



February 22, 2019

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

Re: UPDATED 2/25 Actuarial Analysis of Proposed Pension Reform Legislation HB 358 HCS 1 and its Financial Impact on the Kentucky Employees Retirement System (KERS) AA Statement 1 of 1

Dear Mr. Eager:

The purpose of this letter is to provide an updated actuarial analysis of proposed legislation HB 358 Sub 1. This letter supersedes our prior analysis documented in our letter dated February 21, 2019.

Summary of Proposed Legislation

This proposed legislation has the following main provisions with the first two provisions affecting the seven universities (Eastern Kentucky University, Kentucky State University, Morehead State University, Murray State University, Northern Kentucky University, Western Kentucky University, and Kentucky Community Technical College System) as well as the Kentucky Higher Education Student Loan Corporation. The third provision would impact all quasi-governmental agencies that are participating in the KERS non-hazardous system (e.g. Mental Health, Health Districts, Non P1 agencies, and universities).

1. Prohibit university employees hired after the date this legislation becomes law from becoming Members in KERS.

This proposed legislation would prohibit employees hired by a university after the date this legislation becomes law from participating in the KERS non-hazardous system. The university would not make any contributions (including amortization payments) to KERS on the payroll of these university employees. **This provision provides the universities a soft-freeze without requiring them to appropriately finance their portion of the unfunded liability resulting in increased cost and risk to remaining participating employers in the System. We believe that enacting this provision will result in substantial sustainability risk as other employers lobby for the enactment of similar type legislation to reduce their pension cost.** However, this risk would be subsided if KRS was able to collect the amortization payments from employers on a fixed-dollar basis that was unrelated to covered payroll.

2. Provide the universities a window to withdrawal from KERS Non-Hazardous System under slightly different cessation provisions.

The legislation would provide a window to allow them to withdrawal from the KERS Non-Hazardous System using provisions that are somewhat different than the cessation provisions that are currently in State Statute (KRS 61.522 as amended by HB 351). The proposed legislation also includes a provision allowing active members of a university withdrawing from the System to elect to remain in KERS. Providing members this choice may be problematic with the IRS cash-or-deferred arrangement rules (CODA) which is discussed in more detail later in this letter.

3. Extend the 49.47% contribution rate in effect for fiscal year 18/19 to also be effective for fiscal year 19/20 for all quasi-governmental agencies

Certain quasi-governmental agencies (e.g. Mental Health, Health Districts, Non P1 agencies, and universities) are currently contributing 49.47% (41.06% retirement and 8.41% insurance) of pay for fiscal year 2018/2019 to the KERS non-hazardous system. The other participating employers are contributing 83.43% of pay for the fiscal year 2018/2019. This proposed legislation would provide the quasi-governmental agencies another one-year extension of their current contribution rate relief for fiscal year 2019/2020.

Summary of Cost Impact

The following summarizes the fiscal impact of the key provisions in the proposed legislation:

- 1) Prohibiting university employees hired after the date this legislation becomes law would reduce their contribution effort to the finance the unfunded liability in KERS. The present value of the decrease in those amortization payments (pension and insurance) is \$684 million. If these missed amortization payments are not contributed by the universities or appropriated by the State, then the declining covered payroll of the universities will increase the actuarial determined contribution rate for remaining participating employers in KERS by approximately 1.00% of pay each biennium over the next 25 years.
- 2) There is no fiscal impact of the proposed alternative cessation provisions as these provisions are expected to result in an electing university to pay the same actuarial cost as the cessation provisions currently in State Statute.
- 3) Extending the 49.47% contribution rate in effect for FY 18/19 to FY 19/20 for all quasi-governmental agencies will reduce their required contribution effort by \$121 million for FY 19/20.

Section 1 includes exhibits that show a comparison of the fiscal impact of the proposed legislation to the current plan over the next 30 years on the: (1) unfunded actuarial accrued liability, (2) funded ratio, (3) total employer contribution dollars, and (4) projected composite employer contribution rates. Section 2 provides additional detail regarding each projection under the current plan and Section 3 provides similar information under the proposed legislation.

GRS Comments on Proposed Legislation

Prohibiting New University Employees from Becoming Members in KERS

This provision will result in increased cost and financial risk to the KERS (and the remaining participating employers in the System). **This provision is providing the universities a soft-freeze without requiring them to appropriately finance their portion of the unfunded liability. We believe that enacting this provision will result in substantial sustainability risk as other employers lobby for the enactment of similar type legislation to reduce their pension cost.** However, this risk would be subsided if KERS was able to collect the amortization payments on a fixed-dollar basis that was unrelated to covered payroll.

There is increased cost because KERS currently collects contributions on the university employees earning benefits in KERS. If the new university employees are not members of KERS, then the universities will be reducing their contribution effort for making contributions to amortize the unfunded liability of the System. As a result, the contribution rate as a percent of pay must increase on the remaining covered payroll in order for the System to collect the same amortization dollar amount. This will further encourage the remaining employers to reduce their covered payroll in KERS resulting in a continual spiral of the contribution rate.

Currently this provision states that *“Any employee hired on or after the effective date of this Act shall not, regardless of his or her membership date in the systems administered by the Kentucky Retirement Systems, be eligible to participate in the Kentucky Employees Retirement System for the duration of his or her employment with that institution.”* We request clarification on how this provision will be administered for current employees who terminate and are re-hired. Is a current employee prohibited from returning as an active member in KERS if that employee terminates (voluntary or involuntary) and is hired back? If the intended administration is to exclude this employee from KERS upon rehire then there could be additional cost and risk to the system than is currently modeled. For example, an institution could involuntarily terminate a group of employees after the spring semester with the intention of hiring them back before the fall semester so the institution could reduce their covered payroll in KERS.

For purposes of determining the fiscal analysis, we have assumed that current employees of the universities would terminate and retire as assumed in the actuarial valuation and did not make adjustments for possible different employee or employer behaviors.

Determination of the Actuarial Cost for an Employer Withdrawing from KERS

While the proposed provisions for determining the actuarial cost for the universities that elect to withdrawal at June 30, 2020 are slightly different than the cessation provisions currently in Statute, we do not believe the difference is material to have a measurable fiscal cost to the universities or the System. The effective discount rate will continue to be based on the yield of 30-year Treasury securities and there would only begin to be a cost difference if the actual 30-year Treasury rate at June 30, 2020 is less than the 3.00% discount rate floor.

As a technical comment, the proposed legislation states the assumptions and methods used in determining the actuarial cost will be the same as those used in the 2019 actuarial valuation. It would be more technically correct if the proposed provisions stated the 2020 actuarial valuation. However, from an administrative standpoint, we expect the actuarial assumptions used in the June 30, 2020 actuarial valuation to be the same as those used in the June 2019 actuarial valuation.

Allowing Entities the Choice of Payment Method

The proposed legislation will provide the universities the ability to select how to finance their actuarial cost, which may be as a lump-sum payment or installments over a defined period that is not to exceed 25 years. If the universities choose to make installments then the outstanding balance of their cost will be charged interest at the valuation interest rate of 5.25% per year (6.25% per year on the outstanding balance of the health insurance cost). There is no fiscal cost in the actuarial analysis resulting from the installment option because the interest charged on the outstanding balance is equal to the valuation interest rate for the non-hazardous retirement plan.

However, from a policy perspective this legislation is requiring KRS to be a creditor to these employers without control to the terms and conditions of the financial arrangement. This may expose KRS to some increased financial risk if these entities were to become financially troubled and did not completely finance their actuarial cost. Also, allowing the universities this payment option could result in other employers lobbying for the enactment of legislation to provide a similar option of financing cessation liability in a manner other than a lump sum. This could expose the system to increased financial risk.

Providing Active Members of the Universities the Choice to Elect to Remain in KERS

The proposed legislation would provide that if an employer elects to withdrawal from KERS then their active members will be provided a choice to remain in KERS and continue accruing additional benefits and service or to cease active membership in KERS and become a participant in the alternative retirement plan. The IRS will only permit this proposed feature if the alternative retirement plan requires the same mandatory pre-tax member contribution requirements as the members are contributing in KERS. Due to the potential qualification issues, we recommend KRS and/or the General Assembly obtain a legal opinion regarding this provision.

Year-Two Extension of the Contribution Rate for Quasi-Governmental Agencies

HB 265 enacted in the 2018 legislation session provided a contribution rate relief for fiscal year 2018/2019 for the quasi-governmental agencies (e.g. Mental Health, Health Districts, Non P1 agencies, and universities). The cost impact of this provision in HB 265, was \$135 million for fiscal year 2018/2019. Enacting another one-year extension is expected to result in a \$121 million reduction in the contribution effort for 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. To maintain the same expected contributions for the System, there would need to be a \$121 million appropriation to the plan in fiscal year 2019/2020.

This provision is also in other legislation (HB 268 and HB 307). You may refer to our actuarial analysis letter dated February 21, 2019 for additional information, including our discussion about how a pattern of one-year exemptions like this needs to be reflected in the calculation of the actuarial determined contribution rate to ensure the System is receiving the expected contribution dollar amount.

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. 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 actuarial valuation report. 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.

These projections also do not reflect the actual investment experience of the retirement system after the measurement date of June 30, 2018. The projections assume that the number of participating members in the KERS non-hazardous systems will remain constant each future year and that new members will enter the system to replace current active members who terminate or retire in future years. There is other proposed legislation that may impact the contribution rate in effect for these employers during fiscal year 2019/2020. The fiscal impact of that legislation has been excluded from this analysis.

This fiscal analysis assumes that none of the universities will elect to withdrawal from KERS at June 30, 2020 because this results in a lower contribution effort compared to the universities having to pay the full actuarial cost and provide the current employees a replacement benefit. The cost projections also assume that the contribution rate for the quasi-governmental employees will continue each year beyond fiscal year 2019/2020. This assumption is consistent with the fiscal analysis of this provision in HB 268 (and HB 307).

The determination of the fiscal impact of excluding new hires from KERS is equal to the present value of the difference in amortization cost (excluding the employer normal cost and member contribution rate) on the expected payroll of new hires. For purposes of determining this payroll amount we took the difference between the projected payroll assuming that the university will add new employees as current employees are expected to voluntarily terminate and retire from employment (i.e. maintain a constant workforce) minus the projected payroll of current members. This assumption is consistent with the baseline fiscal analysis projections. Some stakeholders may note that actual membership has been declining and a declining membership should be used to model the fiscal impact. If a declining membership was assumed then the model would also be based on an increasing contribution rate so the System can collect the same amortization dollar amount. Since the amortization dollar amount would be nearly identical in each scenario, the present value of those amortization amounts would also be similar.

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 the 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



Jamie Shaw, ASA, MAAA

K:\3505\2018\Leg 2019\08 HB 358 Sub 1\HB358_Fiscal_Analysis_032219.docx

Enclosures

Section 1. Comparison of Fiscal Impact

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

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

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

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

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			University Employer Contributions			Other Quasi Employer Contributions			Non-Quasi Employer Contributions			Total Employer Contribution			Non-Quasi Employer Contribution Rate		
	Current	Proposed	Difference	Current	Proposed	Difference	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)	(17)	(18)	(19)	(20)	(21)	(22)
2018	\$ 13,656	\$ 13,656	\$ -	13%	13%	0%	\$ 53	\$ 53	\$ -	\$ 92	\$ 92	\$ -	\$ 795	\$ 795	\$ -	\$ 940	\$ 940	\$ -	71.0%	71.0%	0.0%
2019	13,571	13,571	-	13%	13%	0%	92	53	(39)	161	93	(68)	805	805	-	1,058	951	(107)	71.0%	71.0%	0.0%
2020	13,325	13,433	108	15%	14%	-1%	98	46	(52)	169	94	(75)	849	978	129	1,116	1,118	2	73.7%	84.8%	11.1%
2021	12,967	13,077	110	17%	16%	-1%	100	44	(56)	172	96	(76)	863	990	127	1,135	1,130	(5)	73.7%	84.6%	10.9%
2022	12,585	12,706	121	19%	18%	-1%	97	41	(56)	167	97	(70)	840	968	128	1,104	1,106	2	70.5%	81.2%	10.7%
2023	12,222	12,345	123	21%	20%	-1%	99	39	(60)	170	99	(71)	855	983	128	1,124	1,121	(3)	70.5%	81.0%	10.5%
2024	11,817	11,948	131	23%	23%	0%	97	37	(60)	165	101	(64)	830	959	129	1,092	1,097	5	67.3%	77.7%	10.4%
2025	11,420	11,550	130	26%	25%	-1%	99	35	(64)	167	102	(65)	847	976	129	1,113	1,113	-	67.3%	77.5%	10.2%
2026	10,978	11,113	135	28%	27%	-1%	96	33	(63)	163	104	(59)	823	951	128	1,082	1,088	6	64.2%	74.1%	9.9%
2027	10,542	10,676	134	30%	29%	-1%	98	31	(67)	165	106	(59)	839	967	128	1,102	1,104	2	64.2%	74.0%	9.8%
2028	10,060	10,197	137	33%	32%	-1%	96	29	(67)	160	108	(52)	814	940	126	1,070	1,077	7	61.1%	70.6%	9.5%
2029	9,583	9,717	134	35%	34%	-1%	98	27	(71)	163	110	(53)	830	957	127	1,091	1,094	3	61.1%	70.5%	9.4%
2030	9,058	9,191	133	38%	37%	-1%	95	25	(70)	158	112	(46)	806	930	124	1,059	1,067	8	58.2%	67.2%	9.0%
2031	8,535	8,664	129	41%	40%	-1%	97	24	(73)	161	114	(47)	823	948	125	1,081	1,086	5	58.2%	67.1%	8.9%
2032	7,960	8,087	127	44%	43%	-1%	95	22	(73)	156	116	(40)	797	919	122	1,048	1,057	9	55.3%	63.7%	8.4%
2033	7,387	7,508	121	48%	47%	-1%	97	21	(76)	159	118	(41)	815	938	123	1,071	1,077	6	55.3%	63.6%	8.3%
2034	6,760	6,877	117	52%	50%	-2%	94	19	(75)	154	121	(33)	787	905	118	1,035	1,045	10	52.3%	60.1%	7.8%
2035	6,134	6,242	108	55%	54%	-1%	96	18	(78)	157	123	(34)	805	925	120	1,058	1,066	8	52.3%	60.1%	7.8%
2036	5,451	5,552	101	60%	59%	-1%	93	17	(76)	152	126	(26)	779	891	112	1,024	1,034	10	49.5%	56.6%	7.1%
2037	4,768	4,858	90	64%	63%	-1%	95	15	(80)	156	129	(27)	798	914	116	1,049	1,058	9	49.5%	56.6%	7.1%
2038	4,022	4,103	81	69%	68%	-1%	92	14	(78)	150	132	(18)	767	875	108	1,009	1,021	12	46.4%	52.8%	6.4%
2039	3,279	3,346	67	75%	74%	-1%	94	13	(81)	153	136	(17)	787	896	109	1,034	1,045	11	46.4%	52.8%	6.4%
2040	2,471	2,524	53	81%	80%	-1%	89	12	(77)	146	139	(7)	749	846	97	984	997	13	43.1%	48.7%	5.6%
2041	1,674	1,710	36	87%	86%	-1%	92	11	(81)	150	143	(7)	766	866	100	1,008	1,020	12	43.1%	48.7%	5.6%
2042	810	829	19	93%	93%	0%	83	10	(73)	136	146	10	700	777	77	919	933	14	38.4%	42.6%	4.2%
2043	-	-	-	100%	100%	0%	7	1	(6)	12	12	-	59	59	-	78	72	(6)	3.2%	3.2%	0.0%
2044	-	-	-	100%	100%	0%	7	1	(6)	12	12	-	60	59	(1)	79	72	(7)	3.1%	3.1%	0.0%
2045	-	-	-	100%	100%	0%	7	-	(7)	12	12	-	60	61	1	79	73	(6)	3.1%	3.1%	0.0%
2046	-	-	-	100%	100%	0%	7	-	(7)	12	12	-	61	61	-	80	73	(7)	3.1%	3.1%	0.0%
2047	-	-	-	100%	100%	0%	7	-	(7)	12	12	-	62	63	1	81	75	(6)	3.0%	3.0%	0.0%

Gabriel Roeder Smith & Company

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

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			University Employer Contributions			Other Quasi Employer Contributions			Non-Quasi Employer Contributions			Total Employer Contribution			Non-Quasi Employer Contribution Rate		
	Current	Proposed	Difference	Current	Proposed	Difference	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)	(17)	(18)	(19)	(20)	(21)	(22)
2018	\$ 1,549	\$ 1,549	\$ -	36%	36%	0%	\$ 11	\$ 11	\$ -	\$ 19	\$ 19	\$ -	\$ 137	\$ 137	\$ -	\$ 167	\$ 167	\$ -	12.4%	12.4%	0.0%
2019	1,519	1,519	-	39%	39%	0%	16	11	(5)	28	19	(9)	123	139	16	167	167	-	12.4%	12.4%	0.0%
2020	1,461	1,476	15	43%	42%	-1%	13	9	(4)	23	19	(4)	119	127	8	155	155	-	10.3%	11.1%	0.8%
2021	1,416	1,431	15	46%	45%	-1%	14	9	(5)	24	20	(4)	119	128	9	157	157	-	10.3%	11.0%	0.7%
2022	1,373	1,389	16	48%	48%	0%	13	8	(5)	23	20	(3)	114	122	8	150	150	-	9.7%	10.3%	0.6%
2023	1,336	1,352	16	51%	50%	-1%	13	8	(5)	23	20	(3)	117	124	7	153	152	(1)	9.7%	10.3%	0.6%
2024	1,293	1,309	16	53%	52%	-1%	13	7	(6)	22	20	(2)	111	119	8	146	146	-	9.1%	9.7%	0.6%
2025	1,252	1,269	17	55%	54%	-1%	13	7	(6)	22	21	(1)	114	120	6	149	148	(1)	9.1%	9.7%	0.6%
2026	1,204	1,222	18	57%	57%	0%	13	7	(6)	21	21	-	108	115	7	142	143	1	8.5%	9.0%	0.5%
2027	1,159	1,177	18	59%	59%	0%	13	6	(7)	22	22	-	110	117	7	145	145	-	8.5%	9.0%	0.5%
2028	1,107	1,125	18	61%	61%	0%	12	6	(6)	21	22	1	104	110	6	137	138	1	7.9%	8.4%	0.5%
2029	1,057	1,074	17	63%	62%	-1%	13	5	(8)	21	22	1	106	114	8	140	141	1	7.9%	8.4%	0.5%
2030	1,000	1,017	17	65%	64%	-1%	12	5	(7)	20	21	1	101	108	7	133	134	1	7.4%	7.8%	0.4%
2031	944	961	17	67%	66%	-1%	12	4	(8)	20	22	2	104	110	6	136	136	-	7.4%	7.8%	0.4%
2032	882	898	16	69%	68%	-1%	12	4	(8)	19	21	2	98	105	7	129	130	1	6.9%	7.3%	0.4%
2033	821	837	16	71%	70%	-1%	12	4	(8)	20	21	1	100	107	7	132	132	-	6.9%	7.3%	0.4%
2034	753	768	15	74%	73%	-1%	11	3	(8)	19	20	1	96	104	8	126	127	1	6.4%	6.9%	0.5%
2035	686	700	14	76%	75%	-1%	12	3	(9)	19	21	2	97	105	8	128	129	1	6.4%	6.9%	0.5%
2036	612	624	12	78%	78%	0%	11	3	(8)	18	20	2	94	101	7	123	124	1	6.0%	6.5%	0.5%
2037	537	548	11	81%	80%	-1%	11	2	(9)	19	20	1	96	105	9	126	127	1	6.0%	6.5%	0.5%
2038	455	465	10	84%	83%	-1%	11	2	(9)	18	20	2	92	100	8	121	122	1	5.6%	6.1%	0.5%
2039	372	381	9	87%	86%	-1%	11	2	(9)	18	20	2	95	103	8	124	125	1	5.6%	6.1%	0.5%
2040	282	289	7	90%	89%	-1%	11	2	(9)	17	19	2	90	98	8	118	119	1	5.2%	5.7%	0.5%
2041	192	198	6	93%	93%	0%	11	1	(10)	18	20	2	92	101	9	121	122	1	5.2%	5.7%	0.5%
2042	93	97	4	97%	96%	-1%	10	1	(9)	16	18	2	84	94	10	110	113	3	4.6%	5.2%	0.6%
2043	-	-	-	100%	100%	0%	1	-	(1)	2	2	-	10	9	(1)	13	11	(2)	0.5%	0.5%	0.0%
2044	-	-	-	100%	100%	0%	1	-	(1)	2	2	-	10	9	(1)	13	11	(2)	0.5%	0.5%	0.0%
2045	-	-	-	100%	100%	0%	1	-	(1)	2	2	-	10	9	(1)	13	11	(2)	0.5%	0.5%	0.0%
2046	-	-	-	100%	100%	0%	1	-	(1)	2	2	-	10	9	(1)	13	11	(2)	0.5%	0.5%	0.0%
2047	-	-	-	100%	100%	0%	1	-	(1)	2	2	-	10	9	(1)	13	11	(2)	0.5%	0.5%	0.0%

Gabriel Roeder Smith & Company

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

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

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	University Employer Contribution	Other Quasi Employer Contribution	Non-Quasi Employer Contribution	Total 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)	(11)	(12)	(13)
2018	\$ 15,675	\$ 2,019	\$ 13,656	13%	\$ 53	\$ 92	\$ 795	\$ 940	\$ 74	\$ 1,471	63.86%	71.03%
2019	15,677	2,106	13,571	13%	92	161	805	1,058	74	1,490	71.03%	74.54%
2020	15,662	2,337	13,325	15%	98	169	849	1,116	76	1,514	73.71%	73.71%
2021	15,631	2,664	12,967	17%	100	172	863	1,135	77	1,540	73.71%	72.25%
2022	15,584	2,999	12,585	19%	97	167	840	1,104	78	1,567	70.45%	70.45%
2023	15,521	3,299	12,222	21%	99	170	855	1,124	80	1,595	70.45%	68.91%
2024	15,443	3,626	11,817	23%	97	165	830	1,092	81	1,624	67.27%	67.27%
2025	15,350	3,930	11,420	26%	99	167	847	1,113	83	1,654	67.27%	65.80%
2026	15,243	4,265	10,978	28%	96	163	823	1,082	84	1,686	64.18%	64.18%
2027	15,121	4,579	10,542	30%	98	165	839	1,102	86	1,718	64.18%	62.71%
2028	14,984	4,924	10,060	33%	96	160	814	1,070	88	1,750	61.14%	61.14%
2029	14,840	5,257	9,583	35%	98	163	830	1,091	89	1,784	61.14%	59.75%
2030	14,682	5,624	9,058	38%	95	158	806	1,059	91	1,820	58.20%	58.20%
2031	14,512	5,977	8,535	41%	97	161	823	1,081	93	1,858	58.20%	56.82%
2032	14,333	6,373	7,960	44%	95	156	797	1,048	95	1,897	55.25%	55.25%
2033	14,145	6,758	7,387	48%	97	159	815	1,071	97	1,938	55.25%	53.89%
2034	13,950	7,190	6,760	52%	94	154	787	1,035	99	1,979	52.31%	52.31%
2035	13,748	7,614	6,134	55%	96	157	805	1,058	101	2,023	52.31%	51.00%
2036	13,542	8,091	5,451	60%	93	152	779	1,024	104	2,070	49.45%	49.45%
2037	13,339	8,571	4,768	64%	95	156	798	1,049	106	2,121	49.45%	48.09%
2038	13,142	9,120	4,022	69%	92	150	767	1,009	109	2,174	46.39%	46.39%
2039	12,954	9,675	3,279	75%	94	153	787	1,034	111	2,229	46.39%	45.03%
2040	12,777	10,306	2,471	81%	89	146	749	984	114	2,284	43.10%	43.10%
2041	12,613	10,939	1,674	87%	92	150	766	1,008	117	2,340	43.10%	41.68%
2042	12,461	11,651	810	93%	83	136	700	919	120	2,396	38.35%	38.35%
2043	12,321	12,321	-	100%	7	12	59	78	123	2,452	3.17%	3.17%
2044	12,195	12,195	-	100%	7	12	60	79	125	2,509	3.13%	3.13%
2045	12,082	12,082	-	100%	7	12	60	79	128	2,567	3.09%	3.09%
2046	11,983	11,983	-	100%	7	12	61	80	131	2,626	3.06%	3.06%
2047	11,898	11,898	-	100%	7	12	62	81	134	2,686	3.03%	3.03%

Notes and assumptions:

The projection is based on the results of the June 30, 2018 actuarial valuation and 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 total active population is assumed to remain flat through the entire projection.

The contribution rate established in the Commonwealth's biennium budget is based on the calculated actuarial determined contribution rate.

The 63.86% employer contribution rate for FY 2018 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, Community Colleges and any other agency eligible to voluntarily cease participating in the KERS 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
Exhibit 2-2
Current Plan
(\$ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	University Employer Contribution	Other Quasi Employer Contribution	Non-Quasi Employer Contribution	Total 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)	(11)	(12)	(13)
2018	\$ 2,436	\$ 887	\$ 1,549	36%	\$ 11	\$ 19	\$ 137	\$ 167	\$ 6	\$ 1,461	11.45%	12.40%
2019	2,497	978	1,519	39%	16	28	123	167	7	1,480	12.40%	10.65%
2020	2,558	1,097	1,461	43%	13	23	119	155	7	1,504	10.28%	10.28%
2021	2,614	1,198	1,416	46%	14	24	119	157	8	1,530	10.28%	10.01%
2022	2,666	1,293	1,373	48%	13	23	114	150	9	1,556	9.65%	9.65%
2023	2,714	1,378	1,336	51%	13	23	117	153	10	1,584	9.65%	9.36%
2024	2,756	1,463	1,293	53%	13	22	111	146	10	1,613	9.05%	9.05%
2025	2,792	1,540	1,252	55%	13	22	114	149	11	1,644	9.05%	8.77%
2026	2,823	1,619	1,204	57%	13	21	108	142	12	1,675	8.47%	8.47%
2027	2,848	1,689	1,159	59%	13	22	110	145	13	1,706	8.47%	8.20%
2028	2,865	1,758	1,107	61%	12	21	104	137	14	1,739	7.90%	7.90%
2029	2,875	1,818	1,057	63%	13	21	106	140	14	1,773	7.90%	7.63%
2030	2,878	1,878	1,000	65%	12	20	101	133	15	1,808	7.35%	7.35%
2031	2,874	1,930	944	67%	12	20	104	136	16	1,846	7.35%	7.10%
2032	2,867	1,985	882	69%	12	19	98	129	17	1,885	6.85%	6.85%
2033	2,856	2,035	821	71%	12	20	100	132	18	1,926	6.85%	6.63%
2034	2,843	2,090	753	74%	11	19	96	126	18	1,967	6.39%	6.39%
2035	2,828	2,142	686	76%	12	19	97	128	19	2,010	6.39%	6.21%
2036	2,814	2,202	612	78%	11	18	94	123	20	2,058	5.99%	5.99%
2037	2,801	2,264	537	81%	11	19	96	126	21	2,108	5.99%	5.81%
2038	2,792	2,337	455	84%	11	18	92	121	21	2,161	5.60%	5.60%
2039	2,786	2,414	372	87%	11	18	95	124	22	2,215	5.60%	5.43%
2040	2,785	2,503	282	90%	11	17	90	118	23	2,270	5.19%	5.19%
2041	2,789	2,597	192	93%	11	18	92	121	23	2,326	5.19%	5.01%
2042	2,797	2,704	93	97%	10	16	84	110	24	2,382	4.63%	4.63%
2043	2,811	2,811	-	100%	1	2	10	13	24	2,438	0.52%	0.52%
2044	2,830	2,830	-	100%	1	2	10	13	25	2,495	0.51%	0.51%
2045	2,853	2,853	-	100%	1	2	10	13	25	2,553	0.50%	0.50%
2046	2,879	2,879	-	100%	1	2	10	13	26	2,611	0.49%	0.49%
2047	2,908	2,908	-	100%	1	2	10	13	27	2,671	0.48%	0.48%

Notes and assumptions:

The projection is based on the results of the June 30, 2018 actuarial valuation and 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 total active population is assumed to remain flat through the entire projection.

The contribution rate established in the Commonwealth's biennium budget is based on the calculated actuarial determined contribution rate.

The 63.86% employer contribution rate for FY 2018 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, Community Colleges and any other agency eligible to voluntarily cease participating in the KERS 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.

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

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

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	University Employer Contribution	Other Quasi Employer Contribution	Non-Quasi Employer Contribution	Total Employer Contribution	Member Contribution	Total Covered Payroll	Quasi Employer Contribution as % of Covered Payroll	Non-Quasi Employer Contribution as % of Covered Payroll	Weighted Avg. Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
2018	\$ 15,675	\$ 2,019	\$ 13,656	13%	\$ 53	\$ 92	\$ 795	\$ 940	\$ 74	\$ 1,471	41.06%	71.03%	63.86%	71.03%
2019	15,677	2,106	13,571	13%	53	93	805	951	74	1,490	41.06%	71.03%	63.86%	74.54%
2020	15,660	2,227	13,433	14%	46	94	978	1,118	75	1,494	41.06%	84.82%	74.80%	74.80%
2021	15,627	2,550	13,077	16%	44	96	990	1,130	76	1,511	41.06%	84.57%	74.80%	73.74%
2022	15,578	2,872	12,706	18%	41	97	968	1,106	76	1,529	41.06%	81.22%	72.37%	72.37%
2023	15,512	3,167	12,345	20%	39	99	983	1,121	77	1,549	41.06%	81.02%	72.37%	71.19%
2024	15,431	3,483	11,948	23%	37	101	959	1,097	78	1,570	41.06%	77.69%	69.89%	69.89%
2025	15,333	3,783	11,550	25%	35	102	976	1,113	80	1,592	41.06%	77.53%	69.89%	68.68%
2026	15,220	4,107	11,113	27%	33	104	951	1,088	81	1,616	41.06%	74.14%	67.32%	67.32%
2027	15,092	4,416	10,676	29%	31	106	967	1,104	82	1,640	41.06%	74.01%	67.32%	66.07%
2028	14,948	4,751	10,197	32%	29	108	940	1,077	83	1,664	41.06%	70.62%	64.71%	64.71%
2029	14,795	5,078	9,717	34%	27	110	957	1,094	85	1,690	41.06%	70.51%	64.71%	63.48%
2030	14,627	5,436	9,191	37%	25	112	930	1,067	86	1,718	41.06%	67.18%	62.11%	62.11%
2031	14,447	5,783	8,664	40%	24	114	948	1,086	87	1,748	41.06%	67.10%	62.11%	60.85%
2032	14,257	6,170	8,087	43%	22	116	919	1,057	89	1,780	41.06%	63.65%	59.38%	59.38%
2033	14,057	6,549	7,508	47%	21	118	938	1,077	91	1,813	41.06%	63.59%	59.38%	58.10%
2034	13,849	6,972	6,877	50%	19	121	905	1,045	92	1,847	41.06%	60.13%	56.61%	56.61%
2035	13,632	7,390	6,242	54%	18	123	925	1,066	94	1,882	41.06%	60.08%	56.61%	55.33%
2036	13,411	7,859	5,552	59%	17	126	891	1,034	96	1,922	41.06%	56.62%	53.81%	53.81%
2037	13,191	8,333	4,858	63%	15	129	914	1,058	98	1,966	41.06%	56.59%	53.81%	52.47%
2038	12,976	8,873	4,103	68%	14	132	875	1,021	101	2,012	41.06%	52.84%	50.75%	50.75%
2039	12,769	9,423	3,346	74%	13	136	896	1,045	103	2,059	41.06%	52.83%	50.75%	49.34%
2040	12,571	10,047	2,524	80%	12	139	846	997	105	2,106	41.06%	48.69%	47.35%	47.35%
2041	12,385	10,675	1,710	86%	11	143	866	1,020	108	2,154	41.06%	48.67%	47.35%	45.85%
2042	12,210	11,381	829	93%	10	146	777	933	110	2,203	41.06%	42.63%	42.36%	42.36%
2043	12,046	12,046	-	100%	1	12	59	72	113	2,252	3.18%	3.18%	3.18%	3.18%
2044	11,894	11,894	-	100%	1	12	59	72	115	2,301	3.14%	3.14%	3.14%	3.14%
2045	11,754	11,754	-	100%	-	12	61	73	118	2,351	3.10%	3.10%	3.10%	3.10%
2046	11,627	11,627	-	100%	-	12	61	73	120	2,402	3.06%	3.06%	3.06%	3.06%
2047	11,513	11,513	-	100%	-	12	63	75	123	2,454	3.04%	3.04%	3.04%	3.04%

Notes and assumptions:

The projection assumes that none of the universities will elect to withdrawal from KERS on June 30, 2020.

Quasi employers are assumed to contribute a maximum contribution of 41.06% of payroll all future years. Employer contribution rates for the other employers in KERS have been increased such that the System receives the biannual actuarially determined employer contribution rate starting in the 2020/2021 fiscal year.

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

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	University Employer Contribution	Other Quasi Employer Contribution	Non-Quasi Employer Contribution	Total Employer Contribution	Member Contribution	Total Covered Payroll	Quasi Employer Contribution as % of Covered Payroll	Non-Quasi Employer Contribution as % of Covered Payroll	Weighted Avg. Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
2018	\$ 2,436	\$ 887	\$ 1,549	36%	\$ 11	\$ 19	\$ 137	\$ 167	\$ 6	\$ 1,461	8.41%	12.40%	11.45%	12.40%
2019	2,497	978	1,519	39%	11	19	139	167	6	1,480	8.41%	12.40%	11.45%	10.65%
2020	2,558	1,082	1,476	42%	9	19	127	155	7	1,484	8.41%	11.06%	10.45%	10.45%
2021	2,614	1,183	1,431	45%	9	20	128	157	8	1,501	8.41%	11.04%	10.45%	10.23%
2022	2,665	1,276	1,389	48%	8	20	122	150	8	1,518	8.41%	10.32%	9.90%	9.90%
2023	2,711	1,359	1,352	50%	8	20	124	152	9	1,538	8.41%	10.31%	9.90%	9.66%
2024	2,752	1,443	1,309	52%	7	20	119	146	10	1,559	8.41%	9.65%	9.39%	9.39%
2025	2,788	1,519	1,269	54%	7	21	120	148	11	1,581	8.41%	9.65%	9.39%	9.15%
2026	2,817	1,595	1,222	57%	7	21	115	143	11	1,605	8.41%	9.01%	8.89%	8.89%
2027	2,840	1,663	1,177	59%	6	22	117	145	12	1,628	8.41%	9.01%	8.89%	8.64%
2028	2,856	1,731	1,125	61%	6	22	110	138	13	1,653	8.37%	8.37%	8.37%	8.37%
2029	2,863	1,789	1,074	62%	5	22	114	141	13	1,679	8.37%	8.37%	8.37%	8.11%
2030	2,864	1,847	1,017	64%	5	21	108	134	14	1,707	7.84%	7.84%	7.84%	7.84%
2031	2,858	1,897	961	66%	4	22	110	136	15	1,737	7.84%	7.84%	7.84%	7.60%
2032	2,847	1,949	898	68%	4	21	105	130	16	1,768	7.34%	7.34%	7.34%	7.34%
2033	2,833	1,996	837	70%	4	21	107	132	16	1,801	7.34%	7.34%	7.34%	7.14%
2034	2,816	2,048	768	73%	3	20	104	127	17	1,835	6.92%	6.92%	6.92%	6.92%
2035	2,798	2,098	700	75%	3	21	105	129	18	1,870	6.92%	6.92%	6.92%	6.73%
2036	2,779	2,155	624	78%	3	20	101	124	18	1,910	6.51%	6.51%	6.51%	6.51%
2037	2,762	2,214	548	80%	2	20	105	127	19	1,953	6.51%	6.51%	6.51%	6.33%
2038	2,748	2,283	465	83%	2	20	100	122	20	1,999	6.10%	6.10%	6.10%	6.10%
2039	2,737	2,356	381	86%	2	20	103	125	20	2,046	6.10%	6.10%	6.10%	5.93%
2040	2,730	2,441	289	89%	2	19	98	119	21	2,093	5.69%	5.69%	5.69%	5.69%
2041	2,728	2,530	198	93%	1	20	101	122	21	2,141	5.69%	5.69%	5.69%	5.53%
2042	2,730	2,633	97	96%	1	18	94	113	22	2,189	5.15%	5.15%	5.15%	5.15%
2043	2,737	2,737	-	100%	-	2	9	11	22	2,238	0.51%	0.51%	0.51%	0.51%
2044	2,748	2,748	-	100%	-	2	9	11	23	2,286	0.50%	0.50%	0.50%	0.50%
2045	2,763	2,763	-	100%	-	2	9	11	23	2,336	0.49%	0.49%	0.49%	0.49%
2046	2,782	2,782	-	100%	-	2	9	11	24	2,387	0.48%	0.48%	0.48%	0.48%
2047	2,802	2,802	-	100%	-	2	9	11	24	2,439	0.47%	0.47%	0.47%	0.47%

Notes and assumptions:

The projection assumes that none of the universities will elect to withdrawal from KERS on June 30, 2020.

Quasi employers are assumed to contribute a maximum contribution of 8.41% of payroll all future years. Employer contribution rates for the other employers in KERS have been increased such that the System receives the biannual actuarially determined employer contribution rate starting in the 2020/2021 fiscal year.