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June 12, 2015

Mr. William A. Thielen
Executive Director
Kentucky Retirement Systems
Perimeter Park West
1260 Louisville Road
Frankfort, KY 40601

Re: UAL Attribution

Dear Bill:

As requested, we have updated the unfunded accrued liabilities (UAL) attribution work for each of the pension funds. The attribution of the UAL into major categories is an effort to identify the sources of UAL increase over the last 7 years.

Enclosed with this letter are updated tables that assign changes in the UAL for each System to one of several sources. Please note that increases in the UAL, or actuarial losses, are shown as positive numbers and decreases, or actuarial gains, are shown as negative numbers. In addition, the numbers do not add exactly due to rounding. As previously noted, the sources of UAL change are:

- Asset gain or loss from investment return above or below the assumed investment return, as reflected in the change in the actuarial value of assets each year.
- The additional liability recognized each year for the cost of living adjustment (COLA), if any, granted that year.
- Changes in accrued liability due to benefit changes, if any, enacted into law.
- Changes in accrued liability due to updates to the actuarial assumptions used in the annual valuations as a result of experience investigations that are performed periodically to compare actual plan experience to that assumed.
- The shortfall in employer contributions made to the KERS and SPRS funds as a result of legislative action reducing the contributions from those recommended by the Board of Trustees.
- The change in UAL due to the difference between actual and expected experience due to demographic events (retirement, withdrawal, death and disability) and well as individual pay increases above or below expected.
- An "Other" category that includes such items as the effect of negative amortization of the UAL, financial transaction timing differences, data corrections, software changes, etc.

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Again as a reminder, the negative amortization issue refers to the impact of financing the UAL as a level percent of payroll. When this is done, the dollar amount of the contributions is not sufficient to cover the interest accrual on the UAL balance until the amortization period drops below 16-17 years. As a result the UAL grows in dollar amount during that period of time, even if the actuarially determined contribution is actually made to the fund.

The amounts in each category should be viewed as best estimate numbers in many cases as there is some interplay between some of the categories that makes absolute assignment of gain or loss very difficult.

I certify that I am a member of the American Academy of Actuaries and that I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

If you have any questions, please give me a call.

Sincerely,

A handwritten signature in blue ink that reads 'Todd B. Green' followed by a horizontal line.

Todd B. Green ASA, FCA, MAAA
Principal and Consulting Actuary

Enc.



Kentucky Employees Retirement System

KERS Non-Hazardous									
Val Year	UAL BOY	Asset (G)/L	COLA	Benefits	Assumptions	Employer Contribution Shortfall	Demographic and Salary Experience	Other	UAL EOY
2008	4,089	12	245			179	128	158	4,811
2009	4,811	308	205	(45)	(12)	197	131	269	5,864
2010	5,864	324	102			216	(37)	326	6,795
2011	6,795	243	113			221	(129)	212	7,455
2012	7,455	325	117			236	(53)	180	8,260
2013	8,260	166				249	(18)	94	8,751
2014	8,751	(129)				224	68	212	9,126
		1,249	782	(45)	(12)	1,522	90	1,451	

KERS Hazardous									
Val Year	UAL BOY	Asset (G)/L	COLA	Benefits	Assumptions	Employer Contribution Shortfall	Demographic and Salary Experience	Other	UAL EOY
2008	92	(2)	12			1	9	4	116
2009	116	27	9	(6)	10	2	0	14	172
2010	172	27	5			3	4	(26)	185
2011	185	16	6			5	(2)	1	211
2012	211	30	7			3	(5)	9	255
2013	255	16				6	(2)	3	278
2014	278	(19)				2	12	16	289
		95	39	(6)	10	22	16	21	

KERS Total									
Val Year	UAL BOY	Asset (G)/L	COLA	Benefits	Assumptions	Employer Contribution Shortfall	Demographic and Salary Experience	Other	UAL EOY
2008	4,181	10	257			180	137	162	4,927
2009	4,927	335	214	(51)	(2)	199	131	283	6,036
2010	6,036	351	107			219	(33)	300	6,980
2011	6,980	259	119			226	(131)	213	7,666
2012	7,666	355	124			239	(58)	189	8,515
2013	8,515	182				255	(20)	97	9,029
2014	9,029	(148)				226	80	228	9,415
		1,344	821	(51)	(2)	1,544	106	1,472	



County Employees Retirement System

CERS Non-Hazardous								
Val Year	UAL BOY	Asset (G)/L	COLA	Benefits	Assumptions	Demographic and Salary Experience	Other	UAL EOY
2008	1,192	28	129			83	141	1,573
2009	1,573	344	101		44	36	164	2,262
2010	2,262	354	55			7	234	2,912
2011	2,912	230	62			35	49	3,288
2012	3,288	341	71			(71)	(37)	3,592
2013	3,592	165				29	(44)	3,742
2014	3,742	(219)				83	49	3,655
		1,243	418		44	202	556	

CERS Hazardous								
Val Year	UAL BOY	Asset (G)/L	COLA	Benefits	Assumptions	Demographic and Salary Experience	Other	UAL EOY
2008	569	11	43			8	21	652
2009	652	113	46		(4)	(7)	27	827
2010	827	117	21			(3)	(39)	923
2011	923	73	24			28	31	1,079
2012	1,079	112	28			(11)	55	1,263
2013	1,263	59				(2)	3	1,323
2014	1,323	(64)				52	10	1,321
		421	162		(4)	65	108	

CERS Total								
Val Year	UAL BOY	Asset (G)/L	COLA	Benefits	Assumptions	Demographic and Salary Experience	Other	UAL EOY
2008	1,761	39	172			91	162	2,225
2009	2,225	457	147		40	29	191	3,089
2010	3,089	471	76			4	195	3,835
2011	3,835	303	86			63	80	4,367
2012	4,367	453	99			(82)	18	4,855
2013	4,855	224				27	(41)	5,065
2014	5,065	(283)				135	59	4,976
		1,664	580		40	267	664	



State Police Retirement System

SPRS									
Val Year	UAL BOY	Asset (G)/L	COLA	Benefits	Assumptions	Employer Contribution Shortfall	Demographic and Salary Experience	Other	UAL EOY
2008	199	(1)	16			7	9	91	321
2009	321	17	11	(10)	(3)	9	1	(74)	272
2010	272	18	6			10	4	4	314
2011	314	13	7			7	6	2	349
2012	349	19	9			8	(3)	6	388
2013	388	9				8	1	4	410
2014	410	(12)				7	24	10	439
		63	49	(10)	(3)	56	42	43	