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March 12, 2019

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

Re: Actuarial Analysis of Proposed Pension Reform Legislation HB 358 SCS 1 (cessation window for quasi-governmental agencies) 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 actuarial analysis of proposed legislation HB 358 SCS 1 as it applies to the Kentucky Employees Retirement Systems (non-hazardous only). This proposed legislation will provide a window for approximately 118 quasi-governmental agencies (e.g. health districts, regional mental health services, Non P1 agencies, and universities) that are currently participating employers in KERS to elect to cease participation in KERS using different provisions than those currently in effect in State Statute (KRS 61.522 as amended by HB 351). Collectively, these employers represent approximately 25% of the covered payroll and 20% of the actuarial accrued liability in the KERS Non-Hazardous System.

Summary of Cost Impact

Compared to current cessation provisions, this proposed legislation will have a $1.036 billion fiscal impact to the KERS Non-Hazardous System, which will result in approximately a 7.00% increase in the actuarially determined contribution rate (i.e. an increase from 78.2% of pay to 85.2% of pay) for the next 21 years beginning with the fiscal year 2022/2023 for the remaining participating employers in the System. Of this total fiscal impact, $121 million is attributable to the continuation of the 49.47% contribution rate for these agencies for fiscal year 2019/2020 and $915 million is attributable to the proposed cessation provisions.

Note this proposed legislation allows agencies to finance the actuarial cost of withdrawing from the System in installments, which will result in increased cost and risk if the agencies cease to exist before their full actuarial cost is financed. Also, it includes a provision that requires a decrease in the employer installments if general appropriations to the regional medical health services and health districts decrease in a future year. We are unable to determine a fiscal cost to these provisions, but believe both of these provisions have a material financial cost and risk to KERS given the long-term installment period that would result from this cessation window.

This fiscal cost does not reflect a material risk that these employers will make a concerted effort to reduce their fiscal year 2019/2020 contributions to reduce their required annual cost under this proposed cessation window.

Summary of Proposed Legislation

The following table provides a summary of the two cessation windows.

	Section 1 Window	**Section 2 Window**
Eligibility	Universities Only (non-hazardous employees only)	All Quasi Agencies, including Universities (non-hazardous employees only)
Effective cessation date	June 30, 2020	June 30, 2020
Employer Election Date	Must submit a resolution by December 31, 2019 to opt-out of KERS. Resolution may not be rescinded.	Must submit a resolution by December 31, 2019 to remain in KERS. Resolution may not be rescinded.
Board authority	The Board is unable to deny an employer's election to cease participation or further increase the amount of the required annual payments.	The Board is unable to prevent an agency from withdrawing or further increase the amount required annual payments.
Date new hire employees earn benefits in an alternate plan	No new hires will earn benefits in KERS after university submits a resolution to cease participation. Resolution may not be rescinded.	No new hires will earn benefits in KERS after the effective cessation date.
Benefit election for current employee	Current members earning Tier 1 or Tier 2 benefits may elect to continue earning benefits in KERS up to the age they become eligible to commence their retirement benefit without reduction. Current members earning Tier 3 benefits will not earn benefits after the effective cessation date.	No employee election. All current members will earn future benefits in the alternative plan maintained by the agency after the effective cessation date.

Continued on following page.

Interest rate used to determine the actuarial cost	Lesser of the assumed rate of return utilized in the 2018 actuarial valuation or the yield on a 30-year Treasury bond as of June 30, 2020. 4.50% minimum if the agency pays the full actuarial cost as a lump-sum payment. 3.00% minimum if the agency pays the cost in installments.	Lesser of the assumed rate of return utilized in the 2018 actuarial valuation or the yield on a 30-year Treasury bond as of June 30, 2020. 4.50% minimum if the agency pays the full actuarial cost as a lump-sum payment. 3.00% minimum if the agency pays the cost in installments.
Other actuarial assumptions	Same as those used to prepare the 2018 actuarial valuation.	Same as those used to prepare the 2018 actuarial valuation.
Interest rate on outstanding principle (only applicable on installment payments)	5.25% for the pension cost 6.25% for the insurance cost	3.00% for the pension and insurance cost
Annual installment payments	Contribution for fiscal year 2020/2021 equal to actual contribution made in 2019/2020. Contributions each future year will increase by 1.50% until the outstanding balance is fully financed. Employers may choose to pay off the remaining balance at any time.	Contribution for fiscal year 2020/2021 equal to actual contribution made in 2019/2020. Contributions each future year will increase by 1.50% until the outstanding balance is fully financed. Employers may choose to pay off the remaining balance at any time.
Change in general fund appropriations	A reduction in general fund appropriations to help pay retirement contributions will reduce the agency's required contribution on a dollar-for-dollar basis.	A reduction in general fund appropriations to help pay retirement contributions will reduce the agency's required contribution on a dollar-for-dollar basis.
Noncontributing employers	Not applicable.	KRS has authority to establish the employer contribution requirement for any ceasing employer that did not make any contributions during the 2019/2020 fiscal year.

This proposed legislation would also provide that the contribution rate for these 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 fiscal year 2019/2020. This is another one-year extension of contribution rate relief for these quasi-governmental agencies.

Discussion of the Fiscal Impact

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

<u>One-Year Continuation of Contribution Rate for Quasi-Governmental Agencies</u>

If this provision is enacted then the KERS non-hazardous systems will receive $121 million less in contributions than expected from these entities in fiscal year 2019/2020. This will result in a 0.7% increase in the actuarially determined contribution rate beginning with the 2020/2021 fiscal year and for the 22 subsequent years (i.e. 23 years in total).

The enclosed fiscal analysis assumes all quasi-governmental agencies (including the universities and their employees) will elect to withdraw from the System under the proposed provisions. If agencies do not withdraw from the system at June 30, 2020 and this subsidized rate continues past fiscal year 2019/2020, this provision could have a larger impact. You may refer to our analysis and discussion regarding this provision in the actuarial analysis on HB 268 and HB 307 (refer to GRS letter dated February 21, 2019).

<u>Employer Cessation Window</u>

If an employer elects to cease participation and pay their actuarial cost in installments, then the actuarial cost is determined using the 30-year Treasury rate (with a 3.00% floor on the interest rate), but the System can only collect a 3.00% interest annually on the agency's outstanding balance of unpaid cost. The use of a loan interest rate that is less than the assumed rate of return is a $915 million fiscal cost to the remaining employers in the System (including the Commonwealth). This cost represents the System's opportunity cost of not receiving the actuarial cost as a lump-sum and being able to invest those monies to earn the assumed rate of return. This will result in a 6.3% increase in the actuarially determined contribution rate beginning with the 2022/2023 fiscal year and for the 20 subsequent years (i.e. 21 years in total). This assumes no fiscal impact due to the 3.00% floor on the discount rate used to determine actuarial cost. If the actual yield on 30-year Treasury securities at June 30, 2020 is less than 3.00%, this fiscal cost could be higher.

On the other hand, if the employer pays the actuarial cost as a lump-sum payment, the actuarial cost is determined using a 4.50% interest rate. Compared to the current yield on 30-year Treasury securities (approximately 3%), this has a $700 million fiscal cost if all the quasi agencies ceased participation and paid the calculated actuarial cost as a lump-sum payment.

The attached analysis illustrates the $915 million fiscal cost (assuming all employers pay their actuarial cost in installments). Additionally, we have assumed that no university employers withdraw from the system under the provisions of the Section 1 window as these provisions have a greater fiscal cost compared to the a withdraw under Section 2 and making the installment payments. Stated another way, this assumption provides the largest potential fiscal impact on the System.

There is a provision requiring a dollar-for-dollar reduction in the employer's required installment if the general fund appropriation to assist with the employer retirement contributions ever decreases below the amount appropriated in fiscal year 2019/2020, which is $23 million for the regional mental health services and $25 million for the health districts. If the State decreased these appropriations in any future year, there would be a direct decrease in the installments from these employers, which would significantly increase the time-period required for these employers to finance their liability, resulting in increased actuarial cost to the remaining employers in KERS. However, due to the uncertainty in future State budgeting we are unable to quantify the financial impact of this risk.

The KRS Board will not be permitted to deny an employer electing to cease participation under this window. We believe this introduces additional financial risk as there may be some employers that will elect to cease participation and become financially stressed resulting in a partial or complete default on their installments before being fully paid. This is another risk we are unable to quantify as this assessment would require a detailed financial review of each employer's financial statements.

GRS Comments on Proposed Legislation

<u>Determination of the Actuarial Cost for an Employer Withdrawing from KERS</u>

The current cessation provisions in State Statute provide a financially fair basis for the System and participating employer on which to determine an actuarial cost for withdrawing employers to exit KERS and are not expected to result in increased fiscal cost or financial risk to the remaining participating employers (and members) in the System.

Legislation that provides a window with the use of an interest rate that is higher than the current yield on 30-year Treasuries and specifies the System must allow the employer pay for this cost in installments will create a precedent for other participating employers to lobby for the enactment of similar type legislation on a temporary or permanent basis. Enactment of any such similar type legislation will result in continual increased cost and risk for the remaining participating employers in the System.

Also, the provisions require the use of the same actuarial assumptions (other than the discount rate) that is used to perform the 2018 actuarial valuation. Given the effective cessation date isJune 30, 2020, the other actuarial assumptions used in the calculation of the liability should also be based on the assumptions used to prepare the June 30, 2020 actuarial valuation.

Determining the Installment Payment Amount and Specified Interest Rate on Outstanding Balance

Currently, a withdrawing employer in KRS must pay their cessation liability as a one-time lump-sum payment. Installment payments are not currently permitted. This legislation would require KRS to be a creditor to these employers without control of the terms and conditions of the financial arrangement. This will expose KRS to increased financial risk if these entities were to become financially troubled and did not completely finance their actuarial cost.

The stipulation of a low interest rate loan used in combination of low installment payments results in a significant cost to the system. This legislation specifies the dollar contribution for a withdrawing employer for fiscal year 2020/2021 be equal to the dollar amount of their actual contribution for fiscal year 2018/2019. The minimum required contribution each subsequent year is equal to the prior year's contribution increased by 1.50% until their actual cost has been fully financed. Under this payment schedule on a collective basis, approximately 25% of the original actuarial cost will be financed in 10 years (i.e. 75% of original balance remaining) and only approximately 58% of the actuarial cost will be financed in 20 years (i.e. 42% of the original balance remaining). When reviewing this on an employer basis, only 42 of the 118 quasi employers will have fully financed their actuarial cost within the same 20-year period under this installment provision. **This analysis also ignores a material risk that these employers will make a concerted effort to reduce their fiscal year 2019/2020 contributions to reduce their required future annual cost under the proposed cessation window.**

Also, given the KERS Non-Hazardous System has $2 billion in plan assets and distributes approximately $1 billion in benefit payments each future year, a proposed change that would delay contributions to the system (versus the current provisions) results in increased financial risk to the System. As such we believe the legislation would significantly improve the sustainability of the System if the provisions required the electing employers to pay their actuarial cost as a lump-sum payment and there were separate arrangements made that provided these employers the financial assistance from a source other than the Retirement System (which may include the State) to make that lump-sum payment.

Board Required Acceptance of Agency Election

Currently the Board may reject an employer's request to withdrawal from KRS if the Board believes such request will financially harm the System. Requiring KRS to become a creditor, without control of the financial terms introduces financial risk to KRS as some of these employers may become financially stressed resulting in a default on their installments before being fully paid.

Employee Election to Continue to Earn Benefits in KERS

If a university elects to cease participation in KERS under Section 1, their employees who are earning Tier I and Tier II benefits are provided an opportunity to elect to continue to earn benefits. There are two potential legal issues with this provision although the first one appears to be addressed in the proposed legislation. In order to comply with the Internal Revenue Service cash-or-deferred arrangement (CODA) rules, the alternative retirement plan is required to have the same mandatory pre-tax member contribution requirement as the member's current pre-tax contribution in KERS.

Second, a member electing to continue to earn benefits in KERS, may only continue earning benefits in the System until the month following the month they attain the age they are eligible to commence their retirement benefit without reduction (i.e. 27 years of service for a Tier I member and age 57 with 87 points for a Tier II member) at which time the member is to be considered an inactive member in KERS and will earn all future benefits in the alternative benefit plan maintained by the University. The provision that ceases the employee's participation in KERS may be problematic with the IRS qualification requirements and federal age discrimination laws. Due to this potential problem, we recommend KRS and/or the General Assembly obtain a legal opinion and possibly seek a private letter ruling regarding this provision.

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.

This fiscal analysis assumes that all the eligible employers will elect to cease participation in KERS under this window and make installments with the specified 3.00% loan interest rate. This assumption results in the largest measurable fiscal impact. However, if enacted, the actual fiscal impact could be significantly greater as our analysis ignores the likelihood that future general fund appropriations to these entities will decrease, possible agency default risk, and other employer behavioral risk.

The enclosed exhibits assume these employers will cease participation at June 30, 2020 under both the baseline and proposed fiscal analysis. The baseline analysis assumes the employers withdraw under the current cessation provisions and the proposed analysis assumes the employers withdraw under the proposed provisions described in this letter.

For the purposes of determining the full actuarial cost of withdrawing employers, we have assumed a discount rate equal to 3.00% under the proposed legislation and 3.00% under the current provisions.

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

Janie Shaw, ASA, MAAA

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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 (Current Cessation Provisions) vs.
Proposed Changes (Proposed Cessation Window)

Kentucky Retirement Systems

KERS Non-Hazardous Retirement Fund
Exhibit 1-1
Comparison of Fiscal Impact (Current Cessation Provisions vs Proposed Cessation Window)
($ in Millions)

Fiscal Year Beginning	Unfunded Actuarial Accrued Liability			Funded Ratio			Quasi Employer Contribution			Non-Quasi Employer Contribution			Employer Contribution Rate		
July 1,	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%	$ 145	$ 145	$ -	$ 795	$ 795	$ -	63.9%	63.9%	0.0%
2019	13,571	13,571	-	13%	13%	0%	253	146	(107)	805	805	-	71.0%	63.9%	-7.1%
2020	13,067	13,177	110	15%	14%	-1%	2,975	144	(2,831)	850	857	7	73.7%	74.3%	0.6%
2021	9,888	12,902	3,014	35%	16%	-19%	-	146	146	865	872	7	73.7%	74.3%	0.6%
2022	9,596	12,611	3,015	37%	17%	-20%	-	148	148	842	909	67	70.5%	76.1%	5.6%
2023	9,318	12,270	2,952	38%	18%	-20%	-	150	150	857	926	69	70.5%	76.1%	5.6%
2024	9,009	11,892	2,883	39%	20%	-19%	-	152	152	833	900	67	67.3%	72.7%	5.4%
2025	8,706	11,515	2,809	41%	22%	-19%	-	153	153	849	917	68	67.3%	72.7%	5.4%
2026	8,369	11,099	2,730	42%	23%	-19%	-	155	155	825	891	66	64.2%	69.3%	5.1%
2027	8,037	10,683	2,646	44%	25%	-19%	-	156	156	840	908	68	64.2%	69.3%	5.1%
2028	7,669	10,224	2,555	46%	27%	-19%	-	158	158	816	882	66	61.1%	66.1%	5.0%
2029	7,305	9,764	2,459	47%	30%	-17%	-	160	160	832	899	67	61.1%	66.1%	5.0%
2030	6,905	9,259	2,354	49%	32%	-17%	-	162	162	807	873	66	58.2%	62.9%	4.7%
2031	6,506	8,750	2,244	51%	35%	-16%	-	162	162	824	891	67	58.2%	62.9%	4.7%
2032	6,069	8,194	2,125	54%	38%	-16%	-	165	165	799	864	65	55.2%	59.8%	4.6%
2033	5,632	7,633	2,001	56%	41%	-15%	-	166	166	816	883	67	55.2%	59.8%	4.6%
2034	5,154	7,021	1,867	59%	44%	-15%	-	166	166	789	854	65	52.3%	56.6%	4.3%
2035	4,677	6,406	1,729	62%	48%	-14%	-	146	146	806	872	66	52.3%	56.6%	4.3%
2036	4,157	5,758	1,601	66%	52%	-14%	-	135	135	780	844	64	49.5%	53.5%	4.0%
2037	3,636	5,116	1,480	69%	57%	-12%	-	131	131	799	865	66	49.5%	53.5%	4.0%
2038	3,067	4,424	1,357	74%	62%	-12%	-	130	130	769	832	63	46.4%	50.2%	3.8%
2039	2,501	3,731	1,230	78%	67%	-11%	-	129	129	788	853	65	46.4%	50.2%	3.8%
2040	1,885	2,981	1,096	83%	73%	-10%	-	122	122	751	812	61	43.2%	46.7%	3.5%
2041	1,277	2,242	965	88%	79%	-9%	-	123	123	769	831	62	43.2%	46.7%	3.5%
2042	618	1,443	825	94%	86%	-8%	-	116	116	701	757	56	38.4%	41.5%	3.1%
2043	-	686	686	100%	93%	-7%	-	93	93	59	59	-	3.2%	3.2%	0.0%
2044	-	630	630	100%	94%	-6%	-	82	82	59	59	-	3.1%	3.1%	0.0%
2045	-	583	583	100%	94%	-6%	-	70	70	60	60	-	3.1%	3.1%	0.0%
2046	-	545	545	100%	95%	-5%	-	70	70	61	61	-	3.0%	3.0%	0.0%
2047	-	506	506	100%	95%	-5%	-	69	69	62	62	-	3.0%	3.0%	0.0%

Kentucky Retirement Systems
KERS Non-Hazardous Insurance Fund
Exhibit 1-2
Comparison of Fiscal Impact (Current Cessation Provisions vs Proposed Cessation Window)
($ in Millions)

Fiscal Year Beginning	Unfunded Actuarial Accrued Liability			Funded Ratio			Quasi Employer Contribution			Non-Quasi Employer Contribution			Employer Contribution Rate		
July 1,	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%	$ 29	$ 29	$ -	$ 138	$ 138	$ -	11.5%	11.5%	0.0%
2019	1,519	1,519	-	39%	39%	0%	44	30	(14)	139	139	-	12.4%	11.5%	-0.9%
2020	1,433	1,448	15	43%	43%	0%	564	30	(534)	118	119	1	10.3%	10.4%	0.1%
2021	834	1,400	566	68%	46%	-22%	-	30	30	120	121	1	10.3%	10.4%	0.1%
2022	786	1,355	569	70%	48%	-22%	-	30	30	92	108	16	7.7%	9.1%	1.4%
2023	764	1,321	557	71%	50%	-21%	-	31	31	93	110	17	7.7%	9.1%	1.4%
2024	739	1,281	542	72%	52%	-20%	-	31	31	89	105	16	7.2%	8.5%	1.3%
2025	715	1,243	528	73%	53%	-20%	-	32	32	90	107	17	7.2%	8.5%	1.3%
2026	687	1,198	511	74%	55%	-19%	-	32	32	86	102	16	6.7%	8.0%	1.3%
2027	661	1,155	494	75%	57%	-18%	-	32	32	87	104	17	6.7%	8.0%	1.3%
2028	630	1,105	475	77%	59%	-18%	-	32	32	82	98	16	6.2%	7.4%	1.2%
2029	602	1,057	455	78%	61%	-17%	-	33	33	84	100	16	6.2%	7.4%	1.2%
2030	569	1,002	433	79%	62%	-17%	-	33	33	79	95	16	5.7%	6.9%	1.2%
2031	537	947	410	80%	64%	-16%	-	32	32	81	97	16	5.7%	6.9%	1.2%
2032	501	888	387	81%	66%	-15%	-	31	31	76	92	16	5.3%	6.4%	1.1%
2033	467	830	363	82%	68%	-14%	-	30	30	78	94	16	5.3%	6.4%	1.1%
2034	428	766	338	83%	70%	-13%	-	30	30	74	90	16	4.9%	6.0%	1.1%
2035	389	702	313	85%	72%	-13%	-	29	29	76	91	15	4.9%	6.0%	1.1%
2036	347	633	286	86%	75%	-11%	-	28	28	72	88	16	4.6%	5.6%	1.0%
2037	305	564	259	88%	77%	-11%	-	26	26	74	90	16	4.6%	5.6%	1.0%
2038	259	491	232	90%	80%	-10%	-	24	24	71	86	15	4.3%	5.2%	0.9%
2039	212	418	206	91%	83%	-8%	-	24	24	73	88	15	4.3%	5.2%	0.9%
2040	161	340	179	93%	86%	-7%	-	19	19	69	84	15	4.0%	4.8%	0.8%
2041	110	265	155	95%	89%	-6%	-	17	17	71	86	15	4.0%	4.8%	0.8%
2042	54	186	132	98%	92%	-6%	-	17	17	65	79	14	3.6%	4.3%	0.7%
2043	-	109	109	100%	95%	-5%	-	16	16	9	9	-	0.5%	0.5%	0.0%
2044	-	101	101	100%	96%	-4%	-	15	15	9	9	-	0.5%	0.5%	0.0%
2045	-	91	91	100%	96%	-4%	-	14	14	9	9	-	0.5%	0.5%	0.0%
2046	-	84	84	100%	97%	-3%	-	12	12	9	9	-	0.5%	0.5%	0.0%
2047	-	77	77	100%	97%	-3%	-	12	12	9	9	-	0.5%	0.5%	0.0%

Section 2.
Projected Cost of the Retirement and Insurance
Current Plan
(Current Cessation Provisions)

Kentucky Retirement Systems

KERS Non-Hazardous Retirement Fund
Exhibit 2-1
Current Plan (Current Cessation Provisions)
($ in Millions)

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	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)
2018	$ 15,675	$ 2,019	$ 13,656	13%	$ 145	$ 795	$ 74	$ 1,471	63.86%	71.03%
2019	15,677	2,106	13,571	13%	253	805	74	1,490	71.03%	74.54%
2020	15,404	2,337	13,067	15%	2,975	850	58	1,153	73.71%	73.71%
2021	15,287	5,399	9,888	35%	-	865	59	1,174	73.71%	72.36%
2022	15,156	5,560	9,596	37%	-	842	60	1,194	70.50%	70.50%
2023	15,011	5,693	9,318	38%	-	857	61	1,216	70.50%	68.92%
2024	14,853	5,844	9,009	39%	-	833	62	1,238	67.26%	67.26%
2025	14,681	5,975	8,706	41%	-	849	63	1,262	67.26%	65.77%
2026	14,496	6,127	8,369	42%	-	825	64	1,286	64.15%	64.15%
2027	14,298	6,261	8,037	44%	-	840	65	1,310	64.15%	62.69%
2028	14,086	6,417	7,669	46%	-	816	67	1,335	61.13%	61.13%
2029	13,866	6,561	7,305	47%	-	832	68	1,360	61.13%	59.73%
2030	13,635	6,730	6,905	49%	-	807	69	1,388	58.17%	58.17%
2031	13,394	6,888	6,506	51%	-	824	71	1,417	58.17%	56.80%
2032	13,146	7,077	6,069	54%	-	799	72	1,446	55.24%	55.24%
2033	12,891	7,259	5,632	56%	-	816	74	1,477	55.24%	53.88%
2034	12,631	7,477	5,154	59%	-	789	75	1,508	52.32%	52.32%
2035	12,367	7,690	4,677	62%	-	806	77	1,541	52.32%	51.01%
2036	12,101	7,944	4,157	66%	-	780	79	1,577	49.47%	49.47%
2037	11,839	8,203	3,636	69%	-	799	81	1,616	49.47%	48.12%
2038	11,584	8,517	3,067	74%	-	769	83	1,656	46.42%	46.42%
2039	11,339	8,838	2,501	78%	-	788	85	1,697	46.42%	45.07%
2040	11,105	9,220	1,885	83%	-	751	87	1,739	43.15%	43.15%
2041	10,884	9,607	1,277	88%	-	769	89	1,781	43.15%	41.74%
2042	10,676	10,058	618	94%	-	701	91	1,824	38.42%	38.42%
2043	10,481	10,481	-	100%	-	59	93	1,867	3.16%	3.16%
2044	10,301	10,301	-	100%	-	59	96	1,910	3.11%	3.11%
2045	10,134	10,134	-	100%	-	60	98	1,954	3.08%	3.08%
2046	9,982	9,982	-	100%	-	61	100	1,999	3.04%	3.04%
2047	9,845	9,845	-	100%	-	62	102	2,045	3.02%	3.02%

Notes and assumptions:

All eligible employers ("Quasi" employers) are assumed to cease participating from the system effective June 30, 2020 under the current cessation provisions.
The Quasi employer contributions shown for FY 20/21 reflect the cessation payments made by these employers.

Except where noted above, 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 (Current Cessation Provisions)
($ in Millions)

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	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)
2018	$ 2,436	$ 887	$ 1,549	36%	$ 29	$ 138	$ 6	$ 1,461	11.45%	12.40%
2019	2,497	978	1,519	39%	44	139	7	1,480	12.40%	10.65%
2020	2,530	1,097	1,433	43%	564	118	6	1,145	10.28%	10.28%
2021	2,570	1,736	834	68%	-	120	6	1,165	10.28%	8.26%
2022	2,602	1,816	786	70%	-	92	7	1,186	7.74%	7.74%
2023	2,629	1,865	764	71%	-	93	7	1,208	7.74%	7.49%
2024	2,651	1,912	739	72%	-	89	8	1,230	7.21%	7.21%
2025	2,668	1,953	715	73%	-	90	8	1,253	7.21%	6.97%
2026	2,680	1,993	687	74%	-	86	9	1,277	6.71%	6.71%
2027	2,686	2,025	661	75%	-	87	10	1,301	6.71%	6.47%
2028	2,686	2,056	630	77%	-	82	10	1,326	6.21%	6.21%
2029	2,680	2,078	602	78%	-	84	11	1,352	6.21%	5.97%
2030	2,668	2,099	569	79%	-	79	12	1,379	5.72%	5.72%
2031	2,650	2,113	537	80%	-	81	12	1,408	5.72%	5.51%
2032	2,629	2,128	501	81%	-	76	13	1,437	5.29%	5.29%
2033	2,605	2,138	467	82%	-	78	13	1,468	5.29%	5.12%
2034	2,578	2,150	428	83%	-	74	14	1,500	4.93%	4.93%
2035	2,549	2,160	389	85%	-	76	15	1,532	4.93%	4.77%
2036	2,521	2,174	347	86%	-	72	15	1,568	4.60%	4.60%
2037	2,494	2,189	305	88%	-	74	16	1,607	4.60%	4.46%
2038	2,470	2,211	259	90%	-	71	16	1,647	4.30%	4.30%
2039	2,448	2,236	212	91%	-	73	17	1,688	4.30%	4.17%
2040	2,430	2,269	161	93%	-	69	17	1,730	3.99%	3.99%
2041	2,415	2,305	110	95%	-	71	18	1,772	3.99%	3.88%
2042	2,405	2,351	54	98%	-	65	18	1,814	3.59%	3.59%
2043	2,399	2,399	-	100%	-	9	19	1,857	0.49%	0.49%
2044	2,398	2,398	-	100%	-	9	19	1,900	0.48%	0.48%
2045	2,400	2,400	-	100%	-	9	19	1,944	0.47%	0.47%
2046	2,406	2,406	-	100%	-	9	20	1,989	0.46%	0.46%
2047	2,413	2,413	-	100%	-	9	20	2,035	0.45%	0.45%

Notes and assumptions:

All eligible employers ("Quasi" employers) are assumed to cease participating from the system effective June 30, 2020 under the current cessation provisions.
The Quasi employer contributions shown for FY 20/21 reflect the cessation payments made by these employers.

Except where noted above, 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 11.45% 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)	Quasi Employer Contribution	Non-Quasi 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)
2018	$ 15,675	$ 2,019	$ 13,656	13%	$ 145	$ 795	$ 74	$ 1,471	63.86%	71.03%
2019	15,677	2,106	13,571	13%	146	805	74	1,490	63.86%	74.54%
2020	15,404	2,227	13,177	14%	144	857	58	1,153	74.27%	74.27%
2021	15,287	2,385	12,902	16%	146	872	59	1,174	74.27%	77.71%
2022	15,156	2,545	12,611	17%	148	909	60	1,194	76.13%	76.13%
2023	15,011	2,741	12,270	18%	150	926	61	1,216	76.13%	74.43%
2024	14,853	2,961	11,892	20%	152	900	62	1,238	72.66%	72.66%
2025	14,681	3,166	11,515	22%	153	917	63	1,262	72.66%	71.06%
2026	14,496	3,397	11,099	23%	155	891	64	1,286	69.33%	69.33%
2027	14,298	3,615	10,683	25%	156	908	65	1,310	69.33%	67.76%
2028	14,086	3,862	10,224	27%	158	882	67	1,335	66.08%	66.08%
2029	13,866	4,102	9,764	30%	160	899	68	1,360	66.08%	64.58%
2030	13,635	4,376	9,259	32%	162	873	69	1,388	62.92%	62.92%
2031	13,394	4,644	8,750	35%	162	891	71	1,417	62.92%	61.44%
2032	13,146	4,952	8,194	38%	165	864	72	1,446	59.76%	59.76%
2033	12,891	5,258	7,633	41%	166	883	74	1,477	59.76%	58.30%
2034	12,631	5,610	7,021	44%	166	854	75	1,508	56.61%	56.61%
2035	12,367	5,961	6,406	48%	146	872	77	1,541	56.61%	55.20%
2036	12,101	6,343	5,758	52%	135	844	79	1,577	53.53%	53.53%
2037	11,839	6,723	5,116	57%	131	865	81	1,616	53.53%	52.07%
2038	11,584	7,160	4,424	62%	130	832	83	1,656	50.23%	50.23%
2039	11,339	7,608	3,731	67%	129	853	85	1,697	50.23%	48.76%
2040	11,105	8,124	2,981	73%	122	812	87	1,739	46.67%	46.67%
2041	10,884	8,642	2,242	79%	123	831	89	1,781	46.67%	45.12%
2042	10,676	9,233	1,443	86%	116	757	91	1,824	41.48%	41.48%
2043	10,481	9,795	686	93%	93	59	93	1,867	3.16%	3.16%
2044	10,301	9,671	630	94%	82	59	96	1,910	3.11%	3.11%
2045	10,134	9,551	583	94%	70	60	98	1,954	3.08%	3.08%
2046	9,982	9,437	545	95%	70	61	100	1,999	3.04%	3.04%
2047	9,845	9,339	506	95%	69	62	102	2,045	3.02%	3.02%

<u>Notes and assumptions:</u>

All eligible employers ("Quasi" employers) are assumed to cease participating from the system effective June 30, 2020 under the proposed cessation provisions.
The Quasi employer contributions shown for FY 20/21 and later reflect the cessation payments made by these employers.

All postsecondary institutions are assumed to withdraw from the system under the option with 3% interest on the cessation balance.

Quasi employers are assumed to contribute 41.06% of payroll in each year prior to their cessation date of June 30, 2020.

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)	Quasi Employer Contribution	Non-Quasi 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)
2018	$ 2,436	$ 887	$ 1,549	36%	$ 29	$ 138	$ 6	$ 1,461	11.45%	12.40%
2019	2,497	978	1,519	39%	30	139	7	1,480	11.45%	10.65%
2020	2,530	1,082	1,448	43%	30	119	6	1,145	10.37%	10.37%
2021	2,570	1,170	1,400	46%	30	121	6	1,165	10.37%	9.55%
2022	2,602	1,247	1,355	48%	30	108	7	1,186	9.11%	9.11%
2023	2,629	1,308	1,321	50%	31	110	7	1,208	9.11%	8.82%
2024	2,651	1,370	1,281	52%	31	105	8	1,230	8.52%	8.52%
2025	2,668	1,425	1,243	53%	32	107	8	1,253	8.52%	8.25%
2026	2,680	1,482	1,198	55%	32	102	9	1,277	7.96%	7.96%
2027	2,686	1,531	1,155	57%	32	104	10	1,301	7.96%	7.69%
2028	2,686	1,581	1,105	59%	32	98	10	1,326	7.41%	7.41%
2029	2,680	1,623	1,057	61%	33	100	11	1,352	7.41%	7.15%
2030	2,668	1,666	1,002	62%	33	95	12	1,379	6.86%	6.86%
2031	2,650	1,703	947	64%	32	97	12	1,408	6.86%	6.63%
2032	2,629	1,741	888	66%	31	92	13	1,437	6.38%	6.38%
2033	2,605	1,775	830	68%	30	94	13	1,468	6.38%	6.19%
2034	2,578	1,812	766	70%	30	90	14	1,500	5.97%	5.97%
2035	2,549	1,847	702	72%	29	91	15	1,532	5.97%	5.78%
2036	2,521	1,888	633	75%	28	88	15	1,568	5.58%	5.58%
2037	2,494	1,930	564	77%	26	90	16	1,607	5.58%	5.41%
2038	2,470	1,979	491	80%	24	86	16	1,647	5.21%	5.21%
2039	2,448	2,030	418	83%	24	88	17	1,688	5.21%	5.05%
2040	2,430	2,090	340	86%	19	84	17	1,730	4.83%	4.83%
2041	2,415	2,150	265	89%	17	86	18	1,772	4.83%	4.69%
2042	2,405	2,219	186	92%	17	79	18	1,814	4.33%	4.33%
2043	2,399	2,290	109	95%	16	9	19	1,857	0.49%	0.49%
2044	2,398	2,297	101	96%	15	9	19	1,900	0.48%	0.48%
2045	2,400	2,309	91	96%	14	9	19	1,944	0.47%	0.47%
2046	2,406	2,322	84	97%	12	9	20	1,989	0.46%	0.46%
2047	2,413	2,336	77	97%	12	9	20	2,035	0.45%	0.45%

Notes and assumptions:
All eligible employers ("Quasi" employers) are assumed to cease participating from the system effective June 30, 2020 under the proposed cessation provisions.
The Quasi employer contributions shown for FY 20/21 and later reflect the cessation payments made by these employers.
All postsecondary institutions are assumed to withdraw from the system under the option with 3% interest on the cessation balance.
Quasi employers are assumed to contribute 8.41% of payroll in each year prior to their cessation date of June 30, 2020.