121 Middle Street, Suite 401
Portland, ME 04101-4156
USA

Tel +1 207 772 0046
Fax +1 207 772 7512

milliman.com

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Ms. Deb Roemer
Director
Disability Programs Bureau
Division of Retirement Services
Wisconsin Department of Employee Trust Funds
Madison, WI 53707

RE: Analysis of the Expected Impact of Closing the LTDI Program

Dear Deb:

Thank you for asking Milliman to analyze the impact of making changes to the Long-Term Disability Insurance (LTDI) program for members of the Wisconsin Retirement System (WRS). We have analyzed the impact of closing the LTDI program by focusing on the following specific tasks:

1. Estimating funding impact to WRS Trust;
2. Estimating remaining liability for current LTDI recipients;
3. Estimating benefit runoff period for current LTDI recipients;
4. Estimating increase in 40.63 disability annuity applications;
5. Estimating the number of members who would be impacted by the higher service requirements of the 40.63 program;
6. Estimating impact on funding levels for existing State ICI program.

This letter describes our analysis and observations related to each of these six items.

1. Funding Impact to WRS Trust

If the LTDI program is closed, then members whose disabilities are incurred after the effective date of closure would not be eligible to receive LTDI benefits. If this were to happen, then future LTDI premium contributions would not be required after that date. This assumes that the liabilities corresponding to LTDI claims incurred prior to the effective date are fully funded. To the extent that there is any shortfall in the funding of these liabilities in future periods, then additional funding would be required to cover future expenses and benefit payments. Similarly, to the extent that any gains emerge over time, then surplus funds could be used by the WRS Trust for other purposes. Please note that we have not yet received asset data from ETF to evaluate whether or not this liability was fully funded as of 12/31/2015.

Going forward, WRS would need to make additional contributions to support the 40.63 program, which would then cover future disabilities for all qualifying members. We would expect the amount of those contributions to be approximately 6% less than those currently made to support the LTDI plan, due to the following differences:

- The average 40.63 benefit amount is approximately 12.5% higher than the average LTDI benefit for employees with continuous service dates after October 15, 1992. This result was derived from an analysis of benefit amounts using WRS census data as described in section 6 below. If the LTDI program is closed and disabled members were eligible to receive 40.63 benefits instead, then the benefit payments for those members is expected to increase by approximately 12.5%.

- Approximately 2% of members who currently are eligible to participate in the LTDI program may not be eligible to participate in the 40.63 program, due to its higher service requirements. This result was derived from an analysis of WRS membership demographics from 2008 – 2014, as described in section 5 below.

- If the LTDI program were closed, then supplemental retirement contributions would terminate. This is expected to result in savings of approximately 15%, since the supplemental benefit ratio is 7% of final average salary and the basic benefit ratio is 40%.

We estimate the impact of these differences would be an increase of approximately 6% below the current funding levels for the LTDI plan, as shown below:

- Benefit Amount Adjustment: 112.5%
- Claim Inventory Adjustment: 98.0%
- Supplemental benefit Adjustment: 85.1%
- Overall Impact: 112.5% x 98% x 85.1% = 93.8%

Another important funding consideration is the different manner in which the liabilities are computed for LTDI and 40.63. For LTDI, the liabilities correspond to claim liabilities only, i.e. they represent the present value of expected future benefit payments and administrative expense on disabled lives. For 40.63, however, pension accounting requires not only a similar claim liability but also a liability for future claims on active lives. The calculation of this additional liability is beyond the scope of our work and will need to be estimated by your pension actuary, but it is likely that this amount will be significant and could affect the annual required contribution amount.

2. Remaining Liability for Current LTDI Recipients

We have estimated the remaining liability for LTDI recipients as of 12/31/2015 to be approximately $323 million. This amount includes expected future benefit payments, claim administration fees, and retirement contributions. It also includes estimated liabilities for LTDI claims that were open as of 12/31/2015 and for claims incurred but not reported (IBNR) as of that date. Please note that there were 2,282 open LTDI claims as of 12/31/2015, and that approximately $26 million of the $323 million corresponds to liabilities for IBNR claims.

3. Runoff Period for Current LTDI Recipients

We have estimated that it will take approximately 37 years for the liabilities for current LTDI recipients to runoff completely. The following table shows runoff projections for basic benefit payments and retirement contributions, and for the remaining LTDI liability at the end of each calendar year. Please note that the projections are based on an inventory of 2,282 open LTDI claims as of 12/31/2015, and they include expected payments for IBNR claims as of that date. They also include projections of expected future claim administration expenses.

Table 1
Expected Runout of LTDI Claims Incurred Prior to 1/1/2016
As of 12/31/2015

Calendar Year	Expected Cash Flows: Basic Benefits and Expenses	Expected Cash Flows: Retirement Contributions	Expected Cash Flows: Total Basic + Retirement	Expected Liability at EOY
2016	$41,527,741	$6,734,054	$48,261,795	$296,495,661
2017	$39,337,140	$6,443,265	$45,780,405	$270,443,493
2018	$36,510,600	$6,019,001	$42,529,601	$245,881,367
2019	$33,737,030	$5,583,278	$39,320,308	$222,873,588
2020	$31,069,071	$5,140,985	$36,210,056	$201,429,524
2021	$28,942,687	$4,789,797	$33,732,485	$181,006,701
2022	$26,836,798	$4,443,990	$31,280,788	$161,651,858
2023	$24,470,983	$4,048,856	$28,519,840	$143,762,082
2024	$22,253,790	$3,675,947	$25,929,737	$127,265,968
2025	$19,942,399	$3,290,129	$23,232,528	$112,374,754
2026	$18,074,402	$2,976,987	$21,051,389	$98,669,669
2027	$16,411,756	$2,699,500	$19,111,256	$85,986,581
2028	$14,740,706	$2,419,204	$17,159,910	$74,410,685
2029	$13,014,423	$2,128,966	$15,143,389	$64,089,177
2030	$11,678,072	$1,902,755	$13,580,827	$54,642,358
2031	$10,227,912	$1,661,779	$11,889,691	$46,266,327
2032	$9,210,455	$1,493,570	$10,704,025	$38,514,830
2033	$8,115,877	$1,320,573	$9,436,450	$31,517,639
2034	$6,894,650	$1,125,581	$8,020,231	$25,482,967
2035	$5,784,046	$945,185	$6,729,232	$20,350,467
2036	$4,589,134	$747,717	$5,336,851	$16,290,063
2037	$3,791,425	$615,898	$4,407,323	$12,899,718
2038	$3,295,935	$536,028	$3,831,963	$9,860,981
2039	$2,718,955	$442,071	$3,161,026	$7,298,127
2040	$1,972,193	$323,692	$2,295,885	$5,446,492
2041	$1,488,654	$245,557	$1,734,211	$4,043,082
2042	$1,222,855	$201,159	$1,424,014	$2,859,796
2043	$890,178	$146,089	$1,036,267	$1,992,777
2044	$598,387	$99,526	$697,914	$1,413,655
2045	$415,512	$68,036	$483,549	$1,014,784
2046	$327,952	$53,398	$381,350	$693,009
2047	$298,289	$47,163	$345,452	$385,233
2048	$174,361	$27,440	$201,801	$204,030
2049	$99,841	$17,473	$117,314	$97,256
2050	$45,137	$7,642	$52,779	$49,612
2051	$25,644	$4,290	$29,934	$22,191
2052	$19,683	$3,293	$22,976	$0
2053	$0	$0	$0	$0

The cash flow and liability projections shown above are based on LTDI valuation assumptions as of 12/31/2015, which include claim termination assumptions from the 1987 Commissioner’s Group Disability Tables adjusted for LTDI experience, and assumed benefit increases of 2.1% per year. The 2.1% assumption is an estimate of future annual Core Annuity adjustments, which are variable and have fluctuated significantly in the past. Although we have tested this assumption for reasonableness using historical Core Annuity rates, to the extent that future Core Annuity rates are different than 2.1%, actual future cash flows and liability amounts will differ from the projections shown above in Table 1.

Please note that the expected cash flows in Table 1 are shown on an undiscounted basis (i.e. the amounts shown in columns 2-4 represent expected total payments in a given calendar year), whereas the liability projections shown in the final column were calculated using a 7.2% interest rate assumption for discounting future cash flows.

4. Increase in 40.63 Disability Annuity Applications

We would expect the number of 40.63 disability annuity applications to increase by approximately 330 to 340 applications per year if the LTDI program were closed to new members.

The following table shows the number of new LTDI claims incurred between 2011 and 2015.

Table 2
LTDI Claims Incurred Between 2011 and 2015
As of December 31, 2015

Year	New LTDI Claims
2011	331
2012	375
2013	353
2014	309
2015	125

In Table 2 above, the number of new claims incurred in 2015 is much lower than prior periods because the experience was reported as of 12/31/2015, and we would expect a significant number of claims incurred in 2015 (and to a much lesser degree in 2014) to be unreported as of 12/31/2015.

Based on historical claim experience and recent WRS membership demographics, we would expect roughly 340 to 350 new LTDI claims per year under the current program design. We have estimated that approximately 2% of members who currently are eligible to participate in the LTDI program may not be eligible to participate in the 40.63 program, due to its higher service requirements. Therefore, we would expect the number of 40.63 disability annuity applications to increase by approximately 330 to 340 applications per year if the LTDI program were to close.

5. Members Impacted by the Higher Service Requirements of the 40.63 Program

We have estimated that approximately 2% of members who currently are eligible to participate in the LTDI program may not be eligible to participate in the 40.63 program due to its higher service requirements.

There are two eligibility conditions that are different between the 40.63 and LTDI benefit programs:

1. Members who have been continuously employed since October 15, 1992 may be eligible for LTDI or 40.63 benefits, whereas members whose continuous employment began after October 15, 1992 are eligible for LTDI benefits only.

2. The 40.63 program requires members to have accrued *0.5 years of service* in 5 of the last 7 calendar years, or a total of 5 years of service in the last 7 calendar years. The LTDI program requires members to have accrued *0.33 years of service* in 5 of the last 7 calendar years.

The other eligibility requirements are similar between the two programs, and include the following conditions:

1. Members whose disability is work-related must submit an application within 2 years of their last day of work;

2. Members in protective occupations who have accrued 15 years of creditable service and become disabled between the ages of 50 and 55 are eligible for special benefits that only require them to be disabled from their protective occupation job.

To evaluate the number of members who would be impacted by the higher service requirements of the 40.63 program, we used the insurance files from 2008 through 2014 (the most recent 7 years available) that were provided to us by ETF. These files contain WRS enrollment statistics and member-level employment information, including continuous service dates and "Budgeted Position" data representing the percentage of service years accrued in a given calendar year.

In our analysis, we used the data from the insurance files to identify members who satisfy LTDI eligibility requirements but who would not satisfy 40.63 requirements. For example, the following table shows two members who we identified as meeting these criteria.

Table 3
Examples of WRS Members Who Satisfy Eligibility Conditions For LTDI But Not 40.63

Member	Cts. Service Start Date	Budgeted Position						
		2008	2009	2010	2011	2012	2013	2014
Case 1	1/7/2011	0%	33%	40%	60%	60%	40%	40%
Case 2	8/22/1977	40%	40%	40%	50%	50%	50%	50%

In the first case, we determined that this member would be eligible to participate in the LTDI program based on having accrued at least 0.33 years of service in 5 of the last 7 calendar years. If the LTDI program were closed, however, this member would not satisfy the higher service requirement of the 40.63 program due to not having accrued at least 0.5 years of service in 5 of the last 7 calendar years, nor a total of 5 years of service in the last 7 calendar years.

In the second case, the member's continuous start date is prior to October 15, 1992, so the member could be eligible to participate in either the 40.63 or LTDI program. We determined that the member would be eligible to participate in LTDI and not 40.63 because the member accrued at least 0.33 years of service in 5 of the last 7 calendar years, but not 0.5 years of service in 5 of the last 7 calendar years, nor a total of 5 years of service in the last 7 calendar years. If the LTDI program were closed, this member would not be eligible for 40.63 benefits.

We noticed that significantly more members employed by the University of Wisconsin (UW) would be affected by the higher service requirements than members employed by other state agencies. According to our analysis, approximately 4.1% of UW members would be affected by the higher service requirement, whereas only 0.1% of non-UW members would be impacted. This could be due to different employment characteristics at UW which could include more part-time positions, such as adjunct professors, assistant professors, assistant coaches, and other part-time support staff.

In performing our analysis, we relied on data from the insurance files from 2008 – 2014 as provided in the spreadsheets "DOA Files.xlsx", "2002-2013 UW Enrollments.xlsx" and the text file "ETF.WRD.INSUR15.DOA.txt". To the extent that the data is inaccurate or incomplete, the results of our work may be affected. For example, we noticed that the values for "Budgeted Position" are equal to zero for several members listed in the insurance files. We did not try to alter this data, nor did we exclude this data from our analysis.

6. Impact on Funding Levels for Existing State ICI Program

We have estimated a 1% to 2% reduction in State ICI costs if the LTDI program were to close and disabled members were to receive 40.63 benefits instead. State ICI benefits are reduced by benefits from other sources, including LTDI and 40.63 benefits. Because 40.63 benefit amounts are slightly higher than LTDI benefit amounts on average, if disabled members were to receive 40.63 benefits instead of LTDI, the impact would be a slightly higher offset to the State ICI benefit and consequently a small reduction in State ICI costs.

The LTDI benefit amount is equal to 40% or 50% of a member's average salary. The benefit is 50% for members who are not eligible for Social Security benefits, which is uncommon. Based on our analysis of historical LTDI claim experience, the benefit percent is 40% most of the time.

On the other hand, the 40.63 benefit amount is determined by multiplying "Formula Multiplier" factors, which vary by employment category and service years, by the member's average earnings and by the number of creditable service years up to normal retirement age. The formula multiplier factors are shown in Table 4 below.

Table 4
40.63 Disability Retirement Formula Multiplier Factors

Employment Category	Before 2000	After 1999	After Act 10
General, Teacher and Educational Support	0.01765	0.016	
Protective with Social Security	0.02165	0.020	
Protective without Social Security	0.02665	0.025	
Elected Officials, State Executive Retirement Plan Employees and Judges	0.02165	0.020	0.016

We calculated expected benefit amounts for 40.63 and LTDI using WRS enrollment data from the 2014 insurance files. We assumed the following normal retirement ages for calculating 40.63 benefit amounts:

Table 5
Normal Retirement Age

Employment Category	Age
General Employees and Teachers	65
Protective Occupations with Fewer than 25 Years of Creditable Service	54
Protective Occupations with 25 or More Years of Creditable Service	53
Executive Retirement Plan Employees and Elected Officials	62

Based on this analysis, we determined that the average 40.63 benefit amount would equal approximately 45% of a member's average salary for members with continuous service dates after October 15, 1992, and that their average LTDI benefit amount is equal to 40% of their average salary. Therefore, if the LTDI program were closed and members were to receive 40.63 benefits going forward, then we would expect the corresponding offset to State ICI benefits to increase by approximately 12.5% (because a 45% benefit is 12.5% greater than a 40% benefit).

Separately, we calculated the proportion of State ICI benefits that are offset by LTDI, using historical claim data from 2011 through 2014. We determined that LTDI benefits offset between 13% and 18% of total State ICI benefits. The 13% to 18% range is quite broad because LTDI benefits are adjusted annually by the Core Annuity rate, which can vary significantly from year to year.

Finally, we assumed that 2.0% of members who currently are eligible to participate in the LTDI program may not be eligible to participate in the 40.63 program due to its higher service requirements.

The following table shows how we arrived at the 1% to 2% reduction in State ICI costs if disabled members were to receive 40.63 benefits instead of LTDI. In the table, we show the analysis corresponding to two different scenarios: one that assumes LTDI benefits offset 13% of total State ICI benefits, and another that assumes LTDI benefits offset 18% of State ICI benefits.

Table 6
Impact on State ICI Funding Levels

Calculation Steps	Scenario 1	Scenario 2
A. LTDI Offset as % of State ICI Benefits	13.0%	18.0%
B. Increase in Offset if Benefits are Based on 40.63 Parameters Instead of LTDI	112.5%	112.5%
C. Adjustment to Claim Inventory Due to Higher Eligibility Requirements	98.0%	98.0%
D. Expected Offset as % of State ICI Benefits if LTDI is Closed (D = A x B x C)	14.3%	19.8%
E. Expected Reduction in State ICI Costs (E = D – A)	1.3%	1.8%

Please note that we did not make any adjustments for differences in the definition of disability because the definitions are similar for the LTDI and 40.63 programs. We also did not make any adjustments for differences in annual benefit increases because both programs feature annual Core Annuity adjustments.

<u>*General*</u>

This letter has been developed for Wisconsin ETF, and may not be distributed to parties outside of the Wisconsin Retirement System without the written consent of Milliman. In preparing this information, we have relied on data provided to us by Wisconsin ETF, including historical claim data, plan documents, insurance files and other information. To the extent this information is inaccurate or incomplete, the results of our work may be materially affected.

In order to provide the information requested by Wisconsin ETF, we have constructed several projection models. Differences between our projections and actual amounts depend on the extent to which future experience conforms to the assumptions made for this analysis. It is nearly certain that actual experience will not conform exactly to the assumptions used in this analysis. Actual amounts will differ from projected amounts to the extent that actual experience deviates from expected experience.

I, Paul Correia, am a consulting actuary with Milliman and a member of the American Academy of Actuaries. I meet the qualification standards of the Academy to render the actuarial opinion contained herein.
Please let me know if you have any questions on the information in this letter. We look forward to discussing these results with you. Thank you.

Sincerely,

Paul Correia

Paul Correia, FSA, MAAA
Consulting Actuary

cc: Jim Guidry, Ann Suchomel, Gina Fischer, Matt Nelson (ETF)
Dan Skwire (Milliman)