



②

# Cavanaugh Macdonald CONSULTING, LLC

*The experience and dedication you deserve*

January 23, 2012

Ms. Elizabeth Miller  
Acting Executive Director and Chief Investment Officer  
Kansas Public Employees Retirement System  
611 South Kansas Avenue, Suite 100  
Topeka, KS 66603

**Re: Cost Study for Study Commission Plan**

Dear Liz:

At your request, we have completed an actuarial cost study related to the plan design for KPERS Tier 3 that was recommended by the KPERS Study Commission. At the time the study was requested, a formal legislative bill had not yet been introduced. Therefore, our cost projections are based on our understanding of the key plan design provisions of the Study Commission recommendations for Tier 3 members. A draft copy of the legislation has since been provided to us, but there was insufficient time to modify the cost projections. Any differences in the draft bill and the plan provisions used for the cost projections are not expected to materially impact our cost projections. Our cost study is based on a plan design for Tier 3 that consists of a cash balance plan (referred to as the employer annuity account) and a pure defined contribution (DC) plan (referred to as the employee directed account). The effective date of the new plan design will be July 1, 2013, and all employees hired on or after that date will be members of KPERS Tier 3. In addition, all non-vested members (both active and inactive) of KPERS on January 1, 2014 will become Tier 3 members and have their employee account balance transferred to the employee directed portion of the Tier 3 plan.

**Plan Design**

A summary of basic plan provisions included in our cost study follows:

**Cash Balance Plan (Employer Annuity Account)**

- Employer credits to the account will be based on the employee's years of service beginning with a 1% credit for the first year of service and increasing 0.50% per year until a 5% credit is granted when the employee has completed 8 or more years of service.
- The guaranteed interest credit will be 0%, but the intent of the plan design is to credit the member's employer annuity account with interest credits that mirror the actual earnings of the KPERS portfolio.
- 100% vesting after five (5) years of service.

3906 Raynor Pkwy, Suite 106, Bellevue, NE 68123

Phone (402) 905-4461 • Fax (402) 905-4464

[www.CavMacConsulting.com](http://www.CavMacConsulting.com)

Offices in Englewood, CO • Kennesaw, GA • Bellevue, NE • Hilton Head Island, SC

Sn KPERS Select  
Attachment 2  
1-24-12



- Normal retirement age is age 65 and 5 years of service.
- No employee contributions. Employer contributions are determined as part of the annual actuarial valuation.
- Once vested, a member cannot withdraw the employer annuity account until reaching the normal retirement age of 65. There is no early retirement provision. Upon reaching normal retirement age, the balance in the employer annuity account is converted into monthly income, based on the form of payment elected by the member. The annuity amount is determined by the annuity conversion factors which are based on the interest rates published by the Pension Benefit Guaranty Corporation (PBGC) for distress terminations and the mortality table selected by the Board.
- If a member dies prior to reaching the normal retirement age of 65, no benefit is payable and the account balance is forfeited unless (1) the member is vested; (2) the member has at least ten (10) years of service at death; and (3) the member's spouse at the time of death is designated as the sole primary beneficiary. In that case, the spouse shall receive a benefit when the member would have reached his normal retirement age.
- If a member becomes disabled while actively working, such member shall be given participating service credit for the entire period of his disability. Such member's employer annuity account shall be credited with the regular employer credit. All credits to the employer annuity account shall cease upon the earliest of (i) death; (ii) attainment of normal retirement age; or (iii) the date the member is no longer entitled to receive disability benefits.
- A benefit of \$4,000 is payable upon a retired member's death.

### **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 to an ultimate cap of 1.2%.

The Study Commission recommended the elimination of the statutory cap on employer contributions, effective July 1, 2013. Therefore, this provision is reflected in our cost study.

### **Senate Substitute for HB 2194**

The baseline projections shown in the cost study are based on Senate Substitute for HB 2194 as passed by the 2011 Legislature. In addition, the projections for the Study Commission Plan reflect the default benefit provision changes for KPERS Tier 1 and 2 members included in Senate Substitute for HB 2194.

### **Defined Contribution Plan (Employee Directed Account)**

- Employee contribution rate is 6% of pay and is deposited into the employee directed account. The employee will direct all investments in this account and investment earnings and losses will directly accrue to the account balance.
- The employee is always 100% vested in the employee directed account.
- Upon termination of employment the employee can elect to roll the funds in his or her account balance to another qualified plan or an IRA.
- Upon retirement, the employee directed account balance is payable at the direction of the employee in either a lump sum, or periodic payments as determined by the employee. There is no guaranteed payment for the lifetime of the member unless the employee purchases an annuity.



### **Actuarial Assumptions and Methods**

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 retirement rates. Because retirement eligibility requirements are different than those in the current plan, as well as the benefits provided, the retirement patterns are expected to change. 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.

The employer funded portion of the Study Commission Plan is a cash balance plan, which is a defined benefit plan. As such, the contribution rate to fund the benefits will be based on the results of the actuarial valuation. The projection of future benefit amounts for Tier 3 members requires the use of two additional assumptions that are not necessary in the valuation of projected benefits for Tiers 1 and 2 members. They are:

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

Because the intent of the Study Commission proposal is to credit the actual return on the KPERs portfolio to the employer annuity account, the interest crediting rate was set to the assumed rate of return, currently 8%. The Study Commission recommended 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. Tying the annuity conversion rate to the PBGC distress termination rates increases the uncertainty about what rates will actually be used to convert a member's employer annuity account into monthly income and requires that an actuarial assumption be used to estimate future experience. Based on long term historical PBGC distress termination rates, this assumption was set at 6.5% for the cost study. The mortality table used for the annuity conversion factor (which is used to convert the employer annuity account to monthly income) was the RP 2000 Mortality Table projected to 2035, using Projection Scale AA, with a 50/50 male/female blend.

The projected benefit payments for Tier 3 members will be projected in the actuarial valuation along with those for Tiers 1 and 2 members. The valuation will develop one overall employer contribution rate, which will include 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 will be 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. 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 cost projections for both the baseline and the Study Commission Plan.

### **Results**

The cost impact of the Study Commission plan design 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 costs over a long time period is necessary to evaluate the long term impact of the proposed changes. The cost estimates for the Study Commission Plan are reflected in the attached exhibits which show the expected employer contribution in each future year, assuming all actuarial assumptions are met in the future.



The "Baseline" scenario reflects the estimated employer costs under Senate Substitute for HB 2194. Please note that all dollar amounts shown are future dollar amounts, calculated using the estimated employer contribution rate and projected payroll in future years.

### **Disclaimers, Caveats, and Limitations**

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

- Investment return in 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 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, how changes in the benefit structure may ultimately impact employment patterns cannot be known at this time and, therefore, has not 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, Tier 3 benefits are described in this letter. 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 state and local employers will contribute as scheduled under HB 2194 (with consideration to changes in the statutory caps in the legislation) and with no statutory cap under the Study Commission 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. 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.



Ms. Elizabeth Miller  
January 23, 2012  
Page 5



Please feel free to call us to discuss this further if you wish.

Sincerely,

*Patrice Beckham*

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

*Brent A. Banister*

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

S:/Kansas PERS/2012 Correspondence/Fiscal Note for Prelim Study Commission Bill

Exhibit A1



HB 2194 vs Study Commission Plan  
State/School Group

(1) Fiscal Year	(2) Total Payroll	(3) <u>Employer Contribution Rate</u>		(5) <u>Employer Contribution Amount (\$M)</u>		
		HB 2194	SC Plan	HB 2194	SC Plan	(7) Difference
2012	\$ 4,465.19	8.77%	8.77%	\$ 391.60	\$ 391.60	\$ -
2013	4,609.30	9.37%	9.37%	431.89	431.89	-
2014	4,742.86	10.27%	13.44%	487.09	637.46	150.37
2015	4,889.77	11.27%	13.61%	551.08	665.71	114.63
2016	5,048.36	12.37%	14.82%	624.48	748.18	123.70
2017	5,217.25	13.57%	14.79%	707.98	771.52	63.54
2018	5,396.09	14.46%	14.65%	780.44	790.34	9.90
2019	5,585.80	14.67%	14.74%	819.50	823.56	4.06
2020	5,786.83	14.80%	14.79%	856.63	856.13	(0.49)
2021	5,999.32	14.85%	14.84%	890.84	890.20	(0.64)
2022	6,223.41	14.84%	14.89%	923.50	926.50	3.00
2023	6,458.61	14.81%	14.92%	956.42	963.37	6.95
2024	6,704.71	14.76%	14.93%	989.41	1,001.19	11.78
2025	6,962.16	14.70%	14.93%	1,023.12	1,039.68	16.56
2026	7,231.45	14.62%	14.93%	1,057.31	1,079.54	22.23
2027	7,512.93	14.54%	14.91%	1,092.03	1,119.90	27.87
2028	7,806.93	14.45%	14.88%	1,127.87	1,161.97	34.10
2029	8,113.92	14.34%	14.83%	1,163.67	1,203.48	39.81
2030	8,433.95	14.21%	14.77%	1,198.79	1,245.30	46.51
2031	8,767.29	14.08%	14.67%	1,234.26	1,285.93	51.66
2032	9,114.66	13.90%	14.53%	1,266.68	1,324.29	57.60
2033	9,476.23	5.43%	6.70%	514.43	635.32	120.89
2034	9,852.28	3.95%	5.38%	389.15	529.85	140.69
2035	10,243.64	2.42%	4.00%	248.31	409.87	161.55
2036	10,650.79	1.38%	3.07%	147.01	327.41	180.40
2037	11,073.56	0.90%	2.68%	100.20	296.41	196.21
2038	11,513.15	0.58%	2.43%	67.01	279.86	212.86
2039	11,970.93	0.41%	2.32%	49.01	277.90	228.89
2040	12,448.09	0.33%	2.28%	40.91	284.40	243.49
2041	12,947.04	0.29%	2.30%	37.12	297.30	260.18
2042	13,469.39	0.29%	2.33%	38.50	313.37	274.87
2043	14,014.53	0.29%	2.38%	41.34	332.99	291.65
2044	14,581.39	0.31%	2.43%	45.83	354.78	308.95
2045	15,170.09	0.34%	2.48%	50.94	375.94	325.00
2046	15,780.74	0.37%	2.54%	58.01	400.70	342.69
2047	16,410.26	0.40%	2.58%	65.64	423.35	357.71
2048	17,057.88	0.42%	2.64%	72.21	449.90	377.69
2049	17,727.69	0.46%	2.67%	80.91	474.08	393.17
2050	18,423.67	0.48%	2.73%	88.50	502.67	414.17
2051	19,147.45	0.52%	2.76%	98.70	528.98	430.28
2052	19,899.69	0.54%	2.81%	107.47	558.23	450.76
2053	20,682.16	0.56%	2.85%	116.60	588.83	472.22
2054	21,496.61	0.59%	2.89%	126.16	620.88	494.72
2055	22,344.49	0.61%	2.92%	136.30	652.33	516.03
2056	23,227.14	0.63%	2.95%	146.94	685.08	538.14
2057	24,145.92	0.65%	2.97%	158.06	717.13	559.07
2058	25,102.38	0.68%	2.99%	169.68	750.59	580.91
2059	26,098.07	0.69%	3.02%	179.31	788.21	608.90
2060	27,134.62	0.71%	3.04%	192.09	824.95	632.86
				\$ 22,140.94	\$ 33,039.06	\$ 10,898.12

UAL is reamortized to an open 10 year period in 2030 to limit the impact of the contribution lag.  
All assumptions are assumed to be met each year in the future.

Addendum to Exhibit A1

HB 2194 vs Study Commission Plan  
State/School Group



(1) Fiscal Year	(2) Total Payroll	(3) Employer Contribution Rate		(5) Employer Contribution Amount (\$M)			(7) Difference
		HB 2194	SC Plan	HB 2194	SC Plan		
2012	\$ 4,465.19	8.77%	8.77%	\$ 391.60	\$ 391.60	\$ -	
2013	4,609.30	9.37%	9.37%	431.89	431.89	-	
2014	4,742.86	10.27%	13.44%	487.09	637.46	150.37	
2015	4,889.77	11.27%	13.61%	551.08	665.71	114.63	
2016	5,048.36	12.37%	14.82%	624.48	748.18	123.70	
2017	5,217.25	13.57%	14.79%	707.98	771.52	63.54	
2018	5,396.09	14.46%	14.65%	780.44	790.34	9.90	
2019	5,585.80	14.67%	14.74%	819.50	823.56	4.06	
2020	5,786.83	14.80%	14.79%	856.63	856.13	(0.49)	
2021	5,999.32	14.85%	14.84%	890.84	890.20	(0.64)	
2022	6,223.41	14.84%	14.89%	923.50	926.50	3.00	
2023	6,458.61	14.81%	14.92%	956.42	963.37	6.95	
2024	6,704.71	14.76%	14.93%	989.41	1,001.19	11.78	
2025	6,962.16	14.70%	14.93%	1,023.12	1,039.68	16.56	
2026	7,231.45	14.62%	14.93%	1,057.31	1,079.54	22.23	
2027	7,512.93	14.54%	14.91%	1,092.03	1,119.90	27.87	
2028	7,806.93	14.45%	14.88%	1,127.87	1,161.97	34.10	
2029	8,113.92	14.34%	14.83%	1,163.67	1,203.48	39.81	
2030	8,433.95	14.21%	14.77%	1,198.79	1,245.30	46.51	
2031	8,767.29	14.08%	14.67%	1,234.26	1,285.93	51.66	
2032	9,114.66	13.90%	14.53%	1,266.68	1,324.29	57.60	
2033	9,476.23	5.43%	6.70%	514.43	635.32	120.89	
2034	9,852.28	3.95%	5.38%	389.15	529.85	140.69	
2035	10,243.64	2.42%	4.00%	248.31	409.87	161.55	
2036	10,650.79	1.38%	3.07%	147.01	327.41	180.40	
2037	11,073.56	0.90%	2.68%	100.20	296.41	196.21	
2038	11,513.15	0.58%	2.43%	67.01	279.86	212.86	
2039	11,970.93	0.41%	2.32%	49.01	277.90	228.89	
2040	12,448.09	0.33%	2.28%	40.91	284.40	243.49	
2041	12,947.04	0.29%	2.30%	37.12	297.30	260.18	
2042	13,469.39	0.29%	2.33%	38.50	313.37	274.87	
2043	14,014.53	0.29%	2.38%	41.34	332.99	291.65	
2044	14,581.39	0.31%	2.43%	45.83	354.78	308.95	
2045	15,170.09	0.34%	2.48%	50.94	375.94	325.00	
2046	15,780.74	0.37%	2.54%	58.01	400.70	342.69	
2047	16,410.26	0.40%	2.58%	65.64	423.35	357.71	
2048	17,057.88	0.42%	2.64%	72.21	449.90	377.69	
2049	17,727.69	0.46%	2.67%	80.91	474.08	393.17	
2050	18,423.67	0.48%	2.73%	88.50	502.67	414.17	
2051	19,147.45	0.52%	2.76%	98.70	528.98	430.28	
2052	19,899.69	0.54%	2.81%	107.47	558.23	450.76	
2053	20,682.16	0.56%	2.85%	116.60	588.83	472.22	
2054	21,496.61	0.59%	2.89%	126.16	620.88	494.72	
2055	22,344.49	0.61%	2.92%	136.30	652.33	516.03	
2056	23,227.14	0.63%	2.95%	146.94	685.08	538.14	
2057	24,145.92	0.65%	2.97%	158.06	717.13	559.07	
2058	25,102.38	0.68%	2.99%	169.68	750.59	580.91	
2059	26,098.07	0.69%	3.02%	179.31	788.21	608.90	
2060	27,134.62	0.71%	3.04%	192.09	824.95	632.86	
Total				\$ 22,140.94	\$ 33,039.06	\$ 10,898.12	
Present Value as of July 1, 2011				\$ 8,317.52	\$ 9,383.42	\$ 1,065.89	

UAL is reamortized to an open 10 year period in 2030 to limit the impact of the contribution lag.  
All assumptions are assumed to be met each year in the future.

Addendum to Exhibit A2

HB 2194 vs Study Commission Plan  
Local Group



(1) Fiscal Year	(2) Total Payroll	(3) <u>Employer Contribution Rate</u>		(5) <u>Employer Contribution Amount (\$M)</u>			(7) Difference
		HB 2194	SC Plan	HB 2194	SC Plan		
2012	\$ 1,678.75	7.34%	7.34%	\$ 123.22	\$ 123.22	\$ -	
2013	1,726.92	7.94%	7.94%	137.12	137.12	-	
2014	1,777.74	8.65%	8.91%	153.84	158.39	4.55	
2015	1,834.05	9.12%	9.47%	167.26	173.71	6.45	
2016	1,893.42	9.00%	9.45%	170.45	178.89	8.44	
2017	1,955.65	9.00%	9.53%	176.01	186.32	10.32	
2018	2,020.46	9.00%	9.60%	181.84	193.92	12.08	
2019	2,087.94	8.99%	9.67%	187.74	201.89	14.15	
2020	2,158.09	8.98%	9.72%	193.71	209.84	16.12	
2021	2,231.91	8.98%	9.80%	200.50	218.70	18.20	
2022	2,309.17	8.98%	9.87%	207.43	227.86	20.43	
2023	2,389.76	8.98%	9.93%	214.53	237.32	22.79	
2024	2,474.65	8.97%	9.99%	222.08	247.11	25.02	
2025	2,563.71	8.98%	10.04%	230.12	257.51	27.39	
2026	2,656.71	8.97%	10.10%	238.33	268.22	29.89	
2027	2,753.93	8.97%	10.14%	247.00	279.24	32.24	
2028	2,856.33	8.96%	10.16%	255.91	290.34	34.43	
2029	2,963.32	8.94%	10.19%	265.02	302.01	37.00	
2030	3,075.51	8.93%	10.20%	274.64	313.69	39.05	
2031	3,192.38	8.91%	10.18%	284.39	324.92	40.52	
2032	3,313.68	3.65%	5.05%	120.93	167.23	46.30	
2033	3,440.20	2.75%	4.20%	94.68	144.35	49.67	
2034	3,571.81	1.82%	3.32%	64.89	118.44	53.54	
2035	3,709.17	1.49%	3.04%	55.37	112.61	57.24	
2036	3,851.93	1.27%	2.85%	48.93	109.62	60.69	
2037	4,001.21	1.14%	2.77%	45.58	110.65	65.07	
2038	4,157.18	1.06%	2.71%	44.04	112.86	68.82	
2039	4,319.48	0.99%	2.68%	42.82	115.91	73.10	
2040	4,488.52	0.94%	2.67%	42.38	119.90	77.52	
2041	4,663.81	0.90%	2.66%	41.91	123.99	82.08	
2042	4,846.82	0.86%	2.65%	41.89	128.67	86.78	
2043	5,037.31	0.83%	2.65%	41.88	133.48	91.60	
2044	5,235.49	0.81%	2.65%	42.38	138.90	96.52	
2045	5,442.03	0.79%	2.66%	42.93	145.01	102.08	
2046	5,656.91	0.77%	2.67%	43.52	151.28	107.76	
2047	5,879.63	0.76%	2.68%	44.74	157.70	112.96	
2048	6,110.89	0.74%	2.70%	45.44	164.88	119.44	
2049	6,351.53	0.74%	2.70%	46.85	171.65	124.80	
2050	6,602.17	0.73%	2.72%	48.39	179.27	130.87	
2051	6,862.33	0.73%	2.74%	50.05	187.79	137.74	
2052	7,132.79	0.74%	2.75%	52.53	195.90	143.37	
2053	7,414.16	0.73%	2.77%	54.48	205.03	150.55	
2054	7,707.23	0.73%	2.77%	56.57	213.73	157.17	
2055	8,012.19	0.74%	2.79%	59.61	223.55	163.94	
2056	8,329.45	0.74%	2.81%	62.01	233.76	171.76	
2057	8,659.60	0.76%	2.81%	65.41	243.53	178.12	
2058	9,003.17	0.76%	2.83%	68.14	254.59	186.45	
2059	9,360.70	0.76%	2.84%	71.02	266.11	195.09	
2060	9,732.77	0.76%	2.85%	74.05	277.16	203.11	
			Total	\$ 5,744.57	\$ 9,437.77	\$ 3,693.20	
			Present Value as of July 1, 2011	\$ 2,061.12	\$ 2,425.98	\$ 364.86	

UAL is reamortized to an open 10 year period in 2030 to limit the impact of the contribution lag.  
All assumptions are assumed to be met each year in the future.



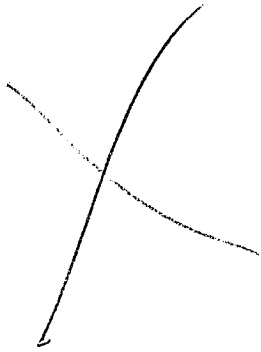
Exhibit A2



HB 2194 vs Study Commission Plan  
Local Group

(1) Fiscal Year	(2) Total Payroll	(3) Employer Contribution Rate		(5) Employer Contribution Amount (\$M)		
		HB 2194	SC Plan	HB 2194	SC Plan	Difference
2012	\$ 1,678.75	7.34%	7.34%	\$ 123.22	\$ 123.22	\$ -
2013	1,726.92	7.94%	7.94%	137.12	137.12	-
2014	1,777.74	8.65%	8.91%	153.84	158.39	4.55
2015	1,834.05	9.12%	9.47%	167.26	173.71	6.45
2016	1,893.42	9.00%	9.45%	170.45	178.89	8.44
2017	1,955.65	9.00%	9.53%	176.01	186.32	10.32
2018	2,020.46	9.00%	9.60%	181.84	193.92	12.08
2019	2,087.94	8.99%	9.67%	187.74	201.89	14.15
2020	2,158.09	8.98%	9.72%	193.71	209.84	16.12
2021	2,231.91	8.98%	9.80%	200.50	218.70	18.20
2022	2,309.17	8.98%	9.87%	207.43	227.86	20.43
2023	2,389.76	8.98%	9.93%	214.53	237.32	22.79
2024	2,474.65	8.97%	9.99%	222.08	247.11	25.02
2025	2,563.71	8.98%	10.04%	230.12	257.51	27.39
2026	2,656.71	8.97%	10.10%	238.33	268.22	29.89
2027	2,753.93	8.97%	10.14%	247.00	279.24	32.24
2028	2,856.33	8.96%	10.16%	255.91	290.34	34.43
2029	2,963.32	8.94%	10.19%	265.02	302.01	37.00
2030	3,075.51	8.93%	10.20%	274.64	313.69	39.05
2031	3,192.38	8.91%	10.18%	284.39	324.92	40.52
2032	3,313.68	3.65%	5.05%	120.93	167.23	46.30
2033	3,440.20	2.75%	4.20%	94.68	144.35	49.67
2034	3,571.81	1.82%	3.32%	64.89	118.44	53.54
2035	3,709.17	1.49%	3.04%	55.37	112.61	57.24
2036	3,851.93	1.27%	2.85%	48.93	109.62	60.69
2037	4,001.21	1.14%	2.77%	45.58	110.65	65.07
2038	4,157.18	1.06%	2.71%	44.04	112.86	68.82
2039	4,319.48	0.99%	2.68%	42.82	115.91	73.10
2040	4,488.52	0.94%	2.67%	42.38	119.90	77.52
2041	4,663.81	0.90%	2.66%	41.91	123.99	82.08
2042	4,846.82	0.86%	2.65%	41.89	128.67	86.78
2043	5,037.31	0.83%	2.65%	41.88	133.48	91.60
2044	5,235.49	0.81%	2.65%	42.38	138.90	96.52
2045	5,442.03	0.79%	2.66%	42.93	145.01	102.08
2046	5,656.91	0.77%	2.67%	43.52	151.28	107.76
2047	5,879.63	0.76%	2.68%	44.74	157.70	112.96
2048	6,110.89	0.74%	2.70%	45.44	164.88	119.44
2049	6,351.53	0.74%	2.70%	46.85	171.65	124.80
2050	6,602.17	0.73%	2.72%	48.39	179.27	130.87
2051	6,862.33	0.73%	2.74%	50.05	187.79	137.74
2052	7,132.79	0.74%	2.75%	52.53	195.90	143.37
2053	7,414.16	0.73%	2.77%	54.48	205.03	150.55
2054	7,707.23	0.73%	2.77%	56.57	213.73	157.17
2055	8,012.19	0.74%	2.79%	59.61	223.55	163.94
2056	8,329.45	0.74%	2.81%	62.01	233.76	171.76
2057	8,659.60	0.76%	2.81%	65.41	243.53	178.12
2058	9,003.17	0.76%	2.83%	68.14	254.59	186.45
2059	9,360.70	0.76%	2.84%	71.02	266.11	195.09
2060	9,732.77	0.76%	2.85%	74.05	277.16	203.11
				\$ 5,744.57	\$ 9,437.77	\$ 3,693.20

UAL is reamortized to an open 10 year period in 2030 to limit the impact of the contribution lag.  
All assumptions are assumed to be met each year in the future.







**Exhibit B2**  
**Kansas Public Employee Retirement System**  
**Comparison of Local Group Employer Contributions for Retirement Benefits**  
**HB 2194 versus Study Commission Plan**

FYE	Payroll		HB 2194		Study Commission Plan <sup>(1)</sup>		Difference <sup>(2)</sup>	
	Tier 1/2	Tier 3	Normal Cost <sup>(3)</sup>	UAL Payment <sup>(3)</sup>	DB Normal Cost <sup>(3)</sup>	UAL Payment <sup>(3)</sup>		
2012	1,678,751	0.000	7.34%	2.94%	49,355	73,865	123,220	0.000
2013	1,726,922	0.000	7.94%	2.94%	50,772	86,346	137,118	0.000
2014	1,777,741	0.000	8.65%	1.96%	34,906	118,931	158,388	4,551
2015	1,682,835	151,199	9.12%	1.86%	34,106	133,152	173,706	6,447
2016	1,601,267	292,153	9.00%	1.76%	33,371	137,084	178,894	8,439
2017	1,531,885	423,760	9.00%	1.69%	33,049	142,958	186,324	10,317
2018	1,468,854	551,608	9.00%	1.62%	32,730	149,110	193,920	12,080
2019	1,411,513	676,427	8.99%	1.55%	32,396	155,343	201,893	14,154
2020	1,357,016	801,074	8.98%	1.49%	32,073	161,641	209,839	16,125
2021	1,306,765	925,141	8.98%	1.42%	31,768	168,732	218,702	20,429
2022	1,259,029	1,050,142	8.98%	1.36%	31,472	175,959	227,860	20,429
2023	1,211,644	1,178,114	8.98%	1.31%	31,237	183,294	237,317	22,786
2024	1,166,580	1,308,070	8.97%	1.25%	31,040	191,043	247,105	25,022
2025	1,122,814	1,440,897	8.98%	1.21%	30,916	199,200	257,511	27,394
2026	1,079,538	1,577,175	8.97%	1.16%	30,845	207,489	268,225	29,890
2027	1,036,739	1,717,192	8.97%	1.12%	30,815	216,184	279,239	34,427
2028	996,305	1,860,024	8.96%	1.08%	30,834	225,079	290,340	36,995
2029	956,653	2,006,671	8.94%	1.04%	30,915	234,103	302,013	39,048
2030	918,258	2,157,256	8.93%	1.01%	31,056	243,581	313,685	40,521
2031	880,111	2,312,267	8.91%	0.98%	31,229	253,156	324,916	46,305
2032	841,490	2,472,188	8.91%	0.95%	31,460	262,979	336,818	49,672
2033	802,800	2,637,309	2.75%	0.92%	32,032	272,956	348,495	53,544
2034	763,519	2,808,290	1.49%	0.87%	32,373	283,161	360,888	57,236
2035	724,959	2,984,212	1.27%	0.83%	32,755	293,704	373,938	60,688
2036	685,180	3,166,753	1.06%	0.81%	33,176	304,604	387,599	65,073
2037	645,945	3,355,264	0.99%	0.79%	33,650	315,939	400,821	68,819
2038	606,916	3,550,260	0.94%	0.77%	34,179	327,816	413,755	73,096
2039	567,903	3,751,578	0.90%	0.76%	34,753	340,243	426,384	77,518
2040	528,254	3,960,270	0.86%	0.74%	35,379	353,216	438,689	82,078
2041	486,776	4,177,037	0.80%	0.73%	36,073	366,742	450,726	86,780
2042	445,926	4,400,890	0.83%	0.73%	36,841	380,816	462,511	91,598
2043	405,937	4,631,369	0.81%	0.72%	37,672	395,441	474,079	96,516
2044	365,661	4,869,826	0.79%	0.71%	38,575	410,616	485,384	102,082
2045	326,806	5,115,138	0.77%	0.70%	39,565	426,354	496,386	107,757
2046	290,352	5,366,555	0.76%	0.69%	40,626	442,661	507,052	112,956
2047	254,343	5,625,289	0.74%	0.68%	41,776	459,534	517,461	119,436
2048	218,593	5,892,300	0.74%	0.68%	43,043	476,987	527,599	124,797
2049	184,549	6,166,985	0.73%	0.67%	44,431	495,031	537,461	130,875
2050	155,998	6,446,177	0.73%	0.67%	45,934	513,664	546,987	137,742
2051	129,299	6,733,033	0.73%	0.67%	47,536	532,993	556,169	143,373
2052	104,361	7,028,427	0.73%	0.66%	49,285	552,993	565,025	150,550
2053	81,172	7,332,993	0.73%	0.66%	51,171	573,664	573,535	157,167
2054	63,826	7,643,400	0.74%	0.66%	53,201	595,010	581,757	163,944
2055	50,205	7,961,988	0.74%	0.66%	55,344	617,044	590,535	171,757
2056	38,812	8,290,643	0.74%	0.66%	57,619	640,719	600,035	178,122
2057	29,195	8,630,402	0.76%	0.67%	60,035	665,116	610,317	186,447
2058	22,087	8,981,087	0.76%	0.67%	62,592	690,354	620,993	195,093
2059	16,902	9,343,797	0.76%	0.67%	65,286	716,016	627,588	203,113
2060	12,843	9,719,925	0.76%	0.67%	68,129	743,066	634,066	211,133
					1,912,986	3,831,587	5,744,574	3,693,200

<sup>(1)</sup> Effective 1/1/14  
<sup>(2)</sup> In millions  
 UAL is reauthorized to an open 10-year period in 2030 to limit the impact of the contribution lag.  
 All assumptions are assumed to be met each year in the future.



