

Wisconsin Department of Employee Trust Funds

**AUDIT OF THE ACTUARIAL VALUATION
OF THE DUTY DISABILITY INSURANCE
PLAN**

Actuarial Audit for the December 31, 2018 Valuation

September 19, 2019

About This Audit

- Milliman performed the valuation
- Data was provided by the State
- 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 This Valuation

The valuation covers work-related disability, where the condition is expected to be permanent.

Duty Disability Insurance Plan Valuation as of December 31, 2018

Reported by Milliman:

- | | |
|-----------------------|------------------------|
| • Actuarial Liability | \$454.6 million |
| • Assets | 642.0 million |
| • Surplus | \$187.4 million |
- 141% funded
 - 1,025 participants valued with current or pending claims

Plan Benefits

- A gross benefit of up to 80% of salary (75% for Local employees)
- Less actual and assumed offsets, including Social Security payments and a variety of other plans.
- Payable for life or until “recovered.”
- In practice, very few participants “recover,” so the benefits are assumed to be paid for life.
- Benefit offsets start and stop at different ages, making the projected benefit payment stream complicated.

Summary of Results

- Overall, we believe that the Milliman Valuation reports accurately reflect the accounting results for the State of Wisconsin Duty Disability Insurance Plan 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 (0.35%) of the expected claims for the period 2012 – 2018.

Experience Period	Estimated Margin
2012	0.17%
2013	0.61%
2014	0.05%
2015	0.52%
2016	0.55%
2017	0.52%
2018	0.05%
Average	0.35%

- The “Claims Termination Rates” are based on the disability mortality rates for the 2012-2014 WRS study, with heavy adjustments.
- Milliman should document the results of their assumption review at least every three years

Liability Matching

These tolerances are within our actuarial professional standards.

Actuarial Liabilities for the Duty Disability Plan as of December 31, 2018			
Liability Component	Milliman Valuation Results	Segal Replication	Ratio of Segal Replication to Milliman Valuation Results
Open Claims	\$398,952,462	\$392,815,067	98.5%
Future Survivors	27,044,242	29,118,117	107.7%
IBNR Claims	19,725,319	19,725,319	100.0%
Loss Adjustment Expense	8,863,225	\$8,786,018	99.1%
Total	\$454,585,247	\$450,444,521	99.1%

Valuation Methodology

- 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

$$\sum_{\text{all valued}} \sum_{t=0 \text{ to } 100} {}_t p_x v^t (\text{Gross Benefit}_t - \text{Offsets}_t)$$

Assumption Review

Estimated Benefit at Each Age

- The most significant benefits assumptions are for the Social Security offsets that have not yet been awarded. More than half the participants did not have a Social Security offset listed in the data.

Segal's Offset Assumptions	Probability of Estimated Benefit, if not Already Receiving a Benefit	Assumed Start Date	Assumed Ending Date	Assumed Benefit (an Offset to the Duty Disability Benefit)	Assumed Increases
Social Security					
Age 62 PIA	100% if age 62 or older, otherwise 90%	Age 62	Life	PIA formula assumes current "salary," 3.20% salary scale and TWB increases, 2.50% COLA (includes future earnings)	2.50%
SSDI	10% if younger than 62	Immediate	Life	PIA formula assumes current "salary," 3.20% salary scale and TWB increases, 2.50% COLA (no future earnings)	2.50%
SSI	None	N/A	N/A	N/A	N/A

Assumption Review

Probability of Receiving a Benefit at Each Age

- Most significant assumption is the Claims Termination Assumption, akin to a mortality table
- Set at 50% of the Disabled Mortality from the 2012-2014 WRS assumption study, set back one year for females

Selected Ages	2014 WRS Study Healthy Retiree		2014 WRS Study Disabled Retiree		Duty Disability	
	Male	Female	Male	Female	Male	Female
40	0.0981%	0.0598%	0.1403%	0.1030%	0.0702%	0.0553%
60	0.5721%	0.3519%	1.0394%	0.6292%	0.5197%	0.3447%
80	4.5362%	3.1097%	10.3121%	7.6414%	5.1561%	4.4198%
95	25.7320%	20.4074%	36.5879%	30.4325%	18.2940%	15.5006%

We would not expect the Duty Disability mortality assumption to assume fewer deaths than the Healthy Retiree mortality assumption without additional support.

- Projected mortality improvement should be considered

Caveats

- This presentation is intended for the use of the State of Wisconsin. The study is of the State's Duty Disability Insurance Plan, and is a supplement to Segal Consulting's full audit report dated August 26, 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

- Collect source data from the State for claims and asset information.
- Match the participant count 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.