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December 16, 2014

Mr. Alan Conroy
Executive Director
Kansas Public Employees Retirement System
611 S. Kansas Ave., Suite 100
Topeka, KS 66603-3803

**Re: Elimination of ELARF Contributions**

Dear Alan:

Sub HB 2333, as passed by the 2012 Legislature, provided for additional contributions by the State to fund the unfunded actuarial liability for the State/School group until the funded ratio was at least 80%. The additional contribution stream was to come from the Expanded Lottery Act Revenue Fund (ELARF) in the amount of 50% of the money credited to the ELARF, after a reduction of $10.5 million. Using the 2010 valuation to develop projections of the funded ratio at the time HB 2333 was enacted, the additional ELARF contributions were expected to be required from fiscal year 2014 through fiscal year 2026. However, based on more recent projections of the funded ratio's growth, ELARF contributions would be required in fiscal years 2015 through 2025. You have requested that we prepare a cost study to determine the impact of eliminating the additional contributions from ELARF.

The projected ELARF contributions were assumed to be made in addition to the regular KPERS statutory contribution until the funded ratio of the State/School group was at least 80%. Therefore, removing the additional ELARF contributions would result in less money being contributed to KPERS from FY 2015 through FY 2025 than expected when HB 2333 was enacted, which would then, in turn, result in higher employer contribution rates. The System's funded status will also be somewhat lower during that period until the higher contribution rates are sufficient to replace the impact of losing the ELARF funds.

**Cost Impact**

We used the projection model prepared in conjunction with the December 31, 2013 actuarial valuation to measure the cost impact of eliminating the additional KPERS contributions from ELARF. Exhibit A shows the estimated employer contribution rate and the corresponding total dollar amounts of employer contributions, including ELARF contributions under the current funding plan and without for the scenario eliminating ELARF contributions. Exhibit B shows the key valuation results in future years under each scenario. The total employer contributions through FY 2041 are $15,362.30 million from statutory contributions and another $455.06 million from ELARF for a total of $15,817.36 million. If ELARF is eliminated, the total employer contributions over the same period are $16,213.40 million, an increase of $396.04 million.

Please note that the dollar amounts of employer contributions shown in the exhibits are future dollar amounts, calculated using the estimated employer contribution rate and projected payroll in future years. Due to the length of the projection period, the future payroll amounts grow significantly and the resulting contributions in nominal dollars in those years can appear very large. If the analysis were done on a present value basis, the net contribution difference would be nearly zero as the later contributions include 8% interest on the contribution shortfall in the earlier years. This is to be expected since the same present value of total contribution amounts is required under either scenario. Eliminating the ELARF simply changes the timing and source of the contributions.

The projections used in this cost study assume that all actuarial assumptions, including the 8% investment return assumption, are met each year in the future. The cost projections are sensitive to the assumptions used, particularly the investment return assumption. To the extent the 8% investment return assumption is not met in the future, the cost projections in these studies are expected to change. Further analysis can be provided upon request if it is deemed to be necessary or helpful.

**Disclaimers, Caveats, and Limitations**

The numerical charts that comprise this study are based primarily upon the December 31, 2013 valuation results, the actuarial assumptions used in that valuation (other than as noted elsewhere in this letter), and the projection model prepared by the System's actuary, Cavanaugh Macdonald Consulting, LLC. Significant items are noted below:

- The investment return in all future years is assumed to be 8% on a market value basis, unless otherwise indicated.
- All demographic assumptions regarding mortality, disability, retirement, salary increases, and termination of employment are assumed to hold true in the future. Please note that the actuarial assumption assumes that mortality will improve in the future (i.e. people will live longer).
- The number of active members covered by KPERS in the future is assumed to remain level (neither growth nor decline in the active membership count). As active members leave covered employment, they are assumed to be replaced by new employees who have a similar demographic profile as recent new hires.
- Plan provisions for KPERS 1, 2 and 3 benefits are as set out in state statute. There are no changes from the benefit provisions in statute reflected in future years.
- The funding methods, including the entry age normal cost method, the asset smoothing method, and the amortization method and period, remain unchanged.
- All projections reflect the current statutory caps, i.e. 0.9% in FY 2014, 1.0% in FY 2015, 1.1% in FY 2016 and an ultimate cap of 1.2% in FY 2017 and beyond.
- We relied upon the membership data provided by KPERS for the actuarial valuation. The numerical results depend on the integrity of this information. If there are material inaccuracies in the data, the results presented herein may be different and the projections may need to be revised.

Models are designed to identify anticipated trends and to compare various scenarios rather than predicting some future state of events. The projections are based on the System's estimated financial status on December 31, 2013, and project future events using one set of assumptions out of a range of many possibilities. A different set of assumptions would lead to different results. The projections do not predict the System's financial condition or its ability to pay benefits in the future and do not provide any guarantee of future financial soundness of the System. Over time, a defined benefit plan's total cost will depend on a number of factors, including the amount of benefits paid, the number of people paid benefits, the duration of the benefit payments, plan expenses, and the amount of earnings on assets invested to pay benefits. These

amounts and other variables are uncertain and unknowable at the time the projections were prepared. Because not all of the assumptions will unfold exactly as expected, actual results will differ from the projections. To the extent that actual experience deviates significantly from the assumptions, results could be significantly better or significantly worse than indicated in this study.

We are available to answer any questions on the material contained in this study or to provide explanations or further details upon request. We, Patrice A. Beckham F.S.A. and Brent A. Banister, F.S.A., are consulting actuaries with Cavanaugh Macdonald Consulting, LLC. We are also members of the American Academy of Actuaries and Fellows of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

If you have questions or need additional analysis, please let us know.

Sincerely,

Patrice Beckham

Patrice A. Beckham, FSA, FCA, EA, MAAA
Principal and Consulting Actuary

Brent A. Banister

Brent A. Banister, PhD, FSA, FCA, EA, MAAA
Chief Pension Actuary

# Exhibit A

## Current Plan with ELARF vs. Eliminating ELARF

### State/School Group

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| | | Employer Contribution Rate | | Employer Contribution Amount ($M) | | |
| Fiscal Year | Total Payroll | Current | No ELARF | Current | No ELARF | Difference |
| 2015 | $ 4,440.00 | 11.27% | 11.27% | $ 500.39 | $ 500.39 | $ - |
| 2016 | 4,554.81 | 12.37% * | 12.37% | 603.09 | 563.43 | (39.67) |
| 2017 | 4,663.16 | 13.57% * | 13.57% | 673.35 | 632.79 | (40.56) |
| 2018 | 4,784.85 | 14.77% * | 14.77% | 748.20 | 706.72 | (41.48) |
| 2019 | 4,918.20 | 14.83% * | 14.83% | 772.01 | 729.60 | (42.41) |
| 2020 | 5,061.65 | 14.51% * | 14.59% | 777.87 | 738.55 | (39.32) |
| 2021 | 5,215.15 | 14.19% * | 14.35% | 784.31 | 748.32 | (36.00) |
| 2022 | 5,378.89 | 14.09% * | 14.35% | 802.99 | 771.64 | (31.35) |
| 2023 | 5,552.28 | 13.96% * | 14.33% | 826.85 | 795.80 | (31.05) |
| 2024 | 5,734.26 | 13.85% * | 14.34% | 846.61 | 822.08 | (24.53) |
| 2025 | 5,925.05 | 13.72% * | 14.34% | 866.70 | 849.76 | (16.94) |
| 2026 | 6,124.89 | 13.58% | 14.34% | 831.84 | 878.39 | 46.55 |
| 2027 | 6,334.01 | 13.41% | 14.34% | 849.37 | 908.28 | 58.91 |
| 2028 | 6,553.23 | 13.21% | 14.34% | 865.54 | 939.59 | 74.05 |
| 2029 | 6,782.71 | 12.98% | 14.34% | 880.10 | 972.35 | 92.24 |
| 2030 | 7,022.28 | 12.85% | 14.31% | 902.70 | 1,005.23 | 102.53 |
| 2031 | 7,271.88 | 12.74% | 14.30% | 926.12 | 1,039.57 | 113.44 |
| 2032 | 7,532.39 | 12.61% | 14.27% | 949.67 | 1,074.71 | 125.04 |
| 2033 | 7,804.13 | 4.97% | 5.57% | 387.51 | 434.33 | 46.82 |
| 2034 | 8,087.28 | 3.67% | 4.11% | 297.12 | 332.70 | 35.58 |
| 2035 | 8,382.76 | 2.36% | 2.62% | 197.81 | 219.61 | 21.80 |
| 2036 | 8,690.60 | 1.46% | 1.59% | 127.24 | 138.54 | 11.30 |
| 2037 | 9,010.83 | 1.08% | 1.15% | 97.34 | 103.65 | 6.31 |
| 2038 | 9,344.71 | 0.85% | 0.88% | 79.37 | 82.17 | 2.80 |
| 2039 | 9,693.54 | 0.75% | 0.76% | 72.77 | 73.74 | 0.97 |
| 2040 | 10,057.93 | 0.72% | 0.73% | 72.66 | 73.66 | 1.01 |
| 2041 | 10,440.12 | 0.75% | 0.75% | 77.81 | 77.81 | - |
| | | | Total | $ 15,817.36 | $ 16,213.40 | $ 396.04 |

* Indicates additional contributions from ELARF are added to this contribution rate to get the total contribution amount shown.

This exhibit is an attachment to a letter that contains important information and explanations regarding the numbers shown. Therefore, the exhibit should only be considered with the accompanying letter from Cavanaugh Macdonald dated December 16, 2014.
All assumptions, including the 8% investment return, are assumed to be met each year in the future.

12/16/2014

# Exhibit B

**Kansas Public Employee Retirement System**
**Comparison of State/School Group Funded Status Measures**
**Current Plan with ELARF vs. Eliminating ELARF**
(Dollar amounts in millions)

| | Current Plan | | | | Eliminate ELARF | | | |
|---|---|---|---|---|---|---|---|---|
| Valuation Date | Actuarial Liability | Actuarial Assets | Unfunded Actuarial Liability | Funded Ratio | Actuarial Liability | Actuarial Assets | Unfunded Actuarial Liability | Funded Ratio |
| 12/31/2013 | $ 17,078.13 | $ 9,726.42 | $ 7,351.70 | 57.0% | $ 17,078.13 | $ 9,726.42 | $ 7,351.70 | 57.0% |
| 12/31/2014 | 17,783.41 | 10,473.40 | 7,310.01 | 58.9% | 17,783.41 | 10,473.40 | 7,310.01 | 58.9% |
| 12/31/2015 | 18,462.18 | 11,200.48 | 7,261.70 | 60.7% | 18,462.18 | 11,200.48 | 7,261.70 | 60.7% |
| 12/31/2016 | 19,111.31 | 12,105.39 | 7,005.92 | 63.3% | 19,111.31 | 12,064.17 | 7,047.14 | 63.1% |
| 12/31/2017 | 19,735.84 | 12,998.50 | 6,737.34 | 65.9% | 19,735.84 | 12,911.83 | 6,824.02 | 65.4% |
| 12/31/2018 | 20,337.87 | 13,764.98 | 6,572.90 | 67.7% | 20,337.87 | 13,628.26 | 6,709.61 | 67.0% |
| 12/31/2019 | 20,937.13 | 14,561.09 | 6,376.03 | 69.5% | 20,937.13 | 14,371.44 | 6,565.69 | 68.6% |
| 12/31/2020 | 21,528.52 | 15,374.70 | 6,153.82 | 71.4% | 21,528.52 | 15,131.20 | 6,397.31 | 70.3% |
| 12/31/2021 | 22,114.60 | 16,216.53 | 5,898.07 | 73.3% | 22,114.60 | 15,919.03 | 6,195.57 | 72.0% |
| 12/31/2022 | 22,701.02 | 17,100.20 | 5,600.82 | 75.3% | 22,701.02 | 16,749.68 | 5,951.34 | 73.8% |
| 12/31/2023 | 23,288.73 | 18,036.30 | 5,252.43 | 77.4% | 23,288.73 | 17,629.33 | 5,659.40 | 75.7% |
| 12/31/2024 | 23,881.04 | 19,026.87 | 4,854.17 | 79.7% | 23,881.04 | 18,566.26 | 5,314.78 | 77.7% |
| 12/31/2025 | 24,478.87 | 20,076.84 | 4,402.03 | 82.0% | 24,478.87 | 19,566.78 | 4,912.09 | 79.9% |
| 12/31/2026 | 25,085.06 | 21,134.99 | 3,950.07 | 84.3% | 25,085.06 | 20,638.81 | 4,446.25 | 82.3% |
| 12/31/2027 | 25,704.59 | 22,260.27 | 3,444.32 | 86.6% | 25,704.59 | 21,793.35 | 3,911.24 | 84.8% |
| 12/31/2028 | 26,339.22 | 23,456.75 | 2,882.48 | 89.1% | 26,339.22 | 23,038.71 | 3,300.51 | 87.5% |
| 12/31/2029 | 26,991.85 | 24,734.81 | 2,257.04 | 91.6% | 26,991.85 | 24,384.44 | 2,607.41 | 90.3% |
| 12/31/2030 | 27,678.56 | 26,106.63 | 1,571.93 | 94.3% | 27,678.56 | 25,840.34 | 1,838.22 | 93.4% |
| 12/31/2031 | 28,393.88 | 27,582.23 | 811.65 | 97.1% | 28,393.88 | 27,418.44 | 975.44 | 96.6% |
| 12/31/2032 | 29,139.65 | 28,870.28 | 269.37 | 99.1% | 29,139.65 | 28,783.41 | 356.25 | 98.8% |
| 12/31/2033 | 29,921.64 | 29,889.54 | 32.10 | 99.9% | 29,921.64 | 29,838.64 | 83.00 | 99.7% |
| 12/31/2034 | 30,744.24 | 30,864.34 | (120.10) | 100.4% | 30,744.24 | 30,839.31 | (95.07) | 100.3% |
| 12/31/2035 | 31,610.21 | 31,800.19 | (189.99) | 100.6% | 31,610.21 | 31,790.45 | (180.24) | 100.6% |
| 12/31/2036 | 32,522.27 | 32,728.76 | (206.48) | 100.6% | 32,522.27 | 32,727.43 | (205.16) | 100.6% |
| 12/31/2037 | 33,488.04 | 33,680.22 | (192.17) | 100.6% | 33,488.04 | 33,683.55 | (195.51) | 100.6% |
| 12/31/2038 | 34,513.89 | 34,669.99 | (156.10) | 100.5% | 34,513.89 | 34,675.57 | (161.67) | 100.5% |
| 12/31/2039 | 35,603.26 | 35,708.59 | (105.33) | 100.3% | 35,603.26 | 35,715.64 | (112.38) | 100.3% |

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