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April 25, 2012

Mr. Alan Conroy
Executive Director
Kansas Public Employees Retirement System
611 South Kansas Avenue, Suite 100
Topeka, KS 66603

Re: Cost Projections under HB 2194, Senate Bill 429, President Morris/Senator Kelly Cash Balance Plan and Senator King's Plan Design with 7% Investment Return Assumption

Dear Alan:

As you requested, we have prepared projected employer contribution estimates under four proposed plan designs: (1) HB 2194, (2) Senate Bill 429 (SB 429), (3) President Morris/Senator Kelly Cash Balance Plan (Morris/Kelly Plan), and (4) Senator King's proposed plan design (King Plan) using a 7% assumed rate of return. HB 2194 is a traditional final average pay defined benefit plan. Both SB 429 and Senator King's plan are combination plans with employer contributions used to fund a Cash Balance Plan (defined benefit plan) and employee contributions going into a defined contribution plan. The Morris/Kelly Plan is a Cash Balance Plan (defined benefit plan) funded by both employer and employee contributions. Comprehensive cost studies were previously performed for each of these three proposed plan designs as well as HB 2194. However, those cost studies were prepared using an 8% investment return assumption. The cost estimates shown in the attached exhibits reflect a 7% investment return assumption. However, the prior cost study letters should be referred to for the specific plan provisions of each plan design. The cost study letter for SB 429 is dated February 28, 2012. The cost study letter for President Morris/Senator Kelly's Cash Balance Plan is dated March 23, 2012 and the cost study letter for Senator King's proposed plan design is dated March 27, 2012.

Statutory Contribution Cap

In KPERS, the employers do not necessarily contribute the full actuarial contribution rate. Based on legislation passed in 1993, the employer contribution rates certified by the Board may not increase by more than the statutory cap. The current statutory cap, which has been changed periodically, is 0.60% for the State, School and Local groups. Senate Substitute for HB 2194 increased the statutory cap over a four year period beginning with 0.9% in FY 2014 to an ultimate cap of 1.2% in FY 2017. The increases in the statutory cap on the employer contribution rate contained in Senate Substitute for HB 2194 are maintained in the cost projections for all of the plan designs.

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Sn Select KPERS
Attachment 3

4-27-12



Senate Substitute for HB 2194

The cost projections for HB 2194 shown in this study are based on the default elections provided under Senate Substitute for HB 2194 as passed by the 2011 Legislature. In addition, the projections for the other three plan designs shown in the attached exhibits reflect the default benefit provision changes for KPERS Tier 1 and 2 members included in Senate Substitute for HB 2194.

Actuarial Assumptions and Methods

In general, the same actuarial methods and assumptions that were used in the December 31, 2010 actuarial valuation were used in this cost study with the exception of the assumed rate of investment return, which was set at 7.0% (discussed further below) and the retirement rates. Because retirement eligibility requirements under SB 429 are different than those in the current plan, as well as the benefits provided, it was necessary to develop new retirement rates. Cavanaugh Macdonald selected retirement rates that we believe are reasonable given the limited knowledge we have at this time about behaviors that will occur many years in the future. However, actual experience may vary, at times significantly, from the assumptions used in these projections. If it does, the cost projections will also be impacted.

We were asked to provide these additional cost projections reflecting a change in the underlying investment return assumption for KPERS from 8% to 7%. This letter contains the results of that cost study using a 7% assumed rate of return and a 7% actual return on assets in each future year of the projection period (i.e., actual experience is the same as the assumption) to project both liabilities and costs under HB 2194, SB 429, Morris/Kelly Cash Balance Plan and the King Hybrid Plan.

Please note that any change to actuarial assumptions is the responsibility of the KPERS' Board of Trustees. A significant amount of time and thorough study would be completed before the Board would change the current actuarial assumptions. This is particularly true with respect to the investment return assumption, due to its significant impact on valuation results. A change in the assumed rate of return from 8% to 7% represents a significant decrease in that assumption. Given the sensitivity of the investment return assumption, a decrease or increase in the investment return assumption of that magnitude would be unusual in the absence of either a significant change in the underlying asset allocation of the KPERS portfolio or a fundamental change in economic conditions that is expected to be permanent or in effect for a long time. Although the cost study request presented to us did not indicate which type of circumstance was assumed to be the basis for the 7% return assumption, an understanding of the reason for the change is relevant due to actuarial standards of practice.

Under actuarial standards of practice, all economic assumptions used in the valuation must be consistent. A change in KPERS' asset allocation could occur independently of broader economic conditions, and in that case, a change in the investment return assumption may not require any adjustment to other economic actuarial assumptions. However, the request did not suggest that a change in KPERS' asset allocation is to be assumed. Therefore, it appears that request was posed in order to understand the impact of a fundamental shift in economic factors, leading to much lower returns over the next 50 years.

In that case, other economic assumptions, such as the salary increase and payroll growth assumptions, must be consistent with that economic scenario. For this reason, other assumptions were also changed so the resulting set of economic assumptions would be consistent with the lower investment return assumption of 7%. Specifically, the salary increase assumption was lowered at all durations by 0.50% and the payroll growth assumption was lowered from 4.00% to 3.50%. It is possible that such an economic scenario would also create changes in the demographic assumptions such as retirement rates and termination of employment rates. How this experience might change in the future is unknown at this time and, therefore, was not modeled.



The projection of future benefit amounts for Tier 3 members under a cash balance plan design may require the use of two additional assumptions that are not necessary in the valuation of projected benefits for Tier 1 and 2 members. They are:

- (1) interest crediting rate and
- (2) annuity conversion factors (which require a postretirement interest rate and a mortality table).

The initial cost projections for SB 429, included in our February 28, 2012, letter, were based on an investment return assumption of 8% and assumed actual returns in future years of 8%. Under SB 429, the actual return on the KPERS portfolio is credited to the employer annuity account, so in the initial cost study the assumed interest crediting rate was set to 8%. For purposes of this cost study, the interest crediting rate is set equal to 7%, the assumed rate of return in this cost study. As a result, the benefits provided under this set of assumptions are lower than those provided under the initial cost study using an 8% assumed rate of return. This reduction in the amount of benefits provided to members mitigates the cost impact of the lower assumed investment return.

SB 429 requires the use of the interest rates published by the Pension Benefit Guaranty Corporation for distress terminations be used to determine the annuity conversion factors. The PBGC distress termination interest rates vary every month and are dependent on market conditions along with other factors considered by the PBGC. Since the applicable rates are unknown in the future, an actuarial assumption must be used to estimate future experience. In the initial projections for SB 429, this assumption was set to 6.5% when the investment return assumption was 8%. For purposes of this cost study that uses a 7% assumed rate of return, the post-retirement interest rate was lowered to 6.0% to ensure all economic assumptions are consistent as required by actuarial standards of practice. The mortality table used for the annuity conversion factors (which convert the cash balance account value to monthly income) remained the RP 2000 Mortality Table projected to 2035, using Projection Scale AA, with a 50/50 male/female blend as was used in the initial cost study for SB 429. The interest rate used to convert the account balance to monthly income is set at 6% as part of the plan design in the Morris/Kelly Cash Balance Plan and the cash balance portion of the King Hybrid Plan so no actuarial assumption is required under those plan designs.

Please note that this alternate set of assumptions does not represent a recommendation for a change in the current assumptions by either KPERS or Cavanaugh Macdonald Consulting, LLC. These projections were created as a response to a specific request to provide cost projections using a 7% investment return assumption. Therefore, the projected cost analyses provided with this letter should be viewed in the context in which it was requested.

The Morris/Kelly Cash Balance Plan and the Cash Balance portions of SB 429 and the King Plan are all defined benefit plans. Our modeling assumes that the new tier will be combined with the existing KPERS Tiers 1 and 2 in one system with one trust. However, separate employer contribution rates will continue to be determined for the State/School group and the Local group. The actuarial valuation will reflect the future benefit payments for Tier 3 members along with those for Tier 1 and 2 members and one overall employer contribution rate will be developed for each group, which includes the UAL payment, to be paid on all covered payroll (Tier 1, Tier 2 and Tier 3 members). From an actuarial perspective, the valuation process is unchanged other than reflecting the new benefit structure for Tier 3 members.



The amortization period used in the cost study remained at a closed 22 year period starting on December 31, 2010. If the investment return assumption was changed to 7%, both the normal cost rate and the UAL would increase significantly at that time, resulting in a large spike in the actuarial contribution rate. Given the situation, the Board of Trustees might either extend the current amortization period beyond 22 years for the entire UAL or amortize only the increase in the UAL due to the assumption change over a separate, longer period such as thirty years. Either action would modify the cost estimates provided herein. However, as such action is dependent on future events, including Board action, no change is reflected in these cost estimates. The amortization period was set to an open ten year period in 2030 for all cost projections in this study to mitigate the impact of the time lag between the valuation date and the fiscal year in which the contribution rate is effective.

Results

The cost impact of the various proposed plan designs will unfold over time as current Tier 1 and Tier 2 members leave covered employment and are replaced by Tier 3 members. Therefore, a projection of employer costs over a long period of time is necessary in order to see the long term impact of the proposed plan design. The employer cost estimates under HB 2194, SB 429, the Morris/Kelly Cash Balance Plan, and the King Cash Balance Plan are reflected in the attached exhibits. Exhibits A1 and A2 show the expected employer contribution rate under each plan design by year for the State/School and Local groups and Exhibits B1 and B2 show the estimated dollar amount of employer contributions in each future year and in total. The projections assume that all actuarial assumptions, including the 7% investment return assumption, are met in the future. Please note that the dollar amounts of employer contributions shown 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. In order to provide a method for more direct comparison of results, the present value of the total employer contributions at 7% has been included at the bottom of Exhibits B1 and B2. Please note that the present value of these four plan designs can be compared to each other, but it would not be appropriate to compare these present value amounts to other present value calculations using an 8% investment return assumption. The employer contribution rate also provides a reliable way to compare the cost of various plan designs in the future. Exhibits C1 and C2 show the normal cost rate for each of the plan designs.

Because there are four different plan designs included in this cost study, it was not feasible to show a year by year cost comparison for every combination of plan designs. The detail of the cost projections is provided in the attached exhibits and summary tables for the State/School and Local groups are included on the following page.



State/School Group

	Total Nominal Contributions (\$M)	Total Present Value (PV) of Contributions (\$M)	PV of contributions as % of PV Payroll
HB 2194	\$31,612	\$11,339	11.36%
SB 429	35,611	11,759	11.78%
Difference	(3,999)	(420)	(0.42%)
HB 2194	\$31,612	\$11,339	11.36%
Morris/Kelly Plan	35,412	11,738	11.76%
Difference	(3,800)	(399)	(0.40%)
HB 2194	\$31,612	\$11,339	11.36%
King Hybrid Plan	35,010	11,684	11.70%
Difference	(3,398)	(345)	(0.34%)
SB 429	\$35,611	\$11,759	11.78%
Morris/Kelly Plan	35,412	11,738	11.76%
Difference	199	21	0.02%
SB 429	\$35,611	\$11,759	11.78%
King Hybrid Plan	35,010	11,684	11.70%
Difference	601	75	0.08%
Morris/Kelly Plan	\$35,412	\$11,738	11.76%
King Hybrid Plan	35,010	11,684	11.70%
Difference	402	54	0.06%

Local Group

	Total Nominal Contributions (\$M)	Total Present Value (PV) of Contributions (\$M)	PV of contributions as % of PV Payroll
HB 2194	\$8,544	\$2,967	8.11%
SB 429	9,768	3,102	8.48%
Difference	(1,224)	(135)	(0.37%)
HB 2194	\$8,544	\$2,967	8.11%
Morris/Kelly Plan	9,798	3,100	8.48%
Difference	(1,254)	(133)	(0.37%)
HB 2194	\$8,544	\$2,967	8.11%
King Hybrid Plan	9,726	3,100	8.48%
Difference	(1,182)	(133)	(0.37%)
SB 429	\$9,768	\$3,102	8.48%
Morris/Kelly Plan	9,798	3,100	8.48%
Difference	(30)	2	0.00%



Local Group, continued

	Total Nominal Contributions (\$M)	Total Present Value (PV) of Contributions (\$M)	PV of contributions as % of PV Payroll
SB 429	\$9,768	\$3,102	8.48%
King Hybrid Plan	9,726	3,100	8.48%
Difference	42	2	0.00%
Morris/Kelly Plan	\$9,798	\$3,100	8.48%
King Hybrid Plan	9,726	3,100	8.48%
Difference	72	0	0.00%

The cost projections attached to this letter are based on one set of actuarial assumptions, which include a 7% assumed rate of investment return. The cost projections for the various plan designs are sensitive to the assumptions used, particularly the investment return assumption. However, the impact of different assumptions varies for each of the plan designs. Further analysis can be conducted if it is deemed to be necessary or helpful.

It should also be noted that the different plan designs reflected in HB 2194, SB 429, the Morris/Kelly Cash Balance Plan, and the King Plan do not provide the same amount of retirement benefits. This, in turn, has an impact on the cost of the plan designs. Therefore, the cost projections should not be evaluated in isolation from the benefit amounts provided by each plan design.

Disclaimers, Caveats, and Limitations

The numerical charts that comprise this study are based primarily upon the December 31, 2010 valuation results, the actuarial assumptions used in the valuation (other than as noted in this letter), and the projection model prepared by the System's actuary, Cavanaugh Macdonald Consulting, LLC. Significant items are noted below:

- Investment return in all future years is assumed to be 7% on a market value basis, unless otherwise indicated.
- New salary increase assumptions and payroll growth assumptions were developed for the projections using a 7% investment return assumption to create a consistent set of economic assumptions and to comply with Actuarial Standards of Practice. The specific assumptions are discussed elsewhere in this letter.
- 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).
- Changes in the retirement plan eligibility and benefit amounts may have an effect on future termination and retirement patterns. While we have attempted to reflect the change in retirement eligibility under SB 429, whether termination of employment patterns will ultimately be impacted cannot be known at this time. Therefore, no change in that assumption has been modeled.



- 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 employment, they are assumed to be replaced by new employees who have a similar demographic profile as recent new hires.
- Plan provisions for Tiers 1 and 2 are modified in accordance with Senate Substitute for HB 2194, for projections for all plan designs. Tier 3 benefits are as provided under HB 2194, SB 429, the Morris/Kelly Cash Balance Plan or the King Hybrid Plan as described in the cost study letters previously prepared by Cavanaugh Macdonald Consulting, LLC on February 28, 2012, March 23, 2012 and March 27, 2012. There are no other benefit changes 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 other than as noted elsewhere in this letter.
- The projections reflect the statutory caps for the State/School and Local employers under Senate Substitute for HB 2194, which are also included in SB 429, Morris/Kelly Plan and King Plan.
- 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 this 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, 2010, 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 made. 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, Patrice A. Beckham, FSA and Brent A. Banister, FSA, are consulting actuaries with Cavanaugh Macdonald Consulting, LLC. We are members of the American Academy of Actuaries, 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 any questions or additional information is needed, please let us know. We are available to provide additional analysis or explanation.

Sincerely,

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

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

Exhibit A1



KPERS Contribution Rate Projections Under
 HB 2194, SB 429, Morris/Kelly Cash Balance Plan, and King Hybrid Plan
 State/School Group
 7% Return Assumption

Fiscal Year	Total Payroll	Employer Contribution Rate			
		HB 2194	SB 429	Morris/Kelly Cash Balance	King Hybrid
2012	\$ 4,433.56	8.77%	8.77%	8.77%	8.77%
2013	4,556.08	9.37%	9.37%	9.37%	9.37%
2014	4,666.86	10.27%	10.27%	10.27%	10.27%
2015	4,789.53	11.27%	11.27%	11.27%	11.27%
2016	4,922.32	12.37%	12.37%	12.37%	12.37%
2017	5,063.74	13.57%	13.57%	13.57%	13.57%
2018	5,213.31	14.77%	14.77%	14.77%	14.77%
2019	5,371.81	15.97%	15.97%	15.97%	15.97%
2020	5,539.51	17.17%	17.17%	17.17%	17.17%
2021	5,716.42	18.37%	18.37%	18.37%	18.37%
2022	5,902.52	19.57%	19.57%	19.57%	19.57%
2023	6,097.20	20.77%	20.77%	20.77%	20.77%
2024	6,300.12	21.53%	21.83%	21.74%	21.78%
2025	6,511.57	21.77%	22.14%	22.02%	22.06%
2026	6,731.88	21.90%	22.35%	22.21%	22.23%
2027	6,961.21	21.95%	22.47%	22.32%	22.31%
2028	7,199.76	21.93%	22.50%	22.36%	22.30%
2029	7,447.77	21.89%	22.50%	22.37%	22.26%
2030	7,705.16	21.82%	22.45%	22.35%	22.16%
2031	7,972.02	21.71%	22.38%	22.32%	22.03%
2032	8,248.84	21.58%	22.23%	22.27%	21.82%
2033	8,535.63	8.78%	9.40%	9.36%	9.28%
2034	8,832.47	6.63%	7.26%	7.23%	7.17%
2035	9,139.92	4.41%	5.05%	5.04%	5.00%
2036	9,458.26	2.90%	3.54%	3.56%	3.52%
2037	9,787.15	2.22%	2.90%	2.92%	2.87%
2038	10,127.47	1.79%	2.47%	2.51%	2.46%
2039	10,480.23	1.56%	2.27%	2.33%	2.26%
2040	10,846.25	1.46%	2.20%	2.26%	2.17%
2041	11,227.40	1.41%	2.18%	2.25%	2.15%
2042	11,624.80	1.42%	2.21%	2.28%	2.17%
2043	12,037.64	1.44%	2.25%	2.33%	2.21%
2044	12,464.79	1.46%	2.31%	2.39%	2.25%
2045	12,906.10	1.50%	2.36%	2.45%	2.31%
2046	13,361.44	1.54%	2.43%	2.51%	2.36%
2047	13,827.98	1.58%	2.49%	2.56%	2.42%
2048	14,304.88	1.62%	2.55%	2.61%	2.46%
2049	14,795.37	1.66%	2.62%	2.67%	2.51%
2050	15,302.49	1.70%	2.66%	2.70%	2.57%
2051	15,827.36	1.74%	2.73%	2.73%	2.61%
2052	16,370.19	1.78%	2.78%	2.77%	2.64%
2053	16,932.17	1.80%	2.83%	2.80%	2.68%
2054	17,514.40	1.84%	2.88%	2.82%	2.73%
2055	18,117.73	1.87%	2.93%	2.83%	2.76%
2056	18,742.90	1.90%	2.96%	2.84%	2.78%
2057	19,390.65	1.92%	3.02%	2.84%	2.81%
2058	20,061.85	1.95%	3.04%	2.84%	2.83%
2059	20,757.34	1.97%	3.07%	2.84%	2.86%
2060	21,478.02	1.98%	3.12%	2.83%	2.88%

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 April 25, 2012.

All assumptions, including the 7% investment return, are assumed to be met each year in the future.

4/25/2012

Exhibit A2



KPERS Contribution Rate Projections Under
 HB 2194, SB 429, Morris/Kelly Cash Balance Plan, and King Hybrid Plan
 Local Group
 7% Return Assumption

Fiscal Year	Total Payroll	Employer Contribution Rate			
		HB 2194	SB 429	Morris/Kelly Cash Balance	King Hybrid
2012	\$ 1,663.26	7.34%	7.34%	7.34%	7.34%
2013	1,703.29	7.94%	7.94%	7.94%	7.94%
2014	1,745.48	8.84%	8.84%	8.84%	8.84%
2015	1,792.57	9.84%	9.84%	9.84%	9.84%
2016	1,842.12	10.94%	10.94%	10.94%	10.94%
2017	1,893.93	12.14%	12.14%	12.14%	12.14%
2018	1,947.69	12.67%	12.76%	12.66%	12.80%
2019	2,003.46	12.81%	12.94%	12.83%	12.99%
2020	2,061.20	12.87%	13.06%	12.93%	13.09%
2021	2,121.84	12.91%	13.13%	13.00%	13.15%
2022	2,185.11	12.93%	13.19%	13.06%	13.20%
2023	2,250.86	12.95%	13.25%	13.12%	13.25%
2024	2,319.97	12.97%	13.29%	13.17%	13.28%
2025	2,392.25	12.99%	13.33%	13.23%	13.31%
2026	2,467.45	13.01%	13.36%	13.28%	13.33%
2027	2,545.77	13.03%	13.39%	13.33%	13.34%
2028	2,628.05	13.03%	13.41%	13.39%	13.34%
2029	2,713.68	13.05%	13.42%	13.44%	13.33%
2030	2,803.17	13.06%	13.42%	13.51%	13.29%
2031	2,895.98	13.07%	13.39%	13.59%	13.23%
2032	2,991.84	5.78%	6.25%	6.26%	6.26%
2033	3,091.41	4.58%	5.07%	5.08%	5.10%
2034	3,194.52	3.32%	3.85%	3.86%	3.90%
2035	3,301.68	2.91%	3.44%	3.47%	3.50%
2036	3,412.53	2.61%	3.17%	3.21%	3.23%
2037	3,527.98	2.45%	3.03%	3.09%	3.09%
2038	3,648.11	2.34%	2.94%	3.01%	2.99%
2039	3,772.55	2.26%	2.88%	2.97%	2.93%
2040	3,901.56	2.20%	2.84%	2.93%	2.88%
2041	4,034.66	2.15%	2.80%	2.90%	2.84%
2042	4,173.02	2.11%	2.78%	2.89%	2.81%
2043	4,316.37	2.08%	2.76%	2.88%	2.80%
2044	4,464.79	2.04%	2.75%	2.87%	2.78%
2045	4,618.78	2.01%	2.74%	2.87%	2.77%
2046	4,778.21	1.99%	2.74%	2.87%	2.76%
2047	4,942.60	1.98%	2.75%	2.87%	2.75%
2048	5,112.42	1.97%	2.75%	2.86%	2.75%
2049	5,288.30	1.95%	2.77%	2.87%	2.75%
2050	5,470.64	1.95%	2.78%	2.86%	2.76%
2051	5,658.94	1.95%	2.79%	2.87%	2.76%
2052	5,853.75	1.95%	2.80%	2.86%	2.77%
2053	6,055.47	1.95%	2.82%	2.86%	2.78%
2054	6,264.59	1.96%	2.84%	2.85%	2.78%
2055	6,481.19	1.96%	2.86%	2.85%	2.79%
2056	6,705.46	1.96%	2.87%	2.84%	2.79%
2057	6,937.73	1.96%	2.89%	2.83%	2.81%
2058	7,178.33	1.98%	2.91%	2.82%	2.81%
2059	7,427.51	1.98%	2.93%	2.81%	2.82%
2060	7,685.62	1.99%	2.95%	2.80%	2.83%

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 April 25, 2012.
 All assumptions, including the 7% investment return, are assumed to be met each year in the future.

4/25/2012

Exhibit B1



KPERS Cost Projections Under
 HB 2194, SB 429, Morris/Kelly Cash Balance Plan, and King Hybrid Plan
 State/School Group
 7% Return Assumption

Fiscal Year	Total Payroll	Employer Contribution Amount			
		HB 2194	SB 429	Morris/Kelly Cash Balance	King Hybrid
2012	\$ 4,433.56	\$ 388.82	\$ 388.82	\$ 388.82	\$ 388.82
2013	4,556.08	426.90	426.90	426.90	426.90
2014	4,666.86	479.29	479.29	479.29	479.29
2015	4,789.53	539.78	539.78	539.78	539.78
2016	4,922.32	608.89	608.89	608.89	608.89
2017	5,063.74	687.15	687.15	687.15	687.15
2018	5,213.31	770.01	770.01	770.01	770.01
2019	5,371.81	857.88	857.88	857.88	857.88
2020	5,539.51	951.13	951.13	951.13	951.13
2021	5,716.42	1,050.11	1,050.11	1,050.11	1,050.11
2022	5,902.52	1,155.12	1,155.12	1,155.12	1,155.12
2023	6,097.20	1,266.39	1,266.39	1,266.39	1,266.39
2024	6,300.12	1,356.17	1,375.50	1,369.63	1,372.46
2025	6,511.57	1,417.48	1,441.75	1,433.77	1,436.33
2026	6,731.88	1,474.33	1,504.84	1,495.35	1,496.72
2027	6,961.21	1,528.32	1,564.11	1,553.59	1,553.34
2028	7,199.76	1,579.18	1,619.88	1,609.78	1,605.29
2029	7,447.77	1,629.95	1,675.46	1,665.85	1,657.58
2030	7,705.16	1,680.98	1,729.71	1,722.23	1,707.65
2031	7,972.02	1,730.53	1,783.98	1,779.72	1,755.93
2032	8,248.84	1,779.86	1,833.97	1,836.93	1,800.12
2033	8,535.63	749.83	802.35	799.24	792.22
2034	8,832.47	585.47	640.95	638.52	633.06
2035	9,139.92	402.92	461.51	460.61	456.83
2036	9,458.26	274.04	334.97	336.33	332.90
2037	9,787.15	217.32	283.44	285.47	281.17
2038	10,127.47	181.42	250.40	254.71	249.50
2039	10,480.23	163.99	237.86	243.86	236.65
2040	10,846.25	158.22	238.35	244.84	235.59
2041	11,227.40	158.77	244.56	252.71	241.07
2042	11,624.80	165.00	256.57	265.30	252.40
2043	12,037.64	172.90	270.69	280.99	265.57
2044	12,464.79	182.45	287.77	297.66	280.68
2045	12,906.10	193.89	304.66	316.34	297.76
2046	13,361.44	206.11	324.90	336.03	315.49
2047	13,827.98	218.96	344.85	353.78	334.05
2048	14,304.88	231.16	364.32	373.64	351.83
2049	14,795.37	245.34	387.44	394.34	371.78
2050	15,302.49	260.39	407.36	413.19	392.69
2051	15,827.36	274.78	431.46	432.75	413.00
2052	16,370.19	291.43	455.01	453.08	432.54
2053	16,932.17	305.43	479.13	474.18	454.49
2054	17,514.40	321.72	504.14	494.41	477.36
2055	18,117.73	338.77	530.13	513.59	499.47
2056	18,742.90	356.58	555.29	531.61	520.63
2057	19,390.65	373.16	585.08	550.18	544.57
2058	20,061.85	390.38	610.02	569.37	567.53
2059	20,757.34	408.30	637.94	589.22	593.49
2060	21,478.02	424.81	669.10	607.62	618.44
	Total	\$ 31,611.83	\$ 35,610.91	\$ 35,411.89	\$ 35,009.65
	Present Value at 7% as of July 1, 2011	\$ 11,339.31	\$ 11,758.63	\$ 11,737.50	\$ 11,684.43

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All assumptions, including the 7% investment return, are assumed to be met each year in the future.

4/25/2012

Exhibit B2



KPERS Cost Projections Under
 HB 2194, SB 429, Morris/Kelly Cash Balance Plan, and King Hybrid Plan
 Local Group
 7% Return Assumption

Fiscal Year	Total Payroll	Employer Contribution Amount			
		HB 2194	SB 429	Morris/Kelly Cash Balance	King Hybrid
2012	\$ 1,663.26	\$ 122.08	\$ 122.08	\$ 122.08	\$ 122.08
2013	1,703.29	135.24	135.24	135.24	135.24
2014	1,745.48	154.30	154.30	154.30	154.30
2015	1,792.57	176.39	176.39	176.39	176.39
2016	1,842.12	201.53	201.53	201.53	201.53
2017	1,893.93	229.92	229.92	229.92	229.92
2018	1,947.69	246.70	248.53	246.53	249.29
2019	2,003.46	256.66	259.34	257.13	260.27
2020	2,061.20	265.26	269.19	266.56	269.71
2021	2,121.84	273.93	278.51	275.85	279.05
2022	2,185.11	282.61	288.29	285.40	288.46
2023	2,250.86	291.53	298.13	295.24	298.16
2024	2,319.97	301.00	308.31	305.66	307.98
2025	2,392.25	310.77	318.86	316.44	318.38
2026	2,467.45	321.05	329.72	327.80	328.84
2027	2,545.77	331.59	340.88	339.48	339.57
2028	2,628.05	342.48	352.44	351.84	350.67
2029	2,713.68	354.19	364.08	364.84	361.77
2030	2,803.17	365.96	376.07	378.80	372.59
2031	2,895.98	378.54	387.71	393.71	383.26
2032	2,991.84	172.91	187.07	187.25	187.26
2033	3,091.41	141.58	156.73	157.18	157.52
2034	3,194.52	106.13	122.96	123.36	124.69
2035	3,301.68	95.95	113.59	114.58	115.64
2036	3,412.53	89.13	108.30	109.56	110.31
2037	3,527.98	86.40	106.81	109.06	109.12
2038	3,648.11	85.29	107.37	109.94	109.24
2039	3,772.55	85.21	108.64	111.91	110.40
2040	3,901.56	85.86	110.69	114.31	112.30
2041	4,034.66	86.91	113.16	117.16	114.61
2042	4,173.02	88.01	116.15	120.54	117.39
2043	4,316.37	89.60	119.26	124.50	120.68
2044	4,464.79	91.25	122.89	128.16	124.03
2045	4,618.78	92.99	126.63	132.40	127.93
2046	4,778.21	95.28	130.99	137.25	131.92
2047	4,942.60	97.68	135.96	141.76	135.98
2048	5,112.42	100.70	140.55	146.40	140.62
2049	5,288.30	103.36	146.36	151.72	145.40
2050	5,470.64	106.73	151.87	156.69	150.86
2051	5,658.94	110.28	158.10	162.35	156.46
2052	5,853.75	113.98	163.87	167.61	162.23
2053	6,055.47	117.90	171.03	173.04	168.19
2054	6,264.59	122.65	177.83	178.63	174.33
2055	6,481.19	127.01	185.49	184.39	180.67
2056	6,705.46	131.55	192.66	190.32	187.22
2057	6,937.73	136.30	200.69	196.43	194.67
2058	7,178.33	141.98	209.00	202.73	201.69
2059	7,427.51	147.19	217.59	208.50	209.70
2060	7,685.62	152.60	226.45	215.19	217.25
	Total	\$ 8,544.16	\$ 9,768.20	\$ 9,797.64	\$ 9,725.78
	Present Value at 7% as of July 1, 2011	\$ 2,966.70	\$ 3,102.09	\$ 3,100.07	\$ 3,100.24

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 All assumptions, including the 7% investment return, are assumed to be met each year in the future.

4/25/2012



Exhibit C1

Comparison of Employer Normal Cost Rates for
 HB 2194, SB 429, Morris/Kelly Cash Balance Plan, and King Hybrid Plan
 State/School Group
 7% Return Assumption

Fiscal Year	Tier 1/2 Payroll	Tier 3 Payroll	Employer Normal Cost Rate			
			HB 2194	SB 429	Morris/Kelly Cash Balance	King Hybrid
2012	\$ 4,433.56	\$ -	5.22%	5.22%	5.22%	5.22%
2013	4,556.08	-	5.22%	5.22%	5.22%	5.22%
2014	4,666.86	-	5.22%	5.22%	5.22%	5.22%
2015	4,609.55	179.99	3.72%	3.85%	3.64%	3.73%
2016	4,393.12	529.20	3.60%	3.73%	3.54%	3.64%
2017	4,202.75	860.99	3.49%	3.61%	3.46%	3.56%
2018	4,026.76	1,186.55	3.39%	3.56%	3.40%	3.50%
2019	3,859.23	1,512.58	3.30%	3.50%	3.34%	3.44%
2020	3,698.98	1,840.53	3.21%	3.44%	3.27%	3.38%
2021	3,548.24	2,168.18	3.12%	3.39%	3.22%	3.33%
2022	3,406.80	2,495.72	3.04%	3.34%	3.17%	3.29%
2023	3,269.73	2,827.48	2.96%	3.29%	3.12%	3.25%
2024	3,135.78	3,164.34	2.90%	3.25%	3.08%	3.21%
2025	3,004.16	3,507.41	2.83%	3.21%	3.04%	3.19%
2026	2,875.69	3,856.19	2.76%	3.18%	3.00%	3.16%
2027	2,752.04	4,209.17	2.70%	3.16%	2.98%	3.14%
2028	2,632.90	4,566.86	2.64%	3.13%	2.95%	3.13%
2029	2,516.74	4,931.03	2.60%	3.12%	2.93%	3.12%
2030	2,402.25	5,302.91	2.55%	3.11%	2.91%	3.11%
2031	2,288.70	5,683.32	2.50%	3.10%	2.89%	3.11%
2032	2,176.05	6,072.79	2.46%	3.10%	2.88%	3.10%
2033	2,063.81	6,471.82	2.41%	3.10%	2.87%	3.10%
2034	1,951.14	6,881.33	2.38%	3.10%	2.86%	3.11%
2035	1,838.38	7,301.54	2.34%	3.11%	2.85%	3.11%
2036	1,725.34	7,732.93	2.31%	3.12%	2.85%	3.11%
2037	1,610.51	8,176.64	2.27%	3.12%	2.84%	3.11%
2038	1,494.41	8,633.06	2.24%	3.14%	2.83%	3.12%
2039	1,378.14	9,102.09	2.21%	3.15%	2.83%	3.13%
2040	1,262.28	9,583.97	2.19%	3.16%	2.83%	3.13%
2041	1,150.06	10,077.34	2.16%	3.18%	2.82%	3.14%
2042	1,044.75	10,580.05	2.14%	3.19%	2.82%	3.15%
2043	944.85	11,092.80	2.12%	3.20%	2.82%	3.16%
2044	847.01	11,617.78	2.09%	3.22%	2.82%	3.16%
2045	751.78	12,154.32	2.08%	3.24%	2.82%	3.17%
2046	661.85	12,699.60	2.06%	3.25%	2.82%	3.18%
2047	572.69	13,255.30	2.05%	3.27%	2.82%	3.19%
2048	479.88	13,825.00	2.04%	3.29%	2.82%	3.19%
2049	388.12	14,407.24	2.03%	3.30%	2.83%	3.19%
2050	309.54	14,992.96	2.02%	3.32%	2.82%	3.21%
2051	246.86	15,580.49	2.02%	3.34%	2.82%	3.21%
2052	193.17	16,177.02	2.02%	3.36%	2.83%	3.21%
2053	146.33	16,785.84	2.01%	3.37%	2.83%	3.21%
2054	108.91	17,405.49	2.02%	3.39%	2.83%	3.23%
2055	81.91	18,035.82	2.02%	3.40%	2.83%	3.23%
2056	61.50	18,681.40	2.02%	3.41%	2.84%	3.23%
2057	45.32	19,345.33	2.02%	3.42%	2.84%	3.23%
2058	33.10	20,028.75	2.03%	3.43%	2.84%	3.23%
2059	24.36	20,732.98	2.03%	3.43%	2.84%	3.24%
2060	17.98	21,460.04	2.03%	3.44%	2.84%	3.24%

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All assumptions, including the 7% investment return, are assumed to be met each year in the future.

4/25/2012



Exhibit C2

Comparison of Employer Normal Cost Rates for
 HB 2194, SB 429, Morris/Kelly Cash Balance Plan, and King Hybrid Plan
 Local Group
 7% Return Assumption

Fiscal Year	Tier 1/2 Payroll	Tier 3 Payroll	Employer Normal Cost Rate			
			HB 2194	SB 429	Morris/Kelly Cash Balance	King Hybrid
2012	\$ 1,663.26	\$ -	4.70%	4.70%	4.70%	4.70%
2013	1,703.29	-	4.70%	4.70%	4.70%	4.70%
2014	1,745.48	-	3.21%	3.21%	3.09%	3.24%
2015	1,644.25	148.31	3.09%	3.09%	3.00%	3.16%
2016	1,556.92	285.20	2.98%	2.98%	2.94%	3.09%
2017	1,482.25	411.68	2.90%	2.95%	2.90%	3.05%
2018	1,414.38	533.31	2.83%	2.92%	2.86%	3.01%
2019	1,352.61	650.84	2.75%	2.88%	2.81%	2.97%
2020	1,294.13	767.07	2.68%	2.85%	2.77%	2.94%
2021	1,240.22	881.61	2.61%	2.82%	2.73%	2.90%
2022	1,189.19	995.92	2.54%	2.78%	2.69%	2.87%
2023	1,138.95	1,111.91	2.48%	2.76%	2.66%	2.85%
2024	1,091.33	1,228.63	2.42%	2.73%	2.62%	2.83%
2025	1,045.36	1,346.89	2.37%	2.71%	2.60%	2.81%
2026	1,000.26	1,467.19	2.32%	2.69%	2.57%	2.80%
2027	956.01	1,589.76	2.28%	2.68%	2.55%	2.79%
2028	914.33	1,713.71	2.23%	2.67%	2.54%	2.78%
2029	873.75	1,839.93	2.19%	2.67%	2.52%	2.78%
2030	834.67	1,968.50	2.16%	2.67%	2.51%	2.78%
2031	796.18	2,099.80	2.12%	2.67%	2.50%	2.78%
2032	757.61	2,234.23	2.09%	2.67%	2.50%	2.79%
2033	719.41	2,372.00	2.06%	2.68%	2.49%	2.80%
2034	680.88	2,513.64	2.03%	2.69%	2.49%	2.80%
2035	643.42	2,658.26	2.01%	2.70%	2.49%	2.81%
2036	605.22	2,807.30	1.98%	2.71%	2.49%	2.82%
2037	567.86	2,960.12	1.96%	2.73%	2.49%	2.83%
2038	531.02	3,117.09	1.94%	2.74%	2.49%	2.84%
2039	494.54	3,278.01	1.92%	2.76%	2.50%	2.86%
2040	457.84	3,443.72	1.90%	2.78%	2.50%	2.87%
2041	419.90	3,614.75	1.88%	2.79%	2.50%	2.88%
2042	382.86	3,790.16	1.87%	2.81%	2.51%	2.89%
2043	346.89	3,969.48	1.86%	2.83%	2.51%	2.91%
2044	311.00	4,153.79	1.84%	2.85%	2.52%	2.92%
2045	276.72	4,342.06	1.83%	2.87%	2.53%	2.93%
2046	244.64	4,533.58	1.82%	2.89%	2.53%	2.94%
2047	213.29	4,729.30	1.82%	2.91%	2.54%	2.95%
2048	182.45	4,929.97	1.81%	2.93%	2.54%	2.96%
2049	153.31	5,134.99	1.80%	2.95%	2.55%	2.97%
2050	128.99	5,341.65	1.80%	2.97%	2.55%	2.98%
2051	106.41	5,552.53	1.80%	2.98%	2.56%	2.98%
2052	85.48	5,768.27	1.80%	3.00%	2.56%	2.99%
2053	66.17	5,989.30	1.80%	3.01%	2.57%	3.00%
2054	51.78	6,212.81	1.80%	3.03%	2.57%	3.00%
2055	40.54	6,440.65	1.80%	3.04%	2.58%	3.01%
2056	31.19	6,674.27	1.80%	3.05%	2.58%	3.01%
2057	23.35	6,914.38	1.80%	3.06%	2.58%	3.02%
2058	17.58	7,160.75	1.81%	3.07%	2.58%	3.02%
2059	13.39	7,414.13	1.81%	3.08%	2.59%	3.02%
2060	10.13	7,675.50	1.82%	3.09%	2.59%	3.03%

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