GRS Retirement Consulting

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March 28, 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 FCCR (Revised March 28, 2019) (cessation window for quasi-governmental agencies) and its Financial Impact on the Kentucky Employees Retirement System (KERS)

Dear Mr. Eager:

The purpose of this letter is to provide an actuarial analysis of proposed legislation HB 358 PSS1 (March 28, 2019) as it applies to the Kentucky Employees Retirement Systems (non-hazardous only). This proposed legislation will require approximately 121 quasi-governmental agencies (e.g. health districts, regional mental health services, Non P1 agencies, universities, and state administer retirement systems) that are currently participating employers in KERS to cease participation in KERS using different provisions than those currently in effect in State Statute (KRS 61.522 as amended by HB 351), unless they make an irrevocable election to remain a participating employer in KERS. 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, we have determined this proposed legislation to have a $799 million fiscal impact to the KERS Non-Hazardous System, which will result in approximately a 5.3% increase in the actuarially determined contribution rate (i.e. an increase from 78.2% of pay to 83.5% of pay beginning with the fiscal year 2022/2023) for the next 21 years 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 $678 million is attributable to the proposed cessation provisions.

Note this proposed legislation allows agencies ceasing their participation in KERS to either: (1) pay the actuarial cost as a lump-sum using more favorable actuarial assumptions than currently in effect, or (2) pay the actuarial cost (determined using the same actuarial assumptions in effect) in installments. **While the installment option is expected to be actuarially neutral to the current cessation provisions, there is a cost and risk to KRS as there is a provision that requires a decrease in the employer installments if general appropriations to the regional mental health services and health districts decrease in a future year. We are unable to determine a fiscal cost to this**

provision, but believe this has a material financial cost and risk to KERS given the long-term installment period that would result from this cessation window.

Also, this version of the proposed legislation has the same fiscal impact as a prior version of this legislation (HB 358 PSS 1 as Revised March 13, 2019) because this version of the legislation and the prior version of the legislation provided the employers to pay an actuarial cost based on a 4.50% discount rate, which was used in the model to determine the fiscal impact.

Summary of Proposed Legislation

This proposed legislation provides another one-year extension of the contribution rate relief for these quasi-governmental agencies (e.g. Mental Health, Health Districts, Non P1 agencies, and universities) and the applicable employer contribution rate will be 49.47% (41.06% retirement and 8.41% insurance) of pay for fiscal year 2019/2020. This proposed legislation requires these agencies to cease participation in KERS under provisions that are different from those currently in effect in State Statute. The following table provides a summary of the cessation provisions.

Effective cessation date	June 30, 2020
Eligibility	All Quasi Agencies (non-hazardous employees only)
Employer Election Date	Must submit a resolution by December 31, 2019 to remain in KERS. Resolution may not be rescinded once it has been submitted to the system.
Board authority	The Board is unable to deny an employer's election to continue participation, but the Board will have authority to adjust the principal balance of any of any agency making installment payments to reflect additional unfunded liabilities that have been created and attributable to the ceasing employer's current or former employees. The Board also has the authority to suspend benefit payments of current and former employees and retirees of a delinquent ceasing employer until the employer has made the required installment payments.
Date new hire employees earn benefits in an alternate plan	No employees hired on or after January 1, 2019 will earn benefits in KERS.
Benefit election for current employee	Current members earning Tier 1 or Tier 2 benefits may elect to continue earning benefits in KERS. Current members earning Tier 3 benefits will not earn benefits after the effective cessation date.

Discount 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.
Other actuarial assumptions	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
Annual installment payments	There are no annual installments for employers that cease participation and elect to finance the actuarial cost determined at a 4.50% discount rate as a lump-sum payment. Employers that cease participation and finance the actuarial cost in installments will contribute in fiscal year 2020/2021 a dollar amount equal to the agency's annualized average compensation between July 1, 2014 and June 30, 2019 (or as otherwise specified) multiplied by 49.47%. 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.

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, 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). 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) which also has this provision.

Employer Cessation

If an employer ceases participation and pays their actuarial cost as a lump-sum payment, then the actuarial cost is determined using a 4.50% discount rate in lieu of using a 30-year Treasury rate (we currently assume to be 3.00%). This option has an actuarial cost to KRS because the employers have an opportunity to cease participation and pay a lower actuarial cost compared to the current provisions in Statute. Specifically, this is a $678 million fiscal cost to the remaining employers in the System (including the Commonwealth) and will result in a 4.6% 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).

The attached analysis illustrates the $678 million fiscal cost (assuming all employers pay their actuarial cost as a lump-sum payment). This assumption provides the largest potential fiscal impact on the System.

Alternatively, if an eligible employer elects to cease participation and finance their actuarial cost by making installment payments to KRS, then the actuarial cost is determined using a 30-year Treasury rate and the System will collect interest annually at a rate of 5.25% (6.25% for the insurance fund) on the agency's outstanding balance of unpaid cost. This option is determined to be fiscally cost neutral compared to the current cessation provisions. However, we will illustrate in the next section there is critical need to specify higher installment payments for a majority of the employers to ensure their actuarial cost is financed over a reasonable time period.

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 require an employer to continue participation in the System. We believe this introduces additional financial risk as there may be some employers that will not elect to continue 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. However, this risk has been significantly reduced by the fact that that the proposed legislation provides the System the authority to suspend benefit payments and refunds of current and former employees and retirees of the delinquent ceasing employer until that employer has made the required installment payments.

GRS Comments on Proposed Legislation

Determination of the Actuarial Cost for an Employer Withdrawing from KERS

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 cessation window with the use of a discount rate that is higher than the current yield on 30-year Treasuries 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 is June 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.

Installment Payment Option

This legislation provides an option for these eligible employers to finance their actuarial cost by making installments to KRS. Establishing a loan interest rate that is equal to the assumed rate of return used in the actuarial valuation is expected to be fiscally cost neutral to the System. On the other hand, the proposed payment schedule for a withdrawing employer results in installments that are too low for a large number of employers as the initial payments are not even sufficient to pay for the interest cost on their cessation cost. The following table provides a summary of the number of employers making installments, the aggregate annual installments, and the aggregate outstanding balance at the initial year, and 10, 20, and 30 year marks. **Under the current installment provisions, there will still be $3,706 million in unpaid actuarial cost at the end of 30 years.**

Table of Illustrating the Payment Option
(Determined without Regard to the 30-Year Maximum Installment Period)

	# of Entities Making Payments	Installment in Fiscal Year	Unpaid Actuarial Cost
Fiscal Year 2021 (Initial Year)	118	$174M	$3,562M
Fiscal Year 2031 (Year 10)	103	196M	3,626M
Fiscal Year 2041 (Year 20)	89	177M	3,517M
Fiscal Year 2051 (Year 30)	74	169M	3,706M

Note: Illustration assumes all eligible employers elect to cease participation and make installment payments. Contributions are based on fiscal year 2018 pay, as we did not have a 60-month average pay available for this analysis. We believe this is reasonable for business making decisions.

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 that provided these employers the financial assistance from a source other than the Retirement System to make that lump-sum payment. For example, a State issued Pension Obligation Bond that allows the agencies to make payments to the State in order to finance the lump sum cessation payment to the System.

Employee Election to Continue to Earn Benefits in KERS

If an agency ceases participation in KERS, their employees who are earning Tier 1 and Tier 2 benefits are provided an opportunity to elect to continue to earn KERS benefits. No election is available to employees earning Tier 3 benefits. There is a potential legal issue with this provision. 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. The legislation appears to address this issue; however, we recommend KRS and/or the General Assembly obtain a legal opinion and seek a private letter ruling regarding the provision providing an employee election.

System Participation Cutoff Date

The proposed legislation requires that all employees of the quasi-governmental agencies hired after January 1, 2019, shall not participate in the KERS. The specified date of January 1, 2019 is problematic from an administrative and potentially a legal standpoint as there are currently employees hired after January 1, 2019 by these agencies that are currently earning benefits in KERS. We suggest changing the cutoff date to June 30, 2020 to align with the effective cessation date.

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 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. This analysis also ignores this risk. However, the fiscal impact of this risk is significantly reduced by this proposed legislation, as it provides that KRS may suspend benefit payments and refunds of current and former employees and retirees of the delinquent ceasing employer until the employer has made the required installment payments.

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 and employees will cease participation in KERS under this window under the 4.50% discount rate option and make the lump-sum payment to KRS. This assumption results in the largest measurable fiscal impact. However, if there are eligible employers that elect to cease participation in KRS and elect the installment payment option, then the System is exposed to a financial risk that future general fund appropriations to these entities will decrease. This fiscal impact does not reflect this possible outcome.

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 current provisions and 4.50% under the proposed legislation.

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

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 July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Quasi Employer Contribution			Non-Quasi Employer Contribution			Employer Contribution Rate		
	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	2,443	(532)	850	857	7	73.7%	74.3%	0.6%
2021	9,888	10,476	588	35%	31%	-4%	-	-	-	865	872	7	73.7%	74.3%	0.6%
2022	9,596	10,208	612	37%	33%	-4%	-	-	-	842	890	48	70.5%	74.6%	4.1%
2023	9,318	9,913	595	38%	34%	-4%	-	-	-	857	907	50	70.5%	74.6%	4.1%
2024	9,009	9,584	575	39%	35%	-4%	-	-	-	833	881	48	67.3%	71.2%	3.9%
2025	8,706	9,262	556	41%	37%	-4%	-	-	-	849	898	49	67.3%	71.2%	3.9%
2026	8,369	8,904	535	42%	39%	-3%	-	-	-	825	873	48	64.2%	67.9%	3.7%
2027	8,037	8,551	514	44%	40%	-4%	-	-	-	840	889	49	64.2%	67.9%	3.7%
2028	7,669	8,160	491	46%	42%	-4%	-	-	-	816	864	48	61.1%	64.7%	3.6%
2029	7,305	7,772	467	47%	44%	-3%	-	-	-	832	880	48	61.1%	64.7%	3.6%
2030	6,905	7,347	442	49%	46%	-3%	-	-	-	807	855	48	58.2%	61.6%	3.4%
2031	6,506	6,923	417	51%	48%	-3%	-	-	-	824	872	48	58.2%	61.6%	3.4%
2032	6,069	6,457	388	54%	51%	-3%	-	-	-	799	846	47	55.2%	58.5%	3.3%
2033	5,632	5,993	361	56%	54%	-2%	-	-	-	816	864	48	55.2%	58.5%	3.3%
2034	5,154	5,484	330	59%	57%	-2%	-	-	-	789	836	47	52.3%	55.4%	3.1%
2035	4,677	4,977	300	62%	60%	-2%	-	-	-	806	854	48	52.3%	55.4%	3.1%
2036	4,157	4,423	266	66%	63%	-3%	-	-	-	780	827	47	49.5%	52.4%	2.9%
2037	3,636	3,868	232	69%	67%	-2%	-	-	-	799	847	48	49.5%	52.4%	2.9%
2038	3,067	3,263	196	74%	72%	-2%	-	-	-	769	814	45	46.4%	49.2%	2.8%
2039	2,501	2,661	160	78%	77%	-1%	-	-	-	788	835	47	46.4%	49.2%	2.8%
2040	1,885	2,006	121	83%	82%	-1%	-	-	-	751	795	44	43.2%	45.7%	2.5%
2041	1,277	1,358	81	88%	88%	0%	-	-	-	769	814	45	43.2%	45.7%	2.5%
2042	618	656	38	94%	94%	0%	-	-	-	701	741	40	38.4%	40.6%	2.2%
2043	-	-	-	100%	100%	0%	-	-	-	59	59	-	3.2%	3.2%	0.0%
2044	-	-	-	100%	100%	0%	-	-	-	59	59	-	3.1%	3.1%	0.0%
2045	-	-	-	100%	100%	0%	-	-	-	60	60	-	3.1%	3.1%	0.0%
2046	-	-	-	100%	100%	0%	-	-	-	61	61	-	3.0%	3.0%	0.0%
2047	-	-	-	100%	100%	0%	-	-	-	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 July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Quasi Employer Contribution			Non-Quasi Employer Contribution			Employer Contribution Rate		
	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	418	(146)	118	119	1	10.3%	10.4%	0.1%
2021	834	986	152	68%	62%	-6%	-	-	-	120	121	1	10.3%	10.4%	0.1%
2022	786	946	160	70%	64%	-6%	-	-	-	92	106	14	7.7%	8.9%	1.2%
2023	764	920	156	71%	65%	-6%	-	-	-	93	108	15	7.7%	8.9%	1.2%
2024	739	890	151	72%	66%	-6%	-	-	-	89	102	13	7.2%	8.3%	1.1%
2025	715	862	147	73%	68%	-5%	-	-	-	90	104	14	7.2%	8.3%	1.1%
2026	687	829	142	74%	69%	-5%	-	-	-	86	99	13	6.7%	7.8%	1.1%
2027	661	797	136	75%	70%	-5%	-	-	-	87	101	14	6.7%	7.8%	1.1%
2028	630	761	131	77%	72%	-5%	-	-	-	82	96	14	6.2%	7.2%	1.0%
2029	602	726	124	78%	73%	-5%	-	-	-	84	98	14	6.2%	7.2%	1.0%
2030	569	687	118	79%	74%	-5%	-	-	-	79	92	13	5.7%	6.7%	1.0%
2031	537	649	112	80%	76%	-4%	-	-	-	81	94	13	5.7%	6.7%	1.0%
2032	501	606	105	81%	77%	-4%	-	-	-	76	89	13	5.3%	6.2%	0.9%
2033	467	564	97	82%	78%	-4%	-	-	-	78	91	13	5.3%	6.2%	0.9%
2034	428	517	89	83%	80%	-3%	-	-	-	74	87	13	4.9%	5.8%	0.9%
2035	389	471	82	85%	82%	-3%	-	-	-	76	89	13	4.9%	5.8%	0.9%
2036	347	420	73	86%	83%	-3%	-	-	-	72	85	13	4.6%	5.4%	0.8%
2037	305	369	64	88%	85%	-3%	-	-	-	74	87	13	4.6%	5.4%	0.8%
2038	259	313	54	90%	87%	-3%	-	-	-	71	84	13	4.3%	5.1%	0.8%
2039	212	256	44	91%	90%	-1%	-	-	-	73	86	13	4.3%	5.1%	0.8%
2040	161	195	34	93%	92%	-1%	-	-	-	69	81	12	4.0%	4.7%	0.7%
2041	110	132	22	95%	95%	0%	-	-	-	71	83	12	4.0%	4.7%	0.7%
2042	54	65	11	98%	97%	-1%	-	-	-	65	77	12	3.6%	4.2%	0.6%
2043	-	-	-	100%	100%	0%	-	-	-	9	9	-	0.5%	0.5%	0.0%
2044	-	-	-	100%	100%	0%	-	-	-	9	9	-	0.5%	0.5%	0.0%
2045	-	-	-	100%	100%	0%	-	-	-	9	9	-	0.5%	0.5%	0.0%
2046	-	-	-	100%	100%	0%	-	-	-	9	9	-	0.5%	0.5%	0.0%
2047	-	-	-	100%	100%	0%	-	-	-	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

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%	2,443	857	58	1,153	74.27%	74.27%
2021	15,287	4,811	10,476	31%	-	872	59	1,174	74.27%	76.23%
2022	15,156	4,948	10,208	33%	-	890	60	1,194	74.56%	74.56%
2023	15,011	5,098	9,913	34%	-	907	61	1,216	74.56%	72.89%
2024	14,853	5,269	9,584	35%	-	881	62	1,238	71.15%	71.15%
2025	14,681	5,419	9,262	37%	-	898	63	1,262	71.15%	69.59%
2026	14,496	5,592	8,904	39%	-	873	64	1,286	67.88%	67.88%
2027	14,298	5,747	8,551	40%	-	889	65	1,310	67.88%	66.34%
2028	14,086	5,926	8,160	42%	-	864	67	1,335	64.70%	64.70%
2029	13,866	6,094	7,772	44%	-	880	68	1,360	64.70%	63.23%
2030	13,635	6,288	7,347	46%	-	855	69	1,388	61.59%	61.59%
2031	13,394	6,471	6,923	48%	-	872	71	1,417	61.59%	60.15%
2032	13,146	6,689	6,457	51%	-	846	72	1,446	58.50%	58.50%
2033	12,891	6,898	5,993	54%	-	864	74	1,477	58.50%	57.07%
2034	12,631	7,147	5,484	57%	-	836	75	1,508	55.42%	55.42%
2035	12,367	7,390	4,977	60%	-	854	77	1,541	55.42%	54.04%
2036	12,101	7,678	4,423	63%	-	827	79	1,577	52.40%	52.40%
2037	11,839	7,971	3,868	67%	-	847	81	1,616	52.40%	50.97%
2038	11,584	8,321	3,263	72%	-	814	83	1,656	49.17%	49.17%
2039	11,339	8,678	2,661	77%	-	835	85	1,697	49.17%	47.74%
2040	11,105	9,099	2,006	82%	-	795	87	1,739	45.70%	45.70%
2041	10,884	9,526	1,358	88%	-	814	89	1,781	45.70%	44.18%
2042	10,676	10,020	656	94%	-	741	91	1,824	40.63%	40.63%
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%

<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 reflect the cessation payments made by these employers.

All Quasi employers are assumed to withdraw from the system under the option with a 4.50% discount rate on the withdrawal liability and a lump sum payment.

All Quasi employees are assumed to elect to withdraw from the system and cease all benefit accruals.

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

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%	418	119	6	1,145	10.37%	10.37%
2021	2,570	1,584	986	62%	-	121	6	1,165	10.37%	9.36%
2022	2,602	1,656	946	64%	-	106	7	1,186	8.91%	8.91%
2023	2,629	1,709	920	65%	-	108	7	1,208	8.91%	8.62%
2024	2,651	1,761	890	66%	-	102	8	1,230	8.32%	8.32%
2025	2,668	1,806	862	68%	-	104	8	1,253	8.32%	8.06%
2026	2,680	1,851	829	69%	-	99	9	1,277	7.78%	7.78%
2027	2,686	1,889	797	70%	-	101	10	1,301	7.78%	7.51%
2028	2,686	1,925	761	72%	-	96	10	1,326	7.23%	7.23%
2029	2,680	1,954	726	73%	-	98	11	1,352	7.23%	6.97%
2030	2,668	1,981	687	74%	-	92	12	1,379	6.69%	6.69%
2031	2,650	2,001	649	76%	-	94	12	1,408	6.69%	6.46%
2032	2,629	2,023	606	77%	-	89	13	1,437	6.22%	6.22%
2033	2,605	2,041	564	78%	-	91	13	1,468	6.22%	6.02%
2034	2,578	2,061	517	80%	-	87	14	1,500	5.81%	5.81%
2035	2,549	2,078	471	82%	-	89	15	1,532	5.81%	5.63%
2036	2,521	2,101	420	83%	-	85	15	1,568	5.43%	5.43%
2037	2,494	2,125	369	85%	-	87	16	1,607	5.43%	5.26%
2038	2,470	2,157	313	87%	-	84	16	1,647	5.07%	5.07%
2039	2,448	2,192	256	90%	-	86	17	1,688	5.07%	4.92%
2040	2,430	2,235	195	92%	-	81	17	1,730	4.71%	4.71%
2041	2,415	2,283	132	95%	-	83	18	1,772	4.71%	4.57%
2042	2,405	2,340	65	97%	-	77	18	1,814	4.23%	4.23%
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 proposed cessation provisions.
The Quasi employer contributions shown for FY 20/21 reflect the cessation payments made by these employers.

All Quasi employers are assumed to withdraw from the system under the option with a 4.50% discount rate on the withdrawal liability and a lump sum payment.

All Quasi employees are assumed to elect to withdraw from the system and cease all benefit accruals.

Quasi employers are assumed to contribute 8.41% of payroll in each year prior to their cessation date of June 30, 2020.

<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 reflect the cessation payments made by these employers.

All Quasi employers are assumed to withdraw from the system under the option with a 4.50% discount rate on the withdrawal liability and a lump sum payment.

All Quasi employees are assumed to elect to withdraw from the system and cease all benefit accruals.

Quasi employers are assumed to contribute 8.41% of payroll in each year prior to their cessation date of June 30, 2020.