Actuarial Valuation of
The State Income Continuation Insurance Plan

As of December 31, 2016

For The State of Wisconsin
Department of Employee Trust Funds

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April 21, 2017

Table of Contents

Appendices:

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April 21, 2017

Ms. Deb Roemer
Director of the Benefit Services Bureau
Division of Retirement Services
Wisconsin Department of Employee Trust Funds
Madison, WI 53707

RE: Actuarial Valuation of State Income Continuation Insurance Plan as of 12/31/2016

Dear Deb:

At your request, we have performed an actuarial valuation of the State Income Continuation Insurance (ICI) Plan as of December 31, 2016. Our findings are set forth in this report.

The State of Wisconsin Department of Employee Trust Funds (ETF) has determined that the State ICI Plan is not subject to the provisions of GASB 43 or 45, which govern the financial reporting of Other Post-Employment Benefits (OPEBs), and which require the use of pension accounting methods, including the calculation of a liability for active lives. We have therefore performed this valuation according to the requirements of GASB 10 ("Accounting and Reporting for Risk Financing and Related Insurance Issues"), which does not require the calculation of a liability for active lives. This approach is consistent with prior valuation work performed on the plans. Ultimately it is the responsibility of ETF and its auditors to determine the applicable accounting standards for the plans.

This report is prepared solely for the internal business use of ETF. 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) ETF may provide a copy of Milliman's work, in its entirety, to ETF'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 ETF.

b) ETF may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

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 own specific needs.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by ETF, including historical claims data from Aetna and ETF. While Milliman has not audited this data, we have reviewed it for reasonableness and it is, in our opinion, sufficient and reliable for the purposes of our calculations. If any of this information as summarized in this report is inaccurate or incomplete, the results shown could be materially affected and this report may need to be revised.

The discount rate used for this valuation was prescribed by ETF and is specified in this report. We have performed no independent assessment of the reasonableness of this assumption. ETF is solely responsible for establishing the assumption and communicating any changes to Milliman for the purpose of this valuation.

This analysis 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 employer contributions. While this report is based on the assumptions documented here, 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 such factors as 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); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. ETF has the final decision regarding the appropriateness of the assumptions and actuarial cost methods.

The financial projections in Section III of this report assume that the State ICI plan will be modified effective 1/1/2020, although this motion has not yet been approved by the State of Wisconsin legislature. Failure to approve this motion could result in financial experience that is significantly different than the financial projections from our analysis.

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.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices.

I, Daniel D. Skwire, FSA, MAAA, am a consulting actuary for Milliman, Inc. I am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

I, Paul L. Correia, FSA, MAAA, am a consulting actuary for Milliman, Inc. I am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sincerely,

Daniel D. Skwire, FSA, MAAA
Principal and Consulting Actuary
Milliman, Inc.

Paul L. Correia, FSA, MAAA
Principal and Consulting Actuary
Milliman, Inc.

Section I: Introduction and Executive Summary

This report contains results and documentation of the 12/31/2016 valuation for the State ICI plan. The actuarial liabilities for the State ICI plan as of 12/31/2016 are summarized below:

Table 1.1
Actuarial Liabilities for the State ICI Plan as of 12/31/2016

Liability Component	Standard Benefit	Supplemental Benefit	$75 Add-on	Total Liability Amount
Open Claims	$77,845,988	$2,114,329	$388,647	$80,348,964
IBNR Claims	$2,969,710	$80,659	$14,826	$3,065,195
Loss Adjustment Expense	$4,489,409	$121,934	$22,413	$4,633,757
Total	$85,305,107	$2,316,921	$425,887	$88,047,915

The values above include estimated liabilities for monthly ICI benefit payments (Standard Benefits and Supplemental Benefits) and for additional benefits of $75 per month to disabled employees whose disability lasts longer than 12 months, to help these employees with medical fees ($75 Add-on).

We have analyzed the funding status of the State ICI plan as of 12/31/2016. The plan was in a deficit as of 12/31/2016 and the deficit has increased over time, as shown in the following table:

Table 1.2
State ICI Fund Balances

Balance Sheet Component	Valuation Date		
	12/31/2014	12/31/2015	12/31/2016
Beginning Balance	$51,234,976	$50,563,266	$50,182,768
Closing Adjustments	($185,567)	($161,056)	($587,521)
Adjusted Beginning Balance	$51,049,409	$50,402,211	$49,595,246
Plus: Premium Contributions	$15,746,565	$16,788,715	$20,353,951
Plus: Investment Earnings	$4,366,867	$3,554,831	$3,064,649
Less: Insurance Claims	$18,872,474	$19,060,450	$19,835,275
Less: Administrative Expenses	$1,727,102	$1,502,539	$1,734,776
Ending Balance	$50,563,266	$50,182,768	$51,443,795
Actuarial Liability	$78,817,416	$82,533,870	$88,047,915
Surplus / (Deficit)	($28,254,150)	($32,351,102)	($36,604,120)

According to our financial projections, which are consistent with the plan's valuation assumptions, and which take into account the State ICI plan design changes recently approved by the Group Insurance Board which will become effective on 1/1/2020, the deficit is expected to be eliminated by 2023 if the scheduled annual rate increases of 20% each year remain in effect through 2019. We have modeled this scenario (baseline scenario) as well as alternate funding scenarios with more modest annual rate increases.

In the first alternate scenario, annual rate increases of 20% each year remain in effect through 2018, then rates are held level in 2019. Under this scenario the deficit is expected to be eliminated by 12/31/2023. In the second alternate scenario, annual rate increases of 20% each year only remain in effect through 2017, then rates are held level in 2018 and 2019. Under this scenario the deficit is expected to be eliminated by 12/31/2024. In the third alternate scenario, the current rates are held level through 2019. Under this scenario the deficit is expected to be eliminated by 12/31/2025. These scenarios are discussed in detail in Section III of this report.

Further discussions of the estimated liabilities and funding analyses are included in the body of this report, including a description of our valuation methods and assumptions, comparisons to prior year values, and an assessment of the adequacy of the liabilities.

Section II: Actuarial Valuation

The actuarial liabilities for the State ICI Plan discussed in this report contain three components:

- Open Claims: The expected present value of future benefits payable to members disabled prior to the valuation date whose claims had been reported to ETF on or before that date

- Incurred but not Reported (IBNR) Claims: The expected present value of future benefits payable to members disabled prior to the valuation date, but whose claims had not yet been reported to ETF as of that date

- Loss Adjustment Expenses: The expected present value of future expenses related to the ongoing management and payment of disability claims

The following table compares the 12/31/2016 and 12/31/2015 liabilities for the State ICI plan:

Table 2.1
Current Year and Prior Year Liabilities for the State ICI Plan

Component	12/31/2015	12/31/2016
Open Claims	$75,961,223	$80,348,964
IBNR Claims	$2,975,841	$3,065,195
Loss Adjustment Expense	$3,596,806	$4,633,757
Total	$82,533,870	$88,047,915

Appendix C of this report provides the detailed valuation assumptions used to compute the 12/31/2016 liabilities for the State ICI plan. A discussion of the liability components is provided below:

Open Claims

The liability for open claims increased by approximately 6% due to several different factors, including changes in the demographic mix of State ICI claimants from last year to this year. The number of open claims increased by approximately 1% from 1,222 as of 12/31/2015 to 1,236 as of 12/31/2016, and the average monthly benefit amount increased by approximately 3% from $1,366 to $1,407.

The assumptions used to calculate State ICI liabilities as of 12/31/2016 were very similar to last year's assumptions. The claim termination rate assumptions and interest rate assumptions are unchanged. This year, we took a different approach for determining the overpayment credit, based on the aggregate State ICI overpayment balance reported as of

12/31/2016. In particular, we estimated that 75% of the overpayment balance would eventually be recovered, and we applied this amount as an offset to the total liability. This estimate was based on an analysis of historical overpayment balances reported by ETF from 12/31/2012 through 12/31/2016. The impact of our new method for determining the overpayment credit is a slight decrease in the 12/31/2016 liability of approximately $1.0 million (i.e., approximately 1%), as shown below.

Table 2.2 Impact of New Method for Determining Future Overpayment Recoveries	
Overpayment Credit	12/31/2016 Liability
Prior Method	$89,065,838
New Method	$88,047,915
Difference	($1,017,922)

To assess the adequacy of the liability for open claims, we performed a retrospective runoff test to determine whether the liabilities at prior valuation dates, estimated using the current valuation assumptions, would have been sufficient to cover the emerging costs of ICI claims. The study used State ICI claim experience from the period 12/31/2013 through 12/31/2016. The results shown below represent results from three mutually distinct 12-month studies that were combined.

Table 2.3 Runout Study for the ICI Plans Study Period: 12/31/2013 – 12/31/2016	
Claim Duration	Average Annual Margin
1 – 12 months	5.6%
13 – 24 months	-0.3%
25 – 36 months	3.7%
37 – 48 months	3.8%
49 – 60 months	1.2%
61 + months	2.9%
Total	1.5%

In the preceding table, a positive margin indicates the liability was adequate to cover the runout of open disability claims during the study period, while a negative margin indicates a deficiency. The cost of the claim runout is computed as the present value of paid claims during the study period, plus the present value of the liability for these claims at the end of the study period. For this type of plan, we typically target a positive overall margin of 1% to 5%, with reasonably consistent patterns by claim duration. The preceding table indicates that the State ICI plan meets that objective. We will continue to monitor the valuation assumptions closely.

The State ICI Plan provides an additional benefit of $75 per month to disabled employees whose disability lasts longer than 12 months, to help these employees with medical fees. The

$75 monthly benefit is already included in the reported benefit amounts of employees disabled for 12 months or more as of the valuation date. Therefore, the additional liability for these claims was included as part of the open claim liability calculation. For employees that were disabled for fewer than 12 months as of the valuation date, the additional liability was determined using the same methods used in the open claim liability calculations. The additional liability for these claims was estimated to be $388,647 as of 12/31/2016.

The following table provides a split between liabilities corresponding to standard benefits (which cover up to $64,000 of annual earnings), supplemental benefits (which cover annual earnings from $64,000 to $120,000), and the $75 Add-on benefit. It also shows an allocation of the IBNR and loss adjustment expense liabilities to each of these three benefit components.

Table 2.4
Actuarial Liabilities for the State ICI Plan as of 12/31/2016

Liability Component	Standard Benefit	Supplemental Benefit	$75 Add-on	Total Liability Amount
Open Claims	$77,845,988	$2,114,329	$388,647	$80,348,964
IBNR Claims	$2,969,710	$80,659	$14,826	$3,065,195
Loss Adjustment Expense	$4,489,409	$121,934	$22,413	$4,633,757
Total	$85,305,107	$2,316,921	$425,887	$88,047,915

IBNR Claims

The liability for IBNR claims reflects the expected portion of the total cost of claims incurred in a given year that is attributable to those claims that had not been reported as of the end of the year. For example, if, on average, claims are reported 6 months after the date of disability, then the IBNR liability would likely be approximately 50% of the expected total cost of new claims for the year. We therefore computed the IBNR liability by estimating the total cost of incurred claims for 2016 (based on recent trends) and by using historical claim data to determine the proportion of claims that were typically unreported at each year end.

The liability for IBNR claims increased by approximately 3% from 12/31/2015 to 12/31/2016. This was because the estimated annual incurred claims, which is calculated using historical claims experience, increased from $19.8 million last year to $20.4 million this year. We continue to assume that the proportion of unreported annual claims is 15% in our IBNR liability calculations, based on an analysis of historical ICI claim reporting lags.

Our IBNR calculation for the State ICI plan is summarized below:

Table 2.5
Development of IBNR Liability for the State ICI Plan

Estimated Incurred Claims	$20,434,630
Estimated Proportion of Unreported Claims	15.0%
IBNR Liability as of 12/31/2016	$3,065,195

Loss Adjustment Expense

The liability for loss adjustment expenses was computed by comparing the annual fees payable to Aetna, which are estimated to be $3,450,015 in 2017, to the expected annual incurred claims amount for all three plans that Aetna administers (LTDI, State ICI, and Local ICI). The annual fees are approximately equal to 5.7% of estimated annual incurred claims. The loss adjustment expense liability was then calculated as 7.0% of the IBNR liability and 5.5% of the open claim liability. The factor is lower for open claims than for IBNR claims because the expenses related to initial claim investigation have already been incurred and do not need to be included in the liability. The loss adjustment expense calculations for the State ICI plan are summarized in the table below:

Table 2.6
Development of Loss Adjustment Expense Liability for the State ICI Plan

Component	Liability	Expense Factor	Loss Adjustment Expenses
Open Claims	$80,348,964	5.5%	$4,419,193
IBNR	$3,065,195	7.0%	$214,564
Total	$83,414,159	5.6%	$4,633,757

Section III: Discussion of State ICI Funding Levels

The actuarial valuation of the State ICI plan included an analysis of current and future funding levels. The following table shows the fund balances as of the three most recent fiscal year-ends:

Table 3.1
State ICI Fund Balances

Balance Sheet Component	Valuation Date		
	12/31/2014	12/31/2015	12/31/2016
Beginning Balance	$51,234,976	$50,563,266	$50,182,768
Closing Adjustments	($185,567)	($161,056)	($587,521)
Adjusted Beginning Balance	$51,049,409	$50,402,211	$49,595,246
Plus: Premium Contributions	$15,746,565	$16,788,715	$20,353,951
Plus: Investment Earnings	$4,366,867	$3,554,831	$3,064,649
Less: Insurance Claims	$18,872,474	$19,060,450	$19,835,275
Less: Administrative Expenses	$1,727,102	$1,502,539	$1,734,776
Ending Balance	$50,563,266	$50,182,768	$51,443,795
Actuarial Liability	$78,817,416	$82,533,870	$88,047,915
Surplus / (Deficit)	($28,254,150)	($32,351,102)	($36,604,120)

The State ICI plan has run a large deficit for many years. To address some of the funding issues, the board recently approved significant plan changes which will become effective in 2020, including a reduction in the benefit percent from 75% to 70% of earnings, and a reduction in the benefit period from retirement age to 18 months. The new plan will also introduce a base level of coverage for all eligible members, which should improve the overall experience on the plan by increasing participation rates and reducing adverse selection risk.

We have prepared a financial projection to evaluate the potential long-term performance of the State ICI fund. The projection reflects actual results for 2016 and projected values in 2017 and beyond, and it takes into consideration the plan changes which will become effective in 2020. The key elements of this projection include the following:

- Beginning Balance: The projected beginning balance for each year is equal to the prior year's ending balance.

- Covered Payroll: The current covered payroll was provided to us by ETF. Future covered payroll is assumed to increase 3.20% per year, which is consistent with the assumptions used by ETF for retirement fund projections. Projected covered payroll in 2020 and beyond reflects the payroll of all eligible WRS members, since we have assumed that all will participate in the redesigned State ICI plan.

- Premium Contributions: Premiums are modeled as a percentage of covered payroll. The premium rate for 2017 is 0.736%, and the rate for 2020 and beyond is 0.532% reflecting the redesigned plan.

- Investment Income: Investment income is projected using the valuation assumption of 7.2%.

- Insurance Claims: Annual paid insurance claims are the sum of projected payments on existing claims as of 12/31/2016, and of payments on expected future claims incurred after 12/31/2016. Incurred claims for 2017 are based on historical experience of 0.67% of covered payroll, adjusted for expected aging in 2018 and 2019. Incurred claims for the redesigned plan in 2020 are estimated to be 0.26% of covered payroll, adjusted for expected aging in future years.

- Administrative Expenses: Administrative expenses are modeled as a constant percentage of paid insurance claims, based on actual values in 2016.

- Ending Balance: The ending balance equals the starting balance, plus premiums, plus investment earnings, less claims, and less expenses.

- Actuarial Liability: The actuarial liability is modeled in a similar fashion to the insurance claims. It represents the sum of the decreasing liability on claims that existed as of 12/31/2016, and of the increasing liability for claims incurred after 12/31/2016.

- Surplus or Deficit: The projected surplus or deficit equals the ending balance less the actuarial liability.

The current premium contributions for the plan fall short of the expected annual cost of disability claims and related administrative expenses. In 2015, the board approved annual rate increases of 20% each year through 2020. We have modeled this scenario as well as several alternate funding scenarios, described below:

- Baseline: The current premiums are increased by 20% each year until 2020, then are replaced by the expected premiums for the redesigned program in 2020 and beyond.

- Scenario 1: The current premiums are increased by 20% each year through 2018 then held level in 2019. The expected premiums for the redesigned program begin in 2020.

- Scenario 2: The current premiums are increased by 20% in 2017 then held level in 2018 and 2019. The expected premiums for the redesigned program begin in 2020.

- Scenario 3: The current premiums are held level through 2019. The expected premiums for the redesigned program begin in 2020.

- Scenario 4: The current premiums are increased by 20% each year until 2020, then held level thereafter. In this scenario, we have not assumed the redesign plan changes will become effective in 2020.

The baseline scenario is expected to eliminate the deficit by 12/31/2022; Scenario 1 by 12/31/2023; Scenario 2 by 12/31/2024; Scenario 3 by 12/31/2025; and Scenario 4 by 12/31/2022. The detailed output from our projections is provided on the following pages. Please note that these projections depend on a variety of actuarial assumptions about future experience, including but not limited to investment earnings, payroll growth, and disability claim experience. It is nearly certain that actual experience will vary from these assumptions, meaning that the plan's actual surplus or deficit will be higher or lower than the illustrated values.

State ICI Program - Funding Analysis as of December 31, 2016

Baseline: Increase contributions by 20% from 2017 - 2019. New contribution rates for redesigned program become effective in 2020.

Calendar Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
BOY Fund Balance	$49,595,246	$51,443,795	$56,116,334	$66,099,928	$83,087,693	$92,941,985	$97,592,191	$103,073,762	$110,895,636	$120,926,600
Premium Contributions	$20,353,951	23,061,980	$28,559,956	$35,368,650	$31,131,308	$32,127,510	$33,155,590	$34,216,569	$35,311,499	$36,441,467
Investment Income	$3,064,649	$3,703,953	$4,040,376	$4,759,195	$5,982,314	$6,691,823	$7,026,638	$7,421,311	$7,984,486	$8,706,715
Total Revenues	$23,418,600	$26,765,934	$32,600,332	$40,127,845	$37,113,622	$38,819,333	$40,182,228	$41,637,880	$43,295,985	$45,148,182
Insurance Claims	$19,835,275	$20,316,529	$20,797,782	$21,279,035	$25,066,991	$31,421,067	$31,909,849	$31,096,346	$30,589,674	$30,149,601
Carrier Administrative Expenses	$1,191,974	$1,220,894	$1,249,815	$1,278,735	$1,506,367	$1,888,207	$1,917,579	$1,868,693	$1,838,245	$1,811,800
Administrative Expense	$542,802	$555,972	$569,141	$582,311	$685,970	$859,853	$873,229	$850,967	$837,101	$825,059
Total Operating Expenses	$21,570,052	$22,093,395	$22,616,738	$23,140,081	$27,259,329	$34,169,127	$34,700,657	$33,816,006	$33,265,020	$32,786,459
Net Change in Fund Balance	$1,848,549	$4,672,539	$9,983,595	$16,987,764	$9,854,293	$4,650,206	$5,481,570	$7,821,874	$10,030,964	$12,361,723
EOY Fund Balance	$51,443,795	$56,116,334	$66,099,928	$83,087,693	$92,941,985	$97,592,191	$103,073,762	$110,895,636	$120,926,600	$133,288,324
Incurred Claim Liability	$88,047,915	$100,344,479	$111,244,652	$121,476,378	$121,956,787	$112,414,194	$102,974,025	$94,647,106	$87,104,411	$80,311,250
Surplus / (Deficit)	($36,604,120)	($44,228,145)	($45,144,723)	($38,388,686)	($29,014,802)	($14,822,002)	$99,737	$16,248,529	$33,822,189	$52,977,073

State ICI Program - Funding Analysis as of December 31, 2016

Scenario 1: Increase contribution rates by 20% in 2017 and 2018 then hold level in 2019. New contribution rates for redesigned program become effective in 2020.

Calendar Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
BOY Fund Balance	$49,595,246	$51,443,795	$56,116,334	$66,099,928	$77,192,918	$86,622,786	$90,818,010	$95,811,839	$103,110,855	$112,581,315
Premium Contributions	$20,353,951	23,061,980	$28,559,956	$29,473,875	$31,131,308	$32,127,510	$33,155,590	$34,216,569	$35,311,499	$36,441,467
Investment Income	$3,064,649	$3,703,953	$4,040,376	$4,759,195	$5,557,890	$6,236,841	$6,538,897	$6,898,452	$7,423,982	$8,105,855
Total Revenues	$23,418,600	$26,765,934	$32,600,332	$34,233,070	$36,689,198	$38,364,350	$39,694,487	$41,115,021	$42,735,481	$44,547,322
Insurance Claims	$19,835,275	$20,316,529	$20,797,782	$21,279,035	$25,066,991	$31,421,067	$31,909,849	$31,096,346	$30,589,674	$30,149,601
Carrier Administrative Expenses	$1,191,974	$1,220,894	$1,249,815	$1,278,735	$1,506,367	$1,888,207	$1,917,579	$1,868,693	$1,838,245	$1,811,800
Administrative Expense	$542,802	$555,972	$569,141	$582,311	$685,970	$859,853	$873,229	$850,967	$837,101	$825,059
Total Operating Expenses	$21,570,052	$22,093,395	$22,616,738	$23,140,081	$27,259,329	$34,169,127	$34,700,657	$33,816,006	$33,265,020	$32,786,459
Net Change in Fund Balance	$1,848,549	$4,672,539	$9,983,595	$11,092,989	$9,429,869	$4,195,224	$4,993,829	$7,299,016	$9,470,460	$11,760,863
EOY Fund Balance	$51,443,795	$56,116,334	$66,099,928	$77,192,918	$86,622,786	$90,818,010	$95,811,839	$103,110,855	$112,581,315	$124,342,178
Incurred Claim Liability	$88,047,915	$100,344,479	$111,244,652	$121,476,378	$121,956,787	$112,414,194	$102,974,025	$94,647,106	$87,104,411	$80,311,250
Surplus / (Deficit)	($36,604,120)	($44,228,145)	($45,144,723)	($44,283,461)	($35,334,001)	($21,596,183)	($7,162,185)	$8,463,749	$25,476,904	$44,030,928

State ICI Program - Funding Analysis as of December 31, 2016

Scenario 2: Increase contribution rate by 20% in 2017 then hold level in 2018 and 2019. New contribution rates for redesigned program become effective in 2020.

Calendar Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
BOY Fund Balance	$49,595,246	$51,443,795	$56,116,334	$61,339,936	$67,177,893	$75,886,680	$79,308,904	$83,474,078	$89,884,774	$98,402,957
Premium Contributions	$20,353,951	23,061,980	$23,799,964	$24,561,563	$31,131,308	$32,127,510	$33,155,590	$34,216,569	$35,311,499	$36,441,467
Investment Income	$3,064,649	$3,703,953	$4,040,376	$4,416,475	$4,836,808	$5,463,841	$5,710,241	$6,010,134	$6,471,704	$7,085,013
Total Revenues	$23,418,600	$26,765,934	$27,840,340	$28,978,038	$35,968,116	$37,591,351	$38,865,831	$40,226,702	$41,783,203	$43,526,480
Insurance Claims	$19,835,275	$20,316,529	$20,797,782	$21,279,035	$25,066,991	$31,421,067	$31,909,849	$31,096,346	$30,589,674	$30,149,601
Carrier Administrative Expenses	$1,191,974	$1,220,894	$1,249,815	$1,278,735	$1,506,367	$1,888,207	$1,917,579	$1,868,693	$1,838,245	$1,811,800
Administrative Expense	$542,802	$555,972	$569,141	$582,311	$685,970	$859,853	$873,229	$850,967	$837,101	$825,059
Total Operating Expenses	$21,570,052	$22,093,395	$22,616,738	$23,140,081	$27,259,329	$34,169,127	$34,700,657	$33,816,006	$33,265,020	$32,786,459
Net Change in Fund Balance	$1,848,549	$4,672,539	$5,223,602	$5,837,957	$8,708,787	$3,422,224	$4,165,174	$6,410,697	$8,518,182	$10,740,021
EOY Fund Balance	$51,443,795	$56,116,334	$61,339,936	$67,177,893	$75,886,680	$79,308,904	$83,474,078	$89,884,774	$98,402,957	$109,142,978
Incurred Claim Liability	$88,047,915	$100,344,479	$111,244,652	$121,476,378	$121,956,787	$112,414,194	$102,974,025	$94,647,106	$87,104,411	$80,311,250
Surplus / (Deficit)	($36,604,120)	($44,228,145)	($49,904,716)	($54,298,486)	($46,070,107)	($33,105,290)	($19,499,947)	($4,762,332)	$11,298,546	$28,831,728

State ICI Program - Funding Analysis as of December 31, 2016

Scenario 3: Hold contribution rates level until 2020. New contribution rates for redesigned program become effective in 2020.

Calendar Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
BOY Fund Balance	$49,595,246	$51,443,795	$52,272,670	$53,252,868	$54,414,962	$62,204,819	$64,641,949	$67,751,101	$73,029,744	$80,334,364
Premium Contributions	$20,353,951	19,218,317	$19,833,303	$20,467,969	$31,131,308	$32,127,510	$33,155,590	$34,216,569	$35,311,499	$36,441,467
Investment Income	$3,064,649	$3,703,953	$3,763,632	$3,834,206	$3,917,877	$4,478,747	$4,654,220	$4,878,079	$5,258,142	$5,784,074
Total Revenues	$23,418,600	$22,922,270	$23,596,935	$24,302,175	$35,049,185	$36,606,257	$37,809,810	$39,094,648	$40,569,641	$42,225,541
Insurance Claims	$19,835,275	$20,316,529	$20,797,782	$21,279,035	$25,066,991	$31,421,067	$31,909,849	$31,096,346	$30,589,674	$30,149,601
Carrier Administrative Expenses	$1,191,974	$1,220,894	$1,249,815	$1,278,735	$1,506,367	$1,888,207	$1,917,579	$1,868,693	$1,838,245	$1,811,800
Administrative Expense	$542,802	$555,972	$569,141	$582,311	$685,970	$859,853	$873,229	$850,967	$837,101	$825,059
Total Operating Expenses	$21,570,052	$22,093,395	$22,616,738	$23,140,081	$27,259,329	$34,169,127	$34,700,657	$33,816,006	$33,265,020	$32,786,459
Net Change in Fund Balance	$1,848,549	$828,875	$980,198	$1,162,094	$7,789,856	$2,437,130	$3,109,153	$5,278,643	$7,304,620	$9,439,082
EOY Fund Balance	$51,443,795	$52,272,670	$53,252,868	$54,414,962	$62,204,819	$64,641,949	$67,751,101	$73,029,744	$80,334,364	$89,773,447
Incurred Claim Liability	$88,047,915	$100,344,479	$111,244,652	$121,476,378	$121,956,787	$112,414,194	$102,974,025	$94,647,106	$87,104,411	$80,311,250
Surplus / (Deficit)	($36,604,120)	($48,071,809)	($57,991,784)	($67,061,416)	($59,751,969)	($47,772,245)	($35,222,923)	($21,617,362)	($6,770,047)	$9,462,196

State ICI Program - Funding Analysis as of December 31, 2016

Scenario 4: Increase contribution rate by 20% each year until 2020, then hold level at 1.272%

Calendar Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
BOY Fund Balance	$49,595,246	$51,443,795	$56,116,334	$66,099,928	$83,087,693	$107,668,290	$133,472,011	$160,489,745	$188,906,611	$218,914,078
Premium Contributions	$20,353,951	23,061,980	$28,559,956	$35,368,650	$43,800,536	$45,202,153	$46,648,622	$48,141,378	$49,681,902	$51,271,723
Investment Income	$3,064,649	$3,703,953	$4,040,376	$4,759,195	$5,982,314	$7,752,117	$9,609,985	$11,555,262	$13,601,276	$15,761,814
Total Revenues	$23,418,600	$26,765,934	$32,600,332	$40,127,845	$49,782,850	$52,954,270	$56,258,607	$59,696,640	$63,283,178	$67,033,537
Insurance Claims	$19,835,275	$20,316,529	$20,797,782	$21,279,035	$23,175,356	$24,966,960	$26,889,169	$28,764,091	$30,599,504	$32,348,056
Carrier Administrative Expenses	$1,191,974	$1,220,894	$1,249,815	$1,278,735	$1,392,692	$1,500,356	$1,615,868	$1,728,539	$1,838,836	$1,943,913
Administrative Expense	$542,802	$555,972	$569,141	$582,311	$634,205	$683,233	$735,835	$787,143	$837,370	$885,220
Total Operating Expenses	$21,570,052	$22,093,395	$22,616,738	$23,140,081	$25,202,253	$27,150,549	$29,240,873	$31,279,774	$33,275,711	$35,177,189
Net Change in Fund Balance	$1,848,549	$4,672,539	$9,983,595	$16,987,764	$24,580,597	$25,803,721	$27,017,734	$28,416,866	$30,007,467	$31,856,348
EOY Fund Balance	$51,443,795	$56,116,334	$66,099,928	$83,087,693	$107,668,290	$133,472,011	$160,489,745	$188,906,611	$218,914,078	$250,770,426
Incurred Claim Liability	$88,047,915	$100,344,479	$111,244,652	$121,476,378	$131,264,664	$140,814,186	$150,028,223	$158,985,364	$167,771,461	$176,508,733
Surplus / (Deficit)	($36,604,120)	($44,228,145)	($45,144,723)	($38,388,686)	($23,596,374)	($7,342,175)	$10,461,522	$29,921,246	$51,142,617	$74,261,693

Appendix A: Plan Description

The State ICI Plan provides short and long term disability benefits as summarized below:

- Elimination Period: University of Wisconsin employees select their elimination period up to 180 days. All other state employees have a 30-day elimination period. State ICI participants must use sick leave time up to a maximum of 130 working days before benefits begin.

- Maximum Benefit Period: The following table shows the maximum duration of benefits:

Age at Disablement	Maximum Benefit Period
Before age 62	To age 65
62	3.50 years
63	3.00 years
64	2.50 years
65	2.00 years
66	1.75 years
67	1.50 years
68	1.25 years
69	To Age 70

- Benefit Amount: The Standard benefit provides up to 75% of a participant's average monthly earnings, capped at $4,000 per month. Supplemental Coverage is available to employees whose annual salary exceeds $64,000, and provides an additional benefit up to $3,500 per month.

- Benefit Increases: None

- Benefit Offsets: The ICI plan benefit is offset by income received from other sources including, but not limited to: Social Security (regular or disability), unemployment compensation, worker's compensation (except permanent disability awards), WRS benefits (retirement, disability retirement, Long-Term Disability Insurance, or separation), work earnings, and Duty Disability benefits.

- Definition of Disability: During the first 12 months of disability, the participant is disabled if unable to perform his or her job and under the care of a physician. After the first 12 months of disability, the participant is disabled if unable to engage in any substantial gainful activity for which he or she is reasonably qualified.

- Premium Contributions: Premiums for Standard Coverage are paid by the employer and the employee. Premiums for Supplemental Coverage are paid entirely by the employee.

Appendix B: Data for Valuation

The following tables show the distribution of open claims as of 12/31/2016 by year of disability and gender, and by age at disability and gender.

Number of Open State ICI Claims as of 12/31/2016 By Year of Disability and Gender			
Disability Year	Male	Female	Total
2001 and earlier	33	86	119
2002	5	13	18
2003	6	24	30
2004	7	29	36
2005	10	33	43
2006	19	27	46
2007	19	25	44
2008	17	28	45
2009	19	32	51
2010	22	39	61
2011	17	46	63
2012	27	56	83
2013	35	67	102
2014	30	72	102
2015	42	91	133
2016	81	179	260
Total	389	847	1,236

Number of Open State ICI Claims as of 12/31/2016 By Age at Disability and Gender			
Age at Disability	Male	Female	Total
< 20	0	2	2
20-24	6	16	22
25-29	5	25	30
30-34	29	61	90
35-39	48	124	172
40-44	58	159	217
45-49	78	132	210
50-54	84	169	253
55-59	54	115	169
60-64	23	40	63
65+	4	4	8
Total	389	847	1,236

The following tables show the distribution of net monthly benefit amounts as of 12/31/2016 by year of disability and gender, and by age at disability and gender.

State ICI Net Monthly Benefit Amounts as of 12/31/2016 By Year of Disability and Gender			
Disability Year	Male	Female	Total
2001 and earlier	$24,572	$60,071	$84,643
2002	$3,509	$10,260	$13,769
2003	$1,618	$17,446	$19,064
2004	$4,541	$24,247	$28,789
2005	$7,514	$30,871	$38,385
2006	$17,226	$21,131	$38,356
2007	$16,731	$25,580	$42,311
2008	$11,492	$23,962	$35,454
2009	$15,317	$43,471	$58,788
2010	$25,081	$43,147	$68,229
2011	$14,929	$35,897	$50,826
2012	$25,748	$62,995	$88,743
2013	$47,933	$76,996	$124,929
2014	$39,770	$112,567	$152,337
2015	$77,819	$167,284	$245,103
2016	$201,740	$447,767	$649,507
Total	$535,541	$1,203,692	$1,739,233

State ICI Net Monthly Benefit Amounts as of 12/31/2016 By Age at Disability and Gender			
Age at Disability	Male	Female	Total
< 20	$0	$4,125	$4,125
20-24	$8,716	$26,700	$35,416
25-29	$6,012	$29,067	$35,078
30-34	$45,217	$96,537	$141,755
35-39	$63,911	$184,104	$248,015
40-44	$77,503	$221,400	$298,903
45-49	$103,605	$169,457	$273,062
50-54	$99,271	$231,428	$330,699
55-59	$78,555	$175,179	$253,734
60-64	$44,463	$61,406	$105,869
65+	$8,288	$4,288	$12,576
Total	$535,541	$1,203,692	$1,739,233

- Valuation Date: 12/31/2016

- Discount Rate: 7.20%, specified by ETF

- Claim Termination Rates: Claim termination rate assumptions were derived from 1987 CGDT rates using the following adjustment factors:

Disability Duration	Termination Rate Adjustment Factor
1 – 24 months	2.50
25 – 36 months	2.40
37 – 48 months	2.20
49 – 60 months	2.00
61 – 72 months	1.80
73 – 84 months	1.60
85 – 96 months	1.40
97 – 108 months	1.20
109 + months	1.00

- Future Offset Approval Rates: Estimated Social Security offset assumptions are shown below. No future offsets are assumed on claimants disabled more than five years.

  Probability of being approved for Social Security benefits (if not already approved):

Claim Duration	Probability
1 – 12 months	69%
13 – 24 months	45%
25 – 36 months	17%
37 – 48 months	8%
49 – 60 months	5%
61 + months	0%

  Future Social Security offset amount as percentage of gross benefit amount: 44%.

- Incurred But Not Reported Claims: 15% of the estimated incurred claims for the current year, as determined from analyses of historical State ICI claims experience.

- Loss Adjustment Expenses: 5.5% of the liability for open claims plus 7.0% of the liability for IBNR claims.

- Overpayment Credit: 75% of the overpayment balance reported by ETF as of 12/31/2016

Appendix D: Reliance Items

In performing the valuation, we relied, without audit, on certain data and information provided by ETF and Aetna. To the extent any of the data or other items was incomplete or inaccurate, the results of our work may be materially affected.

The principal items on which we relied included the following:

- Lists of active disability claims and related information provided by Aetna

- Asset balances, premium contributions, plan expenses, covered payroll, and other financial information provided by ETF

- Plan descriptions provided by ETF

- Discussions with ETF and Aetna personnel