

**Wisconsin Department of Employee Trust Funds**

**AUDIT OF THE ACTUARIAL VALUATIONS  
OF THE INCOME CONTINUATION INSURANCE  
PLANS**

**Actuarial Audit for the December 31, 2018**

August 21, 2019

## About This Audit

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- Milliman performed the valuations
- Data was provided by the State, whose source was The Hartford
- Segal was tasked to:
  - Replicate the liabilities using the data and assumptions used by Milliman
  - Opine on the assumptions
  - Provide an overall assessment of the reports
- Segal's liability results were very close to Milliman's results
- Segal does have some suggestions about the assumptions

# About These Valuations

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The valuations cover different groups, but have the same plan design and valuation assumptions.

## State ICI Plan Valuation as of December 31, 2018

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### Reported by Milliman:

- |                             |                       |
|-----------------------------|-----------------------|
| • Actuarial Liability       | \$90.5 million        |
| • Assets                    | 71.5 million          |
| • <b>Unfunded Liability</b> | <b>\$19.0 million</b> |

- 79% funded
- 1,140 participants valued with current or pending claims

## Local ICI Plan Valuation as of December 31, 2018

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### Reported by Milliman:

- |                             |                        |
|-----------------------------|------------------------|
| • Actuarial Liability       | \$6.0 million          |
| • Assets                    | 38.9 million           |
| • <b>Unfunded Liability</b> | <b>-\$32.9 million</b> |

- 652% funded
- 81 participants valued with current or pending claims

## Plan Benefits

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- A gross benefit of up to 75% of average earnings (with caps and supplements)
- Less actual and assumed offsets, including Social Security Disability payments and a variety of other plans.
- Payable until “recovered” or age 65 (with a minimum number of years of payments).
- Short-Term Disability participants are eligible, but stricter requirements are in place after 12 months of disability.

## Summary of Results

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- Overall, we believe that the Milliman Valuation reports accurately reflect the accounting results for the State of Wisconsin ICI Plans for the fiscal year ending December 31, 2018.
- The demographic (e.g., other than the discount rate) assumptions appear to be reasonable in the aggregate, given the relatively narrow margin (1.1%) of the expected claims for the period 2016 – 2018.

Table 2.2 from Milliman's 2018 Valuation Runout Study for the ICI Plans 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%
<b>Total</b>	<b>1.1%</b>

- The base “Claims Termination Rates” table is dated (1987), and should be replaced prior to the next valuation.
- Milliman should document the results of their assumption review at least every three years

# Liability Matching

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These tolerances are within our actuarial professional standards.

## State ICI Plan Valuation as of December 31, 2018

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### Reported by Milliman:

- Actuarial Liability **\$90.5 million**
- Assets 71.5 million
- **Unfunded Liability \$19.0 million**

### Segal's Results:

- Actuarial Liability **\$91.5 million**
- Assets 71.5 million
- **Unfunded Liability \$20.0 million**

## Local ICI Plan Valuation as of December 31, 2018

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### Reported by Milliman:

- Actuarial Liability **\$6.0 million**
- Assets 38.9 million
- **Unfunded Liability -\$32.9 million**

### Segal's Results:

- Actuarial Liability **\$6.1 million**
- Assets 38.9 million
- **Unfunded Liability -\$32.8 million**

# Valuation Methodology

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- Determine covered participants as of the valuation date
- Estimate the benefit paid at each subsequent age
- Multiply by the probability of payment at each subsequent age
- Discount the annual values and sum to determine the liabilities for each participant

$$\sum_{\text{all valued}} \sum_{t = 0 \text{ to } 45} {}_t p_x v^t (\text{Gross Benefit}_t - \text{Offsets}_t)$$

# Assumption Review

## *Estimated Benefit at Each Age*

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- The most significant benefits assumptions are for the Social Security offsets that have not yet been awarded
- Estimated Social Security offset is 44% of the benefit amount
- Probability of the Social Security offset (unless there already is an offset) is based on disability period (claim duration)

Probability of Receiving a Social Security Disability Benefit	
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%

- These assumptions should continue to be reviewed annually, as they play a significant role in the net benefit



# Assumption Review

## *Probability of Receiving a Benefit at Each Age*

- Most significant assumption
- Reflects mortality and recovery

Probability of Receiving the Net Benefit in Each Year						
Claim Duration (years)	Claim Duration as of the Valuation Date (years)					
	0	0.5	1	3	5	10
0	100%	N/A	N/A	N/A	N/A	N/A
0.5	48%	100%	N/A	N/A	N/A	N/A
1	23%	48%	100%	N/A	N/A	N/A
1.5	16%	33%	67%	N/A	N/A	N/A
3	9%	18%	38%	100%	N/A	N/A
5	7%	14%	29%	76%	100%	N/A
10	5%	11%	22%	58%	76%	100%
15	4%	9%	19%	49%	65%	86%
20	4%	8%	16%	42%	55%	73%

That is, 24% of those that have been receiving claims for 3 years will not be eligible in two more years.

- The base table is from 1987, and should be updated prior to the next valuation
- This assumption should continue to be reviewed every year

## Caveats

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- This presentation is intended for the use of the State of Wisconsin. The study is of the State's Income Continuation Insurance Plans, and is a supplement to Segal Consulting's full audit reports dated July 30, 2019.
- Please refer to the full reports for a description of assumptions and plan provisions reflected in the results shown in this presentation.
- Certain assumptions were not audited by Segal, but play a significant role in the determination of the liabilities. It is suggested that the valuation actuary, Milliman, should provide regular detail with regard to the development and accuracy of these assumptions.

The calculations included in this presentation were completed under the supervision of David Berger, FCA, ASA, MAAA, EA.

## Segal's Methodology

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- Collect source data from the State for claims and asset information.
- Match the participant counts by age band and gender reported by Milliman.
- Match the benefits information reported by Milliman.
- Incorporate the valuation assumptions in our valuation system.
- Review the reasonableness of those assumptions.
- Match the assets displayed in the Milliman Valuation to the information received from the State.
- Match the benefit liabilities (within tolerances) displayed in the valuation report.
- Comment on the overall assumptions, methods, plan provision summaries, and report accuracy.