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April 22, 2015

Mr. Shawn Graham
Executive Director
Teachers Retirement System of Montana
1500 Sixth Avenue
Helena, MT 59620-0139

RE: ACTUARIAL AUDIT RESULTS

Dear Mr. Graham:

We have received a copy of the Actuarial Audit of the Teachers Retirement System of Montana dated April 8, 2015 which was produced by Gabriel Roeder Smith & Company (GRS) to detail their findings of the review of our July 1, 2014 valuations, as well as our latest experience study report.

We are, of course, pleased that GRS's overall findings conclude that our results are reasonable and performed in accordance with generally accepted actuarial principles and practices.

GRS has detailed a number of issues that will allow us to fine-tune future valuations and experience studies. We have reviewed each issue (in bold) and, as appropriate, provided our comments on the following pages.

We want to thank GRS for the professional and courteous manner in which they conducted their review.

Sincerely,

Edward A. Macdonald, ASA, FCA, MAAA
President

Todd B. Green, ASA, FCA, MAAA
Principal and Consulting Actuary

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Actuarial Assumptions

GRS recommends that the retained actuary include more detail regarding the "exposures" underlying the assumptions as part of the next experience study. This additional detail will allow the reader to better understand the credibility of the proposed assumption changes.

We will consider this comment for our next experience study.

GRS recommends that the retained actuary analyze the demographic experience separately for males and females in future experience studies to demonstrate that gender-neutral assumptions are appropriate for MTRS or provide a rationale for combining the groups.

We will consider this comment for our next experience study.

The retained actuary needs to correct the statement of the mortality assumption for healthy male annuitants in one of the following ways: (1) correct the statement of the mortality assumption in future actuarial communications to appropriately identify the underlying mortality rates, or (2) perform a corrected mortality analysis based on the correct underlying mortality rates.

We will correct the statement of the mortality assumptions in our next report.

As part of the next actuarial experience study, we recommend that the retained actuary consider the applicability and appropriateness of a "generational" mortality assumption to eliminate the need to periodically update the "static" mortality assumption to include margin for future mortality improvement.

We will have considered this in past experience studies and will continue to consider this in future experience studies.

In light of the recent increases in member contribution rates and the introduction of less valuable benefits for new members, we recommend that the retained actuary closely monitor the assumption for "Retaining Membership in the System Upon Vested Termination" and include a detailed analysis in the next actuarial experience study report.

We will consider this in our next experience study.

Actuarial Methods and Funding Policy

In general, we believe that the actuarial methods and funding policy are reasonable for MTRS and appropriately applied. We do recommend that the retained actuary update the application of the actuarial cost method to align the calculation of the projected compensation and the total present value of plan benefits so that the normal cost rate reflects the most appropriate allocation of plan costs over future compensation.

We do not agree with the method that GRS is suggesting. In our opinion that method would over charge the normal rate since the normal rate calculated by us is applied to total payroll. For the suggested method to work accurately our normal rate would have to be applied to payroll for those that are in the system at the valuation date. That is to say under the method recommended the normal rate should not be applied to the salaries of those people who are hired during the year and are replacing those people who leave the system.

Actuarial Valuation Results

Given the conditional nature of portions of the contributions to MTRS, we recommend that the retained actuary clearly state the level of contributions included in the calculation of the amortization period including which contributions are assumed to change, if any, during the calculated period.

We will consider this in our next valuation.

In the next actuarial valuation, we recommend that the retained actuary incorporate the following enhancements into their valuation of active participants: correctly reflect the proportion of members that are assumed to take a refund of contributions upon termination and appropriately reflect the three-year COLA deferral period for Tier 2 members.

We will do this in our next valuation. These changes will produce a minimal reduction in the liabilities of the System.

Content of Valuation Report

In order to improve the ability of the report to communicate the assumptions, methods and plan provisions incorporated into the actuarial valuation of MTRS, we recommend that the retained actuary incorporate the noted enhancements to future actuarial valuation reports.

We will consider this in our next valuation.

Adequacy of Actuarial Factors

In general, the actuarial factors provided to MTRS by the retained actuary are reasonable and consistent with the actuarial valuation assumptions adopted by the Board on May 13, 2010. We recommend incorporating salary increases that are assumed to occur between the purchase date and the projected retirement date into the cost of service purchases in order to align the cost of service purchases better with the actuarial assumptions. We also recommend that the Certain and Life Optional Form factor methodology be verified before releasing the updated factors based on the newly adopted assumptions.

We were in the process of changing the certain and life optional forms of payment prior to the audit being performed. The changes in the determination have to do with mortality during the deferral period and will be minor in nature.

The only precise way to determine the purchase of service is to perform the calculation at retirement when all facts are known. When allowing an employee to purchase service prior to retirement future salary increases are just one factor of many. While we may consider this in future updates to the calculation of service purchase we are comfortable with our method at this time.

We recommend that the retained actuary update the assessment of the investment return assumption in the next experience study report to better reflect the requirements of the newly adopted ASOP No. 27.

We will consider this in future experience studies.

Postretirement Benefit Increases for Tier 2 Members **– All retirees are eligible for postretirement benefit increases after being retired for three years. This three-year deferral was appropriately incorporated into the actuarial valuation for Tier 1 members. However, the postretirement benefit increases were assumed to commence immediately following retirement in the actuarial valuation for Tier 2 members. The actuarial valuation should be corrected to appropriately reflect the three-year COLA deferral period for Tier 2 members.**

We will make this change in the next valuation. This change will produce a minimal reduction in liabilities.

Minor updates to Valuation Coding **– We noted a few additional corrections that we believe should be incorporated into the next actuarial valuation by the retained actuary. Each of these changes should have very little impact of the results of the actuarial valuation:**

The 0.63% load applied to the projected retirement benefits of university members "to account for the larger than average annual compensation increases observed in the years immediately preceding retirement" should not be applied to benefits expected to be paid to university members on account of death, disability and termination (prior to retirement eligibility).

The actuarial valuation should be updated so that the assumed rate of retirement for university members at age 60 is 8.50% as stated in the actuarial valuation report.

The actuarial valuation should be updated to reflect the fact that vested terminations are only covered by the $500 death benefit for the one year following their termination and, once again, when the terminated member commences their deferred retirement annuity (they are not covered during the deferral period). Additionally, only the portion of the terminated members that are assumed to "retain membership in the system" should be covered by the $500 death benefit after termination.

The current valuation coding is using a benefit multiplier of 1.67% to calculate the plan benefits, where applicable. We recommend that the retained actuary update the valuation coding to use a benefit multiplier closer to the true multiplier of "one-sixtieth".

We will make all the recommended "Minor Updates to Valuation Coding". These changes will result in a minimal reduction in the liabilities.

Postretirement Benefit Increases – The summary of assumptions in the actuarial valuation report currently includes a thorough description of the assumed postretirement benefit increases for Tier 1 members. We recommend that the summary of assumptions be enhanced to also describe the assumed postretirement benefit increases for Tier 2 members.

We will make this change in the next valuation.

Part-time Employees – The retained actuary modifies the data for part-time employees (those that earn more than $1,000) in order to calculate a more reasonable actuarial liability for these members. We believe that the retained actuary's methods are reasonable. However, we recommend that the summary of assumptions be enhanced to describe the modifications made to the data for part-time employees.

We will make this change in the next valuation.

Mortality among service retired members and beneficiaries (Table A-1, Item II.D.) – As discussed in Section III of this report, the rates of mortality for healthy male annuitants after age 50 stated in Table A-5 of the actuarial valuation report do not correspond to the stated mortality assumption. The actual mortality rates used in the actuarial valuation for healthy male annuitants after age 50 were consistent with the "1992 Base Year Rates" shown in Table 3-1 of the RP-2000 Mortality Table Study published by the Society of Actuaries in July 2000. Future actuarial communications should be updated to include an appropriate description of the mortality assumption for healthy male annuitants after age 50.

We will make this change in the next valuation.

Ages of Dependent Children – The actuarial valuation currently assumes that members who die prior to age 50 have a dependent child that is eight years old. Additionally the actuarial valuation currently assumes that members who die after age 50, but prior to age 55, have a dependent child that is 13 years old. We recommend that Appendix A of the actuarial valuation report be enhanced to include a statement about the assumed ages of dependent children.

We will make this change in the next valuation.

Appendix B, Summary of Benefit Provisions

Normal Retirement Benefits – The valuation report currently indicates that Tier 2 members receive a retirement allowance equal to "185/100 of final compensation for each year of service." This statement does not communicate the appropriate proportion for the rate of benefit accruals for Tier 2 members. The rate of benefit accrual for Tier 2 members should be updated to state that the retirement allowance is equal to "1.85% of final compensation for each year of service."

We will make this change in the next valuation.