



July 22, 2019

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

**Re: Actuarial Analysis of Proposed Pension Reform Legislation HB 3 and its Financial Impact on the Kentucky Retirement Systems**

**19 SS HB 3  
AA Statement 1 of 1**

Dear Mr. Eager:

We have reviewed the proposed changes in the proposed pension reform legislation HB 3. The purpose of this letter is to communicate the fiscal analysis of the draft legislation on the KERS Non-Hazardous retirement and insurance funds.

### **Provisions of Proposed Legislation**

In summary, this proposed legislation would provide that the contribution rate for certain quasi-governmental agencies (e.g. Mental Health, Health Districts, Non P1 agencies, and universities) will be 49.47% (41.06% retirement and 8.41% insurance) of pay for the fiscal year 2019/2020. This proposed legislation would be another one-year extension of contribution relief for these quasi-governmental agencies.

### **Summary of Cost Impact**

HB 265, enacted in the 2018 legislation session, provided this contribution rate relief for fiscal year 2018/2019. The cost impact of this provision in HB 265, was \$135 million for fiscal year 2018/2019. If HB 3 is enacted, the KERS non-hazardous systems will receive \$121 million less in contributions than expected from these entities in fiscal year 2019/2020. The dollar amount of the impact is projected to be smaller for fiscal year 2019/2020 because the covered payroll of these entities has decreased from the prior year.

If the \$121 million is not appropriated by other sources in fiscal year 2019/2020, then this one-year extension of the contribution relief to the quasi agencies will increase the actuarially determined contribution rate by approximately 0.6% of pay beginning with the fiscal year 2020/2021 and remain in effect for the duration of the 23 year amortization period.

## **Discussion of Scenarios Provided in Attached Exhibits**

If this legislation is enacted, we believe there will be similar type legislation that will provide continual fiscal relief to quasi agencies. Therefore, we have prepared the projection information assuming that these entities will continue to receive the same contribution rate relief each future year. The purpose of the projection information is to provide stakeholders an understanding of the long-term fiscal impact of this likely substantive pattern.

The attached exhibits provide a projection of the financial status of the system under two scenarios:

1. Active membership remains constant, which results in approximately 2% annual payroll increases over the 30-year projection. This represents experience that is more favorable than the current 0% payroll growth assumption and the experience in recent years. As shown in the exhibits, the actuarially determined contribution rate decreases as a percentage of payroll as payroll increases.
2. Active membership decreases by 2% each year, which results in relatively constant payroll over the 30-year projection. This represents experience that approximately aligns with the current 0% payroll growth assumption. As shown in the exhibits, the actuarially determined contribution rate remains relatively constant as a percentage of covered payroll, and the dollar contribution amounts required to pay for the unfunded liability remain the same as the first scenario.

Both scenarios are consistent with the assumptions used in prior actuarial and fiscal analysis of the System. The use of different payroll growth scenarios provides the stakeholders with an idea of the sensitivity of the future costs due to varying demographic experience.

## **Basis of Calculations**

GRS based the calculations and analysis in this letter on the member and financial data provided by KRS for use in performing the actuarial valuation as of June 30, 2018. These projections do not reflect the actual investment experience of the retirement system after the measurement date of June 30, 2018. 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, 2018 experience study report (recently adopted by the Board). Further, the quasi agencies affected by this bill reflected approximately 25% of the covered payroll of the KERS Non-Hazardous system at the June 30, 2018 valuation. The projections assume that the quasi agencies will continue to reflect the same percentage of covered payroll for future years.

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.

## Closing

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.

Mr. White is an Enrolled Actuary. Both of the undersigned are 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.

Sincerely,



Daniel J. White, FSA, MAAA, EA



Janie Shaw, ASA, MAAA

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Enclosures

**HB 3**

**Section 1.**

**Comparison of Fiscal Impact  
Current Plan vs. Proposed Changes**

**Kentucky Retirement Systems**  
**KERS Non-Hazardous Retirement Fund**  
**Actuarial Analysis of HB 3: Comparison of Current Plan and Proposed Legislation**  
**Exhibit 1-1**  
**(\$ in Millions)**

**Modeled Contribution Provisions: Quasi Employers Pay 49.47% & Non-Quasi Employers Pay the Remaining ADEC**  
**Valuation Assumptions: Recently Adopted Experience Study Assumptions (5.25% discount rate and 0% amortization payroll growth)**

**Projected Experience Scenario #1: Active Headcount Remains Constant (resulting in 2% payroll growth, which is more favorable than valuation assumptions)**  
**& Assets Earn 5.25% Annually (which aligns with valuation assumptions)**

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Quasi Employer Contribution			Non-Quasi Employer Contribution			Total Employer Contributions		
	Current	Proposed	Difference	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)	(14)	(15)	(16)
2018	\$ 13,656	\$ 13,656	\$ -	13%	13%	0%	41.06%	41.06%	0.00%	71.03%	71.03%	0.00%	\$ 940	\$ 940	\$ -
2019	14,269	14,269	-	13%	13%	0%	71.03%	41.06%	-29.97%	71.03%	71.03%	0.00%	1,049	942	(107)
2020	14,068	14,177	109	14%	14%	0%	78.11%	41.06%	-37.05%	78.11%	90.49%	12.38%	1,166	1,175	9
2021	13,696	13,802	106	16%	16%	0%	78.11%	41.06%	-37.05%	78.11%	90.49%	12.38%	1,180	1,189	9
2022	13,306	13,408	102	19%	18%	-1%	75.55%	41.06%	-34.49%	75.55%	87.09%	11.54%	1,157	1,165	8
2023	12,926	13,025	99	21%	20%	-1%	75.55%	41.06%	-34.49%	75.55%	87.09%	11.54%	1,174	1,182	8
2024	12,506	12,602	96	23%	23%	0%	72.81%	41.06%	-31.75%	72.81%	83.46%	10.65%	1,149	1,157	8
2025	12,088	12,181	93	26%	25%	-1%	72.81%	41.06%	-31.75%	72.81%	83.46%	10.65%	1,168	1,176	8
2026	11,626	11,716	90	28%	27%	-1%	69.96%	41.06%	-28.90%	69.96%	79.69%	9.73%	1,141	1,149	8
2027	11,166	11,253	87	30%	30%	0%	69.96%	41.06%	-28.90%	69.96%	79.69%	9.73%	1,160	1,169	9
2028	10,661	10,743	82	33%	33%	0%	67.06%	41.06%	-26.00%	67.06%	75.87%	8.81%	1,132	1,140	8
2029	10,156	10,234	78	36%	35%	-1%	67.06%	41.06%	-26.00%	67.06%	75.87%	8.81%	1,153	1,161	8
2030	9,602	9,676	74	39%	38%	-1%	64.14%	41.44%	-22.70%	64.14%	71.88%	7.74%	1,124	1,132	8
2031	9,048	9,118	70	42%	41%	-1%	64.14%	41.44%	-22.70%	64.14%	71.88%	7.74%	1,147	1,155	8
2032	8,440	8,505	65	45%	45%	0%	61.14%	41.96%	-19.18%	61.14%	67.74%	6.60%	1,116	1,124	8
2033	7,833	7,893	60	49%	48%	-1%	61.14%	41.96%	-19.18%	61.14%	67.74%	6.60%	1,139	1,147	8
2034	7,169	7,225	56	52%	52%	0%	58.09%	42.46%	-15.63%	58.09%	63.54%	5.45%	1,106	1,114	8
2035	6,504	6,554	50	56%	56%	0%	58.09%	42.46%	-15.63%	58.09%	63.54%	5.45%	1,131	1,139	8
2036	5,780	5,824	44	61%	60%	-1%	55.01%	42.92%	-12.09%	55.01%	59.32%	4.31%	1,096	1,104	8
2037	5,054	5,093	39	65%	65%	0%	55.01%	42.92%	-12.09%	55.01%	59.32%	4.31%	1,123	1,131	8
2038	4,263	4,296	33	70%	70%	0%	51.75%	43.38%	-8.37%	51.75%	54.87%	3.12%	1,082	1,090	8
2039	3,474	3,501	27	76%	75%	-1%	51.75%	43.38%	-8.37%	51.75%	54.87%	3.12%	1,109	1,117	8
2040	2,617	2,637	20	81%	81%	0%	48.19%	43.85%	-4.34%	48.19%	49.99%	1.80%	1,059	1,066	7
2041	1,770	1,783	13	87%	87%	0%	48.19%	43.85%	-4.34%	48.19%	49.99%	1.80%	1,084	1,092	8
2042	853	860	7	94%	94%	0%	42.87%	43.17%	0.30%	42.87%	43.17%	0.30%	988	995	7
2043	-	-	-	100%	100%	0%	4.26%	4.26%	0.00%	4.26%	4.26%	0.00%	101	101	-
2044	-	-	-	100%	100%	0%	4.23%	4.23%	0.00%	4.23%	4.23%	0.00%	102	102	-
2045	-	-	-	100%	100%	0%	4.21%	4.21%	0.00%	4.21%	4.21%	0.00%	104	104	-
2046	-	-	-	100%	100%	0%	4.19%	4.19%	0.00%	4.19%	4.19%	0.00%	106	106	-
2047	-	-	-	100%	100%	0%	4.17%	4.17%	0.00%	4.17%	4.17%	0.00%	108	108	-

HB 265 provided that Regional Mental Health/Mental Retardation Boards, Local and District Health Departments, State Universities, and Community Colleges ("Quasi" agencies) were to contribute a 49.47% of pay for FY 2018/2019. The proposed legislation extends this contribution rate relief one additional year so that the contribution rate for Quasi agencies is also equal to 49.47% for FY 2019/2020.

**We believe this constitutes a pattern of allowing these agencies to contribute less than the actuarially determined rate so the above projections assume that these entities will continue to pay a contribution rate of 49.47% for the entire projection and the non-Quasi agencies' contribution rates have been adjusted so that the System receives the contributions necessary to pay off the unfunded liability by 2043 (per the System's current funding policy).**

**Gabriel Roeder Smith & Company**

**Kentucky Retirement Systems**  
**KERS Non-Hazardous Insurance Fund**  
**Actuarial Analysis of HB 3: Comparison of Current Plan and Proposed Legislation**  
**Exhibit 1-2**  
**(\$ in Millions)**

**Modeled Contribution Provisions: Quasi Employers Pay 49.47% & Non-Quasi Employers Pay the Remaining ADEC**  
**Valuation Assumptions: Recently Adopted Experience Study Assumptions (6.25% discount rate and 0% amortization payroll growth)**

**Projected Experience Scenario #1: Active Headcount Remains Constant (resulting in 2% payroll growth, which is more favorable than valuation assumptions)**  
**& Assets Earn 6.25% Annually (which aligns with valuation assumptions)**

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Quasi Employer Contribution			Non-Quasi Employer Contribution			Total Employer Contributions		
	Current	Proposed	Difference	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)	(14)	(15)	(16)
2018	\$ 1,549	\$ 1,549	\$ -	36%	36%	0%	8.41%	8.41%	0.00%	12.40%	12.40%	0.00%	\$ 167	\$ 167	\$ -
2019	1,633	1,633	-	37%	37%	0%	12.40%	8.41%	-3.99%	12.40%	12.40%	0.00%	182	168	(14)
2020	1,581	1,595	14	41%	40%	-1%	10.90%	8.41%	-2.49%	10.90%	11.80%	0.90%	162	163	1
2021	1,533	1,547	14	44%	44%	0%	10.90%	8.41%	-2.49%	10.90%	11.80%	0.90%	164	166	2
2022	1,487	1,500	13	47%	46%	-1%	10.31%	8.41%	-1.90%	10.31%	11.01%	0.70%	158	159	1
2023	1,446	1,459	13	49%	49%	0%	10.31%	8.41%	-1.90%	10.31%	11.01%	0.70%	160	161	1
2024	1,399	1,412	13	52%	51%	-1%	9.72%	8.41%	-1.31%	9.72%	10.22%	0.50%	153	154	1
2025	1,354	1,366	12	54%	54%	0%	9.72%	8.41%	-1.31%	9.72%	10.22%	0.50%	156	157	1
2026	1,302	1,314	12	56%	56%	0%	9.13%	8.41%	-0.72%	9.13%	9.45%	0.32%	149	150	1
2027	1,253	1,265	12	58%	58%	0%	9.13%	8.41%	-0.72%	9.13%	9.45%	0.32%	152	153	1
2028	1,196	1,207	11	60%	60%	0%	8.55%	8.41%	-0.14%	8.55%	8.67%	0.12%	145	146	1
2029	1,141	1,152	11	62%	62%	0%	8.55%	8.41%	-0.14%	8.55%	8.67%	0.12%	147	148	1
2030	1,078	1,088	10	65%	64%	-1%	7.97%	8.03%	0.06%	7.97%	8.03%	0.06%	140	141	1
2031	1,018	1,028	10	67%	66%	-1%	7.97%	8.03%	0.06%	7.97%	8.03%	0.06%	143	144	1
2032	949	958	9	69%	68%	-1%	7.45%	7.51%	0.06%	7.45%	7.51%	0.06%	136	137	1
2033	883	892	9	71%	71%	0%	7.45%	7.51%	0.06%	7.45%	7.51%	0.06%	139	140	1
2034	808	816	8	73%	73%	0%	6.95%	7.01%	0.06%	6.95%	7.01%	0.06%	133	134	1
2035	735	742	7	76%	75%	-1%	6.95%	7.01%	0.06%	6.95%	7.01%	0.06%	136	137	1
2036	653	660	7	78%	78%	0%	6.49%	6.55%	0.06%	6.49%	6.55%	0.06%	130	131	1
2037	573	579	6	81%	81%	0%	6.49%	6.55%	0.06%	6.49%	6.55%	0.06%	133	134	1
2038	484	489	5	84%	84%	0%	6.04%	6.09%	0.05%	6.04%	6.09%	0.05%	127	128	1
2039	395	399	4	87%	87%	0%	6.04%	6.09%	0.05%	6.04%	6.09%	0.05%	130	131	1
2040	297	301	4	90%	90%	0%	5.57%	5.62%	0.05%	5.57%	5.62%	0.05%	123	124	1
2041	202	204	2	93%	93%	0%	5.57%	5.62%	0.05%	5.57%	5.62%	0.05%	126	127	1
2042	95	97	2	97%	97%	0%	4.84%	4.90%	0.06%	4.84%	4.90%	0.06%	112	113	1
2043	-	-	-	100%	100%	0%	0.48%	0.48%	0.00%	0.48%	0.48%	0.00%	11	11	-
2044	-	-	-	100%	100%	0%	0.46%	0.46%	0.00%	0.46%	0.46%	0.00%	11	11	-
2045	-	-	-	100%	100%	0%	0.45%	0.45%	0.00%	0.45%	0.45%	0.00%	11	11	-
2046	-	-	-	100%	100%	0%	0.44%	0.44%	0.00%	0.44%	0.44%	0.00%	11	11	-
2047	-	-	-	100%	100%	0%	0.43%	0.43%	0.00%	0.43%	0.43%	0.00%	11	11	-

HB 265 provided that Regional Mental Health/Mental Retardation Boards, Local and District Health Departments, State Universities, and Community Colleges ("Quasi" agencies) were to contribute a 49.47% of pay for FY 2018/2019. The proposed legislation extends this contribution rate relief one additional year so that the contribution rate for Quasi agencies is also equal to 49.47% for FY 2019/2020.

**We believe this constitutes a pattern of allowing these agencies to contribute less than the actuarially determined rate so the above projections assume that these entities will continue to pay a contribution rate of 49.47% for the entire projection and the non-Quasi agencies' contribution rates have been adjusted so that the System receives the contributions necessary to pay off the unfunded liability by 2043 (per the System's current funding policy).**

**Gabriel Roeder Smith & Company**

**Kentucky Retirement Systems**  
**KERS Non-Hazardous Retirement Fund**  
**Actuarial Analysis of HB 3: Comparison of Current Plan and Proposed Legislation**  
**Exhibit 1-3**  
**(\$ in Millions)**

**Modeled Contribution Provisions: Quasi Employers Pay 49.47% & Non-Quasi Employers Pay the Remaining ADEC**  
**Valuation Assumptions: Recently Adopted Experience Study Assumptions (5.25% discount rate and 0% amortization payroll growth)**

**Projected Experience Scenario #2: Active Headcount Decreases by 2% Each Year (resulting in 0% payroll growth, which aligns with valuation assumptions)**  
**& Assets Earn 5.25% Annually (which aligns with valuation assumptions)**

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Quasi Employer Contribution			Non-Quasi Employer Contribution			Total Employer Contributions		
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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
2018	\$ 13,656	\$ 13,656	\$ -	13%	13%	0%	41.06%	41.06%	0.00%	71.03%	71.03%	0.00%	\$ 940	\$ 940	\$ -
2019	14,268	14,268	-	13%	13%	0%	71.03%	41.06%	-29.97%	71.03%	71.03%	0.00%	1,035	930	(105)
2020	14,081	14,188	107	14%	13%	-1%	79.22%	41.06%	-38.16%	79.22%	91.95%	12.73%	1,148	1,156	8
2021	13,725	13,830	105	16%	16%	0%	79.22%	41.06%	-38.16%	79.22%	91.95%	12.73%	1,144	1,152	8
2022	13,371	13,473	102	18%	18%	0%	79.27%	41.06%	-38.21%	79.27%	92.01%	12.74%	1,140	1,148	8
2023	13,007	13,106	99	20%	20%	0%	79.27%	41.06%	-38.21%	79.27%	92.01%	12.74%	1,136	1,144	8
2024	12,623	12,719	96	22%	22%	0%	79.27%	41.06%	-38.21%	79.27%	92.01%	12.74%	1,133	1,141	8
2025	12,221	12,314	93	24%	24%	0%	79.27%	41.06%	-38.21%	79.27%	92.01%	12.74%	1,131	1,138	7
2026	11,795	11,885	90	27%	26%	-1%	79.20%	41.06%	-38.14%	79.20%	91.93%	12.73%	1,127	1,135	8
2027	11,348	11,434	86	29%	28%	-1%	79.20%	41.06%	-38.14%	79.20%	91.93%	12.73%	1,124	1,132	8
2028	10,877	10,960	83	31%	31%	0%	79.13%	41.06%	-38.07%	79.13%	91.84%	12.71%	1,121	1,129	8
2029	10,383	10,462	79	34%	33%	-1%	79.13%	41.06%	-38.07%	79.13%	91.84%	12.71%	1,119	1,127	8
2030	9,862	9,936	74	36%	36%	0%	79.03%	41.06%	-37.97%	79.03%	91.70%	12.67%	1,116	1,124	8
2031	9,312	9,383	71	39%	39%	0%	79.03%	41.06%	-37.97%	79.03%	91.70%	12.67%	1,117	1,124	7
2032	8,733	8,799	66	42%	42%	0%	78.74%	41.06%	-37.68%	78.74%	91.31%	12.57%	1,113	1,120	7
2033	8,124	8,186	62	46%	45%	-1%	78.74%	41.06%	-37.68%	78.74%	91.31%	12.57%	1,114	1,121	7
2034	7,482	7,539	57	49%	49%	0%	78.31%	41.06%	-37.25%	78.31%	90.76%	12.45%	1,109	1,117	8
2035	6,807	6,859	52	53%	53%	0%	78.31%	41.06%	-37.25%	78.31%	90.76%	12.45%	1,111	1,119	8
2036	6,095	6,142	47	57%	57%	0%	77.76%	41.06%	-36.70%	77.76%	90.03%	12.27%	1,107	1,115	8
2037	5,349	5,390	41	62%	62%	0%	77.76%	41.06%	-36.70%	77.76%	90.03%	12.27%	1,111	1,119	8
2038	4,558	4,592	34	67%	67%	0%	76.82%	41.06%	-35.76%	76.82%	88.79%	11.97%	1,104	1,111	7
2039	3,732	3,760	28	72%	72%	0%	76.82%	41.06%	-35.76%	76.82%	88.79%	11.97%	1,109	1,117	8
2040	2,858	2,880	22	79%	78%	-1%	75.58%	41.06%	-34.52%	75.58%	87.14%	11.56%	1,097	1,104	7
2041	1,949	1,964	15	85%	85%	0%	75.58%	41.06%	-34.52%	75.58%	87.14%	11.56%	1,102	1,109	7
2042	988	995	7	92%	92%	0%	73.74%	41.06%	-32.68%	73.74%	84.71%	10.97%	1,079	1,087	8
2043	-	-	-	100%	100%	0%	4.31%	4.31%	0.00%	4.31%	4.31%	0.00%	63	63	-
2044	-	-	-	100%	100%	0%	4.27%	4.27%	0.00%	4.27%	4.27%	0.00%	63	63	-
2045	-	-	-	100%	100%	0%	4.24%	4.24%	0.00%	4.24%	4.24%	0.00%	63	63	-
2046	-	-	-	100%	100%	0%	4.21%	4.21%	0.00%	4.21%	4.21%	0.00%	62	62	-
2047	-	-	-	100%	100%	0%	4.18%	4.18%	0.00%	4.18%	4.18%	0.00%	62	62	-

HB 265 provided that Regional Mental Health/Mental Retardation Boards, Local and District Health Departments, State Universities, and Community Colleges ("Quasi" agencies) were to contribute a 49.47% of pay for FY 2018/2019. The proposed legislation extends this contribution rate relief one additional year so that the contribution rate for Quasi agencies is also equal to 49.47% for FY 2019/2020.

**We believe this constitutes a pattern of allowing these agencies to contribute less than the actuarially determined rate so the above projections assume that these entities will continue to pay a contribution rate of 49.47% for the entire projection and the non-Quasi agencies' contribution rates have been adjusted so that the System receives the contributions necessary to pay off the unfunded liability by 2043 (per the System's current funding policy).**

**Gabriel Roeder Smith & Company**

**Kentucky Retirement Systems**  
**KERS Non-Hazardous Insurance Fund**  
**Actuarial Analysis of HB 3: Comparison of Current Plan and Proposed Legislation**  
**Exhibit 1-4**  
**(\$ in Millions)**

**Modeled Contribution Provisions: Quasi Employers Pay 49.47% & Non-Quasi Employers Pay the Remaining ADEC**  
**Valuation Assumptions: Recently Adopted Experience Study Assumptions (6.25% discount rate and 0% amortization payroll growth)**

**Projected Experience Scenario #2: Active Headcount Decreases by 2% Each Year (resulting in 0% payroll growth, which aligns with valuation assumptions)**  
**& Assets Earn 6.25% Annually (which aligns with valuation assumptions)**

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Quasi Employer Contribution			Non-Quasi Employer Contribution			Total Employer Contributions		
	Current	Proposed	Difference	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)	(14)	(15)	(16)
2018	\$ 1,549	\$ 1,549	\$ -	36%	36%	0%	8.41%	8.41%	0.00%	12.40%	12.40%	0.00%	\$ 167	\$ 167	\$ -
2019	1,633	1,633	-	37%	37%	0%	12.40%	8.41%	-3.99%	12.40%	12.40%	0.00%	180	166	(14)
2020	1,583	1,598	15	41%	40%	-1%	11.07%	8.41%	-2.66%	11.07%	12.01%	0.94%	160	161	1
2021	1,538	1,552	14	44%	43%	-1%	11.07%	8.41%	-2.66%	11.07%	12.01%	0.94%	159	161	2
2022	1,496	1,510	14	46%	46%	0%	10.82%	8.41%	-2.41%	10.82%	11.68%	0.86%	155	156	1
2023	1,458	1,471	13	49%	48%	-1%	10.82%	8.41%	-2.41%	10.82%	11.68%	0.86%	155	156	1
2024	1,417	1,430	13	51%	51%	0%	10.60%	8.41%	-2.19%	10.60%	11.39%	0.79%	151	153	2
2025	1,374	1,387	13	53%	53%	0%	10.60%	8.41%	-2.19%	10.60%	11.39%	0.79%	151	152	1
2026	1,328	1,340	12	55%	55%	0%	10.37%	8.41%	-1.96%	10.37%	11.09%	0.72%	148	149	1
2027	1,280	1,291	11	57%	57%	0%	10.37%	8.41%	-1.96%	10.37%	11.09%	0.72%	147	149	2
2028	1,228	1,239	11	59%	59%	0%	10.13%	8.41%	-1.72%	10.13%	10.78%	0.65%	144	145	1
2029	1,174	1,185	11	61%	61%	0%	10.13%	8.41%	-1.72%	10.13%	10.78%	0.65%	144	145	1
2030	1,115	1,125	10	63%	63%	0%	9.89%	8.41%	-1.48%	9.89%	10.46%	0.57%	140	141	1
2031	1,055	1,065	10	65%	65%	0%	9.89%	8.41%	-1.48%	9.89%	10.46%	0.57%	140	141	1
2032	991	1,000	9	67%	67%	0%	9.65%	8.41%	-1.24%	9.65%	10.15%	0.50%	137	138	1
2033	924	933	9	69%	69%	0%	9.65%	8.41%	-1.24%	9.65%	10.15%	0.50%	137	138	1
2034	852	860	8	71%	71%	0%	9.46%	8.41%	-1.05%	9.46%	9.90%	0.44%	134	135	1
2035	777	785	8	73%	73%	0%	9.46%	8.41%	-1.05%	9.46%	9.90%	0.44%	135	136	1
2036	697	704	7	76%	76%	0%	9.28%	8.41%	-0.87%	9.28%	9.66%	0.38%	132	134	2
2037	614	620	6	79%	78%	-1%	9.28%	8.41%	-0.87%	9.28%	9.66%	0.38%	133	134	1
2038	525	530	5	82%	81%	-1%	9.08%	8.41%	-0.67%	9.08%	9.41%	0.33%	131	132	1
2039	431	435	4	85%	85%	0%	9.08%	8.41%	-0.67%	9.08%	9.41%	0.33%	131	133	2
2040	331	334	3	88%	88%	0%	8.87%	8.41%	-0.46%	8.87%	9.12%	0.25%	129	130	1
2041	226	228	2	92%	92%	0%	8.87%	8.41%	-0.46%	8.87%	9.12%	0.25%	130	131	1
2042	115	116	1	96%	96%	0%	8.60%	8.41%	-0.19%	8.60%	8.75%	0.15%	126	127	1
2043	-	-	-	100%	100%	0%	0.50%	0.50%	0.00%	0.50%	0.50%	0.00%	7	7	-
2044	-	-	-	100%	100%	0%	0.50%	0.50%	0.00%	0.50%	0.50%	0.00%	7	7	-
2045	-	-	-	100%	100%	0%	0.48%	0.48%	0.00%	0.48%	0.48%	0.00%	7	7	-
2046	-	-	-	100%	100%	0%	0.47%	0.47%	0.00%	0.47%	0.47%	0.00%	7	7	-
2047	-	-	-	100%	100%	0%	0.46%	0.46%	0.00%	0.46%	0.46%	0.00%	7	7	-

HB 265 provided that Regional Mental Health/Mental Retardation Boards, Local and District Health Departments, State Universities, and Community Colleges ("Quasi" agencies) were to contribute a 49.47% of pay for FY 2018/2019. The proposed legislation extends this contribution rate relief one additional year so that the contribution rate for Quasi agencies is also equal to 49.47% for FY 2019/2020.

**We believe this constitutes a pattern of allowing these agencies to contribute less than the actuarially determined rate so the above projections assume that these entities will continue to pay a contribution rate of 49.47% for the entire projection and the non-Quasi agencies' contribution rates have been adjusted so that the System receives the contributions necessary to pay off the unfunded liability by 2043 (per the System's current funding policy).**

**Gabriel Roeder Smith & Company**



**HB 3**

**Section 2.**

**Projected Cost of the Retirement and Insurance  
Current Plan**

**Kentucky Retirement Systems**  
**KERS Non-Hazardous Retirement Fund**  
**Actuarial Analysis of HB 3: Current Plan**  
**Exhibit 2-1**  
**(\$ in Millions)**

**Contribution Provisions: All Employers Pay the Biannual Actuarially Determined Contribution**  
**Valuation Assumptions: Recently Adopted Experience Study Assumptions (5.25% discount rate and 0% amortization payroll growth)**

**Projected Experience Scenario #1: Active Headcount Remains Constant (resulting in 2% payroll growth, which is more favorable than valuation assumptions)**  
**& Assets Earn 5.25% Annually (which aligns with valuation assumptions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Quasi Employer Contribution	Non-Quasi Employer Contribution	Total Employer Contribution	Member Contribution	Covered Payroll	Quasi Employer Contribution as % of Covered Payroll	Non-Quasi Employer Contribution as % of Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate	Annual Cash Flow Analysis			
														Member and Employer Contributions	Benefit Payments and Expenses	Net External Cash Flow	Investment Income
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
2018	\$ 15,675	\$ 2,019	\$ 13,656	13%	\$ 145	\$ 795	\$ 940	\$ 74	\$ 1,471	41.06%	71.03%	63.86%	71.03%	\$ 1,014	\$ (994)	\$ 20	\$ 106
2019	16,375	2,106	14,269	13%	251	798	1,049	74	1,477	71.03%	71.03%	71.03%	78.01%	1,123	(1,009)	114	115
2020	16,392	2,324	14,068	14%	279	887	1,166	75	1,493	78.11%	78.11%	78.11%	78.11%	1,241	(1,024)	217	130
2021	16,392	2,696	13,696	16%	282	898	1,180	76	1,511	78.11%	78.11%	78.11%	77.01%	1,256	(1,038)	218	148
2022	16,376	3,070	13,306	19%	277	880	1,157	77	1,531	75.55%	75.55%	75.55%	75.55%	1,234	(1,052)	182	166
2023	16,343	3,417	12,926	21%	281	893	1,174	78	1,554	75.55%	75.55%	75.55%	74.26%	1,252	(1,065)	187	184
2024	16,294	3,788	12,506	23%	275	874	1,149	79	1,578	72.81%	72.81%	72.81%	72.81%	1,228	(1,077)	151	203
2025	16,230	4,142	12,088	26%	279	889	1,168	80	1,604	72.81%	72.81%	72.81%	71.47%	1,248	(1,089)	159	222
2026	16,149	4,523	11,626	28%	273	868	1,141	82	1,631	69.96%	69.96%	69.96%	69.96%	1,223	(1,099)	124	241
2027	16,053	4,887	11,166	30%	278	882	1,160	83	1,659	69.96%	69.96%	69.96%	68.58%	1,243	(1,110)	133	260
2028	15,941	5,280	10,661	33%	271	861	1,132	84	1,688	67.06%	67.06%	67.06%	67.06%	1,216	(1,112)	104	280
2029	15,821	5,665	10,156	36%	276	877	1,153	86	1,719	67.06%	67.06%	67.06%	65.69%	1,239	(1,119)	120	301
2030	15,687	6,085	9,602	39%	269	855	1,124	88	1,752	64.14%	64.14%	64.14%	64.14%	1,212	(1,125)	87	322
2031	15,542	6,494	9,048	42%	274	873	1,147	89	1,788	64.14%	64.14%	64.14%	62.74%	1,236	(1,127)	109	344
2032	15,387	6,947	8,440	45%	267	849	1,116	91	1,825	61.14%	61.14%	61.14%	61.14%	1,207	(1,128)	79	367
2033	15,225	7,392	7,833	49%	273	866	1,139	93	1,864	61.14%	61.14%	61.14%	59.72%	1,232	(1,128)	104	391
2034	15,057	7,888	7,169	52%	265	841	1,106	95	1,904	58.09%	58.09%	58.09%	58.09%	1,201	(1,126)	75	416
2035	14,883	8,379	6,504	56%	270	861	1,131	97	1,947	58.09%	58.09%	58.09%	56.68%	1,228	(1,121)	107	443
2036	14,709	8,929	5,780	61%	262	834	1,096	100	1,993	55.01%	55.01%	55.01%	55.01%	1,196	(1,112)	84	471
2037	14,538	9,484	5,054	65%	269	854	1,123	102	2,041	55.01%	55.01%	55.01%	53.57%	1,225	(1,101)	124	501
2038	14,372	10,109	4,263	70%	259	823	1,082	105	2,092	51.75%	51.75%	51.75%	51.75%	1,187	(1,087)	100	533
2039	14,216	10,742	3,474	76%	265	844	1,109	107	2,144	51.75%	51.75%	51.75%	50.28%	1,216	(1,073)	143	568
2040	14,071	11,454	2,617	81%	253	806	1,059	110	2,197	48.19%	48.19%	48.19%	48.19%	1,169	(1,057)	112	604
2041	13,939	12,169	1,770	87%	259	825	1,084	113	2,250	48.19%	48.19%	48.19%	46.61%	1,197	(1,041)	156	643
2042	13,821	12,968	853	94%	236	752	988	115	2,305	42.87%	42.87%	42.87%	42.87%	1,103	(1,026)	77	683
2043	13,716	13,716	-	100%	24	77	101	118	2,360	4.26%	4.26%	4.26%	4.26%	219	(1,010)	(791)	700
2044	13,627	13,627	-	100%	24	78	102	121	2,416	4.23%	4.23%	4.23%	4.23%	223	(995)	(772)	696
2045	13,554	13,554	-	100%	25	79	104	124	2,472	4.21%	4.21%	4.21%	4.21%	228	(980)	(752)	692
2046	13,496	13,496	-	100%	25	81	106	126	2,530	4.19%	4.19%	4.19%	4.19%	232	(966)	(734)	689
2047	13,456	13,456	-	100%	26	82	108	129	2,589	4.17%	4.17%	4.17%	4.17%	237	(952)	(715)	688

**Notes and assumptions:**  
The projection is based on the results of the June 30, 2018 actuarial valuation and the actuarial assumptions documented in the 2018 Experience Study Report adopted by the Board on April 18, 2019.  
The projection assumes that all actuarial assumptions are realized, including the assumed annual asset return of 5.25%.  
New active members are assumed to be hired to replace the current active members as they are assumed to terminate employment or retire.

The 63.86% employer contribution rate for FY 2019 is the effective contribution rate after reflecting HB 265 which provided that Regional Mental Health/Mental Retardation Boards, Local and District Health Departments, State Universities, and Community Colleges to contribute a 49.47% of pay contribution rate for FY 2019. Collectively these entities reflect approximately 25% of the covered payroll in the System.

**Kentucky Retirement Systems**  
**KERS Non-Hazardous Insurance Fund**  
**Actuarial Analysis of HB 3: Current Plan**  
**Exhibit 2-2**  
**(\$ in Millions)**

**Contribution Provisions: All Employers Pay the Biannual Actuarially Determined Contribution**  
**Valuation Assumptions: Recently Adopted Experience Study Assumptions (6.25% discount rate and 0% amortization payroll growth)**

**Projected Experience Scenario #1: Active Headcount Remains Constant (resulting in 2% payroll growth, which is more favorable than valuation assumptions)**  
**& Assets Earn 6.25% Annually (which aligns with valuation assumptions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Quasi Employer Contribution	Non-Quasi Employer Contribution	Total Employer Contribution	Member Contribution	Covered Payroll	Quasi Employer Contribution as % of Covered Payroll	Non-Quasi Employer Contribution as % of Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate	Annual Cash Flow Analysis			
														Member and Employer Contributions	Benefit Payments and Expenses	Net External Cash Flow	Investment Income
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
2018	\$ 2,436	\$ 887	\$ 1,549	36%	\$ 29	\$ 138	\$ 167	\$ 6	\$ 1,461	8.41%	12.40%	11.45%	12.40%	\$ 173	\$ (130)	\$ 43	\$ 57
2019	2,611	978	1,633	37%	44	138	182	6	1,469	12.40%	12.40%	12.40%	11.17%	188	(134)	54	64
2020	2,677	1,096	1,581	41%	39	123	162	7	1,488	10.90%	10.90%	10.90%	10.90%	169	(141)	28	70
2021	2,739	1,206	1,533	44%	39	125	164	8	1,508	10.90%	10.90%	10.90%	10.66%	172	(148)	24	76
2022	2,796	1,309	1,487	47%	38	120	158	9	1,529	10.31%	10.31%	10.31%	10.31%	167	(155)	12	82
2023	2,849	1,403	1,446	49%	38	122	160	9	1,553	10.31%	10.31%	10.31%	10.01%	169	(163)	6	88
2024	2,897	1,498	1,399	52%	37	116	153	10	1,578	9.72%	9.72%	9.72%	9.72%	163	(171)	(8)	93
2025	2,938	1,584	1,354	54%	37	119	156	11	1,605	9.72%	9.72%	9.72%	9.44%	167	(179)	(12)	99
2026	2,973	1,671	1,302	56%	36	113	149	12	1,632	9.13%	9.13%	9.13%	9.13%	161	(187)	(26)	104
2027	3,002	1,749	1,253	58%	36	116	152	13	1,661	9.13%	9.13%	9.13%	8.84%	165	(195)	(30)	108
2028	3,022	1,826	1,196	60%	35	110	145	13	1,691	8.55%	8.55%	8.55%	8.55%	158	(203)	(45)	113
2029	3,035	1,894	1,141	62%	35	112	147	14	1,723	8.55%	8.55%	8.55%	8.27%	161	(210)	(49)	117
2030	3,040	1,962	1,078	65%	33	107	140	15	1,756	7.97%	7.97%	7.97%	7.97%	155	(215)	(60)	121
2031	3,040	2,022	1,018	67%	34	109	143	16	1,792	7.97%	7.97%	7.97%	7.72%	159	(219)	(60)	124
2032	3,035	2,086	949	69%	33	103	136	16	1,829	7.45%	7.45%	7.45%	7.45%	152	(222)	(70)	128
2033	3,028	2,145	883	71%	33	106	139	17	1,868	7.45%	7.45%	7.45%	7.21%	156	(224)	(68)	132
2034	3,017	2,209	808	73%	32	101	133	18	1,909	6.95%	6.95%	6.95%	6.95%	151	(225)	(74)	136
2035	3,005	2,270	735	76%	32	104	136	18	1,952	6.95%	6.95%	6.95%	6.73%	154	(224)	(70)	140
2036	2,993	2,340	653	78%	31	99	130	19	1,998	6.49%	6.49%	6.49%	6.49%	149	(222)	(73)	144
2037	2,983	2,410	573	81%	32	101	133	20	2,046	6.49%	6.49%	6.49%	6.29%	153	(220)	(67)	149
2038	2,976	2,492	484	84%	30	97	127	20	2,097	6.04%	6.04%	6.04%	6.04%	147	(217)	(70)	154
2039	2,971	2,576	395	87%	31	99	130	21	2,149	6.04%	6.04%	6.04%	5.85%	151	(213)	(62)	159
2040	2,970	2,673	297	90%	29	94	123	22	2,202	5.57%	5.57%	5.57%	5.57%	145	(210)	(65)	165
2041	2,974	2,772	202	93%	30	96	126	22	2,256	5.57%	5.57%	5.57%	5.35%	148	(206)	(58)	171
2042	2,981	2,886	95	97%	27	85	112	23	2,310	4.84%	4.84%	4.84%	4.84%	135	(202)	(67)	178
2043	2,994	2,994	-	100%	3	8	11	24	2,366	0.48%	0.48%	0.48%	0.48%	35	(199)	(164)	182
2044	3,011	3,011	-	100%	3	8	11	24	2,421	0.46%	0.46%	0.46%	0.46%	35	(197)	(162)	183
2045	3,033	3,033	-	100%	3	8	11	25	2,478	0.45%	0.45%	0.45%	0.45%	36	(196)	(160)	185
2046	3,057	3,057	-	100%	3	8	11	25	2,536	0.44%	0.44%	0.44%	0.44%	36	(196)	(160)	186
2047	3,083	3,083	-	100%	3	8	11	26	2,595	0.43%	0.43%	0.43%	0.43%	37	(197)	(160)	188

**Notes and assumptions:**

The projection is based on the results of the June 30, 2018 actuarial valuation and the actuarial assumptions documented in the 2018 Experience Study Report adopted by the Board on April 18, 2019.

The projection assumes that all actuarial assumptions are realized, including the assumed annual asset return of 6.25%.

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

The 11.45% employer contribution rate for FY 2019 is the effective contribution rate after reflecting HB 265 which provided that Regional Mental Health/Mental Retardation

Boards, Local and District Health Departments, State Universities, and Community Colleges to contribute a 49.47% of pay contribution rate for FY 2019. Collectively these entities reflect approximately 25% of the covered payroll in the System.

**Kentucky Retirement Systems**  
**KERS Non-Hazardous Retirement Fund**  
**Actuarial Analysis of HB 3: Current Plan**  
**Exhibit 2-3**  
**(\$ in Millions)**

**Contribution Provisions: All Employers Pay the Biannual Actuarially Determined Contribution**  
**Valuation Assumptions: Recently Adopted Experience Study Assumptions (5.25% discount rate and 0% amortization payroll growth)**

**Projected Experience Scenario #2: Active Headcount Decreases by 2% Each Year (resulting in 0% payroll growth, which aligns with valuation assumptions)**  
**& Assets Earn 5.25% Annually (which aligns with valuation assumptions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Quasi Employer Contribution	Non-Quasi Employer Contribution	Total Employer Contribution	Member Contribution	Covered Payroll	Quasi Employer Contribution as % of Covered Payroll	Non-Quasi Employer Contribution as % of Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate	Annual Cash Flow Analysis			
														Member and Employer Contributions	Benefit Payments and Expenses	Net External Cash Flow	Investment Income
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
2018	\$ 15,675	\$ 2,019	\$ 13,656	13%	\$ 145	\$ 795	\$ 940	\$ 74	\$ 1,471	41.06%	71.03%	63.86%	71.03%	\$ 1,014	\$ (994)	\$ 20	\$ 106
2019	16,374	2,106	14,268	13%	247	788	1,035	73	1,456	71.03%	71.03%	71.03%	78.01%	1,108	(1,009)	99	114
2020	16,389	2,308	14,081	14%	275	873	1,148	72	1,450	79.22%	79.22%	79.22%	79.22%	1,220	(1,023)	197	128
2021	16,385	2,660	13,725	16%	274	870	1,144	72	1,443	79.22%	79.22%	79.22%	79.35%	1,216	(1,037)	179	145
2022	16,363	2,992	13,371	18%	273	867	1,140	72	1,438	79.27%	79.27%	79.27%	79.27%	1,212	(1,050)	162	161
2023	16,322	3,315	13,007	20%	272	864	1,136	72	1,433	79.27%	79.27%	79.27%	79.27%	1,208	(1,063)	145	178
2024	16,261	3,638	12,623	22%	271	862	1,133	71	1,430	79.27%	79.27%	79.27%	79.27%	1,204	(1,074)	130	194
2025	16,183	3,962	12,221	24%	270	861	1,131	71	1,426	79.27%	79.27%	79.27%	79.25%	1,202	(1,085)	117	211
2026	16,085	4,290	11,795	27%	270	857	1,127	71	1,423	79.20%	79.20%	79.20%	79.20%	1,198	(1,096)	102	228
2027	15,968	4,620	11,348	29%	269	855	1,124	71	1,419	79.20%	79.20%	79.20%	79.16%	1,195	(1,106)	89	245
2028	15,832	4,955	10,877	31%	268	853	1,121	71	1,416	79.13%	79.13%	79.13%	79.13%	1,192	(1,107)	85	262
2029	15,685	5,302	10,383	34%	268	851	1,119	71	1,414	79.13%	79.13%	79.13%	79.10%	1,190	(1,114)	76	280
2030	15,519	5,657	9,862	36%	267	849	1,116	71	1,413	79.03%	79.03%	79.03%	79.03%	1,187	(1,119)	68	299
2031	15,337	6,025	9,312	39%	267	850	1,117	71	1,413	79.03%	79.03%	79.03%	78.93%	1,188	(1,121)	67	318
2032	15,142	6,409	8,733	42%	266	847	1,113	71	1,413	78.74%	78.74%	78.74%	78.74%	1,184	(1,121)	63	338
2033	14,934	6,810	8,124	46%	266	848	1,114	71	1,414	78.74%	78.74%	78.74%	78.55%	1,185	(1,120)	65	359
2034	14,715	7,233	7,482	49%	265	844	1,109	71	1,416	78.31%	78.31%	78.31%	78.31%	1,180	(1,117)	63	381
2035	14,485	7,678	6,807	53%	266	845	1,111	71	1,418	78.31%	78.31%	78.31%	78.09%	1,182	(1,111)	71	405
2036	14,249	8,154	6,095	57%	265	842	1,107	71	1,423	77.76%	77.76%	77.76%	77.76%	1,178	(1,101)	77	430
2037	14,010	8,661	5,349	62%	266	845	1,111	71	1,429	77.76%	77.76%	77.76%	77.38%	1,182	(1,088)	94	457
2038	13,770	9,212	4,558	67%	264	840	1,104	72	1,436	76.82%	76.82%	76.82%	76.82%	1,176	(1,073)	103	486
2039	13,533	9,801	3,732	72%	265	844	1,109	72	1,444	76.82%	76.82%	76.82%	76.31%	1,181	(1,057)	124	518
2040	13,301	10,443	2,858	79%	262	835	1,097	73	1,451	75.58%	75.58%	75.58%	75.58%	1,170	(1,040)	130	552
2041	13,073	11,124	1,949	85%	264	838	1,102	73	1,458	75.58%	75.58%	75.58%	75.03%	1,175	(1,022)	153	588
2042	12,852	11,864	988	92%	258	821	1,079	73	1,464	73.74%	73.74%	73.74%	73.74%	1,152	(1,005)	147	627
2043	12,637	12,637	-	100%	15	48	63	73	1,469	4.31%	4.31%	4.31%	4.31%	136	(987)	(851)	641
2044	12,429	12,429	-	100%	15	48	63	74	1,473	4.27%	4.27%	4.27%	4.27%	137	(969)	(832)	631
2045	12,228	12,228	-	100%	15	48	63	74	1,478	4.24%	4.24%	4.24%	4.24%	137	(952)	(815)	621
2046	12,035	12,035	-	100%	15	47	62	74	1,481	4.21%	4.21%	4.21%	4.21%	136	(934)	(798)	611
2047	11,849	11,849	-	100%	15	47	62	74	1,485	4.18%	4.18%	4.18%	4.18%	136	(916)	(780)	601

**Notes and assumptions:**

The projection is based on the results of the June 30, 2018 actuarial valuation and the actuarial assumptions documented in the 2018 Experience Study Report adopted by the Board on April 18, 2019.

The projection assumes that all actuarial assumptions are realized, including the assumed annual asset return of 5.25%.

New active members are assumed to be hired to replace the current active members as they are assumed to terminate employment or retire, but the total active membership population is assumed to decrease by 2% each future year.

The 63.86% employer contribution rate for FY 2019 is the effective contribution rate after reflecting HB 265 which provided that Regional Mental Health/Mental Retardation

Boards, Local and District Health Departments, State Universities, and Community Colleges to contribute a 49.47% of pay contribution rate for FY 2019. Collectively these entities reflect approximately 25% of the covered payroll in the System.

**Kentucky Retirement Systems**  
**KERS Non-Hazardous Insurance Fund**  
**Actuarial Analysis of HB 3: Current Plan**  
**Exhibit 2-4**  
**(\$ in Millions)**

**Contribution Provisions: All Employers Pay the Biannual Actuarially Determined Contribution**  
**Valuation Assumptions: Recently Adopted Experience Study Assumptions (6.25% discount rate and 0% amortization payroll growth)**

**Projected Experience Scenario #2: Active Headcount Decreases by 2% Each Year (resulting in 0% payroll growth, which aligns with valuation assumptions)**  
**& Assets Earn 6.25% Annually (which aligns with valuation assumptions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Quasi Employer Contribution	Non-Quasi Employer Contribution	Total Employer Contribution	Member Contribution	Covered Payroll	Quasi Employer Contribution as % of Covered Payroll	Non-Quasi Employer Contribution as % of Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate	Annual Cash Flow Analysis			
														Member and Employer Contributions	Benefit Payments and Expenses	Net External Cash Flow	Investment Income
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
2018	\$ 2,436	\$ 887	\$ 1,549	36%	\$ 29	\$ 138	\$ 167	\$ 6	\$ 1,461	8.41%	12.40%	11.45%	12.40%	\$ 173	\$ (130)	\$ 43	\$ 57
2019	2,611	978	1,633	37%	43	137	180	6	1,449	12.40%	12.40%	12.40%	11.17%	186	(134)	52	64
2020	2,677	1,094	1,583	41%	38	122	160	7	1,444	11.07%	11.07%	11.07%	11.07%	167	(141)	26	70
2021	2,738	1,200	1,538	44%	38	121	159	7	1,440	11.07%	11.07%	11.07%	10.98%	166	(148)	18	76
2022	2,794	1,298	1,496	46%	37	118	155	8	1,435	10.82%	10.82%	10.82%	10.82%	163	(155)	8	81
2023	2,845	1,387	1,458	49%	37	118	155	8	1,432	10.82%	10.82%	10.82%	10.71%	163	(163)	0	87
2024	2,891	1,474	1,417	51%	36	115	151	9	1,429	10.60%	10.60%	10.60%	10.60%	160	(171)	(11)	92
2025	2,930	1,556	1,374	53%	36	115	151	9	1,427	10.60%	10.60%	10.60%	10.50%	160	(178)	(18)	97
2026	2,962	1,634	1,328	55%	35	113	148	10	1,424	10.37%	10.37%	10.37%	10.37%	158	(187)	(29)	101
2027	2,986	1,706	1,280	57%	35	112	147	10	1,421	10.37%	10.37%	10.37%	10.26%	157	(195)	(38)	105
2028	3,002	1,774	1,228	59%	34	110	144	11	1,418	10.13%	10.13%	10.13%	10.13%	155	(203)	(48)	109
2029	3,009	1,835	1,174	61%	34	110	144	11	1,417	10.13%	10.13%	10.13%	10.01%	155	(210)	(55)	113
2030	3,008	1,893	1,115	63%	33	107	140	11	1,416	9.89%	9.89%	9.89%	9.89%	151	(215)	(64)	116
2031	3,001	1,946	1,055	65%	33	107	140	12	1,416	9.89%	9.89%	9.89%	9.77%	152	(219)	(67)	119
2032	2,989	1,998	991	67%	33	104	137	12	1,416	9.65%	9.65%	9.65%	9.65%	149	(221)	(72)	123
2033	2,972	2,048	924	69%	33	104	137	13	1,418	9.65%	9.65%	9.65%	9.55%	150	(224)	(74)	126
2034	2,951	2,099	852	71%	32	102	134	13	1,419	9.46%	9.46%	9.46%	9.46%	147	(225)	(78)	129
2035	2,928	2,151	777	73%	32	103	135	13	1,422	9.46%	9.46%	9.46%	9.38%	148	(224)	(76)	132
2036	2,904	2,207	697	76%	32	100	132	13	1,427	9.28%	9.28%	9.28%	9.28%	145	(222)	(77)	136
2037	2,880	2,266	614	79%	32	101	133	14	1,433	9.28%	9.28%	9.28%	9.19%	147	(219)	(72)	139
2038	2,858	2,333	525	82%	31	100	131	14	1,440	9.08%	9.08%	9.08%	9.08%	145	(216)	(71)	144
2039	2,837	2,406	431	85%	31	100	131	14	1,447	9.08%	9.08%	9.08%	9.00%	145	(212)	(67)	148
2040	2,818	2,487	331	88%	31	98	129	14	1,454	8.87%	8.87%	8.87%	8.87%	143	(208)	(65)	153
2041	2,802	2,576	226	92%	31	99	130	14	1,460	8.87%	8.87%	8.87%	8.80%	144	(205)	(61)	159
2042	2,789	2,674	115	96%	30	96	126	15	1,466	8.60%	8.60%	8.60%	8.60%	141	(201)	(60)	165
2043	2,779	2,779	-	100%	2	5	7	15	1,472	0.50%	0.50%	0.50%	0.50%	22	(197)	(175)	168
2044	2,771	2,771	-	100%	2	5	7	15	1,476	0.50%	0.50%	0.50%	0.50%	22	(195)	(173)	168
2045	2,766	2,766	-	100%	2	5	7	15	1,481	0.48%	0.48%	0.48%	0.48%	22	(193)	(171)	168
2046	2,762	2,762	-	100%	2	5	7	15	1,485	0.47%	0.47%	0.47%	0.47%	22	(193)	(171)	167
2047	2,758	2,758	-	100%	2	5	7	15	1,489	0.46%	0.46%	0.46%	0.46%	22	(193)	(171)	167

**Notes and assumptions:**

The projection is based on the results of the June 30, 2018 actuarial valuation and the actuarial assumptions documented in the 2018 Experience Study Report adopted by the Board on April 18, 2019.

The projection assumes that all actuarial assumptions are realized, including the assumed annual asset return of 6.25%.

New active members are assumed to be hired to replace the current active members as they are assumed to terminate employment or retire, but the total active membership population is assumed to decrease by 2% each future year.

The 11.45% employer contribution rate for FY 2019 is the effective contribution rate after reflecting HB 265 which provided that Regional Mental Health/Mental Retardation

Boards, Local and District Health Departments, State Universities, and Community Colleges to contribute a 49.47% of pay contribution rate for FY 2019. Collectively these entities reflect approximately 25% of the covered payroll in the System.

**HB 3**

**Section 3.**

**Projected Cost of the Retirement and Insurance  
Proposed Legislation**

**Kentucky Retirement Systems**  
**KERS Non-Hazardous Retirement Fund**  
**Actuarial Analysis of HB 3: Proposed Legislation**  
**Exhibit 3-1**  
**(\$ in Millions)**

**Modeled Contribution Provisions: Quasi Employers Pay 49.47% & Non-Quasi Employers Pay the Remaining ADEC**  
**Valuation Assumptions: Recently Adopted Experience Study Assumptions (5.25% discount rate and 0% amortization payroll growth)**

**Projected Experience Scenario #1: Active Headcount Remains Constant (resulting in 2% payroll growth, which is more favorable than valuation assumptions)**  
**& Assets Earn 5.25% Annually (which aligns with valuation assumptions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Quasi Employer Contribution	Non-Quasi Employer Contribution	Total Employer Contribution	Member Contribution	Covered Payroll	Quasi Employer Contribution as % of Covered Payroll	Non-Quasi Employer Contribution as % of Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate	Annual Cash Flow Analysis			
														Member and Employer Contributions	Benefit Payments and Expenses	Net External Cash Flow	Investment Income
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
2018	\$ 15,675	\$ 2,019	\$ 13,656	13%	\$ 145	\$ 795	\$ 940	\$ 74	\$ 1,471	41.06%	71.03%	63.86%	71.03%	\$ 1,014	\$ (994)	\$ 20	\$ 106
2019	16,375	2,106	14,269	13%	144	798	942	74	1,477	41.06%	71.03%	63.86%	78.01%	1,016	(1,009)	7	112
2020	16,392	2,215	14,177	14%	147	1,028	1,175	75	1,493	41.06%	90.49%	78.67%	78.67%	1,250	(1,024)	226	124
2021	16,392	2,590	13,802	16%	148	1,041	1,189	76	1,511	41.06%	90.49%	78.67%	77.54%	1,265	(1,038)	227	142
2022	16,376	2,968	13,408	18%	150	1,015	1,165	77	1,531	41.06%	87.09%	76.08%	76.08%	1,242	(1,052)	190	161
2023	16,343	3,318	13,025	20%	153	1,029	1,182	78	1,554	41.06%	87.09%	76.08%	74.78%	1,260	(1,065)	195	179
2024	16,294	3,692	12,602	23%	155	1,002	1,157	79	1,578	41.06%	83.46%	73.32%	73.32%	1,236	(1,077)	159	198
2025	16,230	4,049	12,181	25%	158	1,018	1,176	80	1,604	41.06%	83.46%	73.32%	71.97%	1,256	(1,089)	167	217
2026	16,149	4,433	11,716	27%	160	989	1,149	82	1,631	41.06%	79.69%	70.45%	70.45%	1,231	(1,099)	132	236
2027	16,053	4,800	11,253	30%	163	1,006	1,169	83	1,659	41.06%	79.69%	70.45%	69.06%	1,252	(1,110)	142	256
2028	15,941	5,198	10,743	33%	166	974	1,140	84	1,688	41.06%	75.87%	67.54%	67.54%	1,224	(1,112)	112	276
2029	15,821	5,587	10,234	35%	169	992	1,161	86	1,719	41.06%	75.87%	67.54%	66.16%	1,247	(1,119)	128	297
2030	15,687	6,011	9,676	38%	174	958	1,132	88	1,752	41.44%	71.88%	64.60%	64.60%	1,220	(1,125)	95	318
2031	15,542	6,424	9,118	41%	177	978	1,155	89	1,788	41.44%	71.88%	64.60%	63.19%	1,244	(1,127)	117	340
2032	15,387	6,882	8,505	45%	183	941	1,124	91	1,825	41.96%	67.74%	61.57%	61.57%	1,215	(1,128)	87	364
2033	15,225	7,332	7,893	48%	187	960	1,147	93	1,864	41.96%	67.74%	61.57%	60.15%	1,240	(1,128)	112	388
2034	15,057	7,832	7,225	52%	193	921	1,114	95	1,904	42.46%	63.54%	58.50%	58.50%	1,209	(1,126)	83	413
2035	14,883	8,329	6,554	56%	198	941	1,139	97	1,947	42.46%	63.54%	58.50%	57.09%	1,236	(1,121)	115	440
2036	14,709	8,885	5,824	60%	205	899	1,104	100	1,993	42.92%	59.32%	55.40%	55.40%	1,204	(1,112)	92	469
2037	14,538	9,445	5,093	65%	210	921	1,131	102	2,041	42.92%	59.32%	55.40%	53.95%	1,233	(1,101)	132	499
2038	14,372	10,076	4,296	70%	217	873	1,090	105	2,092	43.38%	54.87%	52.12%	52.12%	1,195	(1,087)	108	532
2039	14,216	10,715	3,501	75%	222	895	1,117	107	2,144	43.38%	54.87%	52.12%	50.63%	1,224	(1,073)	151	567
2040	14,071	11,434	2,637	81%	230	836	1,066	110	2,197	43.85%	49.99%	48.52%	48.52%	1,176	(1,057)	119	603
2041	13,939	12,156	1,783	87%	236	856	1,092	113	2,250	43.85%	49.99%	48.52%	46.93%	1,205	(1,041)	164	642
2042	13,821	12,961	860	94%	238	757	995	115	2,305	43.17%	43.17%	43.17%	43.17%	1,110	(1,026)	84	683
2043	13,716	13,716	-	100%	24	77	101	118	2,360	4.26%	4.26%	4.26%	4.26%	219	(1,010)	(791)	700
2044	13,627	13,627	-	100%	24	78	102	121	2,416	4.23%	4.23%	4.23%	4.23%	223	(995)	(772)	696
2045	13,554	13,554	-	100%	25	79	104	124	2,472	4.21%	4.21%	4.21%	4.21%	228	(980)	(752)	692
2046	13,496	13,496	-	100%	25	81	106	126	2,530	4.19%	4.19%	4.19%	4.19%	232	(966)	(734)	689
2047	13,456	13,456	-	100%	26	82	108	129	2,589	4.17%	4.17%	4.17%	4.17%	237	(952)	(715)	688

**Notes and assumptions:**

The projection is based on the results of the June 30, 2018 actuarial valuation and the actuarial assumptions documented in the 2018 Experience Study Report adopted by the Board on April 18, 2019.

The projection assumes that all actuarial assumptions are realized, including the assumed annual asset return of 5.25%.

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

The 63.86% employer contribution rate for FY 2018/2019 is the effective contribution rate after reflecting HB 265 which provided that Regional Mental Health/Mental Retardation

Boards, Local and District Health Departments, State Universities, and Community Colleges ("Quasi" agencies) to contribute a 49.47% of pay contribution rate for FY 2018/2019. Collectively these entities reflect approximately 25% of the covered payroll in the System.

The proposed legislation extends this contribution rate relief one additional year so that the contribution rate for Quasi agencies is also equal to 49.47% for FY 2019/2020.

**We believe this constitutes a pattern of allowing these agencies to contribute less than the actuarially determined rate so the above projections assume that these entities will continue to pay a contribution rate of 49.47% for the entire projection and the non-Quasi agencies' contribution rates have been adjusted so that the System receives the contributions necessary to pay off the unfunded liability by 2043 (per the System's current funding policy).**

**If in any given year, the 49.47% contribution rate is not extended and all employers are required to pay the actuarially determined contribution, the contribution rate payable by all employers is shown in column 13.**

**Kentucky Retirement Systems**  
**KERS Non-Hazardous Insurance Fund**  
**Actuarial Analysis of HB 3: Proposed Legislation**  
**Exhibit 3-2**  
**(\$ in Millions)**

**Modeled Contribution Provisions: Quasi Employers Pay 49.47% & Non-Quasi Employers Pay the Remaining ADEC**  
**Valuation Assumptions: Recently Adopted Experience Study Assumptions (6.25% discount rate and 0% amortization payroll growth)**

**Projected Experience Scenario #1: Active Headcount Remains Constant (resulting in 2% payroll growth, which is more favorable than valuation assumptions)**  
**& Assets Earn 6.25% Annually (which aligns with valuation assumptions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Quasi Employer Contribution	Non-Quasi Employer Contribution	Total Employer Contribution	Member Contribution	Covered Payroll	Quasi Employer Contribution as % of Covered Payroll	Non-Quasi Employer Contribution as % of Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate	Annual Cash Flow Analysis			
														Member and Employer Contributions	Benefit Payments and Expenses	Net External Cash Flow	Investment Income
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
2018	\$ 2,436	\$ 887	\$ 1,549	36%	\$ 29	\$ 138	\$ 167	\$ 6	\$ 1,461	8.41%	12.40%	11.45%	12.40%	\$ 173	\$ (130)	\$ 43	\$ 57
2019	2,611	978	1,633	37%	30	138	168	6	1,469	8.41%	12.40%	11.45%	11.17%	174	(134)	40	63
2020	2,677	1,082	1,595	40%	30	133	163	7	1,488	8.41%	11.80%	10.99%	10.99%	170	(141)	29	69
2021	2,739	1,192	1,547	44%	30	136	166	8	1,508	8.41%	11.80%	10.99%	10.74%	174	(148)	26	75
2022	2,796	1,296	1,500	46%	31	128	159	9	1,529	8.41%	11.01%	10.39%	10.39%	168	(155)	13	81
2023	2,849	1,390	1,459	49%	31	130	161	9	1,553	8.41%	11.01%	10.39%	10.09%	170	(163)	7	87
2024	2,897	1,485	1,412	51%	32	122	154	10	1,578	8.41%	10.22%	9.79%	9.79%	164	(171)	(7)	93
2025	2,938	1,572	1,366	54%	32	125	157	11	1,605	8.41%	10.22%	9.79%	9.52%	168	(179)	(11)	98
2026	2,973	1,659	1,314	56%	33	117	150	12	1,632	8.41%	9.45%	9.20%	9.20%	162	(187)	(25)	103
2027	3,002	1,737	1,265	58%	33	120	153	13	1,661	8.41%	9.45%	9.20%	8.91%	166	(195)	(29)	108
2028	3,022	1,815	1,207	60%	34	112	146	13	1,691	8.41%	8.67%	8.61%	8.61%	159	(203)	(44)	112
2029	3,035	1,883	1,152	62%	35	113	148	14	1,723	8.41%	8.67%	8.61%	8.34%	162	(210)	(48)	116
2030	3,040	1,952	1,088	64%	34	107	141	15	1,756	8.03%	8.03%	8.03%	8.03%	156	(215)	(59)	120
2031	3,040	2,012	1,028	66%	34	110	144	16	1,792	8.03%	8.03%	8.03%	7.78%	160	(219)	(59)	124
2032	3,035	2,077	958	68%	33	104	137	16	1,829	7.51%	7.51%	7.51%	7.51%	153	(222)	(69)	128
2033	3,028	2,136	892	71%	34	106	140	17	1,868	7.51%	7.51%	7.51%	7.27%	157	(224)	(67)	131
2034	3,017	2,201	816	73%	32	102	134	18	1,909	7.01%	7.01%	7.01%	7.01%	152	(225)	(73)	135
2035	3,005	2,263	742	75%	33	104	137	18	1,952	7.01%	7.01%	7.01%	6.79%	155	(224)	(69)	139
2036	2,993	2,333	660	78%	31	100	131	19	1,998	6.55%	6.55%	6.55%	6.55%	150	(222)	(72)	144
2037	2,983	2,404	579	81%	32	102	134	20	2,046	6.55%	6.55%	6.55%	6.35%	154	(220)	(66)	148
2038	2,976	2,487	489	84%	31	97	128	20	2,097	6.09%	6.09%	6.09%	6.09%	148	(217)	(69)	153
2039	2,971	2,572	399	87%	31	100	131	21	2,149	6.09%	6.09%	6.09%	5.90%	152	(213)	(61)	159
2040	2,970	2,669	301	90%	30	94	124	22	2,202	5.62%	5.62%	5.62%	5.62%	146	(210)	(64)	165
2041	2,974	2,770	204	93%	30	97	127	22	2,256	5.62%	5.62%	5.62%	5.40%	149	(206)	(57)	171
2042	2,981	2,884	97	97%	27	86	113	23	2,310	4.90%	4.90%	4.90%	4.90%	136	(202)	(66)	178
2043	2,994	2,994	-	100%	3	8	11	24	2,366	0.48%	0.48%	0.48%	0.48%	35	(199)	(164)	182
2044	3,011	3,011	-	100%	3	8	11	24	2,421	0.46%	0.46%	0.46%	0.46%	35	(197)	(162)	183
2045	3,033	3,033	-	100%	3	8	11	25	2,478	0.45%	0.45%	0.45%	0.45%	36	(196)	(160)	185
2046	3,057	3,057	-	100%	3	8	11	25	2,536	0.44%	0.44%	0.44%	0.44%	36	(196)	(160)	186
2047	3,083	3,083	-	100%	3	8	11	26	2,595	0.43%	0.43%	0.43%	0.43%	37	(197)	(160)	188

**Notes and assumptions:**

The projection is based on the results of the June 30, 2018 actuarial valuation and the actuarial assumptions documented in the 2018 Experience Study Report adopted by the Board on April 18, 2019.

The projection assumes that all actuarial assumptions are realized, including the assumed annual asset return of 6.25%.

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

The 11.45% employer contribution rate for FY 2018/2019 is the effective contribution rate after reflecting HB 265 which provided that Regional Mental Health/Mental Retardation

Boards, Local and District Health Departments, State Universities, and Community Colleges to contribute a 49.47% of pay contribution rate for FY 2018/2019. Collectively these entities reflect approximately 25% of the covered payroll in the System.

The proposed legislation extends this contribution rate relief one additional year so that the contribution rate for Quasi agencies is also equal to 49.47% for FY 2019/2020.

**We believe this constitutes a pattern of allowing these agencies to contribute less than the actuarially determined rate so the above projections assume that these entities will continue to pay a contribution rate of 49.47% for the entire projection and the non-Quasi agencies' contribution rates have been adjusted so that the System receives the contributions necessary to pay off the unfunded liability by 2043 (per the System's current funding policy).**

**If in any given year, the 49.47% contribution rate is not extended and all employers are required to pay the actuarially determined contribution, the contribution rate payable by all employers is shown in column 13.**



**Kentucky Retirement Systems**  
**KERS Non-Hazardous Retirement Fund**  
**Actuarial Analysis of HB 3: Proposed Legislation**  
**Exhibit 3-3**  
**(\$ in Millions)**

**Modeled Contribution Provisions: Quasi Employers Pay 49.47% & Non-Quasi Employers Pay the Remaining ADEC**  
**Valuation Assumptions: Recently Adopted Experience Study Assumptions (5.25% discount rate and 0% amortization payroll growth)**

**Projected Experience Scenario #2: Active Headcount Decreases by 2% Each Year (resulting in 0% payroll growth, which aligns with valuation assumptions)**  
**& Assets Earn 5.25% Annually (which aligns with valuation assumptions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Quasi Employer Contribution	Non-Quasi Employer Contribution	Total Employer Contribution	Member Contribution	Covered Payroll	Quasi Employer Contribution as % of Covered Payroll	Non-Quasi Employer Contribution as % of Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate	Annual Cash Flow Analysis			
														Member and Employer Contributions	Benefit Payments and Expenses	Net External Cash Flow	Investment Income
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
2018	\$ 15,675	\$ 2,019	\$ 13,656	13%	\$ 145	\$ 795	\$ 940	\$ 74	\$ 1,471	41.06%	71.03%	63.86%	71.03%	\$ 1,014	\$ (994)	\$ 20	\$ 106
2019	16,374	2,106	14,268	13%	142	788	930	73	1,456	41.06%	71.03%	63.86%	78.01%	1,003	(1,009)	(6)	112
2020	16,389	2,201	14,188	13%	142	1,014	1,156	72	1,450	41.06%	91.95%	79.78%	79.78%	1,228	(1,023)	205	123
2021	16,385	2,555	13,830	16%	142	1,010	1,152	72	1,443	41.06%	91.95%	79.78%	79.90%	1,224	(1,037)	187	140
2022	16,363	2,890	13,473	18%	141	1,007	1,148	72	1,438	41.06%	92.01%	79.82%	79.82%	1,220	(1,050)	170	156
2023	16,322	3,216	13,106	20%	141	1,003	1,144	72	1,433	41.06%	92.01%	79.82%	79.82%	1,216	(1,063)	153	173
2024	16,261	3,542	12,719	22%	140	1,001	1,141	71	1,430	41.06%	92.01%	79.82%	79.82%	1,212	(1,074)	138	190
2025	16,183	3,869	12,314	24%	140	998	1,138	71	1,426	41.06%	92.01%	79.82%	79.80%	1,209	(1,085)	124	206
2026	16,085	4,200	11,885	26%	140	995	1,135	71	1,423	41.06%	91.93%	79.76%	79.76%	1,206	(1,096)	110	223
2027	15,968	4,534	11,434	28%	139	993	1,132	71	1,419	41.06%	91.93%	79.76%	79.71%	1,203	(1,106)	97	241
2028	15,832	4,872	10,960	31%	139	990	1,129	71	1,416	41.06%	91.84%	79.69%	79.69%	1,200	(1,107)	93	258
2029	15,685	5,223	10,462	33%	139	988	1,127	71	1,414	41.06%	91.84%	79.69%	79.66%	1,198	(1,114)	84	276
2030	15,519	5,583	9,936	36%	139	985	1,124	71	1,413	41.06%	91.70%	79.59%	79.59%	1,195	(1,119)	76	295
2031	15,337	5,954	9,383	39%	139	985	1,124	71	1,413	41.06%	91.70%	79.59%	79.49%	1,195	(1,121)	74	315
2032	15,142	6,343	8,799	42%	139	981	1,120	71	1,413	41.06%	91.31%	79.29%	79.29%	1,191	(1,121)	70	335
2033	14,934	6,748	8,186	45%	139	982	1,121	71	1,414	41.06%	91.31%	79.29%	79.11%	1,192	(1,120)	72	356
2034	14,715	7,176	7,539	49%	139	978	1,117	71	1,416	41.06%	90.76%	78.87%	78.87%	1,188	(1,117)	71	379
2035	14,485	7,626	6,859	53%	139	980	1,119	71	1,418	41.06%	90.76%	78.87%	78.64%	1,190	(1,111)	79	402
2036	14,249	8,107	6,142	57%	140	975	1,115	71	1,423	41.06%	90.03%	78.32%	78.32%	1,186	(1,101)	85	428
2037	14,010	8,620	5,390	62%	140	979	1,119	71	1,429	41.06%	90.03%	78.32%	77.93%	1,190	(1,088)	102	455
2038	13,770	9,178	4,592	67%	141	970	1,111	72	1,436	41.06%	88.79%	77.37%	77.37%	1,183	(1,073)	110	485
2039	13,533	9,773	3,760	72%	142	975	1,117	72	1,444	41.06%	88.79%	77.37%	76.86%	1,189	(1,057)	132	517
2040	13,301	10,421	2,880	78%	143	961	1,104	73	1,451	41.06%	87.14%	76.12%	76.12%	1,177	(1,040)	137	551
2041	13,073	11,109	1,964	85%	143	966	1,109	73	1,458	41.06%	87.14%	76.12%	75.56%	1,182	(1,022)	160	587
2042	12,852	11,857	995	92%	144	943	1,087	73	1,464	41.06%	84.71%	74.27%	74.27%	1,160	(1,005)	155	627
2043	12,637	12,637	-	100%	15	48	63	73	1,469	4.31%	4.31%	4.31%	4.31%	136	(987)	(851)	641
2044	12,429	12,429	-	100%	15	48	63	74	1,473	4.27%	4.27%	4.27%	4.27%	137	(969)	(832)	631
2045	12,228	12,228	-	100%	15	48	63	74	1,478	4.24%	4.24%	4.24%	4.24%	137	(952)	(815)	621
2046	12,035	12,035	-	100%	15	47	62	74	1,481	4.21%	4.21%	4.21%	4.21%	136	(934)	(798)	611
2047	11,849	11,849	-	100%	15	47	62	74	1,485	4.18%	4.18%	4.18%	4.18%	136	(916)	(780)	601

**Notes and assumptions:**

The projection is based on the results of the June 30, 2018 actuarial valuation and the actuarial assumptions documented in the 2018 Experience Study Report adopted by the Board on April 18, 2019.

The projection assumes that all actuarial assumptions are realized, including the assumed annual asset return of 5.25%.

New active members are assumed to be hired to replace the current active members as they are assumed to terminate employment or retire, but the total active membership population is assumed to decrease by 2% each future year.

The 63.86% employer contribution rate for FY 2018/2019 is the effective contribution rate after reflecting HB 265 which provided that Regional Mental Health/Mental Retardation

Boards, Local and District Health Departments, State Universities, and Community Colleges to contribute a 49.47% of pay contribution rate for FY 2018/2019. Collectively these entities reflect approximately 25% of the covered payroll in the System.

The proposed legislation extends this contribution rate relief one additional year so that the contribution rate for Quasi agencies is also equal to 49.47% for FY 2019/2020.

**We believe this constitutes a pattern of allowing these agencies to contribute less than the actuarially determined rate so the above projections assume that these entities will continue to pay a contribution rate of 49.47% for the entire projection and the non-Quasi agencies' contribution rates have been adjusted so that the System receives the contributions necessary to pay off the unfunded liability by 2043 (per the System's current funding policy).**

**If in any given year, the 49.47% contribution rate is not extended and all employers are required to pay the actuarially determined contribution, the contribution rate payable by all employers is shown in column 13.**

**Kentucky Retirement Systems**  
**KERS Non-Hazardous Insurance Fund**  
**Actuarial Analysis of HB 3: Proposed Legislation**  
**Exhibit 3-4**  
**(\$ in Millions)**

**Modeled Contribution Provisions: Quasi Employers Pay 49.47% & Non-Quasi Employers Pay the Remaining ADEC**  
**Valuation Assumptions: Recently Adopted Experience Study Assumptions (6.25% discount rate and 0% amortization payroll growth)**

**Projected Experience Scenario #2: Active Headcount Decreases by 2% Each Year (resulting in 0% payroll growth, which aligns with valuation assumptions)**  
**& Assets Earn 6.25% Annually (which aligns with valuation assumptions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Quasi Employer Contribution	Non-Quasi Employer Contribution	Total Employer Contribution	Member Contribution	Covered Payroll	Quasi Employer Contribution as % of Covered Payroll	Non-Quasi Employer Contribution as % of Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate	Annual Cash Flow Analysis			
														Member and Employer Contributions	Benefit Payments and Expenses	Net External Cash Flow	Investment Income
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
2018	\$ 2,436	\$ 887	\$ 1,549	36%	\$ 29	\$ 138	\$ 167	\$ 6	\$ 1,461	8.41%	12.40%	11.45%	12.40%	\$ 173	\$ (130)	\$ 43	\$ 57
2019	2,611	978	1,633	37%	29	137	166	6	1,449	8.41%	12.40%	11.45%	11.17%	172	(134)	38	63
2020	2,677	1,079	1,598	40%	29	132	161	7	1,444	8.41%	12.01%	11.15%	11.15%	168	(141)	27	69
2021	2,738	1,186	1,552	43%	29	132	161	7	1,440	8.41%	12.01%	11.15%	11.06%	168	(148)	20	75
2022	2,794	1,284	1,510	46%	29	127	156	8	1,435	8.41%	11.68%	10.90%	10.90%	164	(155)	9	81
2023	2,845	1,374	1,471	48%	29	127	156	8	1,432	8.41%	11.68%	10.90%	10.79%	164	(163)	1	86
2024	2,891	1,461	1,430	51%	29	124	153	9	1,429	8.41%	11.39%	10.68%	10.68%	162	(171)	(9)	91
2025	2,930	1,543	1,387	53%	29	123	152	9	1,427	8.41%	11.39%	10.68%	10.58%	161	(178)	(17)	96
2026	2,962	1,622	1,340	55%	29	120	149	10	1,424	8.41%	11.09%	10.45%	10.45%	159	(187)	(28)	101
2027	2,986	1,695	1,291	57%	29	120	149	10	1,421	8.41%	11.09%	10.45%	10.34%	159	(195)	(36)	105
2028	3,002	1,763	1,239	59%	29	116	145	11	1,418	8.41%	10.78%	10.21%	10.21%	156	(203)	(47)	109
2029	3,009	1,824	1,185	61%	28	117	145	11	1,417	8.41%	10.78%	10.21%	10.09%	156	(210)	(54)	112
2030	3,008	1,883	1,125	63%	28	113	141	11	1,416	8.41%	10.46%	9.97%	9.97%	152	(215)	(63)	116
2031	3,001	1,936	1,065	65%	28	113	141	12	1,416	8.41%	10.46%	9.97%	9.85%	153	(219)	(66)	119
2032	2,989	1,989	1,000	67%	28	110	138	12	1,416	8.41%	10.15%	9.73%	9.73%	150	(221)	(71)	122
2033	2,972	2,039	933	69%	29	109	138	13	1,418	8.41%	10.15%	9.73%	9.63%	151	(224)	(73)	125
2034	2,951	2,091	860	71%	29	106	135	13	1,419	8.41%	9.90%	9.54%	9.54%	148	(225)	(77)	128
2035	2,928	2,143	785	73%	29	107	136	13	1,422	8.41%	9.90%	9.54%	9.46%	149	(224)	(75)	132
2036	2,904	2,200	704	76%	29	105	134	13	1,427	8.41%	9.66%	9.36%	9.36%	147	(222)	(75)	135
2037	2,880	2,260	620	78%	29	105	134	14	1,433	8.41%	9.66%	9.36%	9.27%	148	(219)	(71)	139
2038	2,858	2,328	530	81%	29	103	132	14	1,440	8.41%	9.41%	9.17%	9.17%	146	(216)	(70)	143
2039	2,837	2,402	435	85%	29	104	133	14	1,447	8.41%	9.41%	9.17%	9.09%	147	(212)	(65)	148
2040	2,818	2,484	334	88%	29	101	130	14	1,454	8.41%	9.12%	8.95%	8.95%	144	(208)	(64)	153
2041	2,802	2,574	228	92%	29	102	131	14	1,460	8.41%	9.12%	8.95%	8.88%	145	(205)	(60)	159
2042	2,789	2,673	116	96%	30	97	127	15	1,466	8.41%	8.75%	8.67%	8.67%	142	(201)	(59)	165
2043	2,779	2,779	-	100%	2	5	7	15	1,472	0.50%	0.50%	0.50%	0.50%	22	(197)	(175)	168
2044	2,771	2,771	-	100%	2	5	7	15	1,476	0.50%	0.50%	0.50%	0.50%	22	(195)	(173)	168
2045	2,766	2,766	-	100%	2	5	7	15	1,481	0.48%	0.48%	0.48%	0.48%	22	(193)	(171)	168
2046	2,762	2,762	-	100%	2	5	7	15	1,485	0.47%	0.47%	0.47%	0.47%	22	(193)	(171)	167
2047	2,758	2,758	-	100%	2	5	7	15	1,489	0.46%	0.46%	0.46%	0.46%	22	(193)	(171)	167

**Notes and assumptions:**

The projection is based on the results of the June 30, 2018 actuarial valuation and the actuarial assumptions documented in the 2018 Experience Study Report adopted by the Board on April 18, 2019.

The projection assumes that all actuarial assumptions are realized, including the assumed annual asset return of 6.25%.

New active members are assumed to be hired to replace the current active members as they are assumed to terminate employment or retire, but the total active membership population is assumed to decrease by 2% each future year.

The 11.45% employer contribution rate for FY 2018/2019 is the effective contribution rate after reflecting HB 265 which provided that Regional Mental Health/Mental Retardation

Boards, Local and District Health Departments, State Universities, and Community Colleges to contribute a 49.47% of pay contribution rate for FY 2018/2019. Collectively these entities reflect approximately 25% of the covered payroll in the System.

The proposed legislation extends this contribution rate relief one additional year so that the contribution rate for Quasi agencies is also equal to 49.47% for FY 2019/2020.

**We believe this constitutes a pattern of allowing these agencies to contribute less than the actuarially determined rate so the above projections assume that these entities will continue to pay a contribution rate of 49.47% for the entire projection and the non-Quasi agencies' contribution rates have been adjusted so that the System receives the contributions necessary to pay off the unfunded liability by 2043 (per the System's current funding policy).**

**If in any given year, the 49.47% contribution rate is not extended and all employers are required to pay the actuarially determined contribution, the contribution rate payable by all employers is shown in column 13.**