

## Actuarial Analysis Summary

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**BR or Bill Ref.**    HB 135  
AA Statement 1 and 2 of 2

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**Date:**                1/19/2022

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**Actuary:**            GRS

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### Actuarial Analysis Conducted For:

☐ KERS NH   ☒ KERS Haz   ☒ SPRS   ☐ TRS

☐ CERS NH   ☒ CERS Haz   ☐ LRP   ☐ JRP

## Section I: Executive Summary

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

☐ **MORE SOUND**   ☒ **LESS SOUND** (CERS Haz)   ☒ **NO IMPACT** (KERS Haz, SPRS)

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

The actuarially determined contribution rates increase by 2.62% of pay, 2.48% of pay, and 4.10% of pay for the CERS Hazardous, KERS Hazardous, and SPRS pension funds, respectively. 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.

However, under current statutes, the CERS Hazardous fund is expected to receive the full actuarially determined contribution rate (ADEC) of 49.59% of pay for FYE 2023. This proposed legislation increases the ADEC above the maximum rate of 49.65% of pay, allowed under the CERS phase-in provisions. Given that the phase-in provisions were designed to phase-in the assumption changes adopted by the Board, legislators may want to consider amending the phase-in provisions so that the increase associated with this proposed legislation be immediately recognized in the employer contribution rate.

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
<b>Projected Employer Cost* (\$ in Millions)</b>						
30-Yr Nominal \$	\$8,604	\$9,663	\$1,212	\$1,374	\$1,572	\$1,698
30-Yr Net Present Value \$	\$3,855	\$4,253	\$586	\$654	\$836	\$891
Proj. Normal Cost for New Hire	7.75% of pay	12.55% of pay	6.87% of pay	10.26% of pay	9.96% of pay	21.68% 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 and do not include administrative expenses

	Pension Plan					
	CERS Hazardous*		KERS Hazardous*		SPRS*	
	Current	Proposed	Current	Proposed	Current	Proposed
<b>Projected UAL (\$ in Millions)</b>						
Baseline (Year 1)	\$3,000	\$3,054	\$513	\$527	\$730	\$736
5 Years	\$2,662	\$2,745	\$377	\$393	\$638	\$645
10 Years	\$2,535	\$2,609	\$339	\$353	\$561	\$568
20 Years	\$1,800	\$1,823	\$242	\$246	\$344	\$348
30 Years	\$0	\$0	\$0	\$0	\$0	\$0
<b>Projected Funding Ratio (%)</b>						
Baseline (Year 1)	47%	46%	60%	60%	31%	31%
5 Years	57%	57%	73%	73%	39%	39%
10 Years	63%	63%	78%	77%	45%	46%
20 Years	78%	79%	86%	87%	63%	66%
30 Years	100%	100%	100%	100%	100%	100%
	Retiree Health Plan					
	CERS Hazardous*		KERS Hazardous*		SPRS*	
	Current	Proposed	Current	Proposed	Current	Proposed
<b>Projected UAL (\$ in Millions)</b>						
Baseline (Year 1)	\$275	\$275	\$(151)	\$(151)	\$49	\$49
5 Years	\$84	\$84	\$(241)	\$(241)	\$15	\$15
10 Years	\$104	\$104	\$(303)	\$(303)	\$17	\$17
20 Years	\$196	\$196	\$(512)	\$(512)	\$26	\$26
30 Years	\$0	\$0	\$(898)	\$(898)	\$0	\$0
<b>Projected Funding Ratio (%)</b>						
Baseline (Year 1)	84%	84%	136%	136%	82%	82%
5 Years	96%	96%	152%	152%	95%	95%
10 Years	95%	95%	163%	163%	94%	94%
20 Years	90%	90%	199%	199%	90%	90%
30 Years	100%	100%	255%	255%	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 to earn the same benefits as Tier 2 members rather than earning benefits in the hybrid cash balance plan. Members hired on or after January 1, 2014 but prior to January 1, 2023 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**

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).

This long-term cost is greater than the increase in the current contribution rates because the current active population is still comprised of a large percentage of Tier 1 members. Once the Tier 1 active population retires and is replaced by new members earning Tier 3 benefits (or Tier 2 benefits under the proposed legislation), we expect the difference between projected contribution rates under current provisions and the proposed provisions to approximately reflect this ultimate long-term cost difference.

Fund	Increase in Current Contribution Requirement	Increase in Long-Term Contribution Requirement
CERS Hazardous	2.6% of pay	4.8% of pay
KERS Hazardous	2.5% of pay	3.4% of pay
SPRS	4.1% of pay	11.7% of pay

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

Please see attached.



January 19, 2022

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

**Re: Actuarial Analysis of Proposed Legislation HB 135 and its Financial Impact  
on the Systems Operated by the Kentucky Public Pensions Authority**

Dear Mr. Eager:

We have reviewed the proposed legislation HB 135 and the purpose of this letter is to communicate the actuarial analysis of this proposed legislation in regards to the County Employees Retirement System (CERS), the Kentucky Employees Retirement System (KERS), and the State Police Retirement System (SPRS).

**Summary of Provisions of Proposed Legislation and Cost Impact**

The proposed legislation provides Tier 3 members in SPRS and Tier 3 members in a hazardous position in CERS or KERS to earn the same benefits as Tier 2 members rather than earning benefits in the hybrid cash balance plan. Members hired on or after January 1, 2014 but prior to January 1, 2023 may make an irrevocable decision to continue earning benefits in the hybrid cash balance plan in lieu of this benefit change. The impact of the proposed legislation on the employer contribution requirements are shown in the table below.

**Impact on the FYE 2023 Actuarially Determined Employer Contribution (Pension and Insurance)**

Plan	Current based on June 30, 2021 Valuation	Proposed Legislation	Impact on Contribution Rate	Increase in Annual Contribution
CERS Hazardous	49.59%	52.21% <sup>1</sup>	2.62% <sup>1</sup>	\$15,456,000 <sup>1</sup>
KERS Hazardous	31.82%	34.30%	2.48%	\$ 4,038,000
SPRS	140.51%	144.61%	4.10%	\$ 1,859,000

<sup>1</sup> Note, actual contributions for the CERS Hazardous fund will be limited by the CERS phase-in provisions or 49.65% of pay for FYE2023.

**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 following page.

This long-term cost shown in the table below is greater than the increase in the FYE2023 contribution rates because the current active population is still comprised of a large percentage of Tier 1 members. Once the Tier 1 active population retires and is replaced by new members earning Tier 3 benefits (or Tier 2 benefits under the proposed legislation), we expect the difference between projected contribution rates under current provisions and the proposed provisions to reflect this ultimate long-term cost difference.

**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	12.55%	7.75%	4.80%
KERS Hazardous	10.26%	6.87%	3.39%
SPRS	21.68%	9.96%	11.72%

Sections 1., 2., and 3. provide 30-year projections of the liability and contribution requirements of the pension and insurance funds under the current and proposed funding, as well as a summary of the fiscal impact of the proposed legislation.

**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 2.8% 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.

### **Comments regarding CERS Contribution Phase-In**

Under current statutes, the CERS Hazardous fund is expected to receive the full actuarially determined employer contribution for FYE 2023 of 49.59% of pay, as it is less than the maximum rate allowed under the CERS phase-in provisions, or 49.65% of pay. Under the proposed legislation, the actuarially determined contribution rate would increase from 49.59% of pay to 52.21% of pay, which would be limited by the current phase-in provisions. Given that the phase-in provisions were designed to phase-in the assumption changes adopted by the Board, legislators may want to consider amending the phase-in provisions so that the increase associated with this proposed legislation be immediately recognized in the employer contribution rate.

### **Basis of Calculations**

GRS based the calculations and analysis in this letter on the member and financial data provided by KPPA for use in performing the actuarial valuation as of June 30, 2021. The projections assume no actuarial gains or losses will occur in the future, and that members will terminate, retire, become disabled, or die as anticipated by the actuarial assumptions used to perform the June 30, 2021 actuarial valuation. Our calculations are based upon assumptions regarding future events, which may or may not materialize. Depending on actual plan experience, actual results could deviate significantly from our projections.

### **Closing**

We are not attorneys and we cannot provide a legal opinion regarding the changes in this proposed legislation. Nothing in this letter should be construed as providing legal, investment or tax advice.



Both of the undersigned are Enrolled Actuaries, 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 contained herein. In addition, both of the undersigned are experienced in performing valuations for large public retirement systems.

Sincerely,



Daniel J. White, FSA, EA, MAAA



Janie Shaw, ASA, EA, MAAA

Enclosures

**Actuarial Analysis of HB 135  
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 135**  
**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)
2021	\$ 3,000	\$ 3,054	\$ 54	47%	46%	-1%	\$ 206	\$ 206	\$ -	35.6%	35.6%	0.0%
2022	2,950	3,018	68	49%	48%	-1%	253	253	-	42.8%	42.9%	0.1%
2023	2,862	2,946	84	52%	51%	-1%	247	266	19	41.0%	44.2%	3.2%
2024	2,775	2,858	83	54%	54%	0%	243	264	21	39.6%	43.0%	3.4%
2025	2,662	2,745	83	57%	57%	0%	240	262	22	38.3%	41.9%	3.6%
2026	2,639	2,722	83	58%	58%	0%	234	259	25	36.7%	40.5%	3.8%
2027	2,619	2,701	82	59%	59%	0%	237	263	26	36.3%	40.3%	4.0%
2028	2,597	2,676	79	60%	60%	0%	239	267	28	36.0%	40.2%	4.2%
2029	2,568	2,645	77	62%	62%	0%	242	271	29	35.7%	40.1%	4.4%
2030	2,535	2,609	74	63%	63%	0%	245	276	31	35.4%	39.9%	4.5%
2031	2,495	2,567	72	64%	64%	0%	248	281	33	35.2%	39.8%	4.6%
2032	2,450	2,518	68	65%	66%	1%	252	286	34	35.0%	39.7%	4.7%
2033	2,398	2,463	65	66%	67%	1%	256	291	35	34.9%	39.7%	4.8%
2034	2,339	2,399	60	68%	69%	1%	260	296	36	34.7%	39.6%	4.9%
2035	2,272	2,327	55	69%	70%	1%	264	302	38	34.6%	39.5%	4.9%
2036	2,197	2,246	49	71%	72%	1%	268	308	40	34.5%	39.5%	5.0%
2037	2,113	2,156	43	72%	74%	2%	272	314	42	34.3%	39.5%	5.2%
2038	2,020	2,057	37	74%	76%	2%	277	320	43	34.2%	39.5%	5.3%
2039	1,915	1,946	31	76%	78%	2%	281	326	45	34.0%	39.5%	5.5%
2040	1,800	1,823	23	78%	79%	1%	272	321	49	32.3%	38.0%	5.7%
2041	1,686	1,701	15	79%	81%	2%	279	321	42	32.4%	37.4%	5.0%
2042	1,560	1,571	11	81%	83%	2%	294	337	43	33.6%	38.4%	4.8%
2043	1,409	1,421	12	83%	85%	2%	309	352	43	34.5%	39.4%	4.9%
2044	1,234	1,246	12	86%	87%	1%	323	368	45	35.5%	40.4%	4.9%
2045	1,036	1,046	10	88%	90%	2%	341	387	46	36.7%	41.6%	4.9%
2046	806	816	10	91%	92%	1%	348	395	47	36.7%	41.6%	4.9%
2047	558	566	8	94%	95%	1%	355	403	48	36.7%	41.6%	4.9%
2048	287	294	7	97%	97%	0%	362	411	49	36.7%	41.6%	4.9%
2049	-	-	-	100%	100%	0%	59	109	50	5.9%	10.8%	4.9%
2050	-	-	-	100%	100%	0%	61	111	50	5.9%	10.8%	4.9%

**Kentucky Public Pensions Authority**  
**Exhibit 1-2**  
**KERS Hazardous Retirement Fund**  
**Actuarial Analysis of HB 135**  
**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)
2021	\$ 513	\$ 527	\$ 14	60%	60%	0%	\$ 54	\$ 54	\$ -	33.4%	33.4%	0.0%
2022	477	494	17	64%	63%	-1%	52	56	4	31.8%	34.3%	2.5%
2023	446	463	17	67%	66%	-1%	52	56	4	31.8%	34.3%	2.5%
2024	412	429	17	70%	69%	-1%	46	50	4	28.2%	31.0%	2.8%
2025	377	393	16	73%	73%	0%	46	50	4	28.2%	31.0%	2.8%
2026	366	382	16	74%	74%	0%	40	45	5	24.7%	27.8%	3.1%
2027	360	375	15	75%	75%	0%	40	45	5	24.7%	27.8%	3.1%
2028	353	368	15	76%	76%	0%	39	45	6	24.2%	27.5%	3.3%
2029	346	361	15	77%	76%	-1%	39	45	6	24.2%	27.5%	3.3%
2030	339	353	14	78%	77%	-1%	39	44	5	23.8%	27.3%	3.5%
2031	332	345	13	78%	78%	0%	39	44	5	23.8%	27.3%	3.5%
2032	323	336	13	79%	79%	0%	38	44	6	23.6%	27.2%	3.6%
2033	316	327	11	80%	80%	0%	38	44	6	23.6%	27.2%	3.6%
2034	307	318	11	81%	81%	0%	38	44	6	23.5%	27.2%	3.7%
2035	297	307	10	82%	82%	0%	38	44	6	23.5%	27.2%	3.7%
2036	288	297	9	82%	83%	1%	38	44	6	23.3%	27.2%	3.9%
2037	277	285	8	83%	84%	1%	38	44	6	23.3%	27.2%	3.9%
2038	266	272	6	84%	85%	1%	38	44	6	23.1%	27.2%	4.1%
2039	254	260	6	85%	86%	1%	38	44	6	23.1%	27.2%	4.1%
2040	242	246	4	86%	87%	1%	36	43	7	21.9%	26.2%	4.3%
2041	230	233	3	87%	88%	1%	36	43	7	21.9%	26.2%	4.3%
2042	218	219	1	88%	89%	1%	43	48	5	26.3%	29.7%	3.4%
2043	198	199	1	89%	90%	1%	43	48	5	26.3%	29.7%	3.4%
2044	176	176	-	90%	91%	1%	47	53	6	29.1%	32.6%	3.5%
2045	148	149	1	92%	93%	1%	47	53	6	29.1%	32.6%	3.5%
2046	118	119	1	94%	94%	0%	50	56	6	31.0%	34.5%	3.5%
2047	84	83	(1)	96%	96%	0%	50	56	6	31.0%	34.5%	3.5%
2048	47	47	-	98%	98%	0%	50	56	6	31.0%	34.5%	3.5%
2049	-	-	-	100%	100%	0%	10	16	6	6.3%	9.8%	3.5%
2050	-	-	-	100%	100%	0%	10	16	6	6.3%	9.8%	3.5%

**Kentucky Public Pensions Authority**  
**Exhibit 1-3**  
**SPRS Retirement Fund**  
**Actuarial Analysis of HB 135**  
**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)
2021	\$ 730	\$ 736	\$ 6	31%	31%	0%	\$ 58	\$ 58	\$ -	128.0%	128.0%	0.0%
2022	707	714	7	33%	33%	0%	57	59	2	126.4%	130.5%	4.1%
2023	684	692	8	35%	35%	0%	57	59	2	126.4%	130.5%	4.1%
2024	662	669	7	37%	37%	0%	55	57	2	120.7%	126.1%	5.4%
2025	638	645	7	39%	39%	0%	55	57	2	120.7%	126.1%	5.4%
2026	622	629	7	41%	41%	0%	52	55	3	115.4%	122.0%	6.6%
2027	608	615	7	42%	42%	0%	52	55	3	115.4%	122.0%	6.6%
2028	593	600	7	43%	43%	0%	52	55	3	113.9%	121.6%	7.7%
2029	578	585	7	44%	45%	1%	52	55	3	113.9%	121.6%	7.7%
2030	561	568	7	45%	46%	1%	51	55	4	112.6%	121.3%	8.7%
2031	544	551	7	46%	47%	1%	51	55	4	112.6%	121.3%	8.7%
2032	526	532	6	47%	49%	2%	51	55	4	111.8%	121.1%	9.3%
2033	507	513	6	49%	51%	2%	51	55	4	111.8%	121.1%	9.3%
2034	487	493	6	50%	52%	2%	50	55	5	111.2%	121.0%	9.8%
2035	466	471	5	52%	54%	2%	50	55	5	111.2%	121.0%	9.8%
2036	444	449	5	54%	57%	3%	50	55	5	110.5%	120.9%	10.4%
2037	421	426	5	56%	59%	3%	50	55	5	110.5%	120.9%	10.4%
2038	397	401	4	58%	61%	3%	50	55	5	109.7%	120.9%	11.2%
2039	371	375	4	60%	63%	3%	50	55	5	109.7%	120.9%	11.2%
2040	344	348	4	63%	66%	3%	49	54	5	107.8%	119.9%	12.1%
2041	316	319	3	65%	69%	4%	49	54	5	107.8%	119.9%	12.1%
2042	287	289	2	68%	72%	4%	51	56	5	112.5%	123.9%	11.4%
2043	253	255	2	71%	75%	4%	51	56	5	112.5%	123.9%	11.4%
2044	219	220	1	75%	78%	3%	52	58	6	115.8%	127.5%	11.7%
2045	179	181	2	79%	82%	3%	52	58	6	115.8%	127.5%	11.7%
2046	140	141	1	83%	86%	3%	53	59	6	117.8%	129.7%	11.9%
2047	96	97	1	88%	90%	2%	53	59	6	117.8%	129.7%	11.9%
2048	50	51	1	94%	95%	1%	53	59	6	117.7%	129.7%	12.0%
2049	-	-	-	100%	100%	0%	4	9	5	7.8%	19.7%	11.9%
2050	-	-	-	100%	100%	0%	4	9	5	7.8%	19.7%	11.9%

**Kentucky Public Pensions Authority**  
**Exhibit 1-4**  
**CERS Hazardous Insurance Fund**  
**Actuarial Analysis of HB 135**  
**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)
2021	\$ 275	\$ 275	\$ -	84%	84%	0%	\$ 50	\$ 50	\$ -	8.7%	8.7%	0.0%
2022	219	219	-	88%	88%	0%	40	40	-	6.8%	6.8%	0.0%
2023	176	176	-	90%	90%	0%	34	34	-	5.6%	5.6%	0.0%
2024	137	137	-	93%	93%	0%	29	29	-	4.7%	4.7%	0.0%
2025	84	84	-	96%	96%	0%	24	24	-	3.9%	3.9%	0.0%
2026	83	83	-	96%	96%	0%	19	19	-	2.9%	2.9%	0.0%
2027	88	88	-	95%	95%	0%	17	17	-	2.7%	2.7%	0.0%
2028	93	93	-	95%	95%	0%	16	16	-	2.5%	2.5%	0.0%
2029	97	97	-	95%	95%	0%	16	16	-	2.3%	2.3%	0.0%
2030	104	104	-	95%	95%	0%	15	15	-	2.2%	2.2%	0.0%
2031	110	110	-	94%	94%	0%	15	15	-	2.1%	2.1%	0.0%
2032	117	117	-	94%	94%	0%	14	14	-	2.0%	2.0%	0.0%
2033	125	125	-	94%	94%	0%	14	14	-	1.9%	1.9%	0.0%
2034	133	133	-	93%	93%	0%	14	14	-	1.9%	1.9%	0.0%
2035	141	141	-	93%	93%	0%	14	14	-	1.9%	1.9%	0.0%
2036	151	151	-	92%	92%	0%	14	14	-	1.8%	1.8%	0.0%
2037	161	161	-	92%	92%	0%	14	14	-	1.8%	1.8%	0.0%
2038	172	172	-	91%	91%	0%	14	14	-	1.8%	1.8%	0.0%
2039	184	184	-	91%	91%	0%	14	14	-	1.8%	1.8%	0.0%
2040	196	196	-	90%	90%	0%	20	20	-	2.4%	2.4%	0.0%
2041	204	204	-	90%	90%	0%	32	32	-	3.8%	3.8%	0.0%
2042	200	200	-	90%	90%	0%	39	39	-	4.5%	4.5%	0.0%
2043	188	188	-	91%	91%	0%	44	44	-	5.0%	5.0%	0.0%
2044	171	171	-	92%	92%	0%	49	49	-	5.5%	5.5%	0.0%
2045	148	148	-	93%	93%	0%	57	57	-	6.1%	6.1%	0.0%
2046	114	114	-	95%	95%	0%	58	58	-	6.1%	6.1%	0.0%
2047	79	79	-	97%	97%	0%	59	59	-	6.1%	6.1%	0.0%
2048	40	40	-	98%	98%	0%	60	60	-	6.1%	6.1%	0.0%
2049	-	-	-	100%	100%	0%	16	16	-	1.6%	1.6%	0.0%
2050	-	-	-	100%	100%	0%	16	16	-	1.6%	1.6%	0.0%

**Kentucky Public Pensions Authority**  
**Exhibit 1-5**  
**KERS Hazardous Insurance Fund**  
**Actuarial Analysis of HB 135**  
**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)
2021	\$ (151)	\$ (151)	\$ -	136%	136%	0%	\$ -	\$ -	\$ -	0.0%	0.0%	0.0%
2022	(171)	(171)	-	139%	139%	0%	-	-	-	0.0%	0.0%	0.0%
2023	(192)	(192)	-	143%	143%	0%	-	-	-	0.0%	0.0%	0.0%
2024	(213)	(213)	-	147%	147%	0%	-	-	-	0.0%	0.0%	0.0%
2025	(241)	(241)	-	152%	152%	0%	-	-	-	0.0%	0.0%	0.0%
2026	(252)	(252)	-	154%	154%	0%	-	-	-	0.0%	0.0%	0.0%
2027	(264)	(264)	-	156%	156%	0%	-	-	-	0.0%	0.0%	0.0%
2028	(276)	(276)	-	158%	158%	0%	-	-	-	0.0%	0.0%	0.0%
2029	(290)	(290)	-	160%	160%	0%	-	-	-	0.0%	0.0%	0.0%
2030	(303)	(303)	-	163%	163%	0%	-	-	-	0.0%	0.0%	0.0%
2031	(319)	(319)	-	166%	166%	0%	-	-	-	0.0%	0.0%	0.0%
2032	(336)	(336)	-	169%	169%	0%	-	-	-	0.0%	0.0%	0.0%
2033	(353)	(353)	-	172%	172%	0%	-	-	-	0.0%	0.0%	0.0%
2034	(371)	(371)	-	175%	175%	0%	-	-	-	0.0%	0.0%	0.0%
2035	(392)	(392)	-	179%	179%	0%	-	-	-	0.0%	0.0%	0.0%
2036	(413)	(413)	-	183%	183%	0%	-	-	-	0.0%	0.0%	0.0%
2037	(436)	(436)	-	187%	187%	0%	-	-	-	0.0%	0.0%	0.0%
2038	(460)	(460)	-	191%	191%	0%	-	-	-	0.0%	0.0%	0.0%
2039	(485)	(485)	-	195%	195%	0%	-	-	-	0.0%	0.0%	0.0%
2040	(512)	(512)	-	199%	199%	0%	-	-	-	0.0%	0.0%	0.0%
2041	(541)	(541)	-	204%	204%	0%	-	-	-	0.0%	0.0%	0.0%
2042	(572)	(572)	-	209%	209%	0%	-	-	-	0.0%	0.0%	0.0%
2043	(604)	(604)	-	213%	213%	0%	-	-	-	0.0%	0.0%	0.0%
2044	(638)	(638)	-	218%	218%	0%	-	-	-	0.0%	0.0%	0.0%
2045	(675)	(675)	-	223%	223%	0%	-	-	-	0.0%	0.0%	0.0%
2046	(714)	(714)	-	229%	229%	0%	-	-	-	0.0%	0.0%	0.0%
2047	(756)	(756)	-	235%	235%	0%	-	-	-	0.0%	0.0%	0.0%
2048	(800)	(800)	-	241%	241%	0%	-	-	-	0.0%	0.0%	0.0%
2049	(847)	(847)	-	248%	248%	0%	-	-	-	0.0%	0.0%	0.0%
2050	(898)	(898)	-	255%	255%	0%	-	-	-	0.0%	0.0%	0.0%

**Kentucky Public Pensions Authority**  
**Exhibit 1-6**  
**SPRS Insurance Fund**  
**Actuarial Analysis of HB 135**  
**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)
2021	\$ 49	\$ 49	\$ -	82%	82%	0%	\$ 8	\$ 8	\$ -	18.1%	18.1%	0.0%
2022	40	40	-	86%	86%	0%	6	6	-	14.1%	14.1%	0.0%
2023	32	32	-	89%	89%	0%	6	6	-	14.1%	14.1%	0.0%
2024	24	24	-	92%	92%	0%	4	4	-	9.4%	9.4%	0.0%
2025	15	15	-	95%	95%	0%	4	4	-	9.4%	9.4%	0.0%
2026	14	14	-	95%	95%	0%	2	2	-	5.2%	5.2%	0.0%
2027	15	15	-	95%	95%	0%	2	2	-	5.2%	5.2%	0.0%
2028	15	15	-	95%	95%	0%	2	2	-	4.4%	4.4%	0.0%
2029	16	16	-	94%	94%	0%	2	2	-	4.4%	4.4%	0.0%
2030	17	17	-	94%	94%	0%	2	2	-	3.9%	3.9%	0.0%
2031	17	17	-	94%	94%	0%	2	2	-	3.9%	3.9%	0.0%
2032	17	17	-	94%	94%	0%	2	2	-	3.6%	3.6%	0.0%
2033	19	19	-	93%	93%	0%	2	2	-	3.6%	3.6%	0.0%
2034	19	19	-	93%	93%	0%	2	2	-	3.5%	3.5%	0.0%
2035	20	20	-	92%	92%	0%	2	2	-	3.5%	3.5%	0.0%
2036	22	22	-	92%	92%	0%	2	2	-	3.4%	3.4%	0.0%
2037	23	23	-	91%	91%	0%	2	2	-	3.4%	3.4%	0.0%
2038	24	24	-	91%	91%	0%	2	2	-	3.3%	3.3%	0.0%
2039	25	25	-	90%	90%	0%	2	2	-	3.3%	3.3%	0.0%
2040	26	26	-	90%	90%	0%	2	2	-	4.6%	4.6%	0.0%
2041	27	27	-	89%	89%	0%	2	2	-	4.6%	4.6%	0.0%
2042	28	28	-	89%	89%	0%	5	5	-	10.4%	10.4%	0.0%
2043	26	26	-	89%	89%	0%	5	5	-	10.4%	10.4%	0.0%
2044	25	25	-	90%	90%	0%	6	6	-	13.4%	13.4%	0.0%
2045	22	22	-	91%	91%	0%	6	6	-	13.4%	13.4%	0.0%
2046	18	18	-	93%	93%	0%	7	7	-	15.5%	15.5%	0.0%
2047	13	13	-	95%	95%	0%	7	7	-	15.5%	15.5%	0.0%
2048	8	8	-	97%	97%	0%	7	7	-	15.5%	15.5%	0.0%
2049	-	-	-	100%	100%	0%	2	2	-	3.4%	3.4%	0.0%
2050	-	-	-	100%	100%	0%	2	2	-	3.4%	3.4%	0.0%

**Actuarial Analysis of HB 135**  
**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 135**  
**Current Plan**  
**(\$ in Millions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Total Employer Contribution	Member Contribution	Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2021	\$ 5,629	\$ 2,629	\$ 3,000	47%	\$ 206	\$ 46	\$ 578	35.60%	43.23%
2022	5,784	2,834	2,950	49%	253	47	590	42.81%	42.81%
2023	5,929	3,067	2,862	52%	247	48	602	41.04%	41.04%
2024	6,067	3,292	2,775	54%	243	49	614	39.63%	39.63%
2025	6,199	3,537	2,662	57%	240	50	626	38.29%	38.29%
2026	6,324	3,685	2,639	58%	234	51	639	36.70%	36.70%
2027	6,444	3,825	2,619	59%	237	52	651	36.33%	36.33%
2028	6,560	3,963	2,597	60%	239	53	664	36.00%	36.00%
2029	6,671	4,103	2,568	62%	242	54	678	35.68%	35.68%
2030	6,782	4,247	2,535	63%	245	55	691	35.43%	35.43%
2031	6,893	4,398	2,495	64%	248	56	705	35.22%	35.22%
2032	7,008	4,558	2,450	65%	252	58	719	35.04%	35.04%
2033	7,125	4,727	2,398	66%	256	59	733	34.88%	34.88%
2034	7,247	4,908	2,339	68%	260	60	748	34.74%	34.74%
2035	7,371	5,099	2,272	69%	264	61	763	34.60%	34.60%
2036	7,499	5,302	2,197	71%	268	62	778	34.46%	34.46%
2037	7,628	5,515	2,113	72%	272	64	794	34.31%	34.31%
2038	7,757	5,737	2,020	74%	277	65	810	34.15%	34.15%
2039	7,883	5,968	1,915	76%	281	66	826	33.98%	33.98%
2040	8,009	6,209	1,800	78%	272	67	843	32.34%	32.34%
2041	8,134	6,448	1,686	79%	279	69	859	32.43%	32.43%
2042	8,261	6,701	1,560	81%	294	70	877	33.59%	33.59%
2043	8,390	6,981	1,409	83%	309	72	894	34.53%	34.53%
2044	8,522	7,288	1,234	86%	323	73	912	35.45%	35.45%
2045	8,657	7,621	1,036	88%	341	74	930	36.67%	36.67%
2046	8,792	7,986	806	91%	348	76	949	36.67%	36.67%
2047	8,931	8,373	558	94%	355	77	968	36.68%	36.68%
2048	9,072	8,785	287	97%	362	79	987	36.70%	36.70%
2049	9,215	9,215	-	100%	59	81	1,007	5.88%	5.88%
2050	9,361	9,361	-	100%	61	82	1,027	5.90%	5.90%

**Notes and assumptions:**

The projection is based on the results of the June 30, 2021 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 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 135**  
**Current Plan**  
**(\$ in Millions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Total Employer Contribution	Member Contribution	Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2021	\$ 1,295	\$ 782	\$ 513	60%	\$ 54	\$ 13	\$ 163	33.43%	33.43%
2022	1,325	848	477	64%	52	13	163	31.82%	31.82%
2023	1,353	907	446	67%	52	13	163	31.82%	29.92%
2024	1,378	966	412	70%	46	13	163	28.18%	28.18%
2025	1,403	1,026	377	73%	46	13	163	28.18%	26.67%
2026	1,426	1,060	366	74%	40	13	163	24.68%	24.68%
2027	1,448	1,088	360	75%	40	13	163	24.68%	24.43%
2028	1,468	1,115	353	76%	39	13	163	24.16%	24.16%
2029	1,486	1,140	346	77%	39	13	163	24.16%	23.95%
2030	1,505	1,166	339	78%	39	13	163	23.79%	23.79%
2031	1,524	1,192	332	78%	39	13	163	23.79%	23.68%
2032	1,544	1,221	323	79%	38	13	163	23.58%	23.58%
2033	1,566	1,250	316	80%	38	13	163	23.58%	23.52%
2034	1,589	1,282	307	81%	38	13	163	23.45%	23.45%
2035	1,612	1,315	297	82%	38	13	163	23.45%	23.39%
2036	1,637	1,349	288	82%	38	13	163	23.31%	23.31%
2037	1,661	1,384	277	83%	38	13	163	23.31%	23.22%
2038	1,686	1,420	266	84%	38	13	163	23.11%	23.11%
2039	1,710	1,456	254	85%	38	13	163	23.11%	23.01%
2040	1,734	1,492	242	86%	36	13	163	21.86%	21.86%
2041	1,758	1,528	230	87%	36	13	163	21.86%	24.55%
2042	1,782	1,564	218	88%	43	13	163	26.28%	26.28%
2043	1,807	1,609	198	89%	43	13	163	26.28%	27.70%
2044	1,832	1,656	176	90%	47	13	163	29.07%	29.07%
2045	1,857	1,709	148	92%	47	13	163	29.07%	30.81%
2046	1,881	1,763	118	94%	50	13	163	30.97%	30.97%
2047	1,905	1,821	84	96%	50	13	163	30.97%	31.00%
2048	1,928	1,881	47	98%	50	13	163	31.01%	31.01%
2049	1,950	1,950	-	100%	10	13	163	6.29%	6.29%
2050	1,971	1,971	-	100%	10	13	163	6.29%	6.29%

**Notes and assumptions:**

The projection is based on the results of the June 30, 2021 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 135**  
**Current Plan**  
**(\$ in Millions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Total Employer Contribution	Member Contribution	Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2021	\$ 1,053	\$ 323	\$ 730	31%	\$ 58	\$ 4	\$ 45	127.99%	127.99%
2022	1,055	348	707	33%	57	4	45	126.40%	126.40%
2023	1,055	371	684	35%	57	4	45	126.40%	123.44%
2024	1,054	392	662	37%	55	4	45	120.71%	120.71%
2025	1,051	413	638	39%	55	4	45	120.71%	118.30%
2026	1,046	424	622	41%	52	4	45	115.39%	115.39%
2027	1,040	432	608	42%	52	4	45	115.39%	114.66%
2028	1,034	441	593	43%	52	4	45	113.93%	113.93%
2029	1,026	448	578	44%	52	4	45	113.93%	113.26%
2030	1,018	457	561	45%	51	4	45	112.61%	112.61%
2031	1,009	465	544	46%	51	4	45	112.61%	112.16%
2032	1,000	474	526	47%	51	4	45	111.75%	111.75%
2033	990	483	507	49%	51	4	45	111.75%	111.46%
2034	981	494	487	50%	50	4	45	111.19%	111.19%
2035	972	506	466	52%	50	4	45	111.19%	110.91%
2036	962	518	444	54%	50	4	45	110.54%	110.54%
2037	952	531	421	56%	50	4	45	110.54%	110.14%
2038	942	545	397	58%	50	4	45	109.66%	109.66%
2039	931	560	371	60%	50	4	45	109.66%	109.17%
2040	920	576	344	63%	49	4	45	107.78%	107.78%
2041	908	592	316	65%	49	4	45	107.78%	110.49%
2042	896	609	287	68%	51	4	45	112.45%	112.45%
2043	883	630	253	71%	51	4	45	112.45%	114.18%
2044	871	652	219	75%	52	4	45	115.75%	115.75%
2045	857	678	179	79%	52	4	45	115.75%	117.70%
2046	844	704	140	83%	53	4	45	117.76%	117.76%
2047	830	734	96	88%	53	4	45	117.76%	117.73%
2048	816	766	50	94%	53	4	45	117.70%	117.70%
2049	801	801	-	100%	4	4	45	7.77%	7.77%
2050	787	787	-	100%	4	4	45	7.77%	7.77%

**Notes and assumptions:**

The projection is based on the results of the June 30, 2021 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.

**Kentucky Public Pensions Authority**  
**Exhibit 2-4**  
**CERS Hazardous Insurance Fund**  
**Actuarial Analysis of HB 135**  
**Current Plan**  
**(\$ in Millions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Total Employer Contribution	Member Contribution	Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2021	\$ 1,751	\$ 1,476	\$ 275	84%	\$ 50	\$ 3	\$ 573	8.73%	8.73%
2022	1,797	1,578	219	88%	40	3	585	6.78%	6.78%
2023	1,836	1,660	176	90%	34	4	597	5.62%	5.62%
2024	1,868	1,731	137	93%	29	4	609	4.71%	4.71%
2025	1,892	1,808	84	96%	24	5	621	3.88%	3.88%
2026	1,912	1,829	83	96%	19	5	633	2.93%	2.93%
2027	1,928	1,840	88	95%	17	5	646	2.68%	2.68%
2028	1,939	1,846	93	95%	16	6	659	2.48%	2.48%
2029	1,945	1,848	97	95%	16	6	672	2.31%	2.31%
2030	1,950	1,846	104	95%	15	6	685	2.18%	2.18%
2031	1,952	1,842	110	94%	15	6	699	2.08%	2.08%
2032	1,952	1,835	117	94%	14	7	713	2.00%	2.00%
2033	1,953	1,828	125	94%	14	7	727	1.94%	1.94%
2034	1,954	1,821	133	93%	14	7	742	1.88%	1.88%
2035	1,956	1,815	141	93%	14	7	757	1.85%	1.85%
2036	1,961	1,810	151	92%	14	8	772	1.82%	1.82%
2037	1,970	1,809	161	92%	14	8	787	1.79%	1.79%
2038	1,983	1,811	172	91%	14	8	803	1.78%	1.78%
2039	1,998	1,814	184	91%	14	8	819	1.75%	1.75%
2040	2,018	1,822	196	90%	20	8	835	2.36%	2.36%
2041	2,041	1,837	204	90%	32	9	852	3.77%	3.77%
2042	2,067	1,867	200	90%	39	9	869	4.45%	4.45%
2043	2,097	1,909	188	91%	44	9	887	4.97%	4.97%
2044	2,130	1,959	171	92%	49	9	904	5.47%	5.47%
2045	2,166	2,018	148	93%	57	9	922	6.14%	6.14%
2046	2,202	2,088	114	95%	58	9	941	6.13%	6.13%
2047	2,240	2,161	79	97%	59	10	960	6.11%	6.11%
2048	2,278	2,238	40	98%	60	10	979	6.11%	6.11%
2049	2,316	2,316	-	100%	16	10	998	1.62%	1.62%
2050	2,354	2,354	-	100%	16	10	1,018	1.61%	1.61%

**Notes and assumptions:**

The projection is based on the results of the June 30, 2021 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 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 2-5**  
**KERS Hazardous Insurance Fund**  
**Actuarial Analysis of HB 135**  
**Current Plan**  
**(\$ in Millions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Total Employer Contribution	Member Contribution	Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2021	\$ 424	\$ 575	\$ (151)	136%	\$ -	\$ 1	\$ 162	0.00%	0.00%
2022	437	608	(171)	139%	-	1	162	0.00%	0.00%
2023	447	639	(192)	143%	-	1	162	0.00%	0.00%
2024	456	669	(213)	147%	-	1	162	0.00%	0.00%
2025	464	705	(241)	152%	-	1	162	0.00%	0.00%
2026	470	722	(252)	154%	-	1	162	0.00%	0.00%
2027	475	739	(264)	156%	-	1	162	0.00%	0.00%
2028	479	755	(276)	158%	-	1	162	0.00%	0.00%
2029	482	772	(290)	160%	-	1	162	0.00%	0.00%
2030	485	788	(303)	163%	-	2	162	0.00%	0.00%
2031	487	806	(319)	166%	-	2	162	0.00%	0.00%
2032	488	824	(336)	169%	-	2	162	0.00%	0.00%
2033	491	844	(353)	172%	-	2	162	0.00%	0.00%
2034	493	864	(371)	175%	-	2	162	0.00%	0.00%
2035	495	887	(392)	179%	-	2	162	0.00%	0.00%
2036	498	911	(413)	183%	-	2	162	0.00%	0.00%
2037	501	937	(436)	187%	-	2	162	0.00%	0.00%
2038	505	965	(460)	191%	-	2	162	0.00%	0.00%
2039	510	995	(485)	195%	-	2	162	0.00%	0.00%
2040	515	1,027	(512)	199%	-	2	162	0.00%	0.00%
2041	520	1,061	(541)	204%	-	2	162	0.00%	0.00%
2042	526	1,098	(572)	209%	-	2	162	0.00%	0.00%
2043	533	1,137	(604)	213%	-	2	162	0.00%	0.00%
2044	540	1,178	(638)	218%	-	2	162	0.00%	0.00%
2045	547	1,222	(675)	223%	-	2	162	0.00%	0.00%
2046	554	1,268	(714)	229%	-	2	162	0.00%	0.00%
2047	561	1,317	(756)	235%	-	2	162	0.00%	0.00%
2048	567	1,367	(800)	241%	-	2	162	0.00%	0.00%
2049	573	1,420	(847)	248%	-	2	162	0.00%	0.00%
2050	578	1,476	(898)	255%	-	2	162	0.00%	0.00%

**Notes and assumptions:**

The projection is based on the results of the June 30, 2021 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 2-6**  
**SPRS Insurance Fund**  
**Actuarial Analysis of HB 135**  
**Current Plan**  
**(\$ in Millions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Total Employer Contribution	Member Contribution	Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2021	\$ 272	\$ 223	\$ 49	82%	\$ 8	\$ -	\$ 45	18.07%	18.07%
2022	278	238	40	86%	6	-	45	14.11%	14.11%
2023	282	250	32	89%	6	-	45	14.11%	11.65%
2024	285	261	24	92%	4	-	45	9.42%	9.42%
2025	286	271	15	95%	4	-	45	9.42%	7.54%
2026	287	273	14	95%	2	-	45	5.17%	5.17%
2027	287	272	15	95%	2	-	45	5.17%	4.75%
2028	286	271	15	95%	2	-	45	4.39%	4.39%
2029	284	268	16	94%	2	-	45	4.39%	4.12%
2030	282	265	17	94%	2	-	45	3.88%	3.88%
2031	279	262	17	94%	2	-	45	3.88%	3.73%
2032	275	258	17	94%	2	-	45	3.59%	3.59%
2033	272	253	19	93%	2	-	45	3.59%	3.51%
2034	268	249	19	93%	2	-	45	3.46%	3.46%
2035	264	244	20	92%	2	-	45	3.46%	3.41%
2036	261	239	22	92%	2	-	45	3.37%	3.37%
2037	258	235	23	91%	2	-	45	3.37%	3.35%
2038	255	231	24	91%	2	-	45	3.33%	3.33%
2039	252	227	25	90%	2	-	45	3.33%	3.31%
2040	250	224	26	90%	2	-	45	4.56%	4.56%
2041	248	221	27	89%	2	-	45	4.56%	8.39%
2042	247	219	28	89%	5	-	45	10.40%	10.40%
2043	246	220	26	89%	5	-	45	10.40%	11.96%
2044	246	221	25	90%	6	-	45	13.40%	13.40%
2045	246	224	22	91%	6	-	45	13.40%	15.27%
2046	246	228	18	93%	7	-	45	15.45%	15.45%
2047	246	233	13	95%	7	-	45	15.45%	15.50%
2048	246	238	8	97%	7	-	45	15.50%	15.50%
2049	246	246	-	100%	2	-	45	3.39%	3.39%
2050	246	246	-	100%	2	-	45	3.37%	3.37%

**Notes and assumptions:**

The projection is based on the results of the June 30, 2021 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.

**Actuarial Analysis of HB 135  
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 135**  
**Proposed Legislation**  
**(\$ in Millions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Total Employer Contribution	Member Contribution	Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2021	\$ 5,683	\$ 2,629	\$ 3,054	46%	\$ 206	\$ 46	\$ 578	35.60%	43.23%
2022	5,848	2,830	3,018	48%	253	47	590	42.87%	45.43%
2023	6,006	3,060	2,946	51%	266	48	602	44.17%	44.17%
2024	6,159	3,301	2,858	54%	264	49	614	42.99%	42.99%
2025	6,310	3,565	2,745	57%	262	50	626	41.88%	41.88%
2026	6,457	3,735	2,722	58%	259	51	639	40.49%	40.49%
2027	6,601	3,900	2,701	59%	263	52	651	40.33%	40.33%
2028	6,744	4,068	2,676	60%	267	53	664	40.18%	40.18%
2029	6,887	4,242	2,645	62%	271	54	678	40.05%	40.05%
2030	7,033	4,424	2,609	63%	276	55	691	39.92%	39.92%
2031	7,184	4,617	2,567	64%	281	56	705	39.82%	39.82%
2032	7,342	4,824	2,518	66%	286	58	719	39.74%	39.74%
2033	7,508	5,045	2,463	67%	291	59	733	39.66%	39.66%
2034	7,682	5,283	2,399	69%	296	60	748	39.59%	39.59%
2035	7,864	5,537	2,327	70%	302	61	763	39.52%	39.52%
2036	8,054	5,808	2,246	72%	308	62	778	39.52%	39.52%
2037	8,251	6,095	2,156	74%	314	64	794	39.52%	39.52%
2038	8,454	6,397	2,057	76%	320	65	810	39.52%	39.52%
2039	8,661	6,715	1,946	78%	326	66	826	39.52%	39.52%
2040	8,871	7,048	1,823	79%	321	67	843	38.04%	38.04%
2041	9,084	7,383	1,701	81%	321	69	859	37.38%	37.38%
2042	9,299	7,728	1,571	83%	337	70	877	38.40%	38.40%
2043	9,516	8,095	1,421	85%	352	72	894	39.40%	39.40%
2044	9,733	8,487	1,246	87%	368	73	912	40.36%	40.36%
2045	9,951	8,905	1,046	90%	387	74	930	41.59%	41.59%
2046	10,171	9,355	816	92%	395	76	949	41.60%	41.60%
2047	10,394	9,828	566	95%	403	77	968	41.61%	41.61%
2048	10,619	10,325	294	97%	411	79	987	41.62%	41.62%
2049	10,846	10,846	-	100%	109	81	1,007	10.80%	10.80%
2050	11,074	11,074	-	100%	111	82	1,027	10.81%	10.81%

**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 benefit provision changes in HB 135.

All Tier 3 members are assumed to elect to earn benefits under the Tier 2 provisions.

**Kentucky Public Pensions Authority**  
**Exhibit 3-2**  
**KERS Hazardous Retirement Fund**  
**Actuarial Analysis of HB 135**  
**Proposed Legislation**  
**(\$ in Millions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Total Employer Contribution	Member Contribution	Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2021	\$ 1,309	\$ 782	\$ 527	60%	\$ 54	\$ 13	\$ 163	33.43%	33.43%
2022	1,341	847	494	63%	56	13	163	34.30%	34.30%
2023	1,371	908	463	66%	56	13	163	34.30%	32.59%
2024	1,400	971	429	69%	50	13	163	31.01%	31.01%
2025	1,429	1,036	393	73%	50	13	163	31.01%	29.62%
2026	1,456	1,074	382	74%	45	13	163	27.76%	27.76%
2027	1,482	1,107	375	75%	45	13	163	27.76%	27.63%
2028	1,507	1,139	368	76%	45	13	163	27.50%	27.50%
2029	1,532	1,171	361	76%	45	13	163	27.50%	27.39%
2030	1,557	1,204	353	77%	44	13	163	27.32%	27.32%
2031	1,583	1,238	345	78%	44	13	163	27.32%	27.27%
2032	1,611	1,275	336	79%	44	13	163	27.24%	27.24%
2033	1,642	1,315	327	80%	44	13	163	27.24%	27.22%
2034	1,674	1,356	318	81%	44	13	163	27.21%	27.21%
2035	1,707	1,400	307	82%	44	13	163	27.21%	27.22%
2036	1,743	1,446	297	83%	44	13	163	27.22%	27.22%
2037	1,779	1,494	285	84%	44	13	163	27.22%	27.22%
2038	1,816	1,544	272	85%	44	13	163	27.22%	27.22%
2039	1,854	1,594	260	86%	44	13	163	27.22%	27.22%
2040	1,892	1,646	246	87%	43	13	163	26.17%	26.17%
2041	1,930	1,697	233	88%	43	13	163	26.17%	28.02%
2042	1,967	1,748	219	89%	48	13	163	29.71%	29.71%
2043	2,005	1,806	199	90%	48	13	163	29.71%	31.15%
2044	2,041	1,865	176	91%	53	13	163	32.55%	32.55%
2045	2,078	1,929	149	93%	53	13	163	32.55%	34.28%
2046	2,113	1,994	119	94%	56	13	163	34.45%	34.45%
2047	2,146	2,063	83	96%	56	13	163	34.45%	34.48%
2048	2,178	2,131	47	98%	56	13	163	34.49%	34.49%
2049	2,208	2,208	-	100%	16	13	163	9.75%	9.75%
2050	2,236	2,236	-	100%	16	13	163	9.76%	9.76%

**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 benefit provision changes in HB 135.

All Tier 3 members are assumed to elect to earn benefits under the Tier 2 provisions.

**Kentucky Public Pensions Authority**  
**Exhibit 3-3**  
**SPRS Retirement Fund**  
**Actuarial Analysis of HB 135**  
**Proposed Legislation**  
**(\$ in Millions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Total Employer Contribution	Member Contribution	Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2021	\$ 1,059	\$ 323	\$ 736	31%	\$ 58	\$ 4	\$ 45	127.99%	127.99%
2022	1,062	348	714	33%	59	4	45	130.50%	130.50%
2023	1,064	372	692	35%	59	4	45	130.50%	128.23%
2024	1,065	396	669	37%	57	4	45	126.11%	126.11%
2025	1,064	419	645	39%	57	4	45	126.11%	124.28%
2026	1,062	433	629	41%	55	4	45	122.03%	122.03%
2027	1,060	445	615	42%	55	4	45	122.03%	121.84%
2028	1,057	457	600	43%	55	4	45	121.63%	121.63%
2029	1,054	469	585	45%	55	4	45	121.63%	121.45%
2030	1,050	482	568	46%	55	4	45	121.30%	121.30%
2031	1,046	495	551	47%	55	4	45	121.30%	121.19%
2032	1,042	510	532	49%	55	4	45	121.08%	121.08%
2033	1,039	526	513	51%	55	4	45	121.08%	121.02%
2034	1,036	543	493	52%	55	4	45	120.97%	120.97%
2035	1,033	562	471	54%	55	4	45	120.97%	120.94%
2036	1,031	582	449	57%	55	4	45	120.91%	120.91%
2037	1,029	603	426	59%	55	4	45	120.91%	120.89%
2038	1,027	626	401	61%	55	4	45	120.89%	120.89%
2039	1,025	650	375	63%	55	4	45	120.89%	120.87%
2040	1,024	676	348	66%	54	4	45	119.92%	119.92%
2041	1,022	703	319	69%	54	4	45	119.92%	121.71%
2042	1,020	731	289	72%	56	4	45	123.86%	123.86%
2043	1,017	762	255	75%	56	4	45	123.86%	125.75%
2044	1,015	795	220	78%	58	4	45	127.51%	127.51%
2045	1,012	831	181	82%	58	4	45	127.51%	129.52%
2046	1,009	868	141	86%	59	4	45	129.68%	129.68%
2047	1,006	909	97	90%	59	4	45	129.68%	129.69%
2048	1,003	952	51	95%	59	4	45	129.68%	129.68%
2049	999	999	-	100%	9	4	45	19.73%	19.73%
2050	994	994	-	100%	9	4	45	19.74%	19.74%

**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 benefit provision changes in HB 135.  
All Tier 3 members are assumed to elect to earn benefits under the Tier 2 provisions.

**Kentucky Public Pensions Authority**  
**Exhibit 3-4**  
**CERS Hazardous Insurance Fund**  
**Actuarial Analysis of HB 135**  
**Proposed Legislation**  
**(\$ in Millions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Total Employer Contribution	Member Contribution	Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2021	\$ 1,751	\$ 1,476	\$ 275	84%	\$ 50	\$ 3	\$ 573	8.73%	8.73%
2022	1,797	1,578	219	88%	40	3	585	6.78%	6.78%
2023	1,836	1,660	176	90%	34	4	597	5.62%	5.62%
2024	1,868	1,731	137	93%	29	4	609	4.71%	4.71%
2025	1,892	1,808	84	96%	24	5	621	3.88%	3.88%
2026	1,912	1,829	83	96%	19	5	633	2.93%	2.93%
2027	1,928	1,840	88	95%	17	5	646	2.68%	2.68%
2028	1,939	1,846	93	95%	16	6	659	2.48%	2.48%
2029	1,945	1,848	97	95%	16	6	672	2.31%	2.31%
2030	1,950	1,846	104	95%	15	6	685	2.18%	2.18%
2031	1,952	1,842	110	94%	15	6	699	2.08%	2.08%
2032	1,952	1,835	117	94%	14	7	713	2.00%	2.00%
2033	1,953	1,828	125	94%	14	7	727	1.94%	1.94%
2034	1,954	1,821	133	93%	14	7	742	1.88%	1.88%
2035	1,956	1,815	141	93%	14	7	757	1.85%	1.85%
2036	1,961	1,810	151	92%	14	8	772	1.82%	1.82%
2037	1,970	1,809	161	92%	14	8	787	1.79%	1.79%
2038	1,983	1,811	172	91%	14	8	803	1.78%	1.78%
2039	1,998	1,814	184	91%	14	8	819	1.75%	1.75%
2040	2,018	1,822	196	90%	20	8	835	2.36%	2.36%
2041	2,041	1,837	204	90%	32	9	852	3.77%	3.77%
2042	2,067	1,867	200	90%	39	9	869	4.45%	4.45%
2043	2,097	1,909	188	91%	44	9	887	4.97%	4.97%
2044	2,130	1,959	171	92%	49	9	904	5.47%	5.47%
2045	2,166	2,018	148	93%	57	9	922	6.14%	6.14%
2046	2,202	2,088	114	95%	58	9	941	6.13%	6.13%
2047	2,240	2,161	79	97%	59	10	960	6.11%	6.11%
2048	2,278	2,238	40	98%	60	10	979	6.11%	6.11%
2049	2,316	2,316	-	100%	16	10	998	1.62%	1.62%
2050	2,354	2,354	-	100%	16	10	1,018	1.61%	1.61%

**Notes and assumptions:**

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.

**Kentucky Public Pensions Authority**  
**Exhibit 3-5**  
**KERS Hazardous Insurance Fund**  
**Actuarial Analysis of HB 135**  
**Proposed Legislation**  
**(\$ in Millions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Total Employer Contribution	Member Contribution	Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2021	\$ 424	\$ 575	\$ (151)	136%	\$ -	\$ 1	\$ 162	0.00%	0.00%
2022	437	608	(171)	139%	-	1	162	0.00%	0.00%
2023	447	639	(192)	143%	-	1	162	0.00%	0.00%
2024	456	669	(213)	147%	-	1	162	0.00%	0.00%
2025	464	705	(241)	152%	-	1	162	0.00%	0.00%
2026	470	722	(252)	154%	-	1	162	0.00%	0.00%
2027	475	739	(264)	156%	-	1	162	0.00%	0.00%
2028	479	755	(276)	158%	-	1	162	0.00%	0.00%
2029	482	772	(290)	160%	-	1	162	0.00%	0.00%
2030	485	788	(303)	163%	-	2	162	0.00%	0.00%
2031	487	806	(319)	166%	-	2	162	0.00%	0.00%
2032	488	824	(336)	169%	-	2	162	0.00%	0.00%
2033	491	844	(353)	172%	-	2	162	0.00%	0.00%
2034	493	864	(371)	175%	-	2	162	0.00%	0.00%
2035	495	887	(392)	179%	-	2	162	0.00%	0.00%
2036	498	911	(413)	183%	-	2	162	0.00%	0.00%
2037	501	937	(436)	187%	-	2	162	0.00%	0.00%
2038	505	965	(460)	191%	-	2	162	0.00%	0.00%
2039	510	995	(485)	195%	-	2	162	0.00%	0.00%
2040	515	1,027	(512)	199%	-	2	162	0.00%	0.00%
2041	520	1,061	(541)	204%	-	2	162	0.00%	0.00%
2042	526	1,098	(572)	209%	-	2	162	0.00%	0.00%
2043	533	1,137	(604)	213%	-	2	162	0.00%	0.00%
2044	540	1,178	(638)	218%	-	2	162	0.00%	0.00%
2045	547	1,222	(675)	223%	-	2	162	0.00%	0.00%
2046	554	1,268	(714)	229%	-	2	162	0.00%	0.00%
2047	561	1,317	(756)	235%	-	2	162	0.00%	0.00%
2048	567	1,367	(800)	241%	-	2	162	0.00%	0.00%
2049	573	1,420	(847)	248%	-	2	162	0.00%	0.00%
2050	578	1,476	(898)	255%	-	2	162	0.00%	0.00%

**Notes and assumptions:**

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.

**Kentucky Public Pensions Authority**  
**Exhibit 3-6**  
**SPRS Insurance Fund**  
**Actuarial Analysis of HB 135**  
**Proposed Legislation**  
**(\$ in Millions)**

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Total Employer Contribution	Member Contribution	Covered Payroll	Total Employer Contribution as % of Covered Payroll	Employer Actuarial Determined Contribution Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2021	\$ 272	\$ 223	\$ 49	82%	\$ 8	\$ -	\$ 45	18.07%	18.07%
2022	278	238	40	86%	6	-	45	14.11%	14.11%
2023	282	250	32	89%	6	-	45	14.11%	11.65%
2024	285	261	24	92%	4	-	45	9.42%	9.42%
2025	286	271	15	95%	4	-	45	9.42%	7.54%
2026	287	273	14	95%	2	-	45	5.17%	5.17%
2027	287	272	15	95%	2	-	45	5.17%	4.75%
2028	286	271	15	95%	2	-	45	4.39%	4.39%
2029	284	268	16	94%	2	-	45	4.39%	4.12%
2030	282	265	17	94%	2	-	45	3.88%	3.88%
2031	279	262	17	94%	2	-	45	3.88%	3.73%
2032	275	258	17	94%	2	-	45	3.59%	3.59%
2033	272	253	19	93%	2	-	45	3.59%	3.51%
2034	268	249	19	93%	2	-	45	3.46%	3.46%
2035	264	244	20	92%	2	-	45	3.46%	3.41%
2036	261	239	22	92%	2	-	45	3.37%	3.37%
2037	258	235	23	91%	2	-	45	3.37%	3.35%
2038	255	231	24	91%	2	-	45	3.33%	3.33%
2039	252	227	25	90%	2	-	45	3.33%	3.31%
2040	250	224	26	90%	2	-	45	4.56%	4.56%
2041	248	221	27	89%	2	-	45	4.56%	8.39%
2042	247	219	28	89%	5	-	45	10.40%	10.40%
2043	246	220	26	89%	5	-	45	10.40%	11.96%
2044	246	221	25	90%	6	-	45	13.40%	13.40%
2045	246	224	22	91%	6	-	45	13.40%	15.27%
2046	246	228	18	93%	7	-	45	15.45%	15.45%
2047	246	233	13	95%	7	-	45	15.45%	15.50%
2048	246	238	8	97%	7	-	45	15.50%	15.50%
2049	246	246	-	100%	2	-	45	3.39%	3.39%
2050	246	246	-	100%	2	-	45	3.37%	3.37%

**Notes and assumptions:**

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.