reported as of 1/1/2017.
- 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 1/1/2017. There were 31,924 post-64 retirees reported as of 1/1/2017.

Summary of Results

This report presents the results of the actuarial valuation in accordance with GASB 74 as of December 31, 2017 for the State of Wisconsin Retiree Life Insurance Programs for Local 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 1/1/2016 GASB 43 results to the 12/31/2017 GASB 74 results.

(\$ in millions)	GASB 43	GASB 74	GASB 74
Valuation Date	01/01/2016	01/01/2016	01/01/2017
Measurement Date	01/01/2016	12/31/2016	12/31/2017
Funded Status			
Total OPEB Liability (TOL)	\$447	\$486	\$545
Fiduciary Net Position (FNP)	(243)	(243)	(244)
Net OPEB Liability (NOL) ⁽²⁾	\$204 ⁽¹⁾	\$243	\$301
FNP as a % of TOL	54%	50%	45%
OPEB Expense	\$37	N/A	\$32
Discount Rate	4.20%	3.96%	3.63%

(1) Net OPEB Liability was called the unfunded actuarial accrued liability under GASB 43.

(2) 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 \$243 million as of December 31, 2016 to \$301 million as of December 31, 2017 for the local plan. There are two primary drivers of the increase in the Net OPEB Liability: (1) the level of employer contributions allocated to plan assets and (2) changes in the discount rate. Each of these two drivers is discussed in further detail below.

1. 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”. 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, 2017, the fiduciary net position is projected to be insufficient by December 31, 2037 for the Local plan.

The reader should note that 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 postretirement life insurance benefits of plan participants. The 2017 asset activity is reported on pages 8 and 9. The reader should further note that 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 12/31/2017, the total value in the Active Premium Deposit Fund plus the Active Stabilization Reserve was \$64 million.

2. Discount Rate for GASB 74

The discount rate is based on 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.

Because the projections result in a date of depletion, the GASB 74 discount rate is lower than the investment return assumption of 5% as of December 31, 2017. After assets are expected to be depleted, projected benefit payments are discounted using the municipal bond index. The State of Wisconsin chose the Bond Buyer GO 20-Bond Municipal Bond Index. The bond index changed from December 31, 2016 to December 31, 2017. The bond index decreased from 3.78% to 3.44%. The effect of the change to the municipal bond index is a decrease in the single equivalent rate from 3.96% as of December 31, 2016 to 3.63% as of December 31, 2017 for the local plan. The impact of the decrease in the discount rate increased the net OPEB liability by approximately \$33.5 million for the local plan. The Net OPEB Liability is \$301 million for the local plan resulting in a funded ratio of 44.8% for the local plan as of December 31, 2017.

Statement of Fiduciary Net Position

December 31, 2017

Assets

Receivables and prepaid items:

Miscellaneous receivables

\$60,041

Total receivables and prepaid items

60,041

Investments:

Investment in Contracts

244,231,290

Total investments

244,231,290

Total assets

244,291,331

Due to Other Benefit Programs

29,305

Interfund Payables

30,736

Total liabilities

60,041

**Net position restricted for postemployment benefits
other than pensions**

\$244,231,290

Statement of Changes in Fiduciary Net Position

	<u>December 31, 2017</u>
Additions	
Employer contributions	\$2,062,899
Total contributions	2,062,899
Investment income (loss):	
Other investment income	7,572,889
Net investment income	7,572,889
Service reimbursement income	90,777
Total additions	9,726,565
Deductions	
Other Benefit Expenses	7,323,466
Carrier administrative expenses	1,193,239
Administrative expenses	90,777
Total deductions	8,607,482
Net increase/(decrease) in net position	1,119,083
Net position restricted for postemployment benefits other than pensions	
Beginning of year (December 31, 2016)	243,112,207
End of year (December 31, 2017)	\$244,231,290

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
2008	N/A
2009	N/A
2010	N/A
2011	N/A
2012	N/A
2013	N/A
2014	N/A
2015	N/A
2016	N/A
2017	3.13%

Long-Term Expected Rate of Return

The assumption for the long-term expected rate of return is determined by adding expected inflation to expected long-term real returns and reflecting expected volatility and correlation. The capital market assumptions shown below for a 30-year time horizon are per Milliman's investment consulting practice as of December 31, 2017.

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	Long-Term Expected Geometric Real Rate of Return
US Gvt Bonds	Barclays Gvt	1.00%	1.13%
US Credit Bonds	Barclays Credit	65.00%	2.61%
US Long Credit Bonds	Barclays Long Credit	3.00%	3.08%
US Mortgages	Barclays MBS	31.00%	2.19%
Inflation			2.30%
Long-Term Expected Rate of Return			5.00%

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 used for the January 1, 2017 valuation, 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 5.00%.
- The 20 year tax-exempt municipal bond index rate is 3.44% as of December 31, 2017, 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, 2017 discount rate are shown on pages 13 through 15 and to determine the December 31, 2016 discount rate are shown on pages 34 through 36.

- The 20 year tax-exempt municipal bond index rate is 3.78% as of December 31, 2016, based on the Bond Buyer GO 20-Bond Municipal Bond Index.

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
2018	\$244,231,290	\$1,973,890	\$10,540,887	\$1,170,000	\$11,968,140	\$246,462,433
2019	246,462,433	1,861,484	11,267,067	1,196,910	12,058,059	247,917,999
2020	247,917,999	1,748,106	12,076,917	1,224,439	12,107,069	248,471,818
2021	248,471,818	1,632,928	12,940,578	1,252,601	12,109,585	248,021,152
2022	248,021,152	1,516,287	13,860,851	1,281,411	12,060,408	246,455,585
2023	246,455,585	1,399,964	14,836,296	1,310,883	11,954,099	243,662,469
2024	243,662,469	1,287,283	15,896,548	1,341,034	11,784,366	239,496,536
2025	239,496,536	1,179,956	16,996,047	1,371,877	11,545,128	233,853,696
2026	233,853,696	1,078,864	18,184,268	1,403,431	11,229,964	226,574,825
2027	226,574,825	983,217	19,442,502	1,435,709	10,831,366	217,511,197
2028	217,511,197	895,009	20,753,329	1,468,731	10,342,384	206,526,530
2029	206,526,530	814,723	22,116,054	1,502,512	9,756,230	193,478,917
2030	193,478,917	741,656	23,555,378	1,537,069	9,065,176	178,193,302
2031	178,193,302	674,889	25,042,293	1,572,422	8,261,169	160,514,645
2032	160,514,645	613,581	26,561,986	1,608,588	7,336,807	140,294,459
2033	140,294,459	557,279	28,103,888	1,645,585	6,284,918	117,387,183
2034	117,387,183	506,525	29,698,371	1,683,434	5,097,477	91,609,381
2035	91,609,381	459,977	31,377,113	1,722,153	3,764,487	62,734,579
2036	62,734,579	416,985	33,052,703	1,761,762	2,276,792	30,613,891
2037	30,613,891	376,642	34,579,293	1,802,283	630,571	0

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*	Present Value of "Unfunded" Benefit Payments**	Present Value of Total Benefit Payments***
2018	\$244,231,290	\$10,540,887	\$10,540,887	\$0	\$10,038,940	\$0	\$10,172,035
2019	246,462,433	11,267,067	11,267,067	0	10,219,562	0	10,492,337
2020	247,917,999	12,076,917	12,076,917	0	10,432,495	0	10,852,958
2021	248,471,818	12,940,578	12,940,578	0	10,646,246	0	11,222,158
2022	248,021,152	13,860,851	13,860,851	0	10,860,339	0	11,599,607
2023	246,455,585	14,836,296	14,836,296	0	11,071,073	0	11,981,455
2024	243,662,469	15,896,548	15,896,548	0	11,297,380	0	12,388,467
2025	239,496,536	16,996,047	16,996,047	0	11,503,594	0	12,781,839
2026	233,853,696	18,184,268	18,184,268	0	11,721,741	0	13,196,900
2027	226,574,825	19,442,502	19,442,502	0	11,936,010	0	13,616,294
2028	217,511,197	20,753,329	20,753,329	0	12,134,042	0	14,025,722
2029	206,526,530	22,116,054	22,116,054	0	12,315,046	0	14,423,670
2030	193,478,917	23,555,378	23,555,378	0	12,491,920	0	14,824,801
2031	178,193,302	25,042,293	25,042,293	0	12,648,060	0	15,209,102
2032	160,514,645	26,561,986	26,561,986	0	12,776,769	0	15,567,566
2033	140,294,459	28,103,888	28,103,888	0	12,874,715	0	15,894,880
2034	117,387,183	29,698,371	29,698,371	0	12,957,301	0	16,208,923
2035	91,609,381	31,377,113	31,377,113	0	13,037,839	0	16,525,902
2036	62,734,579	33,052,703	33,052,703	0	13,080,077	0	16,799,249
2037	30,613,891	34,579,293	0	34,579,293	0	17,581,093	16,960,149
2038	0	36,076,367	0	36,076,367	0	17,732,258	17,075,248
2039	0	37,592,677	0	37,592,677	0	17,863,066	17,170,311
2040	0	39,059,355	0	39,059,355	0	17,942,762	17,215,936
2041	0	40,434,379	0	40,434,379	0	17,956,699	17,198,360
2042	0	41,809,031	0	41,809,031	0	17,949,705	17,160,781
2043	0	43,100,297	0	43,100,297	0	17,888,707	17,071,744
2044	0	44,327,382	0	44,327,382	0	17,786,163	16,943,393
2045	0	45,467,076	0	45,467,076	0	17,636,755	16,770,886
2046	0	46,448,351	0	46,448,351	0	17,418,207	16,533,315
2047	0	47,321,466	0	47,321,466	0	17,155,478	16,254,683
2048	0	48,108,076	0	48,108,076	0	16,860,643	15,946,633
2049	0	48,807,042	0	48,807,042	0	16,536,748	15,612,202
2050	0	49,450,367	0	49,450,367	0	16,197,524	15,264,475
2051	0	49,950,532	0	49,950,532	0	15,817,240	14,879,322
2052	0	50,412,708	0	50,412,708	0	15,432,707	14,491,513
2053	0	50,816,703	0	50,816,703	0	15,039,038	14,096,486
2054	0	51,111,113	0	51,111,113	0	14,623,132	13,682,026
2055	0	51,284,066	0	51,284,066	0	14,184,662	13,247,935
2056	0	51,336,933	0	51,336,933	0	13,727,073	12,797,536
2057	0	51,203,444	0	51,203,444	0	13,236,059	12,317,605
2058	0	50,898,583	0	50,898,583	0	12,719,695	11,815,809
2059	0	50,419,632	0	50,419,632	0	12,180,978	11,295,049
2060	0	49,828,534	0	49,828,534	0	11,637,832	10,772,022
2061	0	49,180,267	0	49,180,267	0	11,104,432	10,259,843
2062	0	48,459,232	0	48,459,232	0	10,577,755	9,755,668
2063	0	47,659,327	0	47,659,327	0	10,057,183	9,258,893
2064	0	46,782,502	0	46,782,502	0	9,543,845	8,770,519
2065	0	45,828,291	0	45,828,291	0	9,038,265	8,290,986
2066	0	44,792,934	0	44,792,934	0	8,540,286	7,820,107
2067	0	43,669,362	0	43,669,362	0	8,049,173	7,357,169
2068	0	42,451,625	0	42,451,625	0	7,564,500	6,901,744
2069	0	41,149,353	0	41,149,353	0	7,088,599	6,455,922
2070	0	39,776,426	0	39,776,426	0	6,624,218	6,022,151

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*	Present Value of "Unfunded" Benefit Payments**	Present Value of Total Benefit Payments***
2071	\$0	\$38,341,625	\$0	\$38,341,625	\$0	\$6,172,923	\$5,601,794
2072	0	36,843,169	0	36,843,169	0	5,734,411	5,194,506
2073	0	35,280,466	0	35,280,466	0	5,308,571	4,800,122
2074	0	33,655,763	0	33,655,763	0	4,895,694	4,418,838
2075	0	31,960,372	0	31,960,372	0	4,494,466	4,049,404
2076	0	30,192,065	0	30,192,065	0	4,104,598	3,691,499
2077	0	28,350,497	0	28,350,497	0	3,726,061	3,345,040
2078	0	26,447,754	0	26,447,754	0	3,360,389	3,011,342
2079	0	24,495,549	0	24,495,549	0	3,008,842	2,691,468
2080	0	22,520,847	0	22,520,847	0	2,674,290	2,387,907
2081	0	20,540,751	0	20,540,751	0	2,358,042	2,101,743
2082	0	18,579,419	0	18,579,419	0	2,061,953	1,834,536
2083	0	16,658,431	0	16,658,431	0	1,787,279	1,587,299
2084	0	14,794,779	0	14,794,779	0	1,534,540	1,360,391
2085	0	12,996,221	0	12,996,221	0	1,303,162	1,153,196
2086	0	11,273,436	0	11,273,436	0	1,092,821	965,324
2087	0	9,637,415	0	9,637,415	0	903,160	796,357
2088	0	8,103,713	0	8,103,713	0	734,175	646,193
2089	0	6,689,425	0	6,689,425	0	585,890	514,751
2090	0	5,416,063	0	5,416,063	0	458,588	402,182
2091	0	4,303,939	0	4,303,939	0	352,303	308,416
2092	0	3,361,844	0	3,361,844	0	266,035	232,476
2093	0	2,587,553	0	2,587,553	0	197,953	172,672
2094	0	1,965,989	0	1,965,989	0	145,400	126,603
2095	0	1,476,176	0	1,476,176	0	105,544	91,734
2096	0	1,096,041	0	1,096,041	0	75,759	65,728
2097	0	805,394	0	805,394	0	53,818	46,608
2098	0	585,012	0	585,012	0	37,792	32,670
2099	0	420,113	0	420,113	0	26,237	22,640
2100	0	298,293	0	298,293	0	18,009	15,513
2101	0	208,738	0	208,738	0	12,183	10,476
2102	0	143,814	0	143,814	0	8,115	6,965
2103	0	97,147	0	97,147	0	5,299	4,540
2104	0	64,370	0	64,370	0	3,395	2,903
2105	0	41,892	0	41,892	0	2,136	1,823
2106	0	26,778	0	26,778	0	1,320	1,125
2107	0	16,850	0	16,850	0	803	683
2108	0	10,447	0	10,447	0	481	409
2109	0	6,356	0	6,356	0	283	240
2110	0	3,819	0	3,819	0	164	139
2111	0	2,276	0	2,276	0	95	80
2112	0	1,279	0	1,279	0	51	43
2113	0	667	0	667	0	26	22
2114	0	271	0	271	0	10	9
2115	0	87	0	87	0	3	3
2116	0	29	0	29	0	1	1
Total					224,043,149	+ 528,905,550	= 752,948,699

* Discounted at the long-term expected rate of return, 5.00%

** Discounted at the municipal bond rate, 3.44%

*** 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, 3.63%

Net OPEB Liability

Net OPEB Liability	December 31, 2016	December 31, 2017
Total OPEB liability	\$485,899,098	\$545,089,296
Fiduciary net position	243,112,207	244,231,290
Net OPEB liability	242,786,891	300,858,006
Fiduciary net position as a % of total OPEB liability	50.03%	44.81%
Covered payroll	4,024,781,000	4,205,286,056
Net OPEB liability as a % of covered payroll	6.03%	7.15%

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	3.96%	3.63%
Long-term expected rate of return, net of investment expense	5.00%	5.00%
20 Year Tax-Exempt Municipal Bond Yield	3.78%	3.44%

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, 2016	January 1, 2017
Measurement date	December 31, 2016	December 31, 2017
Inflation	2.30%	2.30%
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, 2016	\$485,899,098	\$243,112,207	\$242,786,891
Changes for the year:			
Service cost	18,063,792		18,063,792
Interest on total OPEB liability	19,813,333		19,813,333
Effect of plan changes	0		0
Effect of economic/demographic gains or losses	(4,888,179)		(4,888,179)
Effect of assumptions changes or inputs	33,524,718		33,524,718
Benefit payments	(7,323,466)	(7,323,466)	0
Employer contributions		2,062,899	(2,062,899)
Net investment income		7,663,666	(7,663,666)
Administrative expenses		(1,284,016)	1,284,016
Balances as of December 31, 2017	545,089,296	244,231,290	300,858,006

Sensitivity Analysis

The following presents the net OPEB liability, calculated using the discount rate of 3.63%, as well as what the net OPEB liability would be if it were calculated using a discount rate that is 1 percentage point lower (2.63%) or 1 percentage point higher (4.63%) than the current rate.

	Current		
	1% Decrease 2.63%	Discount Rate 3.63%	1% Increase 4.63%
Total OPEB liability	\$669,457,984	\$545,089,296	\$449,649,361
Fiduciary net position	244,231,290	244,231,290	244,231,290
Net OPEB liability	425,226,694	300,858,006	205,418,071

The following presents the net OPEB liability, calculated using the current healthcare cost trend rates as well as what the net OPEB liability would be if it were calculated using trend rates that are 1 percentage point lower or 1 percentage point higher than the current trend rates. The reader should note that healthcare trend rates do not affect the retiree life insurance liabilities.

	Current		
	1% Decrease	Trend Rate	1% Increase
Total OPEB liability	\$545,089,296	\$545,089,296	\$545,089,296
Fiduciary net position	244,231,290	244,231,290	244,231,290
Net OPEB liability	300,858,006	300,858,006	300,858,006

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

	Fiscal Year Ending December 31									
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Total OPEB Liability										
Service cost	\$18,064	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Interest on total OPEB liability	19,813	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Changes of benefit terms	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Effect of economic/demographic (gains) or losses	(4,888)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Effect of assumption changes or inputs	33,525	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Net Benefit payments	(7,323)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Net change in total OPEB liability	59,190	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total OPEB liability, beginning	485,899	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total OPEB liability, ending (a)	545,089	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fiduciary Net Position										
Employer contributions	\$2,063	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Net Investment income	7,664	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Net Benefit payments	(7,323)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Administrative expenses	(1,284)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Net change in plan fiduciary net position	1,119	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fiduciary net position, beginning	243,112	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fiduciary net position, ending (b)	244,231	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Net OPEB liability, ending = (a) - (b)	\$300,858	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fiduciary net position as a % of total OPEB liability	44.81%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Covered payroll	\$4,205,286	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Net OPEB liability as a % of covered payroll	7.15%	N/A	N/A	N/A	N/A	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 Outflows and Deferred Inflows of Resources Related to OPEB

OPEB Expense	January 1, 2016 to December 31, 2016	January 1, 2017 to December 31, 2017
Service cost	N/A	\$18,063,792
Interest on total OPEB liability	N/A	19,813,333
Effect of plan changes	N/A	0
Administrative expenses	N/A	1,284,016
Expected investment return net of investment expenses	N/A	(11,993,991)
Recognition of Deferred Inflows/Outflows of Resources		
Recognition of economic/demographic gains or losses	N/A	(649,161)
Recognition of assumption changes or inputs	N/A	4,452,154
Recognition of investment gains or losses	N/A	866,065
OPEB Expense	N/A	31,836,208

As of December 31, 2017, 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	(\$4,239,018)	\$0
Changes of assumptions	0	29,072,564
Net difference between projected and actual earnings	<u>0</u>	<u>3,464,260</u>
Total	(4,239,018)	32,536,824
Total net deferrals		28,297,806

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:	
2018	\$4,669,058
2019	4,669,058
2020	4,669,058
2021	4,669,058
2022	3,802,993
Thereafter*	5,818,581
Total net deferrals	\$28,297,806

* 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*	Amount Recognized in 12/31/2017 Expense	Balance of Deferred Inflows 12/31/2017	Balance of Deferred Outflows 12/31/2017
Investment (gains) or losses	\$4,330,325	12/31/2017 Total	5.00	<u>\$866,065</u> 866,065	<u>\$0</u> 0	<u>\$3,464,260</u> 3,464,260
Differences between expected and actual experience	(4,888,179)	12/31/2017 Total	7.53	<u>(649,161)</u> (649,161)	<u>(4,239,018)</u> (4,239,018)	<u>0</u> 0
Assumption changes or inputs	33,524,718	12/31/2017 Total	7.53	<u>4,452,154</u> 4,452,154	<u>0</u> 0	<u>29,072,564</u> 29,072,564
Subtotal of Deferred Inflows/Outflows					(4,239,018)	32,536,824
Total net deferrals						28,297,806

* 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, 2016	(\$485,899,098)	\$243,112,207	(\$242,786,891)	\$0	\$0	\$0	(\$242,786,891)	
Service cost	(18,063,792)		(18,063,792)					18,063,792
Interest on total OPEB liability	(19,813,333)		(19,813,333)					19,813,333
Effect of plan changes	0		0					0
Effect of liability gains or losses	4,888,179		4,888,179	(4,888,179)		(4,888,179)		
Effect of assumption changes or inputs	(33,524,718)		(33,524,718)		33,524,718	33,524,718		
Benefit payments	7,323,466	(7,323,466)	0					
Administrative expenses		(1,284,016)	(1,284,016)					1,284,016
Expected investment income (net of inv expenses)		11,993,991	11,993,991					(11,993,991)
Investment gains or losses		(4,330,325)	(4,330,325)		4,330,325	4,330,325		
Employer contributions		2,062,899	2,062,899				2,062,899	
Recognition of liability gains or losses				649,161		649,161		(649,161)
Recognition of assumption changes or inputs					(4,452,154)	(4,452,154)		4,452,154
Recognition of investment gains or losses					(866,065)	(866,065)		866,065
Annual expense							(31,836,208)	31,836,208
Balances as of December 31, 2017	(545,089,296)	244,231,290	(300,858,006)	(4,239,018)	32,536,824	28,297,806	(272,560,200)	

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 reported in the December 31, 2016 Actuarial Valuation Report for the Wisconsin Retirement System. All assumptions are based on estimates of future experience.

Valuation Date:	January 1, 2017
Census Date:	January 1, 2017
Discount Rate:	3.63% (net of expenses)
Salary Increases:	Salary increase assumptions used in the December 31, 2016 Actuarial Valuation Report 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 3.20% recognizes wage inflation, including price inflation, productivity increases, and other macroeconomic forces.

% of Merit & Longevity Increase Next Year

Service	Protective with Social Security	Protective w/o Social Security	Executive & Elected	General	Public Schools
1	4.80%	5.50%	2.5%	3.5%	5.6%
2	4.80	5.50	2.5	3.5	5.6
3	4.10	4.70	2.0	3.1	5.2
4	3.50	3.80	1.6	2.8	4.7
5	2.80	3.00	1.1	2.5	4.3
10	1.10	0.90	0.2	1.5	2.6
15	0.80	0.50	0.2	1.1	1.4
20	0.70	0.40	0.2	0.9	0.6
25	0.60	0.30	0.2	0.6	0.3
30	0.50	0.20	0.2	0.4	0.2

Payroll Growth:	3.20% annually (same assumption used in the December 31, 2016 Actuarial Valuation Report for the Wisconsin Retirement System).
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Pre-Retirement Mortality:

This assumption applies to death while in service. These rates are the same assumptions as used in the December 31, 2016 Actuarial Valuation Report for the Wisconsin Retirement System. Rates are based on the Wisconsin 2012 Mortality table (multiplied by 50% for males and females) as the base table and project future improvements with MP-2015 generational improvement scale (multiplied by 50%). Sample rates of the mortality with attained ages in 2016 are as follows:

Age	Males	Females
20	0.0135%	0.0078%
25	0.0162	0.0086
30	0.0203	0.0117
35	0.0356	0.0210
40	0.0480	0.0297
45	0.0632	0.0462
50	0.0854	0.0685
55	0.1997	0.1219
60	0.2845	0.1750
65	0.4333	0.2664
70	0.7145	0.4510
75	1.2149	0.8194
80	2.2343	1.5345

Post-Retirement Mortality:

This assumption applies to death while retired. These rates are the same assumptions as used in the December 31, 2016 Actuarial Valuation Report for the Wisconsin Retirement System. Rates are based on the Wisconsin 2012 Mortality table and project future improvements with MP-2015 generational improvement scale (multiplied by 50%). Sample rates of the mortality with attained ages in 2016 are as follows:

Age	Males	Females
40	0.0959%	0.0593%
45	0.1264	0.0923
50	0.1707	0.1369
55	0.3993	0.2437
60	0.5689	0.3500
65	0.8666	0.5328
70	1.4290	0.9031
75	2.4297	1.6387
80	4.4686	3.0689
85	8.3445	6.1433

Post-Disability Mortality:

This assumption applies to death after disablement. These rates are the same assumptions as used in the January 1, 2016 Actuarial Valuation Report under GASB 43 for the State of Wisconsin Duty Disability Program. Sample rates of mortality are as follows:

Age	Males	Females
45	0.1256%	0.0788%
55	0.3327	0.2011
65	0.9540	0.5484
75	3.1651	1.8772
85	9.3893	6.5865

Disability:

Percent of employees expected to become disabled each year. These rates are the same assumptions as used in the January 1, 2016 Actuarial Valuation Report under GASB 43 for the State of Wisconsin Duty Disability Program for Protective members and the same assumptions as used in the December 31, 2016 Actuarial Valuation Report for the Wisconsin Retirement System for all other members. Sample rates are as follows:

Age	Protective	Executive & Elected	General		Public Schools	
			Male	Female	Male	Female
20	0.01%	0.00%	0.01%	0.01%	0.01%	0.01%
25	0.02	0.00	0.01	0.01	0.01	0.01
30	0.09	0.00	0.01	0.02	0.01	0.01
35	0.13	0.01	0.01	0.03	0.01	0.01
40	0.18	0.01	0.03	0.04	0.01	0.02
45	0.24	0.01	0.06	0.06	0.03	0.05
50	0.35	0.02	0.13	0.09	0.08	0.10
55	0.20	0.09	0.24	0.16	0.16	0.14
60	0.20	0.11	0.43	0.23	0.26	0.21

Withdrawal:

Percent of employees expected to terminate each year within the first 10 years of employment. These rates are the same assumptions as used in the December 31, 2016 Actuarial Valuation Report 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	
				Male	Female	Male	Female
0	17.0%	4.0%	18.0%	16.8%	20.0%	18.3%	16.0%
1	8.0	3.5	14.0	12.7	14.1	11.0	10.8
2	5.0	1.5	12.0	9.0	11.0	7.8	7.7
3	4.3	1.3	10.0	7.3	8.9	5.9	5.8
4	3.8	1.2	10.0	7.0	8.5	4.9	5.0
5	3.1	1.1	8.0	4.8	6.7	3.6	4.3
6	3.0	1.0	7.0	4.3	5.6	3.2	3.8
7	2.9	0.9	6.0	4.2	5.0	2.6	3.4
8	2.5	0.8	6.0	3.4	4.7	2.6	2.8
9	2.2	0.7	6.0	3.1	4.5	2.4	2.5

Percent of employees expected to terminate each year after the first 10 years of employment. These rates are the same assumptions as used in the December 31, 2016 Actuarial Valuation Report 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	
				Male	Female	Male	Female
25	2.0%	0.7%	6.0%	2.5%	4.5%	1.3%	2.2%
30	1.8	0.7	5.1	2.5	4.3	1.3	1.9
35	1.6	0.7	4.3	2.4	3.5	1.3	1.6
40	1.3	0.6	4.1	2.1	2.7	1.3	1.3
45	1.1	0.6	3.2	1.8	2.2	1.3	1.1
50	1.0	0.5	2.5	1.5	1.9	1.3	1.0
55+	1.0	0.5	2.4	1.5	1.8	1.3	1.0

Normal Retirement:

Percent of employees expected to retire each year. These rates are the same assumptions as used in the December 31, 2016 Actuarial Valuation Report 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	
				Male	Female	Male	Female
50	6.0%	4.0%					
51	7.0	4.0					
52	9.0	5.0					
53	23.0	17.0					
54	19.0	25.0					
55	19.0	21.0					
56	19.0	27.0					
57	19.0	30.0	12.0%	18.0%	15.0%	36.0%	28.0%
58	18.0	30.0	12.0	18.0	15.0	31.0	28.0
59	16.0	30.0	12.0	18.0	15.0	24.0	28.0
60	20.0	26.0	12.0	18.0	15.0	30.0	28.0
61	20.0	15.0	12.0	18.0	15.0	28.0	28.0
62	22.0	20.0	12.0	25.0	25.0	37.0	36.0
63	26.0	40.0	12.0	30.0	25.0	32.0	30.0
64	17.0	40.0	12.0	25.0	25.0	27.0	27.0
65	30.0	40.0	12.0	25.0	28.0	29.0	35.0
66	25.0	40.0	20.0	32.0	32.0	33.0	35.0
67	30.0	40.0	15.0	26.0	26.0	27.0	30.0
68	30.0	40.0	15.0	19.0	22.0	24.0	30.0
69	30.0	40.0	10.0	19.0	20.0	24.0	30.0
70	100.0	100.0	10.0	19.0	20.0	20.0	35.0
71	100.0	100.0	10.0	19.0	20.0	20.0	30.0
72	100.0	100.0	15.0	19.0	20.0	20.0	22.0
73	100.0	100.0	15.0	19.0	20.0	20.0	22.0
74	100.0	100.0	15.0	19.0	20.0	20.0	22.0
75	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Reduced Retirement:

These rates are the same assumptions as used in the December 31, 2016 Actuarial Valuation Report for the Wisconsin Retirement System.

Age	Executive & Elected*	General		Public Schools	
		Male	Female	Male	Female
55	3.0%	9.0%	7.0%	13.0%	12.0%
56	3.0	9.0	7.0	13.0	12.0
57	3.0	4.8	5.0	12.0	12.0
58	3.0	5.8	6.0	13.0	12.0
59	3.0	6.5	6.0	14.0	13.0
60	5.0	8.5	8.5	14.0	17.0
61	5.0	8.5	8.5	15.0	17.0
62	N/A	16.0	16.0	21.0	23.0
63	N/A	17.0	16.0	21.0	23.0
64	N/A	17.0	16.0	21.0	23.0

* For participants hired on or before December 31, 2016, the normal retirement eligibility is age 62 and any years of service or age 57 with 30 years of service. For participants hired after December 31, 2016, the normal retirement eligibility is age 65 and any years of service or age 57 with 30 years of service. There are no participants hired after December 31, 2016 in this valuation report.

Expenses:

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

Administrative expense: \$1,170,000. 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 to 3.63%. A decrease in the discount rate increases the liabilities.

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 3.63%. 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 Return on Plan Assets:

The expected return on plan assets, 5%, 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, except as noted above, are based upon the December 31, 2016 Actuarial Valuation Report performed by the actuary 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	50
While 67 and later	25*

* Local employers may elect to increase this to 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	Basic	Supplemental
Under 30	\$0.05	\$0.05
30-34	0.06	0.06
35-39	0.07	0.07
40-44	0.08	0.08
45-49	0.12	0.12
50-54	0.22	0.22
55-59	0.39	0.39
60-64	0.49	0.49
65-69	0.57	0.57

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

Employer Premiums:

The employer must pay these premiums until the member's retirement:

- 40% of Employee Premiums if 50% post-66 retiree Basic coverage
- 20% of Employee Premiums if 25% post-66 retiree Basic coverage

No Employer contribution required for Supplemental Coverage

Summary of Participant Data

The participant data used in the valuation was provided by Securian and the State of Wisconsin as of January 1, 2017. 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.

A. Active Participants	
Count	74,447
Average Age	45.4
Average Service	10.5
Average Projected Salary	\$56,488
B. Disabled Participants	
Count	1,234
Average Age	57.3
Average Current Insurance	\$46,307
C. Pre-65 Annuitants	
Count	10,571
Average Age	61.2
Average Current Insurance	\$62,285
D. Post-64 Annuitants	
Count	31,924
Average Age	74.3
Average Current Insurance	\$14,787

Summary of Participant Demographic Information

Active Members as of January 1, 2017											
Years of Service											
Age	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	ALL
<25	938	716	2	0	0	0	0	0	0	0	1,656
25-29	1,376	4,518	426	5	0	0	0	0	0	0	6,325
30-34	1,031	3,874	2,505	447	9	0	0	0	0	0	7,866
35-39	855	3,136	2,134	2,298	572	7	0	0	0	0	9,002
40-44	663	2,660	1,693	1,796	2,411	268	5	0	0	0	9,496
45-49	656	2,550	1,747	1,818	2,404	1,887	398	6	0	0	11,466
50-54	536	2,073	1,697	1,729	2,270	1,773	1,556	327	19	0	11,980
55-59	308	1,499	1,429	1,479	2,038	1,411	1,194	521	232	10	10,121
60-64	142	739	786	786	1,027	815	607	233	171	74	5,380
65-69	23	142	224	182	229	152	126	37	22	18	1,155
70+	0	0	0	0	0	0	0	0	0	0	0
ALL	6,528	21,907	12,643	10,540	10,960	6,313	3,886	1,124	444	102	74,447

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	\$40,600	\$41,496	*	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$40,977
25-29	42,794	47,261	53,949	*	0	0	0	0	0	0	46,740
30-34	44,757	49,527	59,653	61,524	*	0	0	0	0	0	52,801
35-39	46,460	51,794	60,776	64,595	64,087	*	0	0	0	0	57,450
40-44	45,997	52,588	60,090	66,089	69,458	68,446	*	0	0	0	60,747
45-49	46,642	51,670	56,118	64,091	68,184	72,590	68,892	*	0	0	61,536
50-54	43,275	51,539	53,020	57,943	61,509	68,912	71,928	64,026	*	0	59,762
55-59	42,649	49,111	52,239	55,311	55,971	61,468	64,511	65,020	61,888	*	56,305
60-64	40,165	44,093	50,058	52,109	52,714	55,750	57,814	63,089	65,229	65,925	52,786
65-69	26,446	40,425	43,291	49,280	52,365	52,344	57,258	58,292	71,478	*	49,519
70+	0	0	0	0	0	0	0	0	0	0	0
ALL	43,899	49,662	56,601	61,034	62,796	66,189	66,627	64,071	63,460	66,240	56,488

* 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.

Projection of Fiduciary Net Position for 12/31/2016

Year	Projected Beginning Fiduciary Net Position	Projected Employer Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings	Projected Ending Fiduciary Net Position
2017	\$243,112,000	\$1,918,215	\$9,805,835	\$1,170,000	\$11,929,160	\$245,983,540
2018	245,983,540	1,816,510	10,505,075	1,196,910	12,052,040	248,150,105
2019	248,150,105	1,713,469	11,242,017	1,224,439	12,138,681	249,535,799
2020	249,535,799	1,608,960	12,057,751	1,252,601	12,184,255	250,018,662
2021	250,018,662	1,501,183	12,934,983	1,281,411	12,183,053	249,486,504
2022	249,486,504	1,390,965	13,873,745	1,310,883	12,129,484	247,822,325
2023	247,822,325	1,282,929	14,864,314	1,341,034	12,018,056	244,917,962
2024	244,917,962	1,180,287	15,937,327	1,371,877	11,842,675	240,631,720
2025	240,631,720	1,083,217	17,053,014	1,403,431	11,597,255	234,855,747
2026	234,855,747	990,347	18,253,344	1,435,709	11,275,320	227,432,361
2027	227,432,361	902,803	19,499,982	1,468,731	10,869,970	218,236,421
2028	218,236,421	823,255	20,804,729	1,502,512	10,374,721	207,127,156
2029	207,127,156	750,377	22,161,740	1,537,069	9,782,647	193,961,371
2030	193,961,371	683,657	23,603,003	1,572,422	9,085,774	178,555,377
2031	178,555,377	621,329	25,091,858	1,608,588	8,275,791	160,752,051
2032	160,752,051	564,475	26,604,541	1,645,585	7,345,461	140,411,861
2033	140,411,861	512,375	28,131,122	1,683,434	6,288,039	117,397,720
2034	117,397,720	464,596	29,729,745	1,722,153	5,095,203	91,505,621
2035	91,505,621	420,371	31,396,312	1,761,762	3,756,838	62,524,756
2036	62,524,756	379,008	33,056,388	1,802,283	2,264,246	30,309,339
2037	30,309,339	340,819	34,573,822	1,843,735	613,549	0

Actuarial Present Value of Projected Benefit Payments for 12/31/2016

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*	Present Value of "Unfunded" Benefit Payments**	Present Value of Total Benefit Payments***
2017	\$243,112,000	\$9,805,835	\$9,805,835	\$0	\$9,338,890	\$0	\$9,432,566
2018	245,983,540	10,505,075	10,505,075	0	9,528,413	0	9,720,525
2019	248,150,105	11,242,017	11,242,017	0	9,711,277	0	10,006,451
2020	249,535,799	12,057,751	12,057,751	0	9,919,942	0	10,323,987
2021	250,018,662	12,934,983	12,934,983	0	10,134,898	0	10,653,499
2022	249,486,504	13,873,745	13,873,745	0	10,352,802	0	10,991,714
2023	247,822,325	14,864,314	14,864,314	0	10,563,790	0	11,328,225
2024	244,917,962	15,937,327	15,937,327	0	10,787,010	0	11,683,629
2025	240,631,720	17,053,014	17,053,014	0	10,992,525	0	12,025,654
2026	234,855,747	18,253,344	18,253,344	0	11,205,970	0	12,382,128
2027	227,432,361	19,499,982	19,499,982	0	11,401,236	0	12,724,255
2028	218,236,421	20,804,729	20,804,729	0	11,584,852	0	13,058,867
2029	207,127,156	22,161,740	22,161,740	0	11,752,844	0	13,381,123
2030	193,961,371	23,603,003	23,603,003	0	11,921,120	0	13,708,857
2031	178,555,377	25,091,858	25,091,858	0	12,069,613	0	14,018,841
2032	160,752,051	26,604,541	26,604,541	0	12,187,847	0	14,298,166
2033	140,411,861	28,131,122	28,131,122	0	12,273,515	0	14,543,097
2034	117,397,720	29,729,745	29,729,745	0	12,353,323	0	14,784,489
2035	91,505,621	31,396,312	31,396,312	0	12,424,587	0	15,018,932
2036	62,524,756	33,056,388	33,056,388	0	12,458,605	0	15,211,117
2037	30,309,339	34,573,822	0	34,573,822	0	15,862,090	15,303,768
2038	0	36,056,536	0	36,056,536	0	15,939,817	15,352,541
2039	0	37,552,671	0	37,552,671	0	15,996,557	15,380,923
2040	0	38,998,043	0	38,998,043	0	16,007,180	15,364,897
2041	0	40,338,925	0	40,338,925	0	15,954,480	15,288,203
2042	0	41,689,651	0	41,689,651	0	15,888,135	15,198,673
2043	0	42,935,436	0	42,935,436	0	15,766,921	15,057,004
2044	0	44,103,627	0	44,103,627	0	15,606,002	14,877,923
2045	0	45,173,804	0	45,173,804	0	15,402,469	14,658,851
2046	0	46,112,807	0	46,112,807	0	15,149,963	14,393,954
2047	0	46,921,346	0	46,921,346	0	14,854,116	14,088,810
2048	0	47,647,239	0	47,647,239	0	14,534,511	13,762,168
2049	0	48,258,939	0	48,258,939	0	14,184,916	13,408,253
2050	0	48,812,877	0	48,812,877	0	13,825,147	13,045,902
2051	0	49,198,309	0	49,198,309	0	13,426,779	12,648,387
2052	0	49,534,441	0	49,534,441	0	13,026,126	12,250,041
2053	0	49,799,900	0	49,799,900	0	12,618,938	11,846,881
2054	0	49,912,119	0	49,912,119	0	12,186,716	11,421,597
2055	0	49,880,214	0	49,880,214	0	11,735,330	10,979,800
2056	0	49,668,945	0	49,668,945	0	11,259,997	10,517,108
2057	0	49,255,174	0	49,255,174	0	10,759,486	10,032,486
2058	0	48,718,265	0	48,718,265	0	10,254,579	9,545,393
2059	0	48,102,878	0	48,102,878	0	9,756,261	9,066,055
2060	0	47,414,730	0	47,414,730	0	9,266,420	8,596,187
2061	0	46,648,740	0	46,648,740	0	8,784,659	8,135,378
2062	0	45,795,873	0	45,795,873	0	8,309,936	7,682,622
2063	0	44,859,714	0	44,859,714	0	7,843,577	7,239,106
2064	0	43,847,546	0	43,847,546	0	7,387,361	6,806,424
2065	0	42,757,547	0	42,757,547	0	6,941,337	6,384,572
2066	0	41,584,836	0	41,584,836	0	6,505,066	5,973,093
2067	0	40,324,607	0	40,324,607	0	6,078,174	5,571,597
2068	0	38,973,850	0	38,973,850	0	5,660,602	5,179,981
2069	0	37,538,961	0	37,538,961	0	5,253,611	4,799,349

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 for 12/31/2016
(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*	Present Value of "Unfunded" Benefit Payments**	Present Value of Total Benefit Payments***
2070	\$0	\$36,037,657	\$0	\$36,037,657	\$0	\$4,859,802	\$4,432,022
2071	0	34,477,280	0	34,477,280	0	4,480,034	4,078,718
2072	0	32,859,743	0	32,859,743	0	4,114,327	3,739,385
2073	0	31,189,045	0	31,189,045	0	3,762,904	3,414,156
2074	0	29,468,747	0	29,468,747	0	3,425,855	3,103,046
2075	0	27,694,893	0	27,694,893	0	3,102,368	2,805,250
2076	0	25,865,714	0	25,865,714	0	2,791,930	2,520,238
2077	0	23,988,560	0	23,988,560	0	2,495,000	2,248,364
2078	0	22,075,723	0	22,075,723	0	2,212,420	1,990,319
2079	0	20,146,997	0	20,146,997	0	1,945,581	1,747,283
2080	0	18,234,741	0	18,234,741	0	1,696,778	1,521,240
2081	0	16,359,385	0	16,359,385	0	1,466,826	1,312,836
2082	0	14,534,693	0	14,534,693	0	1,255,752	1,122,005
2083	0	12,780,480	0	12,780,480	0	1,063,975	949,033
2084	0	11,108,242	0	11,108,242	0	891,079	793,459
2085	0	9,523,401	0	9,523,401	0	736,121	654,360
2086	0	8,037,360	0	8,037,360	0	598,628	531,231
2087	0	6,662,637	0	6,662,637	0	478,163	423,605
2088	0	5,418,067	0	5,418,067	0	374,680	331,364
2089	0	4,320,876	0	4,320,876	0	287,922	254,201
2090	0	3,386,301	0	3,386,301	0	217,427	191,636
2091	0	2,612,973	0	2,612,973	0	161,663	142,243
2092	0	1,988,779	0	1,988,779	0	118,563	104,143
2093	0	1,496,019	0	1,496,019	0	85,938	75,357
2094	0	1,113,142	0	1,113,142	0	61,615	53,937
2095	0	818,898	0	818,898	0	43,677	38,169
2096	0	595,767	0	595,767	0	30,618	26,712
2097	0	428,971	0	428,971	0	21,243	18,501
2098	0	305,200	0	305,200	0	14,563	12,662
2099	0	214,489	0	214,489	0	9,862	8,560
2100	0	148,540	0	148,540	0	6,581	5,702
2101	0	100,736	0	100,736	0	4,301	3,720
2102	0	67,015	0	67,015	0	2,757	2,380
2103	0	43,898	0	43,898	0	1,740	1,500
2104	0	28,196	0	28,196	0	1,077	927
2105	0	17,831	0	17,831	0	656	564
2106	0	11,024	0	11,024	0	391	335
2107	0	6,753	0	6,753	0	231	198
2108	0	4,110	0	4,110	0	135	116
2109	0	2,444	0	2,444	0	78	66
2110	0	1,432	0	1,432	0	44	37
2111	0	771	0	771	0	23	19
2112	0	322	0	322	0	9	8
2113	0	109	0	109	0	3	3
2114	0	42	0	42	0	1	1
2115	0	14	0	14	0	0	0
Total					222,963,059	+ 434,850,600	= 657,813,659

* Discounted at the long-term expected rate of return, 5.00%

** Discounted at the municipal bond rate, 3.78%

*** 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, 3.96%

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