



Classic Values, Innovative Advice

State of Wisconsin Legislative Audit Bureau

Actuarial Audit Report on the Wisconsin Retirement System December 31, 2023 Actuarial Valuation and Peer Review of the December 31, 2020 Experience Study

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- Background
- Summary of Key Findings
 - Valuation Report
 - Experience Study

Background

- Cheiron was retained to perform an actuarial review of the December 31, 2023 Actuarial Valuation and the January 1, 2018 - December 31, 2020 Experience Study
 - Full replication audit of the December 31, 2023 Actuarial Valuation
 - Comprehensive review, involving independent coding of valuation software to calculate and verify valuation results
 - Peer review of the Experience Study for the three years ending December 31, 2020
 - Review methods and assumptions for reasonableness and internal consistency
 - Does not include a full replication of calculations

Summary of Key Findings



- Valuation Report
 - 43rd Annual Actuarial Valuation and Gain/Loss Analysis
 - 41st Annual Actuarial Valuation of Retired Lives

Calculations and Results

- We found that based on the adopted assumptions and methods, GRS's 2023 actuarial valuation results are reasonable and accurate
 - **Total liability results were within 1% of GRS**
- The actuarial valuation was performed in accordance with principles and practices prescribed by the Actuarial Standards Board and Actuarial Standards of Practice (ASOPs)
- We found that GRS's recommended assumptions shown in the December 31, 2020 Experience Study were generally reasonable and performed in accordance with the ASOPs
 - We recommend that the salary increase assumption be increased for certain member classifications

Calculations and Results

- We confirm that the employer and employee contributions are expected to be sufficient to appropriately fund the system, assuming all assumptions are met
- In general, the actuarial valuation reports prepared by GRS meet the professional standards set by the ASOPs
 - However, additional disclosures related to certain elements of the funding policy may be required to comply with relevant ASOPs
 - We have made other recommendations that GRS could incorporate to improve the clarity of the reports

Replication – December 31, 2023 Valuation

Wisconsin Retirement System December 31, 2023 \$ in Millions			
Total System	GRS	Cheiron	Ratio
Present Value of Future Benefits	\$ 156,981	\$ 156,601	100%
Entry Age Accrued Liability	\$ 133,994	\$ 133,774	100%
Assets for Funding	132,133	132,133	100%
Total Entry Age Unfunded Liability	\$ 1,862	\$ 1,641	88%
Pooled Amortization Rate	0.8%	0.7%	84%
Pooled Entry Age Normal Cost Rate	14.1%	13.9%	98%
Total Pooled Rate	14.9%	14.6%	98%
2025 FIL Normal Cost Rates			
Participant	7.0%	6.9%	99%
Employer Normal Cost Rate	8.0%	7.7%	97%
Total	14.9%	14.6%	98%
Entry Age Funded Ratio	98.6%	98.8%	100%

Numbers may not add due to rounding

June 19, 2025

Replication – Data Review

Wisconsin Retirement System December 31, 2023 Membership Data \$ in Millions			
	GRS	Cheiron	Ratio
Number of Actives	263,737	264,581	100.3%
Average Age	44.2	44.2	100.1%
Average Service	10.7	10.7	100.1%
Total Current Earnings	\$ 17,136	\$ 17,978	104.9%
Number of Inactives	186,977	186,977	100.0%
Average Service	3.5	3.5	100.0%
Money Purchase Balance	\$ 22,026	\$ 22,411	101.7%
Total Annuities being Paid			
Number of Retirees	229,091	229,295	100.1%
Annual Amount	\$ 6,864.0	\$ 6,860.0	99.9%
Number of Disabilities	7,532	7,196	95.5%
Annual Amount	\$ 203.0	\$ 203.1	100.1%
Number of Death-In-Service	1,488	1,407	94.6%
Annual Amount	\$ 30.0	\$ 29.0	96.7%

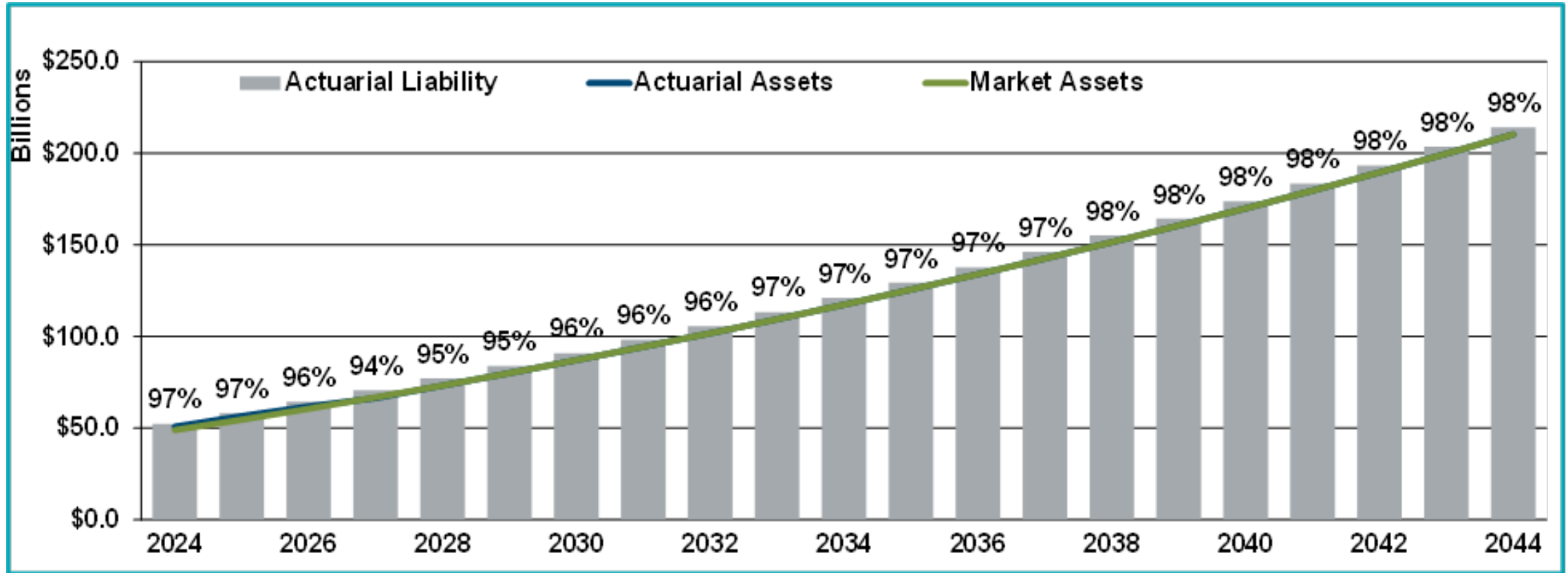
Funding Objectives

- As stated in the funding policy document, the Funding Objective is:
“The main financial objective of the WRS is to fully fund the long-term cost of benefits provided by statute, through disciplined and timely accumulation of sufficient assets to deliver earned benefits on a continuing basis.”
- The policy seeks to balance three main objectives:
 - Contribution Adequacy
 - Contribution Stability and Predictability
 - Intergenerational Equity

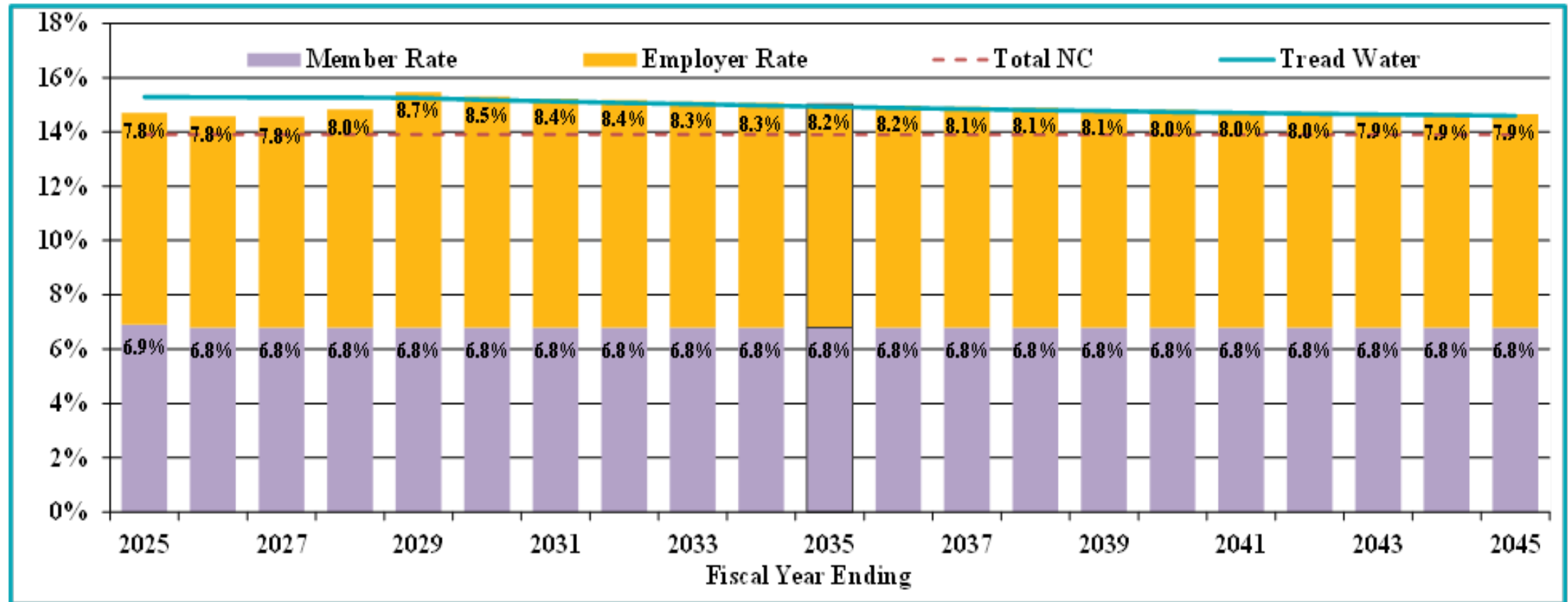
Funding Objectives – Recommendations

- Enhance risk disclosures
 - GRS identifies key risks to the system as required by actuarial standard of practice on risk (ASOP 51)
 - For each of the risks identified, we recommend that GRS also provide an assessment that takes into account circumstances **specific to the plan**
 - The assessments preferably should be quantitative
- Include projections of assets, liabilities and contributions in their valuation reports and provide a discussion of funded status
 - Cheiron has performed projections to assess whether the funding objectives are expected to be achieved
 - Based on the same assumptions and methods used in the actuarial valuation
 - Future experience may be significantly different

Cheiron Projections – Funded Status



Cheiron Projections – Contributions



Tread water measure is the normal cost plus interest on the unfunded actuarial liability.

Summary of Key Findings



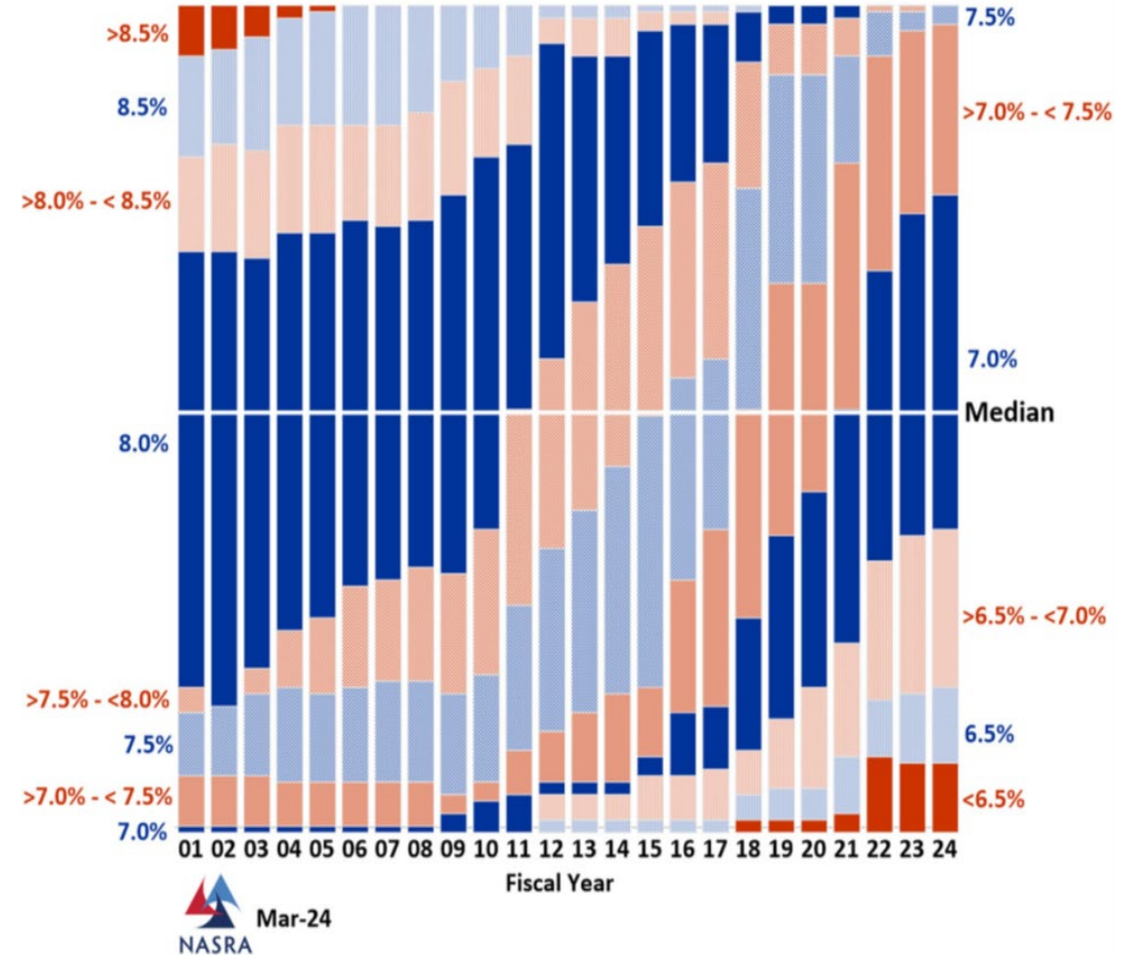
- Experience Study

Economic Assumptions

- Recommended economic assumptions in general, are reasonable and in compliance with relevant Actuarial Standard of Practice (ASOP 27), including
 - Investment return assumption of 6.8% pre-retirement and 5.0% post retirement
 - 5.0% is mandated by Section 40.02 of the Wisconsin Statutes
 - Inflation of 2.4%

Economic Assumptions

- Investment Return Analysis
 - National Association of State Retirement Administrator's (NASRA) survey of 131 State and Local Plans
 - Since 2020, 94 of 131 plans (72%) have reduced investment return assumption
 - Since 2010, all have reduced investment return assumption
 - Average assumption was 6.91%



Economic Assumptions – Recommendations

- We strongly recommend that the **merit and longevity** portion of the salary increase assumption be increased for some classifications
 - Merit and longevity salary increases are the increases that apply to individuals ***in addition to*** “base” wage inflation
 - The merit and longevity salary increase assumption varies by service level and employment classification
 - For several classifications, the actual experience was significantly higher than the assumptions, namely:
 - General State, Public Schools Non-State, Protective with Social Security and Executive and Elected

Demographic Assumptions

- Overall recommended demographic assumptions are reasonable and comply with applicable Actuarial Standards of Practice
 - Formerly ASOP 35, now ASOP 27
- We find the recommendations for the following assumptions are reasonable and consistent with the information presented in the Experience Study report:
 - Pre- and Post-Retirement Mortality
 - Retirement
 - Withdrawal
 - Disability Retirement

Demographic Assumptions – Recommendations

- We recommend that the deferred retirement age for terminated vested participants be reviewed in the next Experience Study
- We recommend that future Experience Studies include:
 - A discussion of credibility to address whether there is enough data to discern an actual trend in behavior
 - Graphs showing actual, current, and recommended rates to make it easier for the reader to understand the analysis
 - The Actual-to-Expected (A/E) ratios for the current and recommended assumptions
 - Actual observances compared to the number that would be expected based on the assumption

Funding Policy – Actuarial Cost Method

- The valuation report states that actuarial cost method being used is the Frozen Initial Liability (FIL) method
- Based on our review of the actual methods used to determine the contribution rates, we recommend that GRS include several clarifications in the valuation report
 - Given the small size of the remaining FIL, the actual method being used is more accurately described as the Aggregate Entry Age method
 - The unfunded liabilities (net of FIL) are amortized over the period defined in the Experience Amortization Reserve (EAR) Policy, and not the average future working lifetime

Funding Policy – Amortization Method

- The unfunded liability (net of FIL) is amortized over a rolling 20-year period as a level percentage of payroll under the current EAR policy
- We recommend that GRS include additional disclosures regarding the amortization method:
 - An assessment and disclosure in the valuation report as to whether the policy satisfies condition to fully amortize the unfunded liability over a reasonable period of time, and
 - A discussion of the appropriate standard amortization period for the EAR in the experience study report

Funding Policy – Asset Method

- The actuarial value of Core assets is based on a five-year smoothed market value, while the assets in the Variable Investment Trust are marked to market each year
 - These method are reasonable and comply with relevant Actuarial Standard of Practice (ASOP 44)
 - Recommend clarification in the valuation report regarding the methods used to determine dividends

Funding Policy – Overall Evaluation

- The combined funding policies result in a contribution expected to achieve the financing objectives of the System
 - The use of a rolling amortization period may result in unfunded liabilities that are not expected to be fully amortized, however
 - The System's risk sharing mechanisms are designed to keep the System well-funded, and thus the unfunded liability balances and associated payments should constitute a minor portion of the overall funding requirements

Funding Policy – Additional Disclosures

- We recommend additional disclosures to comply with recent revisions to ASOP 4 (Measuring Pension Obligations and Determining Pension Plan Costs or Contributions)
 - The Annual Actuarial Valuation report should include a statement on whether the computed contribution rates meet the definition of a reasonable actuarially determined contribution (ADC)
 - If the computed contribution rate does **not** meet the definition of a reasonable ADC, GRS should compute one and describe any material assumptions or methods used in the calculation that are not disclosed elsewhere

The purpose of this presentation is to present the actuarial audit results for the Wisconsin Retirement System.

In preparing this presentation, we relied on information supplied by the Wisconsin Legislative Audit Bureau, the Wisconsin Retirement System and GRS.

Cheiron utilizes and relies upon ProVal, an actuarial valuation software leased from Winklevoss Technologies for the intended purpose of calculating liabilities and projected benefit payments. Projected expected results of future valuations in this presentation were developed using *PScan*, our proprietary tool for the intended purpose of developing projections. As part of the review process for this presentation, we have performed a number of tests to verify that the results are reasonable and appropriate. We are not aware of any material inconsistencies, unreasonable output resulting from the aggregation of assumptions, material limitations or known weaknesses that would affect this presentation.

This presentation and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this presentation. This presentation does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

This presentation was prepared exclusively for the Wisconsin Legislative Audit Bureau for the purposes described herein. Other users of this presentation are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to such other users.

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