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February 18, 2013

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

Re: Cost Study for 2013 House Bill 2301

Dear Alan:

As you requested, we have prepared a cost study to compare the estimated employer costs under the current KPERS provisions, based on 2012 Senate Substitute for HB 2333 (2012 HB 2333) as passed by the 2012 Legislature and 2013 House Bill 2301 (2013 HB 2301). 2013 HB 2301 modifies several key benefit provisions in the cash balance plan for Tier 3 members, including the guaranteed interest crediting rate and the interest rate used to convert the member's account balance in the Cash Balance Plan into a monthly benefit amount. 2013 HB 2301 does not change other key features of the existing law, including the effective date of the new plan design for Tier 3 of January 1, 2015. Under both sets of cost projections, it is assumed that all employees hired on or after January 1, 2015 become members of KPERS Tier 3 with the exception of security officers, who will continue to be covered under Tier 2. Active members of KPERS on January 1, 2015 remain members of Tier 1 or 2. The plan changes for Tiers 1 and 2 remain in effect under 2013 HB 2301.

Cash Balance Plan Changes Under 2013 HB 2301

Under current law, KPERS members that enter the system on or after January 1, 2015 (referred to as Tier 3 members) will become members of a Cash Balance Plan. Under the current provisions, the guaranteed interest crediting rate is 5.25% per year with interest credited to the account balance quarterly. Additional interest credits (called dividends), not to exceed 4% per annum, may be granted at the discretion of the KPERS Board of Directors subject to certain conditions. If the total funded ratio of the system is less than 80%, the dividend shall be payable totally at the Board's discretion taking into account the funding of the system, market conditions, investment returns, and other related factors as specified by the Board. If the funded ratio of the system as a whole is equal to or more than 80%, the dividend cannot exceed the lesser of 4% or a percentage, equal to the funded ratio of the system, multiplied by the rate of return on the system's assets that is above 8% for the fiscal year. The dividend shall not be granted unless the rate of return on KPERS' assets is at least 10% for that fiscal year. 2013 HB 2301 reduces the guaranteed interest crediting rate of 5.25% to 5.00% but maintains the remainder of the language in current law, including the criteria for granting a dividend and the maximum amount.

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When the member retires, the account balance must be converted to a monthly benefit, based on the form of payment selected by the member. The annuity amount (monthly benefit) is determined by the annuity conversion factors, which currently are based on a 6% interest rate and a mortality table selected by the Board. 2013 HB 2301 changes the 6% interest rate for annuity conversion to 5%.

All other aspects of the current law (based on 2012 HB 2333) are unchanged under 2013 HB 2301, including the higher statutory caps on employer contribution rate increases.

Actuarial Assumptions and Methods

In general, the same actuarial methods and assumptions that were used in the December 31, 2011 actuarial valuation were used in the attached cost projections unless otherwise noted. The projection of future benefit amounts for Tier 3 members in the Cash Balance Plan requires the use of two additional assumptions that are not necessary in the valuation of projected benefits for Tier 1 and 2 members. They are:

- The interest crediting rate (applied to the account balance each year prior to retirement) and
- The annuity conversion factors (which require a postretirement interest rate and a mortality assumption).

Interest Crediting Rate

As stated earlier in this letter, the guaranteed interest crediting rate under current law is 5.25% and under 2013 HB 2301 is 5.00%. However, additional interest credits (called dividends) may be granted at the discretion of the KPERS Board of Directors, subject to certain conditions. If the total funded ratio of the system is less than 80%, the dividend shall be payable totally at the Board's discretion taking into account the funding of the system, market conditions, investment returns, and other related factors specified by the Board, with a maximum dividend of 4%. If the funded ratio of the system as a whole is equal to or more than 80%, the dividend cannot exceed the lesser of 4% or a percentage, equal to the funded ratio of the system multiplied by the rate of return on the system's assets that is above 8% for the fiscal year. In all cases, the dividend shall not be granted unless the rate of return on KPERS assets is at least 10% for that fiscal year. The criteria that determine whether or not dividends may be granted, and the maximum amount, are unchanged by 2013 HB 2301.

Although the assumed rate of return on KPERS' assets is 8% per annum, investment returns are expected to vary from year to year. Given the plan design and the standard deviation of the portfolio, the actual interest crediting rate (including dividends) is expected to be higher than the guaranteed interest crediting rate under either current law or 2013 HB 2301. Therefore, an actuarial assumption is needed to anticipate the effective interest crediting rate over the projection period. Based on our analysis, if the system's funded ratio is 80% to 100%, the expected dividend rate would be around 1.75%, resulting in a total interest crediting rate of 7.0% under current law and 6.75% under 2013 HB 2301. However, under current projections, an 80% funded ratio for the system, as a whole, is not projected to occur until about 2030. Therefore, the expectation is that the effective dividend rate will be lower in the short term. Therefore, the total interest crediting rate assumption used in the cost projections under current law (2012 HB 2333) is 5.5% from 2015 through 2022, 6.0% from 2023 through 2030 and 7.0% thereafter. Likewise, the total interest crediting rate assumption used in the cost projections under 2013 HB 2301 is 5.25% from 2015 through 2022, 5.75% from 2023 through 2030 and 6.75% thereafter. It is important to note that since the KPERS Board is able to exercise some degree of discretion in setting dividends, our analysis may need to be revised at a later date if the Board establishes a policy for setting dividends (either formally or informally) that is significantly different from that anticipated by the assumptions used in these projections.

Annuity Conversion Factors

The annuity conversion factors are used to convert the account balance in the Cash Balance Plan into monthly benefit amounts at retirement. The factors are based on an interest rate and mortality assumption. The interest rate in current law (2012 HB 2333) for the annuity conversion factors is set at 6.0% as part of the basic plan design. 2013 HB 2301 changes the interest rate to 5.0%. In addition, the Board of Trustees has the authority to set the mortality table to be used for the conversion factors under both current law and 2013 HB 2301. Since the Board has not yet had time to set this assumption, the RP 2000 Mortality Table projected to 2035, using Projection Scale AA, with a 50/50 male/female blend was assumed for the mortality assumption for the annuity conversion factors for this cost study. To the extent the Board elects to use a different mortality table, the actual costs may vary from those projected in this study.

Amortization Period

The amortization period used in this cost study remained at a closed 21-year period starting on December 31, 2011. In order to mitigate the impact of the time lag between the valuation date and the fiscal year in which the contribution rate is effective, the amortization period was set to an open ten year period in 2030 for all projections.

Funding Methodology

The benefit design for Tier 3 is a cash balance plan, which is also a defined benefit plan like the plan covering Tier 1 and 2 members. Under all projections, the new tier will be combined with the existing KPERS Tiers 1 and 2 in one system with one trust. The actuarial valuation will reflect the future benefit payments for Tier 3 members along with those for Tier 1 and 2 members. One overall contribution rate (including the unfunded actuarial liability payment) that is to be paid on all covered payroll (Tier 1, Tier 2 and Tier 3 members) will be developed, by KPERS group - i.e. separate employer contribution rates will continue to be determined for the State/School group (all Tiers) and the Local group (all Tiers). Therefore, from an actuarial perspective, the valuation process is unchanged, other than reflecting the new benefit structure for Tier 3 members.

Results

Because 2013 HB 2301 makes changes to the benefits for Tier 3 members only, the cost impact will unfold gradually 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 ultimate impact of the proposed plan design in 2013 HB 2301. The employer cost estimates under the current plan and 2013 HB 2301 are reflected in the attached exhibits. Exhibits A1 and A2 show the estimated employer contribution rate and corresponding dollar amounts of employer contributions under each plan design, by year, for the State/School and Local groups. Exhibits B1 and B2 show the split of projected employer contributions into normal cost and UAL payments by year and in total. The projections assume that all actuarial assumptions, including the 8% investment return assumption, are met in the future. To the extent this assumption is not met in the future, the cost projections in this cost study are also expected to change. 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. In order to provide a method for more direct comparison of results, the present value of the total employer contributions using an 8% discount rate has been included at the bottom of

Exhibits A1 and A2. The employer contribution rate also provides a reliable way to compare the cost of different plan designs many years into the future.

The cost projections attached to this letter are based on one set of actuarial assumptions, which include an 8% assumed rate of investment return. The cost projections are sensitive to the assumptions used, particularly the investment return assumption. Further analysis regarding the impact of using different assumptions can be provided upon request if it is deemed to be necessary or helpful.

It should also be noted that current provisions and 2013 HB 2301 do not provide the same amount of retirement benefits for Tier 3 members of the system. 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 the plan design.

Disclaimers, Caveats, and Limitations

The numerical charts that comprise this study are based primarily upon the December 31, 2011 valuation results, the actuarial assumptions used in the 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).
- Changes in the plan design and resulting benefit amounts for Tier 3 members may have an effect on future termination and retirement patterns. Whether, and how, retirement and termination of employment patterns will ultimately be impacted cannot be known at this time. Therefore, no change in those assumptions was reflected in our modeling results.
- 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.
- Tier 3 benefits are as provided under current law (2012 HB 2333) and 2013 HB 2301. 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.
- All projections reflect the statutory caps for the State/School and Local employers of 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, 2011, 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, 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 Beckham

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

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

Exhibit A1

2012 HB 2333 vs. 2013 HB 2301

State/School Group

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Employer Contribution Rate		**Employer Contribution Amount ($M)**			
Fiscal Year	Total Payroll	2012 HB 2333	2013 HB 2301	2012 HB 2333	2013 HB 2301	Difference	Present Value of Difference
2013	$ 4,391.75	9.37%	9.37%	$ 411.51	$ 411.51	$ -	$ -
2014	4,535.95	10.27% *	10.27% *	504.89	504.89	-	-
2015	4,668.66	11.27% *	11.27% *	565.65	565.65	-	-
2016	4,814.29	12.37% *	12.37% *	635.47	635.47	-	-
2017	4,971.08	13.57% *	13.57% *	714.97	714.97	-	-
2018	5,138.05	14.77% *	14.77% *	799.74	799.74	-	-
2019	5,315.15	15.97% *	15.97% *	890.14	890.14	-	-
2020	5,502.86	16.96% *	16.78% *	975.27	965.39	(9.89)	(5.55)
2021	5,701.82	17.16% *	16.91% *	1,020.71	1,006.67	(14.03)	(7.29)
2022	5,912.23	17.26% *	16.95% *	1,063.03	1,044.70	(18.34)	(8.83)
2023	6,133.19	17.25% *	16.88% *	1,106.62	1,083.69	(22.94)	(10.22)
2024	6,364.33	17.18% *	16.75% *	1,142.50	1,115.08	(27.42)	(11.32)
2025	6,606.19	17.08% *	16.59% *	1,177.88	1,145.47	(32.41)	(12.39)
2026	6,859.09	16.96% *	16.41% *	1,213.05	1,175.24	(37.81)	(13.38)
2027	7,123.55	16.80% *	16.19% *	1,247.22	1,203.97	(43.25)	(14.17)
2028	7,399.97	16.62%	15.94%	1,229.79	1,179.51	(50.28)	(15.25)
2029	7,688.78	16.41%	15.67%	1,262.07	1,204.50	(57.57)	(16.17)
2030	7,990.01	16.17%	15.35%	1,291.81	1,226.60	(65.20)	(16.96)
2031	8,303.69	15.86%	14.96%	1,317.30	1,242.64	(74.66)	(17.98)
2032	8,630.79	15.65%	14.67%	1,350.47	1,266.29	(84.18)	(18.77)
2033	8,971.62	6.27%	5.49%	562.50	492.89	(69.60)	(14.37)
2034	9,326.24	4.66%	3.88%	434.51	362.02	(72.49)	(13.86)
2035	9,695.31	3.04%	2.24%	294.33	217.29	(77.04)	(13.64)
2036	10,079.36	1.93%	1.12%	194.33	113.30	(81.04)	(13.28)
2037	10,478.46	1.44%	0.62%	150.97	65.06	(85.91)	(13.04)
2038	10,893.57	1.15%	0.31%	124.75	33.53	(91.22)	(12.82)
2039	11,325.89	1.01%	0.15%	114.37	16.52	(97.85)	(12.73)
2040	11,776.61	0.97%	0.08%	113.75	8.85	(104.91)	(12.64)
2041	12,248.24	0.96%	0.06%	117.93	7.00	(110.93)	(12.37)
2042	12,742.53	1.00%	0.06%	127.31	7.74	(119.57)	(12.35)
2043	13,259.06	1.05%	0.08%	138.62	11.13	(127.50)	(12.19)
2044	13,796.65	1.09%	0.12%	150.69	16.28	(134.41)	(11.90)
2045	14,354.13	1.14%	0.16%	163.40	23.48	(139.92)	(11.47)
2046	14,931.56	1.19%	0.20%	178.36	29.91	(148.45)	(11.27)
2047	15,529.63	1.24%	0.24%	192.72	36.89	(155.83)	(10.95)
2048	16,145.83	1.29%	0.28%	207.97	44.48	(163.49)	(10.64)
2049	16,780.21	1.33%	0.30%	223.82	51.11	(172.71)	(10.41)
2050	17,437.36	1.37%	0.33%	238.91	58.22	(180.69)	(10.08)
2051	18,121.06	1.41%	0.36%	254.98	65.88	(189.09)	(9.77)
2052	18,832.61	1.43%	0.38%	269.97	72.29	(197.68)	(9.46)
2053	19,572.49	1.47%	0.40%	287.51	79.22	(208.30)	(9.23)
2054	20,342.54	1.48%	0.43%	301.80	86.53	(215.27)	(8.83)
2055	21,144.42	1.51%	0.45%	318.75	94.34	(224.41)	(8.52)
2056	21,979.24	1.52%	0.47%	334.24	102.63	(231.61)	(8.14)
2057	22,848.28	1.53%	0.47%	350.32	106.87	(243.46)	(7.93)
2058	23,752.99	1.54%	0.49%	364.63	115.98	(248.65)	(7.50)
2059	24,694.80	1.55%	0.49%	381.89	120.69	(261.19)	(7.29)
2060	25,675.21	1.55%	0.50%	397.30	128.14	(269.16)	(6.96)
2061	26,695.83	1.54%	0.49%	410.63	130.64	(280.00)	(6.70)

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

Total	$ 27,321.35	$ 22,080.99	$ (5,240.36)	$ (478.59)
Present Value at 8% as of July 1, 2012	$ 9,505.50	$ 9,026.92	$ (478.59)	

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 February 18, 2013.

All assumptions, including the 8% investment return, are assumed to be met each year in the future.

2/18/2013

Exhibit A2

2012 HB 2333 vs. 2013 HB 2301
Local Group

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Employer Contribution Rate		Employer Contribution Amount ($M)			
Fiscal Year	Total Payroll	2012 HB 2333	2013 HB 2301	2012 HB 2333	2013 HB 2301	Difference	Present Value of Difference
2013	$ 1,660.60	7.94%	7.94%	$ 131.85	$ 131.85	$ -	$ -
2014	1,706.61	8.84%	8.84%	150.86	150.86	-	-
2015	1,755.46	9.78%	9.78%	171.62	171.62	-	-
2016	1,809.70	10.52%	10.52%	190.43	190.43	-	-
2017	1,867.11	10.47%	10.41%	195.47	194.28	(1.20)	(0.85)
2018	1,927.21	10.53%	10.41%	202.96	200.61	(2.35)	(1.54)
2019	1,990.11	10.57%	10.37%	210.29	206.44	(3.85)	(2.34)
2020	2,055.72	10.62%	10.37%	218.26	213.12	(5.14)	(2.89)
2021	2,124.94	10.67%	10.36%	226.76	220.10	(6.66)	(3.46)
2022	2,197.01	10.73%	10.37%	235.75	227.76	(8.00)	(3.85)
2023	2,272.09	10.79%	10.37%	245.05	235.70	(9.36)	(4.17)
2024	2,351.35	10.84%	10.38%	254.94	244.18	(10.77)	(4.44)
2025	2,434.78	10.90%	10.39%	265.49	253.03	(12.47)	(4.76)
2026	2,521.94	10.97%	10.40%	276.68	262.19	(14.49)	(5.13)
2027	2,613.06	11.03%	10.42%	288.23	272.16	(16.08)	(5.27)
2028	2,709.03	11.10%	10.42%	300.77	282.22	(18.54)	(5.62)
2029	2,809.54	11.17%	10.44%	313.76	293.18	(20.58)	(5.78)
2030	2,914.71	11.25%	10.45%	327.77	304.50	(23.27)	(6.05)
2031	3,024.53	11.33%	10.46%	342.53	316.43	(26.10)	(6.29)
2032	3,138.76	4.94%	4.21%	154.92	132.13	(22.80)	(5.08)
2033	3,257.50	3.90%	3.16%	126.94	102.89	(24.05)	(4.96)
2034	3,381.27	2.81%	2.07%	94.96	69.97	(24.99)	(4.78)
2035	3,510.46	2.46%	1.69%	86.39	59.39	(26.99)	(4.78)
2036	3,644.94	2.22%	1.44%	81.05	52.32	(28.72)	(4.71)
2037	3,785.22	2.12%	1.30%	80.11	49.22	(30.89)	(4.69)
2038	3,931.55	2.05%	1.22%	80.58	47.81	(32.77)	(4.60)
2039	4,084.19	2.00%	1.15%	81.80	47.09	(34.71)	(4.52)
2040	4,243.22	1.98%	1.10%	83.86	46.71	(37.15)	(4.47)
2041	4,408.81	1.95%	1.06%	85.96	46.71	(39.25)	(4.38)
2042	4,581.37	1.93%	1.03%	88.56	47.13	(41.43)	(4.28)
2043	4,761.25	1.93%	1.00%	91.72	47.55	(44.17)	(4.22)
2044	4,948.86	1.92%	0.97%	94.98	47.95	(47.03)	(4.16)
2045	5,144.01	1.91%	0.95%	98.34	48.85	(49.49)	(4.06)
2046	5,346.97	1.90%	0.93%	101.78	49.77	(52.02)	(3.95)
2047	5,557.90	1.91%	0.92%	105.88	51.26	(54.63)	(3.84)
2048	5,777.07	1.90%	0.90%	109.54	52.23	(57.31)	(3.73)
2049	6,004.27	1.90%	0.90%	113.90	53.82	(60.08)	(3.62)
2050	6,240.32	1.90%	0.89%	118.40	55.48	(62.93)	(3.51)
2051	6,485.84	1.90%	0.88%	123.09	57.21	(65.87)	(3.40)
2052	6,741.16	1.90%	0.88%	127.92	59.03	(68.89)	(3.30)
2053	7,006.34	1.90%	0.87%	132.90	60.92	(71.98)	(3.19)
2054	7,282.35	1.89%	0.86%	137.32	62.89	(74.43)	(3.05)
2055	7,569.72	1.88%	0.86%	142.63	64.95	(77.68)	(2.95)
2056	7,868.83	1.87%	0.84%	147.31	66.30	(81.01)	(2.85)
2057	8,180.09	1.87%	0.84%	152.92	68.49	(84.42)	(2.75)
2058	8,504.09	1.86%	0.83%	157.84	70.76	(87.09)	(2.63)
2059	8,841.31	1.84%	0.82%	162.90	72.22	(90.68)	(2.53)
2060	9,192.25	1.83%	0.81%	168.08	74.62	(93.46)	(2.42)
2061	9,557.47	1.81%	0.80%	173.40	76.14	(97.25)	(2.33)
			Total	$ 8,055.46	$ 6,212.45	$ (1,843.01)	$ (176.16)
		Present Value at 8% as of January 1, 2013		$ 2,445.04	$ 2,268.88	$ (176.16)	

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 February 18, 2013.
All assumptions, including the 8% investment return, are assumed to be met each year in the future. 2/18/2013

Exhibit B1

Kansas Public Employee Retirement System
Comparison of State/School Group Employer Contributions for Retirement Benefits
2012 HB 2333 vs. 2013 HB 2301

	Payroll ($M)		2012 HB 2333					2013 HB 2301						Present Value of
FYE	Tier 1/2	Tier 3	Employer Contribution Rate	Employer Normal Cost Rate	Employer Normal Cost [2]	UAL Payment [2]	Total Employer Cost [2]	Employer Contribution Rate	Employer Normal Cost Rate	Employer Normal Cost [2]	UAL Payment [2]	Total Employer Cost [2]	Difference [2]	Difference
2013	$4,391.751	$0.000	9.37%	3.71%	$162.865	$248.642	$411.507	9.37%	3.71%	$162.865	$248.642	$411.507	$0.000	$0.000
2014	4,535.951	0.000	10.27% [1]	3.71%	168.213	336.678	504.891	10.27% [1]	3.71%	168.213	336.678	504.891	0.000	0.000
2015	4,668.664	0.000	11.27% [1]	2.84%	132.642	433.008	565.650	11.27% [1]	2.84%	132.642	433.008	565.650	0.000	0.000
2016	4,633.317	180.973	12.37% [1]	2.33%	112.059	523.408	635.467	12.37% [1]	2.33%	112.059	523.408	635.467	0.000	0.000
2017	4,437.428	533.651	13.57% [1]	2.25%	112.042	602.924	714.966	13.57% [1]	2.25%	112.042	602.924	714.966	0.000	0.000
2018	4,265.801	872.251	14.77% [1]	2.16%	111.138	688.599	799.738	14.77% [1]	2.10%	108.150	691.588	799.738	0.000	0.000
2019	4,107.212	1,207.933	15.97% [1]	2.08%	110.362	779.775	890.137	15.97% [1]	1.96%	104.431	785.706	890.137	0.000	0.000
2020	3,955.887	1,546.970	16.96% [1]	2.00%	110.272	865.001	975.274	16.78% [1]	1.84%	101.485	863.901	965.386	(9.888)	(5.552)
2021	3,812.002	1,889.819	17.16% [1]	1.94%	110.646	910.061	1,020.707	16.91% [1]	1.73%	98.894	907.781	1,006.675	(14.032)	(7.295)
2022	3,677.401	2,234.826	17.26% [1]	1.88%	111.012	952.020	1,063.031	16.95% [1]	1.63%	96.223	948.472	1,044.695	(18.336)	(8.826)
2023	3,549.282	2,583.907	17.25% [1]	1.82%	111.821	994.800	1,106.621	16.88% [1]	1.53%	93.793	989.893	1,083.686	(22.935)	(10.222)
2024	3,423.345	2,940.988	17.18% [1]	1.77%	112.818	1,029.677	1,142.495	16.75% [1]	1.44%	91.765	1,023.313	1,115.077	(27.418)	(11.315)
2025	3,300.016	3,306.178	17.08% [1]	1.73%	114.411	1,063.473	1,177.884	16.59% [1]	1.36%	89.925	1,055.546	1,145.471	(32.413)	(12.386)
2026	3,177.667	3,681.424	16.96% [1]	1.70%	116.433	1,096.614	1,213.047	16.41% [1]	1.29%	88.230	1,087.011	1,175.242	(37.806)	(13.376)
2027	3,057.531	4,066.022	16.80% [1]	1.66%	118.299	1,128.922	1,247.221	16.19% [1]	1.22%	87.159	1,116.812	1,203.971	(43.249)	(14.169)
2028	2,941.604	4,458.369	16.62%	1.64%	121.273	1,108.516	1,229.789	15.94%	1.16%	85.795	1,093.716	1,179.511	(50.278)	(15.251)
2029	2,829.023	4,859.758	16.41%	1.61%	124.134	1,137.940	1,262.073	15.67%	1.11%	85.015	1,119.487	1,204.502	(57.571)	(16.170)
2030	2,717.940	5,272.066	16.17%	1.60%	127.661	1,164.144	1,291.805	15.35%	1.06%	84.830	1,141.772	1,226.602	(65.203)	(16.957)
2031	2,606.771	5,696.923	15.86%	1.58%	131.531	1,185.768	1,317.299	14.96%	1.01%	84.273	1,158.365	1,242.638	(74.661)	(17.978)
2032	2,495.574	6,135.220	15.65%	1.57%	135.253	1,215.216	1,350.469	14.67%	0.98%	84.735	1,181.556	1,266.291	(84.178)	(18.769)
2033	2,383.957	6,587.666	6.27%	1.56%	139.934	422.563	562.497	5.49%	0.94%	84.685	408.209	492.894	(69.603)	(14.370)
2034	2,271.424	7,054.817	4.66%	1.55%	144.460	290.046	434.506	3.88%	0.91%	85.031	276.989	362.020	(72.486)	(13.856)
2035	2,157.909	7,537.402	3.04%	1.55%	149.872	144.460	294.332	2.24%	0.88%	85.433	131.856	217.289	(77.043)	(13.636)
2036	2,042.813	8,036.550	1.93%	1.54%	155.025	39.310	194.335	1.12%	0.85%	86.085	27.214	113.299	(81.035)	(13.281)
2037	1,924.778	8,553.680	1.44%	1.53%	160.405	(9.431)	150.974	0.62%	0.82%	86.016	(20.957)	65.059	(85.915)	(13.037)
2038	1,804.761	9,088.811	1.15%	1.53%	166.142	(41.396)	124.747	0.31%	0.80%	86.904	(53.379)	33.525	(91.222)	(12.817)
2039	1,683.573	9,642.322	1.01%	1.52%	172.136	(57.762)	114.374	0.15%	0.78%	87.872	(71.353)	16.519	(97.855)	(12.731)
2040	1,561.939	10,214.673	0.97%	1.52%	178.524	(64.771)	113.752	0.08%	0.76%	88.926	(80.081)	8.846	(104.907)	(12.637)
2041	1,443.776	10,804.462	0.96%	1.51%	185.291	(67.365)	117.926	0.06%	0.74%	90.285	(83.288)	6.997	(110.929)	(12.373)
2042	1,332.031	11,410.498	1.00%	1.51%	192.299	(64.987)	127.312	0.06%	0.71%	90.569	(82.826)	7.743	(119.569)	(12.349)
2043	1,225.949	12,033.107	1.05%	1.51%	199.615	(60.992)	138.623	0.08%	0.69%	92.008	(80.880)	11.128	(127.495)	(12.192)
2044	1,122.199	12,674.452	1.09%	1.50%	207.255	(56.566)	150.689	0.12%	0.68%	93.537	(77.261)	16.276	(134.413)	(11.901)
2045	1,016.520	13,337.605	1.14%	1.50%	215.080	(51.675)	163.405	0.16%	0.66%	95.255	(71.771)	23.485	(139.920)	(11.471)
2046	909.395	14,022.170	1.19%	1.49%	223.158	(44.795)	178.364	0.20%	0.65%	97.104	(67.192)	29.912	(148.452)	(11.269)
2047	804.158	14,725.470	1.24%	1.49%	231.544	(38.824)	192.720	0.24%	0.64%	99.006	(62.119)	36.887	(155.833)	(10.953)
2048	696.334	15,449.500	1.29%	1.49%	240.260	(32.292)	207.968	0.28%	0.63%	100.985	(56.510)	44.475	(163.493)	(10.640)
2049	583.748	16,196.459	1.33%	1.49%	250.663	(26.848)	223.815	0.30%	0.61%	103.126	(52.019)	51.107	(172.708)	(10.407)
2050	473.288	16,964.075	1.37%	1.49%	259.836	(20.925)	238.912	0.33%	0.60%	105.303	(47.081)	58.223	(180.689)	(10.082)
2051	378.135	17,742.927	1.41%	1.49%	269.474	(14.497)	254.977	0.36%	0.59%	107.561	(41.678)	65.883	(189.095)	(9.769)
2052	301.454	18,531.157	1.43%	1.48%	279.386	(9.416)	269.970	0.38%	0.58%	109.954	(37.665)	72.288	(197.681)	(9.456)
2053	235.790	19,336.696	1.47%	1.49%	291.428	(3.914)	287.514	0.40%	0.57%	112.488	(33.273)	79.215	(208.299)	(9.226)
2054	179.043	20,163.497	1.48%	1.48%	301.802	0.000	301.802	0.43%	0.58%	117.045	(30.514)	86.532	(215.270)	(8.829)
2055	133.919	21,010.497	1.51%	1.49%	314.518	4.229	318.747	0.45%	0.57%	119.712	(25.373)	94.339	(224.408)	(8.522)
2056	101.132	21,878.108	1.52%	1.48%	325.446	8.792	334.237	0.47%	0.57%	124.607	(21.979)	102.628	(231.609)	(8.144)
2057	76.146	22,772.132	1.53%	1.48%	338.900	11.424	350.324	0.47%	0.56%	127.432	(20.563)	106.868	(243.456)	(7.926)
2058	56.397	23,696.589	1.54%	1.48%	350.383	14.252	364.634	0.49%	0.56%	132.610	(16.627)	115.983	(248.651)	(7.496)
2059	41.440	24,653.360	1.55%	1.48%	364.600	17.286	381.887	0.49%	0.55%	135.510	(14.817)	120.693	(261.193)	(7.291)
2060	30.676	25,644.533	1.55%	1.48%	379.331	17.973	397.304	0.50%	0.55%	140.977	(12.838)	128.140	(269.164)	(6.956)
2061	22.753	26,673.076	1.54%	1.47%	391.947	18.687	410.634	0.49%	0.54%	143.986	(13.348)	130.638	(279.995)	(6.700)
					$9,533.600	$17,787.751	$27,321.350			$5,102.540	$16,978.453	$22,080.993	($5,240.357)	($478.585)

[1] Indicates additional contributions from ELARF are added to this contribution rate to get the total contribution amount shown.
[2] In millions.

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 February 18, 2013.
All assumptions, including the 8% investment return, are assumed to be met each year in the future.

2/18/2013

Exhibit B2

Kansas Public Employee Retirement System
Comparison of Local Group Employer Contributions for Retirement Benefits
2012 HB 2333 vs. 2013 HB 2301

	Payroll ($M)		2012 HB 2333					2013 HB 2301						
FYE	Tier 1/2	Tier 3	Employer Contribution Rate	Employer Normal Cost Rate	Employer Normal Cost (1)	UAL Payment (1)	Total Employer Cost (1)	Employer Contribution Rate	Employer Normal Cost Rate	Employer Normal Cost (1)	UAL Payment (1)	Total Employer Cost (1)	Difference (1)	Present Value of Difference
2013	$1,660.604	$0.000	7.94%	2.91%	$48.361	$83.491	$131.852	7.94%	2.91%	$48.361	$83.491	$131.852	$0.000	$0.000
2014	1,706.606	0.000	8.84%	2.91%	49.701	101.163	150.864	8.84%	2.91%	49.701	101.163	150.864	0.000	0.000
2015	1,755.461	0.000	9.78%	2.03%	35.570	136.048	171.618	9.78%	2.03%	35.570	136.048	171.618	0.000	0.000
2016	1,658.682	151.015	10.52%	1.95%	35.339	155.091	190.430	10.52%	1.95%	35.339	155.091	190.430	0.000	0.000
2017	1,575.692	291.415	10.47%	1.88%	35.090	160.384	195.475	10.41%	1.82%	33.892	160.384	194.276	(1.199)	(0.848)
2018	1,504.853	422.352	10.53%	1.83%	35.290	167.667	202.957	10.41%	1.71%	32.942	167.667	200.609	(2.348)	(1.538)
2019	1,440.724	549.389	10.57%	1.79%	35.558	174.732	210.290	10.37%	1.61%	32.104	174.334	206.438	(3.852)	(2.336)
2020	1,381.836	673.888	10.62%	1.75%	35.918	182.343	218.261	10.37%	1.53%	31.392	181.726	213.118	(5.143)	(2.887)
2021	1,328.487	796.450	10.67%	1.71%	36.369	190.394	226.763	10.36%	1.45%	30.772	189.332	220.104	(6.659)	(3.462)
2022	1,278.151	918.861	10.73%	1.68%	36.925	198.830	235.755	10.37%	1.38%	30.248	197.511	227.759	(7.995)	(3.849)
2023	1,229.411	1,042.682	10.79%	1.66%	37.611	207.442	245.053	10.37%	1.31%	29.844	205.852	235.696	(9.357)	(4.171)
2024	1,182.829	1,168.523	10.84%	1.63%	38.382	216.560	254.941	10.38%	1.25%	29.497	214.678	244.176	(10.765)	(4.443)
2025	1,138.492	1,296.287	10.90%	1.61%	39.302	226.191	265.493	10.39%	1.20%	29.269	223.756	253.025	(12.468)	(4.764)
2026	1,094.860	1,427.085	10.97%	1.60%	40.370	236.306	276.676	10.40%	1.16%	29.160	233.028	262.188	(14.488)	(5.126)
2027	1,052.036	1,561.025	11.03%	1.59%	41.558	246.673	288.231	10.42%	1.12%	29.140	243.015	272.155	(16.076)	(5.267)
2028	1,011.323	1,697.706	11.10%	1.58%	42.866	257.900	300.765	10.42%	1.08%	29.199	253.023	282.222	(18.543)	(5.625)
2029	972.150	1,837.388	11.17%	1.58%	44.321	269.435	313.756	10.44%	1.05%	29.364	263.816	293.180	(20.576)	(5.779)
2030	934.164	1,980.546	11.25%	1.58%	45.921	281.852	327.774	10.45%	1.02%	29.645	274.857	304.502	(23.272)	(6.052)
2031	896.687	2,127.843	11.33%	1.58%	47.638	294.892	342.530	10.46%	0.99%	30.003	286.423	316.426	(26.104)	(6.286)
2032	859.356	2,279.406	4.94%	1.58%	49.460	105.462	154.923	4.21%	0.97%	30.432	101.696	132.128	(22.795)	(5.083)
2033	821.485	2,436.013	3.90%	1.58%	51.364	75.574	126.938	3.16%	0.95%	30.902	71.991	102.893	(24.045)	(4.964)
2034	783.430	2,597.839	2.81%	1.58%	53.370	41.590	94.960	2.07%	0.93%	31.426	38.546	69.973	(24.987)	(4.776)
2035	745.673	2,764.790	2.46%	1.58%	55.494	30.892	86.386	1.69%	0.91%	32.009	27.382	59.391	(26.995)	(4.778)
2036	707.827	2,937.117	2.22%	1.58%	57.719	23.328	81.047	1.44%	0.90%	32.639	19.683	52.322	(28.725)	(4.708)
2037	669.798	3,115.419	2.12%	1.59%	60.048	20.062	80.110	1.30%	0.88%	33.319	15.898	49.216	(30.893)	(4.688)
2038	631.744	3,299.802	2.05%	1.59%	62.491	18.085	80.576	1.22%	0.87%	34.049	13.760	47.809	(32.766)	(4.604)
2039	593.492	3,490.700	2.00%	1.59%	65.057	16.745	81.802	1.15%	0.85%	34.839	12.253	47.091	(34.711)	(4.516)
2040	555.203	3,688.013	1.98%	1.60%	67.735	16.124	83.859	1.10%	0.84%	35.679	11.032	46.711	(37.148)	(4.475)
2041	516.439	3,892.373	1.95%	1.60%	70.526	15.431	85.957	1.06%	0.83%	36.567	10.140	46.707	(39.250)	(4.378)
2042	477.700	4,103.667	1.93%	1.60%	73.441	15.119	88.559	1.03%	0.82%	37.507	9.621	47.128	(41.432)	(4.279)
2043	439.470	4,321.777	1.93%	1.61%	76.483	15.236	91.719	1.00%	0.81%	38.501	9.046	47.548	(44.172)	(4.224)
2044	402.975	4,545.881	1.92%	1.61%	79.638	15.341	94.979	0.97%	0.80%	39.537	8.413	47.950	(47.029)	(4.164)
2045	366.511	4,777.500	1.91%	1.61%	82.907	15.432	98.339	0.95%	0.79%	40.621	8.230	48.851	(49.487)	(4.057)
2046	330.966	5,016.003	1.90%	1.61%	86.277	15.506	101.783	0.93%	0.78%	41.747	8.020	49.767	(52.016)	(3.949)
2047	295.949	5,261.952	1.91%	1.62%	89.767	16.118	105.884	0.92%	0.77%	42.920	8.337	51.257	(54.628)	(3.840)
2048	262.213	5,514.858	1.90%	1.62%	93.364	16.176	109.540	0.90%	0.76%	44.138	8.088	52.226	(57.314)	(3.730)
2049	228.104	5,776.162	1.90%	1.62%	97.085	16.812	113.897	0.90%	0.76%	45.411	8.406	53.817	(60.080)	(3.620)
2050	195.344	6,044.979	1.90%	1.62%	100.931	17.473	118.404	0.89%	0.75%	46.741	8.736	55.477	(62.927)	(3.511)
2051	164.967	6,320.872	1.90%	1.62%	104.925	18.160	123.086	0.88%	0.74%	48.134	9.080	57.215	(65.871)	(3.403)
2052	138.479	6,602.680	1.90%	1.62%	109.042	18.875	127.917	0.88%	0.74%	49.589	9.438	59.027	(68.890)	(3.295)
2053	113.354	6,892.984	1.90%	1.62%	113.283	19.618	132.901	0.87%	0.73%	51.112	9.809	60.920	(71.981)	(3.188)
2054	90.351	7,192.000	1.89%	1.62%	117.658	19.662	137.320	0.86%	0.72%	52.696	10.195	62.892	(74.429)	(3.052)
2055	70.920	7,498.796	1.88%	1.61%	122.193	20.438	142.631	0.86%	0.72%	54.354	10.598	64.952	(77.679)	(2.950)
2056	56.002	7,812.827	1.87%	1.61%	126.856	20.459	147.315	0.84%	0.71%	56.076	10.229	66.305	(81.010)	(2.848)
2057	43.538	8,136.549	1.87%	1.61%	131.650	21.268	152.918	0.84%	0.71%	57.860	10.634	68.494	(84.424)	(2.749)
2058	33.158	8,470.937	1.86%	1.61%	136.584	21.260	157.844	0.83%	0.70%	59.704	11.055	70.759	(87.085)	(2.625)
2059	25.139	8,816.173	1.84%	1.60%	141.682	21.219	162.902	0.82%	0.70%	61.615	10.610	72.224	(90.678)	(2.531)
2060	19.322	9,172.930	1.83%	1.60%	146.940	21.142	168.082	0.81%	0.69%	63.589	11.031	74.620	(93.463)	(2.416)
2061	14.693	9,542.777	1.81%	1.59%	152.371	21.026	173.398	0.80%	0.69%	65.631	10.513	76.144	(97.254)	(2.327)
					$3,538.432	$4,517.028	$8,055.460			$1,954.786	$4,257.667	$6,212.453	($1,843.007)	($176.160)

(1) In millions.

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All assumptions, including the 8% investment return, are assumed to be met each year in the future.