February 1, 2013

VIA E-MAIL

Paul Cleary
Executive Director
Oregon PERS

Re: Request Number: 2013-001
Benefit Design Cost Analysis – Annuitization Rate

Dear Paul:

Per your request, this letter provides an estimate of the system-wide average effects of decreasing the interest rate used to annuitize account balances for future Tier 1/Tier 2 retirements under the “Money Match” formula from 8.0% to 4.0%. In our analysis, we have assumed that the annual long-term investment return assumption would remain constant at 8.0%, and that interest crediting on Tier 1 member accounts would remain 8.0% per year. The analysis estimates the impact if the change concepts had become effective on December 31, 2011. A change at that time would have affected both the December 31, 2011 actuarial liability and 2013-2015 employer contribution rate calculations. While any change to the system’s annuitization rate would occur at a later date, estimating the impact as of a December 31, 2011 snapshot date allows for direct comparison to liability and employer contribution rate calculations from the most recently completed actuarial valuation.

Our analysis did not attempt to estimate the potential effects of changes in participant retirement patterns as an outcome of an annuitization rate change. In addition, our analysis does not reflect any “grandfathering” that could be incorporated in such a change by, for example, providing that a participant’s initial benefit calculated under new factors not be allowed to drop below the benefit provided by converting the account balance at the time of the change using the prior factors. Those potential effects merit consideration by policymakers but are beyond the scope of this initial analysis.

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.

The table below has a summary of the valuation results and the effect of the concept on those results. “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 contribution rate is shown on an “uncollared” basis.
The decrease in both Total Liability and Accrued Liability shown is caused by reducing projected benefit payments for certain Tier 1/Tier 2 members who have not yet retired. Tier 1/Tier 2 members who retire under the Money Match formula and do not elect to take their benefit in a single 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.

The change in system liability illustrated above primarily results from the effect of the annuitization change on Tier 1 General Service active members and on Dormant 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 allocation of the estimated change in Total Liability by category is shown below. The percent change is not a "percent of payroll" change.

<table>
<thead>
<tr>
<th>Member Category</th>
<th>Change (in billions)</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1 GS Active</td>
<td>$(1.4)</td>
<td>(9.7%)</td>
</tr>
<tr>
<td>T1 PF Active</td>
<td>(0.0)</td>
<td>(1.1%)</td>
</tr>
<tr>
<td>Dormants</td>
<td>(1.3)</td>
<td>(26.7%)</td>
</tr>
<tr>
<td>All Others</td>
<td>(0.0)</td>
<td>(0.0%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$(2.7)</strong></td>
<td><strong>(3.8%)</strong></td>
</tr>
</tbody>
</table>

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.
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 first table above 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 first table shows a decrease in liability but an increase in Normal Cost.

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 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.

The chart below illustrates the projected benefit payment profiles for current Tier 1/Tier 2 active and dormant members at the current annuitization rate and at the 4.0% rate. The chart does
not illustrate any potential alteration to member retirement patterns due to a change in the annuitization rate.

To more clearly illustrate the differences between the projected benefit payments shown above, the chart below shows the changes in benefit payments under the alternative annuitization rate.
DATA, METHODS, ASSUMPTIONS AND PROVISIONS

Other than the exceptions and additions noted below, 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.

Please note that our analysis does not include any assumed change in participant behavior such as retirement patterns due to a change in policy. Such potential impacts merit consideration, but are beyond the scope of the analysis requested. 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.

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 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 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.

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
Consulting Actuary

MRL:sdp
encl.

cc: Steve Rodeman, Debra Hembree, Scott Preppernau

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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.

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