



# Cavanaugh Macdonald

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February 11, 2013

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

**Re: Cost Study for Impact of Pension Obligation Bond**

Dear Alan:

At your request, we have prepared a cost study to determine the impact on KPERS if there were a pension obligation bond (POB) issued by the state of Kansas and the net proceeds of \$1.5 billion were deposited into the KPERS trust fund. There are no specifics on the POB at this point in time so certain assumptions have been made in order to permit us to analyze the cost impact. First, it is assumed that the debt service payments on the POB will come from a funding source other than KPERS contributions (similar to the last POB issued). For modeling purposes the POB proceeds are assumed to be deposited into the KPERS trust on December 31, 2014. If this concept moves further and details are available, our cost study will need to be revised to more accurately reflect the actual provisions related to the issuance of the POB

**Cost Impact**

We used the projection model prepared in conjunction with the December 31, 2011 actuarial valuation to measure the cost impact of the \$1.5 billion deposit into the KPERS trust fund on December 31, 2014. These results are compared to the projections under Sub HB 2333 without the POB. Exhibit A shows the estimated employer contribution rate and the corresponding dollar amounts of employer contributions along with the funded ratio under each scenario. The total employer contributions for FY 2013 through FY 2034 based on HB 2333 are \$20,917.07 million (statutory employer contributions plus additional State contributions from ELARF). Under the scenario where a \$1.5 billion POB is issued, the total employer contributions over the same period are \$17,252.87 million, a difference of \$3,664.21 million. Of course, the POB would have to be repaid and the debt service payments are assumed to be paid from a source other than KPERS contributions. This "cost" has not been taken into account on Exhibit A. Only the impact on KPERS is shown.

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



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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 a more direct comparison of cost results, the present value of the employer contributions, using an 8% discount rate, has been included. On a present value basis, the contribution difference is \$1.3 billion. This amount is not exactly equal to the amount of the POB largely due to the fact the present value of the contribution difference is determined as of July 1, 2012 and the POB is assumed to be deposited December 31, 2014. If the present value were measured as of the deposit date, the difference would be the \$1.5 billion deposited.

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

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

The numerical table that comprises this cost study is based primarily upon the December 31, 2011 valuation results, the actuarial assumptions used in that valuation (unless otherwise noted elsewhere in this letter), and the projection model prepared by the System's actuary, Cavanaugh Macdonald Consulting, LLC. Significant items are noted below:

- The investment return in all future years is assumed to be 8% on a market value basis, unless otherwise indicated.
- All demographic assumptions regarding mortality, disability, retirement, salary increases, and termination of employment are assumed to hold true in the future. Please note that the actuarial assumption assumes that mortality will improve in the future (i.e. people will live longer).
- The number of active members covered by KPERS in the future is assumed to remain level (neither growth nor decline in the active membership count). As active members leave covered employment, they are assumed to be replaced by new employees who have a similar demographic profile as recent new hires.
- 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 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,



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the duration of the benefit payments, plan expenses, and the amount of earnings on assets invested to pay benefits. These amounts and other variables are uncertain and unknowable at the time the projections were prepared. Because not all of the assumptions will unfold exactly as expected, actual results will differ from the projections. To the extent that actual experience deviates significantly from the assumptions, results could be significantly better or significantly worse than indicated in this study.

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

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

Sincerely,

Handwritten signature of Patrice A. Beckham in cursive.

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

Handwritten signature of Brent A. Banister in cursive.

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

Exhibit A

HB 2333 vs. \$1.5B POB  
State/School Group



(1) Fiscal Year	(2) Total Payroll \$	(3) Employer Contribution Rate		(4) Employer Contribution Rate			(5) Employer Contribution Amount (\$M)			(7) Difference	(8) Present Value of Difference	(9) Funded Ratio (Jan 1 of FY)		(10)
		HB 2333	With POB	HB 2333	With POB	With POB	HB 2333	With POB	HB 2333			With POB		
2013	4,391.75	9.37%	9.37%	\$ 411.51	\$ 411.51	\$ -	\$ -	\$ -	\$ -	55.0%	55.0%	55.0%		
2014	4,535.95	10.27%*	10.27%*	504.89	504.89	-	-	-	-	50.4%	50.4%	50.4%		
2015	4,668.66	11.27%*	11.27%*	565.65	565.65	-	-	-	-	52.3%	52.3%	60.9%		
2016	4,814.29	12.37%*	12.37%*	635.47	635.47	-	-	-	-	53.3%	53.3%	62.3%		
2017	4,971.08	13.57%*	13.57%*	714.97	714.97	-	-	-	-	54.4%	54.4%	63.7%		
2018	5,138.05	14.77%*	14.11%*	799.74	765.98	(33.75)	(33.75)	(22.11)	(22.11)	55.7%	55.7%	65.4%		
2019	5,315.15	15.97%*	13.90%*	890.14	779.92	(110.22)	(110.22)	(66.83)	(66.83)	57.4%	57.4%	67.2%		
2020	5,502.86	16.96%*	13.90%*	975.27	806.89	(168.39)	(168.39)	(94.54)	(94.54)	59.4%	59.4%	69.0%		
2021	5,701.82	17.16%*	13.84%*	1,020.71	831.41	(189.30)	(189.30)	(98.41)	(98.41)	61.7%	61.7%	70.9%		
2022	5,912.23	17.26%*	13.74%*	1,063.03	854.92	(208.11)	(208.11)	(100.18)	(100.18)	64.2%	64.2%	72.9%		
2023	6,133.19	17.25%*	13.62%*	1,106.62	883.99	(222.63)	(222.63)	(99.23)	(99.23)	66.8%	66.8%	74.9%		
2024	6,364.33	17.18%*	13.49%*	1,142.50	907.65	(234.84)	(234.84)	(96.92)	(96.92)	69.5%	69.5%	77.1%		
2025	6,606.19	17.08%*	13.36%*	1,177.88	932.13	(245.75)	(245.75)	(93.91)	(93.91)	72.4%	72.4%	79.4%		
2026	6,859.09	16.96%*	13.21%	1,213.05	905.91	(307.13)	(307.13)	(108.67)	(108.67)	75.5%	75.5%	81.8%		
2027	7,123.55	16.80%*	13.02%	1,247.22	927.53	(319.69)	(319.69)	(104.73)	(104.73)	78.8%	78.8%	84.1%		
2028	7,399.97	16.62%	12.83%	1,229.79	949.33	(280.46)	(280.46)	(85.07)	(85.07)	82.2%	82.2%	86.5%		
2029	7,688.78	16.41%	12.60%	1,262.07	969.13	(292.94)	(292.94)	(82.28)	(82.28)	85.5%	85.5%	89.0%		
2030	7,990.01	16.17%	12.49%	1,291.81	997.77	(294.03)	(294.03)	(76.47)	(76.47)	89.0%	89.0%	91.7%		
2031	8,303.69	15.86%	12.35%	1,317.30	1,025.84	(291.46)	(291.46)	(70.18)	(70.18)	92.7%	92.7%	94.4%		
2032	8,630.79	15.65%	12.22%	1,350.47	1,054.43	(296.04)	(296.04)	(66.01)	(66.01)	96.5%	96.5%	97.3%		
2033	8,971.62	6.27%	5.14%	562.50	461.12	(101.38)	(101.38)	(20.93)	(20.93)	99.1%	99.1%	99.2%		
2034	9,326.24	4.66%	3.93%	434.51	366.42	(68.08)	(68.08)	(13.01)	(13.01)	100.2%	100.2%	100.1%		

\* Indicates additional contributions from ELARF are made.

Total	\$ 20,917.07	\$ 17,252.87	\$ (3,664.21)	\$ (1,299.48)
Present Value at 8% as of July 1, 2012	\$ 9,090.59	\$ 7,791.11	\$ (1,299.48)	

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 11, 2013. All assumptions, including the 8% investment return, are assumed to be met each year in the future.