



### **Actuarial Analysis of Senate Bill 754 March 15, 2013**

Milliman, the actuarial firm retained by PERS, has completed its analysis of Senate Bill 754. The analysis is necessarily based on assumptions as to when these provisions become effective, to the extent that the bill does not define a provision's effective date. Those provisions that do not have a specified effective date are assumed to first take effect January 1, 2014, to allow time for administrative modifications by PERS and its participating employers to implement the changes. In addition, the analysis addresses how an accelerated number of retirements that could be triggered by adoption of this bill reduces the cost savings.

According to Milliman's analysis, the bill would reduce PERS costs in the 2013-15 biennium in two ways:

1. Liability reductions from benefit reductions are projected to reduce employer rates by a net of 4.6% of payroll. Based on a projected PERS-covered payroll of \$18.4 billion over that biennium, those reduced rates would lower PERS costs by \$846 million for 2013-15.

If the number of retirements accelerates as assumed, the cost savings from these benefit modifications are reduced to 3.9% of payroll, or \$717 million in 2013-15.

To contrast, the COLA Cap and tax remedy changes in the Governor's Balanced Budget reduce employer rates by 4.7% of payroll, for a cost savings of \$865 million in 2013-15.

2. Diverting the 6% contributions paid by Tier One and Tier Two members to instead pay for benefit costs currently paid by employers is projected to reduce employer costs by 2.6% of payroll for a cost savings of \$478 million in the 2013-15 biennium. This cost shift is based on implementing this diversion January 1, 2014, and limits its effect only to the payroll paid to Tier One and Tier Two members, as specified in the bill.

Combining these effects, the PERS cost reductions from Senate Bill 754 as projected by Milliman would reduce employer contributions in 2013-15 by \$1,324 million, or \$1,195 million under the accelerated retirement scenario, on a system-wide basis. These cost savings projections are very dependent upon the particular provisions contained in Senate Bill 754, and any modifications in the assumptions used or terms of the bill would affect these projections.



111 SW Fifth Avenue  
Suite 3700  
Portland, OR 97204  
USA

Tel +1 503 227 0634  
Fax +1 503 227 7956

milliman.com

March 15, 2013

**VIA E-MAIL**

Paul Cleary  
Executive Director  
Oregon PERS

**Re: Request Number: 2013-002  
Analysis of Senate Bill 754**

Dear Paul:

Per the request noted above, we have estimated the system-wide average effects of the concepts for modifying the benefits and financing of PERS contained in Senate Bill 754 (SB 754). Our analysis is based upon our understanding of the intended interpretation of the proposed legislation, as informed by discussion with PERS staff and feedback provided to PERS by legislative policy analysts.

Based on these discussions, we understand SB 754 to have the following effects:

- Beginning in 2014, the COLA increase would be provided on only the first \$24,000 of annual benefit. In subsequent years, the \$24,000 threshold will increase with inflation.
- The Tier 1/Tier 2 salary definition would include neither overtime nor payments made for unused sick leave or vacation time. For estimating financial impact, we assumed this provision first effective for 2014 retirements.
- The “tax remedy” benefit would be eliminated for all members and beneficiaries who are not Oregon residents.
- The Money Match annuitization interest rate to convert account balances to monthly lifetime annuities would be set at 4.0%, and would be independent of the long-term investment return assumption selected by the PERS Board. For estimating financial impact, we assumed this provision first effective for 2014 retirements.
- Prospective Tier 1/Tier 2 member contributions would be made to “Section 25 accounts” to help fund the ORS 238 defined benefits for those members. Per direction from legislative policy analysts, we understand that Section 25 account balances would not be included in the Money Match calculation for determining member benefits. For estimating financial impact, we assumed Section 25 contributions would begin in January 2014.

Other than as described herein, our analysis has used the same assumptions as the December 31, 2011 actuarial valuation. Changes in member retirement patterns could significantly affect the liability reduction ultimately realized if the provisions of SB 754 were enacted. In particular,

Offices in Principal Cities Worldwide

*This work product was prepared solely for Oregon PERS for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.*

j:\orr\letters\2013-002 sb 754.docx

if there were to exist a window of time for retirements prior to the effective date of changes reducing benefits for future retirees, we would expect to see at least some “anti-selection”, where a portion of members who would be most affected by the changes accelerate their retirements to precede the effective date. While it is not possible to know how widespread such a reaction might be, we have included an illustration of the sensitivity of estimated liability and contribution rate changes to retirement behavior below. This alternative scenario can assist policymakers in assessing the potential financial impact of individual member retirement behavior on system liabilities and long-term employer contribution rates.

The analysis estimates the impact on actuarial liability and contribution rates calculated in the December 31, 2011 actuarial valuation of the changes and assumed implementation dates described herein. While the provisions of SB 754 are generally intended to be effective immediately (possibly subject to administrative feasibility), for this analysis we have assumed the proposed changes take effect on January 1, 2014, with one exception. The elimination of the tax remedy benefit was assumed effective immediately as of the valuation date.

The consultants who worked on this assignment are pension actuaries. We have not explored any legal issues with respect to this change concept. Milliman’s advice is not intended to be a substitute for qualified legal or accounting counsel.

## **SUMMARY OF LIABILITY RESULTS**

The table below has a summary of the valuation results and the effect of SB 754 on those results. The changes proposed by SB 754 have two different effects:

- The changes to COLA, salary definition, tax remedy benefit, and Money Match annuitization rate affect member benefit levels. These changes lower the actuarial liability and employer contribution rates via a reduction of benefits projected to be paid in the future.
- The redirection of future Tier 1/Tier 2 member contributions does not significantly affect projected benefits paid out of the defined benefit program. (The redirection would, however, reduce the projected member account balance in the Individual Account Program.) Instead, this change provides additional funding, equivalent to 6% of payroll for Tier 1/Tier 2 members. As such, this change would not lower actuarial liability but it would lower employer contribution rates via introduction of a new funding source.

The tables below show these effects separately. In the first table, “Accrued Liability” refers to the net present value of projected future benefits allocated to service already completed as of the valuation date in accordance with the current actuarial cost allocation method, while “Total Liability” includes the value attributable to anticipated future service for current active members. The contribution rate shown is a blended rate reflecting the weighted averages of Tier 1, Tier 2 & OPSRP payroll as of the valuation date. The base contribution rate is shown on an “uncollared” basis.

### **Milliman**

*This work product was prepared solely for Oregon PERS for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.*

	12/31/2011 Total Liability (\$B)	12/31/2011 Accrued Liability (\$B)	2013-2015 Uncollared Base Pension Employer Contribution Rates (% of Payroll)		
			Normal Cost	UAL	Total
12/31/2011 Valuation Results	\$69.2	\$61.2	8.2%	15.5%	23.7%
SB 754 changes (excluding effect of redirecting Tier 1/Tier 2 member contributions)	(6.3)	(6.0)	0.6%	(5.2%)	(4.6%)
<b>– Valuation retirement assumptions</b>					
SB 754 changes (excluding effect of redirecting Tier 1/Tier 2 member contributions)	(5.9)	(5.3)	0.7%	(4.6%)	(3.9%)
<b>– “Accelerated 2013 retirement” assumptions</b>					

The difference in liability and base contribution rate changes between the two assumption sets illustrates the sensitivity of these estimates to member retirement behavior. The valuation retirement assumptions set uses current valuation assumptions, which are based on the 2010 Experience Study, which was published in September 2011. The “accelerated 2013 retirement” set assumes that 50% of all Tier 1 members who are eligible to retire in 2013 do so in that year. To put this a different way, the “accelerated 2013 retirement” set assumes an **additional 9,000 Tier 1 retirements from active status in 2013** above those projected by the valuation assumptions. As demonstrated above, such a change in behavior would affect the long-term cost-reduction associated with the proposed changes.

In addition, please note that the illustrated impact of retirement behavior shown above only relates to the retirement behavior of active members. In addition, inactive members who have not yet commenced benefits would have a similar incentive to accelerate their retirement if possible to avoid unfavorable changes in their benefits. The liability reductions shown in the table above include about \$800 million attributable to inactive members, which is associated with a 0.7% reduction in the uncollared UAL contribution rate. Depending on member behavior, a significant portion of that estimated reduction may not occur.

### IMPACT OF REDIRECTING TIER 1/TIER 2 MEMBER CONTRIBUTIONS

The offset to the employer contribution rate provided by Tier 1/Tier 2 member contributions represents the 6% of Tier 1/Tier 2 payroll for each biennium as a system-wide average. The amount of this offset diminishes over time as the payroll associated with the closed Tier 1/Tier 2 group declines. The estimated impact by biennium using the valuation assumptions is illustrated in the following table.

#### Milliman

*This work product was prepared solely for Oregon PERS for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.*

<b>System-Wide Average Employer Rate Offset Provided by Redirecting Tier 1/Tier 2 Member Contributions to “Section 25” Accounts</b>	
2013-2015	2.6%
2015-2017	3.0%
2017-2019	2.5%
2019-2021	2.1%
2021-2023	1.7%
2023-2025	1.3%
2025-2027	1.0%
Total Present Value of Redirected Contributions as of 12/31/2011 Using Valuation Assumptions (\$B)	\$1.7

The 2013-2015 impact is lower than the 2015-2017 impact because the assumed implementation date falls six months into the 2013-2015 biennium. These estimates are sensitive to the actual rates of retirement and termination for Tier 1/Tier 2 members and employer hiring practices. Under the “accelerated 2013 retirement” assumptions set, the total present value of redirected contributions would be approximately \$1.6 billion.

### **ANALYSIS OF BENEFIT MODIFICATIONS**

The decrease in both Total Liability and Accrued Liability shown is caused by reducing projected benefit payments primarily for Tier 1/Tier 2 members. The separate components of the SB 754 benefit modification can differ in the groups they affect and the magnitude of the impact caused. Key aspects of the different changes are discussed individually below.

#### **COLA Capped at \$24,000 (Indexed with Inflation)**

The COLA cap reduces liabilities by reducing benefit payments for current and future retirees with a benefit in excess of the threshold. For this analysis, the threshold begins at \$24,000 in 2014 and increases at the assumed inflation rate of 2.75% per year. Because of this indexing, the cap is assumed to have no effect on benefits or liabilities for retirees with a benefit level below the threshold at the time of retirement.

The analysis of COLA modification concepts we prepared in November 2012 also included consideration of a \$24,000 cap. The cap studied at that time was modeled as being effective immediately and also was assumed to remain constant at \$24,000 in future years. Because of these differences, the liability and contribution rate reductions associated with the SB 754 COLA cap (when considered separately from the bill’s other provisions) are less than the reductions calculated in the previous analysis.

#### **Milliman**

*This work product was prepared solely for Oregon PERS for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.*

## Salary Definition

Currently, certain Tier 1 and Tier 2 members are eligible to receive an increase in their Final Average Salary (FAS) calculated at retirement on account of two separate provisions. First, employees of employers participating in the unused sick leave program can have the value of one half of their accumulated unused sick leave added to the gross salary used to determine their FAS. This benefit is available to both Tier 1 and Tier 2 members whose employers elect to participate. Second, Tier 1 members are eligible to include the value of any lump sum payment for accrued vacation that occurs in their averaging period as part of the salary that will be used to calculate their FAS. The effect of both provisions is to increase FAS and, ultimately, benefits paid from the system under calculation methods that use FAS.

In addition, the current definition of salary used in calculating the FAS for Tier 1 and Tier 2 members includes amounts paid on account of overtime.

OPSRP members are not eligible for an increase to their FAS on account of either unused sick leave or lump sum vacation payouts. OPSRP salary also is limited to only include overtime pay up to a specified level based on the average amount of overtime worked, as determined by the member's PERS employer.

We understand SB 754 would remove from the salary considered for a Tier 1/Tier 2 member's FAS all payments for overtime, unused sick leave, and lump sum vacation payouts. These exclusions would be effective for all calculations performed after a specified date, and would apply this exclusion even to such payments made prior to the effective date. In other words, we understand such changes would not be phased in.

The FAS amount calculated for a member affects the benefits determined under both the Full Formula and Formula Plus Annuity benefit formulas, but does not affect the Money Match calculation. Because of this, the effect of removing these pay elements from the salary considered would have a varying effect between members, depending on which formula produces the greatest benefit.

For our analysis, we have assumed benefit calculations performed beginning in 2014 are affected by this change. We have estimated the impact of the change by reducing the FAS amounts projected for active Tier 1/Tier 2 members in our valuation according to the assumptions described below.

In the biennial review of assumptions and methods, we evaluate an appropriate assumed increase attributable to both unused sick leave and lump sum vacation payouts to use in the actuarial valuation. The assumed increases to FAS for active members used in the December 31, 2011 actuarial valuation are shown below. The vacation increase in the table is applied to all Tier 1 members, while the unused sick leave increase in the table is applied only to Tier 1/Tier 2 members who work for an employer that elects to participate in the unused sick leave program.

### Milliman

*This work product was prepared solely for Oregon PERS for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.*

<b>Assumed Increase to Active Final Average Salary (FAS)</b>	
<b>Unused Sick Leave</b>	
State General Service Male	6.25%
State General Service Female	3.75%
School District Male	8.25%
School District Female	6.50%
Local General Service Male	4.25%
Local General Service Female	3.00%
State Police & Fire	5.50%
Local Police & Fire	7.50%
<b>Vacation Pay</b>	
Tier 1 Non-School District/Judges	1.00%
Tier 1 School District	0.25%

In order to estimate the effect of removing these elements for the FAS calculation, we eliminated these assumed increases from our valuation.

The data we receive from PERS for our actuarial valuation does not identify the amount of Tier 1/Tier 2 salary that is attributable to overtime. Lacking this data, we asked PERS staff for information regarding an appropriate assumed level of overtime to consider in this analysis. Based on information PERS provided us from the most recent replacement ratio study, we assumed overtime payments resulted in a 0.7% increase in salary considered (before pickup) for General Service members and a 6.6% increase for Police & Fire members. To estimate the impact of removing overtime pay from the FAS definition, we reduced FAS by a corresponding amount.

### **Remove Tax Remedy for Non-Residents**

The two statutory provisions, collectively known as “tax remedy benefits”, considered in this analysis are the House Bill 3349 (“HB 3349”, section 238.364 of Oregon Revised Statutes (ORS)) and Senate Bill 656 (“SB 656”, ORS 238.366) benefit adjustments. We understand these provisions were added to statute after member benefits previously exempt from Oregon personal income tax became subject to the tax; the supplementary benefits provided by these sections were intended to mitigate the impact of the change in tax status.

Only members who joined the system prior to July 14, 1995 are eligible for HB 3349 and SB 656 adjustments. Eligible members who retired prior to 2012 receive the larger of either the HB 3349 or SB 656 adjustment. Due to a change in statute, a member who retires on or after January 1, 2012 is not eligible for the HB 3349 adjustment if they do not reside in Oregon. That statutory change did not affect members who retired prior to 2012, and the statutory change did not remove the SB 656 adjustment for post-2011 retirees.

#### **Milliman**

*This work product was prepared solely for Oregon PERS for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.*

The benefit adjustment provided by HB 3349 is based on the percentage of a member's benefit attributable to service prior to October 1, 1991, and can range from a 0% to 9.9% increase in the benefit. This range varies based on the fraction of a member's service that occurred prior to October 1, 1991. A member with no service prior to that date has a 0% HB 3349 adjustment, while a member with all service prior to that date has a 9.9% HB 3349 adjustment.

The SB 656 benefit adjustment is defined as a set percentage increase to a member's total benefit based on his or her total years of service. The schedule of increases vary between General Service and Police and Fire members, with Police and Fire members receiving a more favorable schedule. The increase provided by SB 656 ranges from 0%, for those with less than 10 years of service, to 4%, which applies to General Service members with 30 or more years and Police and Fire members with 25 or more years.

The concept included in SB 754 would remove both the HB 3349 and the SB 656 adjustments for all retirees and beneficiaries who reside outside of Oregon. In other words, this concept would expand the recent statutory modification in two ways. First, it would remove both adjustments, rather than just the HB 3349 adjustment. Second, the concept would apply to all retirees and beneficiaries rather than just post-2011 retirements.

For purposes of this analysis, we have assumed that 15% of current and future benefits eligible for tax remedy adjustments are payable to non-Oregon residents and would be affected by this change. This assumption was provided by PERS, and was also used in the analysis we prepared in November 2012 estimating the effect of removing tax remedy benefits as a stand-alone change.

### **Annuitize Money Match at 4%**

Tier 1/Tier 2 members who retire under the Money Match formula and do not elect to take their benefit in a lump sum have their account balance plus the matching employer amount annuitized. The annuitization calculation uses the system's life expectancy tables and an annuitization rate.

For a given account balance, using a lower annuitization rate provides a smaller initial monthly benefit, all else equal. Mathematically, the conversion from account balance to monthly annuity is accomplished by assuming the member lives to his or her life expectancy while receiving level monthly payments and that the unused portion of the account balance increases with the annuitization rate due to investment returns. Please note the emphasis on the word "level" in the prior sentence, as the annuitization calculation for Money Match retirees has historically been performed without regard to future cost of living allowance (COLA) increases. This means that account balances are annuitized to provide a lifetime annuity without COLA, and then employer contribution rates are calculated in a way to provide 100% employer funding of the COLA increase on the calculated annuity benefits, as directed by statute.

The change in system liability attributable to the new assumption primarily results from the effect of the annuitization change on Tier 1 General Service active members and on Dormant

#### **Milliman**

*This work product was prepared solely for Oregon PERS for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.*

members, who have not yet commenced benefits. These two groups are most affected because they are most likely to receive benefits under the Money Match formula.

The table below shows the percentage decrease in the factors of a single life annuity retirement for non-disabled Tier 1 / Tier 2 members at two sample retirement ages.

	<u>Change to Money Match Benefit Factor*</u>	
	<u>Age 55 Retirement</u>	<u>Age 65 Retirement</u>
4.0% Annuitization Rate	-34.4%	-28.8%

*\*Based on mortality assumption in effect for 2012-2013 retirements*

Tier 1/Tier 2 members have their benefits calculated under both Money Match and Full Formula, and get the larger of the two calculated benefits. Of members currently projected to have their benefit calculated under Money Match, some would continue to be projected as Money Match retirements when valued under the lower annuitization rate while others would be projected to retire under Full Formula after reflecting the lower rate. For the first group of members, the changes shown in the table above are representative of their anticipated changes in their initial benefits. For the second group of members, the changes would be less than shown above because the Full Formula calculation, which is unaffected by the annuitization rate change, would serve as a floor limiting the decrease in the initial benefit amount.

The combined impact of these two outcomes would be to reduce benefits for some members and to accelerate the system's transition towards Full Formula serving as the dominant benefit formula. The increase in the Normal Cost Rate shown in the table on page three is an outcome of how the actuarial cost method currently used by PERS allocates cost between past and future service. Because there are no ongoing contributions to Tier 1/Tier 2 member account balances, the benefit provided under Money Match is effectively frozen. The current actuarial cost method, known as Projected Unit Credit (PUC), reflects this by allocating all of the liability associated with projected future Money Match retirements to past service. This means that a member projected to retire under Money Match has no normal cost. By contrast, a member projected to retire under Full Formula has a portion of their liability allocated to past service and the remaining portion allocated to projected future service. The portion of the liability attributable to the following year's service is the Normal Cost for the member.

As mentioned above, decreasing the annuitization rate to 4% would cause some members to be projected to retire under Full Formula rather than Money Match. This would lower the member's Total Liability and Accrued Liability, but would increase the member's Normal Cost under the current actuarial cost method. This is why the table on page 3 shows a decrease in liability but an increase in Normal Cost. The increase in Normal Cost attributable to the 4% annuitization rate is actually greater than shown in the table, but is offset by reductions to the Normal Cost rate resulting from other provisions of SB 754.

The entire Normal Cost is funded each year in the contribution rate, while changes in Accrued Liability are typically amortized over a number of years. Please note that the rate changes

**Milliman**

*This work product was prepared solely for Oregon PERS for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.*

illustrated above are calculated assuming a 20 year amortization period is used to reflect the decreased Accrued Liability arising out of this change. If a shorter period was used – such as an average expected future working lifetime of affected members – the reduction in near-term contribution rates could be larger.

## **DATA, METHODS, ASSUMPTIONS AND PROVISIONS**

Other than the exceptions and additions discussed in this letter, the data, methods, assumptions, and plan provisions used to calculate employer contribution rates are the same as those used in the December 31, 2011 system-wide actuarial valuation report. That information, including a discussion of the inherent limitations of use of actuarial valuation results, is herein incorporated to this letter by reference.

Our valuation assumptions portion of the analysis does not include any assumed change in participant behavior such as retirement patterns due to the proposed changes in policy, or to bargaining agreements or employer pay practices as a result of a change in COLA policy or the Tier 1/Tier 2 salary definition. Such potential impacts merit consideration. In particular, an announced change in the annuitization rate to take effect at a future date could lead some affected members who otherwise would have continued working to retire before the effective date. As such, we included an alternative assumption set as described in the letter. The alternative assumption set is intended to be illustrative rather than predictive. Actual experience will vary from assumption, and sometimes the variance from assumption will be significant. The variance will affect the long-term financial impact of the proposed legislation.

In our analysis, it was assumed that a standalone annuitization rate change would not affect future interest crediting on Tier 1 member accounts over time.

The assumption of 15% used in analyzing the change to the tax remedy benefit was provided by PERS; we do not have any data currently available to assess the accuracy of this assumption. To assess the impact of this concept on current retirees, we received additional data from PERS regarding the percentage increase in benefits due to tax remedy adjustments already incorporated in the current benefit levels for individual retirees. We did not audit the data, but have no reason to doubt its substantial accuracy.

The assumed amount of salary attributable to overtime was provided by PERS. The assumption was that overtime resulted in a 0.7% increase in salary considered (before pickup) for General Service members and a 6.6% increase for Police & Fire members.

The analysis shown here was conducted using the actuarial cost method currently employed by the PERS Board. If this method was changed, the results could change significantly.

In calculating the illustrative changes in uncollared employer base contribution rates shown above, we assumed all changes in Accrued Liability were amortized over a 20-year period as a level percent of payroll using current valuation assumptions. This is the method currently used in the valuation when establishing new Tier 1/Tier 2 amortization bases. If a different

### **Milliman**

*This work product was prepared solely for Oregon PERS for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.*

amortization method were used, the overall impact on employer rates could be significantly different than shown in this letter.

## **ACTUARIAL BASIS AND QUALIFICATIONS**

In preparing this letter and the valuation report on which it is based, we relied, without audit, on information (some oral and some in writing) supplied by Oregon PERS. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The updated estimates depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

Future actuarial measurements may differ significantly from the current measurements presented in this estimate due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, additional cost or contribution requirements based on the plan's funded status, or a change in the cost allocation method); and changes in plan provisions or applicable law. Due to the limited scope of this estimate, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the valuation assumptions and adopted the assumptions used in the December 31, 2011 valuation in July 2011.

Actuarial computations presented in this estimate are for purposes of providing a high-level analysis of the requested change concepts to the System. As such, they cannot be relied upon for financial reporting or other purposes, and calculations for purposes other than this use may be significantly different from the estimates contained in this letter. Accordingly, additional determinations may be needed for other purposes.

Milliman's work is prepared solely for the use of Oregon PERS. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

### **Milliman**

*This work product was prepared solely for Oregon PERS for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.*

Mr. Paul Cleary  
March 15, 2013  
Page 11

The consultants who worked on this assignment are pension actuaries. We have not explored any legal issues with respect to the change concepts. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

On the basis of the foregoing, I hereby certify that, to the best of my knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. I am a member of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

If you have any questions about our response or need any additional information, please let us know.

Sincerely,



Matt Larrabee, FSA, EA  
Principal and Consulting Actuary

MRL:sdp  
encl.

cc: Steve Rodeman, Debra Hembree, Marjorie Taylor, Scott Preppernau

**Milliman**

*This work product was prepared solely for Oregon PERS for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.*