

March 12, 2018

Mr. David Eager
Interim Executive Director
Kentucky Retirement Systems
1260 Louisville Road
Frankfort, KY 40601

**Re: BR 1486 HB 547
AA Statement 1 of 1
Kentucky Retirement Systems**

Dear Mr. Eager:

We have reviewed and analyzed the summary of changes in the proposed legislation HB 547 (BR 1486). The purpose of this letter is to communicate to the fiscal analysis of this proposed legislation on the retirement and insurance funds maintained by the Kentucky Retirement System (KRS). **If enacted, this legislation would increase the risk of exhausting plan assets in the KERS Non-Hazardous Pension System. If plan assets become exhausted, then the System would become “pay-go” meaning employers would be required, without exception, to make contributions at least equal to the benefits distributed by the plan which are approximately \$1 billion a year, meaning employers should contribute in excess of a \$1 billion a year to initiate prefunding the plan again.**

Principal Provisions of Proposed Legislation

In summary, the proposed legislation defines the employer contribution rates for fiscal years 2018/2019 and 2019/2020 to be equal to the rates summarized below. These are the same contribution rates that the employers are currently contributing for the 2017/2018 fiscal year.

KERS Non-Hazardous System: 49.47% of pay
KERS Hazardous System: 23.70% of pay
CERS Non-Hazardous System: 19.18% of pay
CERS Hazardous System: 31.55% of pay
SPRS: 91.24% of pay

Summary of Cost Impact

Section 1 includes exhibits that show a comparison of the fiscal impact of the proposed legislation to the current plan over the next 35 years. Specifically, these exhibits show the projected impact on the: (1) unfunded actuarial accrued liability, (2) funded ratio, (3) total employer contribution dollars, and (4) projected composite employer contribution rates, for each of the funds (retirement and health insurance). Section 2 provides additional detail regarding each projection under the current plan and Section 3 provides similar information under the proposed

legislation. Section 4 provides the fiscal impact under an alternative assumption scenario for the KERS Non-Hazardous System that assumes a decreasing active membership count consistent with recent trends.

For all plans, the rates defined in this proposed legislation are lower than the actuarially determined contribution rates determined in the June 30, 2017 actuarial valuation, and therefore employer contributions are expected to be lower in fiscal years 2018/2019 and 2019/2020, resulting in greater expected employer contributions after fiscal year 2019/2020 and a greater unfunded accrued liability at each year until the year 2043, when the systems are fully funded.

Comments Regarding Proposed Legislation

For fiscal year 2016/2017, the KERS non-hazardous pension system distributed \$0.960 billion in benefit payments and received \$0.858 billion in employer and employee contributions. The market value of assets as of June 30, 2017 was \$2.057 billion and the funded ratio of the plan was 14%. Under the proposed legislation, employer contributions are expected to continue to be less than benefit payments through June 30, 2020 (assuming no investment gains or losses) which is projected to result in the market value of assets decreasing to \$1.632 billion at June 30, 2020 which is just slightly greater than the \$1.001 billion in projected benefit payments for the 2020/2021 fiscal year. If the plan were to incur investment losses, then the assets would obviously be less than the projected \$1.632 billion.

Also, this proposed legislation delays the large increase in the actuarial determined contribution rates and does not provide an orderly transition to the higher rates. If enacted, we have concerns that this could lead to similar type legislation being proposed in the 2020 legislation session to further delay contributing the higher required contributions. If this occurred, it would be a reemergence of a past pattern of not contributing the actuarial determined contribution to the KERS Non-Hazardous Retirement System, which is a significant reason for the current financial condition of this Retirement System. *To stabilize the financial condition of this system and reduce the likelihood that plan assets will become exhausted, it is imperative that contributions to the system exceed the benefit payments.*

Proposed legislation that provided a phase-in to the full actuarially determined contribution rates over multi-year period (e.g. 5 years) would be more financially sound for the Retirement Systems than enacting legislation that would maintain the current contribution rates for two additional years. However, for the reasons cited above, we recommend the actuarially determined contribution rate determined by the 2017 actuarial valuation for the KERS Non-Hazardous System be the rate actually contributed beginning with the FY 2018/2019 fiscal year.

Basis of Calculations

GRS based the calculations and analysis in this letter on the member and financial data provided by KRS and used to perform the actuarial valuation as of June 30, 2017. Except where noted otherwise, the projections assume no actuarial gains or losses will occur in the future, and that members will terminate, retire, become disabled, or die as predicted by the actuarial assumptions documented in the June 30, 2017 actuarial valuation report. Except where noted in this letter, our calculations are further based on the plan provisions effective for the June 30, 2017

actuarial valuation. In the event that any other legislation with a fiscal impact on the applicable plans is passed in conjunction with this proposed legislation, results could vary significantly.

These projections also do not reflect the actual investment experience of the retirement system after the measurement date of June 30, 2017. The projections assume that the participating employers in each Retirement System will maintain the current workforce in each future year and that as current active members terminate or retire from a covered position in the Retirement System, the employer would replace them with a new employee.

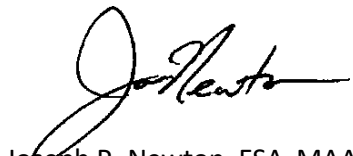
Our calculations are based upon assumptions regarding future events, which may or may not materialize. Depending on actual plan experience, actual results could deviate significantly from our projections.

General Comments

We are not attorneys, and we cannot provide a legal opinion regarding the changes in this proposed legislation. Nothing in this letter should be construed as providing legal, investment or tax advice. It may be prudent to consult with the Retirement System's counsel before enacting any such changes. Finally, no statement in this letter is intended to be interpreted as a recommendation in favor of or in opposition to the changes studied herein.

Mr. White and Mr. Newton are Enrolled Actuaries. All the of the undersigned are also members of the American Academy of Actuaries and we meet all of the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. In addition, all of the undersigned are experienced in performing valuations for large public retirement systems. If you have any questions, or require any additional or clarifying information, please do not hesitate to contact us.

Sincerely,



Joseph P. Newton, FSA, MAAA, EA
Senior Consultant



Janie Shaw, ASA, MAAA
Consultant



Daniel J. White, FSA, MAAA, EA
Senior Consultant

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Enclosures

Section 1. Comparison of Fiscal Impact

Section 2. Projected Cost of the Retirement and Insurance – Current Plan

Section 3. Projected Cost of the Retirement and Insurance – Proposed Legislation

Section 4. Alternative Projection Scenario for KERS Non-Hazardous System



Section 1.
Comparison of Fiscal Impact
Current Plan vs. Proposed Changes

Kentucky Retirement Systems
Exhibit 1-1
KERS Non-Hazardous Retirement Fund
Comparison of Fiscal Impact
(\$ in Millions)

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Employer Contribution			Employer Contribution Rate		
	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2017	\$ 13,468	\$ 13,468	\$ -	14%	14%	0%	\$ 629	\$ 629	\$ 0	41.1%	41.1%	0.0%
2018	13,591	13,591	-	13%	13%	0%	1,101	637	(464)	71.0%	41.1%	-30.0%
2019	13,349	13,826	477	15%	12%	-3%	1,118	646	(472)	71.0%	41.1%	-30.0%
2020	13,042	14,029	987	17%	10%	-7%	1,097	1,172	75	68.5%	73.2%	4.7%
2021	12,700	13,660	960	19%	13%	-6%	1,116	1,192	76	68.5%	73.2%	4.7%
2022	12,334	13,267	933	21%	15%	-6%	1,086	1,159	73	65.5%	70.0%	4.5%
2023	11,979	12,885	906	23%	17%	-6%	1,105	1,180	75	65.5%	70.0%	4.5%
2024	11,580	12,457	877	25%	19%	-6%	1,075	1,148	73	62.6%	66.9%	4.3%
2025	11,190	12,037	847	27%	22%	-5%	1,095	1,170	75	62.6%	66.9%	4.3%
2026	10,755	11,570	815	30%	24%	-6%	1,064	1,137	73	59.6%	63.7%	4.1%
2027	10,327	11,110	783	32%	27%	-5%	1,084	1,159	75	59.6%	63.7%	4.1%
2028	9,853	10,599	746	35%	30%	-5%	1,052	1,124	72	56.7%	60.6%	3.9%
2029	9,385	10,096	711	37%	32%	-5%	1,072	1,146	74	56.7%	60.6%	3.9%
2030	8,868	9,540	672	40%	35%	-5%	1,040	1,112	72	53.9%	57.7%	3.8%
2031	8,355	8,989	634	43%	38%	-5%	1,062	1,136	74	53.9%	57.7%	3.8%
2032	7,791	8,382	591	46%	42%	-4%	1,028	1,100	72	51.1%	54.7%	3.6%
2033	7,229	7,778	549	49%	45%	-4%	1,051	1,124	73	51.1%	54.7%	3.6%
2034	6,614	7,116	502	53%	49%	-4%	1,015	1,086	71	48.3%	51.7%	3.4%
2035	6,000	6,455	455	57%	54%	-3%	1,038	1,111	73	48.3%	51.7%	3.4%
2036	5,331	5,735	404	61%	58%	-3%	1,003	1,073	70	45.6%	48.8%	3.2%
2037	4,661	5,015	354	65%	63%	-2%	1,028	1,100	72	45.6%	48.8%	3.2%
2038	3,931	4,229	298	70%	68%	-2%	987	1,057	70	42.8%	45.8%	3.0%
2039	3,204	3,446	242	76%	74%	-2%	1,012	1,084	72	42.8%	45.8%	3.0%
2040	2,414	2,596	182	81%	80%	-1%	963	1,030	67	39.7%	42.5%	2.8%
2041	1,634	1,757	123	87%	86%	-1%	987	1,056	69	39.7%	42.5%	2.8%
2042	788	847	59	94%	93%	-1%	897	958	61	35.2%	37.6%	2.4%
2043	-	-	-	100%	100%	0%	76	76	-	2.9%	2.9%	0.0%
2044	-	-	-	100%	100%	0%	77	77	-	2.9%	2.9%	0.0%
2045	-	-	-	100%	100%	0%	78	78	-	2.9%	2.9%	0.0%
2046	-	-	-	100%	100%	0%	79	79	-	2.8%	2.8%	0.0%
2047	-	-	-	100%	100%	0%	81	81	-	2.8%	2.8%	0.0%
2048	-	-	-	100%	100%	0%	82	82	-	2.8%	2.8%	0.0%
2049	-	-	-	100%	100%	0%	83	83	-	2.8%	2.8%	0.0%
2050	-	-	-	100%	100%	0%	85	85	-	2.8%	2.8%	0.0%
2051	-	-	-	100%	100%	0%	87	87	-	2.8%	2.8%	0.0%

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Kentucky Retirement Systems
Exhibit 1-2
KERS Hazardous Retirement Fund
Summary of Fiscal Impact
(\$ in Millions)

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Employer Contribution			Employer Contribution Rate		
	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2017	\$ 514	\$ 514	\$ -	54%	54%	0%	\$ 35	\$ 35	\$ 0	21.4%	21.4%	0.0%
2018	518	518	-	55%	55%	0%	57	36	(21)	34.4%	21.4%	-13.0%
2019	517	539	22	56%	55%	-1%	58	36	(22)	34.4%	21.4%	-13.0%
2020	508	554	46	58%	54%	-4%	57	61	4	32.6%	34.8%	2.2%
2021	490	535	45	61%	57%	-4%	58	62	4	32.6%	34.8%	2.2%
2022	475	519	44	63%	59%	-4%	55	59	4	30.2%	32.3%	2.1%
2023	464	506	42	64%	61%	-3%	57	61	4	30.2%	32.3%	2.1%
2024	449	490	41	66%	63%	-3%	55	58	3	28.3%	30.3%	2.0%
2025	435	475	40	68%	65%	-3%	56	60	4	28.3%	30.3%	2.0%
2026	419	457	38	70%	67%	-3%	53	57	4	26.5%	28.3%	1.8%
2027	403	440	37	71%	69%	-2%	55	58	3	26.5%	28.3%	1.8%
2028	386	421	35	73%	71%	-2%	52	56	4	24.7%	26.5%	1.8%
2029	369	403	34	75%	72%	-3%	53	57	4	24.7%	26.5%	1.8%
2030	350	382	32	76%	74%	-2%	51	55	4	23.2%	24.8%	1.7%
2031	331	361	30	78%	76%	-2%	53	57	4	23.2%	24.8%	1.7%
2032	310	338	28	80%	78%	-2%	51	55	4	21.8%	23.3%	1.5%
2033	289	316	27	81%	80%	-1%	53	56	3	21.8%	23.3%	1.5%
2034	266	290	24	83%	82%	-1%	51	55	4	20.5%	21.9%	1.4%
2035	243	265	22	85%	83%	-2%	52	56	4	20.5%	21.9%	1.4%
2036	217	237	20	87%	85%	-2%	51	54	3	19.3%	20.6%	1.4%
2037	192	209	17	88%	87%	-1%	52	56	4	19.3%	20.6%	1.4%
2038	163	177	14	90%	90%	0%	50	53	3	18.2%	19.4%	1.2%
2039	134	146	12	92%	92%	0%	51	55	4	18.2%	19.4%	1.2%
2040	103	112	9	94%	94%	0%	49	53	4	17.2%	18.3%	1.2%
2041	72	78	6	96%	96%	0%	50	54	4	17.2%	18.3%	1.2%
2042	37	40	3	98%	98%	0%	49	53	4	16.6%	17.6%	1.0%
2043	-	-	-	100%	100%	0%	13	13	-	4.1%	4.1%	0.0%
2044	-	-	-	100%	100%	0%	13	13	-	4.1%	4.1%	0.0%
2045	-	-	-	100%	100%	0%	13	13	-	4.1%	4.1%	0.0%
2046	-	-	-	100%	100%	0%	13	13	-	4.1%	4.1%	0.0%
2047	-	-	-	100%	100%	0%	14	14	-	4.1%	4.1%	0.0%
2048	-	-	-	100%	100%	0%	14	14	-	4.1%	4.1%	0.0%
2049	-	-	-	100%	100%	0%	14	14	-	4.1%	4.1%	0.0%
2050	-	-	-	100%	100%	0%	15	15	-	4.1%	4.1%	0.0%
2051	-	-	-	100%	100%	0%	15	15	-	4.1%	4.1%	0.0%

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Kentucky Retirement Systems
Exhibit 1-3
CERS Non-Hazardous Retirement Fund
Comparison of Fiscal Impact
(\$ in Millions)

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Employer Contribution			Employer Contribution Rate		
	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2017	\$ 6,039	\$ 6,039	\$ -	53%	53%	0%	\$ 355	\$ 355	\$ 0	14.5%	14.5%	0.0%
2018	6,219	6,219	-	53%	53%	0%	546	362	(184)	21.8%	14.5%	-7.4%
2019	6,299	6,489	190	53%	52%	-1%	548	369	(179)	21.5%	14.5%	-7.0%
2020	6,292	6,678	386	54%	51%	-3%	558	585	27	21.5%	22.6%	1.0%
2021	6,165	6,548	383	56%	53%	-3%	563	590	27	21.3%	22.3%	1.0%
2022	6,099	6,478	379	57%	54%	-3%	561	588	27	20.9%	21.9%	1.0%
2023	6,026	6,401	375	58%	56%	-2%	565	593	28	20.6%	21.7%	1.0%
2024	5,941	6,311	370	59%	57%	-2%	570	598	28	20.4%	21.4%	1.0%
2025	5,840	6,204	364	61%	58%	-3%	575	604	29	20.2%	21.2%	1.0%
2026	5,725	6,082	357	62%	59%	-3%	580	609	29	20.0%	21.0%	1.0%
2027	5,595	5,944	349	63%	61%	-2%	585	615	30	19.8%	20.9%	1.0%
2028	5,446	5,786	340	64%	62%	-2%	591	621	30	19.7%	20.7%	1.0%
2029	5,280	5,609	329	66%	63%	-3%	597	628	31	19.5%	20.5%	1.0%
2030	5,094	5,411	317	67%	65%	-2%	604	636	32	19.3%	20.4%	1.0%
2031	4,885	5,190	305	68%	67%	-1%	611	644	33	19.2%	20.2%	1.0%
2032	4,654	4,944	290	70%	68%	-2%	619	652	33	19.0%	20.1%	1.0%
2033	4,397	4,671	274	72%	70%	-2%	627	661	34	18.9%	19.9%	1.0%
2034	4,115	4,372	257	74%	72%	-2%	636	671	35	18.7%	19.8%	1.0%
2035	3,803	4,040	237	76%	74%	-2%	645	680	35	18.6%	19.6%	1.0%
2036	3,462	3,677	215	78%	76%	-2%	655	691	36	18.5%	19.5%	1.0%
2037	3,087	3,279	192	80%	79%	-1%	666	703	37	18.4%	19.4%	1.0%
2038	2,677	2,844	167	83%	82%	-1%	678	715	37	18.3%	19.3%	1.0%
2039	2,230	2,369	139	86%	85%	-1%	690	728	38	18.1%	19.2%	1.0%
2040	1,742	1,850	108	89%	88%	-1%	703	741	38	18.0%	19.0%	1.0%
2041	1,211	1,286	75	92%	92%	0%	715	755	40	17.9%	18.9%	1.0%
2042	634	673	39	96%	96%	0%	730	770	40	17.9%	18.9%	1.0%
2043	-	-	-	100%	100%	0%	78	78	-	1.9%	1.9%	0.0%
2044	-	-	-	100%	100%	0%	79	79	-	1.9%	1.9%	0.0%
2045	-	-	-	100%	100%	0%	80	80	-	1.8%	1.8%	0.0%
2046	-	-	-	100%	100%	0%	82	82	-	1.8%	1.8%	0.0%
2047	-	-	-	100%	100%	0%	83	83	-	1.8%	1.8%	0.0%
2048	-	-	-	100%	100%	0%	84	84	-	1.8%	1.8%	0.0%
2049	-	-	-	100%	100%	0%	86	86	-	1.8%	1.8%	0.0%
2050	-	-	-	100%	100%	0%	88	88	-	1.8%	1.8%	0.0%
2051	-	-	-	100%	100%	0%	89	89	-	1.8%	1.8%	0.0%

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 1-4
CERS Hazardous Retirement Fund
Summary of Fiscal Impact
(\$ in Millions)

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Employer Contribution			Employer Contribution Rate		
	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2017	\$ 2,411	\$ 2,411	\$ -	48%	48%	0%	\$ 120	\$ 120	\$ 0	22.2%	22.2%	0.0%
2018	2,478	2,478	-	48%	48%	0%	192	119	(73)	35.7%	22.2%	-13.5%
2019	2,504	2,579	75	49%	47%	-2%	193	119	(74)	36.0%	22.2%	-13.8%
2020	2,500	2,656	156	50%	47%	-3%	197	208	11	36.4%	38.4%	2.0%
2021	2,456	2,611	155	52%	48%	-4%	199	210	11	36.5%	38.4%	2.0%
2022	2,433	2,586	153	53%	50%	-3%	199	210	11	36.1%	38.0%	2.0%
2023	2,405	2,556	151	54%	51%	-3%	201	212	11	36.0%	37.9%	2.0%
2024	2,372	2,521	149	55%	52%	-3%	202	214	12	35.8%	37.8%	2.0%
2025	2,333	2,480	147	56%	53%	-3%	204	216	12	35.7%	37.7%	2.0%
2026	2,288	2,432	144	57%	55%	-2%	207	218	11	35.5%	37.5%	2.0%
2027	2,236	2,377	141	59%	56%	-3%	209	221	12	35.3%	37.4%	2.0%
2028	2,178	2,315	137	60%	57%	-3%	212	224	12	35.1%	37.2%	2.1%
2029	2,111	2,245	134	61%	59%	-2%	215	227	12	35.0%	37.0%	2.1%
2030	2,037	2,166	129	63%	60%	-3%	218	231	13	34.8%	36.8%	2.1%
2031	1,954	2,078	124	64%	62%	-2%	222	235	13	34.5%	36.6%	2.1%
2032	1,861	1,979	118	66%	64%	-2%	225	239	14	34.3%	36.4%	2.1%
2033	1,759	1,871	112	68%	66%	-2%	229	243	14	34.1%	36.2%	2.1%
2034	1,646	1,750	104	70%	68%	-2%	233	247	14	33.9%	36.0%	2.0%
2035	1,522	1,618	96	72%	71%	-1%	238	252	14	33.7%	35.8%	2.0%
2036	1,385	1,472	87	75%	73%	-2%	242	257	15	33.6%	35.6%	2.0%
2037	1,235	1,312	77	78%	76%	-2%	247	261	14	33.4%	35.4%	2.0%
2038	1,071	1,138	67	81%	79%	-2%	251	266	15	33.3%	35.3%	2.0%
2039	892	948	56	84%	83%	-1%	256	271	15	33.1%	35.1%	2.0%
2040	697	740	43	87%	87%	0%	261	277	16	33.0%	35.0%	2.0%
2041	484	515	31	91%	91%	0%	267	282	15	32.9%	34.9%	2.0%
2042	254	269	15	95%	95%	0%	272	289	17	32.9%	34.9%	2.0%
2043	-	-	-	100%	100%	0%	12	12	-	1.4%	1.4%	0.0%
2044	-	-	-	100%	100%	0%	12	12	-	1.4%	1.4%	0.0%
2045	-	-	-	100%	100%	0%	12	12	-	1.4%	1.4%	0.0%
2046	-	-	-	100%	100%	0%	13	13	-	1.4%	1.4%	0.0%
2047	-	-	-	100%	100%	0%	13	13	-	1.4%	1.4%	0.0%
2048	-	-	-	100%	100%	0%	13	13	-	1.4%	1.4%	0.0%
2049	-	-	-	100%	100%	0%	14	14	-	1.4%	1.4%	0.0%
2050	-	-	-	100%	100%	0%	14	14	-	1.4%	1.4%	0.0%
2051	-	-	-	100%	100%	0%	14	14	-	1.4%	1.4%	0.0%

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 1-5
SPRS Retirement Fund
Summary of Fiscal Impact
(\$ in Millions)

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Employer Contribution			Employer Contribution Rate		
	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2017	\$ 706	\$ 706	\$ -	27%	27%	0%	\$ 35	\$ 35	\$ 0	72.5%	72.5%	0.0%
2018	706	706	-	27%	27%	0%	58	35	(23)	119.1%	72.5%	-46.6%
2019	697	720	23	28%	26%	-2%	59	36	(23)	119.1%	72.5%	-46.6%
2020	682	730	48	30%	25%	-5%	58	62	4	116.2%	123.6%	7.3%
2021	664	711	47	32%	27%	-5%	59	63	4	116.2%	123.6%	7.3%
2022	645	690	45	34%	29%	-5%	58	61	3	111.5%	118.5%	7.0%
2023	626	670	44	35%	31%	-4%	59	62	3	111.5%	118.5%	7.0%
2024	606	649	43	37%	33%	-4%	57	61	4	106.3%	113.0%	6.7%
2025	586	627	41	39%	35%	-4%	58	62	4	106.3%	113.0%	6.7%
2026	563	603	40	41%	37%	-4%	56	60	4	101.1%	107.6%	6.4%
2027	541	579	38	43%	39%	-4%	58	62	4	101.1%	107.6%	6.4%
2028	515	552	37	45%	41%	-4%	56	60	4	95.2%	101.3%	6.1%
2029	490	525	35	47%	44%	-3%	57	61	4	95.2%	101.3%	6.1%
2030	463	496	33	50%	46%	-4%	55	59	4	89.4%	95.1%	5.7%
2031	437	468	31	52%	49%	-3%	57	61	4	89.4%	95.1%	5.7%
2032	406	435	29	55%	52%	-3%	55	58	3	83.5%	88.9%	5.4%
2033	378	404	26	58%	55%	-3%	56	60	4	83.5%	88.9%	5.4%
2034	344	369	25	61%	58%	-3%	54	58	4	78.2%	83.3%	5.0%
2035	313	335	22	64%	62%	-2%	55	59	4	78.2%	83.3%	5.0%
2036	277	297	20	68%	66%	-2%	53	57	4	73.3%	78.0%	4.7%
2037	243	261	18	72%	70%	-2%	55	58	3	73.3%	78.0%	4.7%
2038	205	219	14	76%	74%	-2%	52	56	4	68.6%	73.0%	4.4%
2039	168	180	12	80%	79%	-1%	54	57	3	68.6%	73.0%	4.4%
2040	126	135	9	85%	84%	-1%	51	55	4	64.0%	68.0%	4.1%
2041	86	92	6	90%	89%	-1%	52	56	4	64.0%	68.0%	4.1%
2042	42	45	3	95%	95%	0%	49	52	3	58.3%	61.9%	3.6%
2043	-	-	-	100%	100%	0%	5	5	-	5.9%	5.9%	0.0%
2044	-	-	-	100%	100%	0%	5	5	-	5.9%	5.9%	0.0%
2045	-	-	-	100%	100%	0%	5	5	-	5.9%	5.9%	0.0%
2046	-	-	-	100%	100%	0%	5	5	-	5.8%	5.8%	0.0%
2047	-	-	-	100%	100%	0%	5	5	-	5.8%	5.8%	0.0%
2048	-	-	-	100%	100%	0%	6	6	-	5.8%	5.8%	0.0%
2049	-	-	-	100%	100%	0%	6	6	-	5.8%	5.8%	0.0%
2050	-	-	-	100%	100%	0%	6	6	-	5.8%	5.8%	0.0%
2051	-	-	-	100%	100%	0%	6	6	-	5.8%	5.8%	0.0%

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 1-6
KERS Non-Hazardous Insurance Fund
Summary of Fiscal Impact
(\$ in Millions)

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Employer Contribution			Employer Contribution Rate		
	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2017	\$ 1,859	\$ 1,859	\$ -	31%	31%	0%	\$ 128	\$ 128	\$ 0	8.4%	8.4%	0.0%
2018	1,886	1,886	-	32%	32%	0%	191	130	(61)	12.4%	8.4%	-4.0%
2019	1,862	1,925	63	34%	32%	-2%	194	132	(62)	12.4%	8.4%	-4.0%
2020	1,820	1,952	132	37%	33%	-4%	188	199	11	11.8%	12.5%	0.7%
2021	1,770	1,899	129	40%	36%	-4%	191	202	11	11.8%	12.5%	0.7%
2022	1,721	1,846	125	43%	39%	-4%	182	193	11	11.1%	11.8%	0.7%
2023	1,674	1,796	122	46%	42%	-4%	186	197	11	11.1%	11.8%	0.7%
2024	1,621	1,739	118	48%	44%	-4%	178	189	11	10.4%	11.1%	0.6%
2025	1,570	1,685	115	51%	47%	-4%	181	192	11	10.4%	11.1%	0.6%
2026	1,510	1,621	111	53%	49%	-4%	173	184	11	9.8%	10.4%	0.6%
2027	1,454	1,561	107	55%	52%	-3%	176	187	11	9.8%	10.4%	0.6%
2028	1,390	1,492	102	57%	54%	-3%	168	179	11	9.1%	9.7%	0.6%
2029	1,327	1,424	97	59%	56%	-3%	171	182	11	9.1%	9.7%	0.6%
2030	1,255	1,347	92	62%	59%	-3%	162	173	11	8.5%	9.0%	0.5%
2031	1,187	1,274	87	64%	61%	-3%	166	177	11	8.5%	9.0%	0.5%
2032	1,109	1,190	81	66%	63%	-3%	158	169	11	7.9%	8.4%	0.5%
2033	1,033	1,108	75	68%	66%	-2%	162	172	10	7.9%	8.4%	0.5%
2034	947	1,017	70	71%	68%	-3%	155	165	10	7.4%	7.9%	0.5%
2035	863	926	63	73%	71%	-2%	158	169	11	7.4%	7.9%	0.5%
2036	769	826	57	76%	74%	-2%	151	162	11	6.9%	7.4%	0.5%
2037	675	725	50	79%	77%	-2%	155	166	11	6.9%	7.4%	0.5%
2038	572	614	42	82%	80%	-2%	149	159	10	6.5%	6.9%	0.4%
2039	469	503	34	85%	84%	-1%	152	163	11	6.5%	6.9%	0.4%
2040	355	381	26	89%	88%	-1%	145	155	10	6.0%	6.4%	0.4%
2041	242	260	18	92%	92%	0%	149	159	10	6.0%	6.4%	0.4%
2042	118	126	8	96%	96%	0%	135	144	9	5.4%	5.7%	0.4%
2043	-	-	-	100%	100%	0%	13	13	-	0.5%	0.5%	0.0%
2044	-	-	-	100%	100%	0%	13	13	-	0.5%	0.5%	0.0%
2045	-	-	-	100%	100%	0%	13	13	-	0.5%	0.5%	0.0%
2046	-	-	-	100%	100%	0%	13	13	-	0.5%	0.5%	0.0%
2047	-	-	-	100%	100%	0%	14	14	-	0.5%	0.5%	0.0%
2048	-	-	-	100%	100%	0%	14	14	-	0.5%	0.5%	0.0%
2049	-	-	-	100%	100%	0%	12	12	-	0.4%	0.4%	0.0%
2050	-	-	-	100%	100%	0%	12	12	-	0.4%	0.4%	0.0%
2051	-	-	-	100%	100%	0%	12	12	-	0.4%	0.4%	0.0%

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 1-7
KERS Hazardous Insurance Fund
Summary of Fiscal Impact
(\$ in Millions)

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Employer Contribution			Employer Contribution Rate		
	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2017	\$ (74)	\$ (74)	\$ -	118%	118%	0%	\$ 4	\$ 4	\$ 0	2.3%	2.3%	0.0%
2018	(71)	(71)	-	116%	116%	0%	4	4	-	2.5%	2.3%	-0.2%
2019	(63)	(63)	-	114%	114%	0%	4	4	-	2.5%	2.3%	-0.2%
2020	(61)	(61)	-	113%	113%	0%	4	4	-	2.1%	2.2%	0.0%
2021	(66)	(65)	1	114%	113%	-1%	4	4	-	2.1%	2.2%	0.0%
2022	(65)	(65)	-	113%	113%	0%	2	2	-	1.2%	1.2%	0.0%
2023	(64)	(63)	1	113%	113%	0%	2	2	-	1.2%	1.2%	0.0%
2024	(62)	(62)	-	112%	112%	0%	1	1	-	0.7%	0.7%	0.0%
2025	(61)	(60)	1	112%	112%	0%	1	1	-	0.7%	0.7%	0.0%
2026	(60)	(59)	1	111%	111%	0%	1	1	-	0.4%	0.4%	0.0%
2027	(57)	(57)	-	111%	111%	0%	1	1	-	0.4%	0.4%	0.0%
2028	(55)	(55)	-	110%	110%	0%	-	-	-	0.1%	0.2%	0.0%
2029	(53)	(52)	1	110%	110%	0%	-	-	-	0.1%	0.2%	0.0%
2030	(50)	(49)	1	109%	109%	0%	-	-	-	0.1%	0.1%	0.0%
2031	(47)	(46)	1	109%	108%	-1%	-	-	-	0.1%	0.1%	0.0%
2032	(44)	(43)	1	108%	108%	0%	-	-	-	0.2%	0.2%	0.0%
2033	(40)	(40)	-	107%	107%	0%	-	-	-	0.2%	0.2%	0.0%
2034	(37)	(37)	-	107%	107%	0%	1	1	-	0.3%	0.3%	0.0%
2035	(33)	(33)	-	106%	106%	0%	1	1	-	0.3%	0.3%	0.0%
2036	(29)	(29)	-	105%	105%	0%	1	1	-	0.4%	0.4%	0.0%
2037	(25)	(25)	-	104%	104%	0%	1	1	-	0.4%	0.4%	0.0%
2038	(21)	(21)	-	104%	104%	0%	1	1	-	0.5%	0.5%	0.0%
2039	(17)	(17)	-	103%	103%	0%	1	1	-	0.5%	0.5%	0.0%
2040	(12)	(12)	-	102%	102%	0%	2	2	-	0.6%	0.7%	0.0%
2041	(8)	(8)	-	101%	101%	0%	2	2	-	0.6%	0.7%	0.0%
2042	(4)	(4)	0	101%	101%	0%	3	3	-	0.9%	0.9%	0.0%
2043	-	-	-	100%	100%	0%	7	7	-	2.1%	2.1%	0.0%
2044	-	-	-	100%	100%	0%	7	7	-	2.1%	2.1%	0.0%
2045	-	-	-	100%	100%	0%	7	7	-	2.1%	2.1%	0.0%
2046	-	-	-	100%	100%	0%	7	7	-	2.1%	2.1%	0.0%
2047	-	-	-	100%	100%	0%	7	7	-	2.0%	2.0%	0.0%
2048	-	-	-	100%	100%	0%	7	7	-	2.0%	2.0%	0.0%
2049	-	-	-	100%	100%	0%	7	7	-	2.0%	2.0%	0.0%
2050	-	-	-	100%	100%	0%	7	7	-	2.0%	2.0%	0.0%
2051	-	-	-	100%	100%	0%	7	7	-	1.9%	1.9%	0.0%

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 1-8
CERS Non-Hazardous Insurance Fund
Summary of Fiscal Impact
(\$ in Millions)

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Employer Contribution			Employer Contribution Rate		
	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2017	\$ 1,128	\$ 1,128	\$ -	66%	66%	0%	\$ 114	\$ 114	\$ 0	4.7%	4.7%	0.0%
2018	1,171	1,171	-	67%	67%	0%	154	116	(38)	6.2%	4.7%	-1.5%
2019	1,192	1,231	39	67%	66%	-1%	153	119	(34)	6.1%	4.7%	-1.4%
2020	1,190	1,266	76	69%	67%	-2%	154	159	5	6.0%	6.2%	0.2%
2021	1,153	1,229	76	71%	69%	-2%	153	158	5	5.8%	6.0%	0.2%
2022	1,140	1,214	74	72%	70%	-2%	150	155	5	5.6%	5.8%	0.2%
2023	1,125	1,199	74	73%	71%	-2%	149	154	5	5.5%	5.7%	0.2%
2024	1,109	1,182	73	74%	73%	-1%	148	154	6	5.4%	5.6%	0.2%
2025	1,089	1,161	72	75%	74%	-1%	147	153	6	5.2%	5.4%	0.2%
2026	1,067	1,138	71	76%	75%	-1%	146	152	6	5.1%	5.3%	0.2%
2027	1,042	1,112	70	77%	76%	-1%	145	151	6	5.0%	5.2%	0.2%
2028	1,013	1,081	68	78%	77%	-1%	144	150	6	4.8%	5.0%	0.2%
2029	982	1,048	66	79%	78%	-1%	144	150	6	4.7%	4.9%	0.2%
2030	947	1,010	63	80%	79%	-1%	143	149	6	4.6%	4.8%	0.2%
2031	908	969	61	81%	80%	-1%	143	149	6	4.5%	4.7%	0.2%
2032	865	923	58	82%	81%	-1%	143	150	7	4.4%	4.6%	0.2%
2033	818	872	54	84%	82%	-2%	144	151	7	4.4%	4.6%	0.2%
2034	766	816	50	85%	84%	-1%	144	151	7	4.3%	4.5%	0.2%
2035	709	756	47	86%	85%	-1%	146	153	7	4.2%	4.4%	0.2%
2036	646	689	43	87%	86%	-1%	147	154	7	4.2%	4.4%	0.2%
2037	578	616	38	89%	88%	-1%	150	157	7	4.2%	4.4%	0.2%
2038	503	536	33	90%	90%	0%	151	159	8	4.1%	4.3%	0.2%
2039	421	448	27	92%	91%	-1%	155	162	7	4.1%	4.3%	0.2%
2040	330	351	21	94%	93%	-1%	157	165	8	4.1%	4.3%	0.2%
2041	231	246	15	96%	95%	-1%	160	168	8	4.0%	4.2%	0.2%
2042	123	131	8	98%	98%	0%	166	173	7	4.1%	4.3%	0.2%
2043	-	-	-	100%	100%	0%	41	41	-	1.0%	1.0%	0.0%
2044	-	-	-	100%	100%	0%	41	41	-	1.0%	1.0%	0.0%
2045	-	-	-	100%	100%	0%	42	42	-	1.0%	1.0%	0.0%
2046	-	-	-	100%	100%	0%	42	42	-	1.0%	1.0%	0.0%
2047	-	-	-	100%	100%	0%	43	43	-	0.9%	0.9%	0.0%
2048	-	-	-	100%	100%	0%	43	43	-	0.9%	0.9%	0.0%
2049	-	-	-	100%	100%	0%	43	43	-	0.9%	0.9%	0.0%
2050	-	-	-	100%	100%	0%	43	43	-	0.9%	0.9%	0.0%
2051	-	-	-	100%	100%	0%	44	44	-	0.9%	0.9%	0.0%

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 1-9
CERS Hazardous Insurance Fund
Summary of Fiscal Impact
(\$ in Millions)

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Employer Contribution			Employer Contribution Rate		
	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2017	\$ 591	\$ 591	\$ -	67%	67%	0%	\$ 51	\$ 51	\$ 0	9.4%	9.4%	0.0%
2018	610	610	-	67%	67%	0%	65	50	(15)	12.2%	9.4%	-2.8%
2019	622	637	15	67%	67%	0%	64	50	(14)	12.0%	9.4%	-2.6%
2020	619	650	31	68%	67%	-1%	64	66	2	11.8%	12.2%	0.4%
2021	600	631	31	70%	69%	-1%	63	65	2	11.5%	11.9%	0.4%
2022	592	622	30	71%	69%	-2%	61	63	2	11.0%	11.4%	0.4%
2023	583	613	30	72%	70%	-2%	59	62	3	10.7%	11.1%	0.4%
2024	574	604	30	72%	71%	-1%	59	61	2	10.4%	10.8%	0.4%
2025	564	594	30	73%	71%	-2%	58	60	2	10.1%	10.5%	0.4%
2026	552	581	29	73%	72%	-1%	58	60	2	9.9%	10.3%	0.4%
2027	540	568	28	74%	73%	-1%	57	60	3	9.7%	10.1%	0.4%
2028	525	553	28	74%	73%	-1%	58	60	2	9.6%	10.0%	0.4%
2029	509	535	26	75%	74%	-1%	58	60	2	9.4%	9.8%	0.4%
2030	491	517	26	76%	74%	-2%	59	61	2	9.3%	9.7%	0.4%
2031	471	496	25	76%	75%	-1%	59	62	3	9.2%	9.7%	0.4%
2032	448	472	24	77%	76%	-1%	60	63	3	9.2%	9.6%	0.4%
2033	424	447	23	78%	77%	-1%	61	64	3	9.1%	9.5%	0.4%
2034	397	417	20	79%	78%	-1%	62	65	3	9.0%	9.4%	0.4%
2035	367	386	19	80%	79%	-1%	63	66	3	9.0%	9.4%	0.4%
2036	334	352	18	82%	81%	-1%	64	67	3	8.9%	9.3%	0.4%
2037	298	313	15	84%	83%	-1%	66	69	3	8.9%	9.3%	0.4%
2038	259	273	14	86%	85%	-1%	67	70	3	8.9%	9.3%	0.4%
2039	216	227	11	88%	87%	-1%	68	71	3	8.8%	9.2%	0.4%
2040	168	177	9	91%	90%	-1%	69	73	4	8.8%	9.2%	0.4%
2041	118	124	6	93%	93%	0%	71	74	3	8.8%	9.2%	0.4%
2042	62	65	3	97%	96%	-1%	72	76	4	8.8%	9.1%	0.4%
2043	-	-	-	100%	100%	0%	10	10	-	1.1%	1.1%	0.0%
2044	-	-	-	100%	100%	0%	10	10	-	1.1%	1.1%	0.0%
2045	-	-	-	100%	100%	0%	10	10	-	1.1%	1.1%	0.0%
2046	-	-	-	100%	100%	0%	10	10	-	1.1%	1.1%	0.0%
2047	-	-	-	100%	100%	0%	10	10	-	1.1%	1.1%	0.0%
2048	-	-	-	100%	100%	0%	10	10	-	1.1%	1.1%	0.0%
2049	-	-	-	100%	100%	0%	10	10	-	1.0%	1.0%	0.0%
2050	-	-	-	100%	100%	0%	10	10	-	1.0%	1.0%	0.0%
2051	-	-	-	100%	100%	0%	10	10	-	1.0%	1.0%	0.0%

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 1-10
SPRS Insurance Fund
Summary of Fiscal Impact
(\$ in Millions)

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Employer Contribution			Employer Contribution Rate		
	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2017	\$ 97	\$ 97	\$ -	65%	65%	0%	\$ 9	\$ 9	\$ 0	18.8%	18.8%	0.0%
2018	100	100	-	65%	65%	0%	13	9	(4)	27.2%	18.8%	-8.5%
2019	100	105	5	66%	64%	-2%	13	9	(4)	27.2%	18.8%	-8.5%
2020	97	106	9	68%	65%	-3%	13	13	-	25.6%	27.1%	1.5%
2021	93	102	9	70%	67%	-3%	13	14	1	25.6%	27.1%	1.5%
2022	90	98	8	71%	69%	-2%	12	12	-	22.9%	24.3%	1.4%
2023	88	96	8	72%	70%	-2%	12	13	1	22.9%	24.3%	1.4%
2024	84	92	8	74%	71%	-3%	11	11	-	20.4%	21.7%	1.3%
2025	81	89	8	75%	72%	-3%	11	12	1	20.4%	21.7%	1.3%
2026	78	85	7	76%	74%	-2%	10	11	1	18.2%	19.5%	1.3%
2027	74	81	7	77%	75%	-2%	10	11	1	18.2%	19.5%	1.3%
2028	71	78	7	78%	75%	-3%	9	10	1	16.4%	17.6%	1.2%
2029	67	74	7	79%	76%	-3%	10	10	-	16.4%	17.6%	1.2%
2030	64	70	6	79%	77%	-2%	9	10	1	14.9%	16.1%	1.2%
2031	60	66	6	80%	78%	-2%	9	10	1	14.9%	16.1%	1.2%
2032	56	61	5	81%	80%	-1%	9	9	-	13.6%	14.7%	1.1%
2033	52	57	5	82%	81%	-1%	9	10	1	13.6%	14.7%	1.1%
2034	47	52	5	84%	82%	-2%	9	9	-	12.6%	13.6%	1.0%
2035	44	48	4	84%	83%	-1%	9	9	-	12.6%	13.6%	1.0%
2036	39	42	3	86%	85%	-1%	8	9	1	11.8%	12.7%	0.9%
2037	34	38	4	88%	86%	-2%	9	9	-	11.8%	12.7%	0.9%
2038	29	32	3	89%	88%	-1%	8	9	1	11.1%	12.0%	0.9%
2039	24	26	2	91%	90%	-1%	8	9	1	11.1%	12.0%	0.9%
2040	18	20	2	93%	92%	-1%	8	9	1	10.4%	11.2%	0.8%
2041	12	13	1	95%	95%	0%	8	9	1	10.4%	11.2%	0.8%
2042	6	6	0	98%	98%	0%	8	8	-	9.6%	10.3%	0.7%
2043	-	-	-	100%	100%	0%	2	2	-	1.8%	1.8%	0.0%
2044	-	-	-	100%	100%	0%	2	2	-	1.8%	1.8%	0.0%
2045	-	-	-	100%	100%	0%	2	2	-	1.8%	1.8%	0.0%
2046	-	-	-	100%	100%	0%	2	2	-	1.8%	1.8%	0.0%
2047	-	-	-	100%	100%	0%	2	2	-	1.8%	1.8%	0.0%
2048	-	-	-	100%	100%	0%	2	2	-	1.7%	1.7%	0.0%
2049	-	-	-	100%	100%	0%	2	2	-	1.7%	1.7%	0.0%
2050	-	-	-	100%	100%	0%	2	2	-	1.7%	1.7%	0.0%
2051	-	-	-	100%	100%	0%	2	2	-	1.7%	1.7%	0.0%

Gabriel Roeder Smith & Company

Section 2.
Projected Cost of the Retirement and Insurance
Current Plan

Kentucky Retirement Systems
Exhibit 2-1
KERS Non-Hazardous Retirement Fund
Current Plan
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 15,592	\$ 2,124	\$ 13,468	14%	\$ 629	\$ 77	\$ 1,532	41.06%	41.98%
2018	15,629	2,038	13,591	13%	1,101	78	1,551	71.03%	71.03%
2019	15,645	2,296	13,349	15%	1,118	79	1,574	71.03%	69.79%
2020	15,643	2,601	13,042	17%	1,097	80	1,601	68.54%	68.54%
2021	15,624	2,924	12,700	19%	1,116	81	1,628	68.54%	67.18%
2022	15,587	3,253	12,334	21%	1,086	83	1,656	65.54%	65.54%
2023	15,535	3,556	11,979	23%	1,105	84	1,686	65.54%	64.13%
2024	15,466	3,886	11,580	25%	1,075	86	1,718	62.57%	62.57%
2025	15,383	4,193	11,190	27%	1,095	88	1,751	62.57%	61.15%
2026	15,285	4,530	10,755	30%	1,064	89	1,785	59.60%	59.60%
2027	15,172	4,845	10,327	32%	1,084	91	1,819	59.60%	58.21%
2028	15,052	5,199	9,853	35%	1,052	93	1,854	56.71%	56.71%
2029	14,918	5,533	9,385	37%	1,072	95	1,891	56.71%	55.37%
2030	14,769	5,901	8,868	40%	1,040	96	1,929	53.90%	53.90%
2031	14,609	6,254	8,355	43%	1,062	99	1,970	53.90%	52.59%
2032	14,440	6,649	7,791	46%	1,028	101	2,012	51.10%	51.10%
2033	14,262	7,033	7,229	49%	1,051	103	2,056	51.10%	49.82%
2034	14,077	7,463	6,614	53%	1,015	105	2,101	48.33%	48.33%
2035	13,884	7,884	6,000	57%	1,038	107	2,147	48.33%	47.09%
2036	13,689	8,358	5,331	61%	1,003	110	2,198	45.62%	45.62%
2037	13,496	8,835	4,661	65%	1,028	113	2,253	45.62%	44.35%
2038	13,309	9,378	3,931	70%	987	115	2,310	42.75%	42.75%
2039	13,132	9,928	3,204	76%	1,012	118	2,368	42.75%	41.48%
2040	12,967	10,553	2,414	81%	963	121	2,427	39.68%	39.68%
2041	12,815	11,181	1,634	87%	987	124	2,487	39.68%	38.35%
2042	12,675	11,887	788	94%	897	127	2,547	35.22%	35.22%
2043	12,549	12,549	0	100%	76	130	2,608	2.93%	2.93%
2044	12,436	12,436	0	100%	77	133	2,669	2.89%	2.89%
2045	12,338	12,338	0	100%	78	137	2,731	2.86%	2.86%
2046	12,254	12,254	0	100%	79	140	2,794	2.84%	2.84%
2047	12,184	12,184	0	100%	81	143	2,858	2.82%	2.82%
2048	12,130	12,130	0	100%	82	146	2,924	2.80%	2.80%
2049	12,092	12,092	0	100%	83	150	2,990	2.79%	2.79%
2050	12,069	12,069	0	100%	85	153	3,058	2.79%	2.79%
2051	12,064	12,064	0	100%	87	156	3,127	2.78%	2.78%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

The employer contribution amount shown does not include the \$87 million additional contribution budgeted to be paid in fiscal year beginning 2017.

Kentucky Retirement Systems
Exhibit 2-2
KERS Hazardous Retirement Fund
Current Plan
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 1,121	\$ 607	\$ 514	54%	\$ 35	\$ 13	\$ 162	21.44%	20.48%
2018	1,155	637	518	55%	57	13	166	34.39%	34.39%
2019	1,186	669	517	56%	58	14	170	34.39%	33.30%
2020	1,217	709	508	58%	57	14	174	32.60%	32.60%
2021	1,247	757	490	61%	58	14	179	32.60%	31.64%
2022	1,276	801	475	63%	55	15	183	30.23%	30.23%
2023	1,305	841	464	64%	57	15	188	30.23%	29.28%
2024	1,333	884	449	66%	55	15	193	28.30%	28.30%
2025	1,360	925	435	68%	56	16	197	28.30%	27.39%
2026	1,386	967	419	70%	53	16	202	26.47%	26.47%
2027	1,410	1,007	403	71%	55	16	206	26.47%	25.63%
2028	1,434	1,048	386	73%	52	17	211	24.72%	24.72%
2029	1,456	1,087	369	75%	53	17	216	24.72%	23.96%
2030	1,478	1,128	350	76%	51	18	222	23.16%	23.16%
2031	1,500	1,169	331	78%	53	18	229	23.16%	22.48%
2032	1,524	1,214	310	80%	51	19	236	21.75%	21.75%
2033	1,549	1,260	289	81%	53	19	242	21.75%	21.14%
2034	1,576	1,310	266	83%	51	20	249	20.47%	20.47%
2035	1,605	1,362	243	85%	52	20	256	20.47%	19.91%
2036	1,634	1,417	217	87%	51	21	263	19.29%	19.29%
2037	1,665	1,473	192	88%	52	22	269	19.29%	18.78%
2038	1,695	1,532	163	90%	50	22	276	18.16%	18.16%
2039	1,725	1,591	134	92%	51	23	282	18.16%	17.71%
2040	1,755	1,652	103	94%	49	23	288	17.15%	17.15%
2041	1,785	1,713	72	96%	50	23	293	17.15%	16.91%
2042	1,813	1,776	37	98%	49	24	299	16.55%	16.55%
2043	1,841	1,841	0	100%	13	24	305	4.10%	4.10%
2044	1,869	1,869	0	100%	13	25	311	4.10%	4.10%
2045	1,897	1,897	0	100%	13	25	318	4.10%	4.10%
2046	1,925	1,925	0	100%	13	26	325	4.10%	4.10%
2047	1,953	1,953	0	100%	14	27	333	4.10%	4.10%
2048	1,982	1,982	0	100%	14	27	340	4.10%	4.10%
2049	2,011	2,011	0	100%	14	28	348	4.10%	4.10%
2050	2,040	2,040	0	100%	15	28	356	4.10%	4.10%
2051	2,070	2,070	0	100%	15	29	364	4.10%	4.10%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

The employer contribution amount shown does not include the \$10 million additional contribution budgeted to be paid in fiscal year beginning 2017.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 2-3
CERS Non-Hazardous Retirement Fund
Current Plan
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 12,804	\$ 6,765	\$ 6,039	53%	\$ 355	\$ 123	\$ 2,452	14.48%	14.48%
2018	13,121	6,902	6,219	53%	546	125	2,500	21.84%	21.84%
2019	13,421	7,122	6,299	53%	548	127	2,547	21.50%	21.50%
2020	13,704	7,412	6,292	54%	558	130	2,594	21.53%	21.53%
2021	13,970	7,805	6,165	56%	563	132	2,642	21.33%	21.33%
2022	14,218	8,119	6,099	57%	561	135	2,690	20.86%	20.86%
2023	14,445	8,419	6,026	58%	565	137	2,740	20.64%	20.64%
2024	14,652	8,711	5,941	59%	570	140	2,790	20.43%	20.43%
2025	14,836	8,996	5,840	61%	575	142	2,842	20.22%	20.22%
2026	14,998	9,273	5,725	62%	580	145	2,894	20.03%	20.03%
2027	15,136	9,541	5,595	63%	585	147	2,948	19.84%	19.84%
2028	15,259	9,813	5,446	64%	591	150	3,003	19.67%	19.67%
2029	15,359	10,079	5,280	66%	597	153	3,062	19.50%	19.50%
2030	15,438	10,344	5,094	67%	604	156	3,124	19.34%	19.34%
2031	15,496	10,611	4,885	68%	611	159	3,187	19.18%	19.18%
2032	15,536	10,882	4,654	70%	619	163	3,254	19.03%	19.03%
2033	15,558	11,161	4,397	72%	627	166	3,323	18.88%	18.88%
2034	15,565	11,450	4,115	74%	636	170	3,394	18.74%	18.74%
2035	15,556	11,753	3,803	76%	645	173	3,467	18.61%	18.61%
2036	15,535	12,073	3,462	78%	655	177	3,545	18.49%	18.49%
2037	15,507	12,420	3,087	80%	666	181	3,628	18.37%	18.37%
2038	15,478	12,801	2,677	83%	678	186	3,714	18.25%	18.25%
2039	15,451	13,221	2,230	86%	690	190	3,803	18.14%	18.14%
2040	15,428	13,686	1,742	89%	703	195	3,895	18.04%	18.04%
2041	15,413	14,202	1,211	92%	715	199	3,988	17.94%	17.94%
2042	15,406	14,772	634	96%	730	204	4,083	17.87%	17.87%
2043	15,409	15,409	0	100%	78	209	4,179	1.87%	1.87%
2044	15,423	15,423	0	100%	79	214	4,277	1.85%	1.85%
2045	15,449	15,449	0	100%	80	219	4,377	1.83%	1.83%
2046	15,488	15,488	0	100%	82	224	4,478	1.82%	1.82%
2047	15,540	15,540	0	100%	83	229	4,581	1.81%	1.81%
2048	15,606	15,606	0	100%	84	234	4,686	1.80%	1.80%
2049	15,687	15,687	0	100%	86	240	4,792	1.79%	1.79%
2050	15,783	15,783	0	100%	88	245	4,901	1.79%	1.79%
2051	15,895	15,895	0	100%	89	251	5,012	1.78%	1.78%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 2-4
CERS Hazardous Retirement Fund
Current Plan
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 4,649	\$ 2,238	\$ 2,411	48%	\$ 120	\$ 43	\$ 542	22.20%	22.20%
2018	4,771	2,293	2,478	48%	192	43	537	35.69%	35.69%
2019	4,880	2,376	2,504	49%	193	43	538	35.95%	35.95%
2020	4,978	2,478	2,500	50%	197	43	542	36.42%	36.42%
2021	5,066	2,610	2,456	52%	199	44	546	36.48%	36.48%
2022	5,145	2,712	2,433	53%	199	44	551	36.06%	36.06%
2023	5,214	2,809	2,405	54%	201	45	558	35.95%	35.95%
2024	5,274	2,902	2,372	55%	202	45	565	35.81%	35.81%
2025	5,325	2,992	2,333	56%	204	46	573	35.66%	35.66%
2026	5,367	3,079	2,288	57%	207	47	582	35.49%	35.49%
2027	5,400	3,164	2,236	59%	209	47	592	35.32%	35.32%
2028	5,426	3,248	2,178	60%	212	48	602	35.14%	35.14%
2029	5,444	3,333	2,111	61%	215	49	614	34.96%	34.96%
2030	5,457	3,420	2,037	63%	218	50	628	34.75%	34.75%
2031	5,466	3,512	1,954	64%	222	51	642	34.54%	34.54%
2032	5,472	3,611	1,861	66%	225	53	657	34.33%	34.33%
2033	5,478	3,719	1,759	68%	229	54	672	34.12%	34.12%
2034	5,483	3,837	1,646	70%	233	55	688	33.92%	33.92%
2035	5,489	3,967	1,522	72%	238	56	705	33.73%	33.73%
2036	5,495	4,110	1,385	75%	242	58	721	33.56%	33.56%
2037	5,502	4,267	1,235	78%	247	59	738	33.40%	33.40%
2038	5,510	4,439	1,071	81%	251	60	755	33.26%	33.26%
2039	5,519	4,627	892	84%	256	62	773	33.13%	33.13%
2040	5,528	4,831	697	87%	261	63	791	33.02%	33.02%
2041	5,540	5,056	484	91%	267	65	809	32.94%	32.94%
2042	5,555	5,301	254	95%	272	66	828	32.89%	32.89%
2043	5,573	5,573	0	100%	12	68	848	1.41%	1.41%
2044	5,595	5,595	0	100%	12	69	867	1.40%	1.40%
2045	5,619	5,619	0	100%	12	71	887	1.40%	1.40%
2046	5,646	5,646	0	100%	13	73	907	1.40%	1.40%
2047	5,674	5,674	0	100%	13	74	927	1.40%	1.40%
2048	5,704	5,704	0	100%	13	76	948	1.40%	1.40%
2049	5,736	5,736	0	100%	14	78	970	1.40%	1.40%
2050	5,769	5,769	0	100%	14	79	992	1.40%	1.40%
2051	5,803	5,803	0	100%	14	81	1,014	1.40%	1.40%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 2-5
SPRS Retirement Fund
Current Plan
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 967	\$ 261	\$ 706	27%	\$ 35	\$ 4	\$ 49	72.47%	71.57%
2018	970	264	706	27%	58	4	49	119.05%	119.05%
2019	972	275	697	28%	59	4	50	119.05%	117.69%
2020	972	290	682	30%	58	4	50	116.24%	116.24%
2021	972	308	664	32%	59	4	51	116.24%	114.50%
2022	970	325	645	34%	58	4	52	111.48%	111.48%
2023	967	341	626	35%	59	4	53	111.48%	109.03%
2024	964	358	606	37%	57	4	54	106.31%	106.31%
2025	959	373	586	39%	58	4	55	106.31%	103.75%
2026	953	390	563	41%	56	4	56	101.12%	101.12%
2027	946	405	541	43%	58	5	57	101.12%	98.44%
2028	938	423	515	45%	56	5	59	95.24%	95.24%
2029	930	440	490	47%	57	5	60	95.24%	92.43%
2030	922	459	463	50%	55	5	62	89.36%	89.36%
2031	914	477	437	52%	57	5	64	89.36%	86.61%
2032	905	499	406	55%	55	5	65	83.53%	83.53%
2033	897	519	378	58%	56	5	67	83.53%	81.10%
2034	888	544	344	61%	54	6	69	78.24%	78.24%
2035	880	567	313	64%	55	6	71	78.24%	75.87%
2036	872	595	277	68%	53	6	73	73.29%	73.29%
2037	865	622	243	72%	55	6	75	73.29%	71.26%
2038	857	652	205	76%	52	6	76	68.64%	68.64%
2039	851	683	168	80%	54	6	78	68.64%	66.76%
2040	844	718	126	85%	51	6	80	63.97%	63.97%
2041	839	753	86	90%	52	7	82	63.97%	62.25%
2042	833	791	42	95%	49	7	84	58.27%	58.27%
2043	829	829	0	100%	5	7	86	5.93%	5.93%
2044	825	825	0	100%	5	7	88	5.88%	5.88%
2045	821	821	0	100%	5	7	90	5.85%	5.85%
2046	818	818	0	100%	5	7	92	5.83%	5.83%
2047	815	815	0	100%	5	7	94	5.81%	5.81%
2048	813	813	0	100%	6	8	96	5.80%	5.80%
2049	811	811	0	100%	6	8	98	5.79%	5.79%
2050	810	810	0	100%	6	8	100	5.79%	5.79%
2051	809	809	0	100%	6	8	102	5.79%	5.79%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

The employer contribution amount shown does not include the \$10 million additional contribution budgeted to be paid in fiscal year beginning 2017.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 2-6
KERS Non-Hazardous Insurance Fund
Current Plan
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 2,683	\$ 824	\$ 1,859	31%	\$ 128	\$ 5	\$ 1,524	8.41%	8.41%
2018	2,760	874	1,886	32%	191	6	1,541	12.40%	12.40%
2019	2,837	975	1,862	34%	194	7	1,564	12.40%	12.09%
2020	2,907	1,087	1,820	37%	188	8	1,590	11.81%	11.81%
2021	2,972	1,202	1,770	40%	191	9	1,617	11.81%	11.50%
2022	3,032	1,311	1,721	43%	182	10	1,645	11.09%	11.09%
2023	3,085	1,411	1,674	46%	186	10	1,675	11.09%	10.77%
2024	3,133	1,512	1,621	48%	178	11	1,706	10.44%	10.44%
2025	3,174	1,604	1,570	51%	181	12	1,738	10.44%	10.12%
2026	3,208	1,698	1,510	53%	173	13	1,772	9.76%	9.76%
2027	3,235	1,781	1,454	55%	176	14	1,806	9.76%	9.47%
2028	3,254	1,864	1,390	57%	168	15	1,841	9.13%	9.13%
2029	3,264	1,937	1,327	59%	171	15	1,877	9.13%	8.82%
2030	3,265	2,010	1,255	62%	162	16	1,915	8.48%	8.48%
2031	3,259	2,072	1,187	64%	166	17	1,956	8.48%	8.23%
2032	3,248	2,139	1,109	66%	158	18	1,998	7.92%	7.92%
2033	3,233	2,200	1,033	68%	162	19	2,041	7.92%	7.68%
2034	3,215	2,268	947	71%	155	20	2,085	7.42%	7.42%
2035	3,195	2,332	863	73%	158	20	2,132	7.42%	7.20%
2036	3,175	2,406	769	76%	151	21	2,183	6.94%	6.94%
2037	3,156	2,481	675	79%	155	22	2,237	6.94%	6.74%
2038	3,141	2,569	572	82%	149	23	2,293	6.48%	6.48%
2039	3,129	2,660	469	85%	152	23	2,351	6.48%	6.28%
2040	3,122	2,767	355	89%	145	24	2,410	6.02%	6.02%
2041	3,120	2,878	242	92%	149	25	2,469	6.02%	5.83%
2042	3,122	3,004	118	96%	135	25	2,529	5.35%	5.35%
2043	3,131	3,131	0	100%	13	26	2,589	0.49%	0.49%
2044	3,144	3,144	0	100%	13	26	2,650	0.49%	0.49%
2045	3,162	3,162	0	100%	13	27	2,712	0.48%	0.48%
2046	3,184	3,184	0	100%	13	28	2,774	0.48%	0.48%
2047	3,208	3,208	0	100%	14	28	2,838	0.48%	0.48%
2048	3,233	3,233	0	100%	14	29	2,903	0.48%	0.48%
2049	3,260	3,260	0	100%	12	30	2,969	0.42%	0.42%
2050	3,287	3,287	0	100%	12	30	3,036	0.41%	0.41%
2051	3,315	3,315	0	100%	12	31	3,105	0.40%	0.40%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 2-7
KERS Hazardous Insurance Fund
Current Plan
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 419	\$ 493	\$ (74)	118%	\$ 4	\$ 1	\$ 162	2.26%	1.34%
2018	436	507	(71)	116%	4	1	165	2.46%	2.46%
2019	453	516	(63)	114%	4	1	169	2.46%	2.15%
2020	468	529	(61)	113%	4	1	174	2.11%	2.11%
2021	482	548	(66)	114%	4	1	178	2.11%	1.84%
2022	494	559	(65)	113%	2	1	183	1.21%	1.21%
2023	504	568	(64)	113%	2	1	187	1.21%	0.91%
2024	513	575	(62)	112%	1	1	192	0.65%	0.65%
2025	520	581	(61)	112%	1	2	197	0.65%	0.50%
2026	525	585	(60)	111%	1	2	201	0.35%	0.35%
2027	530	587	(57)	111%	1	2	206	0.35%	0.25%
2028	534	589	(55)	110%	0	2	210	0.14%	0.14%
2029	537	590	(53)	110%	0	2	216	0.14%	0.09%
2030	540	590	(50)	109%	0	2	222	0.07%	0.07%
2031	543	590	(47)	109%	0	2	228	0.07%	0.10%
2032	546	590	(44)	108%	0	2	235	0.15%	0.15%
2033	550	590	(40)	107%	0	2	242	0.15%	0.20%
2034	554	591	(37)	107%	1	2	249	0.25%	0.25%
2035	559	592	(33)	106%	1	3	255	0.25%	0.31%
2036	565	594	(29)	105%	1	3	262	0.39%	0.39%
2037	572	597	(25)	104%	1	3	269	0.39%	0.43%
2038	580	601	(21)	104%	1	3	275	0.49%	0.49%
2039	588	605	(17)	103%	1	3	281	0.49%	0.54%
2040	598	610	(12)	102%	2	3	287	0.63%	0.63%
2041	608	616	(8)	101%	2	3	292	0.63%	0.68%
2042	618	622	(4)	101%	3	3	298	0.86%	0.86%
2043	629	629	0	100%	7	3	304	2.14%	2.14%
2044	640	640	0	100%	7	3	311	2.11%	2.11%
2045	651	651	0	100%	7	3	318	2.07%	2.07%
2046	662	662	0	100%	7	3	325	2.05%	2.05%
2047	673	673	0	100%	7	3	332	2.02%	2.02%
2048	685	685	0	100%	7	3	340	1.99%	1.99%
2049	696	696	0	100%	7	3	348	1.97%	1.97%
2050	707	707	0	100%	7	4	355	1.95%	1.95%
2051	718	718	0	100%	7	4	364	1.92%	1.92%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 2-8
CERS Non-Hazardous Insurance Fund
Current Plan
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 3,355	\$ 2,227	\$ 1,128	66%	\$ 114	\$ 10	\$ 2,429	4.70%	4.70%
2018	3,514	2,343	1,171	67%	154	11	2,477	6.21%	6.21%
2019	3,667	2,475	1,192	67%	153	13	2,524	6.06%	6.06%
2020	3,813	2,623	1,190	69%	154	14	2,572	5.98%	5.98%
2021	3,951	2,798	1,153	71%	153	15	2,619	5.84%	5.84%
2022	4,081	2,941	1,140	72%	150	17	2,668	5.62%	5.62%
2023	4,202	3,077	1,125	73%	149	18	2,718	5.48%	5.48%
2024	4,315	3,206	1,109	74%	148	19	2,768	5.35%	5.35%
2025	4,419	3,330	1,089	75%	147	20	2,820	5.21%	5.21%
2026	4,514	3,447	1,067	76%	146	22	2,873	5.08%	5.08%
2027	4,600	3,558	1,042	77%	145	23	2,926	4.96%	4.96%
2028	4,676	3,663	1,013	78%	144	24	2,982	4.83%	4.83%
2029	4,745	3,763	982	79%	144	26	3,040	4.72%	4.72%
2030	4,807	3,860	947	80%	143	27	3,102	4.60%	4.60%
2031	4,862	3,954	908	81%	143	28	3,166	4.51%	4.51%
2032	4,912	4,047	865	82%	143	29	3,232	4.42%	4.42%
2033	4,958	4,140	818	84%	144	31	3,301	4.35%	4.35%
2034	5,002	4,236	766	85%	144	32	3,372	4.28%	4.28%
2035	5,045	4,336	709	86%	146	33	3,445	4.23%	4.23%
2036	5,089	4,443	646	87%	147	34	3,522	4.18%	4.18%
2037	5,135	4,557	578	89%	150	35	3,605	4.15%	4.15%
2038	5,184	4,681	503	90%	151	36	3,691	4.10%	4.10%
2039	5,235	4,814	421	92%	155	37	3,780	4.09%	4.09%
2040	5,289	4,959	330	94%	157	38	3,872	4.06%	4.06%
2041	5,347	5,116	231	96%	160	39	3,965	4.04%	4.04%
2042	5,409	5,286	123	98%	166	40	4,059	4.08%	4.08%
2043	5,475	5,475	0	100%	41	41	4,156	0.98%	0.98%
2044	5,545	5,545	0	100%	41	42	4,253	0.97%	0.97%
2045	5,619	5,619	0	100%	42	43	4,352	0.97%	0.97%
2046	5,696	5,696	0	100%	42	44	4,453	0.95%	0.95%
2047	5,775	5,775	0	100%	43	46	4,555	0.94%	0.94%
2048	5,855	5,855	0	100%	43	47	4,660	0.92%	0.92%
2049	5,937	5,937	0	100%	43	48	4,766	0.91%	0.91%
2050	6,019	6,019	0	100%	43	49	4,874	0.89%	0.89%
2051	6,102	6,102	0	100%	44	50	4,985	0.88%	0.88%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 2-9
CERS Hazardous Insurance Fund
Current Plan
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 1,788	\$ 1,197	\$ 591	67%	\$ 51	\$ 2	\$ 541	9.35%	9.35%
2018	1,853	1,243	610	67%	65	2	536	12.17%	12.17%
2019	1,912	1,290	622	67%	64	3	538	11.97%	11.97%
2020	1,962	1,343	619	68%	64	3	541	11.83%	11.83%
2021	2,005	1,405	600	70%	63	3	546	11.52%	11.52%
2022	2,038	1,446	592	71%	61	4	551	11.00%	11.00%
2023	2,061	1,478	583	72%	59	4	558	10.66%	10.66%
2024	2,075	1,501	574	72%	59	4	565	10.37%	10.37%
2025	2,081	1,517	564	73%	58	5	573	10.12%	10.12%
2026	2,078	1,526	552	73%	58	5	582	9.89%	9.89%
2027	2,068	1,528	540	74%	57	5	591	9.71%	9.71%
2028	2,052	1,527	525	74%	58	5	602	9.57%	9.57%
2029	2,031	1,522	509	75%	58	6	614	9.43%	9.43%
2030	2,008	1,517	491	76%	59	6	627	9.33%	9.33%
2031	1,982	1,511	471	76%	59	6	641	9.24%	9.24%
2032	1,954	1,506	448	77%	60	6	656	9.16%	9.16%
2033	1,927	1,503	424	78%	61	7	672	9.09%	9.09%
2034	1,899	1,502	397	79%	62	7	688	9.03%	9.03%
2035	1,873	1,506	367	80%	63	7	704	8.98%	8.98%
2036	1,849	1,515	334	82%	64	7	721	8.93%	8.93%
2037	1,828	1,530	298	84%	66	7	738	8.89%	8.89%
2038	1,811	1,552	259	86%	67	8	755	8.85%	8.85%
2039	1,796	1,580	216	88%	68	8	772	8.82%	8.82%
2040	1,785	1,617	168	91%	69	8	790	8.79%	8.79%
2041	1,779	1,661	118	93%	71	8	809	8.77%	8.77%
2042	1,776	1,714	62	97%	72	8	828	8.75%	8.75%
2043	1,777	1,777	0	100%	10	8	847	1.13%	1.13%
2044	1,782	1,782	0	100%	10	9	866	1.11%	1.11%
2045	1,789	1,789	0	100%	10	9	886	1.10%	1.10%
2046	1,799	1,799	0	100%	10	9	906	1.08%	1.08%
2047	1,811	1,811	0	100%	10	9	926	1.07%	1.07%
2048	1,823	1,823	0	100%	10	9	947	1.06%	1.06%
2049	1,836	1,836	0	100%	10	10	969	1.04%	1.04%
2050	1,847	1,847	0	100%	10	10	991	1.03%	1.03%
2051	1,859	1,859	0	100%	10	10	1,013	1.01%	1.01%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 2-10
SPRS Insurance Fund
Current Plan
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 277	\$ 180	\$ 97	65%	\$ 9	\$ 0	\$ 48	18.77%	18.10%
2018	286	186	100	65%	13	0	48	27.23%	27.23%
2019	295	195	100	66%	13	0	49	27.23%	26.34%
2020	302	205	97	68%	13	0	49	25.64%	25.64%
2021	309	216	93	70%	13	0	50	25.64%	24.57%
2022	314	224	90	71%	12	0	51	22.92%	22.92%
2023	319	231	88	72%	12	0	52	22.92%	21.70%
2024	321	237	84	74%	11	0	53	20.35%	20.35%
2025	322	241	81	75%	11	0	54	20.35%	19.25%
2026	322	244	78	76%	10	0	55	18.17%	18.17%
2027	320	246	74	77%	10	0	56	18.17%	17.28%
2028	318	247	71	78%	9	0	57	16.37%	16.37%
2029	314	247	67	79%	10	1	59	16.37%	15.65%
2030	310	246	64	79%	9	1	61	14.90%	14.90%
2031	305	245	60	80%	9	1	62	14.90%	14.30%
2032	300	244	56	81%	9	1	64	13.64%	13.64%
2033	294	242	52	82%	9	1	66	13.64%	13.13%
2034	288	241	47	84%	9	1	68	12.58%	12.58%
2035	283	239	44	84%	9	1	69	12.58%	12.18%
2036	277	238	39	86%	8	1	71	11.77%	11.77%
2037	272	238	34	88%	9	1	73	11.77%	11.45%
2038	267	238	29	89%	8	1	75	11.06%	11.06%
2039	263	239	24	91%	8	1	77	11.06%	10.79%
2040	259	241	18	93%	8	1	78	10.39%	10.39%
2041	255	243	12	95%	8	1	80	10.39%	10.15%
2042	252	246	6	98%	8	1	82	9.59%	9.59%
2043	250	250	0	100%	2	1	84	1.84%	1.84%
2044	249	249	0	100%	2	1	85	1.82%	1.82%
2045	248	248	0	100%	2	1	87	1.80%	1.80%
2046	248	248	0	100%	2	1	89	1.78%	1.78%
2047	248	248	0	100%	2	1	91	1.75%	1.75%
2048	249	249	0	100%	2	1	93	1.73%	1.73%
2049	249	249	0	100%	2	1	95	1.71%	1.71%
2050	250	250	0	100%	2	1	97	1.69%	1.69%
2051	251	251	0	100%	2	1	99	1.66%	1.66%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

Gabriel Roeder Smith & Company

Section 3.
Projected Cost of the Retirement and Insurance
Proposed Legislation

Kentucky Retirement Systems
Exhibit 3-1
KERS Non-Hazardous Retirement Fund
Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 15,592	\$ 2,124	\$ 13,468	14%	\$ 629	\$ 77	\$ 1,532	41.06%	41.98%
2018	15,629	2,038	13,591	13%	637	78	1,551	41.06%	71.03%
2019	15,645	1,819	13,826	12%	646	79	1,574	41.06%	72.08%
2020	15,643	1,614	14,029	10%	1,172	80	1,601	73.24%	73.24%
2021	15,624	1,964	13,660	13%	1,192	81	1,628	73.24%	71.73%
2022	15,587	2,320	13,267	15%	1,159	83	1,656	69.99%	69.99%
2023	15,535	2,650	12,885	17%	1,180	84	1,686	69.99%	68.49%
2024	15,466	3,009	12,457	19%	1,148	86	1,718	66.85%	66.85%
2025	15,383	3,346	12,037	22%	1,170	88	1,751	66.85%	65.34%
2026	15,285	3,715	11,570	24%	1,137	89	1,785	63.70%	63.70%
2027	15,172	4,062	11,110	27%	1,159	91	1,819	63.70%	62.23%
2028	15,052	4,453	10,599	30%	1,124	93	1,854	60.63%	60.63%
2029	14,918	4,822	10,096	32%	1,146	95	1,891	60.63%	59.21%
2030	14,769	5,229	9,540	35%	1,112	96	1,929	57.65%	57.65%
2031	14,609	5,620	8,989	38%	1,136	99	1,970	57.65%	56.25%
2032	14,440	6,058	8,382	42%	1,100	101	2,012	54.67%	54.67%
2033	14,262	6,484	7,778	45%	1,124	103	2,056	54.67%	53.30%
2034	14,077	6,961	7,116	49%	1,086	105	2,101	51.72%	51.72%
2035	13,884	7,429	6,455	54%	1,111	107	2,147	51.72%	50.39%
2036	13,689	7,954	5,735	58%	1,073	110	2,198	48.82%	48.82%
2037	13,496	8,481	5,015	63%	1,100	113	2,253	48.82%	47.47%
2038	13,309	9,080	4,229	68%	1,057	115	2,310	45.76%	45.76%
2039	13,132	9,686	3,446	74%	1,084	118	2,368	45.76%	44.39%
2040	12,967	10,371	2,596	80%	1,030	121	2,427	42.45%	42.45%
2041	12,815	11,058	1,757	86%	1,056	124	2,487	42.45%	41.01%
2042	12,675	11,828	847	93%	958	127	2,547	37.63%	37.63%
2043	12,549	12,549	0	100%	76	130	2,608	2.93%	2.93%
2044	12,436	12,436	0	100%	77	133	2,669	2.89%	2.89%
2045	12,338	12,338	0	100%	78	137	2,731	2.86%	2.86%
2046	12,254	12,254	0	100%	79	140	2,794	2.84%	2.84%
2047	12,184	12,184	0	100%	81	143	2,858	2.82%	2.82%
2048	12,130	12,130	0	100%	82	146	2,924	2.80%	2.80%
2049	12,092	12,092	0	100%	83	150	2,990	2.79%	2.79%
2050	12,069	12,069	0	100%	85	153	3,058	2.79%	2.79%
2051	12,064	12,064	0	100%	87	156	3,127	2.78%	2.78%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

The employer contribution amount shown does not include the \$87 million additional contribution budgeted to be paid in fiscal year beginning 2017.

Kentucky Retirement Systems
Exhibit 3-2
KERS Hazardous Retirement Fund
Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 1,121	\$ 607	\$ 514	54%	\$ 35	\$ 13	\$ 162	21.44%	20.48%
2018	1,155	637	518	55%	36	13	166	21.44%	34.39%
2019	1,186	647	539	55%	36	14	170	21.44%	34.39%
2020	1,217	663	554	54%	61	14	174	34.83%	34.83%
2021	1,247	712	535	57%	62	14	179	34.83%	33.77%
2022	1,276	757	519	59%	59	15	183	32.29%	32.29%
2023	1,305	799	506	61%	61	15	188	32.29%	31.29%
2024	1,333	843	490	63%	58	15	193	30.25%	30.25%
2025	1,360	885	475	65%	60	16	197	30.25%	29.28%
2026	1,386	929	457	67%	57	16	202	28.31%	28.31%
2027	1,410	970	440	69%	58	16	206	28.31%	27.42%
2028	1,434	1,013	421	71%	56	17	211	26.47%	26.47%
2029	1,456	1,053	403	72%	57	17	216	26.47%	25.66%
2030	1,478	1,096	382	74%	55	18	222	24.81%	24.81%
2031	1,500	1,139	361	76%	57	18	229	24.81%	24.08%
2032	1,524	1,186	338	78%	55	19	236	23.29%	23.29%
2033	1,549	1,233	316	80%	56	19	242	23.29%	22.64%
2034	1,576	1,286	290	82%	55	20	249	21.91%	21.91%
2035	1,605	1,340	265	83%	56	20	256	21.91%	21.30%
2036	1,634	1,397	237	85%	54	21	263	20.64%	20.64%
2037	1,665	1,456	209	87%	56	22	269	20.64%	20.08%
2038	1,695	1,518	177	90%	53	22	276	19.40%	19.40%
2039	1,725	1,579	146	92%	55	23	282	19.40%	18.92%
2040	1,755	1,643	112	94%	53	23	288	18.31%	18.31%
2041	1,785	1,707	78	96%	54	23	293	18.31%	18.03%
2042	1,813	1,773	40	98%	53	24	299	17.58%	17.58%
2043	1,841	1,841	0	100%	13	24	305	4.10%	4.10%
2044	1,869	1,869	0	100%	13	25	311	4.10%	4.10%
2045	1,897	1,897	0	100%	13	25	318	4.10%	4.10%
2046	1,925	1,925	0	100%	13	26	325	4.10%	4.10%
2047	1,953	1,953	0	100%	14	27	333	4.10%	4.10%
2048	1,982	1,982	0	100%	14	27	340	4.10%	4.10%
2049	2,011	2,011	0	100%	14	28	348	4.10%	4.10%
2050	2,040	2,040	0	100%	15	28	356	4.10%	4.10%
2051	2,070	2,070	0	100%	15	29	364	4.10%	4.10%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

The employer contribution amount shown does not include the \$10 million additional contribution budgeted to be paid in fiscal year beginning 2017.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 3-3
CERS Non-Hazardous Retirement Fund
Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 12,804	\$ 6,765	\$ 6,039	53%	\$ 355	\$ 123	\$ 2,452	14.48%	14.48%
2018	13,121	6,902	6,219	53%	362	125	2,500	14.48%	21.84%
2019	13,421	6,932	6,489	52%	369	127	2,547	14.48%	22.01%
2020	13,704	7,026	6,678	51%	585	130	2,594	22.55%	22.55%
2021	13,970	7,422	6,548	53%	590	132	2,642	22.34%	22.34%
2022	14,218	7,740	6,478	54%	588	135	2,690	21.87%	21.87%
2023	14,445	8,044	6,401	56%	593	137	2,740	21.65%	21.65%
2024	14,652	8,341	6,311	57%	598	140	2,790	21.44%	21.44%
2025	14,836	8,632	6,204	58%	604	142	2,842	21.24%	21.24%
2026	14,998	8,916	6,082	59%	609	145	2,894	21.04%	21.04%
2027	15,136	9,192	5,944	61%	615	147	2,948	20.86%	20.86%
2028	15,259	9,473	5,786	62%	621	150	3,003	20.69%	20.69%
2029	15,359	9,750	5,609	63%	628	153	3,062	20.52%	20.52%
2030	15,438	10,027	5,411	65%	636	156	3,124	20.35%	20.35%
2031	15,496	10,306	5,190	67%	644	159	3,187	20.20%	20.20%
2032	15,536	10,592	4,944	68%	652	163	3,254	20.05%	20.05%
2033	15,558	10,887	4,671	70%	661	166	3,323	19.90%	19.90%
2034	15,565	11,193	4,372	72%	671	170	3,394	19.76%	19.76%
2035	15,556	11,516	4,040	74%	680	173	3,467	19.62%	19.62%
2036	15,535	11,858	3,677	76%	691	177	3,545	19.50%	19.50%
2037	15,507	12,228	3,279	79%	703	181	3,628	19.38%	19.38%
2038	15,478	12,634	2,844	82%	715	186	3,714	19.25%	19.25%
2039	15,451	13,082	2,369	85%	728	190	3,803	19.15%	19.15%
2040	15,428	13,578	1,850	88%	741	195	3,895	19.03%	19.03%
2041	15,413	14,127	1,286	92%	755	199	3,988	18.92%	18.92%
2042	15,406	14,733	673	96%	770	204	4,083	18.86%	18.86%
2043	15,409	15,409	0	100%	78	209	4,179	1.87%	1.87%
2044	15,423	15,423	0	100%	79	214	4,277	1.85%	1.85%
2045	15,449	15,449	0	100%	80	219	4,377	1.83%	1.83%
2046	15,488	15,488	0	100%	82	224	4,478	1.82%	1.82%
2047	15,540	15,540	0	100%	83	229	4,581	1.81%	1.81%
2048	15,606	15,606	0	100%	84	234	4,686	1.80%	1.80%
2049	15,687	15,687	0	100%	86	240	4,792	1.79%	1.79%
2050	15,783	15,783	0	100%	88	245	4,901	1.79%	1.79%
2051	15,895	15,895	0	100%	89	251	5,012	1.78%	1.78%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 3-4
CERS Hazardous Retirement Fund
Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 4,649	\$ 2,238	\$ 2,411	48%	\$ 120	\$ 43	\$ 542	22.20%	22.20%
2018	4,771	2,293	2,478	48%	119	43	537	22.20%	35.69%
2019	4,880	2,301	2,579	47%	119	43	538	22.20%	36.88%
2020	4,978	2,322	2,656	47%	208	43	542	38.38%	38.38%
2021	5,066	2,455	2,611	48%	210	44	546	38.43%	38.43%
2022	5,145	2,559	2,586	50%	210	44	551	38.03%	38.03%
2023	5,214	2,658	2,556	51%	212	45	558	37.94%	37.94%
2024	5,274	2,753	2,521	52%	214	45	565	37.82%	37.82%
2025	5,325	2,845	2,480	53%	216	46	573	37.68%	37.68%
2026	5,367	2,935	2,432	55%	218	47	582	37.52%	37.52%
2027	5,400	3,023	2,377	56%	221	47	592	37.36%	37.36%
2028	5,426	3,111	2,315	57%	224	48	602	37.19%	37.19%
2029	5,444	3,199	2,245	59%	227	49	614	37.01%	37.01%
2030	5,457	3,291	2,166	60%	231	50	628	36.81%	36.81%
2031	5,466	3,388	2,078	62%	235	51	642	36.59%	36.59%
2032	5,472	3,493	1,979	64%	239	53	657	36.38%	36.38%
2033	5,478	3,607	1,871	66%	243	54	672	36.17%	36.17%
2034	5,483	3,733	1,750	68%	247	55	688	35.95%	35.95%
2035	5,489	3,871	1,618	71%	252	56	705	35.75%	35.75%
2036	5,495	4,023	1,472	73%	257	58	721	35.58%	35.58%
2037	5,502	4,190	1,312	76%	261	59	738	35.41%	35.41%
2038	5,510	4,372	1,138	79%	266	60	755	35.26%	35.26%
2039	5,519	4,571	948	83%	271	62	773	35.12%	35.12%
2040	5,528	4,788	740	87%	277	63	791	35.00%	35.00%
2041	5,540	5,025	515	91%	282	65	809	34.90%	34.90%
2042	5,555	5,286	269	95%	289	66	828	34.85%	34.85%
2043	5,573	5,573	0	100%	12	68	848	1.41%	1.41%
2044	5,595	5,595	0	100%	12	69	867	1.40%	1.40%
2045	5,619	5,619	0	100%	12	71	887	1.40%	1.40%
2046	5,646	5,646	0	100%	13	73	907	1.40%	1.40%
2047	5,674	5,674	0	100%	13	74	927	1.40%	1.40%
2048	5,704	5,704	0	100%	13	76	948	1.40%	1.40%
2049	5,736	5,736	0	100%	14	78	970	1.40%	1.40%
2050	5,769	5,769	0	100%	14	79	992	1.40%	1.40%
2051	5,803	5,803	0	100%	14	81	1,014	1.40%	1.40%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 3-5
SPRS Retirement Fund
Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 967	\$ 261	\$ 706	27%	\$ 35	\$ 4	\$ 49	72.47%	71.57%
2018	970	264	706	27%	35	4	49	72.47%	119.05%
2019	972	252	720	26%	36	4	50	72.47%	121.25%
2020	972	242	730	25%	62	4	50	123.55%	123.55%
2021	972	261	711	27%	63	4	51	123.55%	121.61%
2022	970	280	690	29%	61	4	52	118.45%	118.45%
2023	967	297	670	31%	62	4	53	118.45%	115.87%
2024	964	315	649	33%	61	4	54	113.00%	113.00%
2025	959	332	627	35%	62	4	55	113.00%	110.31%
2026	953	350	603	37%	60	4	56	107.56%	107.56%
2027	946	367	579	39%	62	5	57	107.56%	104.73%
2028	938	386	552	41%	60	5	59	101.34%	101.34%
2029	930	405	525	44%	61	5	60	101.34%	98.36%
2030	922	426	496	46%	59	5	62	95.10%	95.10%
2031	914	446	468	49%	61	5	64	95.10%	92.17%
2032	905	470	435	52%	58	5	65	88.90%	88.90%
2033	897	493	404	55%	60	5	67	88.90%	86.31%
2034	888	519	369	58%	58	6	69	83.27%	83.27%
2035	880	545	335	62%	59	6	71	83.27%	80.73%
2036	872	575	297	66%	57	6	73	77.99%	77.99%
2037	865	604	261	70%	58	6	75	77.99%	75.82%
2038	857	638	219	74%	56	6	76	73.01%	73.01%
2039	851	671	180	79%	57	6	78	73.01%	71.01%
2040	844	709	135	84%	55	6	80	68.02%	68.02%
2041	839	747	92	89%	56	7	82	68.02%	66.17%
2042	833	788	45	95%	52	7	84	61.87%	61.87%
2043	829	829	0	100%	5	7	86	5.93%	5.93%
2044	825	825	0	100%	5	7	88	5.88%	5.88%
2045	821	821	0	100%	5	7	90	5.85%	5.85%
2046	818	818	0	100%	5	7	92	5.83%	5.83%
2047	815	815	0	100%	5	7	94	5.81%	5.81%
2048	813	813	0	100%	6	8	96	5.80%	5.80%
2049	811	811	0	100%	6	8	98	5.79%	5.79%
2050	810	810	0	100%	6	8	100	5.79%	5.79%
2051	809	809	0	100%	6	8	102	5.79%	5.79%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

The employer contribution amount shown does not include the \$10 million additional contribution budgeted to be paid in fiscal year beginning 2017.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 3-6
KERS Non-Hazardous Insurance Fund
Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 2,683	\$ 824	\$ 1,859	31%	\$ 128	\$ 5	\$ 1,524	8.41%	8.41%
2018	2,760	874	1,886	32%	130	6	1,541	8.41%	12.40%
2019	2,837	912	1,925	32%	132	7	1,564	8.41%	12.43%
2020	2,907	955	1,952	33%	199	8	1,590	12.50%	12.50%
2021	2,972	1,073	1,899	36%	202	9	1,617	12.50%	12.16%
2022	3,032	1,186	1,846	39%	193	10	1,645	11.75%	11.75%
2023	3,085	1,289	1,796	42%	197	10	1,675	11.75%	11.41%
2024	3,133	1,394	1,739	44%	189	11	1,706	11.06%	11.06%
2025	3,174	1,489	1,685	47%	192	12	1,738	11.06%	10.73%
2026	3,208	1,587	1,621	49%	184	13	1,772	10.36%	10.36%
2027	3,235	1,674	1,561	52%	187	14	1,806	10.36%	10.06%
2028	3,254	1,762	1,492	54%	179	15	1,841	9.71%	9.71%
2029	3,264	1,840	1,424	56%	182	15	1,877	9.71%	9.38%
2030	3,265	1,918	1,347	59%	173	16	1,915	9.03%	9.03%
2031	3,259	1,985	1,274	61%	177	17	1,956	9.03%	8.76%
2032	3,248	2,058	1,190	63%	169	18	1,998	8.44%	8.44%
2033	3,233	2,125	1,108	66%	172	19	2,041	8.44%	8.19%
2034	3,215	2,198	1,017	68%	165	20	2,085	7.91%	7.91%
2035	3,195	2,269	926	71%	169	20	2,132	7.91%	7.67%
2036	3,175	2,349	826	74%	162	21	2,183	7.40%	7.40%
2037	3,156	2,431	725	77%	166	22	2,237	7.40%	7.19%
2038	3,141	2,527	614	80%	159	23	2,293	6.92%	6.92%
2039	3,129	2,626	503	84%	163	23	2,351	6.92%	6.70%
2040	3,122	2,741	381	88%	155	24	2,410	6.42%	6.42%
2041	3,120	2,860	260	92%	159	25	2,469	6.42%	6.21%
2042	3,122	2,996	126	96%	144	25	2,529	5.71%	5.71%
2043	3,131	3,131	0	100%	13	26	2,589	0.49%	0.49%
2044	3,144	3,144	0	100%	13	26	2,650	0.49%	0.49%
2045	3,162	3,162	0	100%	13	27	2,712	0.48%	0.48%
2046	3,184	3,184	0	100%	13	28	2,774	0.48%	0.48%
2047	3,208	3,208	0	100%	14	28	2,838	0.48%	0.48%
2048	3,233	3,233	0	100%	14	29	2,903	0.48%	0.48%
2049	3,260	3,260	0	100%	12	30	2,969	0.42%	0.42%
2050	3,287	3,287	0	100%	12	30	3,036	0.41%	0.41%
2051	3,315	3,315	0	100%	12	31	3,105	0.40%	0.40%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 3-7
KERS Hazardous Insurance Fund
Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 419	\$ 493	\$ (74)	118%	\$ 4	\$ 1	\$ 162	2.26%	1.34%
2018	436	507	(71)	116%	4	1	165	2.26%	2.46%
2019	453	516	(63)	114%	4	1	169	2.26%	2.17%
2020	468	529	(61)	113%	4	1	174	2.15%	2.15%
2021	482	547	(65)	113%	4	1	178	2.15%	1.87%
2022	494	559	(65)	113%	2	1	183	1.24%	1.24%
2023	504	567	(63)	113%	2	1	187	1.24%	0.94%
2024	513	575	(62)	112%	1	1	192	0.68%	0.68%
2025	520	580	(60)	112%	1	2	197	0.68%	0.53%
2026	525	584	(59)	111%	1	2	201	0.38%	0.38%
2027	530	587	(57)	111%	1	2	206	0.38%	0.28%
2028	534	589	(55)	110%	0	2	210	0.17%	0.17%
2029	537	589	(52)	110%	0	2	216	0.17%	0.11%
2030	540	589	(49)	109%	0	2	222	0.10%	0.10%
2031	543	589	(46)	108%	0	2	228	0.10%	0.13%
2032	546	589	(43)	108%	0	2	235	0.17%	0.17%
2033	550	590	(40)	107%	0	2	242	0.17%	0.22%
2034	554	591	(37)	107%	1	2	249	0.27%	0.27%
2035	559	592	(33)	106%	1	3	255	0.27%	0.33%
2036	565	594	(29)	105%	1	3	262	0.40%	0.40%
2037	572	597	(25)	104%	1	3	269	0.40%	0.44%
2038	580	601	(21)	104%	1	3	275	0.51%	0.51%
2039	588	605	(17)	103%	1	3	281	0.51%	0.56%
2040	598	610	(12)	102%	2	3	287	0.65%	0.65%
2041	608	616	(8)	101%	2	3	292	0.65%	0.69%
2042	618	622	(4)	101%	3	3	298	0.86%	0.86%
2043	629	629	0	100%	7	3	304	2.14%	2.14%
2044	640	640	0	100%	7	3	311	2.11%	2.11%
2045	651	651	0	100%	7	3	318	2.07%	2.07%
2046	662	662	0	100%	7	3	325	2.05%	2.05%
2047	673	673	0	100%	7	3	332	2.02%	2.02%
2048	685	685	0	100%	7	3	340	1.99%	1.99%
2049	696	696	0	100%	7	3	348	1.97%	1.97%
2050	707	707	0	100%	7	4	355	1.95%	1.95%
2051	718	718	0	100%	7	4	364	1.92%	1.92%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 3-8
CERS Non-Hazardous Insurance Fund
Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 3,355	\$ 2,227	\$ 1,128	66%	\$ 114	\$ 10	\$ 2,429	4.70%	4.70%
2018	3,514	2,343	1,171	67%	116	11	2,477	4.70%	6.21%
2019	3,667	2,436	1,231	66%	119	13	2,524	4.70%	6.16%
2020	3,813	2,547	1,266	67%	159	14	2,572	6.19%	6.19%
2021	3,951	2,722	1,229	69%	158	15	2,619	6.04%	6.04%
2022	4,081	2,867	1,214	70%	155	17	2,668	5.82%	5.82%
2023	4,202	3,003	1,199	71%	154	18	2,718	5.68%	5.68%
2024	4,315	3,133	1,182	73%	154	19	2,768	5.55%	5.55%
2025	4,419	3,258	1,161	74%	153	20	2,820	5.41%	5.41%
2026	4,514	3,376	1,138	75%	152	22	2,873	5.28%	5.28%
2027	4,600	3,488	1,112	76%	151	23	2,926	5.16%	5.16%
2028	4,676	3,595	1,081	77%	150	24	2,982	5.03%	5.03%
2029	4,745	3,697	1,048	78%	150	26	3,040	4.93%	4.93%
2030	4,807	3,797	1,010	79%	149	27	3,102	4.80%	4.80%
2031	4,862	3,893	969	80%	149	28	3,166	4.71%	4.71%
2032	4,912	3,989	923	81%	150	29	3,232	4.63%	4.63%
2033	4,958	4,086	872	82%	151	31	3,301	4.56%	4.56%
2034	5,002	4,186	816	84%	151	32	3,372	4.48%	4.48%
2035	5,045	4,289	756	85%	153	33	3,445	4.43%	4.43%
2036	5,089	4,400	689	86%	154	34	3,522	4.38%	4.38%
2037	5,135	4,519	616	88%	157	35	3,605	4.35%	4.35%
2038	5,184	4,648	536	90%	159	36	3,691	4.31%	4.31%
2039	5,235	4,787	448	91%	162	37	3,780	4.29%	4.29%
2040	5,289	4,938	351	93%	165	38	3,872	4.25%	4.25%
2041	5,347	5,101	246	95%	168	39	3,965	4.24%	4.24%
2042	5,409	5,278	131	98%	173	40	4,059	4.27%	4.27%
2043	5,475	5,475	0	100%	41	41	4,156	0.98%	0.98%
2044	5,545	5,545	0	100%	41	42	4,253	0.97%	0.97%
2045	5,619	5,619	0	100%	42	43	4,352	0.97%	0.97%
2046	5,696	5,696	0	100%	42	44	4,453	0.95%	0.95%
2047	5,775	5,775	0	100%	43	46	4,555	0.94%	0.94%
2048	5,855	5,855	0	100%	43	47	4,660	0.92%	0.92%
2049	5,937	5,937	0	100%	43	48	4,766	0.91%	0.91%
2050	6,019	6,019	0	100%	43	49	4,874	0.89%	0.89%
2051	6,102	6,102	0	100%	44	50	4,985	0.88%	0.88%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 3-9
CERS Hazardous Insurance Fund
Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 1,788	\$ 1,197	\$ 591	67%	\$ 51	\$ 2	\$ 541	9.35%	9.35%
2018	1,853	1,243	610	67%	50	2	536	9.35%	12.17%
2019	1,912	1,275	637	67%	50	3	538	9.35%	12.16%
2020	1,962	1,312	650	67%	66	3	541	12.22%	12.22%
2021	2,005	1,374	631	69%	65	3	546	11.91%	11.91%
2022	2,038	1,416	622	69%	63	4	551	11.39%	11.39%
2023	2,061	1,448	613	70%	62	4	558	11.06%	11.06%
2024	2,075	1,471	604	71%	61	4	565	10.77%	10.77%
2025	2,081	1,487	594	71%	60	5	573	10.52%	10.52%
2026	2,078	1,497	581	72%	60	5	582	10.30%	10.30%
2027	2,068	1,500	568	73%	60	5	591	10.12%	10.12%
2028	2,052	1,499	553	73%	60	5	602	9.98%	9.98%
2029	2,031	1,496	535	74%	60	6	614	9.84%	9.84%
2030	2,008	1,491	517	74%	61	6	627	9.74%	9.74%
2031	1,982	1,486	496	75%	62	6	641	9.65%	9.65%
2032	1,954	1,482	472	76%	63	6	656	9.57%	9.57%
2033	1,927	1,480	447	77%	64	7	672	9.50%	9.50%
2034	1,899	1,482	417	78%	65	7	688	9.44%	9.44%
2035	1,873	1,487	386	79%	66	7	704	9.38%	9.38%
2036	1,849	1,497	352	81%	67	7	721	9.34%	9.34%
2037	1,828	1,515	313	83%	69	7	738	9.29%	9.29%
2038	1,811	1,538	273	85%	70	8	755	9.25%	9.25%
2039	1,796	1,569	227	87%	71	8	772	9.22%	9.22%
2040	1,785	1,608	177	90%	73	8	790	9.18%	9.18%
2041	1,779	1,655	124	93%	74	8	809	9.17%	9.17%
2042	1,776	1,711	65	96%	76	8	828	9.14%	9.14%
2043	1,777	1,777	0	100%	10	8	847	1.13%	1.13%
2044	1,782	1,782	0	100%	10	9	866	1.11%	1.11%
2045	1,789	1,789	0	100%	10	9	886	1.10%	1.10%
2046	1,799	1,799	0	100%	10	9	906	1.08%	1.08%
2047	1,811	1,811	0	100%	10	9	926	1.07%	1.07%
2048	1,823	1,823	0	100%	10	9	947	1.06%	1.06%
2049	1,836	1,836	0	100%	10	10	969	1.04%	1.04%
2050	1,847	1,847	0	100%	10	10	991	1.03%	1.03%
2051	1,859	1,859	0	100%	10	10	1,013	1.01%	1.01%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 3-10
SPRS Insurance Fund
Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 277	\$ 180	\$ 97	65%	\$ 9	\$ 0	\$ 48	18.77%	18.10%
2018	286	186	100	65%	9	0	48	18.77%	27.23%
2019	295	190	105	64%	9	0	49	18.77%	27.05%
2020	302	196	106	65%	13	0	49	27.10%	27.10%
2021	309	207	102	67%	14	0	50	27.10%	26.00%
2022	314	216	98	69%	12	0	51	24.32%	24.32%
2023	319	223	96	70%	13	0	52	24.32%	23.07%
2024	321	229	92	71%	11	0	53	21.69%	21.69%
2025	322	233	89	72%	12	0	54	21.69%	20.57%
2026	322	237	85	74%	11	0	55	19.47%	19.47%
2027	320	239	81	75%	11	0	56	19.47%	18.54%
2028	318	240	78	75%	10	0	57	17.60%	17.60%
2029	314	240	74	76%	10	1	59	17.60%	16.84%
2030	310	240	70	77%	10	1	61	16.05%	16.05%
2031	305	239	66	78%	10	1	62	16.05%	15.42%
2032	300	239	61	80%	9	1	64	14.72%	14.72%
2033	294	237	57	81%	10	1	66	14.72%	14.18%
2034	288	236	52	82%	9	1	68	13.60%	13.60%
2035	283	235	48	83%	9	1	69	13.60%	13.16%
2036	277	235	42	85%	9	1	71	12.71%	12.71%
2037	272	234	38	86%	9	1	73	12.71%	12.37%
2038	267	235	32	88%	9	1	75	11.95%	11.95%
2039	263	237	26	90%	9	1	77	11.95%	11.64%
2040	259	239	20	92%	9	1	78	11.20%	11.20%
2041	255	242	13	95%	9	1	80	11.20%	10.94%
2042	252	246	6	98%	8	1	82	10.32%	10.32%
2043	250	250	0	100%	2	1	84	1.84%	1.84%
2044	249	249	0	100%	2	1	85	1.82%	1.82%
2045	248	248	0	100%	2	1	87	1.80%	1.80%
2046	248	248	0	100%	2	1	89	1.78%	1.78%
2047	248	248	0	100%	2	1	91	1.75%	1.75%
2048	249	249	0	100%	2	1	93	1.73%	1.73%
2049	249	249	0	100%	2	1	95	1.71%	1.71%
2050	250	250	0	100%	2	1	97	1.69%	1.69%
2051	251	251	0	100%	2	1	99	1.66%	1.66%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

Gabriel Roeder Smith & Company

Section 4:
Alternative Scenario for KERS Non-Hazardous
Projected Cost of the Retirement and Insurance
Current Plan with Projected Population Decrease

Kentucky Retirement Systems
Exhibit 4-1 (Alternative Assumptions that Assume a Decreasing Active Membership)
KERS Non-Hazardous Retirement Fund
Comparison of Fiscal Impact
(\$ in Millions)

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Employer Contribution			Employer Contribution Rate		
	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2017	\$ 13,468	\$ 13,468	\$ -	14%	14%	0%	\$ 629	\$ 629	\$ 0	41.1%	41.1%	0.0%
2018	13,590	13,590	-	13%	13%	0%	1,085	627	(458)	71.0%	41.1%	-30.0%
2019	13,364	13,834	470	15%	12%	-3%	1,084	627	(457)	71.0%	41.1%	-30.0%
2020	13,089	14,054	965	16%	10%	-6%	1,081	1,153	72	70.9%	75.6%	4.7%
2021	12,763	13,703	940	18%	12%	-6%	1,081	1,153	72	70.9%	75.6%	4.7%
2022	12,433	13,349	916	20%	14%	-6%	1,071	1,143	72	70.3%	74.9%	4.7%
2023	12,092	12,983	891	22%	16%	-6%	1,071	1,142	71	70.3%	74.9%	4.7%
2024	11,729	12,594	865	24%	18%	-6%	1,063	1,134	71	69.7%	74.4%	4.7%
2025	11,351	12,188	837	26%	20%	-6%	1,063	1,134	71	69.7%	74.4%	4.7%
2026	10,950	11,758	808	28%	23%	-5%	1,054	1,126	72	69.1%	73.8%	4.7%
2027	10,532	11,310	778	30%	25%	-5%	1,054	1,125	71	69.1%	73.8%	4.7%
2028	10,089	10,835	746	32%	27%	-5%	1,045	1,116	71	68.6%	73.3%	4.7%
2029	9,628	10,340	712	35%	30%	-5%	1,045	1,116	71	68.6%	73.3%	4.7%
2030	9,140	9,815	675	37%	33%	-4%	1,037	1,109	72	68.1%	72.8%	4.7%
2031	8,630	9,268	638	40%	36%	-4%	1,038	1,110	72	68.1%	72.8%	4.7%
2032	8,089	8,688	599	43%	39%	-4%	1,031	1,102	71	67.6%	72.2%	4.7%
2033	7,525	8,081	556	46%	42%	-4%	1,032	1,103	71	67.6%	72.2%	4.7%
2034	6,927	7,439	512	49%	46%	-3%	1,023	1,094	71	66.9%	71.6%	4.7%
2035	6,302	6,768	466	53%	50%	-3%	1,025	1,096	71	66.9%	71.6%	4.7%
2036	5,641	6,059	418	57%	54%	-3%	1,019	1,090	71	66.3%	71.0%	4.6%
2037	4,951	5,317	366	62%	59%	-3%	1,023	1,095	72	66.3%	71.0%	4.6%
2038	4,217	4,529	312	67%	64%	-3%	1,014	1,085	71	65.4%	70.0%	4.6%
2039	3,453	3,709	256	72%	70%	-2%	1,019	1,091	72	65.4%	70.0%	4.6%
2040	2,643	2,839	196	78%	77%	-1%	1,005	1,076	71	64.2%	68.7%	4.5%
2041	1,803	1,936	133	85%	84%	-1%	1,010	1,081	71	64.2%	68.7%	4.5%
2042	914	981	67	92%	92%	0%	988	1,057	69	62.5%	66.9%	4.4%
2043	-	-	-	100%	100%	0%	46	46	-	2.9%	2.9%	0.0%
2044	-	-	-	100%	100%	0%	46	46	-	2.9%	2.9%	0.0%
2045	-	-	-	100%	100%	0%	46	46	-	2.9%	2.9%	0.0%
2046	-	-	-	100%	100%	0%	45	45	-	2.8%	2.8%	0.0%
2047	-	-	-	100%	100%	0%	45	45	-	2.8%	2.8%	0.0%
2048	-	-	-	100%	100%	0%	45	45	-	2.8%	2.8%	0.0%
2049	-	-	-	100%	100%	0%	45	45	-	2.8%	2.8%	0.0%
2050	-	-	-	100%	100%	0%	45	45	-	2.8%	2.8%	0.0%
2051	-	-	-	100%	100%	0%	45	45	-	2.8%	2.8%	0.0%

Notes and assumptions:

The active membership population count is assumed to decrease by 2% per year each future year.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 4-2 (Alternative Assumptions that Assume a Decreasing Active Membership)
KERS Non-Hazardous Insurance Fund
Summary of Fiscal Impact
(\$ in Millions)

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Employer Contribution			Employer Contribution Rate		
	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2017	\$ 1,859	\$ 1,859	\$ -	31%	31%	0%	\$ 128	\$ 128	\$ 0	8.4%	8.4%	0.0%
2018	1,886	1,886	-	32%	32%	0%	188	128	(60)	12.4%	8.4%	-4.0%
2019	1,864	1,926	62	34%	32%	-2%	188	128	(60)	12.4%	8.4%	-4.0%
2020	1,828	1,957	129	37%	33%	-4%	185	196	11	12.2%	12.9%	0.7%
2021	1,781	1,907	126	40%	36%	-4%	185	195	10	12.2%	12.9%	0.7%
2022	1,737	1,860	123	43%	39%	-4%	180	191	11	11.9%	12.6%	0.7%
2023	1,693	1,813	120	45%	41%	-4%	180	191	11	11.9%	12.6%	0.7%
2024	1,646	1,763	117	47%	44%	-3%	176	187	11	11.6%	12.3%	0.7%
2025	1,597	1,711	114	49%	46%	-3%	176	187	11	11.6%	12.3%	0.7%
2026	1,543	1,652	109	52%	48%	-4%	172	182	10	11.4%	12.0%	0.7%
2027	1,489	1,594	105	54%	50%	-4%	172	182	10	11.4%	12.0%	0.7%
2028	1,428	1,530	102	56%	53%	-3%	167	178	11	11.1%	11.7%	0.7%
2029	1,366	1,464	98	58%	55%	-3%	167	178	11	11.1%	11.7%	0.7%
2030	1,299	1,392	93	60%	57%	-3%	163	173	10	10.8%	11.4%	0.7%
2031	1,231	1,319	88	62%	59%	-3%	163	173	10	10.8%	11.4%	0.7%
2032	1,156	1,239	83	64%	61%	-3%	159	169	10	10.5%	11.2%	0.7%
2033	1,079	1,156	77	66%	63%	-3%	159	170	11	10.5%	11.2%	0.7%
2034	996	1,067	71	68%	66%	-2%	156	166	10	10.3%	11.0%	0.7%
2035	910	975	65	71%	68%	-3%	156	167	11	10.3%	11.0%	0.7%
2036	817	876	59	73%	71%	-2%	154	165	11	10.1%	10.8%	0.7%
2037	720	772	52	76%	74%	-2%	155	165	10	10.1%	10.8%	0.7%
2038	616	659	43	79%	78%	-1%	153	163	10	9.9%	10.6%	0.7%
2039	506	542	36	83%	82%	-1%	154	164	10	9.9%	10.6%	0.7%
2040	389	417	28	87%	86%	-1%	151	161	10	9.7%	10.4%	0.7%
2041	267	286	19	91%	90%	-1%	152	162	10	9.7%	10.4%	0.7%
2042	136	146	10	95%	95%	0%	149	159	10	9.5%	10.1%	0.6%
2043	-	-	-	100%	100%	0%	8	8	-	0.5%	0.5%	0.0%
2044	-	-	-	100%	100%	0%	8	8	-	0.5%	0.5%	0.0%
2045	-	-	-	100%	100%	0%	8	8	-	0.5%	0.5%	0.0%
2046	-	-	-	100%	100%	0%	8	8	-	0.5%	0.5%	0.0%
2047	-	-	-	100%	100%	0%	8	8	-	0.5%	0.5%	0.0%
2048	-	-	-	100%	100%	0%	8	8	-	0.5%	0.5%	0.0%
2049	-	-	-	100%	100%	0%	7	7	-	0.4%	0.4%	0.0%
2050	-	-	-	100%	100%	0%	7	7	-	0.4%	0.4%	0.0%
2051	-	-	-	100%	100%	0%	6	6	-	0.4%	0.4%	0.0%

Notes and assumptions:

The active membership population count is assumed to decrease by 2% per year each future year.

Kentucky Retirement Systems
Exhibit 4-3 (Alternative Assumptions that Assume a Decreasing Active Membership)
KERS Non-Hazardous Retirement Fund
Current Plan
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 15,592	\$ 2,124	\$ 13,468	14%	\$ 629	\$ 77	\$ 1,532	41.06%	41.98%
2018	15,628	2,038	13,590	13%	1,085	76	1,528	71.03%	71.03%
2019	15,642	2,278	13,364	15%	1,084	76	1,526	71.03%	70.87%
2020	15,635	2,546	13,089	16%	1,081	76	1,526	70.85%	70.85%
2021	15,610	2,847	12,763	18%	1,081	76	1,526	70.85%	70.65%
2022	15,566	3,133	12,433	20%	1,071	76	1,525	70.27%	70.27%
2023	15,503	3,411	12,092	22%	1,071	76	1,525	70.27%	70.00%
2024	15,421	3,692	11,729	24%	1,063	76	1,525	69.71%	69.71%
2025	15,321	3,970	11,351	26%	1,063	76	1,525	69.71%	69.45%
2026	15,204	4,254	10,950	28%	1,054	76	1,525	69.14%	69.14%
2027	15,068	4,536	10,532	30%	1,054	76	1,525	69.14%	68.87%
2028	14,922	4,833	10,089	32%	1,045	76	1,524	68.60%	68.60%
2029	14,757	5,129	9,628	35%	1,045	76	1,523	68.60%	68.36%
2030	14,574	5,434	9,140	37%	1,037	76	1,523	68.11%	68.11%
2031	14,375	5,745	8,630	40%	1,038	76	1,525	68.11%	67.87%
2032	14,163	6,074	8,089	43%	1,031	76	1,526	67.55%	67.55%
2033	13,937	6,412	7,525	46%	1,032	76	1,528	67.55%	67.27%
2034	13,699	6,772	6,927	49%	1,023	76	1,529	66.93%	66.93%
2035	13,447	7,145	6,302	53%	1,025	77	1,531	66.93%	66.66%
2036	13,187	7,546	5,641	57%	1,019	77	1,536	66.32%	66.32%
2037	12,924	7,973	4,951	62%	1,023	77	1,543	66.32%	65.92%
2038	12,661	8,444	4,217	67%	1,014	78	1,551	65.36%	65.36%
2039	12,401	8,948	3,453	72%	1,019	78	1,559	65.36%	64.85%
2040	12,146	9,503	2,643	78%	1,005	78	1,567	64.15%	64.15%
2041	11,896	10,093	1,803	85%	1,010	79	1,574	64.15%	63.65%
2042	11,652	10,738	914	92%	988	79	1,580	62.54%	62.54%
2043	11,414	11,414	-	100%	46	79	1,585	2.93%	2.93%
2044	11,182	11,182	-	100%	46	79	1,589	2.89%	2.89%
2045	10,956	10,956	-	100%	46	80	1,593	2.86%	2.86%
2046	10,737	10,737	-	100%	45	80	1,596	2.84%	2.84%
2047	10,524	10,524	-	100%	45	80	1,600	2.82%	2.82%
2048	10,318	10,318	-	100%	45	80	1,603	2.80%	2.80%
2049	10,120	10,120	-	100%	45	80	1,606	2.79%	2.79%
2050	9,931	9,931	-	100%	45	80	1,609	2.79%	2.79%
2051	9,750	9,750	-	100%	45	81	1,611	2.78%	2.78%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation. The active membership population count is assumed to decrease by 2% per year each future year.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

The employer contribution amount shown does not include the \$87 million additional contribution budgeted to be paid in fiscal year beginning 2017.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 4-4 (Alternative Assumptions that Assume a Decreasing Active Membership)
KERS Non-Hazardous Retirement Fund
Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 15,592	\$ 2,124	\$ 13,468	14%	\$ 629	\$ 77	\$ 1,532	41.06%	41.98%
2018	15,628	2,038	13,590	13%	627	76	1,528	41.06%	71.03%
2019	15,642	1,808	13,834	12%	627	76	1,526	41.06%	73.15%
2020	15,635	1,581	14,054	10%	1,153	76	1,526	75.59%	75.59%
2021	15,610	1,907	13,703	12%	1,153	76	1,526	75.59%	75.32%
2022	15,566	2,217	13,349	14%	1,143	76	1,525	74.93%	74.93%
2023	15,503	2,520	12,983	16%	1,142	76	1,525	74.93%	74.67%
2024	15,421	2,827	12,594	18%	1,134	76	1,525	74.38%	74.38%
2025	15,321	3,133	12,188	20%	1,134	76	1,525	74.38%	74.11%
2026	15,204	3,446	11,758	23%	1,126	76	1,525	73.80%	73.80%
2027	15,068	3,758	11,310	25%	1,125	76	1,525	73.80%	73.53%
2028	14,922	4,087	10,835	27%	1,116	76	1,524	73.27%	73.27%
2029	14,757	4,417	10,340	30%	1,116	76	1,523	73.27%	73.03%
2030	14,574	4,759	9,815	33%	1,109	76	1,523	72.78%	72.78%
2031	14,375	5,107	9,268	36%	1,110	76	1,525	72.78%	72.54%
2032	14,163	5,475	8,688	39%	1,102	76	1,526	72.22%	72.22%
2033	13,937	5,856	8,081	42%	1,103	76	1,528	72.22%	71.93%
2034	13,699	6,260	7,439	46%	1,094	76	1,529	71.59%	71.59%
2035	13,447	6,679	6,768	50%	1,096	77	1,531	71.59%	71.31%
2036	13,187	7,128	6,059	54%	1,090	77	1,536	70.96%	70.96%
2037	12,924	7,607	5,317	59%	1,095	77	1,543	70.96%	70.54%
2038	12,661	8,132	4,529	64%	1,085	78	1,551	69.95%	69.95%
2039	12,401	8,692	3,709	70%	1,091	78	1,559	69.95%	69.41%
2040	12,146	9,307	2,839	77%	1,076	78	1,567	68.67%	68.67%
2041	11,896	9,960	1,936	84%	1,081	79	1,574	68.67%	68.13%
2042	11,652	10,671	981	92%	1,057	79	1,580	66.93%	66.93%
2043	11,414	11,414	-	100%	46	79	1,585	2.93%	2.93%
2044	11,182	11,182	-	100%	46	79	1,589	2.89%	2.89%
2045	10,956	10,956	-	100%	46	80	1,593	2.86%	2.86%
2046	10,737	10,737	-	100%	45	80	1,596	2.84%	2.84%
2047	10,524	10,524	-	100%	45	80	1,600	2.82%	2.82%
2048	10,318	10,318	-	100%	45	80	1,603	2.80%	2.80%
2049	10,120	10,120	-	100%	45	80	1,606	2.79%	2.79%
2050	9,931	9,931	-	100%	45	80	1,609	2.79%	2.79%
2051	9,750	9,750	-	100%	45	81	1,611	2.78%	2.78%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation. The active membership population count is assumed to decrease by 2% per year each future year.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

The employer contribution amount shown does not include the \$87 million additional contribution budgeted to be paid in fiscal year beginning 2017.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 4-5 (Alternative Assumptions that Assume a Decreasing Active Membership)
KERS Non-Hazardous Insurance Fund
Current Plan
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 2,683	\$ 824	\$ 1,859	31%	\$ 128	\$ 5	\$ 1,524	8.41%	8.41%
2018	2,760	874	1,886	32%	188	6	1,518	12.40%	12.40%
2019	2,836	972	1,864	34%	188	7	1,516	12.40%	12.28%
2020	2,905	1,077	1,828	37%	185	7	1,516	12.21%	12.21%
2021	2,969	1,188	1,781	40%	185	8	1,515	12.21%	12.09%
2022	3,026	1,289	1,737	43%	180	8	1,514	11.90%	11.90%
2023	3,077	1,384	1,693	45%	180	9	1,514	11.90%	11.77%
2024	3,122	1,476	1,646	47%	176	9	1,514	11.63%	11.63%
2025	3,159	1,562	1,597	49%	176	10	1,514	11.63%	11.50%
2026	3,188	1,645	1,543	52%	172	10	1,514	11.35%	11.35%
2027	3,210	1,721	1,489	54%	172	11	1,514	11.35%	11.21%
2028	3,222	1,794	1,428	56%	167	11	1,513	11.05%	11.05%
2029	3,224	1,858	1,366	58%	167	12	1,512	11.05%	10.91%
2030	3,217	1,918	1,299	60%	163	12	1,512	10.76%	10.76%
2031	3,202	1,971	1,231	62%	163	13	1,514	10.76%	10.63%
2032	3,180	2,024	1,156	64%	159	13	1,515	10.49%	10.49%
2033	3,153	2,074	1,079	66%	159	13	1,517	10.49%	10.39%
2034	3,122	2,126	996	68%	156	14	1,518	10.28%	10.28%
2035	3,087	2,177	910	71%	156	14	1,520	10.28%	10.21%
2036	3,051	2,234	817	73%	154	15	1,525	10.12%	10.12%
2037	3,015	2,295	720	76%	155	15	1,532	10.12%	10.03%
2038	2,980	2,364	616	79%	153	15	1,540	9.93%	9.93%
2039	2,947	2,441	506	83%	154	15	1,548	9.93%	9.84%
2040	2,917	2,528	389	87%	151	15	1,556	9.73%	9.73%
2041	2,890	2,623	267	91%	152	15	1,562	9.73%	9.65%
2042	2,866	2,730	136	95%	149	16	1,568	9.51%	9.51%
2043	2,846	2,846	-	100%	8	16	1,573	0.49%	0.49%
2044	2,829	2,829	-	100%	8	16	1,578	0.49%	0.49%
2045	2,814	2,814	-	100%	8	16	1,582	0.48%	0.48%
2046	2,800	2,800	-	100%	8	16	1,585	0.48%	0.48%
2047	2,787	2,787	-	100%	8	16	1,588	0.48%	0.48%
2048	2,773	2,773	-	100%	8	16	1,591	0.48%	0.48%
2049	2,759	2,759	-	100%	7	16	1,594	0.42%	0.42%
2050	2,743	2,743	-	100%	7	16	1,597	0.41%	0.41%
2051	2,725	2,725	-	100%	6	16	1,600	0.40%	0.40%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation. The active membership population count is assumed to decrease by 2% per year each future year.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

Gabriel Roeder Smith & Company

Kentucky Retirement Systems
Exhibit 4-6 (Alternative Assumptions that Assume a Decreasing Active Membership)
KERS Non-Hazardous Insurance Fund
Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2017	\$ 2,683	\$ 824	\$ 1,859	31%	\$ 128	\$ 5	\$ 1,524	8.41%	8.41%
2018	2,760	874	1,886	32%	128	6	1,518	8.41%	12.40%
2019	2,836	910	1,926	32%	128	7	1,516	8.41%	12.61%
2020	2,905	948	1,957	33%	196	7	1,516	12.90%	12.90%
2021	2,969	1,062	1,907	36%	195	8	1,515	12.90%	12.77%
2022	3,026	1,166	1,860	39%	191	8	1,514	12.59%	12.59%
2023	3,077	1,264	1,813	41%	191	9	1,514	12.59%	12.45%
2024	3,122	1,359	1,763	44%	187	9	1,514	12.32%	12.32%
2025	3,159	1,448	1,711	46%	187	10	1,514	12.32%	12.18%
2026	3,188	1,536	1,652	48%	182	10	1,514	12.03%	12.03%
2027	3,210	1,616	1,594	50%	182	11	1,514	12.03%	11.90%
2028	3,222	1,692	1,530	53%	178	11	1,513	11.74%	11.74%
2029	3,224	1,760	1,464	55%	178	12	1,512	11.74%	11.59%
2030	3,217	1,825	1,392	57%	173	12	1,512	11.44%	11.44%
2031	3,202	1,883	1,319	59%	173	13	1,514	11.44%	11.31%
2032	3,180	1,941	1,239	61%	169	13	1,515	11.18%	11.18%
2033	3,153	1,997	1,156	63%	170	13	1,517	11.18%	11.07%
2034	3,122	2,055	1,067	66%	166	14	1,518	10.96%	10.96%
2035	3,087	2,112	975	68%	167	14	1,520	10.96%	10.89%
2036	3,051	2,175	876	71%	165	15	1,525	10.80%	10.80%
2037	3,015	2,243	772	74%	165	15	1,532	10.80%	10.70%
2038	2,980	2,321	659	78%	163	15	1,540	10.60%	10.60%
2039	2,947	2,405	542	82%	164	15	1,548	10.60%	10.50%
2040	2,917	2,500	417	86%	161	15	1,556	10.38%	10.38%
2041	2,890	2,604	286	90%	162	15	1,562	10.38%	10.30%
2042	2,866	2,720	146	95%	159	16	1,568	10.14%	10.14%
2043	2,846	2,846	-	100%	8	16	1,573	0.49%	0.49%
2044	2,829	2,829	-	100%	8	16	1,578	0.49%	0.49%
2045	2,814	2,814	-	100%	8	16	1,582	0.48%	0.48%
2046	2,800	2,800	-	100%	8	16	1,585	0.48%	0.48%
2047	2,787	2,787	-	100%	8	16	1,588	0.48%	0.48%
2048	2,773	2,773	-	100%	8	16	1,591	0.48%	0.48%
2049	2,759	2,759	-	100%	7	16	1,594	0.42%	0.42%
2050	2,743	2,743	-	100%	7	16	1,597	0.41%	0.41%
2051	2,725	2,725	-	100%	6	16	1,600	0.40%	0.40%

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation. The active membership population count is assumed to decrease by 2% per year each future year.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

Gabriel Roeder Smith & Company