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LEGISLATIVE RESEARCH COMMISSION

State Capitol 700 Capital Avenue Frankfort KY 40601

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**TO:** Public Pension Oversight Board

**FROM:** LRC Staff

**DATE:** December 16, 2019

**RE:** November PPOB Meeting Follow Up

During the November 2019 meeting of the Public Pension Working Group, TRS and KRS staff were asked to provide some additional information during their testimony. Below is a summary of information that has currently been provided:

**Teacher Retirement System:**

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TRS staff were asked to provide additional information regarding the underlying actuarial gains and losses as calculated in the 2019 actuarial valuation for the pension fund. A summary of numbers provided by the actuary regarding the underlying the gains and losses are as follows:

- Investment Return Actuarial Loss of \$83.1 M: Actuarial value of asset return was 7.07% for 2019 Fiscal Year as compared to assumption of 7.50%
- Salary Increases Actuarial Gain of \$121.6 M – Individual salaries for returning active members were about 1% less than assumed for the 2019 Fiscal Year
- Turnover and Retirement Actuarial Loss of \$116.2 M – The number of retirements during the fiscal year were higher than assumed. Actual retirements totaled 2,038 versus an assumption of 1,952.
- Mortality Actuarial Gain of \$16.7 M – The number of retiree or beneficiary deaths was higher than assumed. Actual deaths totaled 1,576 versus 1,449 assumed.
- New Entrants Actuarial Loss of \$44.8 M – Approximately 8,400 new members entered for 2019 fiscal year, with average benefit service of 0.8 years and average eligibility service of 2.0 years.

## **Kentucky Retirement System:**

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KRS staff were asked to provide supporting information regarding recent historical trends, projected retired membership and information on how the employer contribution rate would be impacted if the amortization period was reset. A summary of KRS's response is provided below:

**REQUEST:** KRS was asked to provide underlying data that populated historical trend charts of active membership, covered payroll, retired membership, and benefit distribution included in their presentation.

**RESPONSE:** Please see attached information, titled Appendix 1, KRS Historical Trend Data

**REQUEST:** KRS was asked to provide projected retired membership (headcount) data going forward and when total retired membership would peak for each system.

**RESPONSE:** Please see attached information, titled Appendix 2, KRS Retiree Projected Headcount.

**REQUEST:** KRS was asked what the KERS NH how the employer contribution rate ARC would be if 30-year amortization period was reset.

**RESPONSE:** Staff indicated that resetting the 30-year amortization period (from its current 24 years) would result in an estimated employer contribution rate of 84.43% (versus the current 93.01%).

**Kentucky Retirement Systems  
Active Headcount**

Valuation Date	KERS Non-Haz		KERS Haz		CERS NH		CERS Haz		SPRS	
6/30/2009	46,060		4,334		83,724		9,757		946	
6/30/2010	47,090	2.2%	4,291	-1.0%	84,681	1.1%	9,562	-2.0%	961	1.6%
6/30/2011	46,617	-1.0%	4,291	0.0%	85,285	0.7%	9,407	-1.6%	965	0.4%
6/30/2012	42,196	-9.5%	4,086	-4.8%	83,052	-2.6%	9,130	-2.9%	907	-6.0%
6/30/2013	42,226	0.1%	4,127	1.0%	81,815	-1.5%	9,123	-0.1%	902	-0.6%
6/30/2014	40,365	-4.4%	4,024	-2.5%	81,115	-0.9%	9,194	0.8%	855	-5.2%
6/30/2015	39,056	-3.2%	3,886	-3.4%	80,852	-0.3%	9,172	-0.2%	937	9.6%
6/30/2016	37,779	-3.3%	3,959	1.9%	80,664	-0.2%	9,084	-1.0%	908	-3.1%
6/30/2017	37,234	-1.4%	4,047	2.2%	82,198	1.9%	9,495	4.5%	903	-0.6%
6/30/2018	35,139	-5.6%	3,929	-2.9%	81,818	-0.5%	9,263	-2.4%	886	-1.9%
6/30/2019	33,696	-4.1%	3,705	-5.7%	81,506	-0.4%	9,474	2.3%	883	-0.3%
Annualized Change		<b>-3.1%</b>		<b>-1.6%</b>		<b>-0.3%</b>		<b>-0.3%</b>		<b>-0.7%</b>

**Kentucky Retirement Systems  
Active Covered Payroll (\$ in Thousands)**

Valuation Date	KERS Non-Haz		KERS Haz		CERS NH		CERS Haz		SPRS	
6/30/2009	\$ 1,754,413		\$ 146,044		\$ 2,183,612		\$ 469,315		\$ 51,660	
6/30/2010	1,815,146	3.5%	143,558	-1.7%	2,236,855	2.4%	466,549	-0.6%	51,507	-0.3%
6/30/2011	1,731,633	-4.6%	133,054	-7.3%	2,276,596	1.8%	466,964	0.1%	48,693	-5.5%
6/30/2012	1,644,897	-5.0%	131,977	-0.8%	2,236,546	-1.8%	464,229	-0.6%	48,373	-0.7%
6/30/2013	1,644,409	0.0%	132,015	0.0%	2,236,277	0.0%	461,673	-0.6%	45,256	-6.4%
6/30/2014	1,577,496	-4.1%	129,076	-2.2%	2,272,270	1.6%	479,164	3.8%	44,616	-1.4%
6/30/2015	1,544,234	-2.1%	128,680	-0.3%	2,296,716	1.1%	483,641	0.9%	45,765	2.6%
6/30/2016	1,529,249	-1.0%	147,563	14.7%	2,352,762	2.4%	492,851	1.9%	45,551	-0.5%
6/30/2017	1,531,535	0.1%	162,418	10.1%	2,452,407	4.2%	541,633	9.9%	48,598	6.7%
6/30/2018	1,471,477	-3.9%	158,213	-2.6%	2,466,801	0.6%	533,618	-1.5%	48,808	0.4%
6/30/2019	1,437,647	-2.3%	150,446	-4.9%	2,521,860	2.2%	559,353	4.8%	47,752	-2.2%
Annualized Change		<b>-2.0%</b>		<b>0.3%</b>		<b>1.5%</b>		<b>1.8%</b>		<b>-0.8%</b>

**Kentucky Retirement Systems  
Retiree Headcount**

Valuation Date	KERS Non-Haz		KERS Haz		CERS NH		CERS Haz		SPRS	
6/30/2010	37,945		2,835		41,038		6,068		1,223	
6/30/2011	38,597	1.7%	3,064	8.1%	43,211	5.3%	6,468	6.6%	1,263	3.3%
6/30/2012	39,226	1.6%	3,253	6.2%	45,304	4.8%	6,878	6.3%	1,299	2.9%
6/30/2013	40,194	2.5%	3,430	5.4%	47,676	5.2%	7,293	6.0%	1,346	3.6%
6/30/2014	41,223	2.6%	3,620	5.5%	49,935	4.7%	7,646	4.8%	1,413	5.0%
6/30/2015	42,269	2.5%	3,758	3.8%	52,651	5.4%	8,034	5.1%	1,460	3.3%
6/30/2016	44,004	4.1%	3,966	5.5%	56,339	7.0%	8,563	6.6%	1,515	3.8%
6/30/2017	44,916	2.1%	4,093	3.2%	59,013	4.7%	8,998	5.1%	1,536	1.4%
6/30/2018	46,526	3.6%	4,370	6.8%	61,938	5.0%	9,587	6.5%	1,600	4.2%
6/30/2019	47,410	1.9%	4,537	3.8%	64,539	4.2%	10,023	4.5%	1,647	2.9%
Annualized Change		<b>2.5%</b>		<b>5.4%</b>		<b>5.2%</b>		<b>5.7%</b>		<b>3.4%</b>

**Kentucky Retirement Systems  
Benefit Distribution (\$ in Thousands)**

Valuation Date	KERS Non-Haz		KERS Haz		CERS NH		CERS Haz		SPRS	
6/30/2010	\$ 834,514		\$ 39,082		\$ 480,250		\$ 138,766		\$ 45,726	
6/30/2011	849,303	2%	46,571	19%	506,160	5%	170,194	23%	46,812	2%
6/30/2012	870,155	2%	50,967	9%	537,150	6%	172,868	2%	49,016	5%
6/30/2013	886,813	2%	51,617	1%	566,510	5%	182,854	6%	50,590	3%
6/30/2014	903,564	2%	57,150	11%	597,136	5%	192,299	5%	53,240	5%
6/30/2015	919,343	2%	59,383	4%	628,858	5%	203,245	6%	54,850	3%
6/30/2016	935,418	2%	61,517	4%	664,999	6%	216,327	6%	56,279	3%
6/30/2017	960,309	3%	63,337	3%	701,891	6%	229,299	6%	56,960	1%
6/30/2018	980,978	2%	68,117	8%	741,177	6%	248,332	8%	58,827	3%
6/30/2019	1,000,691	2%	72,211	6%	780,608	5%	261,863	5%	61,111	4%
Annualized Change		<b>2.0%</b>		<b>7.1%</b>		<b>5.5%</b>		<b>7.3%</b>		<b>3.3%</b>

**Kentucky Retirement Systems  
Projected Retiree Headcount  
based on June 30, 2019 Actuarial Valuation**

**Includes Current and Future Retirees**

<b>Year</b>	<b>KERS Non-Haz</b>	<b>KERS Haz</b>	<b>CERS NH</b>	<b>CERS Haz</b>	<b>SPRS</b>
2019	47,410	4,537	64,539	10,023	1,647
2020	52,529	5,210	74,198	10,840	1,727
2021	53,523	5,341	77,016	11,222	1,758
2022	54,489	5,472	79,864	11,574	1,780
2023	55,388	5,597	82,635	11,895	1,804
2024	56,188	5,710	85,337	12,170	1,835
2025	56,947	5,854	87,917	12,461	1,867
2026	57,649	5,988	90,454	12,734	1,885
2027	58,347	6,131	92,811	12,989	1,903
2028	58,989	6,246	95,160	13,228	1,922
2029	59,561	6,329	97,299	13,409	1,934
2030	60,018	6,386	99,340	13,543	1,942
2031	60,362	6,442	101,151	13,664	1,939
2032	60,538	6,488	102,828	13,762	1,937
2033	60,734	6,520	104,593	13,828	1,929
2034	60,927	6,559	106,287	13,894	1,922
2035	61,129	6,586	108,009	13,944	1,915
2036	61,192	6,600	109,570	14,016	1,908
2037	61,172	6,639	110,861	14,101	1,899
2038	60,927	6,676	111,826	14,218	1,893
2039	60,673	6,688	112,596	14,302	1,879
2040	60,366	6,691	113,282	14,382	1,869
2041	59,973	6,683	113,719	14,422	1,855
2042	59,678	6,641	114,193	14,447	1,834
2043	59,266	6,589	114,562	14,451	1,816
2044	58,883	6,549	114,887	14,481	1,806
2045	58,512	6,522	115,202	14,569	1,805
2046	58,004	6,486	115,441	14,662	1,793
2047	57,478	6,461	115,594	14,746	1,775
2048	56,884	6,442	115,712	14,841	1,767

**Notes and assumptions:**

The projection is based on the results of the June 30, 2019 actuarial valuation and assumes that all actuarial assumptions are realized.

New active members are assumed to be hired to replace the current active members as they are assumed to terminate employment or retire.

The total active population is assumed to decrease 2% each year for each of the next 30 years for KERS and SPRS and remain constant for CERS.

**Kentucky Retirement Systems  
Projected Retiree Headcount  
based on June 30, 2019 Actuarial Valuation**

**Only Includes Current Retirees in Receipt of Benefits at June 30, 2019**

<b>Year</b>	<b>KERS Non-Haz</b>	<b>KERS Haz</b>	<b>CERS NH</b>	<b>CERS Haz</b>	<b>SPRS</b>
2019	47,410	4,537	64,539	10,023	1,647
2020	46,620	4,497	63,395	9,961	1,634
2021	45,735	4,448	62,085	9,870	1,620
2022	44,818	4,388	60,706	9,777	1,604
2023	43,867	4,324	59,282	9,677	1,587
2024	42,901	4,261	57,824	9,565	1,569
2025	41,911	4,190	56,348	9,448	1,549
2026	40,903	4,120	54,827	9,315	1,527
2027	39,864	4,046	53,267	9,184	1,502
2028	38,792	3,969	51,651	9,047	1,477
2029	37,694	3,890	49,994	8,906	1,450
2030	36,568	3,802	48,305	8,756	1,425
2031	35,413	3,720	46,591	8,613	1,397
2032	34,224	3,632	44,833	8,461	1,369
2033	33,000	3,540	43,035	8,298	1,340
2034	31,740	3,445	41,201	8,130	1,308
2035	30,450	3,344	39,337	7,953	1,276
2036	29,130	3,238	37,441	7,769	1,242
2037	27,786	3,130	35,526	7,576	1,207
2038	26,421	3,018	33,597	7,376	1,171
2039	25,041	2,903	31,662	7,168	1,134
2040	23,652	2,784	29,729	6,953	1,095
2041	22,261	2,664	27,809	6,731	1,056
2042	20,876	2,542	25,910	6,502	1,017
2043	19,504	2,420	24,043	6,267	976
2044	18,154	2,297	22,220	6,027	936
2045	16,833	2,175	20,449	5,784	895
2046	15,550	2,054	18,742	5,537	855
2047	14,310	1,935	17,105	5,289	815
2048	13,121	1,819	15,547	5,039	776

**Notes and assumptions:**

The projection is based on the results of the June 30, 2019 actuarial valuation and assumes that all actuarial assumptions are realized.

New active members are assumed to be hired to replace the current active members as they are assumed to terminate employment or retire.

The total active population is assumed to decrease 2% each year for each of the next 30 years for KERS and SPRS and remain constant for CERS.

**Kentucky Retirement Systems  
Projected Retiree Headcount  
based on June 30, 2019 Actuarial Valuation**

**Only Includes Current and Future Active Members Not in Receipt of Benefits at June 30, 2019**

<b>Year</b>	<b>KERS Non-Haz</b>	<b>KERS Haz</b>	<b>CERS NH</b>	<b>CERS Haz</b>	<b>SPRS</b>
2019	0	0	0	0	0
2020	5,909	713	10,803	879	93
2021	7,788	893	14,931	1,352	138
2022	9,671	1,084	19,158	1,797	176
2023	11,521	1,273	23,353	2,218	217
2024	13,287	1,449	27,513	2,605	266
2025	15,036	1,664	31,569	3,013	318
2026	16,746	1,868	35,627	3,419	358
2027	18,483	2,085	39,544	3,805	401
2028	20,197	2,277	43,509	4,181	445
2029	21,867	2,439	47,305	4,503	484
2030	23,450	2,584	51,035	4,787	517
2031	24,949	2,722	54,560	5,051	542
2032	26,314	2,856	57,995	5,301	568
2033	27,734	2,980	61,558	5,530	589
2034	29,187	3,114	65,086	5,764	614
2035	30,679	3,242	68,672	5,991	639
2036	32,062	3,362	72,129	6,247	666
2037	33,386	3,509	75,335	6,525	692
2038	34,506	3,658	78,229	6,842	722
2039	35,632	3,785	80,934	7,134	745
2040	36,714	3,907	83,553	7,429	774
2041	37,712	4,019	85,910	7,691	799
2042	38,802	4,099	88,283	7,945	817
2043	39,762	4,169	90,519	8,184	840
2044	40,729	4,252	92,667	8,454	870
2045	41,679	4,347	94,753	8,785	910
2046	42,454	4,432	96,699	9,125	938
2047	43,168	4,526	98,489	9,457	960
2048	43,763	4,623	100,165	9,802	991

**Notes and assumptions:**

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