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October 17, 2016

Mr. Terry C. Anderson
Director
Joint Legislative Council
P.O. Box 2536
Madison, WI 53701-2536

Re: Actuarial Analysis – Senate Bills 328/329, and Accompanying Proposed Amendments LRBs0175, LRBa1224, and LRBa2446

Dear Mr. Anderson:

Enclosed are supplemental actuarial valuations for the Wisconsin Retirement System members.

Please call if you have any questions regarding the calculations enclosed.

Sincerely,

Mark Buis

Mark Buis, FSA, EA, FCA, MAAA

MB:rmn
Enclosures

cc: Bob Conlin, WRS
Cindy Klimke-Armatoski, WRS
Matt Stohr, WRS
Bob Willet, WRS
Dan Schmidt, Wisconsin Legislative Council
Jim Anderson, GRS
Brian Murphy, GRS

WISCONSIN RETIREMENT SYSTEM
SUPPLEMENTAL ACTUARIAL VALUATIONS
AS OF DECEMBER 31, 2015

Requested By:	Mr. Terry C. Anderson
Date:	October 17, 2016
Submitted By:	Brian B. Murphy, FSA, EA, FCA, MAAA, PhD, Mark Buis, FSA, EA, FCA, MAAA, and James D. Anderson, FSA, EA, MAAA Gabriel, Roeder, Smith & Company

This report contains actuarial valuations of proposed changes in benefits for members of the Wisconsin Retirement System. Brian B. Murphy, Mark Buis, and James D. Anderson are independent of the plan sponsor and are Members of the American Academy of Actuaries who meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

The date of the valuation was December 31, 2015. This means that the results of the supplemental valuations indicate what the December 31, 2015 valuation would have shown if the proposed changes had been in effect on that date. Supplemental valuations do **not** predict the result of future actuarial valuations. Rather, supplemental valuations give an indication of the probable long-term cost of the **change only** without comment on the complete end result of the future valuations.

Actuarial assumptions and methods were consistent with those used in the regular actuarial valuation of the Retirement System on the valuation date, unless otherwise noted. Actuarial assumptions are adopted by the Retirement Board of Trustees. In particular:

- The assumed rate of interest was 7.2%
- Payroll was assumed to increase 3.2% per year
- Frozen Entry Age Cost Method

A brief summary of the data, as of December 31, 2015, used in this valuation is presented in the comments found at the end of this report.

WISCONSIN RETIREMENT SYSTEM
SUPPLEMENTAL ACTUARIAL VALUATIONS
AS OF DECEMBER 31, 2015

SENATE BILL 328

PRESENT PROVISIONS: Maximum formula annuity is based on Final Average Earnings (FAE) using the average of the 3 highest years of earnings preceding retirement.

PROPOSED PROVISIONS: Maximum formula annuity is based on 5-year FAE, effective on "the first day of the 60th month beginning after publication."

Actuarial Statement

The financial effect of the proposal is shown below **(Dollars in $ Millions)**:

Group	**Change in PVFB***	**Contribution Rate&**			
		Current	**After Proposal**	**Change**	**Long-Term Impact**
General^	$(725.7)	13.66%	13.11%	(0.55)%	(0.27)%
Protective w/ SS	(134.4)	17.51	16.56	(0.95)	(0.48)
Protective w/o SS	(31.2)	21.86	20.61	(1.25)	(0.65)

^ Includes Executive and Elected Officials

** Present Value of Future Benefits*

& Contribution Rates are shown to the one-tenth percent in the funding valuation

This contribution rate change is affected in the near term more than it is in the long-term because of the temporary amortization (through the EAR) of a gain due to provisions that affect current participants. (The present value of future benefits goes down due to the proposal). Once that gain is fully amortized, the lesser, long-term effect would begin to emerge.

WISCONSIN RETIREMENT SYSTEM
SUPPLEMENTAL ACTUARIAL VALUATIONS
AS OF DECEMBER 31, 2015

<u>Modification of SB 328 by LRBs0175</u>

PROPOSED PROVISIONS: Maintain present 3-year FAE provision for participant employees hired before the effective date and apply the 5-year FAE provision to participants hired on or after the effective date of the substitute amendment. The substitute amendment takes effect one day after publication.

Actuarial Statement

The financial effect of the proposal is shown below **(Dollars in $ Millions)**:

Group	Change in PVFB*	Contribution Rate&			
		Current	After Proposal	Change	Long-Term Impact
General^	$0.0	13.66%	13.66%	0.00%	(0.27)%
Protective w/ SS	0.0	17.51	17.51	0.00	(0.48)
Protective w/o SS	0.0	21.86	21.86	0.00	(0.65)

^ Includes Executive and Elected Officials

** Present Value of Future Benefits*

& Contribution Rates are shown to the one-tenth percent in the funding valuation

This modification applies to future entrants only, as can be seen with the change in PVFB and change in contribution rate equaling zero. The long-term impact represents the expected change to the future service normal cost as future entrants join the plan under the proposed benefit structure. The long-term impact will emerge gradually over time as current active members are replaced by new hires.

Policy Issues and Alternatives Regarding Senate Bill 328

Senate Bill 328 changes the determination of Final Average Earnings from a three-year period to a five-year period, effective on "the first day of the 60th month following publication" for all current and future WRS participants.

As written, the proposal has a cliff effect that is likely to result in a reduction in accrued benefits for some people. Suppose, for example, that the bill passes, is signed by the governor, and is published on December 11, 2016. The bill would become effective January 1, 2021. Consider next an individual who is eligible to retire on December 1, 2020. If that person actually retires on December 1, 2020, he or she would get a retirement benefit based on a three-year FAE determination. If instead, that person delays retirement by one month, the retirement benefit would be based upon a five-year FAE determination, and could well be lower. In addition to requiring careful legal review, a provision such as this is likely to create a temporary rush to the door, at least for people whose benefits would actually go down due to the delay.

One way to prevent a reduction in accrued benefit, and a rush to the door, would be to modify the bill to say that on a future date certain (perhaps 6 months after publication of the bill), the three-year FAE would be calculated. From and after that date, the determination of FAE for benefit purposes would be the greater of the three-year FAE calculated on the date certain, and the then current five-year FAE. There would then be no cliff and no reduction in accrued benefit. Implementation of a three-year FAE minimum (at a future certain date) may also limit the amount of FAE spiking (discussed in the following pages) for a portion of the current membership, i.e., the portion that would have changed behavior such that their FAE would spike but were not able to as a result of the certain date. We are not involved in the administration of WRS, and therefore cannot comment directly on the practicality of this solution. It is likely to add administrative work and expense to the operation of the WRS.

Lengthening the FAE period to 5 years from 3 years will lower benefits for almost all participants, and therefore lower long-term plan costs. It will also reduce the effect of most pension spiking that may be occurring. Pension spiking refers to the situation where there is an unnatural increase in earnings toward the end of the career that has the effect of raising the retirement well above what is intended by the benefit formula. Examples would include:

- John spends most of the public employment in a capacity that yields a year of service credit per calendar year but has a very low pay base. Perhaps John was an elected City Council person earning $12,000 per year for 20 years, in addition to having a private practice as an attorney. John later gets a job as in-house Counsel to the City at $80,000 per year, works three years, and then retires. In that case, John's final average earnings would be $80,000, when almost all of the funding that WRS received was based upon the $12,000 pay rate.
- Mary has worked in an hourly capacity for most of her career, earning about $30,000 per year. In her last few years of employment, she is able to get a lot of overtime and, due to overtime, increases her final average pay to $40,000 from the $30,000 that it otherwise would have been. As with John, her retirement benefit will be based on an FAE that is out of sync with the historical contributions that WRS received.

If inflation runs in a relatively low and stable range, a modest lengthening of the FAE period will mitigate the spiking effect a little, but will also reduce everyone's pension a little. That reduction could be mitigated by a small increase in the pension multiplier.

However, if inflation itself spikes, the longer final average period could significantly affect the retirement benefits and retirement living standards of average people. A few years of double digit inflation such as occurred at the end of the 1970's could make a long final average period appear punitive or could lead to multiplier increases that will appear "too high" in more normal periods.

There are other ways of dealing with spiking.

Contribution Based Benefit Cap (CBBC): Ohio and a few other plans have adopted a version of this idea. In simple terms, the actuarial equivalent of the retiring member's accumulated contributions is calculated. The retirement benefit is then limited to a certain multiple of that annuity. The multiple is called the "CBBC". The CBBC can be set at a level so that it only affects a small targeted percentage of retiring members, rather than everyone, as does a change in FAE period. In Ohio, the cap actually limits the benefit. In some plans, the full benefit is paid, but the employer is charged for the value of the difference between the Uncapped and the capped benefit. In WRS, for example, retirement benefits must have a value at least equal to twice member contributions. Retirement benefits could be capped at, say 4 times member contributors, with the true value of the number "4" being determined empirically, based upon the number of people and types of cases expected to be affected. A different cap might be required for police officers and firefighters. Consideration would have to be given to the effect of the contribution rate split between employers and employees and its effect on the operation of the CBBC.

Cap on Pay Increases for FAE Purposes: Another common provision is to incorporate a rule into the plan saying that no pay used in the computation of FAE can exceed a certain percentage, such as 120% of the pay used in the immediately preceding year.

Limitation of Overtime Hours for FAE Purposes: Another method to control the amount of FAE spiking is to limit the number of overtime hours includable in the calculation of FAE. This method of controlling FAE spiking can be implemented in a manner to avoid potential issues with possible reduction of accrued benefits (i.e., effective for retirements after a certain date, such that member have not yet worked the overtime, "accrued the benefit." We are not involved in the administration of WRS, and therefore cannot comment directly on the practicality of this solution. It is likely to add administrative work and expense to the operation of the WRS and depends on the method of wage reporting.

LRBs0175 Modifies SB 328 to Provide for 5-year FAE for New Hires Only

Changing the FAE prospectively for new hires eliminates the issue of accrued benefit reduction. Issues regarding the treatment of people who have worked for WRS in the past, and who are rehired would have to be resolved, of course. The change to 5 years will mitigate to some extent the effect of potential spiking, but as in the above discussion, there could be alternatives.

SENATE BILL 329

PRESENT PROVISIONS: Any Protective occupation participant who has attained age 50 and any other participant who has attained age 55 may apply for a reduced retirement annuity.

PROPOSED PROVISIONS: Increase the reduced retirement eligibility age by 2 years (from age 50 to 52 for Protective participants, and from age 55 to 57 for other participants) for those members **currently under age 40** at the effective date and for all members **hired on/after** the effective date.

Actuarial Statement

The financial effect of the proposal is shown below **(Dollars in $ Millions)**:

Group	Change in PVFB*	Contribution Rate&			
		Current	After Proposal	Change	Long-Term Impact
General^	$24.9	13.66%	13.64%	(0.02)%	(0.05)%
Protective w/ SS	2.2	17.51	17.43	(0.08)	(0.09)
Protective w/o SS	0.2	21.86	21.81	(0.05)	(0.05)

^ Includes Executive and Elected Officials

** Present Value of Future Benefits*

& Contribution Rates are shown to the one-tenth percent in the funding valuation

It may seem counterintuitive that a change that increases the present value of future benefits (PVFB) can lead to a decrease in contribution rates. The initial increase in PVFB is very small in relative terms and can be caused by the interaction of the formula benefit with the money purchase benefit (more members being shifted to the money purchase benefits) as well as the shift in the retirement decrement pattern. In the long term, however, extending the retirement age tends to allow members to accrue their benefit over a longer period of time which typically reduces the normal cost for new entrants. In simple terms, this is a reflection of the fact that extending the retirement age means that fewer people will draw benefits over the life of the plan, and therefore total costs can go down (more money is paid to each person, but fewer people in total are involved). The long-term impact represents the expected change to the future service normal cost as future entrants join the plan under the proposed benefit structure. The long-term impact will emerge gradually over time as current active members are replaced by new hires.

Alternate Modification of SB 329

PROPOSED PROVISIONS: Increase the reduced retirement eligibility age by 2 years (from age 50 to 52 for Protective participants, and from age 55 to 57 for other participants) for those **hired after** the effective date.

Actuarial Statement

Group	Change in PVFB*	Contribution Rate[&]			
		Current	After Proposal	Change	Long-Term Impact
General^	$0.0	13.66%	13.66%	0.00%	(0.05)%
Protective w/ SS	0.0	17.51	17.51	0.00	(0.09)
Protective w/o SS	0.0	21.86	21.86	0.00	(0.05)

^ Includes Executive and Elected Officials

** Present Value of Future Benefits*

& Contribution Rates are shown to the one-tenth percent in the funding valuation

This modification applies to future entrants only, as can be seen with the change in PVFB and change in contribution rate equaling zero. The long-term impact represents the expected change to the future service normal cost as future entrants join the plan under the proposed benefit structure. The long-term impact will emerge gradually over time as current active members are replaced by new hires.

Modification of SB 329 by LRBa2446

PRESENT PROVISIONS: Any Protective occupation participant who has attained age 50 and any other participant who has attained age 55 may apply for a reduced retirement annuity.

PROPOSED PROVISIONS: Increase the reduced retirement eligibility age by 2 years (from age 50 to 52 for Protective participants, and from age 55 to **60** for other participants) for those members **currently under age 40** at the effective date and for all members hired **on/after** the effective date.

Actuarial Statement

The financial effect of the proposal is shown below **(Dollars in $ Millions)**:

Group	Change in PVFB*	Contribution Rate&			
		Current	After Proposal	Change	Long-Term Impact
General^	$9.5	13.66%	13.55%	(0.11)%	(0.16)%
Protective w/ SS	2.2	17.51	17.43	(0.08)	(0.09)
Protective w/o SS	0.2	21.86	21.81	(0.05)	(0.05)

^ Includes Executive and Elected Officials

** Present Value of Future Benefits*

& Contribution Rates are shown to the one-tenth percent in the funding valuation

It may seem counterintuitive that a change that increases the present value of future benefits (PVFB) can lead to a decrease in contribution rates. The initial increase in PVFB is very small in relative terms and can be caused by the interaction of the formula benefit with the money purchase benefit (more members being shifted to the money purchase benefits) as well as the shift in the retirement decrement pattern. In the long term, however, extending the retirement age tends to allow members to accrue their benefit over a longer period of time which typically reduces the normal cost for new entrants. In simple terms, this is a reflection of the fact that extending the retirement age means that fewer people will draw benefits over the life of the plan, and therefore total costs can go down (more money is paid to each person, but fewer people in total are involved). The long-term impact represents the expected change to the future service normal cost as future entrants join the plan under the proposed benefit structure. The long-term impact will emerge gradually over time as current active members are replaced by new hires.

Modification of SB 329 by LRBa1224

PROPOSED PROVISIONS: Increase the reduced retirement eligibility age by 2 years (from age 50 to 52 for Protective participants, and from age 55 to 60 for other participants) for those **hired after** the effective date.

Actuarial Statement

Group	Change in PVFB*	Contribution Rate[&]			
		Current	After Proposal	Change	Long-Term Impact
General^	$0.0	13.66%	13.66%	0.00%	(0.16)%
Protective w/ SS	0.0	17.51	17.51	0.00	(0.09)
Protective w/o SS	0.0	21.86	21.86	0.00	(0.05)

^ Includes Executive and Elected Officials

** Present Value of Future Benefits*

& Contribution Rates are shown to the one-tenth percent in the funding valuation

This modification applies to future entrants only, as can be seen with the change in PVFB and change in contribution rate equaling zero. The long-term impact represents the expected change to the future service normal cost as future entrants join the plan under the proposed benefit structure. The long-term impact will emerge gradually over time as current active members are replaced by new hires.

Comments

Comment 1 — The calculations are based upon assumptions regarding future events, which may or may not materialize. They are also based upon present and proposed plan provisions that are outlined in the report. If you have reason to believe that the assumptions that were used are unreasonable, that the plan provisions are incorrectly described, that important plan provisions relevant to this proposal are not described, or that conditions have changed since the calculations were made, you should contact the authors of this report prior to relying on information in the report.

Comment 2 — If you have reason to believe that the information provided in this report is inaccurate, or is in any way incomplete, or if you need further information in order to make an informed decision on the subject matter of this report, please contact the authors of the report prior to making such decision.

Comment 3 — No statement in this report is intended to be interpreted as a recommendation in favor of the changes, or in opposition to them.

Comment 4 — This report is intended to describe the financial effect of the proposed change on the Retirement System. Except as otherwise noted, potential effects on other benefit plans were not considered.

Comment 5 — The actuarial statement of SB328 and proposed amendment does not include any potential impact of the following.

- Change to the minimum formula benefit as a result of the minimum FAE being based upon a 5-year, instead of 3-year period.
- Change to the propensity of retirement as a result of lengthening of the FAE period, which would result in a lower calculated formula benefit as compared to the current FAE period.

Comments (Continued)

Comment 6 — The actuarial statements related to SB 329 and proposed amendment LRBa1224 include an adjustment of one-half of the age 55 (50 for Protective) decrement rate added to the age 57 (age 52 for Protective) early reduced retirement decrement rate. This adjustment is to account for potential increased propensity of retirement as a result of the delay in meeting minimum eligibility conditions. This is an approximation of potential member behavior. Only actual experience (as it emerges) will tell us whether member behavior actually changed as a result of a change to the eligibility conditions.

Comment 7 — The actuarial statements related to proposed amendment LRBa2446 include an adjustment of the age 55 (one-half of that age 50 for Protective) decrement rate added to the age 57 (age 52 for Protective) early reduced retirement decrement rate. This adjustment is to account for potential increased propensity of retirement as a result of the delay in meeting minimum eligibility conditions. This is an approximation of potential member behavior. Only actual experience (as it emerges) will tell us whether member behavior actually changed as a result of a change to the eligibility conditions.

Comment 8 — A number of retirement systems have followed the lead of Social Security and have implemented provisions that delay the age at which *unreduced benefits* are payable. Senate Bill 329 delays the age at which *reduced* benefits are payable. Reduced retirement benefits are sometimes chosen by people whose health status is no longer compatible with full employment, or whose jobs are too physically demanding for a person of their age. Because of that, it is possible that a small increase in disability benefits may be seen if SB 329 is adopted, or that some people may continue working well below productive levels until they are eligible for reduced retirement under the new condition. Modelling either of these contingencies was not within the scope of this study.

Comment 9 — A review of these proposals for compliance with Federal, State, or Local Laws or regulations was not within the scope of this assignment. We did not perform such a review.

Comments (Concluded)

Comment 10 — A summary of the data used in this study is shown below:

Valuation Group	Number	Annual Earnings ($Millions)	Group Averages			
			Earnings	Age	Years of Service	Contribs.
General	231,631	$11,785.7	$50,881	45.7	11.5	$53,670
Executive Group & Elected Officials	1,380	108.0	78,230	55.2	13.7	100,731
Protective Occupation with Social Security	19,273	1,170.9	60,755	40.6	12.9	63,246
Protective Occupation without Social Security	2,730	208.5	76,376	41.1	14.2	77,683
Total Active Participants	**255,014**	**$13,273.1**	**$52,048**	**45.3**	**11.7**	**$54,906**