

November 7, 2012

**VIA ELECTRONIC MAIL**

Ms. Roxanne Minnehan, Executive Director  
 Public Employee Retirement Administration  
 100 North Park, Suite 200  
 Helena, Montana 59620

**Re: PERS State and Local Projections**

Dear Roxanne:

At your request, we have prepared projections of the funded status of PERS based upon certain assumptions with regard to changes in plan funding. The following describes the methodology for these projections:

- All PERS members were allocated either to “State” or “Local Government”, based upon their payroll code reported in the data for the 2012 Actuarial Valuation. Codes CP (State Agencies) and UN (Universities) were included with the State group. All others were considered Local Government. The June 30, 2012 Actuarial Valuation results were then allocated to these two groups.
- Plan assets were allocated to each group in proportion to its actuarial liability as of June 30, 2012.
- Starting as of June 30, 2013, an Actuarial Required Contribution (ARC) was determined for each group using the same methodology as has been used for PERS as a whole.
- Projections were performed through the 2028 fiscal year assuming that all actuarial assumptions will be exactly realized and that the trust fund will earn the assumed rate of 7.75% each year on market value. After June 30, 2012, the trust fund was projected separately for each group. The results based upon current contribution rates are in the tables labeled “Baseline”.
- Projections were also performed with additional employer and employee contributions of 1% effective July 1, 2013. The additional 1% employee contribution only was applied to persons currently contributing at the rate of 6.9% such that all employees would then be contributing at the rate of 7.9%.
- For the State, we reflected additional employer contributions based upon projected coal tax revenues. These projected revenues were provided to you by Shawn Graham on October 26, 2012 and are summarized as follows:

|      |                  |   |             |
|------|------------------|---|-------------|
| FY14 | \$16.874 million | + | \$3 million |
| FY15 | \$17.968 million | + | \$3 million |
| FY16 | \$18.593 million | + | \$3 million |
| FY17 | \$18.872 million | + | \$3 million |
| FY18 | \$19.155 million | + | \$3 million |
| FY19 | \$19.442 million | + | \$3 million |



FY20 \$19.734 million + \$6.065 million

FY21 and beyond: 1.5% growth per year of the first column plus \$6.065 million

- For local governments, it was assumed that an additional contribution would be made each year based upon the difference between the 30-year funding rate (i.e., the “ARC”) and the statutory rates at the previous year’s actuarial valuation. This additional contribution would be paid as a lump sum at September 1. The first payment would be made September 1, 2014 for the 2015 fiscal year.

The enclosed tables show projections of funded status (actuarial value of assets divided by actuarial liability), contribution rates, and amortization periods through the 2028 fiscal year. The ARC is based upon a 30-year rolling amortization of the UAL as a percentage of payroll. The statutory shortfall (or surplus) is the excess (positive or negative) of the ARC over the statutory contribution rates as a percent of pay. The total shortfall (or surplus) is the excess (positive or negative) over the sum of the statutory rates and the additional contributions. For the State, the amortization period is based upon the statutory rates plus the additional coal tax revenue. For local governments, the amortization period is based only on the statutory rates.

The calculations in this letter are based upon the data, actuarial methods and assumptions as were used in the Actuarial Valuation of the Systems as of June 30, 2012. In preparing our letter, we relied on information (some oral and some written) supplied by the staff of the System. This information includes, but is not limited to, plan provisions, membership data, and financial information. We performed an information examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice #23.

The actuarial assumptions reflect our understanding of the likely future experience of the System, and the assumptions as a whole represent our best estimate for the future experience of the System. The results of this letter are dependent upon future experience conforming to these assumptions. To the extent that future experience deviates from the actuarial assumptions, the true costs could vary from our results.

I hereby certify that, to the best of my knowledge, this letter and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as a credentialed actuary, I meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this letter. This letter does not address any contractual or legal issues. I am not an attorney and our firm does not provide any legal services or advice.

This letter was prepared exclusively for the Public Employees’ Retirement System for the purpose described herein. This is not intended to benefit any third party, and Cheiron assumes no duty or liability to any such party.

Ms. Roxanne Minnehan

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If you have questions or need additional information, please feel free to contact me.

Sincerely,  
Cheiron

A handwritten signature in black ink, appearing to read "Stephen T. McElhaney". The signature is fluid and cursive, with a long horizontal stroke at the end.

Stephen T. McElhaney, FCA, FSA  
Principal Consulting Actuary

Enclosure

cc: Margaret Tempkin, FSA

| Group: PERS State  |               |               |               |                |               |              |        |                     |                 |
|--------------------|---------------|---------------|---------------|----------------|---------------|--------------|--------|---------------------|-----------------|
| Scenario: Baseline |               |               |               |                |               |              |        |                     |                 |
| Fiscal Year        | Funded Status | Employee Rate | Employer Rate | Add'l Contrib. | Total Contrib | Amort Period | ARC    | Statutory Shortfall | Total Shortfall |
| 2013               | 66%           | 7.01%         | 7.13%         | 0.00%          | 14.14%        | N/A          | 20.67% | 6.53%               | 6.53%           |
| 2014               | 67%           | 7.14%         | 7.13%         | 0.00%          | 14.27%        | N/A          | 21.33% | 7.06%               | 7.06%           |
| 2015               | 68%           | 7.20%         | 7.13%         | 0.00%          | 14.33%        | N/A          | 21.11% | 6.78%               | 6.78%           |
| 2016               | 66%           | 7.26%         | 7.13%         | 0.00%          | 14.39%        | N/A          | 21.46% | 7.07%               | 7.07%           |
| 2017               | 66%           | 7.31%         | 7.13%         | 0.00%          | 14.44%        | N/A          | 21.55% | 7.11%               | 7.11%           |
| 2018               | 65%           | 7.37%         | 7.13%         | 0.00%          | 14.50%        | N/A          | 21.65% | 7.15%               | 7.15%           |
| 2019               | 64%           | 7.41%         | 7.13%         | 0.00%          | 14.54%        | N/A          | 21.75% | 7.21%               | 7.21%           |
| 2020               | 64%           | 7.46%         | 7.13%         | 0.00%          | 14.59%        | N/A          | 21.86% | 7.27%               | 7.27%           |
| 2021               | 63%           | 7.50%         | 7.13%         | 0.00%          | 14.63%        | N/A          | 21.97% | 7.34%               | 7.34%           |
| 2022               | 62%           | 7.54%         | 7.13%         | 0.00%          | 14.67%        | N/A          | 22.09% | 7.42%               | 7.42%           |
| 2023               | 61%           | 7.57%         | 7.13%         | 0.00%          | 14.70%        | N/A          | 22.21% | 7.51%               | 7.51%           |
| 2024               | 60%           | 7.60%         | 7.13%         | 0.00%          | 14.73%        | N/A          | 22.34% | 7.61%               | 7.61%           |
| 2025               | 59%           | 7.63%         | 7.13%         | 0.00%          | 14.76%        | N/A          | 22.48% | 7.72%               | 7.72%           |
| 2026               | 58%           | 7.66%         | 7.13%         | 0.00%          | 14.79%        | N/A          | 22.63% | 7.84%               | 7.84%           |
| 2027               | 56%           | 7.68%         | 7.13%         | 0.00%          | 14.81%        | N/A          | 22.78% | 7.97%               | 7.97%           |
| 2028               | 55%           | 7.71%         | 7.13%         | 0.00%          | 14.84%        | N/A          | 22.94% | 8.11%               | 8.11%           |

| Group: PERS Local  |               |               |               |                |               |              |        |                     |                 |
|--------------------|---------------|---------------|---------------|----------------|---------------|--------------|--------|---------------------|-----------------|
| Scenario: Baseline |               |               |               |                |               |              |        |                     |                 |
| Fiscal Year        | Funded Status | Employee Rate | Employer Rate | Add'l Contrib. | Total Contrib | Amort Period | ARC    | Statutory Shortfall | Total Shortfall |
| 2013               | 69%           | 7.01%         | 7.13%         | 0.00%          | 14.14%        | N/A          | 20.67% | 6.53%               | 6.53%           |
| 2014               | 71%           | 7.15%         | 7.13%         | 0.00%          | 14.28%        | N/A          | 18.46% | 4.17%               | 4.17%           |
| 2015               | 72%           | 7.22%         | 7.13%         | 0.00%          | 14.35%        | N/A          | 18.17% | 3.82%               | 3.82%           |
| 2016               | 71%           | 7.28%         | 7.13%         | 0.00%          | 14.41%        | N/A          | 18.32% | 3.92%               | 3.92%           |
| 2017               | 71%           | 7.33%         | 7.13%         | 0.00%          | 14.46%        | N/A          | 18.28% | 3.82%               | 3.82%           |
| 2018               | 71%           | 7.38%         | 7.13%         | 0.00%          | 14.51%        | N/A          | 18.23% | 3.72%               | 3.72%           |
| 2019               | 71%           | 7.43%         | 7.13%         | 0.00%          | 14.56%        | N/A          | 18.19% | 3.63%               | 3.63%           |
| 2020               | 70%           | 7.48%         | 7.13%         | 0.00%          | 14.61%        | N/A          | 18.14% | 3.54%               | 3.54%           |
| 2021               | 70%           | 7.52%         | 7.13%         | 0.00%          | 14.65%        | N/A          | 18.10% | 3.45%               | 3.45%           |
| 2022               | 70%           | 7.56%         | 7.13%         | 0.00%          | 14.69%        | N/A          | 18.06% | 3.37%               | 3.37%           |
| 2023               | 70%           | 7.59%         | 7.13%         | 0.00%          | 14.72%        | N/A          | 18.02% | 3.30%               | 3.30%           |
| 2024               | 70%           | 7.62%         | 7.13%         | 0.00%          | 14.75%        | N/A          | 17.99% | 3.23%               | 3.23%           |
| 2025               | 69%           | 7.65%         | 7.13%         | 0.00%          | 14.78%        | N/A          | 17.95% | 3.17%               | 3.17%           |
| 2026               | 69%           | 7.68%         | 7.13%         | 0.00%          | 14.81%        | N/A          | 17.93% | 3.12%               | 3.12%           |
| 2027               | 69%           | 7.70%         | 7.13%         | 0.00%          | 14.83%        | N/A          | 17.90% | 3.07%               | 3.07%           |
| 2028               | 69%           | 7.72%         | 7.13%         | 0.00%          | 14.85%        | N/A          | 17.88% | 3.02%               | 3.02%           |

| <b>Group: PERS State</b>               |                      |                      |                      |                       |                      |                     |            |                            |                        |
|--|----------------------|----------------------|----------------------|-----------------------|----------------------|---------------------|------------|----------------------------|------------------------|
| <b>Scenario: Coal Tax Paid to Fund</b> |                      |                      |                      |                       |                      |                     |            |                            |                        |
| <b>Fiscal Year</b>                     | <b>Funded Status</b> | <b>Employee Rate</b> | <b>Employer Rate</b> | <b>Add'l Contrib.</b> | <b>Total Contrib</b> | <b>Amort Period</b> | <b>ARC</b> | <b>Statutory Shortfall</b> | <b>Total Shortfall</b> |
| 2013                                   | 66%                  | 7.01%                | 7.13%                | 0.00%                 | 14.14%               | N/A                 | 20.67%     | 6.53%                      | 6.53%                  |
| 2014                                   | 67%                  | 7.90%                | 8.13%                | 3.13%                 | 19.16%               | 51.6                | 21.37%     | 5.34%                      | 2.21%                  |
| 2015                                   | 69%                  | 7.90%                | 8.13%                | 3.18%                 | 19.21%               | 44.3                | 20.88%     | 4.85%                      | 1.67%                  |
| 2016                                   | 68%                  | 7.90%                | 8.13%                | 3.15%                 | 19.18%               | 45.2                | 20.95%     | 4.92%                      | 1.77%                  |
| 2017                                   | 68%                  | 7.90%                | 8.13%                | 3.07%                 | 19.10%               | 43.9                | 20.76%     | 4.73%                      | 1.66%                  |
| 2018                                   | 69%                  | 7.90%                | 8.13%                | 2.99%                 | 19.02%               | 42.7                | 20.57%     | 4.54%                      | 1.55%                  |
| 2019                                   | 69%                  | 7.90%                | 8.13%                | 2.91%                 | 18.94%               | 41.6                | 20.38%     | 4.35%                      | 1.44%                  |
| 2020                                   | 69%                  | 7.90%                | 8.13%                | 3.21%                 | 19.24%               | 36.7                | 20.20%     | 4.17%                      | 0.95%                  |
| 2021                                   | 69%                  | 7.90%                | 8.13%                | 3.13%                 | 19.16%               | 35.8                | 19.99%     | 3.96%                      | 0.83%                  |
| 2022                                   | 70%                  | 7.90%                | 8.13%                | 3.04%                 | 19.07%               | 34.9                | 19.78%     | 3.75%                      | 0.71%                  |
| 2023                                   | 70%                  | 7.90%                | 8.13%                | 2.96%                 | 18.99%               | 34.0                | 19.58%     | 3.55%                      | 0.59%                  |
| 2024                                   | 70%                  | 7.90%                | 8.13%                | 2.88%                 | 18.91%               | 33.1                | 19.38%     | 3.35%                      | 0.47%                  |
| 2025                                   | 70%                  | 7.90%                | 8.13%                | 2.80%                 | 18.83%               | 32.3                | 19.18%     | 3.15%                      | 0.35%                  |
| 2026                                   | 70%                  | 7.90%                | 8.13%                | 2.72%                 | 18.75%               | 31.5                | 18.99%     | 2.96%                      | 0.23%                  |
| 2027                                   | 70%                  | 7.90%                | 8.13%                | 2.65%                 | 18.68%               | 30.7                | 18.79%     | 2.76%                      | 0.11%                  |
| 2028                                   | 71%                  | 7.90%                | 8.13%                | 2.58%                 | 18.61%               | 29.9                | 18.59%     | 2.56%                      | -0.01%                 |

| <b>Group: PERS Local</b>                             |                      |                      |                      |                       |                      |                     |            |                            |                        |
|--|----------------------|----------------------|----------------------|-----------------------|----------------------|---------------------|------------|----------------------------|------------------------|
| <b>Scenario: Additional Contribution to Fund ARC</b> |                      |                      |                      |                       |                      |                     |            |                            |                        |
| <b>Fiscal Year</b>                                   | <b>Funded Status</b> | <b>Employee Rate</b> | <b>Employer Rate</b> | <b>Add'l Contrib.</b> | <b>Total Contrib</b> | <b>Amort Period</b> | <b>ARC</b> | <b>Statutory Shortfall</b> | <b>Total Shortfall</b> |
| 2013   | 69%                  | 7.01%                | 7.13%                | 0.00%                 | 14.14%               | N/A                 | 20.67%     | 6.53%                      | 6.53%                  |
| 2014   | 71%                  | 7.90%                | 8.13%                | 0.00%                 | 16.03%               | N/A                 | 18.50%     | 2.47%                      | 2.47%                  |
| 2015   | 72%                  | 7.90%                | 8.13%                | 2.47%                 | 18.50%               | 90.8                | 18.11%     | 2.08%                      | -0.39%                 |
| 2016   | 72%                  | 7.90%                | 8.13%                | 2.08%                 | 18.11%               | 79.1                | 18.03%     | 2.00%                      | -0.08%                 |
| 2017   | 73%                  | 7.90%                | 8.13%                | 2.00%                 | 18.03%               | 63.6                | 17.77%     | 1.74%                      | -0.26%                 |
| 2018   | 74%                  | 7.90%                | 8.13%                | 1.74%                 | 17.77%               | 54.2                | 17.51%     | 1.48%                      | -0.26%                 |
| 2019   | 75%                  | 7.90%                | 8.13%                | 1.48%                 | 17.51%               | 47.6                | 17.25%     | 1.22%                      | -0.26%                 |
| 2020   | 75%                  | 7.90%                | 8.13%                | 1.22%                 | 17.25%               | 42.7                | 17.01%     | 0.98%                      | -0.24%                 |
| 2021   | 76%                  | 7.90%                | 8.13%                | 0.98%                 | 17.01%               | 38.9                | 16.77%     | 0.74%                      | -0.23%                 |
| 2022   | 76%                  | 7.90%                | 8.13%                | 0.74%                 | 16.77%               | 35.8                | 16.55%     | 0.52%                      | -0.22%                 |
| 2023   | 77%                  | 7.90%                | 8.13%                | 0.52%                 | 16.55%               | 33.3                | 16.34%     | 0.31%                      | -0.21%                 |
| 2024   | 77%                  | 7.90%                | 8.13%                | 0.31%                 | 16.34%               | 31.1                | 16.14%     | 0.11%                      | -0.20%                 |
| 2025   | 78%                  | 7.90%                | 8.13%                | 0.11%                 | 16.14%               | 29.3                | 15.96%     | -0.07%                     | -0.19%                 |
| 2026   | 78%                  | 7.90%                | 8.13%                | 0.00%                 | 16.03%               | 27.6                | 15.78%     | -0.25%                     | -0.25%                 |
| 2027   | 78%                  | 7.90%                | 8.13%                | 0.00%                 | 16.03%               | 26.2                | 15.61%     | -0.42%                     | -0.42%                 |
| 2028   | 79%                  | 7.90%                | 8.13%                | 0.00%                 | 16.03%               | 24.8                | 15.43%     | -0.60%                     | -0.60%                 |