Wisconsin Department of Employee Trust Funds

# Audit of the Actuarial Valuation of the Duty Disability Insurance Plan

## Actuarial Audit of the December 31, 2023 Valuation

December 12, 2024/ Robert Burrell/ Ben Kirkland



Segal

# Agenda

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# About This Audit

Points to note about this audit:

- Milliman performed the annual Duty Disability Plan’s actuarial valuation as of December 31, 2023
- Data was initially provided by the State’s Department of Employee Trust Funds (ETF) and supplemented by Milliman
- 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 report
- Segal’s liability results were very close to Milliman’s results
- Segal does have some suggestions about the assumptions and verbiage

# About this Plan and Valuation

To be eligible for benefits from the Duty Disability Plan:

- A member must be injured while performing their duties or contract a disease due to their occupation.
- The disability is work related and is expected to be permanent.
- The disability impacts their current employment duties, such as by a reduction in pay or position, a reassignment to light duty, retirement, or impairs their promotional opportunities.

The Plan covered 957 disabled members and 55 survivors, and had the following liability profile, as reported by Milliman:

**Duty Disability Insurance Plan Valuation**
**Summary Results as of December 31, 2023**

| Description | Value (Millions) |
|---|---|
| 1. Actuarial Liability | $594.1 |
| 2. Assets | 778.0 |
| 3. Surplus (2 - 1) | $183.9 |
| 4. Funded ratio | 131.0% |

# Plan Benefits

Member benefits include the following:

- A gross benefit of up to 80% of salary (75% for local employees not eligible for certain other disability awards)
  - Less actual and assumed benefit offsets, including Social Security payments and retirement benefits, among others.
- Initial benefit is increased annually based on certain criteria.
- 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 developing the projected benefit payment stream complicated.
- Benefits are payable to survivors in certain cases.

# Segal's Methodology

- Collect source data from ETF 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 ETF.
- Match the benefit liabilities (within tolerances) displayed in the valuation report.
- Comment on the overall assumptions, methods, plan provision summaries, and report accuracy.

# Valuation Methodology

Liabilities were developed using the following framework:

- 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
  - The discount rate of 6.80% is prescribed by the ETF and was not reviewed as part of the audit

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

# Liability Matching Results

## Actuarial Liabilities for the Duty Disability Plan as of December 31, 2023

| Liability Component ($M) | Milliman Valuation Results | Segal Replication | Ratio of Segal Replication to Milliman Valuation Results |
|---|---|---|---|
| Open Claims | $499.9 | $510.2 | 102.1% |
| Future Survivors | 35.9 | 34.8 | 96.9% |
| IBNR Claims | 46.7 | 46.7 | 100.0% |
| Loss Adjustment Expense | 12.0 | 12.2 | 101.5% |
| Overpayment Recovery | (0.3) | (0.3) | 100.0% |
| **Total** | **$594.1** | **$603.5** | **101.6%** |

These tolerances are within our actuarial professional standards.

# Overall Audit 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, 2023.
- The demographic assumptions appear to be reasonable in the aggregate, given the relatively narrow margin (0.67%) of the expected claims for the period 2019 – 2023.

**Table 2.2 from Milliman's 2023 Valuation Runoff Study for Disabled Members: Annual Margin as a % of Initial Liability**

| Experience Period | Estimated Margin |
|---|---|
| 2019 | 0.57% |
| 2020 | 0.54% |
| 2021 | 0.72% |
| 2022 | 0.89% |
| 2023 | 0.62% |
| **Average** | **0.67%** |

- The "Claims Termination Rates" are based on a blend of the healthy and disability mortality rates from the 2018-2020 Wisconsin Retirement System (WRS) experience study, with heavy adjustments.

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

- Most significant assumption is the Claims Termination Assumption, akin to a mortality table.
- Based on a 50/50 blend of Disabled and Healthy Post-retirement Mortality rates from the 2018 – 2020 WRS experience study, with rates multiplied by 50% for disabled members and by 30% for survivors and recent trends in Duty Disability Claim experience and liability runoff studies.

| Selected Ages | 2020 WRS Study Healthy Retiree | | 2020 WRS Study Disabled Retiree | | Duty Disability Disabled Retiree | | Duty Disability Survivors | |
|---|---|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female | Male | Female |
| 40 | 0.0604% | 0.0414% | 0.9278% | 0.8394 | 0.247% | 0.220% | 0.018% | 0.012% |
| 60 | 0.4228% | 0.3519% | 2.9648% | 2.3983% | 0.847% | 0.688% | 0.127% | 0.106% |
| 80 | 4.0033% | 3.0758% | 7.6486% | 6.5567% | 2.913% | 2.408% | 1.201% | 0.923% |
| 95 | 24.0680% | 20.1948% | 25.4734% | 21.6175% | 12.385% | 10.453% | 7.220% | 6.058% |

- Future valuations should consider applying a mortality improvement assumption.

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

# Assumption Review
## *Estimated Benefit at Each Age*

- The most significant benefit assumptions are for the Social Security and WRS benefit offsets that have not yet been awarded.
- Milliman performed significant analysis in their recent Duty Disability Experience Study to develop assumptions for future offset applicability and average offset amount.
- This analysis appeared to be robust and thoughtful, and we have no reason to doubt the results.
- This includes developing new offset applicability assumptions that increase from the current valuation date through an ultimate disability duration at a future date.
- It is not clear however, if the added complexity of the new approach is more accurate than applying a single assumed rate based on current disability duration.

# Key Recommendations

As a result of our audit. we have the following recommendations:

- Future valuation reports should include a more thorough summary of participant data
- Future valuation reports should include more information about the asset smoothing method and potentially a demonstration of the development of the smoothed asset reserve compared to the fair market value of assets
- Regarding assumptions:
  - Any intended conservatism or deviation from best estimate assumptions should be disclosed
  - Additional disclosure related to the claims termination/mortality assumption is needed
  - Confirmation that these rates are as intended and are reasonable should be provided
- Future reports should consider including a more robust downside investment performance scenario in the scenarios for projections
- Future reports should consider including projection scenarios that provide sensitivity to key demographic assumptions (such as the claims termination/mortality assumption)

**Additional discussion is included in our letter dated November 22, 2024.**

# Caveats

- This presentation is intended for the use of the Wisconsin Department of Employee Trust Funds.
- The study is of the State's Duty Disability Insurance Plan and is a supplement to Segal's full audit report dated November 22, 2024.
- Please refer to the full report 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 Robert Burrell, ASA, FCA, MAAA, EA.

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