

Actuarial Analysis Summary

AA Statement 1 and 2 of 2

BR or Bill Ref.	HB 143	Actuarial Analysis Conducted For:	<input type="checkbox"/> KERS NH <input checked="" type="checkbox"/> KERS Haz <input checked="" type="checkbox"/> SPRS <input type="checkbox"/> TRS
Date:	2/7/2024		
Actuary:	GRS		<input type="checkbox"/> CERS NH <input checked="" type="checkbox"/> CERS Haz <input type="checkbox"/> LRP <input type="checkbox"/> JRP

Section I: Executive Summary

In the opinion of the actuary, this bill would make the affected state-administered retirement system(s) actuarially:

MORE SOUND LESS SOUND NO IMPACT

If actuarially MORE SOUND OR LESS SOUND, please summarize the factors leading to the actuary's opinion:

The actuarially determined contribution rates increase by 2.51% of pay, 1.64% of pay, and 2.17% of pay for the CERS Hazardous, KERS Hazardous, and SPRS pension funds, respectively. The proposed legislation also results in an increase in the long-term cost of the funds, shown below in the increase in the projected normal cost for a new hire. As long as employer contribution rates are increased accordingly, we do not believe this benefit change will impact the current actuarial soundness of the funds.

Does this bill increase or decrease employer costs? INCREASE DECREASE NO IMPACT
Does this bill increase or decrease benefits? INCREASE DECREASE NO IMPACT
Does this bill increase or decrease benefit participation? INCREASE DECREASE NO IMPACT

If the bill impacts employer costs, benefits, or benefit participation, please explain and estimate the impact in Sections II and VI.

Section II: Financial Projections

	Combined Pension and Retiree Health Plan					
	CERS Hazardous		KERS Hazardous		SPRS	
	Current	Proposed	Current	Proposed	Current	Proposed
Projected Employer Cost* (\$ in Millions)						
30-Yr Nominal \$	\$8,745	\$9,717	\$1,372	\$1,483	\$1,340	\$1,411
30-Yr Net Present Value \$	\$3,896	\$4,271	\$672	\$724	693	726
Proj. Normal Cost for New Hire	8.25% of pay	11.35% of pay	6.66% of pay	7.84% of pay	17.84% of pay	20.54% of pay

*Projected costs are for all employers and all fund sources for entire 30-year period.
Proj. normal cost is the normal cost for new hires after subtracting employee contributions.

	Pension Plan					
	CERS Hazardous		KERS Hazardous		SPRS	
	Current	Proposed	Current	Proposed	Current	Proposed
Projected UAL (\$ in Millions)						
Baseline (Year 1)	\$2,842	\$2,927	\$472	\$494	\$502	\$509
5 Years	\$2,735	\$2,833	\$424	\$446	\$462	\$470
10 Years	\$2,560	\$2,646	\$337	\$396	\$424	\$430
20 Years	\$1,614	\$1,635	\$232	\$235	\$312	\$313
30 Years	\$0	\$0	\$0	\$0	\$0	\$0
Projected Funding Ratio (%)						
Baseline (Year 1)	51%	51%	65%	64%	54%	54%
5 Years	58%	57%	72%	71%	59%	58%
10 Years	65%	65%	77%	76%	62%	62%
20 Years	82%	83%	89%	89%	73%	74%
30 Years	100%	100%	100%	100%	100%	100%

	Retiree Health Plan					
	CERS Hazardous		KERS Hazardous		SPRS	
	Current	Proposed	Current	Proposed	Current	Proposed
Projected UAL (\$ in Millions)						
Baseline (Year 1)	(\$11)	(\$11)	\$(256)	\$(256)	\$(1)	\$(1)
5 Years	(\$10)	(\$10)	\$(320)	\$(320)	\$(8)	\$(8)
10 Years	\$42	\$42	\$(422)	\$(422)	\$0	\$0
20 Years	\$229	\$229	\$(763)	\$(763)	\$21	\$21
30 Years	\$0	\$0	\$(1,406)	\$(1,406)	\$0	\$0
Projected Funding Ratio (%)						
Baseline (Year 1)	101%	101%	170%	170%	100%	100%
5 Years	101%	101%	185%	185%	103%	103%
10 Years	97%	97%	214%	214%	100%	100%
20 Years	85%	85%	305%	305%	89%	89%
30 Years	100%	100%	424%	424%	100%	100%

* if necessary or plan administers more than one plan/system.

Section III: Brief Summary of Bill

The proposed legislation provides Tier 3 members in SPRS and Tier 3 members in a hazardous position in CERS or KERS the same benefits as Tier 2 members. Members hired on or after January 1, 2014 but prior to January 1, 2025 may make an irrevocable decision to continue earning benefits in the hybrid cash balance plan in lieu of this benefit change.

Section IV: Statement of Assumptions and Methods

Did the analysis rely solely upon the same assumptions & methods previously established and utilized by the actuary in the retirement system's most recent actuarial valuation?

YES **NO**

If NO, please describe each new assumption or method utilized, the basis for selecting the revised assumption or method, and whether each new assumption or method increased or decreased projected employer costs:

N/A

Section V: Comment from Actuary

As noted previously, in addition to an immediate increase in the employer contribution requirement, the proposed legislation results in an increase in the long-term cost of the retirement systems. This is equal to the difference between the normal cost rate for Tier 2 members and the normal cost rate for Tier 3 members and is shown on the previous page (see the Proj. Normal Cost for New Hire). We expect the difference between projected contribution rates under current provisions and the proposed provisions to reflect this ultimate long-term cost difference. In other words, the impact on the employer contribution requirement will continue to increase over time, as shown in the enclosed projections.

Section VI: Detailed Actuarial Analysis and Projections *(May be attached as Appendix)*

Please see attached.



February 7, 2024

Mr. David Eager
Executive Director
Kentucky Public Pensions Authority
1260 Louisville Road
Frankfort, KY 40601

Re: Actuarial Analysis of Proposed Legislation HB 143 (24 RS BR 1130) and its Financial Impact on the Systems Maintained by KPPA

Dear Mr. Eager:

We have reviewed the proposed legislation HB 143 (24 RS BR 1130), and the purpose of this letter is to communicate the actuarial analysis of this proposed legislation in regards to the five Systems administered by the Kentucky Public Pensions Authority (KPPA).

Summary of Provisions of Proposed Legislation and Cost Impact

The proposed legislation provides Tier 3 members in the State Police Retirement System (SPRS) and Tier 3 members in a hazardous position in the County Employees Retirement System (CERS) or the Kentucky Employees Retirement System (KERS) the same benefits as Tier 2 members. Members hired on or after January 1, 2014 but prior to January 1, 2025 may make an irrevocable decision to continue earning benefits in the hybrid cash balance plan in lieu of this benefit change.

The following chart provides a summary of the impact on the unfunded actuarial accrued liability and the employer contribution requirement calculated as of June 30, 2023 for SPRS and each hazardous fund.

Table 1. Impact on the June 30, 2023 Actuarial Valuation

Plan	Increased in the Unfunded Liability	Increase in the Contribution Rate	Increase in Annual Contribution
CERS Hazardous	\$84.9 million	2.51%	\$17.4 million
KERS Hazardous	\$21.7 million	1.64%	\$ 3.5 million
SPRS	\$7.2 million	2.17%	\$ 1.4 million

In addition to an immediate increase in the employer contribution requirement, the proposed legislation results in an increase in the long-term cost of the retirement systems. This is equal to the difference between the normal cost rate for Tier 2 members and the normal cost rate for Tier 3 members and is shown below. We expect the difference between projected contribution rates under current provisions and the proposed provisions to reflect this ultimate long-term cost difference. In other words, the impact on the employer contribution requirement will continue to increase over time, as shown in the attached projections.

Table 2. Difference in Employer Normal Cost Rate (Pension and Insurance)

Plan	Tier 2 Employer Normal Cost Rate	Tier 3 Employer Normal Cost Rate	Increase in Cost due to Proposed Legislation
CERS Hazardous	11.35%	8.25%	3.10%
KERS Hazardous	7.84%	6.66%	1.18%
SPRS	20.54%	17.84%	2.70%

Comments Regarding the Proposed Legislation

Currently, Tier 3 members are earning benefits in the hybrid cash balance plan. The member's account balance is accumulated while they are actively employed with 8% of pay member contributions and 7.5% of pay employer pay credits. The account balance earns 4% annual interest plus 75% of the system's geometric average net investment return in excess of 4%. This account balance is then annuitized at the member's retirement date.

Tier 2 members' retirement benefits are based on a fixed formula that is equal to a percentage times a member's total service times a member's final average pay at retirement. The percentage varies based upon the member's service starting at 1.30%, increasing to 2.50% for members with 25 years of service at retirement. Both Tier 2 and Tier 3 members are able to retire without penalty at age 60 with 5 years of service or at any age with 25 years of service.

Generally, the Tier 2 benefit provisions provide more generous retirement benefits for members. To that point, the Tier 2 benefits are more expensive. Additionally, there is certain risk mitigation built into the plan design of the Tier 3 hybrid cash balance plan that can dampen future employer contribution volatility. For example, the design of the interest crediting rate on the account balances shares the investment volatility risk between the employers and the members. When the funds' investments earn less (more) than expected, active members' balances grow less (more) than expected. Additionally, the liability associated with active Tier 3 members is less sensitive to changes in the mortality assumption, as the members' benefits are annuitized based on the valuation assumption. Currently, the liability associated with Tier 3 active members is a very small



percentage of the total liability for each fund (about 4.7% for the KERS Hazardous Pension Fund). As such, such risk mitigation will have a greater effect once the funds are better funded.

There are no material changes in insurance plan provisions due to this proposed legislation. However, the change in retirement benefits may slightly change the retirement pattern for the affected members, which could impact the cost of the insurance funds. We do not believe this to have a measurable impact on the liabilities or contribution requirements of the insurance funds at this time.

Basis of Calculations

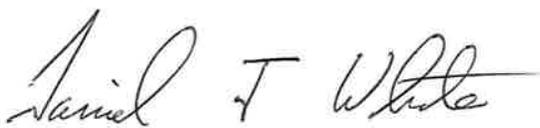
Except where noted, the calculations are based on the methods, assumptions, and plan provisions documented in the actuarial valuation as of June 30, 2023. Our calculations are based upon assumptions regarding future events, which may or may not materialize. Depending on actual plan experience, actual results could deviate significantly.

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.

All three of the undersigned are members of the American Academy of Actuaries and meet all of the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. In addition, all three are independent of KPPA and are experienced in performing valuations for large public retirement systems. This communication shall not be construed to provide tax advice, legal advice or investment advice.

Sincerely,

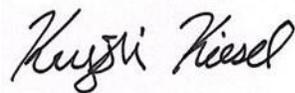
Gabriel, Roeder, Smith & Company



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



Janie Shaw, ASA, EA, MAAA
Consultant



Krysti Kiesel, ASA, MAAA
Consultant



**Actuarial Analysis of HB 143
Section 1.
Comparison of Fiscal Impact
Current Plan vs. Proposed Changes**

Kentucky Public Pensions Authority
Exhibit 1-1
CERS Hazardous Retirement Fund
Actuarial Analysis of HB 143
Comparison of Current Plan and Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Employer Contributions			Employer Contribution Rate		
	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2023	\$ 2,842	\$ 2,927	\$ 85	51%	51%	0%	\$ 279	\$ 279	\$ -	41.1%	41.1%	0.0%
2024	2,791	2,892	101	54%	53%	-1%	252	270	18	36.5%	39.0%	2.5%
2025	2,739	2,839	100	56%	55%	-1%	254	273	19	35.9%	38.7%	2.8%
2026	2,773	2,871	98	56%	56%	0%	253	274	21	35.2%	38.1%	2.9%
2027	2,735	2,833	98	58%	57%	-1%	260	283	23	35.5%	38.5%	3.0%
2028	2,709	2,806	97	59%	59%	0%	262	286	24	35.0%	38.2%	3.2%
2029	2,681	2,776	95	60%	60%	0%	265	291	26	34.7%	38.1%	3.4%
2030	2,647	2,739	92	62%	62%	0%	269	296	27	34.6%	38.0%	3.4%
2031	2,606	2,696	90	63%	63%	0%	273	302	29	34.4%	38.0%	3.6%
2032	2,560	2,646	86	65%	65%	0%	278	307	29	34.3%	37.9%	3.6%
2033	2,506	2,589	83	66%	66%	0%	282	313	31	34.1%	37.9%	3.8%
2034	2,444	2,522	78	68%	68%	0%	287	319	32	34.0%	37.9%	3.9%
2035	2,374	2,447	73	69%	70%	1%	292	325	33	33.9%	37.9%	4.0%
2036	2,295	2,363	68	71%	72%	1%	297	332	35	33.9%	37.8%	3.9%
2037	2,206	2,267	61	73%	74%	1%	302	338	36	33.8%	37.8%	4.0%
2038	2,107	2,162	55	75%	76%	1%	307	345	38	33.7%	37.8%	4.1%
2039	1,996	2,044	48	77%	78%	1%	312	352	40	33.6%	37.8%	4.2%
2040	1,874	1,913	39	78%	80%	2%	305	347	42	32.1%	36.5%	4.4%
2041	1,751	1,782	31	80%	81%	1%	312	355	43	32.2%	36.7%	4.5%
2042	1,614	1,635	21	82%	83%	1%	315	360	45	31.9%	36.5%	4.6%
2043	1,467	1,476	9	84%	86%	2%	349	384	35	34.7%	38.1%	3.4%
2044	1,275	1,284	9	87%	88%	1%	358	394	36	34.9%	38.3%	3.4%
2045	1,063	1,071	8	89%	90%	1%	370	407	37	35.3%	38.8%	3.5%
2046	827	834	7	92%	92%	0%	372	409	37	34.8%	38.2%	3.4%
2047	575	582	7	94%	95%	1%	382	420	38	35.0%	38.5%	3.5%
2048	297	304	7	97%	97%	0%	390	428	38	35.0%	38.5%	3.5%
2049	-	-	-	100%	100%	0%	79	118	39	7.0%	10.4%	3.4%
2050	-	-	-	100%	100%	0%	81	120	39	7.0%	10.4%	3.4%
2051	-	-	-	100%	100%	0%	82	123	41	7.0%	10.4%	3.4%
2052	-	-	-	100%	100%	0%	84	125	41	7.0%	10.4%	3.4%



Kentucky Public Pensions Authority
Exhibit 1-2
KERS Hazardous Retirement Fund
Actuarial Analysis of HB 143
Comparison of Current Plan and Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Employer Contributions			Employer Contribution Rate		
	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2023	\$ 472	\$ 494	\$ 22	65%	64%	-1%	\$ 67	\$ 67	\$ -	31.8%	31.8%	0.0%
2024	445	470	25	68%	67%	-1%	50	54	4	23.7%	25.4%	1.7%
2025	428	452	24	70%	69%	-1%	50	54	4	23.7%	25.4%	1.7%
2026	435	459	24	70%	69%	-1%	48	52	4	22.8%	24.6%	1.8%
2027	424	446	22	72%	71%	-1%	48	52	4	22.8%	24.6%	1.8%
2028	416	438	22	73%	72%	-1%	49	53	4	23.0%	25.0%	2.0%
2029	407	428	21	74%	73%	-1%	49	53	4	23.0%	25.0%	2.0%
2030	397	418	21	75%	74%	-1%	48	53	5	22.8%	24.8%	2.0%
2031	387	407	20	76%	75%	-1%	48	53	5	22.8%	24.8%	2.0%
2032	377	396	19	77%	76%	-1%	48	52	4	22.7%	24.8%	2.1%
2033	366	383	17	78%	78%	0%	48	52	4	22.7%	24.8%	2.1%
2034	353	370	17	79%	79%	0%	48	52	4	22.7%	24.8%	2.1%
2035	341	356	15	80%	80%	0%	48	52	4	22.7%	24.8%	2.1%
2036	328	342	14	81%	81%	0%	48	52	4	22.6%	24.8%	2.2%
2037	314	325	11	83%	83%	0%	48	52	4	22.6%	24.8%	2.2%
2038	299	310	11	84%	84%	0%	48	53	5	22.6%	24.8%	2.2%
2039	282	292	10	85%	85%	0%	48	53	5	22.6%	24.8%	2.2%
2040	265	273	8	86%	86%	0%	46	51	5	21.7%	24.0%	2.3%
2041	249	255	6	87%	88%	1%	46	51	5	21.7%	24.0%	2.3%
2042	232	235	3	89%	89%	0%	53	58	5	24.9%	27.3%	2.4%
2043	207	208	1	90%	90%	0%	53	58	5	24.9%	27.3%	2.4%
2044	179	179	-	92%	92%	0%	55	58	3	25.9%	27.2%	1.3%
2045	149	148	(1)	93%	93%	0%	55	58	3	25.9%	27.2%	1.3%
2046	116	115	(1)	95%	95%	0%	54	57	3	25.7%	27.0%	1.3%
2047	82	81	(1)	96%	97%	1%	54	57	3	25.7%	27.0%	1.3%
2048	46	44	(2)	98%	98%	0%	55	58	3	25.9%	27.2%	1.3%
2049	-	-	-	100%	100%	0%	15	17	2	6.9%	8.2%	1.3%
2050	-	-	-	100%	100%	0%	15	17	2	6.9%	8.2%	1.3%
2051	-	-	-	100%	100%	0%	15	17	2	6.9%	8.2%	1.3%
2052	-	-	-	100%	100%	0%	15	17	2	6.9%	8.2%	1.3%



Kentucky Public Pensions Authority
Exhibit 1-3
SPRS Retirement Fund
Actuarial Analysis of HB 143
Comparison of Current Plan and Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1,	Unfunded Actuarial Accrued Liability			Funded Ratio			Employer Contributions			Employer Contribution Rate		
	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference	Current	Proposed	Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2023	\$ 502	\$ 509	\$ 7	54%	54%	0%	\$ 56	\$ 56	\$ -	85.3%	85.3%	0.0%
2024	482	490	8	56%	56%	0%	43	45	2	65.8%	68.0%	2.2%
2025	472	480	8	57%	57%	0%	43	45	2	65.8%	68.0%	2.2%
2026	471	479	8	58%	57%	-1%	42	44	2	64.1%	66.8%	2.7%
2027	462	470	8	59%	58%	-1%	42	44	2	64.1%	66.8%	2.7%
2028	455	463	8	59%	59%	0%	42	44	2	64.0%	67.0%	3.0%
2029	448	455	7	60%	60%	0%	42	44	2	64.0%	67.0%	3.0%
2030	440	447	7	61%	61%	0%	42	44	2	63.5%	66.8%	3.3%
2031	432	439	7	61%	62%	1%	42	44	2	63.5%	66.8%	3.3%
2032	424	430	6	62%	62%	0%	42	44	2	63.2%	66.6%	3.4%
2033	414	421	7	63%	63%	0%	42	44	2	63.2%	66.6%	3.4%
2034	405	411	6	64%	64%	0%	41	44	3	63.0%	66.5%	3.5%
2035	395	400	5	65%	66%	1%	41	44	3	63.0%	66.5%	3.5%
2036	385	391	6	66%	67%	1%	41	44	3	62.8%	66.5%	3.7%
2037	374	378	4	67%	68%	1%	41	44	3	62.8%	66.5%	3.7%
2038	363	367	4	68%	69%	1%	41	44	3	62.6%	66.6%	4.0%
2039	351	354	3	69%	70%	1%	41	44	3	62.6%	66.6%	4.0%
2040	338	341	3	71%	72%	1%	41	43	2	61.8%	66.0%	4.2%
2041	325	328	3	72%	73%	1%	41	43	2	61.8%	66.0%	4.2%
2042	312	313	1	73%	74%	1%	61	64	3	92.6%	97.0%	4.4%
2043	277	278	1	76%	77%	1%	61	64	3	92.6%	97.0%	4.4%
2044	240	240	-	80%	81%	1%	62	64	2	94.4%	97.8%	3.4%
2045	199	199	-	83%	84%	1%	62	64	2	94.4%	97.8%	3.4%
2046	157	156	(1)	87%	88%	1%	62	64	2	94.1%	97.6%	3.5%
2047	113	113	-	91%	91%	0%	62	64	2	94.1%	97.6%	3.5%
2048	66	66	-	95%	95%	0%	62	65	3	94.4%	97.9%	3.5%
2049	-	-	-	100%	100%	0%	12	15	3	18.8%	22.3%	3.5%
2050	-	-	-	100%	100%	0%	12	15	3	18.9%	22.3%	3.4%
2051	-	-	-	100%	100%	0%	12	15	3	18.9%	22.4%	3.5%
2052	-	-	-	100%	100%	0%	12	15	3	18.9%	22.4%	3.5%



Actuarial Analysis of HB 143
Section 2.
Projected Cost of the Retirement and Insurance
Current Plan

Kentucky Public Pensions Authority
Exhibit 2-1
CERS Hazardous Retirement Fund
Actuarial Analysis of HB 143
Current Plan
(\$ in Millions)

Fiscal Year Beginning July 1, (1)	Actuarial Accrued Liability (2)	Actuarial Value of Assets (3)	Unfunded Actuarial Accrued Liability (4)	Funded Ratio (3) / (2) (5)	Employer Contribution (6)	Member Contribution (7)	Covered Payroll (8)	Employer Contribution as % of Covered Payroll (9)	Employer Actuarially Determined Contribution (10)
2023	\$ 5,850	\$ 3,008	\$ 2,842	51%	\$ 279	\$ 54	\$ 678	41.11%	41.11%
2024	6,017	3,226	2,791	54%	252	55	692	36.49%	36.49%
2025	6,177	3,438	2,739	56%	254	56	705	35.94%	35.94%
2026	6,331	3,558	2,773	56%	253	58	719	35.17%	35.17%
2027	6,481	3,746	2,735	58%	260	59	734	35.48%	35.48%
2028	6,627	3,918	2,709	59%	262	60	749	34.97%	34.97%
2029	6,772	4,091	2,681	60%	265	61	764	34.74%	34.74%
2030	6,917	4,270	2,647	62%	269	62	779	34.55%	34.55%
2031	7,065	4,459	2,606	63%	273	64	794	34.38%	34.38%
2032	7,219	4,659	2,560	65%	278	65	810	34.25%	34.25%
2033	7,380	4,874	2,506	66%	282	66	826	34.14%	34.14%
2034	7,550	5,106	2,444	68%	287	67	843	34.03%	34.03%
2035	7,727	5,353	2,374	69%	292	69	860	33.94%	33.94%
2036	7,912	5,617	2,295	71%	297	70	877	33.85%	33.85%
2037	8,101	5,895	2,206	73%	302	72	895	33.75%	33.75%
2038	8,295	6,188	2,107	75%	307	73	912	33.65%	33.65%
2039	8,490	6,494	1,996	77%	312	74	931	33.55%	33.55%
2040	8,689	6,815	1,874	78%	305	76	949	32.11%	32.11%
2041	8,892	7,141	1,751	80%	312	77	968	32.23%	32.23%
2042	9,102	7,488	1,614	82%	315	79	988	31.92%	31.92%
2043	9,320	7,853	1,467	84%	349	81	1,007	34.67%	34.67%
2044	9,545	8,270	1,275	87%	358	82	1,028	34.86%	34.86%
2045	9,775	8,712	1,063	89%	370	84	1,048	35.34%	35.34%
2046	10,010	9,183	827	92%	372	86	1,069	34.77%	34.77%
2047	10,250	9,675	575	94%	382	87	1,091	35.03%	35.03%
2048	10,496	10,199	297	97%	390	89	1,112	35.04%	35.04%
2049	10,748	10,748	-	100%	79	91	1,135	6.95%	6.95%
2050	11,006	11,006	-	100%	81	93	1,157	6.96%	6.96%
2051	11,272	11,272	-	100%	82	94	1,180	6.97%	6.97%
2052	11,544	11,544	-	100%	84	96	1,204	6.98%	6.98%

Notes and assumptions:

The projection is based on the results of the June 30, 2023 actuarial valuation and assumes that all actuarial assumptions are realized, including the assumed annual asset return of 6.50%.

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

The total active population is assumed to remain level throughout the entire projection.

Covered payroll is assumed to increase 2% each year throughout the entire projection.

The Board certified contribution rate paid by employers is assumed to be equal to the full actuarially determined contribution rate, except as allowed by

House Bill 362 (passed during the 2018 legislative session), which limits the certified contribution rate to a 12% increase over the prior year rate for the period of July 1, 2018 to June 30, 2028.



Kentucky Public Pensions Authority
Exhibit 2-2
KERS Hazardous Retirement Fund
Actuarial Analysis of HB 143
Current Plan
(\$ in Millions)

Fiscal Year Beginning July 1, (1)	Actuarial Accrued Liability (2)	Actuarial Value of Assets (3)	Unfunded Actuarial Accrued Liability (4)	Funded Ratio (3) / (2) (5)	Employer Contribution (6)	Member Contribution (7)	Covered Payroll (8)	Employer Contribution as % of Covered Payroll (9)	Employer Actuarially Determined Contribution (10)
2023	\$ 1,363	\$ 891	\$ 472	65%	\$ 67	\$ 17	\$ 212	31.82%	30.12%
2024	1,397	952	445	68%	50	17	212	23.74%	23.74%
2025	1,429	1,001	428	70%	50	17	212	23.74%	23.41%
2026	1,459	1,024	435	70%	48	17	212	22.77%	22.77%
2027	1,488	1,064	424	72%	48	17	212	22.77%	23.37%
2028	1,515	1,099	416	73%	49	17	212	23.04%	23.04%
2029	1,542	1,135	407	74%	49	17	212	23.04%	22.92%
2030	1,569	1,172	397	75%	48	17	212	22.84%	22.84%
2031	1,597	1,210	387	76%	48	17	212	22.84%	22.79%
2032	1,626	1,249	377	77%	48	17	212	22.74%	22.74%
2033	1,657	1,291	366	78%	48	17	212	22.74%	22.71%
2034	1,691	1,338	353	79%	48	17	212	22.67%	22.67%
2035	1,727	1,386	341	80%	48	17	212	22.67%	22.65%
2036	1,765	1,437	328	81%	48	17	212	22.63%	22.63%
2037	1,804	1,490	314	83%	48	17	212	22.63%	22.60%
2038	1,844	1,545	299	84%	48	17	212	22.57%	22.57%
2039	1,884	1,602	282	85%	48	17	212	22.57%	22.53%
2040	1,926	1,661	265	86%	46	17	212	21.70%	21.70%
2041	1,969	1,720	249	87%	46	17	212	21.70%	23.80%
2042	2,014	1,782	232	89%	53	17	212	24.86%	24.86%
2043	2,061	1,854	207	90%	53	17	212	24.86%	25.67%
2044	2,109	1,930	179	92%	55	17	212	25.88%	25.88%
2045	2,159	2,010	149	93%	55	17	212	25.88%	26.36%
2046	2,210	2,094	116	95%	54	17	212	25.68%	25.68%
2047	2,262	2,180	82	96%	54	17	212	25.68%	25.87%
2048	2,315	2,269	46	98%	55	17	212	25.90%	25.90%
2049	2,368	2,368	-	100%	15	17	212	6.86%	6.86%
2050	2,421	2,421	-	100%	15	17	212	6.87%	6.87%
2051	2,474	2,474	-	100%	15	17	212	6.88%	6.88%
2052	2,526	2,526	-	100%	15	17	212	6.87%	6.87%

Notes and assumptions:

The projection is based on the results of the June 30, 2023 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 as current active members are assumed to terminate employment or retire.

The total active population is assumed to decrease 2% each year for each of the next 30 years.

Covered payroll is assumed to remain level throughout the entire projection.

The contribution rate established in the Commonwealth's biennium budget is assumed to be equal to the full actuarially determined contribution rate.



Kentucky Public Pensions Authority
Exhibit 2-3
SPRS Retirement Fund
Actuarial Analysis of HB 143
Current Plan
(\$ in Millions)

Fiscal Year Beginning July 1, (1)	Actuarial Accrued Liability (2)	Actuarial Value of Assets (3)	Unfunded Actuarial Accrued Liability (4)	Funded Ratio (3) / (2) (5)	Employer Contribution (6)	Member Contribution (7)	Covered Payroll (8)	Employer Contribution as % of Covered Payroll (9)	Employer Actuarially Determined Contribution (10)
2023	\$ 1,092	\$ 590	\$ 502	54%	\$ 56	\$ 5	\$ 66	85.32%	85.39%
2024	1,101	619	482	56%	43	5	66	65.79%	65.79%
2025	1,107	635	472	57%	43	5	66	65.79%	65.03%
2026	1,111	640	471	58%	42	5	66	64.12%	64.12%
2027	1,114	652	462	59%	42	5	66	64.12%	64.58%
2028	1,116	661	455	59%	42	5	66	64.01%	64.01%
2029	1,118	670	448	60%	42	5	66	64.01%	63.74%
2030	1,119	679	440	61%	42	5	66	63.49%	63.49%
2031	1,120	688	432	61%	42	5	66	63.49%	63.32%
2032	1,122	698	424	62%	42	5	66	63.17%	63.17%
2033	1,123	709	414	63%	42	5	66	63.17%	63.05%
2034	1,126	721	405	64%	41	5	66	62.95%	62.95%
2035	1,129	734	395	65%	41	5	66	62.95%	62.87%
2036	1,133	748	385	66%	41	5	66	62.77%	62.77%
2037	1,137	763	374	67%	41	5	66	62.77%	62.69%
2038	1,142	779	363	68%	41	5	66	62.58%	62.58%
2039	1,147	796	351	69%	41	5	66	62.58%	62.48%
2040	1,152	814	338	71%	41	5	66	61.75%	61.75%
2041	1,157	832	325	72%	41	5	66	61.75%	92.05%
2042	1,163	851	312	73%	61	5	66	92.56%	92.56%
2043	1,169	892	277	76%	61	5	66	92.56%	94.01%
2044	1,175	935	240	80%	62	5	66	94.36%	94.36%
2045	1,180	981	199	83%	62	5	66	94.36%	94.87%
2046	1,185	1,028	157	87%	62	5	66	94.13%	94.13%
2047	1,190	1,077	113	91%	62	5	66	94.13%	94.42%
2048	1,194	1,128	66	95%	62	5	66	94.44%	94.44%
2049	1,197	1,197	-	100%	12	5	66	18.84%	18.84%
2050	1,199	1,199	-	100%	12	5	66	18.85%	18.85%
2051	1,200	1,200	-	100%	12	5	66	18.88%	18.88%
2052	1,200	1,200	-	100%	12	5	66	18.89%	18.89%

Notes and assumptions:

The projection is based on the results of the June 30, 2023 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 as current active members are assumed to terminate employment or retire.

The total active population is assumed to decrease 2% each year for each of the next 30 years.

Covered payroll is assumed to remain level throughout the entire projection.

The contribution rate established in the Commonwealth's biennium budget is assumed to be equal to the full actuarially determined contribution rate.



Actuarial Analysis of HB 143
Section 3.
Projected Cost of the Retirement and Insurance
Proposed Legislation

Kentucky Public Pensions Authority
Exhibit 3-1
CERS Hazardous Retirement Fund
Actuarial Analysis of HB 143
Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1, (1)	Actuarial Accrued Liability (2)	Actuarial Value of Assets (3)	Unfunded Actuarial Accrued Liability (4)	Funded Ratio (3) / (2) (5)	Employer Contribution (6)	Member Contribution (7)	Covered Payroll (8)	Employer Contribution as % of Covered Payroll (9)	Employer Actuarially Determined Contribution (10)
2023	\$ 5,935	\$ 3,008	\$ 2,927	51%	\$ 279	\$ 54	\$ 678	41.11%	41.11%
2024	6,112	3,220	2,892	53%	270	55	692	39.00%	39.00%
2025	6,284	3,445	2,839	55%	273	56	705	38.65%	38.65%
2026	6,452	3,581	2,871	56%	274	58	719	38.06%	38.06%
2027	6,619	3,786	2,833	57%	283	59	734	38.52%	38.52%
2028	6,785	3,979	2,806	59%	286	60	749	38.16%	38.16%
2029	6,951	4,175	2,776	60%	291	61	764	38.08%	38.08%
2030	7,121	4,382	2,739	62%	296	62	779	38.01%	38.01%
2031	7,298	4,602	2,696	63%	302	64	794	37.96%	37.96%
2032	7,483	4,837	2,646	65%	307	65	810	37.92%	37.92%
2033	7,679	5,090	2,589	66%	313	66	826	37.88%	37.88%
2034	7,887	5,365	2,522	68%	319	67	843	37.86%	37.86%
2035	8,106	5,659	2,447	70%	325	69	860	37.85%	37.85%
2036	8,337	5,974	2,363	72%	332	70	877	37.84%	37.84%
2037	8,576	6,309	2,267	74%	338	72	895	37.83%	37.83%
2038	8,824	6,662	2,162	76%	345	73	912	37.83%	37.83%
2039	9,078	7,034	2,044	78%	352	74	931	37.84%	37.84%
2040	9,339	7,426	1,913	80%	347	76	949	36.50%	36.50%
2041	9,605	7,823	1,782	81%	355	77	968	36.69%	36.69%
2042	9,877	8,242	1,635	83%	360	79	988	36.45%	36.45%
2043	10,153	8,677	1,476	86%	384	81	1,007	38.11%	38.11%
2044	10,432	9,148	1,284	88%	394	82	1,028	38.31%	38.31%
2045	10,713	9,642	1,071	90%	407	84	1,048	38.80%	38.80%
2046	10,998	10,164	834	92%	409	86	1,069	38.23%	38.23%
2047	11,286	10,704	582	95%	420	87	1,091	38.50%	38.50%
2048	11,579	11,275	304	97%	428	89	1,112	38.50%	38.50%
2049	11,876	11,876	-	100%	118	91	1,135	10.41%	10.41%
2050	12,178	12,178	-	100%	120	93	1,157	10.41%	10.41%
2051	12,483	12,483	-	100%	123	94	1,180	10.41%	10.41%
2052	12,791	12,791	-	100%	125	96	1,204	10.42%	10.42%

Notes and assumptions:

The analysis above is based on the same methods, assumptions, and benefit provisions as the analysis under the Current Plan, except for the proposed changes in HB 143.



Kentucky Public Pensions Authority
Exhibit 3-2
KERS Hazardous Retirement Fund
Actuarial Analysis of HB 143
Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1, (1)	Actuarial Accrued Liability (2)	Actuarial Value of Assets (3)	Unfunded Actuarial Accrued Liability (4)	Funded Ratio (3) / (2) (5)	Employer Contribution (6)	Member Contribution (7)	Covered Payroll (8)	Employer Contribution as % of Covered Payroll (9)	Employer Actuarially Determined Contribution (10)
2023	\$ 1,385	\$ 891	\$ 494	64%	\$ 67	\$ 17	\$ 212	31.82%	30.12%
2024	1,420	950	470	67%	54	17	212	25.38%	25.38%
2025	1,453	1,001	452	69%	54	17	212	25.38%	25.14%
2026	1,485	1,026	459	69%	52	17	212	24.58%	24.58%
2027	1,515	1,069	446	71%	52	17	212	24.58%	25.22%
2028	1,545	1,107	438	72%	53	17	212	24.95%	24.95%
2029	1,574	1,146	428	73%	53	17	212	24.95%	24.88%
2030	1,604	1,186	418	74%	53	17	212	24.83%	24.83%
2031	1,634	1,227	407	75%	53	17	212	24.83%	24.81%
2032	1,667	1,271	396	76%	52	17	212	24.80%	24.80%
2033	1,701	1,318	383	78%	52	17	212	24.80%	24.79%
2034	1,739	1,369	370	79%	52	17	212	24.79%	24.79%
2035	1,779	1,423	356	80%	52	17	212	24.79%	24.80%
2036	1,822	1,480	342	81%	52	17	212	24.80%	24.80%
2037	1,865	1,540	325	83%	52	17	212	24.80%	24.81%
2038	1,911	1,601	310	84%	53	17	212	24.82%	24.82%
2039	1,957	1,665	292	85%	53	17	212	24.82%	24.83%
2040	2,005	1,732	273	86%	51	17	212	24.03%	24.03%
2041	2,053	1,798	255	88%	51	17	212	24.03%	26.15%
2042	2,102	1,867	235	89%	58	17	212	27.25%	27.25%
2043	2,153	1,945	208	90%	58	17	212	27.25%	27.05%
2044	2,204	2,025	179	92%	58	17	212	27.18%	27.18%
2045	2,256	2,108	148	93%	58	17	212	27.18%	27.66%
2046	2,308	2,193	115	95%	57	17	212	26.98%	26.98%
2047	2,361	2,280	81	97%	57	17	212	26.98%	27.18%
2048	2,412	2,368	44	98%	58	17	212	27.20%	27.20%
2049	2,463	2,463	-	100%	17	17	212	8.17%	8.17%
2050	2,513	2,513	-	100%	17	17	212	8.16%	8.16%
2051	2,561	2,561	-	100%	17	17	212	8.16%	8.16%
2052	2,607	2,607	-	100%	17	17	212	8.16%	8.16%

Notes and assumptions:

The analysis above is based on the same methods, assumptions, and benefit provisions as the analysis under the Current Plan, except for the proposed changes in HB 143.



Kentucky Public Pensions Authority
Exhibit 3-3
SPRS Retirement Fund
Actuarial Analysis of HB 143
Proposed Legislation
(\$ in Millions)

Fiscal Year Beginning July 1, (1)	Actuarial Accrued Liability (2)	Actuarial Value of Assets (3)	Unfunded Actuarial Accrued Liability (4)	Funded Ratio (3) / (2) (5)	Employer Contribution (6)	Member Contribution (7)	Covered Payroll (8)	Employer Contribution as % of Covered Payroll (9)	Employer Actuarially Determined Contribution (10)
2023	\$ 1,099	\$ 590	\$ 509	54%	\$ 56	\$ 5	\$ 66	85.32%	85.39%
2024	1,109	619	490	56%	45	5	66	67.96%	67.96%
2025	1,116	636	480	57%	45	5	66	67.96%	67.47%
2026	1,121	642	479	57%	44	5	66	66.78%	66.78%
2027	1,126	656	470	58%	44	5	66	66.78%	67.41%
2028	1,130	667	463	59%	44	5	66	67.00%	67.00%
2029	1,133	678	455	60%	44	5	66	67.00%	66.87%
2030	1,136	689	447	61%	44	5	66	66.76%	66.76%
2031	1,140	701	439	62%	44	5	66	66.76%	66.69%
2032	1,144	714	430	62%	44	5	66	66.62%	66.62%
2033	1,148	727	421	63%	44	5	66	66.62%	66.56%
2034	1,154	743	411	64%	44	5	66	66.54%	66.54%
2035	1,160	760	400	66%	44	5	66	66.54%	66.53%
2036	1,168	777	391	67%	44	5	66	66.53%	66.53%
2037	1,175	797	378	68%	44	5	66	66.53%	66.53%
2038	1,184	817	367	69%	44	5	66	66.55%	66.55%
2039	1,193	839	354	70%	44	5	66	66.55%	66.57%
2040	1,202	861	341	72%	43	5	66	65.96%	65.96%
2041	1,212	884	328	73%	43	5	66	65.96%	96.36%
2042	1,221	908	313	74%	64	5	66	96.97%	96.97%
2043	1,232	954	278	77%	64	5	66	96.97%	97.45%
2044	1,242	1,002	240	81%	64	5	66	97.78%	97.78%
2045	1,251	1,052	199	84%	64	5	66	97.78%	98.31%
2046	1,261	1,105	156	88%	64	5	66	97.59%	97.59%
2047	1,271	1,158	113	91%	64	5	66	97.59%	97.88%
2048	1,279	1,213	66	95%	65	5	66	97.92%	97.92%
2049	1,286	1,286	-	100%	15	5	66	22.32%	22.32%
2050	1,292	1,292	-	100%	15	5	66	22.34%	22.34%
2051	1,297	1,297	-	100%	15	5	66	22.35%	22.35%
2052	1,300	1,300	-	100%	15	5	66	22.35%	22.35%

Notes and assumptions:

The analysis above is based on the same methods, assumptions, and benefit provisions as the analysis under the Current Plan, except for the proposed changes in HB 143.

