Actuarial Valuation of
The State Income Continuation Insurance Plan

As of December 31, 2017

For The State of Wisconsin
Department of Employee Trust Funds

Prepared by: Paul L. Correia, FSA, MAAA
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April 10, 2018

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April 10, 2018

Jim Guidry
Director
Benefit Services Bureau
Wisconsin Department of Employee Trust Funds
Madison, WI 53707

RE: Actuarial Valuation of State Income Continuation Insurance Plan as of 12/31/2017

Dear Jim:

Thank you for asking Milliman to perform an actuarial valuation of the State Income Continuation Insurance Plan (ICI) as of December 31, 2017. The results from our analyses are provided in this report, along with documentation of the valuation methods and assumptions.

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 74, 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 include a scenario that assumes the State ICI plan will be modified effective 1/1/2021, although this action has not yet been approved by the State of Wisconsin legislature. Failure to approve this change could result in financial experience that is significantly different than the financial projections from our analysis. We have included one sensitivity test assuming that the ICI plan is not modified in 2021.

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, 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.

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.

Sincerely,

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

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

Section I: Introduction and Executive Summary

This report contains results from the 12/31/2017 actuarial valuation of the State ICI plan. The actuarial liabilities for the plan as of 12/31/2017 are summarized in Table 1.1 below:

Table 1.1
Actuarial Liabilities for the State ICI Plan as of 12/31/2017

Liability Component	Standard Benefit	Supplemental Benefit	$75 Add-on	Total Liability Amount
Open Claims	$77,532,763	$1,585,961	$323,694	$79,442,417
IBNR Claims	$2,926,522	$59,863	$12,218	$2,998,603
Loss Adjustment Expense	$4,469,159	$91,418	$18,658	$4,579,235
Total	$84,928,444	$1,737,242	$354,570	$87,020,256

The values shown 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 12/31/2017. The plan was in a deficit as of 12/31/2017, as shown below:

Table 1.2
State ICI Fund Balances

Balance Sheet Component	Valuation Date		
	12/31/2015	12/31/2016	12/31/2017
Beginning Balance	$50,563,266	$50,182,768	$51,443,795
Closing Adjustments	($161,056)	($587,521)	$695,028
Adjusted Beginning Balance	$50,402,211	$49,595,246	$52,138,823
Plus: Premium Contributions	$16,788,715	$20,353,951	$24,320,814
Plus: Investment Earnings	$3,554,831	$3,064,649	$4,387,218
Less: Insurance Claims	$19,060,450	$19,835,275	$18,175,830
Less: Administrative Expenses	$1,502,539	$1,734,776	$1,696,706
Ending Balance	$50,182,768	$51,443,795	$60,974,319
Actuarial Liability	$82,533,870	$88,047,915	$87,020,256
Surplus / (Deficit)	($32,351,102)	($36,604,120)	($26,045,936)

According to our financial projections, which are consistent with the plan's valuation assumptions, the deficit is expected to be eliminated by 2021 if the scheduled annual rate increases of 20% each year remain in effect through 2020. We have modeled this scenario (baseline scenario) as well as alternate funding scenarios with more modest annual rate increases. Note that the baseline scenario also assumes that the redesigned ICI program will become effective in 2021, however the deficit elimination does not depend on the plan change happening in 2021. We also modeled a scenario in which no plan changes were assumed, and the deficit is still expected to be eliminated by 2021 if the scheduled annual rate increases of 20% each year remain in effect through 2020.

Further discussion of the estimated liabilities and funding analyses are included in the remainder of this report, including documentation of the 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 consist of three components:

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

- Liability for Incurred but not Reported (IBNR) Claims: The present value of expected 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

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

The following table compares the 12/31/2017 and 12/31/2016 liabilities for the State ICI plan:

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

Component	12/31/2016	12/31/2017
Open Claims	$80,348,964	$79,442,417
IBNR Claims	$3,065,195	$2,998,603
Loss Adjustment Expense	$4,633,757	$4,579,235
Total	$88,047,915	$87,020,256

A discussion of each of the liability components is provided below, and Appendix C of this report provides additional details of the valuation assumptions used to compute the 12/31/2017 liabilities for the State ICI plan.

Open Claims

The liability for open claims decreased by approximately 1% since last year, from $80.3 million to $79.4 million. The decrease was driven, in part, by differences in the demographic mix of disabled employees who were on claim last year versus this year. The number of open claims decreased by approximately 2% from 1,236 as of 12/31/2016 to 1,213 as of 12/31/2017, and the average monthly benefit amount decreased by approximately 2% from $1,407 to $1,378.

We used the same valuation methods and assumptions for computing ICI liabilities as last year. In particular, the claim termination rate assumptions, interest rate assumptions, and overpayment assumptions are unchanged.

To assess the adequacy of the liability for open claims, we performed a retrospective runoff test using State ICI claim experience from the period 12/31/2014 through 12/31/2017. In performing these tests, we calculated the liabilities at prior valuation dates using current valuation assumptions, and determined whether the liabilities provided sufficient funding for emerging claim costs. The emerging costs were 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. The results shown below represent results from three mutually distinct 12-month studies that were combined.

Table 2.2
Runout Study for the ICI Plans
Study Period: 12/31/2014 – 12/31/2017

Claim Duration	Average Annual Margin
1 – 12 months	6.3%
13 – 24 months	-1.8%
25 – 36 months	1.6%
37 – 48 months	12.1%
49 – 60 months	-1.2%
61 + months	1.5%
Total	2.6%

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. 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 overall objective, although there is a fair amount of variation by claim duration. We will continue to monitor the valuation assumptions closely, and adjust the valuation assumptions as needed.

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 $323,694 as of 12/31/2017.

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 2.3 Actuarial Liabilities for the State ICI Plan as of 12/31/2017				
Liability Component	Standard Benefit	Supplemental Benefit	$75 Add-on	Total Liability Amount
Open Claims	$77,532,763	$1,585,961	$323,694	$79,442,417
IBNR Claims	$2,926,522	$59,863	$12,218	$2,998,603
Loss Adjustment Expense	$4,469,159	$91,418	$18,658	$4,579,235
Total	$84,928,444	$1,737,242	$354,570	$87,020,256

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 computed the IBNR liability for the State ICI plan by estimating the total cost of incurred claims for 2017 (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 decreased by approximately 2% from 12/31/2016 to 12/31/2017. This is because the estimated annual incurred claims, which is calculated using historical claims experience, decreased from $20.4 million last year to $20.0 million this year. We have assumed that the proportion of unreported annual claims is 15% in our IBNR liability calculations, based on an analysis of historical ICI claim reporting lags. This is the same assumption as last year.

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

Table 2.4 Development of IBNR Liability for the State ICI Plan	
Estimated Incurred Claims	$19,990,688
Estimated Proportion of Unreported Claims	15.0%
IBNR Liability as of 12/31/2017	$2,998,603

Loss Adjustment Expense

The loss adjustment expense liability was calculated as 7% of the IBNR liability and 5.5% of the open claim liability. These assumptions are based on the annual fees that ETF has paid Aetna over the past several years for administering ICI claims, which were approximately equal to 6% of estimated annual incurred claims. 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 2.5 Development of Loss Adjustment Expense Liability for the State ICI Plan			
Component	Claim Liability	Expense Factor	LAE Liability
Open Claims	$79,442,417	5.5%	$4,369,333
IBNR	$2,998,603	7.0%	$209,902
Total	$82,441,021	5.6%	$4,579,235

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		
	12/31/2015	12/31/2016	12/31/2017
Beginning Balance	$50,563,266	$50,182,768	$51,443,795
Closing Adjustments	($161,056)	($587,521)	$695,028
Adjusted Beginning Balance	$50,402,211	$49,595,246	$52,138,823
Plus: Premium Contributions	$16,788,715	$20,353,951	$24,320,814
Plus: Investment Earnings	$3,554,831	$3,064,649	$4,387,218
Less: Insurance Claims	$19,060,450	$19,835,275	$18,175,830
Less: Administrative Expenses	$1,502,539	$1,734,776	$1,696,706
Ending Balance	$50,182,768	$51,443,795	$60,974,319
Actuarial Liability	$82,533,870	$88,047,915	$87,020,256
Surplus / (Deficit)	($32,351,102)	($36,604,120)	($26,045,936)

The State ICI plan has run a large deficit for many years. To address some of the funding issues, the board approved significant plan changes which could become effective as early as 2021, 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 would 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 financial projections to evaluate the long-term performance of the State ICI fund. The projections reflect actual results for 2017 and projected values in 2018 and beyond. The key elements of these projections include the following:

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

- 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 2021 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 payroll. The premium rate for 2018 is 0.883%, and the rate for future years depends on the scenario (e.g. the rate for 2021 and beyond in the baseline scenario is 0.532% reflecting the redesigned plan).

- Investment Income: Investment income is projected using the valuation assumption of 7.2%, specified by ETF.

- Insurance Claims: Annual paid insurance claims are the sum of projected payments on existing claims as of 12/31/2017, and of payments on expected future claims incurred after 12/31/2017. Incurred claims for 2018 are based on historical experience of 0.66% of payroll, adjusted for expected aging in 2019 and 2020. Incurred claims for the redesigned plan are estimated to be 0.26% of 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 2017.

- 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 12/31/2017 and of the increasing liability for claims incurred after 12/31/2017.

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

Financial projections were developed for several different scenarios, as discussed below.

Our baseline scenario assumes that the redesigned ICI program will become effective in 2021, and that the current contribution rates are increased by 20% each year through 2020, then are replaced by the expected premiums for the redesigned program in 2021 and beyond. This scenario reflects the Board's approval in 2015 of 20% rate increases each year through 2020.

The financial projections corresponding to Scenario 1 reflect a 20% increase in contribution rates in 2019, then rates are held level through 2020. The expected premiums for the redesigned program begin in 2021.

In Scenario 2, we have not assumed any redesign program changes effective in 2021, and have assumed that current premiums are increased by 20% each year until 2020, then held level thereafter. This scenario is similar to the baseline scenario, but with no new plan in 2021. It serves as a sensitivity test to understand the impact on the current funding strategy if the plan redesign does not take place as anticipated.

The baseline scenario is expected to eliminate the deficit by 12/31/2021, and it is expected to be eliminated by 12/31/2021 in scenarios 1 and 2 as well. 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, 2017

Baseline: Increase contributions by 20% from 2018 - 2020. New contribution rates for redesigned program become effective in 2021.

Calendar Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
BOY Fund Balance	$52,138,823	$60,974,319	$72,341,166	$90,048,485	$116,144,337	$128,942,674	$136,372,300	$145,079,410	$156,667,402	$171,070,591
Premium Contributions	$24,320,814	28,003,113	$34,679,055	$42,946,541	$32,127,510	$33,155,590	$34,216,569	$35,311,499	$36,441,467	$37,607,594
Investment Income	$4,387,218	$4,390,151	$5,208,564	$6,483,491	$8,362,392	$9,283,873	$9,818,806	$10,445,717	$11,280,053	$12,317,083
Total Revenues	$28,708,032	$32,393,264	$39,887,619	$49,430,032	$40,489,902	$42,439,463	$44,035,374	$45,757,217	$47,721,520	$49,924,677
Insurance Claims	$18,175,830	$19,231,193	$20,286,557	$21,341,921	$25,327,274	$32,020,716	$32,311,957	$31,251,875	$30,473,630	$30,031,127
Carrier Administrative Expenses	$1,205,755	$1,275,766	$1,345,778	$1,415,789	$1,680,171	$2,124,203	$2,143,523	$2,073,199	$2,021,572	$1,992,217
Administrative Expense	$490,951	$519,458	$547,964	$576,471	$684,120	$864,918	$872,785	$844,151	$823,129	$811,177
Total Operating Expenses	$19,872,536	$21,026,417	$22,180,299	$23,334,180	$27,691,565	$35,009,837	$35,328,264	$34,169,224	$33,318,331	$32,834,520
Net Change in Fund Balance	$8,835,496	$11,366,846	$17,707,320	$26,095,852	$12,798,337	$7,429,625	$8,707,110	$11,587,992	$14,403,189	$17,090,156
EOY Fund Balance	$60,974,319	$72,341,166	$90,048,485	$116,144,337	$128,942,674	$136,372,300	$145,079,410	$156,667,402	$171,070,591	$188,160,747
Incurred Claim Liability	$87,020,256	$99,050,852	$109,454,665	$118,981,491	$119,613,644	$109,728,357	$100,115,918	$91,902,763	$84,846,714	$78,695,885
Surplus / (Deficit)	($26,045,936)	($26,709,686)	($19,406,179)	($2,837,154)	$9,329,030	$26,643,943	$44,963,492	$64,764,639	$86,223,877	$109,464,862

State ICI Program - Funding Analysis as of December 31, 2017

Scenario 1: Increase the 2018 contribution rates by 20% in 2019 then hold level in 2020. New contribution rates for redesigned program become effective in 2021.

Calendar Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
BOY Fund Balance	$52,138,823	$60,974,319	$72,341,166	$90,048,485	$108,986,580	$121,269,559	$128,146,720	$136,261,588	$147,214,697	$160,937,292
Premium Contributions	$24,320,814	28,003,113	$34,679,055	$35,788,784	$32,127,510	$33,155,590	$34,216,569	$35,311,499	$36,441,467	$37,607,594
Investment Income	$4,387,218	$4,390,151	$5,208,564	$6,483,491	$7,847,034	$8,731,408	$9,226,564	$9,810,834	$10,599,458	$11,587,485
Total Revenues	$28,708,032	$32,393,264	$39,887,619	$42,272,275	$39,974,543	$41,886,998	$43,443,133	$45,122,333	$47,040,925	$49,195,079
Insurance Claims	$18,175,830	$19,231,193	$20,286,557	$21,341,921	$25,327,274	$32,020,716	$32,311,957	$31,251,875	$30,473,630	$30,031,127
Carrier Administrative Expenses	$1,205,755	$1,275,766	$1,345,778	$1,415,789	$1,680,171	$2,124,203	$2,143,523	$2,073,199	$2,021,572	$1,992,217
Administrative Expense	$490,951	$519,458	$547,964	$576,471	$684,120	$864,918	$872,785	$844,151	$823,129	$811,177
Total Operating Expenses	$19,872,536	$21,026,417	$22,180,299	$23,334,180	$27,691,565	$35,009,837	$35,328,264	$34,169,224	$33,318,331	$32,834,520
Net Change in Fund Balance	$8,835,496	$11,366,846	$17,707,320	$18,938,095	$12,282,978	$6,877,161	$8,114,868	$10,953,109	$13,722,595	$16,360,559
EOY Fund Balance	$60,974,319	$72,341,166	$90,048,485	$108,986,580	$121,269,559	$128,146,720	$136,261,588	$147,214,697	$160,937,292	$177,297,851
Incurred Claim Liability	$87,020,256	$99,050,852	$109,454,665	$118,981,491	$119,613,644	$109,728,357	$100,115,918	$91,902,763	$84,846,714	$78,695,885
Surplus / (Deficit)	($26,045,936)	($26,709,686)	($19,406,179)	($9,994,911)	$1,655,915	$18,418,363	$36,145,670	$55,311,934	$76,090,578	$98,601,965

State ICI Program - Funding Analysis as of December 31, 2017

Scenario 2: Increase contribution rate by 20% each year until 2020, then hold level at 1.272%

Calendar Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
BOY Fund Balance	$52,138,823	$60,974,319	$72,341,166	$90,048,485	$116,144,337	$143,311,573	$171,801,754	$201,984,445	$234,029,151	$268,220,151
Premium Contributions	$24,320,814	28,003,113	$34,679,055	$42,946,541	$44,320,831	$45,739,097	$47,202,748	$48,713,236	$50,272,060	$51,880,766
Investment Income	$4,387,218	$4,390,151	$5,208,564	$6,483,491	$8,362,392	$10,318,433	$12,369,726	$14,542,880	$16,850,099	$19,311,851
Total Revenues	$28,708,032	$32,393,264	$39,887,619	$49,430,032	$52,683,223	$56,057,530	$59,572,475	$63,256,116	$67,122,159	$71,192,617
Insurance Claims	$18,175,830	$19,231,193	$20,286,557	$21,341,921	$23,337,446	$25,213,664	$26,880,500	$28,546,597	$30,119,514	$31,731,608
Carrier Administrative Expenses	$1,205,755	$1,275,766	$1,345,778	$1,415,789	$1,548,169	$1,672,634	$1,783,209	$1,893,735	$1,998,080	$2,105,024
Administrative Expense	$490,951	$519,458	$547,964	$576,471	$630,372	$681,051	$726,075	$771,078	$813,564	$857,109
Total Operating Expenses	$19,872,536	$21,026,417	$22,180,299	$23,334,180	$25,515,987	$27,567,349	$29,389,783	$31,211,410	$32,931,158	$34,693,740
Net Change in Fund Balance	$8,835,496	$11,366,846	$17,707,320	$26,095,852	$27,167,236	$28,490,181	$30,182,691	$32,044,706	$34,191,000	$36,498,876
EOY Fund Balance	$60,974,319	$72,341,166	$90,048,485	$116,144,337	$143,311,573	$171,801,754	$201,984,445	$234,029,151	$268,220,151	$304,719,028
Incurred Claim Liability	$87,020,256	$99,050,852	$109,454,665	$118,981,491	$127,865,059	$136,265,495	$144,463,753	$152,547,913	$160,651,384	$168,788,479
Surplus / (Deficit)	($26,045,936)	($26,709,686)	($19,406,179)	($2,837,154)	$15,446,514	$35,536,259	$57,520,692	$81,481,238	$107,568,768	$135,930,548

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 12/31/2017 by year of disability and gender, and by age at disability and gender.

Number of Open State ICI Claims as of 12/31/2017 By Year of Disability and Gender			
Disability Year	Male	Female	Total
2001 and earlier	29	77	106
2002	5	11	16
2003	6	24	30
2004	8	27	35
2005	8	30	38
2006	18	27	45
2007	17	25	42
2008	16	28	44
2009	18	33	51
2010	18	37	55
2011	17	44	61
2012	25	51	76
2013	26	57	83
2014	25	53	78
2015	29	68	97
2016	44	79	123
2017	73	160	233
Total	382	831	1,213

Number of Open State ICI Claims as of 12/31/2017 By Age at Disability and Gender			
Age at Disability	Male	Female	Total
< 20	0	0	0
20-24	5	15	20
25-29	8	31	39
30-34	26	60	86
35-39	46	132	178
40-44	57	154	211
45-49	84	133	217
50-54	81	153	234
55-59	51	112	163
60-64	21	38	59
65+	3	3	6
Total	382	831	1,213

The following tables show the distribution of net monthly benefit amounts as of 12/31/2017 by year of disability and gender, and by age at disability and gender.

State ICI Net Monthly Benefit Amounts as of 12/31/2017 By Year of Disability and Gender			
Disability Year	Male	Female	Total
2001 and earlier	$22,412	$54,579	$76,990
2002	3,509	9,994	13,502
2003	1,618	16,789	18,407
2004	5,316	23,135	28,451
2005	6,805	28,544	35,349
2006	15,651	18,871	34,522
2007	16,456	23,847	40,303
2008	10,707	22,979	33,686
2009	12,211	37,886	50,097
2010	21,660	41,698	63,358
2011	14,929	33,114	48,043
2012	23,646	58,946	82,592
2013	35,420	58,199	93,620
2014	26,470	75,929	102,399
2015	38,366	102,043	140,410
2016	75,484	145,451	220,935
2017	182,038	407,322	589,360
Total	$512,698	$1,159,327	$1,672,025

State ICI Net Monthly Benefit Amounts as of 12/31/2017 By Age at Disability and Gender			
Age at Disability	Male	Female	Total
< 20	$0	$0	$0
20-24	5,290	18,854	24,144
25-29	11,910	51,667	63,577
30-34	38,014	93,222	131,236
35-39	50,869	186,571	237,441
40-44	76,425	203,146	279,570
45-49	107,670	179,799	287,469
50-54	102,476	179,011	281,487
55-59	79,517	174,078	253,596
60-64	33,964	67,567	101,531
65+	6,563	5,412	11,974
Total	$512,698	$1,159,327	$1,672,025

Appendix C: Actuarial Methods and Assumptions

- Valuation Date: 12/31/2017

- 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 12/31/2017

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