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Department of Employee Trust Funds
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SECRETARY

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Correspondence Memorandum

Date: April 23, 2019

To: Group Insurance Board

From: Jim Guidry, Director
Benefit Services Bureau
Division of Retirement Services

Subject: Acceptance of State and Local Income Continuation Insurance (ICI) Actuarial Valuations

ETF requests the Group Insurance Board (Board) approve:
- **the State and Local ICI Actuarial Reviews as of December 31, 2018; and**
- **a continuation of the premium holiday for the local ICI program.**

At its meeting on May 19, 2015, the Board approved a motion to increase State ICI premiums 20% in each year from 2016-2020 to help address the program's actuarial deficit. ETF recommends the Board's 2015 premium rate decision remain in effect. This will maintain 20% premium increases for 2020. **Maintaining this decision does not require a new vote of the board.** The 20% increase for 2020 is the final installment of increases that were approved by the Board in 2015. Milliman, Inc., ETF's disability actuary, has reflected this recommendation in their baseline scenario, which anticipates that the actuarial deficit will be eliminated by the end of 2020. The baseline scenario also assumes a redesigned ICI program with new premium rates becoming effective on January 1, 2021. Other scenarios identified by Milliman use the following assumptions about the state ICI program:

- Scenario 1: 10% premium increase in 2020, new premium rates for redesigned program in 2021
- Scenario 2: 20% increase in 2020, rates held level after 2020, no redesigned program
- Scenario 3: 10% increase in 2020, rates held level after 2020, no redesigned program

ETF and Milliman have recommended design changes to the State ICI program that will address declining enrollment, lower premiums, reduce the actuarial liability, and reduce complexity and the administrative burdens of the program. The board approved the

Reviewed and approved by Matt Stohr, Administrator, Division of Retirement Services
Matt Stohr Electronically Signed 4/29/19

Board	Mtg Date	Item #
GIB	5.15.19	10A

proposed design changes at its February 8, 2017, meeting. ETF has developed statute changes that will enable these design changes to move forward. These statute changes were included in ETF's 2019-21 budget request but were not included in the Governor's proposed budget as presented in February 2019. ETF will continue to seek legislative options for these changes.

Also at its February 8, 2017, meeting the Board approved moving oversight of the ICI program to the ETF Board. The statutory changes required to transfer this oversight have been included in the Governor's budget. GIB authority over the ICI program will remain in place until those statutory changes are enacted.

An executive summary can be found on page six of each report.

Staff from ETF and Milliman will be at the Board meeting to answer any questions.

Attachment A: State ICI Actuarial Valuation
Attachment B: Local ICI Actuarial Valuation

Actuarial Valuation of
The State Income Continuation Insurance Plan

As of December 31, 2018

For The State of Wisconsin
Department of Employee Trust Funds

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

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

April 24, 2019

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April 24, 2019

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 December 31, 2018

Dear Jim:

Thank you for asking Milliman to perform an actuarial valuation of the State Income Continuation Insurance Plan (ICI) as of December 31, 2018. The valuation results are provided in this report, along with detailed documentation of our 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 State ICI Plan. 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 agreement, 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 claim data from The Hartford 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; 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 January 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 sensitivity tests 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 an actuarial valuation of the State ICI plan as of December 31, 2018. The actuarial liabilities for the plan as of December 31, 2018 are summarized in Table 1.1 below:

Table 1.1 Actuarial Liabilities for the State ICI Plan as of December 31, 2018				
Liability Component	Standard Benefit	Supplemental Benefit	$75 Add-on	Total Liability Amount
Open Claims	$79,583,755	$1,642,364	$296,911	$81,523,030
IBNR Claims	$4,820,291	$99,476	$17,984	$4,937,750
Loss Adjustment Expense	$3,991,204	$82,366	$14,890	$4,088,460
Total	$88,395,250	$1,824,206	$329,785	$90,549,241

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 members whose disability lasts longer than 12 months, to help these members with medical expenses ($75 Add-on). Please note that the liability for the $75 Add-on benefit only reflects the cost for disabled members who had not yet received the benefit as of December 31, 2018. For members who had already received the $75 Add-on benefit, the liability is reflected in the Standard Benefit.

We have analyzed the funding status of the State ICI plan as of December 31, 2018. The plan was in a deficit as of December 31, 2018 as shown below:

Table 1.2 State ICI Fund Balances			
Balance Sheet Component	Valuation Date		
	December 31, 2016	December 31, 2017	December 31, 2018
Beginning Balance	$50,182,768	$51,443,795	$60,974,320
Closing Adjustments	(587,521)	695,028	51,615
Adjusted Beginning Balance	49,595,246	52,138,823	61,025,935
Plus: Premium Contributions	20,353,951	24,320,814	28,393,397
Plus: Investment Earnings	3,064,649	4,387,218	3,172,205
Less: Insurance Claims	19,835,275	18,175,830	18,387,227
Less: Administrative Expenses	1,734,776	1,696,706	2,710,827
Ending Balance	51,443,795	60,974,319	71,493,483
Actuarial Liability	88,047,915	87,020,256	90,549,241
Surplus / (Deficit)	($36,604,120)	($26,045,936)	($19,055,758)

According to our financial projections, which are consistent with the plan's valuation assumptions, the deficit is expected to be eliminated by December 31, 2020 if the scheduled annual rate increases of 20% each year remain in effect through 2020. Section III of this report contains a detailed discussion of State ICI funding levels, along with financial projections corresponding to the following different scenarios:

- Baseline Scenario: Assume annual rate increases of 20% each year through 2020, and assume redesigned program and new rates become effective on January 1, 2021.

- Scenario 1: Assume annual rate increases of 20% in 2019 and 10% in 2020, and assume redesigned program and new rates become effective on January 1, 2021.

- Scenario 2: Assume annual rate increases of 20% each year through 2020, then hold rates level in future years. No redesigned program.

- Scenario 3: Assume annual rate increases of 20% in 2019 and 10% in 2020, then hold rates level in future years. No redesigned program.

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 December 31, 2018, 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 December 31, 2018, 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 open and IBNR disability claims.

The following table compares the liabilities for the State ICI plan as of December 31, 2017 and December 31, 2018:

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

Component	December 31, 2017	December 31, 2018
Open Claims	$79,442,417	$81,523,030
IBNR Claims	$2,998,603	$4,937,750
Loss Adjustment Expense	$4,579,235	$4,088,460
Total	$87,020,256	$90,549,241

A discussion of each of the December 31, 2018 liability components is provided below, and Appendix D of this report provides additional documentation of the valuation assumptions used to compute the liabilities.

Open Claims

The liability for open claims increased by approximately 3% since last year, from $79.4 million to $81.5 million. The increase was driven, in part, by the use of a lower interest rate assumption in the calculation of open claim liabilities this year. We used a 7.0% interest rate assumption for discounting expected future cash flows (specified by ETF), which is lower than the 7.2% interest rate assumption used last year, and which results in an increase of approximately 1% in the estimated liability, with all else being equal. Also, there are differences in the demographic mix of disabled members who were on claim last year versus this year, which affects future liabilities. For example, the average monthly benefit amount increased from $1,378 as of December 31, 2017 to $1,389 as of December 31, 2018.

The open claim liabilities were calculated using the same claim termination rate assumptions and overpayment assumptions as last year. To evaluate the adequacy of the estimated open claim liabilities, we performed retrospective runoff tests using State ICI claim experience from 2016 through 2018. In performing these tests, we first calculated open claim liabilities at prior valuation dates using current valuation assumptions, and then we determined whether the liabilities provided sufficient funding for emerging claim costs. The emerging claim costs were computed as the present value of benefit payments made during the study period, plus the present value of remaining liabilities for claims still open at the end of the study period. The results shown below represent combined results from three mutually distinct 12-month studies using claim experience from 2016, 2017 and 2018.

Table 2.2
Runout Study for the ICI Plans
Study Period: 2016 – 2018

Claim Duration	Average Annual Margin
1 – 12 months	-0.2%
13 – 24 months	-0.7%
25 – 36 months	0.7%
37 – 48 months	13.9%
49 – 60 months	0.7%
61 + months	1.3%
Total	1.1%

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 and assumptions used in the open claim liability calculations. The additional liability for these claims was estimated to be $296,911 as of December 31, 2018.

IBNR Claims

The liability for IBNR claims reflects the expected cost of claims incurred prior to December 31, 2018 that had not been reported as of that date. For example, if, on average, claims are reported 6 months after the date of disability, then the IBNR liability would be approximately 50% of the expected total cost of new claims for the year.

We estimated the proportion of ICI claims that are typically unreported at each year-end from an analysis of State ICI claim reporting lags from 2015 through 2018. The following table shows the percentage of claims incurred in a given year that were unreported at each year-end from 2015 through 2018:

Table 2.3
Proportion of ICI Claims Unreported at Year-End

Valuation Date	Incurral Year		
	2015	2016	2017
December 31, 2015	26.3%		
December 31, 2016	0.1%	23.0%	
December 31, 2017	0.1%	0.3%	24.0%
December 31, 2018	0.0%	0.1%	0.3%

Based on this analysis, we assumed that 25% of claims incurred in 2018 were unreported as of December 31, 2018. We also assumed that the total cost of claims incurred in 2018 would be approximately $19.8 million, based on historical incurred claims experience for the State ICI program. The following table provides details of the liability calculation for IBNR claims:

Table 2.4
IBNR Liability for the State ICI Plan as of December 31, 2018

A. Estimated Incurred Claims	$19,751,000
B. Estimated Proportion of Unreported Claims	25.0%
C. IBNR Liability as of December 31, 2018 (A x B)	$4,937,750

Please note that the assumption that 25% of claims were unreported as of year-end is higher than the 15% assumption used for estimating IBNR liabilities last year.

Loss Adjustment Expense

The loss adjustment expense liability was calculated from an analysis of fees paid by ETF to The Hartford for administering ICI claims in 2018. Although a breakdown of the fees was not provided, we assumed the following breakdown based on average fees charged by third party administrators for administering group disability insurance. When applied to ICI claim experience from 2018, total fees calculated from the following assumptions matches the total fees reported by The Hartford within 1%.

Table 2.5 Assumed Claim Administration Fees	
Component	Fee
One-time new claim fee	$800 per new claim
Monthly fee, first year	$160 per month
Monthly fee, second year	$140 per month
Monthly fee, years 3 - 5	$75 per month
Monthly fee, years 6+	$50 per month

We computed the loss adjustment expense liability for open claims by calculating the present value of expected future claim administration fees using the same claim termination rate assumptions that were used in the calculation of the open claim liability. We performed a similar calculation for IBNR claims by assuming there were 263 claims incurred but not reported as of December 31, 2018 (based on the analysis of historical claim reporting lags described above), for which we assumed the one-time new claim fee applies and had not yet been paid as of the valuation date. The following table provides details of the liability calculation for loss adjustment expenses as of December 31, 2018.

Table 2.6 Liability for Loss Adjustment Expenses	
Claim Type	Estimated Liability
Open claims	$3,744,451
IBNR claims	$344,010
Total	$4,088,460

Please note that this approach is different than the approach used last year for computing the loss adjustment expense liability, in which we computed the liability as fixed percentages of the open claim and IBNR liabilities. We believe the current approach is more representative of actual claim adjudication fees; however, both methods result in estimated liabilities that are approximately equal to 5% of the total liability.

Section III: Discussion of State ICI Funding Levels

The December 31, 2018 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		
	December 31, 2016	December 31, 2017	December 31, 2018
Beginning Balance	$50,182,768	$51,443,795	$60,974,320
Closing Adjustments	($587,521)	$695,028	51,615
Adjusted Beginning Balance	$49,595,246	$52,138,823	61,025,935
Plus: Premium Contributions	$20,353,951	$24,320,814	28,393,397
Plus: Investment Earnings	$3,064,649	$4,387,218	3,172,205
Less: Insurance Claims	$19,835,275	$18,175,830	18,387,227
Less: Administrative Expenses	$1,734,776	$1,696,706	2,710,827
Ending Balance	$51,443,795	$60,974,319	71,493,483
Actuarial Liability	$88,047,915	$87,020,256	90,549,241
Surplus / (Deficit)	($36,604,120)	($26,045,936)	($19,055,758)

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 are provided in Appendix A, and reflect actual results for 2018 and projected values in 2019 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 3.0% per year, which is consistent with the assumptions used by ETF for retirement fund projections. In the Baseline scenario and in Scenario 1, projected covered payroll in 2021 and beyond reflects the expected 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 2019 is 1.06%, and the rate for future years depends on the scenario

(e.g. the rate for 2021 and beyond in the Baseline scenario and in Scenario 1 is 0.37% reflecting the redesigned plan. This is lower than the contribution rate assumed for the redesigned plan in our prior valuations.)

- Investment Income: Investment income is projected using the valuation assumption of 7.0%, specified by ETF.

- Insurance Claims: Annual paid insurance claims are the sum of projected payments on existing claims as of December 31, 2018, and payments on expected future claims incurred after December 31, 2018. Insurance claims for 2019 and 2020 are based on historical experience of 0.65% of payroll, adjusted for expected aging in 2019 and 2020. Insurance 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 2018.

- 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 December 31, 2018 and of the increasing liability for claims incurred after December 31, 2018.

- 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 and a 10% increase in 2020. The expected premiums for the redesigned program begin in 2021. The more modest rate increase in 2020 is an attempt to moderate the rapid surplus growth seen in the Baseline scenario.

In Scenario 2 and Scenario 3, we have not assumed any redesign program changes effective in 2021. In Scenario 2 we have assumed that current premiums are increased by 20% each year until 2020 then held level thereafter, and in Scenario 3 we assumed that current premiums are increased by 20% in 2019 and 10% in 2020 then held level thereafter. These two scenarios are similar to the Baseline scenario and Scenario 1, but with no new plan in 2021. They serve as sensitivity tests to understand the impact on the current funding strategy if the plan redesign does not take place as anticipated.

The deficit is expected to be eliminated by December 31, 2020 in the Baseline scenario and in scenario 2, and it is expected to be eliminated by December 31, 2021 in scenarios 1 and 3. 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.

Appendix A: Financial Projections

Baseline Scenario: Increase contribution rates by 20% in 2019 and 2020. New rates for redesigned ICI program effective in 2021 and beyond.

Scenario 1: Increase contribution rates by 20% in 2019 and 10% in 2020. New rates for redesigned ICI program effective in 2021 and beyond.

Scenario 2: Increase contribution rates by 20% in 2019 and 2020, then hold level in future years. No redesigned ICI program.

Scenario 3: Increase contribution rates by 20% in 2019 and 10% in 2020, then hold level in future years. No redesigned ICI program.

Baseline Scenario

Increase contribution rates by 20% in 2019 and 2020.
New rates for redesigned ICI program effective in 2021 and beyond.

State ICI Program - Funding Analysis as of December 31, 2018

Baseline: Increase contribution rates by 20% in 2019 and 2020. New rates for redesigned program become effective in 2021.

Calendar Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
BOY Fund Balance	$61,025,935	$71,493,483	$87,531,397	$111,657,538	$117,085,294	$119,963,067	$115,516,106	$110,956,088	$107,997,829	$106,275,908
Premium Contributions	$28,393,397	$32,939,596	$40,713,340	$21,949,929	$22,608,427	$23,286,680	$23,985,281	$24,704,839	$25,445,984	$26,209,364
Investment Income	$3,172,205	$5,004,544	$6,127,198	$7,816,028	$8,195,971	$8,397,415	$8,086,127	$7,766,926	$7,559,848	$7,439,314
Total Revenues	$31,565,602	$37,944,140	$46,840,538	$29,765,957	$30,804,398	$31,684,095	$32,071,408	$32,471,765	$33,005,832	$33,648,677
Insurance Claims	$18,387,227	$19,091,559	$19,795,891	$21,211,058	$24,338,414	$31,488,683	$31,924,762	$30,877,724	$30,265,687	$29,931,818
Carrier Administrative Expenses	$2,245,566	$2,331,584	$2,417,601	$2,590,430	$2,972,363	$3,845,600	$3,898,857	$3,770,986	$3,696,240	$3,655,465
Administrative Expense	$465,261	$483,083	$500,905	$536,714	$615,847	$796,774	$807,808	$781,314	$765,827	$757,379
Total Operating Expenses	$21,098,054	$21,906,225	$22,714,397	$24,338,202	$27,926,624	$36,131,056	$36,631,426	$35,430,024	$34,727,754	$34,344,662
Net Change in Fund Balance	$10,467,548	$16,037,914	$24,126,141	$5,427,756	$2,877,774	($4,446,961)	($4,560,018)	($2,958,258)	($1,721,922)	($695,985)
EOY Fund Balance	$71,493,483	$87,531,397	$111,657,538	$117,085,294	$119,963,067	$115,516,106	$110,956,088	$107,997,829	$106,275,908	$105,579,922
Actuarial Liability	$90,549,241	$101,762,775	$111,173,747	$112,629,767	$114,613,159	$105,425,269	$96,428,827	$88,823,819	$82,183,722	$76,279,901
Surplus / (Deficit)	($19,055,758)	($14,231,378)	$483,791	$4,455,527	$5,349,908	$10,090,837	$14,527,260	$19,174,011	$24,092,186	$29,300,021

Scenario 1

Increase contribution rates by 20% in 2019 and 10% in 2020.
New rates for redesigned ICI program effective in 2021 and beyond.

State ICI Program - Funding Analysis as of December 31, 2018

Scenario 1: Increase contribution rates by 20% in 2019 then 10% in 2020. New rates for redesigned program become effective in 2021.

Calendar Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
BOY Fund Balance	$61,025,935	$71,493,483	$87,531,397	$108,264,760	$113,455,021	$116,078,675	$111,359,807	$106,508,847	$103,239,282	$101,184,262
Premium Contributions	$28,393,397	$32,939,596	$37,320,562	$21,949,929	$22,608,427	$23,286,680	$23,985,281	$24,704,839	$25,445,984	$26,209,364
Investment Income	$3,172,205	$5,004,544	$6,127,198	$7,578,533	$7,941,851	$8,125,507	$7,795,186	$7,455,619	$7,226,750	$7,082,898
Total Revenues	$31,565,602	$37,944,140	$43,447,760	$29,528,463	$30,550,279	$31,412,187	$31,780,467	$32,160,458	$32,672,734	$33,292,262
Insurance Claims	$18,387,227	$19,091,559	$19,795,891	$21,211,058	$24,338,414	$31,488,683	$31,924,762	$30,877,724	$30,265,687	$29,931,818
Carrier Administrative Expenses	$2,245,566	$2,331,584	$2,417,601	$2,590,430	$2,972,363	$3,845,600	$3,898,857	$3,770,986	$3,696,240	$3,655,465
Administrative Expense	$465,261	$483,083	$500,905	$536,714	$615,847	$796,774	$807,808	$781,314	$765,827	$757,379
Total Operating Expenses	$21,098,054	$21,906,225	$22,714,397	$24,338,202	$27,926,624	$36,131,056	$36,631,426	$35,430,024	$34,727,754	$34,344,662
Net Change in Fund Balance	$10,467,548	$16,037,914	$20,733,363	$5,190,261	$2,623,655	($4,718,869)	($4,850,959)	($3,269,565)	($2,055,020)	($1,052,400)
EOY Fund Balance	$71,493,483	$87,531,397	$108,264,760	$113,455,021	$116,078,675	$111,359,807	$106,508,847	$103,239,282	$101,184,262	$100,131,862
Actuarial Liability	$90,549,241	$101,762,775	$111,173,747	$112,629,767	$114,613,159	$105,425,269	$96,428,827	$88,823,819	$82,183,722	$76,279,901
Surplus / (Deficit)	($19,055,758)	($14,231,378)	($2,908,987)	$825,254	$1,465,516	$5,934,537	$10,080,020	$14,415,463	$19,000,541	$23,851,961

Scenario 2

Increase contribution rates by 20% in 2019 and 2020, then hold level in future years.
No redesigned ICI program.

State ICI Program - Funding Analysis as of December 31, 2018

Scenario 2: Increase contribution rate by 20% each year until 2020, then hold level in future years. No new redesigned program.

Calendar Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
BOY Fund Balance	$61,025,935	$71,493,483	$87,531,397	$111,657,538	$136,267,299	$161,756,107	$188,515,228	$216,684,023	$246,532,591	$278,216,317
Premium Contributions	$28,393,397	32,939,596	$40,713,340	$41,934,741	$43,192,783	$44,488,566	$45,823,223	$47,197,920	$48,613,857	$50,072,273
Investment Income	$3,172,205	$5,004,544	$6,127,198	$7,816,028	$9,538,711	$11,322,928	$13,196,066	$15,167,882	$17,257,281	$19,475,142
Total Revenues	$31,565,602	$37,944,140	$46,840,538	$49,750,768	$52,731,494	$55,811,494	$59,019,289	$62,365,801	$65,871,139	$69,547,415
Insurance Claims	$18,387,227	$19,091,559	$19,795,891	$21,910,713	$23,742,353	$25,319,519	$26,886,605	$28,339,189	$29,794,773	$31,302,254
Carrier Administrative Expenses	$2,245,566	$2,331,584	$2,417,601	$2,675,877	$2,899,568	$3,092,182	$3,283,564	$3,460,963	$3,638,729	$3,822,832
Administrative Expense	$465,261	$483,083	$500,905	$554,417	$600,764	$640,672	$680,325	$717,080	$753,912	$792,056
Total Operating Expenses	$21,098,054	$21,906,225	$22,714,397	$25,141,007	$27,242,685	$29,052,374	$30,850,494	$32,517,233	$34,187,413	$35,917,142
Net Change in Fund Balance	$10,467,548	$16,037,914	$24,126,141	$24,609,761	$25,488,808	$26,759,120	$28,168,795	$29,848,569	$31,683,726	$33,630,273
EOY Fund Balance	$71,493,483	$87,531,397	$111,657,538	$136,267,299	$161,756,107	$188,515,228	$216,684,023	$246,532,591	$278,216,317	$311,846,590
Actuarial Liability	$90,549,241	$101,762,775	$111,173,747	$119,595,595	$127,368,872	$134,860,973	$142,141,429	$149,337,613	$156,499,281	$163,647,746
Surplus / (Deficit)	($19,055,758)	($14,231,378)	$483,791	$16,671,705	$34,387,236	$53,654,255	$74,542,593	$97,194,978	$121,717,036	$148,198,845

Scenario 3

Increase contribution rates by 20% in 2019 and 10% in 2020, then hold level in future years.
No redesigned ICI program.

State ICI Program - Funding Analysis as of December 31, 2018

Scenario 3: Increase contribution rate by 20% in 2019 and 10% in 2020, then hold level in future years. No new redesigned program.

Calendar Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
BOY Fund Balance	$61,025,935	$71,493,483	$87,531,397	$108,264,760	$129,142,465	$150,533,136	$172,799,268	$196,049,343	$220,520,324	$246,332,037
Premium Contributions	$28,393,397	32,939,596	$37,320,562	$38,440,179	$39,593,384	$40,781,186	$42,004,621	$43,264,760	$44,562,703	$45,899,584
Investment Income	$3,172,205	$5,004,544	$6,127,198	$7,578,533	$9,039,973	$10,537,320	$12,095,949	$13,723,454	$15,436,423	$17,243,243
Total Revenues	$31,565,602	$37,944,140	$43,447,760	$46,018,712	$48,633,357	$51,318,505	$54,100,570	$56,988,214	$59,999,125	$63,142,826
Insurance Claims	$18,387,227	$19,091,559	$19,795,891	$21,910,713	$23,742,353	$25,319,519	$26,886,605	$28,339,189	$29,794,773	$31,302,254
Carrier Administrative Expenses	$2,245,566	$2,331,584	$2,417,601	$2,675,877	$2,899,568	$3,092,182	$3,283,564	$3,460,963	$3,638,729	$3,822,832
Administrative Expense	$465,261	$483,083	$500,905	$554,417	$600,764	$640,672	$680,325	$717,080	$753,912	$792,056
Total Operating Expenses	$21,098,054	$21,906,225	$22,714,397	$25,141,007	$27,242,685	$29,052,374	$30,850,494	$32,517,233	$34,187,413	$35,917,142
Net Change in Fund Balance	$10,467,548	$16,037,914	$20,733,363	$20,877,705	$21,390,671	$22,266,132	$23,250,076	$24,470,981	$25,811,712	$27,225,684
EOY Fund Balance	$71,493,483	$87,531,397	$108,264,760	$129,142,465	$150,533,136	$172,799,268	$196,049,343	$220,520,324	$246,332,037	$273,557,721
Actuarial Liability	$90,549,241	$101,762,775	$111,173,747	$119,595,595	$127,368,872	$134,860,973	$142,141,429	$149,337,613	$156,499,281	$163,647,746
Surplus / (Deficit)	($19,055,758)	($14,231,378)	($2,908,987)	$9,546,870	$23,164,264	$37,938,295	$53,907,914	$71,182,711	$89,832,756	$109,909,975

Appendix B: 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 benefits (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 C: Data for Valuation

The following tables show the distribution of open claims as of December 31, 2018 by year of disability and gender, and by age at disability and gender.

Number of Open State ICI Claims as of December 31, 2018 By Year of Disability and Gender			
Disability Year	Male	Female	Total
2001 and earlier	25	69	94
2002	4	11	15
2003	4	22	26
2004	8	23	31
2005	8	28	36
2006	17	23	40
2007	17	22	39
2008	15	25	40
2009	15	31	46
2010	16	36	52
2011	15	35	50
2012	25	45	70
2013	27	50	77
2014	22	41	63
2015	23	57	80
2016	31	60	91
2017	31	70	101
2018	54	135	189
Total	357	783	1,140

Number of Open State ICI Claims as of December 31, 2018 By Age at Disability and Gender			
Age at Disability	Male	Female	Total
< 20	0	0	0
20-24	4	16	20
25-29	7	37	44
30-34	24	53	77
35-39	49	125	174
40-44	57	149	206
45-49	79	133	212
50-54	69	136	205
55-59	43	98	141
60-64	22	34	56
65+	3	2	5
Total	357	783	1,140

The following tables show the distribution of net monthly benefit amounts as of December 31, 2018 by year of disability and gender, and by age at disability and gender.

State ICI Net Monthly Benefit Amounts as of December 31, 2018 By Year of Disability and Gender			
Disability Year	Male	Female	Total
2001 and earlier	$19,484	$49,287	$68,770
2002	3,096	9,967	13,063
2003	752	16,662	17,414
2004	5,316	20,366	25,682
2005	6,805	26,688	33,493
2006	14,880	15,172	30,052
2007	16,456	20,501	36,957
2008	10,332	20,655	30,987
2009	10,869	37,038	47,907
2010	18,007	41,068	59,075
2011	14,733	25,816	40,548
2012	23,646	53,073	76,718
2013	34,858	52,076	86,935
2014	18,517	51,354	69,871
2015	29,076	77,523	106,599
2016	49,201	86,061	135,262
2017	57,091	147,336	204,427
2018	149,785	349,418	499,203
Total	$482,904	$1,100,060	$1,582,963

State ICI Net Monthly Benefit Amounts as of December 31, 2018 By Age at Disability and Gender			
Age at Disability	Male	Female	Total
< 20	$0	$0	$0
20-24	3,165	20,054	23,219
25-29	8,973	62,630	71,603
30-34	36,650	77,353	114,003
35-39	70,498	178,433	248,931
40-44	86,618	202,479	289,097
45-49	106,377	180,492	286,869
50-54	70,459	157,339	227,798
55-59	57,315	148,025	205,341
60-64	34,701	70,503	105,204
65+	8,149	2,750	10,899
Total	$482,904	$1,100,060	$1,582,963

Appendix D: Actuarial Methods and Assumptions

- Valuation Date: December 31, 2018

- Discount Rate: 7.0%, specified by ETF

- Claim Termination Rates: Claim termination rate assumptions were derived from State ICI plan experience relative to the 1987 CGDT Table, as shown below:

Disability Duration	1987 CGDT 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 were derived from State ICI plan experience as shown below.

  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%

  No future offsets are assumed on claimants disabled more than five years.

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

- Incurred But Not Reported Claims: 25% of the estimated incurred claims for the current year, as determined from analyses of historical State ICI claims experience.

- Loss Adjustment Expenses: Assumed claim administration fees are provided below:

Assumed Claim Administration Fees	
Component	Fee
New Claim Fee	$800 per new claim
Monthly fee, first year	$160 per month
Monthly fee, second year	$140 per month
Monthly fee, years 3 - 5	$75 per month
Monthly fee, years 6+	$50 per month

- Overpayment Credit: 75% of the overpayment balance reported by ETF as of December 31, 2018

Appendix E: Reliance Items

In performing the valuation, we relied, without audit, on certain data and information provided by ETF and The Hartford. 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 The Hartford
- Asset balances, premium contributions, plan expenses, covered payroll, and other financial information provided by ETF
- Plan descriptions provided by ETF
- Discussions with ETF and personnel at The Hartford

Actuarial Valuation of
The Local Income Continuation Insurance Plan

As of December 31, 2018

For The State of Wisconsin
Department of Employee Trust Funds

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

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

April 24, 2019

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Appendices:

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April 24, 2019

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

RE: Actuarial Valuation of Local Income Continuation Insurance Plan as of December 31, 2018

Dear Jim:

Thank you for asking Milliman to perform an actuarial valuation of the Local Income Continuation Insurance Plan (ICI) as of December 31, 2018. The valuation results are provided in this report, along with detailed documentation of our valuation methods and assumptions.

The State of Wisconsin Department of Employee Trust Funds (ETF) has determined that the Local 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 Local ICI Plan. 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 agreement, 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 claim data from The Hartford 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; 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 Local ICI plan will be modified effective January 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 a 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 an actuarial valuation of the Local ICI plan as of December 31, 2018. The actuarial liabilities for the plan as of December 31, 2018 are summarized in Table 1.1 below:

Table 1.1 Actuarial Liabilities for the Local ICI Plan as of December 31, 2018				
Liability Component	Standard Benefit	Supplemental Benefit	$75 Add-on	Total Liability Amount
Open Claims	$5,242,793	$96,632	$30,077	$5,369,502
IBNR Claims	$296,480	$5,465	$1,701	$303,645
Loss Adjustment Expense	$286,272	$5,276	$1,642	$293,190
Total	$5,825,544	$107,373	$33,420	$5,966,337

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 members whose disability lasts longer than 12 months, to help these members with medical expenses ($75 Add-on). Please note that the liability for the $75 Add-on benefit only reflects the cost for disabled members who had not yet received the benefit as of December 31, 2018. For members who had already received the $75 Add-on benefit, the liability is reflected in the Standard Benefit.

We have analyzed the funding status of the Local ICI plan as of December 31, 2018. The Local ICI plan has run a significant surplus for several years, as shown in Table 1.2 below:

Table 1.2 Local ICI Fund Balances			
Balance Sheet Component	Valuation Date		
	December 31, 2016	December 31, 2017	December 31, 2018
Beginning Balance	$36,300,190	$37,527,592	$38,951,707
Closing Adjustments	8,045	(106,828)	9,429
Adjusted Beginning Balance	36,308,236	37,420,764	38,961,136
Plus: Premium Contributions	0	0	0
Plus: Investment Earnings	2,725,838	3,019,818	1,854,114
Less: Insurance Claims	1,339,006	1,333,948	1,427,926
Less: Administrative Expenses	167,477	154,927	472,772
Ending Balance	37,527,591	38,951,707	38,914,553
Actuarial Liability	5,449,820	5,659,211	5,966,337
Surplus / (Deficit)	$32,077,771	$33,292,495	$32,948,215

Our projection of future funding levels indicates that the Local ICI plan is expected to generate a significant level of surplus for the foreseeable future. It is therefore reasonable to continue waiving the premium contribution on this plan for the near term.

Section II: Actuarial Valuation

The actuarial liabilities for the Local ICI Plan consist of three components:

- Liability for Open Claims: The present value of expected future benefits payable to members disabled prior to December 31, 2018, 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 December 31, 2018, 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 open and IBNR disability claims.

The following table compares the liabilities for the Local ICI plan as of December 31, 2017 and December 31, 2018:

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

Component	December 31, 2017	December 31, 2018
Open Claims	$5,164,774	$5,369,502
IBNR Claims	$196,611	$303,645
Loss Adjustment Expense	$297,825	$293,190
Total	$5,659,211	$5,966,337

A discussion of each of the December 31, 2018 liability components is provided below, and Appendix D of this report provides additional documentation of the valuation assumptions used to compute the liabilities.

Open Claims

The liability for open claims increased by approximately 4% since last year, from $5.16 million to $5.37 million. The change in the estimated liability was driven, in part, by the use of a lower interest rate assumption in the calculation of open claim liabilities this year. We used a 7.0% interest rate assumption for discounting expected future cash flows (specified by ETF), which is lower than the 7.2% interest rate assumption used last year, and which results in an increase of approximately 1% in the estimated liability, with all else being equal. Also, although there were 81 open claims as of December 31, 2017 and as of December 31, 2018, there are differences in the demographic mix of disabled members who were on claim last year versus this year, which affects future liabilities. For example, the average monthly benefit amount increased by approximately 1% from $1,524 as of December 31, 2017 to $1,538 as of December 31, 2018.

The open claim liabilities were calculated using the same claim termination rate assumptions and overpayment assumptions as last year. To evaluate the adequacy of the estimated open claim liabilities, we performed retrospective runoff tests using State ICI claim experience from 2016 through 2018, because historical Local ICI experience has been volatile due to the small volume of open claims, and is therefore not credible for evaluating the assumptions. We believe that the State ICI runoff analysis provides a reasonable basis for testing Local ICI valuation assumptions because Local and State ICI plans are similar, and both are administered by The Hartford. In performing the runoff tests, we first calculated open claim liabilities at prior valuation dates using current valuation assumptions, and then we determined whether the liabilities provided sufficient funding for emerging claim costs. The emerging claim costs were computed as the present value of benefit payments made during the study period, plus the present value of remaining liabilities for claims still open at the end of the study period. The results shown below represent combined results from three mutually distinct 12-month studies using claim experience from 2016, 2017 and 2018.

Table 2.2
Runout Study for the ICI Plans
Study Period: 2016 – 2018

Claim Duration	Average Annual Margin
1 – 12 months	-0.2%
13 – 24 months	-0.7%
25 – 36 months	0.7%
37 – 48 months	13.9%
49 – 60 months	0.7%
61 + months	1.3%
Total	1.1%

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, despite some variation by claim duration, and we have assumed that Local ICI experience is similar. We will continue to monitor the valuation assumptions closely, and adjust the valuation assumptions as needed.

The Local 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 $30,077 as of December 31, 2018.

IBNR Claims

The liability for IBNR claims reflects the expected cost of claims incurred prior to December 31, 2018 that had not been reported as of that date. For example, if, on average, claims are reported 6 months after the date of disability, then the IBNR liability would be approximately 50% of the expected total cost of new claims for the year.

We estimated the proportion of ICI claims that are typically unreported at each year-end from an analysis of Local ICI claim reporting lags from 2015 through 2018. The following table shows the percentage of claims incurred in a given year that were unreported at each year-end from 2015 through 2018:

Table 2.3
Proportion of ICI Claims Unreported at Year-End

Valuation Date	Incurral Year		
	2015	2016	2017
December 31, 2015	26.4%		
December 31, 2016	0.0%	17.9%	
December 31, 2017	0.0%	0.8%	23.2%
December 31, 2018	0.0%	0.0%	0.8%

Based on this analysis, we assumed that 25% of claims incurred in 2018 were unreported as of December 31, 2018. We also assumed that the total cost of claims incurred in 2018 would be approximately $1.2 million, based on historical incurred claims experience for the Local ICI program. The following table provides details of the liability calculation for IBNR claims:

Table 2.4
IBNR Liability for the Local ICI Plan as of December 31, 2018

A. Estimated Incurred Claims	$1,214,581
B. Estimated Proportion of Unreported Claims	25.0%
C. IBNR Liability as of December 31, 2018 (A x B)	$303,645

Please note that the assumption that 25% of claims were unreported as of year-end is higher than the 15% assumption used for estimating IBNR liabilities last year.

Loss Adjustment Expense

The loss adjustment expense liability was calculated from an analysis of fees paid by ETF to The Hartford for administering ICI claims in 2018. Although a breakdown of the fees was not provided, we assumed the following breakdown based on average fees charged by third party administrators for administering group disability insurance. When applied to ICI claim experience from 2018, total fees calculated from the following assumptions matches the total fees reported by The Hartford within 1%.

Table 2.5 Assumed Claim Administration Fees	
Component	Fee
One-time new claim fee	$800 per new claim
Monthly fee, first year	$160 per month
Monthly fee, second year	$140 per month
Monthly fee, years 3 - 5	$75 per month
Monthly fee, years 6+	$50 per month

We computed the loss adjustment expense liability for open claims by calculating the present value of expected future claim administration fees using the same claim termination rate assumptions that were used in the calculation of the open claim liability. We performed a similar calculation for IBNR claims by assuming there were 39 claims incurred but not reported as of December 31, 2018 (based on the analysis of historical claim reporting lags described above), for which we assumed the one-time new claim fee applies and had not yet been paid as of the valuation date. The following table provides details of the liability calculation for loss adjustment expenses as of December 31, 2018.

Table 2.6 Liability for Loss Adjustment Expenses	
Claim Type	Estimated Liability
Open claims	$242,889
IBNR claims	$50,301
Total	$293,190

Please note that this approach is different than the approach used last year for computing the loss adjustment expense liability, in which we computed the liability as fixed percentages of the open claim and IBNR liabilities. We believe the current approach is more representative of actual claim adjudication fees; however, both methods result in estimated liabilities that are approximately equal to 5% of the total liability.

Section III: Discussion of Local ICI Funding Levels

The December 31, 2018 actuarial valuation of the Local 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
Local ICI Fund Balances

Balance Sheet Component	Valuation Date		
	December 31, 2016	December 31, 2017	December 31, 2018
Beginning Balance	$36,300,190	$37,527,592	$38,951,707
Closing Adjustments	8,045	(106,828)	9,429
Adjusted Beginning Balance	36,308,236	37,420,764	38,961,136
Plus: Premium Contributions	0	0	0
Plus: Investment Earnings	2,725,838	3,019,818	1,854,114
Less: Insurance Claims	1,339,006	1,333,948	1,427,926
Less: Administrative Expenses	167,477	154,927	472,772
Ending Balance	37,527,591	38,951,707	38,914,553
Actuarial Liability	5,449,820	5,659,211	5,966,337
Surplus / (Deficit)	$32,077,771	$33,292,495	$32,948,215

Although the Local ICI plan has run a large surplus for many years, the State ICI plan has been in a deficit position for several years. To address some of the funding issues with the State plan, the Board approved significant changes to ICI coverage that would impact both the State and Local plans, and which could become effective as early as 2021. These changes include 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.

We have prepared financial projections to evaluate the long-term performance of the Local ICI fund. The projections are provided in Appendix A and reflect actual results for 2018 and projected values in 2019 and beyond. In the Baseline scenario, we assumed the redesigned program would become effective in 2021, whereas in Scenario 1 we assumed no changes to ICI coverage. The key elements of our financial projections include the following:

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

- Payroll: Since Local ICI payroll was not available, we estimated current payroll based on data for the State ICI plan and historical annual incurred claims experience. Future covered payroll is assumed to increase 3.0% per year, which is consistent with the assumptions used by ETF for retirement fund projections.

- Premium Contributions: Premiums are assumed to be waived in all future years given the plan's significant surplus.

- Investment Income: Investment income is projected using the valuation assumption of 7.0%, specified by ETF.

- Insurance Claims: Annual paid insurance claims are the sum of projected payments on existing claims as of December 31, 2018, and of payments on expected future claims incurred after December 31, 2018. Insurance claims for the current program are based on 0.65% of payroll, adjusted for expected aging in future years. Insurance claims for the redesigned plan are estimated to be 0.26% of payroll, also 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 2018.

- 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 December 31, 2018 and of the increasing liability for claims incurred after December 31, 2018.

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

Our Baseline projection indicates that the Local ICI plan is expected to generate a significant level of surplus for the foreseeable future, with expected investment earnings on the existing fund exceeding the cost of expected new claims and expenses each year. It is therefore reasonable to continue waiving the premium contribution on this plan for the near term.

In Scenario 1, we have assumed the redesign plan changes will not become effective in 2021. The results from this scenario also indicate that the Local ICI plan is expected to generate a significant level of surplus for the foreseeable future. Note that in Scenario 1 we have assumed that Local ICI premiums would be waived for the near term, similar to the Baseline scenario.

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.

Appendix A: Financial Projections

Baseline Scenario: Redesigned ICI program effective in 2021 and beyond.

Scenario 1: No redesigned program.

Baseline Scenario

Redesigned ICI program effective in 2021 and beyond

Local ICI Program - Funding Analysis as of December 31, 2018

Baseline: Premium contributions waived indefinitely beginning 2012. Redesigned program effective January 1, 2021.

Calendar Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
BOY Fund Balance	$38,961,136	$38,914,552	$39,704,726	$40,517,066	$41,481,851	$42,522,852	$43,424,430	$44,445,136	$45,644,177	$46,981,681
Premium Contributions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Investment Income	$1,854,114	$2,724,019	$2,779,331	$2,836,195	$2,903,730	$2,976,600	$3,039,710	$3,111,160	$3,195,092	$3,288,718
Total Revenues	$1,854,114	$2,724,019	$2,779,331	$2,836,195	$2,903,730	$2,976,600	$3,039,710	$3,111,160	$3,195,092	$3,288,718
Insurance Claims	$1,427,926	$1,452,828	$1,477,730	$1,405,922	$1,399,401	$1,558,889	$1,516,805	$1,436,506	$1,395,539	$1,356,328
Carrier Administrative Expenses	$396,276	$403,187	$410,097	$390,170	$388,360	$432,621	$420,942	$398,657	$387,288	$376,406
Administrative Expense	$76,496	$77,830	$79,164	$75,317	$74,968	$83,512	$81,257	$76,956	$74,761	$72,660
Total Operating Expenses	$1,900,698	$1,933,845	$1,966,991	$1,871,409	$1,862,729	$2,075,021	$2,019,005	$1,912,119	$1,857,588	$1,805,394
Net Change in Fund Balance	($46,584)	$790,174	$812,340	$964,786	$1,041,001	$901,578	$1,020,706	$1,199,041	$1,337,505	$1,483,323
EOY Fund Balance	$38,914,552	$39,704,726	$40,517,066	$41,481,851	$42,522,852	$43,424,430	$44,445,136	$45,644,177	$46,981,681	$48,465,005
Actuarial Liability	$5,966,337	$6,667,198	$7,251,143	$6,820,142	$6,529,226	$5,915,522	$5,359,500	$4,887,441	$4,457,779	$4,072,346
Surplus / (Deficit)	$32,948,215	$33,037,529	$33,265,922	$34,661,709	$35,993,626	$37,508,908	$39,085,636	$40,756,736	$42,523,902	$44,392,658

Scenario 1

No redesigned ICI program

Local ICI Program - Funding Analysis as of December 31, 2018

Scenario 1: Premium contributions waived indefinitely beginning 2012. No new redesigned program.

Calendar Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
BOY Fund Balance	$38,961,136	$38,914,552	$39,704,726	$40,517,066	$41,353,122	$42,111,411	$42,832,713	$43,472,004	$44,024,684	$44,463,136
Premium Contributions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Investment Income	$1,854,114	$2,724,019	$2,779,331	$2,836,195	$2,894,719	$2,947,799	$2,998,290	$3,043,040	$3,081,728	$3,112,420
Total Revenues	$1,854,114	$2,724,019	$2,779,331	$2,836,195	$2,894,719	$2,947,799	$2,998,290	$3,043,040	$3,081,728	$3,112,420
Insurance Claims	$1,427,926	$1,452,828	$1,477,730	$1,502,632	$1,605,023	$1,672,687	$1,772,231	$1,870,918	$1,985,799	$2,090,804
Carrier Administrative Expenses	$396,276	$403,187	$410,097	$417,008	$445,424	$464,202	$491,827	$519,214	$551,096	$580,237
Administrative Expense	$76,496	$77,830	$79,164	$80,498	$85,983	$89,608	$94,941	$100,228	$106,382	$112,007
Total Operating Expenses	$1,900,698	$1,933,845	$1,966,991	$2,000,138	$2,136,430	$2,226,497	$2,358,999	$2,490,360	$2,643,277	$2,783,048
Net Change in Fund Balance	($46,584)	$790,174	$812,340	$836,057	$758,289	$721,302	$639,291	$552,681	$438,451	$329,371
EOY Fund Balance	$38,914,552	$39,704,726	$40,517,066	$41,353,122	$42,111,411	$42,832,713	$43,472,004	$44,024,684	$44,463,136	$44,792,507
Actuarial Liability	$5,966,337	$6,667,198	$7,251,143	$7,787,028	$8,299,773	$8,835,322	$9,365,647	$9,892,900	$10,402,572	$10,909,443
Surplus / (Deficit)	$32,948,215	$33,037,529	$33,265,922	$33,566,094	$33,811,638	$33,997,391	$34,106,357	$34,131,785	$34,060,563	$33,883,064

Appendix B: Plan Description

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

- Elimination Period: Participating employees select an elimination period up to 180 days. Benefits are reduced for any vacation, sick leave, holiday or compensation pay received after the elimination period.

- 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. For disabilities lasting longer than 12 months, a supplement of $75 per month is added to the normal benefit amount.

- Benefit Increases: None

- Benefit Offsets: The ICI plan benefit is offset by income received from other sources including, but not limited to: Social Security benefits (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 C: Data for Valuation

The following tables show the distribution of open claims as of December 31, 2018 by year of disability and gender, and by age at disability and gender.

Number of Open Local ICI Claims as of December 31, 2018 By Year of Disability and Gender			
Disability Year	Male	Female	Total
2001 and earlier	1	2	3
2002	1	0	1
2003	2	0	2
2004	1	2	3
2005	1	2	3
2006	1	1	2
2007	0	0	0
2008	0	0	0
2009	3	2	5
2010	5	0	5
2011	2	0	2
2012	2	0	2
2013	1	1	2
2014	2	3	5
2015	6	7	13
2016	7	0	7
2017	3	1	4
2018	15	7	22
Total	53	28	81

Number of Open Local ICI Claims as of December 31, 2018 By Age at Disability and Gender			
Age at Disability	Male	Female	Total
< 20	0	0	0
20-24	0	0	0
25-29	2	1	3
30-34	4	4	8
35-39	5	1	6
40-44	8	4	12
45-49	10	4	14
50-54	9	5	14
55-59	11	6	17
60-64	2	3	5
65+	2	0	2
Total	53	28	81

The following tables show the distribution of net monthly benefit amounts as of December 31, 2018 by year of disability and gender, and by age at disability and gender.

Local ICI Net Monthly Benefit Amounts as of December 31, 2018 By Year of Disability and Gender			
Disability Year	Male	Female	Total
2001 and earlier	$366	$1,604	$1,970
2002	1,122	-	1,122
2003	3,375	-	3,375
2004	556	1,703	2,259
2005	137	265	402
2006	857	192	1,049
2007	-	-	-
2008	-	-	-
2009	368	1,334	1,702
2010	9,108	-	9,108
2011	3,402	-	3,402
2012	376	-	376
2013	268	67	335
2014	1,177	4,624	5,802
2015	7,712	5,359	13,070
2016	15,937	-	15,937
2017	5,261	1,857	7,118
2018	40,597	16,924	57,521
Total	$90,618	$33,931	$124,548

Local ICI Net Monthly Benefit Amounts as of December 31, 2018 By Age at Disability and Gender			
Age at Disability	Male	Female	Total
< 20	$0	$0	$0
20-24	0	0	0
25-29	4,013	2,875	6,888
30-34	12,599	2,354	14,953
35-39	8,069	3,313	11,382
40-44	16,248	1,968	18,216
45-49	12,266	6,701	18,967
50-54	14,967	5,998	20,965
55-59	14,281	6,371	20,653
60-64	2,301	4,350	6,651
65+	5,875	0	5,875
Total	$90,618	$33,931	$124,548

Appendix D: Actuarial Methods and Assumptions

- Valuation Date: December 31, 2018

- Discount Rate: 7.0%, specified by ETF

- Claim Termination Rates: Claim termination rate assumptions were derived from historical ICI experience relative to the 1987 Commissioner's Group Disability Table, as follows:

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 were derived from historical ICI experience and are shown below.

  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%

  No future offsets are assumed on claimants disabled more than five years.

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

- Incurred But Not Reported Claims: 25% of the estimated incurred claims for the current year, as determined from analyses of historical ICI claim experience.

- Loss Adjustment Expenses: Assumed claim administration fees are provided below:

Assumed Claim Administration Fees	
Component	Fee
New Claim Fee	$800 per new claim
Monthly fee, first year	$160 per month
Monthly fee, second year	$140 per month
Monthly fee, years 3 - 5	$75 per month
Monthly fee, years 6+	$50 per month

- Overpayment Credit: 75% of the overpayment balance reported by ETF as of December 31, 2018

Appendix E: Reliance Items

In performing the valuation, we relied, without audit, on certain data and information provided by ETF and The Hartford. To the extent any of the data or other items were 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 The Hartford

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

- Plan descriptions provided by ETF

- Discussions with ETF and personnel at The Hartford