Kentucky Employees Retirement System (KERS)

Actuarial Valuation Report as of June 30, 2024

GRS

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November 8, 2024

Board of Trustees
Kentucky Retirement Systems
Perimeter Park West
1260 Louisville Road
Frankfort, KY 40601

Subject: Actuarial Valuation as of June 30, 2024

Dear Trustees of the Board:

This report describes the current actuarial condition of the Kentucky Employees Retirement System (KERS), provides the actuarially determined employer contribution, analyzes changes in KERS's financial condition and provides various summaries of the data. The results of this actuarial valuation, including the calculated employer contribution rates will be used by the Board and stakeholders for informational purposes only as the employer contribution rate for the fiscal years ending June 30, 2025 and June 30, 2026 were certified in the June 30, 2023 actuarial valuation, which was adopted by the Board and incorporated in the Commonwealth's budget for the biennium period.

EXECUTIVE SUMMARY OF VALUATION RESULTS

The first page of the executive summary provides a table with a comparison of the valuation results from 2023 to 2024. Fund investments earned between 9% and 11% in Fiscal Year 2024, with returns varying by funds, which resulted in $299 million ($199 million pension and $100 million insurance) more in assets than expected at the beginning of the year.

Retirement fund liabilities were $423 million larger than expected for both funds combined, primarily attributable to salary increases for individual member being greater than expected. There was also a net $160 million liability loss for the insurance funds primarily due to higher than expected Medicare premiums for 2025.

The normal cost rate for the Non-Hazardous funds slightly decreased to 7.99% of pay and the amortization cost increased by $9 million to $866 million due to the increased amortization cost of the insurance fund. The contribution rate decreased by 3.06% of pay to 20.68% of pay for the Hazardous funds, mostly due to the larger than assumed increase in covered, or membership, payroll.

The following table provides the projected contributions for the non-hazardous and hazardous fund for the next 30 years (retirement + insurance), as well as the unfunded actuarial accrued liability and funded ratio for each retirement fund (excluding insurance). These projections assume that all actuarial assumptions are realized and the full actuarially determined contributions are made each future year.

Table 1. Projected Contributions, Unfunded Liability, and Funded Ratio ($ in Millions)

	Fiscal Year Beginning July 1,				
	2024	**2028**	**2033**	**2043**	**2053**
	Year 1	Year 5	Year 10	Year 20	Year 30
KERS Non-Hazardous					
Employer Contribution[1]	$1,014	$964	$944	$1,136	$97
Unfunded Liability – Pension Only	$12,256	$10,820	$9,306	$4,767	$0
Funded Ratio – Pension Only	25%	35%	42%	67%	100%
KERS Hazardous					
Employer Contribution Rate[1]	23.74%	18.87%	18.25%	19.98%	7.09%
Unfunded Liability – Pension Only	$458	$370	$326	$193	$0
Funded Ratio – Pension Only	68%	77%	82%	92%	100%

[1] Employer Contribution shown includes required contributions for both the retirement and insurance funds, and include both the normal cost and amortization cost components of the contribution requirement.

The employer contribution is determined in accordance with Section 61.565 of Kentucky Statute. As specified by the Statute, the employer contribution is comprised of a normal cost contribution and an actuarial accrued liability contribution. The actuarial accrued liability contribution is calculated by amortizing the unfunded accrued liability as of June 30, 2019 over a closed 30-year amortization period (25 years remaining as of June 30, 2024). Gains and losses incurring in years after June 30, 2019 are amortized as separate closed 20-year amortization bases.

If the contributions made are equal to the Actuarially Determined Contribution (ADC), and if all actuarial assumptions are met, there will not be an unfunded accrued liability at the end of the 25-year period remaining from the original closed 30-year amortization base (i.e. as of June 30, 2049). Accordingly, the ADC under the funding policy can be considered a "Reasonable Actuarially Determined Contribution" as required by the Actuarial Standards of Practice.

Financing Objectives and Funding Policy

Separate reports are issued with regard to valuation results determined in accordance with Governmental Accounting Standards Board (GASB) Statements 67, 68, 74 and 75. Results of this report should not be used for any other purpose without consultation with the undersigned. Valuations are prepared annually as of June 30, the first day of the plan year for KERS. This report was prepared at the request of the Board of Trustees of the Kentucky Retirement Systems (Board) and is intended for use by the Kentucky Public Pensions Authority (KPPA) staff and those designated or approved by the Board.

House Bill 8 passed during the 2021 legislative session and specified the method for allocating and collecting contributions from the participating employers in the non-hazardous fund. Each employer will pay a normal cost contribution on the payroll of their covered employees and contribute to the fund an allocated share of the cost required to amortize the unfunded liability.

HB 1 and HB 604 were enacted in the 2022 legislative session and provided an additional $240 million in appropriations to finance the unfunded actuarial accrued liability of the KERS non-hazardous retirement fund in FY 2024. The previous year's valuation reflected the appropriations for FY 2024 in the calculated contribution requirement.

Additionally, HB 1 and HB 6 that were enacted in the 2024 legislative session provided an additional $300 million in appropriations to finance the unfunded actuarial accrued liability of the KERS non-hazardous retirement fund in FY 2025 and FY 2026. The appropriations for FY 2025 have been reflected in the contribution requirement in this year's valuation. The appropriations for FY 2026 will be reflected in the contribution requirement in next year's valuation.

Assumptions and Methods

The Board of Trustees, in consultation with the actuary, sets the actuarial assumptions and methods used in the actuarial valuation. Except where noted in this report, the assumptions used in this actuarial valuation are based on an experience study conducted with experience through June 30, 2022, adopted by the Board of Trustees on June 5, 2023.

The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can, and almost certainly will, differ as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contributions, and funding periods. The actuarial calculations are intended to provide information for rational decision making.

Benefit Provisions and Data

The benefit provisions reflected in these valuations are those which were in effect on June 30, 2024. There were no material benefit provision changes since the prior valuation. Member data for retired, active and inactive members was supplied as of June 30, 2024, by KPPA staff. The staff also supplied asset information as of June 30, 2024. We did not audit this data, but we did apply a number of tests to the data, and we concluded that it was reasonable and consistent with the prior year's data. GRS is not responsible for the accuracy or completeness of the information provided to us by KPPA.

CERTIFICATION

We certify that the information presented herein is accurate and fairly portrays the actuarial position of KERS as of June 30, 2024.

All of our work conforms with generally accepted actuarial principles and practices, and is in conformity with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of Kentucky Code of Laws and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board.

To the best of our knowledge, this report is complete and accurate and is in accordance with generally recognized actuarial practices and methods. Mr. White and Ms. Shaw are Enrolled Actuaries. 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

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Consultant

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Consultant

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SECTION 1

EXECUTIVE SUMMARY

Summary of Principal Results

(Dollar amounts expressed in thousands)

	Non-Hazardous		Hazardous		Total	
	June 30, 2024	June 30, 2023	June 30, 2024	June 30, 2023	June 30, 2024	June 30, 2023
Contribution Rate, payable on covered payroll[1]:						
Retirement	6.85%	6.99%	20.68%	23.74%		
Insurance	1.14%	1.45%	0.00%	0.00%		
Total	7.99%	8.44%	20.68%	23.74%	N/A	N/A
Amortization Cost to be allocated amongst employers	$865,810	$856,561	N/A	N/A	N/A	N/A
Assets:						
Retirement						
• Actuarial value (AVAR)	$4,122,269	$3,552,471	$985,075	$891,460	$5,107,344	$4,443,931
• Market value (MVAR)	$4,223,936	$3,539,943	$1,019,890	$893,533	$5,243,826	$4,433,476
• Ratio of actuarial to market value of assets	97.6%	100.4%	96.6%	99.8%	97.4%	100.2%
Insurance						
• Actuarial value (AVAI)	$1,712,043	$1,532,895	$652,349	$619,519	$2,364,392	$2,152,414
• Market value (MVAI)	$1,765,729	$1,532,752	$677,948	$625,356	$2,443,677	$2,158,108
• Ratio of actuarial to market value of assets	97.0%	100.0%	96.2%	99.1%	96.8%	99.7%
Funded Status:						
Retirement						
• Actuarial accrued liability	$16,647,892	$16,304,278	$1,442,619	$1,363,036	$18,090,511	$17,667,314
• Unfunded accrued liability on AVAR	$12,525,623	$12,751,807	$457,544	$471,576	$12,983,167	$13,223,383
• Funded ratio on AVAR	24.8%	21.8%	68.3%	65.4%	28.2%	25.2%
• Unfunded accrued liability on MVAR	$12,423,956	$12,764,335	$422,729	$469,503	$12,846,685	$13,233,838
• Funded ratio on MVAR	25.4%	21.7%	70.7%	65.6%	29.0%	25.1%
Insurance						
• Actuarial accrued liability	$2,094,744	$1,877,109	$379,568	$363,512	$2,474,312	$2,240,621
• Unfunded accrued liability on AVAI	$382,701	$344,214	($272,781)	($256,007)	$109,920	$88,207
• Funded ratio on AVAI	81.7%	81.7%	171.9%	170.4%	95.6%	96.1%
• Unfunded accrued liability on MVAI	$329,015	$344,357	($298,380)	($261,844)	$30,635	$82,513
• Funded ratio on MVAI	84.3%	81.7%	178.6%	172.0%	98.8%	96.3%
Membership:						
• Number of						
- Active Members	32,455	31,383	4,154	3,886	36,609	35,269
- Retirees and Beneficiaries	48,474	48,409	4,934	4,887	53,408	53,296
- Inactive Members	56,754	55,980	8,980	8,577	65,734	64,557
- Total	137,683	135,772	18,068	17,350	155,751	153,122
• Projected payroll of active members	$1,861,522	$1,615,868	$259,606	$211,602	$2,121,128	$1,827,470
• Average salary of active members	$57,357	$51,489	$62,496	$54,452	$57,940	$51,815

[1] Reflects contribution rate payable as a percentage of covered payroll. For the non-hazardous fund, this includes the normal cost portion of the contribution requirement only. For the hazardous fund, this includes both the normal cost and unfunded liability portion of the contribution requirement.
[1] Contribution rates calculated with the June 30, 2023 valuation are effective for fiscal years ending June 30, 2025 and June 30 2026.

Executive Summary (Continued)

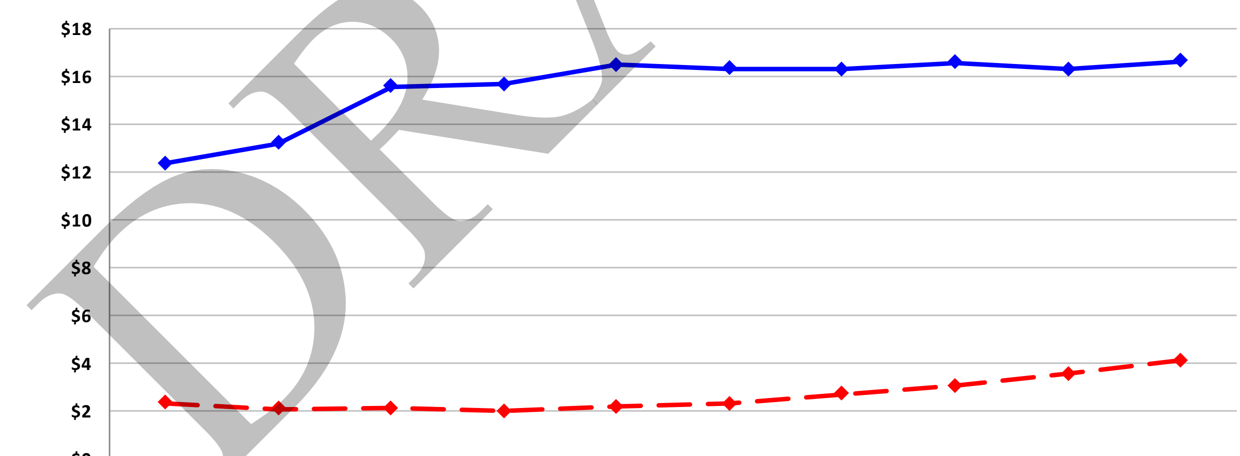
Non-Hazardous Retirement Fund

The unfunded actuarial accrued liability of the non-hazardous retirement fund decreased by $226 million since the prior year's valuation to $12.526 billion. This decrease was approximately $334 million less than expected, primarily due to liability losses as a result of salary increases for individual members being greater than assumed. These liability losses were partially offset by favorable investment experience.

For FYE 2024, the non-hazardous retirement fund distributed $1,058 million in benefit payments and administrative expenses, and received $1,392 million in employer and employee contributions. As of June 30, 2024, plan assets for this system were $4,224 million (excluding assets in the 401(h) account). To stabilize the financial condition of this system, it is imperative that contributions to the system continue to exceed the benefit payments.

Below is a chart with the historical actuarial value of assets and actuarial accrued liability. The divergence in the assets and liability from 2015 through 2020 was generally due to: (1) actual contributions being insufficient to finance the unfunded actuarial accrued liability, and (2) assumption changes.

History of Actuarial Assets vs. Actuarial Accrued Liability
(Dollars in Billions)



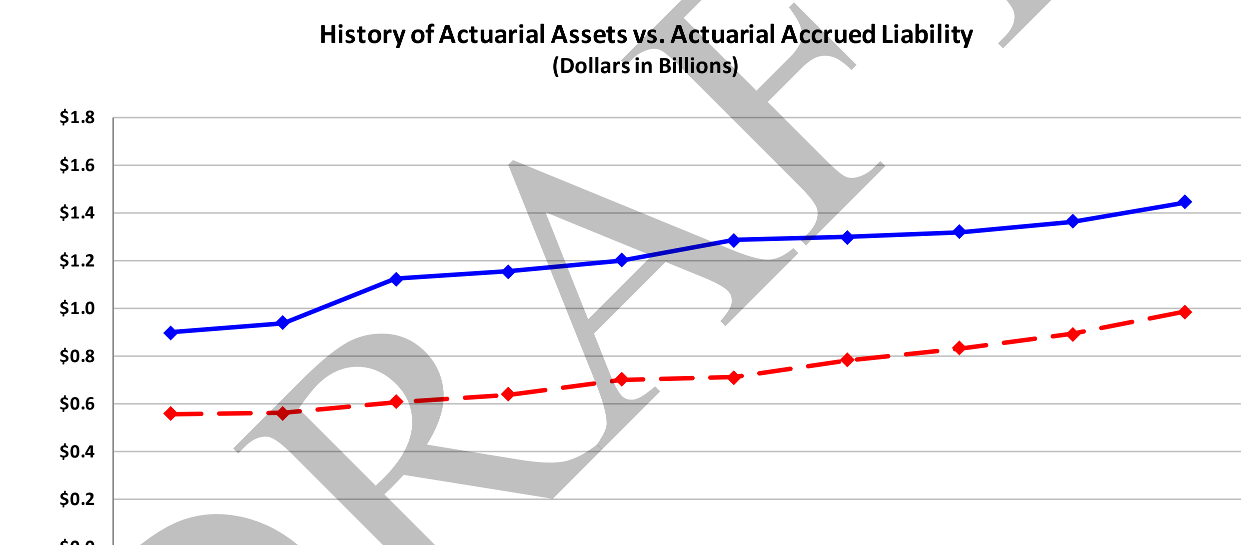
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
AAL	12.4	13.2	15.6	15.7	16.5	16.3	16.3	16.6	16.3	16.6
AVA	2.4	2.1	2.1	2.0	2.2	2.3	2.7	3.1	3.6	4.1

Executive Summary (Continued)

Hazardous Retirement Fund

The unfunded actuarial accrued liability of the hazardous retirement fund decreased by $14 million since the prior year's valuation to $458 million. This decrease was approximately $37 million less than expected, primarily due to liability losses as a result of salary increases for individual members being greater than assumed. These liability losses were partially offset by favorable investment experience.

Below is a chart with the historical actuarial value of assets and actuarial accrued liability. The divergence in the assets and liability from 2015 through 2020 was generally due to: (1) actual contributions being insufficient to finance the unfunded actuarial accrued liability, and (2) assumption changes.



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
AAL	0.9	0.9	1.1	1.2	1.2	1.3	1.3	1.3	1.4	1.4
AVA	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	1.0

Executive Summary (Continued)

Summary of Change in Financial Condition of the Insurance Funds

The unfunded actuarial accrued liability of the non-hazardous insurance fund increased by $38 million since the prior year's valuation to $383 million. The unfunded liability was expected to decrease by $97 million; therefore, the unfunded liability was $135 million greater than expected. This was primarily due to liability losses related to the 2025 premium experience.

The funding surplus (assets in excess of the actuarial accrued liability) of the hazardous insurance fund increased by $17 million since the prior year's valuation to $273 million. This increase was approximately $2 million more than expected.

On average, pre-Medicare premiums were approximately 5% lower than expected and Medicare premiums were approximately 38% higher than expected. In conjunction with the review of the healthcare per capita claims cost, the assumed increase in future healthcare costs, or trend assumption, is also reviewed on an annual basis. As a result of our review, the ultimate annual trend assumption was increased for pre-Medicare and Medicare Plans from 4.05% to 4.25%. Additionally, the trend assumption for the pre-Medicare Plans was increased during the select period. The updates to the trend assumption increased the liability for the non-hazardous and hazardous insurance funds by approximately $45 million and $9 million, respectively.

SECTION 2

DISCUSSION

Discussion

The Kentucky Employees Retirement System (KERS) is a defined benefit pension plan that provides coverage for employees of state government, non-teaching staff at regional state supported universities, local health departments, regional mental health/mental retardation agencies, and other quasi-state agencies. KERS includes both non-hazardous and hazardous duty benefits. This report presents the results of the June 30, 2024 actuarial funding valuation for both the Retirement Funds and Insurance Funds.

The primary purposes of the valuation report are to describe the current actuarial condition of KERS, analyze changes in KERS's financial condition, and provide various summaries of the data. The results of this actuarial valuation, including the calculated employer contribution rates, will be used by the Board and stakeholders for informational purposes only as the employer contribution rates for the fiscal years ending June 30, 2025 and June 30, 2026 were certified in the June 30, 2023 actuarial valuation, which was adopted by the Board and incorporated in the Commonwealth's budget for the biennium period.

The actuarially determined contribution consist of two components: a normal cost rate and an amortization cost to finance the unfunded actuarial accrued liability. The normal cost rate is the theoretical amount which would be required to pay the members' benefits, based on the current plan provisions, if this amount had been contributed from each member's entry date and if the fund's experience exactly followed the actuarial assumptions. This is the amount that it should cost to provide the benefits for an average member. Since members contribute to the fund, only the excess of the normal cost rate over the member contribution rate is included in the employer contribution. The amortization cost is the amount necessary to amortize the unfunded actuarial accrued liability. The payroll growth rate and discount rate assumptions are selected by the Board. The funding period is specified in Section 61.565 of Kentucky Statute.

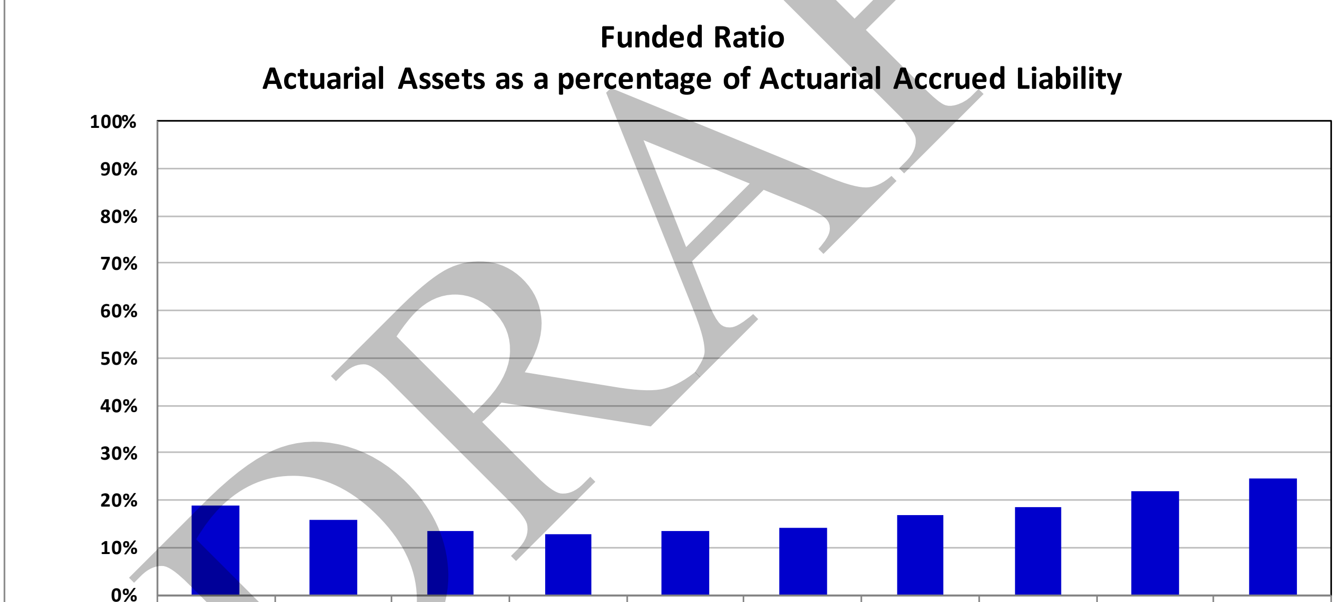
All of the actuarial and financial tables referenced by the other sections of this report appear in Section 3. Section 4 provides additional details related to the calculation of the amortization of the unfunded actuarial accrued liability. Section 5 provides member data and statistical information. Section 6 provides a discussion of various risk measures, which are intended to aid stakeholders in understanding the effects of future experience differing from the assumptions used in performing an actuarial valuation. Appendices A and B provide summaries of the principle actuarial assumptions and methods and plan provisions. Appendix C provides a glossary of technical terms that are used throughout this report. Finally, Appendix D provides the allocation of the amortization cost amongst KERS Non-Hazardous employers in accordance with Statutes enacted with the passing of House Bill 8 during the 2021 legislation session.

Funding Progress

The following charts provide a ten-year history of the retirement funds' funded ratio (i.e. the Actuarial Value of Assets divided by the Actuarial Accrued Liability). The decline in the funded ratio in the first half of this ten-year period was generally due to: (1) actual contributions being insufficient to finance the unfunded actuarial accrued liability, and (2) decreases in the assumed rate of return.

The funded ratio has been gradually increasing for the past several years for both the non-hazardous and hazardous funds. Assuming the full actuarially determined contributions are paid in future years and absent material future unfavorable experience, the funded ratio is expected to continue improving. Also, the dollar amount of the unfunded actuarial accrued liability, or the difference between the actuarial accrued liability and the actuarial value of assets, is also expected to continue a decreasing trend. Table 9, Schedule of Funding Progress, in the following section of the report provides additional detail regarding the funding progress of the retirement funds.

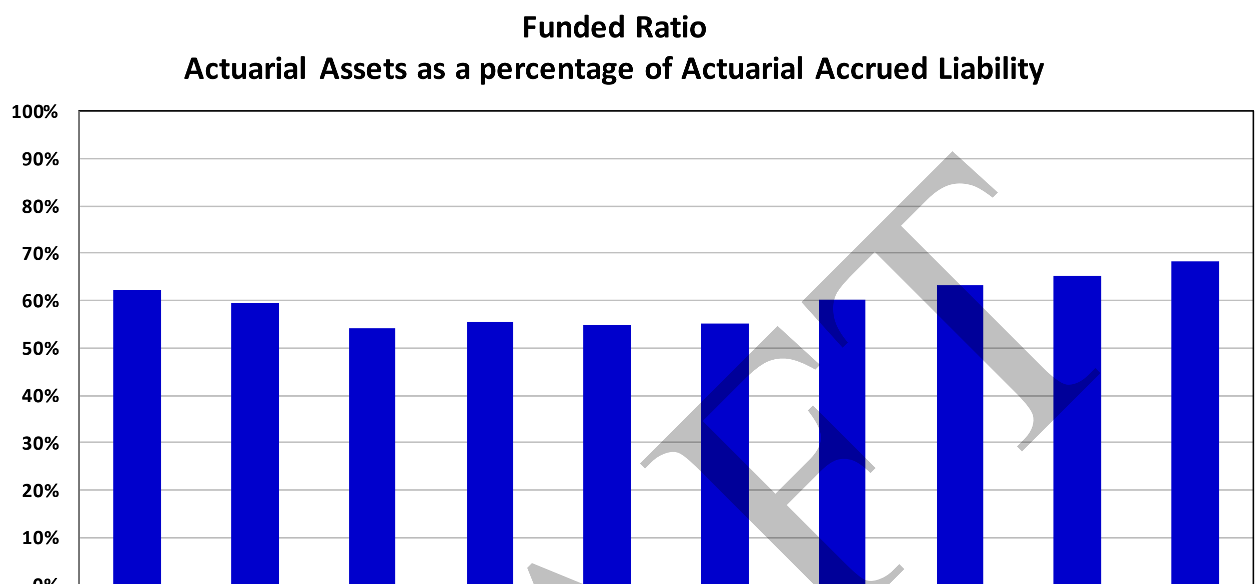
Non-Hazardous Retirement Fund



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Funded Ratio	19.0%	16.0%	13.6%	12.9%	13.4%	14.2%	16.8%	18.5%	21.8%	24.8%

Funding Progress (Continued)

Hazardous Retirement Fund



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Funded Ratio	62.2%	59.7%	54.1%	55.5%	54.8%	55.3%	60.4%	63.2%	65.4%	68.3%

Asset Gains/ (Losses)

The actuarial value of assets ("AVA") is based on a smoothed market value of assets, using a systematic approach to phase-in the difference between the actual and expected investment return on the market value of assets (adjusted for receipts and disbursements during the year). This is appropriate because it dampens the short-term volatility inherent in investment markets. The return is computed net of investment expenses.

Non-Hazardous Retirement Fund

The actuarial value of assets for the retirement fund increased from $3.552 billion to $4.122 billion since the prior valuation. The rate of return on the market value of assets on a dollar-weighted basis for the prior fiscal year was 9.4% which is greater than the 5.25% expected annual return. The return on an actuarial (smoothed) asset value was 6.3%, which resulted in a $40 million gain for the fiscal year. The market value of assets is $102 million more than the actuarial value of assets, which signifies that the retirement fund is in a position of net deferred investment gains to be realized in future years.

Hazardous Retirement Fund

Likewise, the actuarial value of assets for the hazardous retirement fund increased from $891 million to $985 million since the prior valuation. The rate of return on the market value of assets on a dollar-weighted basis for the prior fiscal year was 11.2% which is greater than the 6.25% expected annual return. The return on an actuarial (smoothed) asset value was 7.6%, which resulted in a $12 million gain for the fiscal year. The market value of assets is $35 million more than the actuarial value of assets, which signifies that the retirement fund is in a position of net deferred investment gains to be realized in future years.

Table 6 in the following section of this report provides asset information that was included in the annual financial statements of the funds, as well as the estimated yield on a market value basis. Tables 7 and 8 provide the development of the actuarial value of assets and the estimated yield on an actuarial value basis.

Actuarial Gains/ (Losses)

The annual actuarial valuation is a snapshot analysis of the benefit liabilities, assets and funded position of the funds as of the first day of the plan year. In any one fiscal year, the experience can be better or worse from that which is assumed or expected. The actuarial assumptions do not necessarily attempt to model what the experience will be for any one given fiscal year, but instead try to model the overall experience over many years. Therefore, as long as the actual experience of a retirement system is reasonably close to the current assumptions, the long-term funding requirements of the system will remain relatively consistent.

Below are tables that separately show a reconciliation of the unfunded liability since the prior actuarial valuation for the retirement and health insurance funds, which include the effect of asset and liability gains and losses, changes in assumptions, and changes in plan provisions. See the discussion in the Executive Summary for additional information related to the liability experience and additional information in this section of the report related to the asset experience, plan changes, and assumption changes.

Retirement Experience Gain or (Loss)
(Dollar amounts expressed in thousands)

	Non-Hazardous	Hazardous
A. Calculation of total actuarial gain or loss		
1. Unfunded actuarial accrued liability (UAAL), previous year	$ 12,751,807	$ 471,576
2. Normal cost and administrative expenses	193,743	33,243
3. Less: contributions for the year	(1,392,310)	(111,467)
4. Interest accrual	638,007	27,029
5. Expected UAAL (Sum of Items 1 - 4)	$ 12,191,247	$ 420,381
6. Actual UAAL as of June 30,2024	$ 12,525,623	$ 457,544
7. Total gain (loss) for the year (Item 5 - Item 6)	$ (334,376)	$ (37,163)
B. Source of gains and losses		
8. Asset gain (loss) for the year	$ 40,150	$ 11,888
9. Liability experience gain (loss) for the year	(374,526)	(49,051)
10. Plan Change	—	—
11. Assumption change	—	—
12. Total	$ (334,376)	$ (37,163)

Actuarial Gains/ (Losses) (Continued)

Insurance Experience Gain or (Loss)
(Dollar amounts expressed in thousands)

	Non-Hazardous	Hazardous
A. Calculation of total actuarial gain or loss		
1. Unfunded actuarial accrued liability (UAAL), previous year	$ 344,214	$ (256,007)
2. Normal cost and administrative expenses	31,934	5,957
3. Less: contributions for the year	(147,213)	(3,996)
4. Interest accrual	18,627	(16,577)
5. Expected UAAL (Sum of Items 1 - 4)	247,562	(270,623)
6. Actual UAAL as of June 30,2024	$ 382,701	(272,781)
7. Total gain (loss) for the year (Item 5 - Item 6)	$ (135,139)	$ 2,158
B. Source of gains and losses		
8. Asset gain (loss) for the year	$ 17,691	$ 8,925
9. Liability experience gain (loss) for the year	(152,830)	(6,767)
10. Plan Change	—	—
11. Assumption change	—	—
12. Total	$ (135,139)	$ 2,158

Note, the liability experience gain (loss) shown above includes the impact of any trend assumption changes made in conjunction with the review of the healthcare per capita claims cost, as described in the Executive Summary.

Actuarial Assumptions and Methods

In determining costs and liabilities, actuaries use assumptions about the future, such as rates of salary increase, probabilities of retirement, termination, death and disability, and an annual investment return assumption. The Board of Trustees, in consultation with the actuary, sets the actuarial assumptions and methods used in the actuarial valuation.

In conjunction with the review of the healthcare per capita claims cost, the assumed increase in future healthcare costs, or trend assumption, is reviewed on an annual basis. The trend assumption was increased as a result of our review. All other assumptions were adopted by the Board and are based on an experience study conducted based on experience through June 30, 2022. It is our opinion that the assumptions are internally consistent, reasonable, and reflect anticipated future experience of the System. Appendix A includes a summary of the actuarial assumptions and methods used in this valuation.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. This report does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

Benefit Provisions

Appendix B of this report includes a summary of the major benefit provisions for System. There were no material plan provision changes since the prior valuation.

SECTION 3

ACTUARIAL TABLES

Actuarial Tables

RETIREMENT BENEFITS

ACTUARIAL TABLES

Development of Unfunded Actuarial Accrued Liability
Retirement Benefits

(Dollar amounts expressed in thousands)

		June 30, 2024	
		Non-Hazardous (1)	Hazardous (2)
1.	Projected payroll of active members	$ 1,861,522	$ 259,606
2.	Present value of future pay	$ 14,090,393	$ 1,794,163
3.	Normal cost rate		
	a. Total normal cost rate	11.09%	14.96%
	b. Less: member contribution rate	-5.00%	-8.00%
	c. Employer normal cost rate	6.09%	6.96%
4.	Actuarial accrued liability for active members		
	a. Present value of future benefits	$ 6,271,358	$ 762,710
	b. Less: present value of future normal costs	(1,499,686)	(263,193)
	c. Actuarial accrued liability	$ 4,771,672	$ 499,517
5.	Total actuarial accrued liability		
	a. Retirees and beneficiaries	$ 11,169,005	$ 878,374
	b. Inactive members	707,215	64,728
	c. Active members (Item 4c)	4,771,672	499,517
	d. Total	$ 16,647,892	$ 1,442,619
6.	Actuarial value of assets	$ 4,122,269	$ 985,075
7.	Unfunded actuarial accrued liability (UAAL) (Item 5d - Item 6)	$ 12,525,623	$ 457,544
8.	Funded Ratio	24.8%	68.3%

Actuarial Present Value of Future Benefits
Retirement Benefits
(Dollar amounts expressed in thousands)

		June 30, 2024	
		Non-Hazardous (1)	Hazardous (2)
1.	Active members		
	a. Service retirement	$ 5,513,500	$ 654,486
	b. Deferred termination benefits and refunds	506,462	78,077
	c. Survivor benefits	79,803	6,751
	d. Disability benefits	171,593	23,396
	e. Total	$ 6,271,358	$ 762,710
2.	Retired members		
	a. Service retirement	$ 10,141,001	$ 803,000
	b. Disability retirement	222,846	16,469
	c. Beneficiaries	805,158	58,905
	d. Total	$ 11,169,005	$ 878,374
3.	Inactive members		
	a. Vested terminations	$ 648,831	$ 50,285
	b. Nonvested terminations	58,384	14,443
	c. Total	$ 707,215	$ 64,728
4.	Total actuarial present value of future benefits	$ 18,147,578	$ 1,705,812

Development of Actuarially Determined Contribution Rate
Retirement Benefits

	June 30, 2024 Non-Hazardous (1)	June 30, 2024 Hazardous (2)
1. Total normal cost rate		
a. Service retirement	7.03%	9.26%
b. Deferred termination benefits and refunds	3.25%	4.81%
c. Survivor benefits	0.30%	0.27%
d. Disability benefits	0.51%	0.62%
e. Total	11.09%	14.96%
2. Less: member contribution rate	-5.00%	-8.00%
3. Total employer normal cost rate	6.09%	6.96%
4. Administrative expenses	0.76%	0.61%
5. Net employer normal cost rate	6.85%	7.57%
6. UAAL amortization contribution rate	N/A	13.11%
7. Total calculated employer contribution payable as a percentage of covered payroll	6.85%	20.68%
8. Total amortization cost to be allocated amongst employers	$ 853,517	N/A

Note: Per House Bill 8 (passed during the 2021 legislative session), amortization cost for the KERS Non-Hazardous fund is allocated amongst employers based on their 2019 Actuarial Accrued Liability. See appendix D for more information. Amortization cost for the hazardous fund is included in the contribution rate, payable as a percentage of payroll.

Actuarial Balance Sheet

Non-Hazardous Members Retirement

(Dollar amounts expressed in thousands)

		June 30, 2024 (1)	June 30, 2023 (2)
1.	Assets - Present and Expected Future Resources		
a.	Current assets (actuarial value)	$ 4,122,269	$ 3,552,471
b.	Present value of future member contributions	$ 704,520	$ 607,148
c.	Present value of future employer contributions		
	i. Normal cost contributions	$ 795,166	$ 688,258
	ii. Unfunded accrued liability contributions	12,525,623	12,751,807
	iii. Total future employer contributions	$ 13,320,789	$ 13,440,065
d.	Total assets	$ 18,147,578	$ 17,599,684
2.	Liabilities - Present Value of Expected Future Benefit Payments		
a.	Active members		
	i. Present value of future normal costs	$ 1,499,686	$ 1,295,406
	ii. Accrued liability	4,771,672	4,290,593
	iii. Total present value of future benefits	$ 6,271,358	$ 5,585,999
b.	Present value of benefits payable on account of current retired members and beneficiaries	$ 11,169,005	$ 11,316,494
c.	Present value of benefits payable on account of current inactive members	$ 707,215	$ 697,191
d.	Total liabilities	$ 18,147,578	$ 17,599,684

Actuarial Balance Sheet

Hazardous Members Retirement

(Dollar amounts expressed in thousands)

	June 30, 2024 (1)	June 30, 2023 (2)
1. Assets - Present and Expected Future Resources		
a. Current assets (actuarial value)	$ 985,075	$ 891,460
b. Present value of future member contributions	$ 143,533	$ 116,061
c. Present value of future employer contributions		
i. Normal cost contributions	$ 119,660	$ 96,635
ii. Unfunded accrued liability contributions	457,544	471,576
iii. Total future employer contributions	$ 577,204	$ 568,211
d. Total assets	$ 1,705,812	$ 1,575,732
2. Liabilities - Present Value of Expected Future Benefit Payments		
a. Active members		
i. Present value of future normal costs	$ 263,193	$ 212,696
ii. Accrued liability	499,517	433,716
iii. Total present value of future benefits	$ 762,710	$ 646,412
b. Present value of benefits payable on account of current retired members and beneficiaries	$ 878,374	$ 868,920
c. Present value of benefits payable on account of current inactive members	$ 64,728	$ 60,400
d. Total liabilities	$ 1,705,812	$ 1,575,732

Reconciliation of Retirement Net Assets

(Dollar amounts expressed in thousands)[1]

		Year Ending	
		June 30, 2024	June 30, 2024
		(1)	(2)
		Non-Hazardous	**Hazardous**
1.	Value of assets at beginning of year	$ 3,539,943	$ 893,533
2.	Revenue for the year		
	a. Contributions		
	i. Member contributions	$ 96,615	$ 21,568
	ii. Employer contributions	1,055,670	89,897
	iii. Other contributions (less 401h)	240,025	1
	iv. Total	$ 1,392,310	$ 111,467
	b. Income		
	i. Interest, dividends, and other income	$ 137,799	$ 33,586
	ii. Investment expenses	(25,400)	(7,521)
	iii. Net	$ 112,399	$ 26,066
	c. Net realized and unrealized gains (losses)	237,229	75,069
	d. Total revenue	$ 1,741,938	$ 212,601
3.	Expenditures for the year		
	a. Disbursements		
	i. Refunds	$ 11,693	$ 4,133
	ii. Regular annuity benefits	1,032,124	80,529
	iii. Other benefit payments	0	0
	iv. Transfers to other systems	0	0
	v. Total	$ 1,043,817	$ 84,662
	b. Administrative expenses and depreciation	14,128	1,583
	c. Total expenditures	$ 1,057,945	$ 86,244
4.	Increase in net assets (Item 2. - Item 3.)	$ 683,993	$ 126,357
5.	Value of assets at end of year (Item 1. + Item 4.)	$ 4,223,936	$ 1,019,890
6.	Net external cash flow		
	a. Dollar amount	$ 334,365	$ 25,222
	b. Percentage of market value	8.6%	2.6%
7.	Estimated annual return on net assets	9.4%	11.2%

[1] Amounts may not add due to rounding

[1] Excludes 401h assets

Development of Actuarial Value of Assets

Non-Hazardous Members Retirement

(Dollar amounts expressed in thousands)*

	Year Ending		June 30, 2024
1.	Actuarial value of assets at beginning of year	$	3,552,471
2.	Market value of assets at beginning of year	$	3,539,943
3.	Net new investments		
	a. Contributions	$	1,392,310
	b. Benefit payments		(1,043,817)
	c. Administrative expenses		(14,128)
	d. Subtotal	$	334,365
4.	Market value of assets at end of year	$	4,223,936
5.	Net earnings (Item 4. - Item 2. - Item 3.d.)	$	349,628
6.	Assumed investment return rate for fiscal year		5.25%
7.	Expected return for immediate recognition	$	194,624
8.	Excess return for phased recognition	$	155,004

9. Phased-in recognition, 20% of excess return on assets for prior years:

	Fiscal Year Ending June 30,		Excess Return		Recognized Amount
a.	2024	$	155,004	$	31,001
b.	2023		49,510		9,902
c.	2022		(325,078)		(65,016)
d.	2021		389,946		77,989
e.	2020		(65,343)		(13,069)
f.	Total			$	40,808

10.	Actuarial value of assets as of June 30, 2024 (Item 1. + Item 3.d. + Item 7.+ Item 9.f.)	$	4,122,269
11.	Ratio of actuarial value to market value		97.6%
12.	Estimated annual return on actuarial value of assets		6.3%

* Amounts may not add due to rounding

Development of Actuarial Value of Assets

Hazardous Members Retirement

(Dollar amounts expressed in thousands)*

	Year Ending		June 30, 2024
1.	Actuarial value of assets at beginning of year	$	891,460
2.	Market value of assets at beginning of year	$	893,533
3.	Net new investments		
	a. Contributions	$	111,467
	b. Benefit payments		(84,662)
	c. Administrative expenses		(1,583)
	d. Subtotal	$	25,222
4.	Market value of assets at end of year	$	1,019,890
5.	Net earnings (Item 4. - Item 2. - Item 3.d.)	$	101,134
6.	Assumed investment return rate for fiscal year		6.25%
7.	Expected return for immediate recognition	$	56,634
8.	Excess return for phased recognition	$	44,500

9. Phased-in recognition, 20% of excess return on assets for prior years:

	Fiscal Year Ending June 30,		Excess Return		Recognized Amount
a.	2024	$	44,500	$	8,900
b.	2023		25,604		5,121
c.	2022		(105,331)		(21,066)
d.	2021		129,924		25,985
e.	2020		(35,903)		(7,181)
f.	Total			$	11,759

10.	Actuarial value of assets as of June 30, 2024 (Item 1. + Item 3.d. + Item 7.+ Item 9.f.)	$	985,075
11.	Ratio of actuarial value to market value		96.6%
12.	Estimated annual return on actuarial value of assets		7.6%

* Amounts may not add due to rounding

Schedule of Funding Progress
Retirement Benefits
(Dollar amounts expressed in thousands)

June 30,	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL) (3) - (2)	Funded Ratio (2)/(3)	Annual Covered Payroll	UAAL as % of Payroll (4)/(6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
			Non-Hazardous Members			
2015	$ 2,350,990	$ 12,359,673	$ 10,008,683	19.0%	$ 1,544,234	648.1%
2016	2,112,286	13,224,698	11,112,412	16.0%	1,529,249	726.7%
2017	2,123,623	15,591,641	13,468,018	13.6%	1,531,535	879.4%
2018	2,019,278	15,675,232	13,655,954	12.9%	1,471,477	928.0%
2019	2,206,280	16,466,428	14,260,148	13.4%	1,437,647	991.9%
2020	2,323,298	16,348,961	14,025,663	14.2%	1,387,761	1010.7%
2021	2,735,876	16,321,372	13,585,496	16.8%	1,349,330	1006.8%
2022	3,065,263	16,576,631	13,511,368	18.5%	1,355,267	997.0%
2023	3,552,471	16,304,278	12,751,807	21.8%	1,615,868	789.2%
2024	4,122,269	16,647,892	12,525,623	24.8%	1,861,522	672.9%
			Hazardous Members			
2015	$ 556,688	$ 895,433	$ 338,745	62.2%	$ 128,680	263.2%
2016	559,487	936,706	377,219	59.7%	147,563	255.6%
2017	607,159	1,121,420	514,261	54.1%	162,418	316.6%
2018	639,262	1,151,923	512,661	55.5%	158,213	324.0%
2019	671,647	1,226,195	554,548	54.8%	150,446	368.6%
2020	709,587	1,283,769	574,182	55.3%	170,826	336.1%
2021	782,496	1,295,243	512,747	60.4%	162,836	314.9%
2022	832,436	1,316,825	484,389	63.2%	165,637	292.4%
2023	891,460	1,363,036	471,576	65.4%	211,602	222.9%
2024	985,075	1,442,619	457,544	68.3%	259,606	176.2%
			Total KERS Members			
2015	$ 2,907,678	$ 13,255,106	$ 10,347,428	21.9%	$ 1,672,914	618.5%
2016	2,671,773	14,161,404	11,489,631	18.9%	1,676,812	685.2%
2017	2,730,782	16,713,061	13,982,279	16.3%	1,693,953	825.4%
2018	2,658,540	16,827,155	14,168,615	15.8%	1,629,690	869.4%
2019	2,877,927	17,692,623	14,814,696	16.3%	1,588,093	932.9%
2020	3,032,885	17,632,730	14,599,845	17.2%	1,558,587	936.7%
2021	3,518,372	17,616,615	14,098,243	20.0%	1,512,166	932.3%
2022	3,897,699	17,893,456	13,995,757	21.8%	1,520,904	920.2%
2023	4,443,931	17,667,314	13,223,383	25.2%	1,827,470	723.6%
2024	5,107,344	18,090,511	12,983,167	28.2%	2,121,128	612.1%

Summary of Principal Assumptions and Methods

Below is a summary of the principal economic assumptions, cost method, and the method for financing the unfunded actuarial accrued liability:

	Non-Hazardous	Hazardous
Valuation date:	June 30, 2024	June 30, 2024
Actuarial cost method:	Entry Age Normal	Entry Age Normal
Amortization method:	Level percentage of payroll (0% payroll growth assumed)	Level percentage of payroll (0% payroll growth assumed)
Amortization period for contribution rate:	30-year closed period at June 30, 2019 Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases	30-year closed period at June 30, 2019 Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases
Asset valuation method:	5-Year Smoothed Market	5-Year Smoothed Market
Actuarial assumptions:		
Investment rate of return	5.25%	6.25%
Projected salary increases	3.30% to 15.30% (varies by service)	3.55% to 20.05% (varies by service)
Inflation	2.50%	2.50%
Post-retirement benefit adjustments	0.00%	0.00%
Retiree Mortality	System-specific mortality table based on mortality experience from 2013 to 2022, projected with the ultimate rates from MP-2020 mortality improvement scale using a base year of 2023.	System-specific mortality table based on mortality experience from 2013 to 2022, projected with the ultimate rates from MP-2020 mortality improvement scale using a base year of 2023.

Solvency Test
Retirement Benefits
(Dollar amounts expressed in thousands)

	Actuarial Accrued Liability				Portion of Aggregate Accrued Liabilities Covered by Assets		
June 30,	Active Member Contributions	Retired Members & Beneficiaries	Active Members (Employer Financed)	Valuation Assets	Active	Retired	ER Financed
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Non-Hazardous Members							
2015	$ 925,934	$ 9,437,468	$ 1,996,271	$ 2,350,990	100.0%	15.1%	0.0%
2016	920,120	10,010,168	2,294,410	2,112,286	100.0%	11.9%	0.0%
2017	934,559	11,608,346	3,048,736	2,123,623	100.0%	10.2%	0.0%
2018	892,033	11,929,019	2,854,180	2,019,278	100.0%	9.4%	0.0%
2019	881,020	12,513,231	3,072,177	2,206,280	100.0%	10.6%	0.0%
2020	869,196	12,467,522	3,012,243	2,323,298	100.0%	11.7%	0.0%
2021	877,142	12,425,951	3,018,279	2,735,876	100.0%	15.0%	0.0%
2022	859,591	12,700,595	3,016,445	3,065,263	100.0%	17.4%	0.0%
2023	889,146	12,013,685	3,401,447	3,552,471	100.0%	22.2%	0.0%
2024	935,186	11,876,220	3,836,486	4,122,269	100.0%	26.8%	0.0%
Hazardous Members							
2015	$ 83,606	$ 633,189	$ 178,638	$ 556,688	100.0%	74.7%	0.0%
2016	86,705	648,482	201,519	559,487	100.0%	72.9%	0.0%
2017	93,350	746,350	281,720	607,159	100.0%	68.8%	0.0%
2018	89,106	810,311	252,506	639,262	100.0%	67.9%	0.0%
2019	86,663	879,818	259,714	671,647	100.0%	66.5%	0.0%
2020	95,528	898,128	290,113	709,587	100.0%	68.4%	0.0%
2021	97,559	916,431	281,253	782,496	100.0%	74.7%	0.0%
2022	94,538	946,328	275,959	832,436	100.0%	78.0%	0.0%
2023	103,310	929,320	330,406	891,460	100.0%	84.8%	0.0%
2024	116,828	943,102	382,689	985,075	100.0%	92.1%	0.0%

INSURANCE BENEFITS

ACTUARIAL TABLES

Development of Unfunded Actuarial Accrued Liability
Insurance Benefits

(Dollar amounts expressed in thousands)

		June 30, 2024	
		Non-Hazardous (1)	Hazardous (2)
1.	Projected payroll of active members	$ 1,861,522	$ 259,606
2.	Present value of future pay	$ 12,898,595	$ 1,762,024
3.	Normal cost rate		
	a. Total normal cost rate	1.68%	2.29%
	b. Less: member contribution rate	-0.58%	-0.79%
	c. Employer normal cost rate	1.10%	1.50%
4.	Actuarial accrued liability for active members		
	a. Present value of future benefits	$ 1,098,721	$ 152,567
	b. Less: present value of future normal costs	(193,208)	(36,736)
	c. Actuarial accrued liability	$ 905,513	$ 115,831
5.	Total actuarial accrued liability		
	a. Retirees and beneficiaries	$ 1,056,470	$ 252,726
	b. Inactive members	132,761	11,011
	c. Active members (Item 4c)	905,513	115,831
	d. Total	$ 2,094,744	$ 379,568
6.	Actuarial value of assets	$ 1,712,043	$ 652,349
7.	Unfunded actuarial accrued liability (UAAL) (Item 5d - Item 6)	$ 382,701	$ (272,781)
8.	Funded Ratio	81.7%	171.9%

Development of Actuarially Determined Contribution Rate
Insurance Benefits

		June 30, 2024	
		Non-Hazardous (1)	Hazardous (2)
1.	Total normal cost rate	1.68%	2.29%
2.	Less: member contribution rate	-0.58%	-0.79%
3.	Total employer normal cost rate	1.10%	1.50%
4.	Administrative expenses	0.04%	0.05%
5.	Net employer normal cost rate	1.14%	1.55%
6.	UAAL amortization contribution rate	N/A	-10.07%
7.	Total calculated employer contribution payable as a percentage of covered payroll Max (0%, item 5. + item6.)	1.14%	0.00%
8.	Total amortization cost to be allocated amongst employers	$ 12,293	N/A

Note: Per House Bill 8 (passed during the 2021 legislative session), amortization cost for the KERS Non-Hazardous fund is allocated amongst employers based on their 2019 Actuarial Accrued Liability. See appendix D for more information. Amortization cost for the hazardous fund is included in the contribution rate, payable as a percentage of payroll.

Actuarial Balance Sheet

Non-Hazardous Members Insurance

(Dollar amounts expressed in thousands)

		June 30, 2024 (1)	June 30, 2023 (2)
1.	Assets - Present and Expected Future Resources		
	a. Current assets (actuarial value)	$ 1,712,043	$ 1,532,895
	b. Present value of future member contributions	$ 88,900	$ 71,426
	c. Present value of future employer contributions		
	i. Normal cost contributions	$ 104,308	$ 121,548
	ii. Unfunded accrued liability contributions	382,701	344,214
	iii. Total future employer contributions	$ 487,009	$ 465,762
	d. Total assets	$ 2,287,952	$ 2,070,083
2.	Liabilities - Present Value of Expected Future Benefit Payments		
	a. Active members		
	i. Present value of future normal costs	$ 193,208	$ 192,974
	ii. Accrued liability	905,513	836,765
	iii. Total present value of future benefits	$ 1,098,721	$ 1,029,739
	b. Present value of benefits payable on account of current retired members and beneficiaries	$ 1,056,470	$ 886,696
	c. Present value of benefits payable on account of current inactive members	$ 132,761	$ 153,648
	d. Total liabilities	$ 2,287,952	$ 2,070,083

Actuarial Balance Sheet

Hazardous Members Insurance

(Dollar amounts expressed in thousands)

		June 30, 2024 (1)	June 30, 2023 (2)
1.	Assets - Present and Expected Future Resources		
a.	Current assets (actuarial value)	$ 652,349	$ 619,519
b.	Present value of future member contributions	$ 15,678	$ 12,197
c.	Present value of future employer contributions		
	i. Normal cost contributions	$ 21,058	$ 22,776
	ii. Unfunded accrued liability contributions	(272,781)	(256,007)
	iii. Total future employer contributions	$ (251,723)	$ (233,231)
d.	Total assets	$ 416,304	$ 398,485
2.	Liabilities - Present Value of Expected Future Benefit Payments		
a.	Active members		
	i. Present value of future normal costs	$ 36,736	$ 34,973
	ii. Accrued liability	115,831	113,323
	iii. Total present value of future benefits	$ 152,567	$ 148,296
b.	Present value of benefits payable on account of current retired members and beneficiaries	$ 252,726	$ 235,809
c.	Present value of benefits payable on account of current inactive members	$ 11,011	$ 14,380
d.	Total liabilities	$ 416,304	$ 398,485

Reconciliation of Insurance Net Assets

(Dollar amounts expressed in thousands)[1]

	Year Ending	
	June 30, 2024	June 30, 2024
	(1)	(2)
	Non-Hazardous	**Hazardous**
1. Value of assets at beginning of year	$ 1,532,752	$ 625,356
2. Revenue for the year		
a. Contributions		
i. Member contributions	$ 10,585	$ 2,086
ii. Employer contributions	129,145	45
iii. Other contributions (less 401h)	7,484	1,865
iv. Total	$ 147,213	$ 3,996
b. Income		
i. Interest, dividends, and other income	$ 55,530	$ 22,038
ii. Investment expenses	(12,103)	(6,340)
iii. Net	$ 43,427	$ 15,699
c. Net realized and unrealized gains (losses)	129,677	52,742
d. Total revenue	$ 320,317	$ 72,437
3. Expenditures for the year		
a. Disbursements		
i. Refunds	$ 0	$ 0
ii. Healthcare premium subsidies	93,751	20,260
iii. Other benefit payments[2]	(7,138)	(533)
iv. Transfers to other systems	0	0
v. Total	$ 86,613	$ 19,727
b. Administrative expenses and depreciation	727	117
c. Total expenditures	$ 87,340	$ 19,845
4. Increase in net assets (Item 2. - Item 3.)	$ 232,977	$ 52,592
5. Value of assets at end of year (Item 1. + Item 4.)	$ 1,765,729	$ 677,948
6. Net external cash flow		
a. Dollar amount	$ 59,873	$ (15,849)
b. Percentage of market value	3.6%	-2.4%
7. Estimated annual return on net assets	11.1%	11.1%

[1] Amounts may not add due to rounding and include 401h assets

[2] Benefit payments have been offset by Medicare Drug Reimbursements, Insurance Premiums, and Humana Gain Share Payments

Development of Actuarial Value of Assets

Non-Hazardous Members Insurance

(Dollar amounts expressed in thousands)*

Year Ending		June 30, 2024
1. Actuarial value of assets at beginning of year	$	1,532,895
2. Market value of assets at beginning of year	$	1,532,752
3. Net new investments		
a. Contributions	$	147,213
b. Benefit payments		(86,613)
c. Administrative expenses		(727)
d. Subtotal	$	59,873
4. Market value of assets at end of year	$	1,765,729
5. Net earnings (Item 4. - Item 2. - Item 3.d.)	$	173,104
6. Assumed investment return rate for fiscal year		6.50%
7. Expected return for immediate recognition	$	101,575
8. Excess return for phased recognition	$	71,529

9. Phased-in recognition, 20% of excess return on assets for prior years:

	Fiscal Year Ending June 30,		Excess Return		Recognized Amount
a.	2024	$	71,529	$	14,306
b.	2023		46,032		9,206
c.	2022		(178,776)		(35,755)
d.	2021		201,770		40,354
e.	2020		(52,052)		(10,410)
f.	Total			$	17,701

10. Actuarial value of assets as of June 30, 2024 (Item 1. + Item 3.d. + Item 7.+ Item 9.f.)	$	1,712,043
11. Ratio of actuarial value to market value		97.0%
12. Estimated annual return on actuarial value of assets		7.6%

* Amounts may not add due to rounding

Development of Actuarial Value of Assets

Hazardous Members Insurance

(Dollar amounts expressed in thousands)*

	Year Ending		June 30, 2024
1.	Actuarial value of assets at beginning of year	$	619,519
2.	Market value of assets at beginning of year	$	625,356
3.	Net new investments		
	a. Contributions	$	3,996
	b. Benefit payments		(19,727)
	c. Administrative expenses		(117)
	d. Subtotal	$	(15,849)
4.	Market value of assets at end of year	$	677,948
5.	Net earnings (Item 4. - Item 2. - Item 3.d.)	$	68,441
6.	Assumed investment return rate for fiscal year		6.50%
7.	Expected return for immediate recognition	$	40,133
8.	Excess return for phased recognition	$	28,308

9. Phased-in recognition, 20% of excess return on assets for prior years:

	Fiscal Year Ending June 30,		Excess Return		Recognized Amount
a.	2024	$	28,308	$	5,662
b.	2023		17,530		3,506
c.	2022		(66,985)		(13,397)
d.	2021		96,144		19,229
e.	2020		(32,268)		(6,454)
f.	Total			$	8,546

10.	Actuarial value of assets as of June 30, 2024 (Item 1. + Item 3.d. + Item 7.+ Item 9.f.)	$	652,349
11.	Ratio of actuarial value to market value		96.2%
12.	Estimated annual return on actuarial value of assets		8.0%

* Amounts may not add due to rounding

Schedule of Funding Progress
Insurance Benefits
(Dollar amounts expressed in thousands)

June 30,	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL) (3) - (2)	Funded Ratio (2)/(3)	Annual Covered Payroll	UAAL as % of Payroll (4)/(6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
			Non-Hazardous Members			
2015	$ 695,018	$ 2,413,705	$ 1,718,687	28.8%	$ 1,544,234	111.3%
2016	743,270	2,456,678	1,713,408	30.3%	1,529,249	112.0%
2017	823,918	2,683,496	1,859,578	30.7%	1,531,535	121.4%
2018	887,121	2,435,505	1,548,384	36.4%	1,471,477	105.2%
2019	991,427	2,733,065	1,741,638	36.3%	1,437,647	121.1%
2020	1,095,959	2,564,788	1,468,829	42.7%	1,387,761	105.8%
2021	1,291,472	2,574,112	1,282,640	50.2%	1,349,330	95.1%
2022	1,409,553	1,782,386	372,833	79.1%	1,355,267	27.5%
2023	1,532,895	1,877,109	344,214	81.7%	1,615,868	21.3%
2024	1,712,043	2,094,744	382,701	81.7%	1,861,522	20.6%
			Hazardous Members			
2015	$ 451,514	$ 374,904	$ (76,610)	120.4%	$ 128,680	-59.5%
2016	473,160	377,745	(95,415)	125.3%	147,563	-64.7%
2017	493,458	419,439	(74,019)	117.6%	162,418	-45.6%
2018	511,441	393,481	(117,960)	130.0%	158,213	-74.6%
2019	525,315	426,704	(98,611)	123.1%	150,446	-65.5%
2020	539,251	427,977	(111,274)	126.0%	170,826	-65.1%
2021	575,025	424,455	(150,570)	135.5%	162,836	-92.5%
2022	597,701	347,044	(250,657)	172.2%	165,637	-151.3%
2023	619,519	363,512	(256,007)	170.4%	211,602	-121.0%
2024	652,349	379,568	(272,781)	171.9%	259,606	-105.1%
			Total KERS Members			
2015	$ 1,146,532	$ 2,788,609	$ 1,642,077	41.1%	$ 1,672,914	98.2%
2016	1,216,430	2,834,423	1,617,993	42.9%	1,676,812	96.5%
2017	1,317,376	3,102,935	1,785,559	42.5%	1,693,953	105.4%
2018	1,398,562	2,828,986	1,430,424	49.4%	1,629,690	87.8%
2019	1,516,742	3,159,769	1,643,027	48.0%	1,588,093	103.5%
2020	1,635,210	2,992,765	1,357,555	54.6%	1,558,587	87.1%
2021	1,866,497	2,998,567	1,132,070	62.2%	1,512,166	74.9%
2022	2,007,254	2,129,430	122,176	94.3%	1,520,904	8.0%
2023	2,152,414	2,240,621	88,207	96.1%	1,827,470	4.8%
2024	2,364,392	2,474,312	109,920	95.6%	2,121,128	5.2%

Solvency Test
Insurance Benefits
(Dollar amounts expressed in thousands)

	Actuarial Accrued Liability				Portion of Aggregate Accrued Liabilities Covered by Assets		
June 30,	Active Member Contributions	Retired Members & Beneficiaries	Active Members (Employer Financed)	Valuation Assets	Active	Retired	ER Financed
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			Non-Hazardous Members				
2015	$ -	$ 1,428,350	$ 985,355	$ 695,018	100.0%	48.7%	0.0%
2016	-	1,483,636	973,042	743,270	100.0%	50.1%	0.0%
2017	-	1,575,294	1,108,202	823,918	100.0%	52.3%	0.0%
2018	-	1,475,953	959,552	887,121	100.0%	60.1%	0.0%
2019	-	1,686,604	1,046,461	991,427	100.0%	58.8%	0.0%
2020	-	1,589,743	975,045	1,095,959	100.0%	68.9%	0.0%
2021	-	1,609,775	964,337	1,291,472	100.0%	80.2%	0.0%
2022	-	967,051	815,335	1,409,553	100.0%	100.0%	54.3%
2023	-	1,040,344	836,765	1,532,895	100.0%	100.0%	58.9%
2024	-	1,189,231	905,513	1,712,043	100.0%	100.0%	57.7%
			Hazardous Members				
2015	$ -	$ 221,115	$ 153,789	$ 451,514	100.0%	100.0%	100.0%
2016	-	228,361	149,384	473,160	100.0%	100.0%	100.0%
2017	-	243,816	175,623	493,458	100.0%	100.0%	100.0%
2018	-	248,775	144,706	511,441	100.0%	100.0%	100.0%
2019	-	282,069	144,635	525,315	100.0%	100.0%	100.0%
2020	-	281,924	146,053	539,251	100.0%	100.0%	100.0%
2021	-	288,014	136,441	575,025	100.0%	100.0%	100.0%
2022	-	232,585	114,459	597,701	100.0%	100.0%	100.0%
2023	-	250,189	113,323	619,519	100.0%	100.0%	100.0%
2024	-	263,737	115,831	652,349	100.0%	100.0%	100.0%

SECTION 4

AMORTIZATION BASES

Amortization of Unfunded Liability

Non-Hazardous Members Retirement

Valuation Year Base Established	Original Amortization Base	Remaining at June 30, 2024	Payments for FYE 2026	Funding Period at June 30, 2024
June 30, 2019	$ 14,260,148	$ 13,234,431	$ 938,364	25
June 30, 2020	(153,145)	(29,575)	(2,708)	16
June 30, 2021	(342,123)	(336,478)	(29,636)	17
June 30, 2022	172,536	(62,562)	(5,319)	18
June 30, 2023	(293,189)	(560,259)	(46,113)	19
June 30, 2024	280,066	280,066	(1,071)	20
Total		$ 12,525,623	$ 853,517	
Projected Payroll for FYE 2026			N/A	
Amortization Payments as a Percentage of Payroll			N/A	

Hazardous Members Retirement

Valuation Year Base Established	Original Amortization Base	Remaining at June 30, 2024	Payments for FYE 2026	Funding Period at June 30, 2024
June 30, 2019	$ 554,548	$ 518,714	$ 40,306	25
June 30, 2020	24,023	17,474	1,706	16
June 30, 2021	(49,498)	(47,643)	(4,491)	17
June 30, 2022	(19,031)	(20,576)	(1,878)	18
June 30, 2023	(3,443)	(19,505)	(1,729)	19
June 30, 2024	9,080	9,080	118	20
Total		$ 457,544	$ 34,032	
Projected Payroll for FYE 2026			$ 259,606	
Amortization Payments as a Percentage of Payroll			13.11%	

Note:
Budgeted contribution rates for FYE 2025 were known at the time of the June 30, 2024 Valuation.
Amortization bases established at this valuation date were adjusted accordingly.
Per House Bill 8 (passed during the 2021 legislative session), amortization cost for the KERS Non-Hazardous fund is allocated amongst employers based on their 2019 Actuarial Accrued Liability. See appendix D for more information. Amortization cost for the hazardous fund is included in the contribution rate, payable as a percentage of payroll.

Amortization of Unfunded Liability

Non-Hazardous Members Insurance

Valuation Year Base Established	Original Amortization Base	Remaining at June 30, 2024	Payments for FYE 2026	Funding Period at June 30, 2024
June 30, 2019	$ 1,741,638	$ 1,621,616	$ 128,822	25
June 30, 2020	(246,890)	(228,973)	(22,715)	16
June 30, 2021	(159,148)	(159,415)	(15,279)	17
June 30, 2022	(883,398)	(913,747)	(84,872)	18
June 30, 2023	39,201	(44,123)	(3,983)	19
June 30, 2024	107,343	107,343	10,320	20
Total		$ 382,701	$ 12,293	

Projected Payroll for FYE 2026	N/A
Amortization Payments as a Percentage of Payroll	N/A

Hazardous Members Insurance

Valuation Year Base Established	Original Amortization Base	Remaining at June 30, 2024	Payments for FYE 2026	Funding Period at June 30, 2024
June 30, 2019	$ (98,611)	$ (96,185)	$ (7,641)	25
June 30, 2020	(9,508)	(9,711)	(963)	16
June 30, 2021	(39,458)	(41,590)	(3,986)	17
June 30, 2022	(97,145)	(107,132)	(9,951)	18
June 30, 2023	4,456	(13,510)	(1,220)	19
June 30, 2024	(4,653)	(4,653)	(2,287)	20
Total		$ (272,781)	$ (26,048)	

Projected Payroll for FYE 2026	$ 258,708
Amortization Payments as a Percentage of Payroll	-10.07%

Note:
Budgeted contribution rates for FYE 2025 were known at the time of the June 30, 2024 Valuation.
Amortization bases established at this valuation date were adjusted accordingly.
Per House Bill 8 (passed during the 2021 legislative session), amortization cost for the KERS Non-Hazardous fund is allocated amongst employers based on their 2019 Actuarial Accrued Liability. See appendix D for more information. Amortization cost for the hazardous fund is included in the contribution rate, payable as a percentage of payroll.

Section 5

Membership Information

Membership Tables

Summary of Membership Data
(Total dollar amounts expressed in thousands)

		Non-Hazardous June 30, 2024 (1)	Hazardous June 30, 2024 (2)	Total June 30, 2024 (3)	Total June 30, 2023 (4)
1.	Active members				
a.	Males	11,996	2,969	14,965	14,416
b.	Females	20,459	1,185	21,644	20,853
c.	Total members	32,455	4,154	36,609	35,269
d.	Total annualized prior year salaries	$ 1,861,522	$ 259,606	$ 2,121,128	$ 1,827,470
e.	Average salary[3]	$ 57,357	$ 62,496	$ 57,940	$ 51,815
f.	Average age	45.5	39.9	44.9	45.0
g.	Average service	10.7	7.1	10.3	10.5
h.	Member contributions with interest	$ 935,186	$ 116,828	$ 1,052,014	$ 992,456
i.	Average contributions with interest[3]	$ 28,815	$ 28,124	$ 28,736	$ 28,140
2.	Vested inactive members[2]				
a.	Number	30,641	2,343	32,984	33,411
b.	Total annual deferred benefits	$ 88,617	$ 5,857	$ 94,474	$ 94,117
c.	Average annual deferred benefit[3]	$ 2,892	$ 2,500	$ 2,864	$ 2,817
d.	Average age at the valuation date	54.3	49.3	54.0	53.3
3.	Nonvested inactive members[2]				
a.	Number	26,113	6,637	32,750	31,146
b.	Total member contributions with interest	$ 56,609	$ 14,333	$ 70,942	$ 65,412
c.	Average contributions with interest[3]	$ 2,168	$ 2,160	$ 2,166	$ 2,100
4.	Service retirees[1]				
a.	Number	41,471	4,209	45,680	45,593
b.	Total annual benefits	$ 876,310	$ 68,553	$ 944,863	$ 945,690
c.	Average annual benefit[3]	$ 21,131	$ 16,287	$ 20,684	$ 20,742
d.	Average age at the valuation date	71.2	66.5	70.7	70.3
5.	Disabled retirees[1]				
a.	Number	1,595	156	1,751	1,811
b.	Total annual benefits	$ 21,004	$ 1,475	$ 22,479	$ 23,347
c.	Average annual benefit[3]	$ 13,169	$ 9,455	$ 12,838	$ 12,892
d.	Average age at the valuation date	67.8	61.4	67.2	66.9
6.	Beneficiaries[1]				
a.	Number	5,408	569	5,977	5,892
b.	Total annual benefits	$ 86,943	$ 6,209	$ 93,152	$ 90,110
c.	Average annual benefit[3]	$ 16,077	$ 10,912	$ 15,585	$ 15,294
d.	Average age at the valuation date	70.7	68.3	70.5	70.3

[1] 2,417 members receiving benefits in both the non-hazardous and hazardous fund. Members' headcounts and hazardous benefits included in the hazardous summary above. Members' additional $25,136,000 in non-hazardous annual benefits not included in summary above.

[2] Vested inactive member section includes Tier 1 members eligible for a benefit equal to the actuarially equivalent of two times the member's contribution balance.

[3] Average dollar amounts shown are expressed to the dollar.

Summary of Historical Active Membership

June 30,	Active Members: Number	Active Members: Percent Increase /(Decrease)	Covered Payroll[1]: Amount in Thousands	Covered Payroll[1]: Percent Increase /(Decrease)	Average Annual Pay: Amount	Average Annual Pay: Percent Increase /(Decrease)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Non-Hazardous Members						
2015	39,056		$ 1,544,234		$ 39,539	
2016	37,779	-3.3%	1,529,249	-1.0%	40,479	2.4%
2017	37,234	-1.4%	1,531,535	0.1%	41,133	1.6%
2018	35,139	-5.6%	1,471,477	-3.9%	41,876	1.8%
2019	33,696	-4.1%	1,437,647	-2.3%	42,665	1.9%
2020	31,703	-5.9%	1,387,761	-3.5%	43,774	2.6%
2021	30,186	-4.8%	1,349,330	-2.8%	44,701	2.1%
2022	29,551	-2.1%	1,355,267	0.4%	45,862	2.6%
2023	31,383	6.2%	1,615,868	19.2%	51,489	12.3%
2024	32,455	3.4%	1,861,522	15.2%	57,357	11.4%
Hazardous Members						
2015	3,886		$ 128,680		$ 33,114	
2016	3,959	1.9%	147,563	14.7%	37,273	12.6%
2017	4,047	2.2%	162,418	10.1%	40,133	7.7%
2018	3,929	-2.9%	158,213	-2.6%	40,268	0.3%
2019	3,705	-5.7%	150,446	-4.9%	40,606	0.8%
2020	4,094	10.5%	170,826	13.5%	41,726	2.8%
2021	3,827	-6.5%	162,836	-4.7%	42,549	2.0%
2022	3,617	-5.5%	165,637	1.7%	45,794	7.6%
2023	3,886	7.4%	211,602	27.8%	54,452	18.9%
2024	4,154	6.9%	259,606	22.7%	62,496	14.8%

[1] Covered payroll is the annualized, projected compensation for the following year and does not include payroll attributable to working retirees.

Distribution of Active Members by Age and by Years of Service

Non-Hazardous Members

Attained Age	0 Count & Avg. Comp.	1 Count & Avg. Comp.	2 Count & Avg. Comp.	3 Count & Avg. Comp.	4 Count & Avg. Comp.	5-9 Count & Avg. Comp.	10-14 Count & Avg. Comp.	15-19 Count & Avg. Comp.	20-24 Count & Avg. Comp.	25-29 Count & Avg. Comp.	30-34 Count & Avg. Comp.	35 & Over Count & Avg. Comp.	Total Count & Avg. Comp.
	Years of Credited Service												
Under 20	39	1	0	0	0	0	0	0	0	0	0	0	40
	$31,154	$48,553	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$31,589
20-24	546	421	148	43	6	2	0	0	0	0	0	0	1,166
	$33,087	$42,066	$47,218	$44,464	$50,024	$39,237	$0	$0	$0	$0	$0	$0	$38,640
25-29	618	727	497	285	207	281	4	1	0	0	0	0	2,620
	$36,579	$44,520	$47,854	$52,267	$52,664	$56,229	$60,365	$63,165	$0	$0	$0	$0	$46,053
30-34	479	510	432	214	245	976	217	4	0	0	0	0	3,077
	$37,098	$46,799	$48,200	$53,750	$54,895	$58,655	$60,408	$56,767	$0	$0	$0	$0	$51,347
35-39	388	492	321	165	173	945	830	220	4	0	0	0	3,538
	$38,156	$48,105	$48,265	$54,497	$56,280	$60,240	$62,767	$64,116	$62,643	$0	$0	$0	$55,419
40-44	335	441	318	156	188	805	855	989	341	34	0	0	4,462
	$38,730	$48,534	$50,081	$55,933	$58,286	$61,389	$64,313	$67,578	$67,584	$72,127	$0	$0	$59,777
45-49	316	370	251	133	146	654	658	876	1,014	338	6	0	4,762
	$39,644	$49,152	$50,460	$51,827	$56,368	$60,751	$64,146	$67,503	$69,652	$70,667	$80,860	$0	$61,859
50-54	259	301	245	117	142	649	588	717	907	597	113	8	4,643
	$39,054	$48,279	$47,734	$55,337	$56,237	$56,492	$61,391	$65,265	$68,604	$74,159	$74,836	$83,921	$61,594
55-59	168	234	211	81	105	495	494	631	631	453	155	43	3,701
	$40,553	$46,830	$49,009	$54,485	$55,540	$57,788	$57,429	$62,438	$66,083	$69,128	$77,683	$79,613	$60,310
60-64	103	143	125	66	88	373	433	552	467	315	76	59	2,800
	$40,653	$46,628	$49,066	$54,815	$55,527	$56,015	$59,358	$60,140	$61,569	$69,147	$79,341	$80,087	$59,491
65 & Over	48	66	68	28	45	236	287	347	234	164	60	63	1,646
	$49,563	$62,544	$51,387	$54,739	$72,991	$59,252	$59,641	$61,646	$63,602	$68,705	$78,283	$83,482	$62,829
Total	3,299	3,706	2,616	1,288	1,345	5,416	4,366	4,337	3,598	1,901	410	173	32,455
	$37,423	$46,825	$48,678	$53,540	$56,181	$58,964	$61,825	$64,825	$67,115	$71,002	$77,340	$81,383	$57,357

Distribution of Active Members by Age and by Years of Service

Hazardous Members

Attained Age	0 Count & Avg. Comp.	1 Count & Avg. Comp.	2 Count & Avg. Comp.	3 Count & Avg. Comp.	4 Count & Avg. Comp.	5-9 Count & Avg. Comp.	10-14 Count & Avg. Comp.	15-19 Count & Avg. Comp.	20-24 Count & Avg. Comp.	25-29 Count & Avg. Comp.	30-34 Count & Avg. Comp.	35 & Over Count & Avg. Comp.	Total Count & Avg. Comp.
	Years of Credited Service												
Under 20	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
20-24	134	112	70	3	0	0	0	0	0	0	0	0	319
	$47,957	$63,225	$69,573	$67,147	$0	$0	$0	$0	$0	$0	$0	$0	$58,241
25-29	148	122	112	89	56	62	0	0	0	0	0	0	589
	$48,822	$58,547	$62,301	$62,714	$64,378	$68,178	$0	$0	$0	$0	$0	$0	$59,015
30-34	131	102	82	53	74	210	43	0	0	0	0	0	695
	$48,559	$63,868	$65,881	$65,035	$62,486	$66,872	$69,016	$0	$0	$0	$0	$0	$62,388
35-39	66	78	43	29	32	133	139	32	0	0	0	0	552
	$49,272	$60,640	$61,119	$60,559	$58,588	$66,482	$68,038	$64,506	$0	$0	$0	$0	$62,689
40-44	66	66	30	19	24	90	105	165	20	1	0	0	586
	$50,946	$60,288	$61,452	$63,756	$61,042	$63,709	$67,988	$67,596	$81,195	$65,991	$0	$0	$64,125
45-49	47	48	31	8	21	70	72	105	43	5	0	0	450
	$47,040	$61,349	$60,562	$71,702	$63,687	$63,311	$69,660	$69,908	$71,316	$81,864	$0	$0	$64,906
50-54	43	35	31	14	16	70	52	89	36	20	0	0	406
	$51,711	$59,025	$57,925	$57,733	$72,921	$62,088	$66,056	$70,013	$76,173	$71,229	$0	$0	$64,628
55-59	34	29	18	11	16	54	53	67	25	5	2	1	315
	$47,620	$60,496	$57,940	$64,477	$67,272	$65,612	$64,167	$65,551	$69,793	$72,335	$90,774	$68,802	$63,158
60-64	4	11	6	7	9	31	43	35	23	4	1	1	175
	$41,958	$60,764	$68,750	$53,351	$53,440	$66,341	$61,532	$66,441	$75,027	$69,461	$94,641	$86,986	$64,664
65 & Over	1	2	4	1	1	13	21	17	4	3	0	0	67
	$60,764	$60,207	$48,348	$42,958	$29,719	$59,904	$59,828	$67,774	$63,671	$59,873	$0	$0	$60,729
Total	674	605	427	234	249	733	528	510	151	38	3	2	4,154
	$48,827	$61,159	$63,334	$62,842	$62,892	$65,487	$66,889	$67,958	$73,893	$71,553	$92,063	$77,894	$62,496

Distribution of Annuitant Monthly Benefit by Status and Age
Non-Hazardous Retirees and Beneficiaries
(Dollar amounts expressed in thousands)

	Retirement		Disability		Survivors & Beneficiaries		Total	
Current Age	Number of Annuitants	Total Annual Benefit Amount	Number of Annuitants	Total Annual Benefit Amount	Number of Annuitants	Total Annual Benefit Amount	Number of Annuitants	Total Annual Benefit Amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Under 50	310	$ 7,168	55	$ 650	538	$ 6,451	903	$ 14,269
50 - 54	1,208	29,685	102	1,565	231	3,163	1,541	34,414
55 - 59	2,885	69,029	179	2,641	282	3,990	3,346	75,660
60 - 64	5,204	117,781	264	3,589	465	6,786	5,933	128,156
65 - 69	8,692	180,141	346	4,678	660	10,434	9,698	195,253
70 - 74	9,667	201,305	285	3,671	864	15,462	10,816	220,438
75 - 79	7,314	155,561	199	2,372	850	15,551	8,363	173,485
80 - 84	3,716	73,592	97	1,060	726	12,771	4,539	87,423
85 - 89	1,698	30,610	53	613	481	8,274	2,232	39,496
90 And Over	777	11,438	15	165	311	4,060	1,103	15,663
Total	**41,471**	**$ 876,310**	**1,595**	**$ 21,004**	**5,408**	**$ 86,943**	**48,474**	**$ 984,257**

*Amounts may not add due to rounding

Distribution of Annuitant Monthly Benefit by Status and Age
Hazardous Retirees and Beneficiaries
(Dollar amounts expressed in thousands)

	Retirement		Disability		Survivors & Beneficiaries		Total	
Current Age	Number of Annuitants	Total Annual Benefit Amount	Number of Annuitants	Total Annual Benefit Amount	Number of Annuitants	Total Annual Benefit Amount	Number of Annuitants	Total Annual Benefit Amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Under 50	207	$ 4,507	22	$ 244	62	$ 629	291	$ 5,380
50 - 54	416	8,191	22	257	33	447	471	8,896
55 - 59	534	9,731	24	207	27	400	585	10,338
60 - 64	637	11,186	31	332	74	893	742	12,412
65 - 69	761	12,363	30	234	77	948	868	13,544
70 - 74	764	10,945	16	129	96	1,229	876	12,302
75 - 79	595	8,474	5	43	85	775	685	9,291
80 - 84	204	2,275	2	9	66	520	272	2,803
85 - 89	71	697	4	20	27	217	102	934
90 And Over	20	184	0	0	22	152	42	336
Total	**4,209**	**$ 68,553**	**156**	**$ 1,475**	**569**	**$ 6,209**	**4,934**	**$ 76,237**

*Amounts may not add due to rounding

Non-Hazardous Retired Lives Summary

	Male Lives		Female Lives		Total	
Form of Payment	Number	Monthly Benefit Amount	Number	Monthly Benefit Amount	Number	Monthly Benefit Amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Basic	4,512	$ 7,895,495	13,674	$ 19,448,738	18,186	$ 27,344,233
Joint & Survivor:						
100% to Beneficiary	2,950	5,260,203	1,755	2,236,577	4,705	7,496,780
66 2/3% to Beneficiary	770	2,087,835	665	1,225,382	1,435	3,313,218
50% to Beneficiary	1,071	2,678,337	1,600	3,097,171	2,671	5,775,508
Pop-up Option	3,963	9,556,996	3,932	7,584,072	7,895	17,141,068
Social Security Option:						
Age 62 Basic	349	708,276	846	1,441,487	1,195	2,149,764
Age 62 Survivorship	669	1,364,859	566	920,128	1,235	2,284,987
Partial Deferred (Old Plan)	0	0	0	0	0	0
Widows Age 60	0	0	0	0	0	0
5 Years Certain	0	0	0	0	0	0
10 Years Certain	0	0	0	0	0	0
10 Years Certain & Life	1,002	1,777,634	2,382	3,635,895	3,384	5,413,528
15 Years Certain & Life	444	724,774	759	1,060,546	1,203	1,785,319
20 Years Certain & Life	445	961,661	712	1,110,124	1,157	2,071,784
Total:	16,175	$ 33,016,069	26,891	$ 41,760,121	43,066	$ 74,776,190

Hazardous Retired Lives Summary

Form of Payment	Male Lives Number	Male Lives Monthly Benefit Amount	Female Lives Number	Female Lives Monthly Benefit Amount	Total Number	Total Monthly Benefit Amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Basic	757	$ 852,151	627	$ 711,502	1,384	$ 1,563,653
Joint & Survivor:						
100% to Beneficiary	523	654,320	84	102,064	607	756,384
66 2/3% to Beneficiary	143	212,847	39	51,130	182	263,977
50% to Beneficiary	187	300,889	81	123,983	268	424,872
Pop-up Option	983	1,578,573	226	327,344	1,209	1,905,917
Social Security Option:						
Age 62 Basic	59	80,330	29	24,591	88	104,921
Age 62 Survivorship	134	165,490	21	27,609	155	193,100
Partial Deferred (Old Plan)	0	0	0	0	0	0
Widows Age 60	0	0	0	0	0	0
5 Years Certain	0	0	0	0	0	0
10 Years Certain	46	95,315	17	24,854	63	120,169
10 Years Certain & Life	116	152,229	87	86,127	203	238,356
15 Years Certain & Life	55	67,657	35	32,672	90	100,329
20 Years Certain & Life	77	104,935	39	59,025	116	163,960
Total:	3,080	$ 4,264,736	1,285	$ 1,570,899	4,365	$ 5,835,636

Non-Hazardous Beneficiary Lives Summary

	Male Lives		Female Lives		Total	
Form of Payment	Number	Monthly Benefit Amount	Number	Monthly Benefit Amount	Number	Monthly Benefit Amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Basic	35	$ 26,020	55	$ 73,312	90	$ 99,332
Joint & Survivor:						
100% to Beneficiary	397	370,210	1,605	1,975,930	2,002	2,346,140
66 2/3% to Beneficiary	75	81,697	311	464,345	386	546,043
50% to Beneficiary	189	175,141	500	464,041	689	639,182
Pop-up Option	304	493,591	994	1,853,041	1,298	2,346,632
Social Security Option:						
Age 62 Basic	1	815	12	11,412	13	12,227
Age 62 Survivorship	82	115,697	341	596,467	423	712,164
Partial Deferred (Old Plan)	0	0	0	0	0	0
Widows Age 60	0	0	1	92	1	92
5 Years Certain	51	60,336	64	67,786	115	128,122
10 Years Certain	81	95,795	96	78,868	177	174,663
10 Years Certain & Life	30	29,085	49	46,897	79	75,983
15 Years Certain & Life	19	18,622	48	43,353	67	61,975
20 Years Certain & Life	26	39,974	42	62,733	68	102,707
Total:	1,290	$ 1,506,982	4,118	$ 5,738,279	5,408	$ 7,245,261

Hazardous Beneficiary Lives Summary

Form of Payment	Male Lives Number	Male Lives Monthly Benefit Amount	Female Lives Number	Female Lives Monthly Benefit Amount	Total Number	Total Monthly Benefit Amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Basic	2	$ 1,361	13	$ 9,335	15	$ 10,696
Joint & Survivor:						
100% to Beneficiary	17	13,019	186	143,417	203	156,435
66 2/3% to Beneficiary	1	481	24	12,256	25	12,737
50% to Beneficiary	6	3,888	44	19,349	50	23,237
Pop-up Option	13	16,919	167	193,512	180	210,430
Social Security Option:						
Age 62 Basic	0	0	2	47	2	47
Age 62 Survivorship	2	801	52	49,430	54	50,231
Partial Deferred (Old Plan)	0	0	0	0	0	0
Widows Age 60	0	0	0	0	0	0
5 Years Certain	1	3,247	4	9,138	5	12,385
10 Years Certain	4	3,726	9	11,355	13	15,081
10 Years Certain & Life	1	1,100	2	1,266	3	2,366
15 Years Certain & Life	3	3,692	2	2,037	5	5,729
20 Years Certain & Life	2	4,048	12	14,001	14	18,049
Total:	52	$ 52,280	517	$ 465,143	569	$ 517,423

Schedule of Retirees Added to And Removed from Rolls

(Dollar amounts except average allowance expressed in thousands)

Year Ended	Added to Rolls: Number	Removed from Rolls: Number	Rolls End of the Year: Number	Rolls End of the Year: Annual Benefits	% Increase in Annual Benefit	Average Annual Benefit
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Non-Hazardous						
2015	2,140	1,094	42,269	$ 883,578		$ 20,904
2016	2,441	706	44,004	934,930	5.8%	21,246
2017	2,181	1,269	44,916	921,302	-1.5%	20,512
2018	2,853	1,243	46,526	952,951	3.4%	20,482
2019	2,226	1,342	47,410	968,706	1.7%	20,433
2020	1,806	1,883	47,333	967,963	-0.1%	20,450
2021	2,026	1,659	47,700	972,434	0.5%	20,386
2022	2,471	1,976	48,195	981,369	0.9%	20,362
2023	2,115	1,901	48,409	984,280	0.3%	20,333
2024	2,031	1,966	48,474	984,257	0.0%	20,305
Hazardous						
2015	203	65	3,758	$ 56,431		$ 15,016
2016	237	29	3,966	59,001	4.6%	14,877
2017	206	79	4,093	59,162	0.3%	14,455
2018	321	44	4,370	64,050	8.3%	14,657
2019	227	60	4,537	67,523	5.4%	14,883
2020	214	123	4,628	69,081	2.3%	14,927
2021	263	165	4,726	70,803	2.5%	14,982
2022	300	176	4,850	73,689	4.1%	15,194
2023	210	173	4,887	74,867	1.6%	15,320
2024	207	160	4,934	76,237	1.8%	15,451

SECTION 6

ASSESSMENT AND DISCLOSURE OF RISK

Risks Associated with Measuring the Accrued Liability And Actuarially Determined Contribution

(As Required by ASOP No. 51)

The determination of KERS's accrued liability and actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. The risk measures illustrated in this section are intended to aid stakeholders in understanding the effects of future experience differing from the assumptions used in performing an actuarial valuation. These risk measures may also help with illustrating the potential volatility in the funded status and actuarially determined contributions that result from differences between actual experience and the expected experience based on the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience (economic and demographic) differing from the assumptions, changes in assumptions due to changing conditions, changes in contribution requirements due to modifications to the funding policy, and changes in the liability and cost due to changes in plan provisions or applicable law. The scope of this actuarial valuation does not include any analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the System's future financial condition include:

- Investment risk – actual investment returns may differ from expected returns;
- Longevity risk – members may live longer or shorter than expected and receive pensions for a time period different than assumed;
- Other demographic risks – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future contributions differing from expected;
- Salary and payroll risk – actual salaries and total payroll may differ from expected, resulting in actual future accrued liabilities or contributions differing from expected;
- Asset/Liability mismatch – changes in assets may be inconsistent with changes in liabilities, thereby altering the relative difference between the assets and liabilities which may alter the funded status and contribution requirements;
- Contribution risk – actual contributions may differ from expected future contributions (for example, actual contributions not being paid in accordance with the System's funding policy, withdrawal liability assessments or other anticipated payments to the plan are not being paid, or material changes occurring in the anticipated number of covered employees, covered payroll, or another relevant contribution base).

Effects of certain experience can generally be anticipated. For example, if investment returns since the most recent actuarial valuation are less (or more) than the assumed rate of return, then the funded status of the plan can be expected to decrease (or increase) more than anticipated.

The required contributions in this report were established in accordance with applicable Statutes and assumptions adopted by the Board. However, stakeholders should be aware that the scheduled contributions specified in State Code do not necessarily guarantee that the contribution requirements will not increase in a future year.

Employer Risk with Contribution Rates

Currently contributions for the hazardous fund are collected from participating employers based on the employer's total payroll of employees who are earning benefits in KERS (i.e. covered payroll). The actuarially determined contribution rate is comprised of two components - the normal cost rate (to pay for the benefits accruing in the next year) and the unfunded amortization (to pay for the benefits accrued by members in previous years). The unfunded amortization is calculated by first determining the dollar amount necessary to pay for the unfunded liability based on KERS's funding policy, and then by dividing that dollar amount by expected covered payroll to convert that contribution requirement to a percentage of payroll (i.e. a contribution rate).

As the contribution requirement, as a percentage of payroll, increases then there is increased incentive for participating employers to make deliberate business action to reduce their payroll reported to the System in order to reduce their pension cost. House Bill 8 passed during the 2021 legislative session and changed how the amortization cost would be collected and allocated amongst employers in the non-hazardous fund. This portion of the contribution requirement is no longer collected as a percentage of payroll for the non-hazardous fund.

Plan Specific Risk Measures

Risks faced by a pension plan evolve over time. A relatively new plan with virtually no assets and paying few benefits will experience lower investment risk than a mature plan with a significant amount of assets and large number of members receiving benefits. There are a few measures that can assist stakeholders in understanding and comparing the maturity of a plan to other systems, which include:

- <u>Ratio of market value of assets to payroll</u>: The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. If assets are approximately the same as covered payroll, an investment return that is 5% different than assumed would equal 5% of payroll. In another example, if the assets are approximately twice as large as covered payroll, an investment return that is 5% different than assumed would equal 10% of payroll. A ratio that increases over time generally indicates the potential of an increasing volatility in employer contribution rates as a percentage of payroll.
- <u>Ratio of actuarial accrued liability to payroll</u>: The ratio of actuarial accrued liability to payroll can be used as a measure to indicate the potential volatility of contributions due to volatility in the liability experience. For instance, if the actuarial accrued liability is 5 times the size of the covered payroll, then a change in the liability that is 2% different than expected would be a change in magnitude that is 10% of payroll. A ratio that increases over time generally indicates the potential of an increasing volatility in employer contribution rates as a percentage of payroll.
- <u>Percentage of Expected Contributions Actually Received</u>: This measure identifies the percentage difference between the contributions the fund expects to receive during the fiscal year to and actual contributions received by the fund during the fiscal year. A percentage that is less than 100% means that actual contributions the fund received were less than the expected contributions determined by a prior actuarial valuation. On the other hand, a percentage that is greater than 100% means that actual contributions the fund received were more than the expected contributions.

- Ratio of active to retired members: A relatively mature open plan is likely to have close to the same number of actives to retirees resulting in a ratio that is around 1.0. On the other hand, a super-mature plan, or a plan that is closed to new entrants will have more retirees than active members resulting in a ratio below 1.0. As this ratio declines, a larger portion of the total actuarial accrued liability in the System is attributable to retirees. This metric also typically moves in tandem with the liability to payroll metric, which provides an indication of potential contribution volatility.

The following tables provide a summary of these measures for KERS Non-Hazardous and Hazardous Funds for the current year and the prior four years so stakeholders can identify how these measures are trending. While ASOP No. 51 requires this disclosure with respect to only the retirement funds, we have included this information for the insurance funds for completeness.

KERS Non-Hazardous

	Retirement Fund					Insurance Fund				
	June 30,					June 30,				
	2024	2023	2022	2021	2020	2024	2023	2022	2021	2020
Ratio of the market value of assets to total payroll	2.27	2.19	2.22	2.24	1.66	0.95	0.95	1.01	1.05	0.76
Ratio of actuarial accrued liability to payroll	8.94	10.09	12.23	12.10	11.78	1.13	1.16	1.32	1.91	1.85
Ratio of net cash flow to market value of assets	8.6%	9.5%	5.2%	7.3%	1.0%	3.6%	2.5%	2.4%	7.1%	5.2%
Percentage of Expected Contribution Actually Received	100% [1]	100%	100%	94%	93%	100% [1]	100%	100%	99%	96%
Ratio of actives to retirees and beneficiaries	0.67	0.65	0.61	0.63	0.67					

[1] Expected contribution for FYE2024 based on the actuarially determined contribution from the June 30, 2021 valuation.

KERS Hazardous

	Retirement Fund					Insurance Fund				
	June 30,					June 30,				
	2024	2023	2022	2021	2020	2024	2023	2022	2021	2020
Ratio of the market value of assets to total payroll	3.93	4.22	4.90	5.32	4.04	2.61	2.96	3.55	3.89	3.05
Ratio of actuarial accrued liability to payroll	5.56	6.44	7.95	7.95	7.52	1.46	1.72	2.10	2.61	2.51
Ratio of net cash flow to market value of assets	2.6%	0.7%	-0.5%	0.3%	0.4%	-2.4%	-2.7%	-2.9%	-2.8%	-2.5%
Percentage of Expected Contribution Actually Received	134% [1]	138%	108%	101%	114%	N/A [1]	N/A [1]	N/A [1]	N/A [1]	N/A [1]
Ratio of actives to retirees and beneficiaries	0.84	0.80	0.75	0.81	0.88					

[1] Expected contribution for FYE2024 based on the actuarially determined contribution rate of 31.82% from the June 30, 2021 valuation, and expected compensation based on census data from the June 30, 2023 valuation. As of the 2018 valuation (FYE2020), the required employer contribution was 0% of pay for the insurance fund.

Low-Default-Risk Obligation Measure

Introduction

In December 2021, the Actuarial Standards Board (ASB) adopted a revision to Actuarial Standard of Practice (ASOP) No. 4, Measuring Pension Obligations and Determining Pension Plan Costs or Contributions. The revised ASOP No. 4 requires the calculation and disclosure of a liability referred to by the ASOP as the “Low-Default-Risk Obligation Measure” (LDROM). The rationale that the ASB cited for the calculation and disclosure of the LDROM was included in the Transmittal Memorandum of ASOP No. 4 and is presented below (emphasis added):

> “The ASB believes that the calculation and disclosure of this measure provides **appropriate, useful information for the intended user regarding the funded status of a pension plan.** The calculation and disclosure of this additional measure is **not intended to suggest that this is the “right” liability measure** for a pension plan. However, the ASB does believe that **this additional disclosure provides a more complete assessment of a plan’s funded status and provides additional information regarding the security of benefits that members have earned as of the measurement date.”**

Comparing the Accrued Liabilities and the LDROM

One of the fundamental financial objectives of the Kentucky Employees’ Retirement System (KERS) is to finance each member’s retirement benefits over the period from the member’s date of hire until the member’s projected date of retirement (entry age actuarial cost method) as a level percentage of payroll. To fulfill this objective, the discount rate that is used to value the accrued liabilities is set equal to the **expected return** on each fund’s diversified portfolio of assets (referred to sometimes as the investment return assumption). For the non-hazardous retirement fund, the investment return assumption is 5.25%. For the hazardous retirement fund, the investment return assumption is 6.25%.

The LDROM is meant to approximately represent the lump sum cost to a plan to purchase low-default-risk fixed income securities whose resulting cash flows essentially replicate in timing and amount the benefits earned (or the costs accrued) as of the measurement date. The LDROM is very dependent upon market interest rates at the time of the LDROM measurement and can vary greatly from year to year. The lower the market interest rates, the higher the LDROM, and vice versa. The LDROM results presented in this report are based on the entry age actuarial cost method and discount rates based upon the intermediate rate from the FTSE Pension Discount Curve and Liability Index published by the Society of Actuaries. This rate is 5.32% as of June 30, 2024. *Note, since the investment return assumption for the non-hazardous fund is currently less than the 5.32% rate, the LDROM measurement is shown as equal to the valuation liabilities.* This measure may not be appropriate for assessing the need for or amount of future contributions. This measure may not be appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan’s benefit obligation.

In normal economic conditions, the difference between the two measures (Valuation and LDROM) is one illustration of the savings the sponsor anticipates by taking on risk in a diversified portfolio. However, the LDROM is not a particularly useful measure for the non-hazardous fund as of June 30, 2024 because of the market rate used as a reference on this date to comply with this disclosure requirement.

Non-Hazardous Retirement Fund

Valuation Accrued Liabilities	LDROM
$16,647,892,788	$16,647,892,788

Hazardous Retirement Fund

Valuation Accrued Liabilities	LDROM
$1,442,618,733	$1,610,323,196

APPENDIX A

ACTUARIAL ASSUMPTIONS AND METHODS

Summary of Actuarial Methods and Assumptions

The following presents a summary of the actuarial assumptions and methods used in the valuation of the Kentucky Employees Retirement System.

In general, the assumptions and methods used in the valuation are based on the actuarial experience study as of June 30, 2022 and adopted by the Board in June 2023.

Investment return rate:

Assumed annual rate of 5.25% net of investment expenses for the non-hazardous retirement fund
Assumed annual rate of 6.25% net of investment expenses for the hazardous retirement fund
Assumed annual rate of 6.50% net of investment expenses for the insurance funds

Price Inflation:

Assumed annual rate of 2.50%

Payroll Growth Assumption (used for amortization of unfunded accrued liabilities):

Assumed annual rate of 0.00%

Rates of Annual Salary Increase:

Assumed rates of annual salary increases are shown below.

Service Years	Annual Rates of Salary					
	Merit & Seniority		Price Inflation & Productivity		Total Increase	
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous
0	12.00%	16.50%	3.30%	3.55%	15.30%	20.05%
1	3.50%	4.00%	3.30%	3.55%	6.80%	7.55%
2	2.75%	3.00%	3.30%	3.55%	6.05%	6.55%
3	2.50%	3.00%	3.30%	3.55%	5.80%	6.55%
4	2.00%	2.00%	3.30%	3.55%	5.30%	5.55%
5	1.50%	1.50%	3.30%	3.55%	4.80%	5.05%
6	1.25%	1.00%	3.30%	3.55%	4.55%	4.55%
7	1.00%	0.50%	3.30%	3.55%	4.30%	4.05%
8	0.75%	0.50%	3.30%	3.55%	4.05%	4.05%
9	0.50%	0.00%	3.30%	3.55%	3.80%	3.55%
10	0.50%	0.00%	3.30%	3.55%	3.80%	3.55%
11 & Over	0.00%	0.00%	3.30%	3.55%	3.30%	3.55%

Retirement rates:

Assumed annual rates of retirement are shown below. Rates are only applicable for members who are eligible for a service retirement.

	Non-Hazardous					Hazardous			
	Normal Retirement		Early Retirement[1]			Members participating before 9/1/2008[2]		Members participating between 9/1/2008 and 1/1/2014[3]	Members participating after 1/1/2014[3]
Age	Male	Female	Male	Female	Service	Age 55-61	Age 62+		
Under 45	20.0%	33.0%			5	10.0%	35.0%		
45	21.0%	33.0%			6	10.0%	35.0%		
46	22.0%	33.0%			7	10.0%	35.0%		
47	23.0%	33.0%			8	10.0%	35.0%		
48	24.0%	33.0%			9	10.0%	35.0%		
49	25.0%	33.0%			10	10.0%	35.0%		
50	26.0%	33.0%			11	10.0%	35.0%		
51	27.0%	33.0%			12	10.0%	35.0%		
52	28.0%	33.0%			13	10.0%	35.0%		
53	29.0%	33.0%			14	10.0%	35.0%		
54	30.0%	33.0%			15	10.0%	35.0%		
55	30.0%	33.0%	5.0%	5.0%	16	10.0%	35.0%		
56	30.0%	33.0%	5.0%	5.0%	17	10.0%	35.0%		
57	30.0%	33.0%	5.0%	5.0%	18	10.0%	35.0%		
58	30.0%	33.0%	5.0%	5.0%	19	10.0%	35.0%		
59	30.0%	33.0%	5.0%	5.0%	20	50.0%	50.0%		
60	30.0%	33.0%	5.0%	8.0%	21	32.0%	32.0%		
61	30.0%	33.0%	8.0%	9.0%	22	32.0%	32.0%		
62	35.0%	35.0%	15.0%	20.0%	23	32.0%	32.0%		
63	30.0%	33.0%	15.0%	18.0%	24	32.0%	32.0%		
64	30.0%	33.0%	15.0%	16.0%	25	32.0%	32.0%	25.6%	16.0%
65	30.0%	33.0%			26	32.0%	32.0%	25.6%	16.0%
66	30.0%	33.0%			27	32.0%	32.0%	25.6%	16.0%
67	30.0%	33.0%			28	32.0%	32.0%	25.6%	16.0%
68	30.0%	33.0%			29	32.0%	32.0%	25.6%	16.0%
69	30.0%	33.0%			30+	32.0%	32.0%	25.6%	100.0%
70	30.0%	33.0%							
71	30.0%	33.0%							
72	30.0%	33.0%							
73	30.0%	33.0%							
74	30.0%	33.0%							
75	100.0%	100.0%							

[1] *The annual rate of retirement is 12% for male members and 14% for female members with 25-26 years of service.*
[2] *The annual rate of retirement is 100% at age 65.*
[3] *The annual rate of retirement is 100% at age 60.*
Non-Hazardous: There is a 1% increase in the first two years a member becomes eligible under the age of 65. For members hired after 7/1/2003, the rates shown above are multiplied by 80% if the member is under age 65 to reflect the different retiree health insurance benefit.
Hazardous: For members hired after 7/1/2003 and prior to 9/1/2008, the rates shown above are multiplied by 80% if the member is under age 65 to reflect the different retiree health insurance benefit.

Disability rates:

An abbreviated table with assumed rates of disability is shown below.

Age	Non-Hazardous		Hazardous	
	Male	Female	Male	Female
20	0.03%	0.03%	0.05%	0.05%
30	0.05%	0.05%	0.08%	0.08%
40	0.11%	0.11%	0.18%	0.18%
50	0.31%	0.31%	0.50%	0.50%
60	0.80%	0.80%	1.32%	1.32%

Withdrawal rates (for causes other than disability and retirement):

Assumed annual rates of withdrawal are shown below and include pre-retirement mortality rates as described on the next page.

Service Years	Annual Rates of Withdrawal	
	Non-Hazardous	Hazardous
1	22.00%	32.50%
2	18.10%	25.58%
3	14.73%	19.66%
4	12.77%	16.19%
5	11.37%	13.73%
6	10.29%	11.82%
7	9.41%	10.26%
8	8.66%	8.93%
9	8.01%	7.79%
10	7.44%	6.79%
11	6.93%	5.89%
12	6.47%	5.07%
13	6.04%	4.33%
14	5.65%	3.64%
15	5.29%	3.00%
16	4.96%	2.42%
17	4.64%	1.86%
18	4.36%	1.34%
19	4.07%	0.86%
20	3.82%	0.39%
21	3.56%	0.00%
22	3.32%	0.00%
23	3.10%	0.00%
24	2.88%	0.00%
25	2.67%	0.00%
26 & Over	0.00%	0.00%

Mortality Assumption:

Pre-retirement mortality: PUB-2010 General Mortality table, for the non-hazardous funds, and the PUB-2010 Public Safety Mortality table for the hazardous funds, projected with the ultimate rates from the MP-2020 mortality improvement scale using a base year of 2010.

Post-retirement mortality (non-disabled): System-specific mortality table based on mortality experience from 2013-2022, projected with the ultimate rates from MP-2020 mortality improvement scale using a base year of 2023.

The following table provides the life expectancy for a non-disabled retiree in future years based on the assumption with full generational projection:

Life Expectancy for an Age 65 Retiree in Years					
Gender	**Year of Retirement**				
	2025	**2030**	**2035**	**2040**	**2045**
Male	19.8	20.2	20.6	21.0	21.3
Female	22.4	22.7	23.1	23.4	23.7

Post-retirement mortality (disabled): PUB-2010 Disabled Mortality table, with rates multiplied by 150% for both male and female rates, projected with the ultimate rates from the MP-2020 mortality improvement scale using a base year of 2010.

Marital status:

100% of employees are assumed to be married, with the female spouse 3 years younger than the male spouse.

Line of Duty/Duty-Related Disability

Non-Hazardous: 2% of disabilities are assumed to be duty-related (100% of which are assumed to be "total and permanent")

Hazardous: 10% of disabilities are assumed to occur in the line of duty (10% of which are assumed to be "total and permanent")

Line of Duty Death

25% of deaths are assumed to occur in the line of duty

Dependent Children:

For members in the Hazardous Plan who receive a duty-related death or disability benefit, the member is assumed to be survived by two dependent children, each age 6 with payments for 15 years.

Form of Payment:

Members are assumed to elect a life-only annuity at retirement.

Actuarial Cost Method:

Entry Age Normal, Level Percentage of Pay. The Entry Age Normal actuarial cost method allocates the System's actuarial present value of future benefits to various periods based upon service. The portion of the present value of future benefits allocated to years of service prior to the valuation date is the actuarial accrued liability, and the portion allocated to years following the valuation date is the present value of future normal costs. The normal cost is determined for each active member as the level percent of pay necessary to fully fund the expected benefits to be earned over the career of each individual active member. The normal cost is partially funded with active member contributions with the remainder funded by employer contributions.

Health Care Age Related Morbidity/Claims Utilization:

To model the impact of aging on the underlying health care costs for Medicare retirees, the valuation relied on the Society of Actuaries' 2013 Study "Health Care Costs – From Birth to Death". Table 4 (Development of Plan Specific Medicare Age Curve) was used to model the impact of aging for ages 65 and over.

Health Care Cost Trend Rates:

Year	Non-Medicare Plans[1]	Medicare Plans[1]	Dollar Contribution[2]
2026	7.10%	8.00%	1.50%
2027	7.00%	8.00%	1.50%
2028	6.80%	8.00%	1.50%
2029	6.60%	7.50%	1.50%
2030	6.40%	7.00%	1.50%
2031	6.20%	6.50%	1.50%
2032	6.00%	6.00%	1.50%
2033	5.80%	5.50%	1.50%
2034	5.60%	5.00%	1.50%
2035	5.40%	4.50%	1.50%
2036	5.20%	4.25%	1.50%
2037	5.00%	4.25%	1.50%
2038	4.75%	4.25%	1.50%
2039	4.50%	4.25%	1.50%
2040 & Beyond	4.25%	4.25%	1.50%

[1]All increases are assumed to occur on January 1. The 2025 premiums were known at the time of the valuation and were incorporated into the liability measurement.
[2]Applies to members participating on or after July 1, 2003. All increases are assumed to occur on July 1.

Health care trend assumptions are based on the model issued by the Society of Actuaries "Getzen model of Long-Run Medical Cost Trends for the SOA; Thomas E. Getzen, iHEA and Temple University 2014 © Society of Actuaries.

The underlying assumptions used to develop the health care trend rates include:

- A short run period-this is a period for which anticipated health care trend rates are manually set based on local information as well as plan-specific and carrier information.
- Long term real GDP growth – 1.75%
- Long term rate of inflation – 2.30%
- Long term nominal GDP growth – 4.25%
- Year that excess rate converges to 0 – 2036

Health care trend rates are thus the manually set rates for the short run period and rates which decline to an ultimate trend rate which equals the assumed nominal long-term GDP growth rate.

Health Care Participation Assumptions:

- Active members are assumed to elect health coverage at retirement at the following participation rates.

Service at Retirement	Members participating before 7/1/2003*	Members participating after 7/1/2003
Under 10	50%	100%
10-14	75%	100%
15-19	90%	100%
Over 20	100%	100%

* 100% of members with a duty disability or a duty death (in service) benefit are assumed to elect coverage at retirement.

- Future retirees are assumed to have a similar distribution by plan type as the current retirees.

Medicare Plan	Participation Percentage
Medical Only[1]	5%
Essential Plan	7%
Premium Plan	88%

Non-Medicare Plan	Participation Percentage
LivingWell Basic	4%
LivingWell CDHP	35%
LivingWell PPO	61%

[1] Includes Mirror Plans

- 50% of deferred vested members participating before July 1, 2003 are assumed to elect health coverage at retirement. 100% of deferred vested members participating after July 1, 2003 are assumed to elect health coverage at retirement.

- Deferred vested members receiving insurance benefits from the non-hazardous fund are assumed to begin health coverage at age 55 for members participating before September 1, 2008, at age 60 for members participating on or after September 1, 2008 but before January 1, 2014, and at age 65 for members participating on or after January 1, 2014.

- Deferred vested members receiving insurance benefits from the hazardous fund are assumed to begin health coverage at age 50 for members participating before January 1, 2014 and at age 60 for members participating on or after January 1, 2014.

- 50% of future retirees, with hazardous service, are assumed to elect spouse health care coverage. No dependent coverage is assumed for members who only have non-hazardous service. 100% of spouses with health care coverage are assumed to continue coverage after the member’s death.

Other Assumptions

1. Valuation payroll (used for determining the amortization contribution rate): Current fiscal year payroll.

2. Individual salaries used to project benefits: For salary amounts prior to the valuation date, the salary from the last fiscal year is projected backward with the valuation salary scale assumption. For future salaries, the salary from the last fiscal year is projected forward with one year's salary scale.

3. Pay increase timing: Beginning of (fiscal) year. This is equivalent to assuming that reported salaries represent amounts paid to members during the year ending on the valuation date.

4. Current active members that terminated employment (for reasons other than retirement, disability, or death) are assumed to commence their retirement benefits at first unreduced retirement eligibility. Members are assumed to elect a refund of member contributions if the value of their account balance exceeds the present value of the deferred benefit. Members participating in the Cash Balance plan are assumed to elect to receive a lump sum of their cash balance account if their account balance exceeds the present value of the deferred benefit and the member is not eligible for insurance benefits at termination.

5. The beneficiaries of current active members that die while active are assumed to commence their survivor benefits at the member's first unreduced retirement eligibility. Beneficiaries are assumed to elect a refund of member contributions if the value of the member's account balance exceeds the present value of the survivor benefit. Beneficiaries of active members that die while in the line of duty are assumed to commence their survivor benefits immediately at the death of the member.

6. There will be no recoveries once disabled.

7. Cash Balance Provisions: The cash balance interest crediting rate while a member is an active employee is assumed to equal 5.90% for the non-hazardous fund and 6.75% for the hazardous fund. The interest crediting rate after a member terminates employment is 4% for all plans.

8. Decrement timing: Decrements of all types are assumed to occur mid-year. Decrement rates are used as described in this report, without adjustment for multiple decrement table effects.

9. Service: All members are assumed to accrue 1 year of benefit and eligibility service each year.

10. Eligibility testing: Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.

11. Incidence of Contributions: Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.

12. Current Inactive Population (Retirement Funds): All non-vested members are assumed to take an immediate refund of member contributions. Vested members are assumed to elect an immediate refund of member contributions at the valuation date if the value of their

account balance exceeds the present value of their deferred benefit. Non-hazardous members are assumed to retire at age 65. Hazardous members hired prior to September 1, 2008 are assumed to retire at age 55 and hazardous members hired on or after September 1, 2008 are assumed to retire at age 60.

13. The additional $5 per year of service insurance dollar subsidy effective January 1, 2023 is assumed to be paid in all applicable years.

Participant Data

Participant data was supplied in electronic text files. There were separate files for (i) active and inactive members, and (ii) members and beneficiaries receiving benefits.

The data for active and terminated members included date of birth, gender, date of participation, benefit tier indicator, service with the current system, total vesting service, salary, employee contribution account balances, and employer pay credits for members participating in the cash balance plan. For retired members and beneficiaries, the data included date of birth, gender, spouse's date of birth (where applicable), amount of monthly benefit, date of retirement, and form of payment code.

Assumptions were made to correct for missing, bad, or inconsistent data. These had no material impact on the results presented.

Changes in assumptions since the prior valuation:

In conjunction with the review of healthcare per capita claims cost, the assumed increase in future healthcare costs, or trend assumption, is reviewed on an annual basis. The trend assumption was increased as a result of our review.

Development of Baseline Claims Cost

For non-Medicare retirees, the initial per capita costs were based on the plan premiums effective January 1, 2025, and are used for both current and future retirees. An inherent assumption in this methodology is that the projected future retirees will have a similar distribution by plan type as the current retirees. The spouse/dependent premium of $1,104.08 for non-Medicare retirees is based on a blending of Family and Couple premiums for the current retirees that have over 4 years of hazardous service. The fully-insured premiums paid to the Kentucky Employees' Health Plan (KEHP) are blended rates based on the combined experience of active and retired members. Because the average cost of providing health care benefits to retirees under age 65 is higher than the average cost of providing health care benefits to active employees, there is an implicit rate subsidy for the non-Medicare eligible retirees. Actuarial Standard of Practice No. 6 (ASOP No. 6) requires aging subsidies (or implicit rate subsidies) to be recognized. However, the health insurance trusts are only used to reimburse KEHP for the employer's portion of the blended premiums. Said another way, the trusts are not used to fund the difference between the underlying retiree claims and the blended KEHP premiums. As a result, the retiree health care liabilities developed in this report for the non-Medicare retirees are based solely on the premiums charged by KEHP, without any age-adjustment. GASB Statements No. 74 and No. 75 prohibit such a deviation from ASOP No. 6. The liabilities developed in this report are solely for the purpose of funding the benefits paid by the health insurance funds and are not appropriate for financial statement disclosures required by GASB. GRS provides separate GASB reports which include the liabilities associated with the implicit rate subsidy.

2025 Monthly Costs for Those Not Eligible for Medicare		
Age	Member	Spouse/Dependents
<65	$939.54	$1,104.08

For Medicare retirees, the initial per capita costs were estimated based on the plan premiums effective January 1, 2025, and are used for both current and future retirees. An inherent assumption in this methodology is that the projected future retirees will have a similar distribution by plan type as the current retirees. Age graded and sex distinct premiums are utilized for retirees over the age of 65. These costs are appropriate for the unique age and sex distribution currently existing. Over the future years covered by this valuation, the age and sex distribution will most likely change. Therefore, our process "distributes" the average premium over all age/sex combinations and assigns a unique premium for each combination. The age/sex specific costs more accurately reflect the health care utilization and cost at that age.

2025 Monthly Costs for Those Eligible for Medicare		
Age	Male	Female
65	$ 121.05	$ 114.17
75	141.62	138.19
85	149.75	151.51

Appendix B of the report provides a full schedule of premiums.

The percentage of the insurance premium paid by KERS is calculated based on the Medical Only premium amounts. The majority of KERS Medicare retirees are covered under the Premium Medicare Advantage plan. Because the premiums for the Medical Only plan are higher than the Premium Medical Advantage plan, retirees with less than 20 years of service pay a smaller contribution toward their insurance coverage. To model the impact of the employer contribution being based on the Medical Only Plan rather than the plan selected by the retiree, the employer share for retirees qualifying for percentage-based subsidies was blended to reflect retiree plan selection.

The above assumption implicitly implies that the Medical Only plan premiums will increase at a rate of 4.80% as of January 1, 2025, decreasing over 6 years to an ultimate trend rate of 4.25%, and that the remaining Medicare plan premiums will increase at the Medicare trend assumption used in the actuarial valuation.

Blake Orth is a Member of the American Academy of Actuaries (MAAA) and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Blake Orth

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Blake Orth, FSA, EA, MAAA

Appendix B

Benefit Provisions

Summary of Benefit Provisions for Kentucky Employees Retirement System (KERS)

KERS Non-Hazardous Employees

Retirement: Tier 1, Participation before 9/1/2008

Normal Retirement Eligibility	Age 65 with at least 1 month of service credit; or Any age with at least 27 years of service
Benefit Amount	If a member has at least 48 months of service, the monthly benefit is 2.00% times final average compensation times years of service. For members who did not have 13 months of service credit for 1/1/1998-1/1/1999, the monthly benefit is 1.97% times final average compensation times years of service. If a member has less than 48 months of service, the monthly benefit is the actuarial equivalent of two times the member's contributions with interest. Final average compensation is based on the member's highest 5 years of compensation.
Early Retirement Eligibility	Any age (prior to age 65) with at least 25 years of service; or Age 55 with at least 5 years of service
Early Retirement Reduction	Normal Retirement benefit reduced 6.5% per year for the first five years and 4.5% per year for the next five years for each year the member's retirement eligibility precedes the member's normal retirement date.

KERS Non-Hazardous Employees (continued)

Retirement: Tier 2, Participation on or after 9/1/2008 but before 1/1/2014

Normal Retirement Eligibility	Age 65 with at least 5 years of service; or Rule of 87 (Age 57 or older if age plus service equals 87)
Benefit Amount	The monthly benefit is equal to the applicable benefit multiplier times final average compensation times years of service.

Years of Service	Benefit Multiplier
10 or less	1.10%
10-20	1.30%
20-26	1.50%
26-30	1.75%
Greater than 30*	2.00%

* The 2.00% benefit multiplier only applies to service credit in excess of 30 years. If a member has greater than 30 years of service at retirement, service prior to 30 years will be multiplied by the 1.75% benefit multiplier.

Final compensation is based on the member's last 5 years of compensation.

Early Retirement Eligibility	Age 60 with at least 10 years of service
Early Retirement Reduction	Normal Retirement benefit reduced 6.5% per year for the first five years and 4.5% per year for the next five years for each year the member's retirement date precedes the member's normal retirement eligibility.

Retirement: Tier 3, Participation on or after 1/1/2014

Normal Retirement Eligibility	Age 65 with at least 5 years of service; or Rule of 87 (Age 57 or older if age plus service equals 87)
Benefit Amount	Each year that the member is active, a 4.00% employer pay credit and the employee's 5.00% contribution will be credited to each member's hypothetical cash balance account. The hypothetical account will earn interest at a minimum rate of 4%, annually. If the System's geometric average net investment return for the previous five years exceeds 4%, then the hypothetical account will be credited with an additional amount of interest in that year equal to 75% of the amount of the return which exceeds 4%. All interest credits will be applied to the hypothetical account balance on June 30 based on the account balance as of June 30 of the previous year. At retirement, the member's hypothetical account balance may be converted into an annuity based on an actuarial factor.
Early Retirement Eligibility	N/A

KERS Non-Hazardous Employees (continued)

Deferred Vested Benefit: Tier 1, Participation before 9/1/2008

Eligibility	At least 1 month of service credit
Benefit Amount	Normal retirement benefit deferred to normal retirement age, or a reduced retirement benefit at an early retirement age

Deferred Vested Benefit: Tier 2, Participation on or after 9/1/2008 but before 1/1/2014

Eligibility	5 years of service
Benefit Amount	Normal retirement benefit deferred to normal retirement age, or a reduced retirement benefit at an early retirement age

Deferred Vested Benefit Tier 3, Participation on or after 1/1/2014

Eligibility	5 years of service
Benefit Amount	At termination of employment, members may choose to leave their account balance with the System and retire once they are eligible. The hypothetical account balance will earn 4% annual interest after termination. Members may also choose to withdrawal their entire accumulated balance. If a member does not have 5 years of service at termination, the member is eligible to receive a partial refund of their account balance. This refund includes the member's contributions with interest.

Disability Retirement: Participation before 8/1/2004

Eligibility	60 months of service (requirement is waived if line of duty disability)
Disability Benefit	Disability benefits are calculated in the same manner as the normal retirement benefit with years of service and final compensation being determined as of the date of disability, except that service credit shall be added to the person's total service beginning with the last date of paid employment and continuing to the member's 65th birthday, with total service not exceeding 25 years. Total service credit added shall not be greater than the member's actual service at disability. For members with at least 25 years of service on the last day of paid employment but less than 27 years of service, total service shall be 27 years. For members with 27 or more years of service credit, actual service will be used.

KERS Non-Hazardous Employees (continued)

Disability Retirement: Participation on or after 8/1/2004 but before 1/1/2014

Eligibility	60 months of service (requirement is waived if line of duty disability)
Disability Benefit	The higher of 20% of the member's final monthly rate of pay or the member's normal retirement benefit (without reduction for early retirement) with years and final compensation being determined as of the date of disability.

Disability Retirement: Participation on or after 1/1/2014

Eligibility	60 months of service (requirement is waived if line of duty disability)
Disability Benefit	The higher of 20% of the member's final monthly rate of pay or the member's retirement benefit calculated at the member's normal retirement date.

Duty-Related Disability Benefit

Disability Benefit	If the disability is a direct result of an act in the line of duty, the benefit shall not be less than 25% of the member's final monthly final rate of pay. If the disability is deemed to be Total and Permanent (and the member is working in a non-hazardous position that could be certified as a hazardous position), then this benefit shall not be less than 75% of the member's monthly average pay.
Child Benefit	Additionally, each eligible dependent child will receive 10% of the member's monthly average pay up to a maximum of 40%. Member and dependent payment shall not exceed 100% of member's monthly average pay.

Pre-Retirement Death Benefit

Eligibility	Eligible for early or normal retirement; or Under age 65 with at least 60 months of service and actively working at the time of death; or At least 144 months of service, if no longer actively working
Spouse Benefit	The member's retirement benefit calculated in the same manner as if the member had retired on the day of the member's death and elected a 100% joint and survivor benefit. The benefit is actuarially reduced if the member dies prior to their normal retirement age.

KERS Non-Hazardous Employees (continued)

Pre-Retirement Death Benefit (Death in the Line of Duty)

Eligibility	One month of service credit
Spouse Benefit	A $10,000 lump sum payment plus a monthly payment of 75% of the deceased member's final monthly average pay. Each dependent child will receive 10% of the final monthly average pay (not to exceed a total child benefit of 25% while the spouse is alive). A spouse may also elect the non-line of duty death benefit.
Child Benefit	In the event there is no surviving spouse, the benefit is 50% of final monthly average pay for one child, 65% of final monthly average pay for two children, or 75% of final monthly average pay for three or more eligible children.

Post-Retirement Death Benefit

Eligibility	48 months of service, and in receipt of retirement benefits
Death Benefit	A $5,000 lump sum payment

Member Contributions

Tier 1, Participation before 9/1/2008	5% of creditable compensation. Members who do not receive a retirement benefit are entitled to a full refund of contributions with interest. The annual interest rate is set by the Board, not less than 2.0%.
Tier 2, Participation on or after 9/1/2008 but before 1/1/2014	5% of creditable compensation plus 1% of creditable compensation, which is deposited into the 401(h) account and is not refundable. Members who do not receive a retirement benefit are entitled to a refund of non-401(h) contributions with interest. The annual interest rate is 2.5%.
Tier 3, Participation after 1/1/2014	5% of creditable compensation plus 1% of creditable compensation, which is deposited into the 401(h) account and is not refundable. Members who do not receive a retirement benefit are entitled to a refund of non-401(h) contributions with interest.

Change in Retirement Plan Benefits for Non-Hazardous Members since the Prior Valuation

There have been no changes in benefits since the prior valuation.

KERS Hazardous Employees

Retirement: Tier 1, Participation before 9/1/2008

Normal Retirement Eligibility	Age 55 with at least 1 month of service credit; or Any age with at least 20 years of service
Benefit Amount	If a member has at least 60 months of service, the monthly benefit is 2.49% times final average compensation times years of service. If a member has less than 60 months of service, the monthly benefit is the actuarial equivalent of two times the member's contributions with interest. Final average compensation is based on the member's highest 3 years of compensation.
Early Retirement Eligibility	Age 50 with at least 15 years of service
Early Retirement Reduction	Normal Retirement benefit reduced 6.5% per year for the first five years and 4.5% per year for the next five years for each year the member's retirement date precedes the member's normal retirement eligibility.

KERS Hazardous Employees (continued)

Retirement: Tier 2, Participation on or after 9/1/2008 but before 1/1/2014

Normal Retirement Eligibility	Age 60 with at least 5 years of service; or Any age with at least 25 years of service
Benefit Amount	The monthly benefit is equal to the applicable benefit multiplier times final average compensation times years of service.

Years of Service	Benefit Multiplier
10 or less	1.30%
10-20	1.50%
20-25	2.25%
Greater than 25	2.50%

Final average compensation is based on the member's highest 3 years of compensation.

Early Retirement Eligibility	Age 50 with at least 15 years of service
Early Retirement Reduction	Normal Retirement benefit reduced 6.5% per year for the first five years and 4.5% per year for the next five years for each year the member's retirement date precedes the member's normal retirement eligibility.

Retirement: Tier 3, Participation on or after 1/1/2014

Normal Retirement Eligibility	Age 60 with at least 5 years of service; or Any age with at least 25 years of service
Benefit Amount	Each year that the member is active, a 7.50% employer pay credit and the employee's 8.00% contribution will be credited to each member's hypothetical cash balance account. The hypothetical account will earn interest at a minimum rate of 4%, annually. If the System's geometric average net investment return for the previous five years exceeds 4%, then the hypothetical account will be credited with an additional amount of interest in that year equal to 75% of the amount of the return which exceeds 4%. All interest credits will be applied to the hypothetical account balance on June 30 based on the account balance as of June 30 of the previous year. At retirement, the member's hypothetical account balance may be converted into an annuity based on an actuarial factor.
Early Retirement Eligibility	N/A

KERS Hazardous Employees (continued)

Deferred Vested Benefit: Tier 1, Participation before 9/1/2008

Eligibility	At least 1 month of service credit
Benefit Amount	Normal retirement benefit deferred to normal retirement age, or a reduced retirement benefit at an early retirement age

Deferred Vested Benefit: Tier 2, Participation on or after 9/1/2008 but before 1/1/2014

Eligibility	5 years of service
Benefit Amount	Normal retirement benefit deferred to normal retirement age, or a reduced retirement benefit at an early retirement age

Deferred Vested Benefit Tier 3, Participation on or after 1/1/2014

Eligibility	5 years of service
Benefit Amount	At termination of employment, members may choose to leave their account balance with the System and retire once they are eligible. The hypothetical account balance will earn 4% annual interest after termination. Members may also choose to withdrawal their entire accumulated balance. If a member does not have 5 years of service at termination, the member is eligible to receive a partial refund of their account balance. This refund includes the member's contributions with interest.

Disability Retirement: Participation before 8/1/2004

Eligibility	60 months of service (requirement is waived if line of duty disability)
Disability Benefit	Disability benefits are calculated in the same manner as the normal retirement benefit with years of service and final compensation being determined as of the date of disability, except that if the member has less than 20 years of service at disability, service credit shall be added to the person's total service beginning with the last date of paid employment and continuing to the member's 55th birthday, with total service not exceeding 20 years. Total service credit added shall not be greater than the member's actual service at disability.

KERS Hazardous Employees (continued)

Disability Retirement: Participation on or after 8/1/2004 but before 1/1/2014

Eligibility	60 months of service (requirement is waived if line of duty disability)
Disability Benefit	The higher of 25% of the member's final monthly rate of pay or the member's normal retirement benefit (without reduction for early retirement) with years and final compensation being determined as of the date of disability.

Disability Retirement: Participation on or after 1/1/2014

Eligibility	60 months of service (requirement is waived if line of duty disability)
Disability Benefit	The higher of 25% of the member's final monthly rate of pay or the member's retirement benefit calculated at the member's normal retirement date.

Line of Duty Disability Benefit

Disability Benefit	If the disability is a direct result of an act in the line of duty, the benefit shall not be less than 25% of the member's final monthly final rate of pay. If the disability is deemed to be Total and Permanent, then this benefit shall not be less than 75% of the member's monthly average pay.
Child Benefit	Additionally, each eligible dependent child will receive 10% of the member's monthly average pay up to a maximum of 40%. Member and dependent payment shall not exceed 100% of member's monthly average pay.

Pre-Retirement Death Benefit

Eligibility	Eligible for early or normal retirement; or Under age 55 with at least 60 months of service and actively working at the time of death; or At least 144 months of service, if no longer actively working
Spouse Benefit	The member's retirement benefit calculated in the same manner as if the member had retired on the day of the member's death and elected a 100% joint and survivor benefit. The benefit is actuarially reduced if the member dies prior to their normal retirement age.

KERS Hazardous Employees (continued)

Pre-Retirement Death Benefit (Death in the Line of Duty)

Eligibility	One month of service credit
Spouse Benefit	A $10,000 lump sum payment plus a monthly payment of 75% of the deceased member's final monthly average pay. Each dependent child will receive 10% of the final monthly average pay (not to exceed a total child benefit of 25% while the spouse is alive). A spouse may also elect the non-line of duty death benefit.
Non-Spouse Benefit	If the beneficiary is only one person who is a dependent receiving at least 50% of his or her support from the member, the beneficiary may elect a lump-sum payment of $10,000.
Child Benefit	In the event there is no surviving spouse, the benefit is 50% of final monthly average pay for one child, 65% of final average pay for two children, or 75% of final average pay for three or more eligible children.

Post-Retirement Death Benefit

Eligibility	48 months of service, and in receipt of retirement benefits
Death Benefit	A $5,000 lump sum payment

Member Contributions

Tier 1, Participation before 9/1/2008	8% of creditable compensation. Members who do not receive a retirement benefit are entitled to a full refund of contributions with interest. The annual interest rate is set by the Board, not less than 2.0%.
Tier 2, Participation on or after 9/1/2008 but before 1/1/2014	8% of creditable compensation plus 1% of creditable compensation, which is deposited into the 401(h) account and is not refundable. Members who do not receive a retirement benefit are entitled to a refund of non-401(h) contributions with interest. The annual interest rate is 2.5%.
Tier 3, Participation after 1/1/2014	8% of creditable compensation plus 1% of creditable compensation, which is deposited into the 401(h) account and is not refundable. Members who do not receive a retirement benefit are entitled to a refund of non-401(h) contributions with interest.

Change in Retirement Plan Benefits for Hazardous Members since the Prior Valuation

There have been no changes in benefits since the prior valuation.

Summary of Main Retiree Insurance Benefit Provisions

Insurance: Participation began before 7/1/2003

Benefit Eligibility Recipient of a retirement allowance

Benefit Amount

Non-Hazardous Service	Percentage of Member Premium Paid by Retirement System	Hazardous Service	Percentage of Member & Dependent Premium Paid by Retirement System
Less than 4 years	0%	Less than 4 years	0%
4 – 9 years	25%	4 – 9 years	25%
10 – 14 years	50%	10 – 14 years	50%
15 – 19 years	75%	15 – 19 years	75%
20 or more years	100%	20 or more years	100%

The percentage paid by the retirement system is applied to the 'contribution' plan selected by the Board.

Duty Disability Retirement If disability was a result of injuries sustained while in the line of duty, the member receives 100% of the maximum contribution for the member and dependents. This benefit is provided to members in the Non-hazardous and Hazardous plans alike.

Duty Death in Service If an active employee's death was a result of injuries sustained while in the line of duty, the member's spouse and children receive a fully subsidized health insurance benefit. This benefit is provided to members in the Non-hazardous and Hazardous plans alike.

Non-Duty Death in Service If the surviving spouses is in receipt of a pension allowance, he or she is eligible for continued health coverage. The percentage of the premium paid for by the retirement system is based on the member's years of hazardous service at the time of death.

Surviving Spouse of a Retiree A surviving spouse of a retiree, who is in receipt of a pension allowance, will receive a premium subsidy based on the member's years of hazardous service.

Hazardous employees who retired prior to August 1, 1998 System's contribution for spouse and dependents is based on total service.

Insurance: Participation began on or after 7/1/2003

Benefit Eligibility

Recipient of a retirement allowance with at least 120 months of service at retirement (180 months if participation began on or after 9/1/2008)

Non-Hazardous Subsidy

Monthly contribution of $10 for each year of earned non-hazardous service. The monthly contribution is increased by 1.5% each July 1. As of July 1, 2024, the Non-Hazardous monthly contribution was $14.63/year of service. Upon the retiree's death, the surviving spouse may continue coverage (if in receipt of a retirement allowance) but will be 100% responsible for the premiums.

Effective January 1, 2023, members will receive an additional dollar contribution of $5 for every year of non-hazardous service a member attains over 27 years. This additional dollar contribution does not increase by 1.5% annually and is only payable for non-Medicare retirees. Also, it is only payable when the applicable insurance fund is at least 90% funded on an actuarial value of asset basis as of the last actuarial valuation.

Hazardous Subsidy

Monthly contribution of $15 for each year of earned hazardous service. The monthly contribution is increased by 1.5% each July 1. As of July 1, 2024, the Hazardous monthly contribution was $21.94/year of service. Upon the retiree's death, the surviving spouse of a hazardous duty member will receive a monthly contribution of $10 ($14.63 as of July 1, 2024) for each year of hazardous service.

Effective January 1, 2023, members will receive an additional dollar contribution of $5 for every year of hazardous service a Tier 1 member attains over 20 years and a Tier 2 member attains 25 years. This additional dollar contribution does not increase by 1.5% annually and is only payable for non-Medicare retirees. Also, it is only payable when the applicable insurance fund is at least 90% funded on an actuarial value of asset basis as of the last actuarial valuation.

Duty Disability Retirement

If disability was a result of injuries sustained while in the line of duty or was duty-related, the member receives a benefit based on at least 20 years of service. This benefit is provided to members in the Non-Hazardous and Hazardous plans alike.

If the disability is deemed to be Total and Permanent, the insurance premium for the member, the member's spouse, and the member's dependent children shall also be paid in full by the System. For non-hazardous members to be eligible for this benefit, they must be working in a position that could be certified as a hazardous position.

Duty Death in Service

If an active employee's death was a result of injuries sustained while in the line of duty, the member's spouse and children receive a fully subsidized health insurance benefit. This benefit is provided to members in the Non-Hazardous and Hazardous plans alike.

Non-Duty Death in Service

If the surviving spouse is in receipt of a pension allowance, he or she is eligible for continued health coverage. The percentage of the premium paid for by the retirement system is based on the member's years of hazardous service at the time of death.

Monthly Health Plan Premiums – Effective January 1, 2025

Non-Medicare Plan Options					
Plan Option	Single	Parent Plus	Couple	Family	Family X-Ref
LivingWell PPO	$949.04	$1,320.40	$1,981.62	$2,185.78	$1,126.28
LivingWell CDHP	930.76	1,269.28	1,866.24	2,078.08	1,068.66
LivingWell Basic	901.04	1,234.80	1,863.04	2,069.88	1,057.40
LivingWell HDHP	835.42	1,144.86	1,727.36	1,919.14	980.38

Medicare Plan Options	
Medical Only Plan	$191.95
Essential Mirror Plan	202.69
Premium Mirror Plan	341.59
Essential Medical Advantage Plan	0.00
Premium Medical Advantage Plan	144.91

Contribution plan selected by the Board was the LivingWell PPO plan option for non-Medicare retirees.
Contribution plan selected by the Board was the Medical Only plan for the Medicare retirees.

Dollar Contribution Amount for Participation on or after 7/1/2003

Monthly contribution amounts per year of service as of July 1, 2024.

Non-Hazardous Service	Hazardous Service
$14.63	$21.94

Changes in Health Insurance Benefits since the Prior Valuation

None.

APPENDIX C

GLOSSARY

Glossary

Actuarial Accrued Liability (AAL): That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of Future Plan Benefits which is not provided for by future Normal Costs. It is equal to the Actuarial Present Value of Future Plan Benefits minus the actuarial present value of future Normal Costs.

Actuarial Assumptions: Assumptions as to future experience under the Fund. These include assumptions about the occurrence of future events affecting costs or liabilities, such as:

- mortality, withdrawal, disablement, and retirement;
- future increases in salary;
- future rates of investment earnings and future investment and administrative expenses;
- characteristics of members not specified in the data, such as marital status;
- characteristics of future members;
- future elections made by members; and
- other relevant items.

Actuarial Cost Method or ***Funding Method:*** A procedure for allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability. These items are used to determine the ADC.

Actuarial Gain or ***Actuarial Loss:*** A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., the fund's assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results that produce actuarial liabilities which are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.

Actuarially Equivalent: Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.

Actuarial Present Value (APV): The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. For purposes of this standard, each such amount or series of amounts is:

a. adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.)

b. multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination of employment, etc.) on which the payment is conditioned, and

c. discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Present Value of Future Plan Benefits: The Actuarial Present Value of those benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive, non-retired members either entitled to a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.

Actuarial Valuation: The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial valuation for a governmental retirement system typically also includes calculations that provide the financial information of the plan, such as the funded ratio, unfunded actuarial accrued liability and the ADC.

Actuarial Value of Assets or ***Valuation Assets:*** The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly actuaries use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the ADC.

Actuarially Determined: Values which have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.

Actuarially Determined Contribution (ADC): The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation. The ADC consists of the Employer Normal Cost and the Amortization Payment.

Amortization Method: A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.

Amortization Payment: The portion of the pension plan contribution or ADC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Closed Amortization Period: A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc. See Funding Period and Open Amortization Period.

Decrements: Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or termination.

Defined Benefit Plan: A retirement plan that is not a Defined Contribution Plan. Typically a defined benefit plan is one in which benefits are defined by a formula applied to the member's compensation and/or years of service.

Defined Contribution Plan: A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, and the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.

Employer Normal Cost: The portion of the Normal Cost to be paid by the employers. This is equal to the Normal Cost less expected member contributions.

Experience Study: A periodic review and analysis of the actual experience of the Fund which may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.

Funded Ratio: The ratio of the actuarial value of assets (AVA) to the actuarial accrued liability (AAL). Plans sometimes calculate a market funded ratio, using the market value of assets (MVA), rather than the AVA.

Funding Period or ***Amortization Period:*** The term "Funding Period" is used two ways. In the first sense, it is the period used in calculating the Amortization Payment as a component of the ADC. This funding period is specified in State statute. In the second sense, it is a calculated item: the number of years in the future that will theoretically be required to amortize (i.e., pay off or eliminate) the Unfunded Actuarial Accrued Liability, based on a statutory employer contribution rate, and assuming no future actuarial gains or losses.

GASB: Governmental Accounting Standards Board.

GASB 67 and ***GASB 68***: Governmental Accounting Standards Board Statements No. 67 and No. 68. These are the governmental accounting standards that set the accounting and reporting rules for public retirement systems and the employers that sponsor, participate in, or contribute to them. Statement No. 67 sets the accounting rules for the financial reporting of the retirement systems, while Statement No. 68 sets the rules for the employers that sponsor, participate in, or contribute to public retirement systems.

Normal Cost: That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method. Any payment in respect of an Unfunded

Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits which are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated. Under the entry age normal cost method, the Normal Cost is intended to be the level cost (when expressed as a percentage of pay) needed to fund the benefits of a member from hire until ultimate termination, death, disability or retirement.

Open Amortization Period: An open amortization period is one which is used to determine the Amortization Payment but may not decrease by exactly one year in the subsequent year's actuarial valuation. For instance, if the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year.

Unfunded Actuarial Accrued Liability: The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus.

Valuation Date or Actuarial Valuation Date: The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date.

APPENDIX D

KERS NON-HAZARDOUS EMPLOYER CONTRIBUTION BY AGENCY

Appendix D
Kentucky Employees Retirement System (Non-Hazardous) - Retirement and Insurance Combined
Employer Contribution by Agency

		Fixed Percentage of the Total Amortization Cost				Components of Required Contribution for FYE 2026		
Agency Name[1]	Agency Classification[1]	Accrued Liability based on June 30, 2019 Valuation[2]	Fixed Allocation of Amortization Cost	Amortization Cost for prior year (FYE2025)	Amortization Cost Remains Level until Actuarial Investigation[3]	Normal Cost (% of Pay)	Amortization Cost	Change in Amortization Cost from FY25 to FY26
(1)	(2)	(3)	(4) = (3) / \$18,813M	(5)	(6), per KRS 61.565(1)(d)1d	(7) = 8.44%[4] of pay for all employers	(8) = (4) x \$857M[4]	(9) = (8) - (5)
LEGISLATIVE BRANCH AGENCIES	LEGISLATIVE BRANCH	343,338,931	1.82505%	15,632,667	No	8.44%	15,632,667	-
JUDICIAL BRANCH AGENCIES	JUDICIAL BRANCH	471,819,378	2.50801%	21,482,637	No	8.44%	21,482,637	-
EXECUTIVE BRANCH AGENCIES	EXECUTIVE BRANCH	14,661,188,769	77.93303%	667,543,975	No	8.44%	667,543,975	-
LEX FAYETTE CO HLTH DEPT	Health Departments	87,677,599	0.46606%	4,766,461	Yes	8.44%	3,992,088	(774,373)
LAKE CUMBERLAND DISTRICT	Health Departments	73,620,021	0.39134%	4,002,276	Yes	8.44%	3,352,066	(650,210)
BARREN RVR DIST HLTH DEPT	Health Departments	68,379,065	0.36348%	3,717,357	Yes	8.44%	3,113,428	(603,929)
GREEN RVR DIST HLTH DEPT	Health Departments	81,739,718	0.43450%	4,443,692	Yes	8.44%	3,721,758	(721,934)
NORTHERN KY DIST HLTH DEP	Health Departments	54,194,473	0.28808%	2,946,205	Yes	8.44%	2,467,581	(478,624)
LINCOLN TRL DIST HLTH DEP	Health Departments	66,500,206	0.35349%	3,615,244	Yes	8.44%	3,027,858	(587,386)
KY RIVER DIST HEALTH DEPT	Health Departments	70,220,607	0.37327%	3,817,495	Yes	8.44%	3,197,285	(620,210)
MADISON CO HEALTH DEP	Health Departments	53,457,239	0.28416%	2,906,171	Yes	8.44%	2,434,004	(472,167)
CUMBERLAND VLY DIST HEALT	Health Departments	89,949,862	0.47814%	4,889,995	Yes	8.44%	4,095,561	(794,434)
WEDCO DIST HEALTH DEPT	Health Departments	28,173,710	0.14976%	1,531,594	Yes	8.44%	1,282,786	(248,808)
FRANKLIN CO HEALTH DEPT	Health Departments	22,299,718	0.11854%	1,212,256	Yes	8.44%	1,015,367	(196,889)
WHITLEY CO HEALTH DEPT	Health Departments	28,890,387	0.15357%	1,570,588	Yes	8.44%	1,315,421	(255,167)
PIKE CO HEALTH DEPT	Health Departments	24,182,977	0.12855%	1,314,681	Yes	8.44%	1,101,109	(213,572)
THREE RIVERS DIST HLTH	Health Departments	22,852,018	0.12147%	1,242,308	Yes	8.44%	1,040,465	(201,843)
KNOX CO HEALTH DEPT	Health Departments	28,079,768	0.14926%	1,526,499	Yes	8.44%	1,278,503	(247,996)
PURCHASE DIST HLTH DEPT	Health Departments	43,960,371	0.23368%	2,389,886	Yes	8.44%	2,001,612	(388,274)
CLARK CO HEALTH DEPT	Health Departments	16,463,623	0.08751%	894,998	Yes	8.44%	749,577	(145,421)
GATEWAY DIST HEALTH DEPT	Health Departments	29,474,251	0.15667%	1,602,304	Yes	8.44%	1,341,974	(260,330)
N CENTRAL DIST HLTH DEPT	Health Departments	21,562,812	0.11462%	1,172,222	Yes	8.44%	981,790	(190,432)
BREATHITT CO HEALTH DEPT	Health Departments	18,123,824	0.09634%	985,257	Yes	8.44%	825,211	(160,046)
PENNYRILE DIST HLTH DEPT	Health Departments	15,661,674	0.08325%	851,429	Yes	8.44%	713,087	(138,342)
MARSHALL CO HEALTH DEPT	Health Departments	15,263,463	0.08113%	829,800	Yes	8.44%	694,928	(134,872)
CHRISTIAN CO HEALTH DEPT	Health Departments	13,360,854	0.07102%	726,335	Yes	8.44%	608,330	(118,005)
MONTGOMERY CO HEALTH DEPT	Health Departments	10,699,698	0.05688%	581,692	Yes	8.44%	487,212	(94,480)
HOPKINS CO HEALTH DEPT	Health Departments	17,815,060	0.09470%	968,516	Yes	8.44%	811,163	(157,353)
JOHNSON CO HEALTH DEPT	Health Departments	15,484,079	0.08231%	841,758	Yes	8.44%	705,035	(136,723)
FLOYD CO HEALTH CENTER	Health Departments	12,298,013	0.06537%	668,519	Yes	8.44%	559,934	(108,585)
ASHLAND BOYD CO HEALTH DP	Health Departments	17,566,824	0.09338%	954,998	Yes	8.44%	799,857	(155,141)
LAUREL CO HEALTH DEPT	Health Departments	14,475,341	0.07695%	786,958	Yes	8.44%	659,124	(127,834)
BULLITT CO HEALTH DEPT	Health Departments	13,823,739	0.07348%	751,499	Yes	8.44%	629,401	(122,098)
BELL CO HEALTH DEPT	Health Departments	10,731,667	0.05705%	583,459	Yes	8.44%	488,668	(94,791)
GREENUP CO HLTH DEPT	Health Departments	11,509,071	0.06118%	625,677	Yes	8.44%	524,044	(101,633)
JESSAMINE CO HEALTH DEPT	Health Departments	8,409,539	0.04470%	457,222	Yes	8.44%	382,883	(74,339)
GRAVES CO HEALTH CENTER	Health Departments	6,110,503	0.03248%	332,232	Yes	8.44%	278,211	(54,021)
HARLAN CO HEALTH DEPT	Health Departments	7,218,470	0.03837%	392,439	Yes	8.44%	328,662	(63,777)
OLDHAM CO HEALTH DEPT	Health Departments	10,480,598	0.05571%	569,733	Yes	8.44%	477,190	(92,543)
ALLEN CO HEALTH DEPT	Health Departments	7,911,333	0.04205%	430,082	Yes	8.44%	360,184	(69,898)
BUFFALO TRACE HEALTH DEPT	Health Departments	10,788,599	0.05735%	586,475	Yes	8.44%	491,238	(95,237)
MUHLENBERG CO.HEALTH DEPT	Health Departments	7,886,100	0.04192%	428,730	Yes	8.44%	359,070	(69,660)
MERCER CO HEALTH DEPT	Health Departments	8,877,255	0.04719%	482,594	Yes	8.44%	404,211	(78,383)
LAWRENCE CO HEALTH DEPT	Health Departments	3,868,705	0.02056%	210,362	Yes	8.44%	176,109	(34,253)
WOODFORD CO HEALTH DEPT	Health Departments	5,453,322	0.02899%	296,461	Yes	8.44%	248,317	(48,144)
CALLOWAY CO HEALTH DEPT	Health Departments	4,137,638	0.02199%	224,919	Yes	8.44%	188,358	(36,561)
MAGOFFIN CO HEALTH DEPT	Health Departments	6,467,092	0.03438%	351,573	Yes	8.44%	294,486	(57,087)
MARTIN CO HEALTH DEPT	Health Departments	5,286,010	0.02810%	287,414	Yes	8.44%	240,694	(46,720)
BOYLE CO HEALTH DEPT	Health Departments	6,346,920	0.03374%	345,022	Yes	8.44%	289,004	(56,018)
BOURBON CO HEALTH CENTER	Health Departments	7,775,901	0.04133%	422,699	Yes	8.44%	354,017	(68,682)
ANDERSON CO HEALTH DEPT	Health Departments	5,076,042	0.02698%	275,976	Yes	8.44%	231,100	(44,876)
LEWIS CO HEALTH DEPT	Health Departments	3,061,131	0.01627%	166,376	Yes	8.44%	139,362	(27,014)
ESTILL CO HEALTH DEPT	Health Departments	5,579,547	0.02966%	303,324	Yes	8.44%	254,056	(49,268)
LINCOLN CO HEALTH DEPT	Health Departments	4,897,375	0.02603%	266,201	Yes	8.44%	222,963	(43,238)
BRECKINRIDGE CO HEALTH BD	Health Departments	7,704,261	0.04095%	418,851	Yes	8.44%	350,762	(68,089)
GRAYSON COUNTY HEALTH DEPT	Health Departments	4,598,067	0.02444%	249,980	Yes	8.44%	209,344	(40,636)
GARRARD COUNTY HEALTH DPT	Health Departments	3,926,271	0.02087%	213,481	Yes	8.44%	178,764	(34,717)
TODD CO HEALTH DEPT	Health Departments	4,687,868	0.02492%	254,867	Yes	8.44%	213,455	(41,412)
FLEMING CO HEALTH DEP	Health Departments	4,386,549	0.02332%	238,437	Yes	8.44%	199,750	(38,687)
MONROE CO HEALTH DEPT	Health Departments	3,137,459	0.01668%	170,535	Yes	8.44%	142,874	(27,661)
BRACKEN CO HEALTH DEPT	Health Departments	2,410,616	0.01281%	131,021	Yes	8.44%	109,725	(21,296)
POWELL CO HEALTH DEPT	Health Departments	4,200,545	0.02233%	228,351	Yes	8.44%	191,270	(37,081)
CARTER CO HEALTH DEPT	Health Departments	5,555,239	0.02953%	301,972	Yes	8.44%	252,942	(49,030)
KY HIGHER ED STUD LN CORP	Non-P1 State Assoc/Corp.	81,896,904	0.43533%	3,728,867	No	8.44%	3,728,867	-
CSG HEADQUARTERS	Non-P1 State Assoc/Corp.	19,274,916	0.10246%	877,632	No	8.44%	877,632	-
KET FOUNDATION	Non-P1 State Assoc/Corp.	15,066,238	0.08009%	686,020	No	8.44%	686,020	-
ASST OF COMMONWEALTH ATTY	Non-P1 State Assoc/Corp.	5,807,856	0.03087%	264,420	No	8.44%	264,420	-
HIGHSCHOOL ATHLETIC ASSOC	Non-P1 State Assoc/Corp.	1,413,847	0.00752%	64,413	No	8.44%	64,413	-
O A S I S	Non-P1 State Agencies	2,304,549	0.01225%	125,302	Yes	8.44%	104,929	(20,373)
KDVA	Non-P1 State Agencies	2,431,059	0.01292%	132,165	Yes	8.44%	110,668	(21,497)
B.R.A.S.S.	Non-P1 State Agencies	2,132,362	0.01133%	115,943	Yes	8.44%	97,048	(18,895)
BLUEGRASS RAPE CRISIS CTR	Non-P1 State Agencies	2,744,493	0.01459%	149,218	Yes	8.44%	124,972	(24,246)
SAFE HARBOR	Non-P1 State Agencies	1,312,696	0.00698%	71,334	Yes	8.44%	59,788	(11,546)
SANCTUARY INC	Non-P1 State Agencies	2,510,255	0.01334%	136,428	Yes	8.44%	114,265	(22,163)
LOTUS	Non-P1 State Agencies	1,074,054	0.00571%	58,440	Yes	8.44%	48,910	(9,530)
BETHANY HOUSE ABUSE SHELT	Non-P1 State Agencies	1,675,224	0.00890%	91,091	Yes	8.44%	76,234	(14,857)
SPRINGHAVEN INC	Non-P1 State Agencies	1,527,812	0.00812%	83,084	Yes	8.44%	69,553	(13,531)
KASAP	Non-P1 State Agencies	943,862	0.00502%	51,265	Yes	8.44%	42,999	(8,266)

Appendix D
Kentucky Employees Retirement System (Non-Hazardous) - Retirement and Insurance Combined
Employer Contribution by Agency

		Fixed Percentage of the Total Amortization Cost				Components of Required Contribution for FYE 2026		
Agency Name[1]	Agency Classification[1]	Accrued Liability based on June 30, 2019 Valuation[2]	Fixed Allocation of Amortization Cost	Amortization Cost for prior year (FYE2025)	Amortization Cost Remains Level until Actuarial Investigation[3]	Normal Cost (% of Pay)	Amortization Cost	Change in Amortization Cost from FY25 to FY26
(1)	(2)	(3)	(4) = (3) / $18,813M	(5)	(6), per KRS 61.565(1)(d)1d	(7) = 8.44%[4] of pay for all employers	(8) = (4) x $857M[4]	(9) = (8) - (5)
SILVERLEALF	Non-P1 State Agencies	2,017,711	0.01073%	109,704	Yes	8.44%	91,909	(17,795)
WOMEN AWARE	Non-P1 State Agencies	975,811	0.00519%	53,032	Yes	8.44%	44,456	(8,576)
D.O.V.E.S.	Non-P1 State Agencies	1,319,147	0.00701%	71,750	Yes	8.44%	60,045	(11,705)
NURSING HOME OMBUDSMAN	Non-P1 State Agencies	879,808	0.00468%	40,087	No	8.44%	40,087	-
HOPE HARBOR INC	Non-P1 State Agencies	824,202	0.00438%	44,818	Yes	8.44%	37,517	(7,301)
CHILD WATCH ADVOCACY CTR	Non-P1 State Agencies	718,149	0.00382%	38,994	Yes	8.44%	32,721	(6,273)
FRANKLIN CO COUNCIL AGING	Non-P1 State Agencies	2,147,140	0.01141%	97,734	No	8.44%	97,734	-
JUDI'S PLACE FOR KIDS, INC.	Non-P1 State Agencies	777,468	0.00413%	42,218	Yes	8.44%	35,376	(6,842)
CUMBERLAND V C A CENTER	Non-P1 State Agencies	821,917	0.00437%	44,714	Yes	8.44%	37,432	(7,282)
KY ASSOC OF REGIONAL PROG	Non-P1 State Agencies	1,817,343	0.00966%	98,786	Yes	8.44%	82,744	(16,042)
BARREN RIVER CHILD ADVOCA	Non-P1 State Agencies	406,450	0.00216%	22,045	Yes	8.44%	18,502	(3,543)
CHILD ADV CTR OF GRN RVR	Non-P1 State Agencies	572,517	0.00304%	31,091	Yes	8.44%	26,039	(5,052)
MUN ELEC POW ASSOC OF KY	Non-P1 State Agencies	1,745,743	0.00928%	79,489	No	8.44%	79,489	-
KY RIVER CHILD ADVOCACY	Non-P1 State Agencies	290,885	0.00155%	15,806	Yes	8.44%	13,277	(2,529)
PENNYRILE CHILD ADV CTR	Non-P1 State Agencies	460,162	0.00245%	25,060	Yes	8.44%	20,986	(4,074)
LAKE CUMB CHILD ADV CTR	Non-P1 State Agencies	545,959	0.00290%	29,636	Yes	8.44%	24,840	(4,796)
BUFFALO TR CHILD ADV INC	Non-P1 State Agencies	252,189	0.00134%	13,726	Yes	8.44%	11,478	(2,248)
NEW VISTA OF THE BLUEGRASS, INC.	Reg Mental Hlth Units	183,780,745	0.97691%	9,991,080	Yes	8.44%	8,367,830	(1,623,250)
CUMBERLAND RIVER MHMR	Reg Mental Hlth Units	98,252,502	0.52227%	5,341,394	Yes	8.44%	4,473,561	(867,833)
LIFESKILLS INC	Reg Mental Hlth Units	129,215,562	0.68686%	7,024,702	Yes	8.44%	5,883,375	(1,141,327)
COMMUNICARE INC	Reg Mental Hlth Units	66,572,026	0.35387%	3,619,091	Yes	8.44%	3,031,113	(587,978)
ADANTA/BEHAVIORAL HLTH SR	Reg Mental Hlth Units	89,012,578	0.47316%	4,839,042	Yes	8.44%	4,052,904	(786,138)
MOUNTAIN COMP CARE CENTER	Reg Mental Hlth Units	45,808,460	0.24350%	2,490,335	Yes	8.44%	2,085,726	(404,609)
GREEN RVR REG MHMR BD	Reg Mental Hlth Units	29,849,717	0.15867%	1,622,789	Yes	8.44%	1,359,105	(263,684)
NORTHERN KY REG MHMR BD	Reg Mental Hlth Units	57,271,755	0.30443%	3,113,517	Yes	8.44%	2,607,629	(505,888)
WESTERN KY REG MHMR ADV	Reg Mental Hlth Units	35,526,557	0.18885%	1,931,416	Yes	8.44%	1,617,616	(313,800)
COMPREHEND INC REG MHMR B	Reg Mental Hlth Units	29,064,447	0.15450%	1,580,051	Yes	8.44%	1,323,387	(256,664)
SEVEN CO SERVICES INC	Reg Mental Hlth Units	154,213,520	0.81974%	8,383,681	Yes	8.44%	7,021,573	(1,362,108)
KY RIVER COMM CARE INC	Reg Mental Hlth Units	26,687,511	0.14186%	1,450,798	Yes	8.44%	1,215,117	(235,681)
EASTERN KY UNIV	Universities	239,031,382	1.27060%	10,883,465	No	8.44%	10,883,465	-
KCTCS	Universities	156,197,124	0.83028%	7,111,855	No	8.44%	7,111,855	-
WESTERN KENTUCKY UNIV	Universities	180,798,950	0.96106%	8,232,066	No	8.44%	8,232,066	-
MURRAY STATE UNIV	Universities	132,693,175	0.70534%	6,041,668	No	8.44%	6,041,668	-
MOREHEAD STATE UNIVERSITY	Universities	120,999,617	0.64319%	5,509,315	No	8.44%	5,509,315	-
KENTUCKY STATE UNIVERSITY	Universities	44,391,511	0.23597%	2,021,227	No	8.44%	2,021,227	-
ALLEN COUNTY ATTORNEY	County Attorneys	1,658,981	0.00882%	75,549	No	8.44%	75,549	-
ANDERSON COUNTY ATTORNEY	County Attorneys	1,971,500	0.01048%	89,768	No	8.44%	89,768	-
BARREN COUNTY ATTORNEY	County Attorneys	2,875,029	0.01528%	130,883	No	8.44%	130,883	-
BATH COUNTY ATTORNEY	County Attorneys	2,729	0.00001%	86	No	8.44%	86	-
BELL COUNTY ATTORNEY	County Attorneys	1,931,690	0.01027%	87,969	No	8.44%	87,969	-
BOONE COUNTY ATTORNEY	County Attorneys	5,092,956	0.02707%	231,871	No	8.44%	231,871	-
BOYLE COUNTY ATTORNEY	County Attorneys	155,378	0.00083%	7,109	No	8.44%	7,109	-
BRECKINRIDGE CO ATTORNEY	County Attorneys	1,029,674	0.00547%	46,854	No	8.44%	46,854	-
BULLITT COUNTY ATTORNEY	County Attorneys	703,350	0.00374%	32,035	No	8.44%	32,035	-
CALLOWAY COUNTY ATTORNEY	County Attorneys	54,643	0.00029%	2,484	No	8.44%	2,484	-
CARROLL COUNTY ATTORNEY	County Attorneys	873,614	0.00464%	39,744	No	8.44%	39,744	-
CASEY COUNTY ATTORNEY	County Attorneys	947,428	0.00504%	43,171	No	8.44%	43,171	-
CHILD SUPPORT ENCORCEMENT	County Attorneys	255,979	0.00136%	11,649	No	8.44%	11,649	-
CHRISTIAN COUNTY ATTORNEY	County Attorneys	984,086	0.00523%	44,798	No	8.44%	44,798	-
CLARK COUNTY ATTORNEY	County Attorneys	1,322,750	0.00703%	60,216	No	8.44%	60,216	-
CRITTENDEN CO ATTORNEY	County Attorneys	365,437	0.00194%	16,617	No	8.44%	16,617	-
DAVIESS COUNTY ATTORNEY	County Attorneys	1,578,350	0.00839%	71,865	No	8.44%	71,865	-
EDMONSON COUNTY ATTORNEY	County Attorneys	474,886	0.00252%	21,585	No	8.44%	21,585	-
FAYETTE CO ATTORNEY OFF	County Attorneys	3,136,743	0.01667%	142,789	No	8.44%	142,789	-
FLOYD COUNTY ATTORNEY	County Attorneys	1,121,075	0.00596%	51,051	No	8.44%	51,051	-
FRANKLIN COUNTY ATTORNEY	County Attorneys	4,833,960	0.02570%	220,136	No	8.44%	220,136	-
GARRARD COUNTY ATTORNEY	County Attorneys	988,761	0.00526%	45,055	No	8.44%	45,055	-
GRANT COUNTY CHILD SUPPOR	County Attorneys	363,477	0.00193%	16,532	No	8.44%	16,532	-
GRAVES COUNTY ATTORNEY	County Attorneys	3,272,663	0.01740%	149,042	No	8.44%	149,042	-
HANCOCK COUNTY ATTORNEY	County Attorneys	386,098	0.00205%	17,560	No	8.44%	17,560	-
HARRISON COUNTY ATTORNEY	County Attorneys	114,873	0.00061%	5,225	No	8.44%	5,225	-
HICKMAN COUNTY ATTORNEY	County Attorneys	1,028,593	0.00547%	46,854	No	8.44%	46,854	-
HOPKINS COUNTY ATTORNEY	County Attorneys	1,751,470	0.00931%	79,746	No	8.44%	79,746	-
JACKSON COUNTY ATTORNEY	County Attorneys	700,551	0.00372%	31,864	No	8.44%	31,864	-
JEFFERSON CO ATTORNEY	County Attorneys	17,081,131	0.09080%	777,757	No	8.44%	777,757	-
JOHNSON COUNTY ATTORNEY	County Attorneys	230,506	0.00123%	10,536	No	8.44%	10,536	-
KENTON COUNTY ATTORNEY	County Attorneys	1,021,997	0.00543%	46,511	No	8.44%	46,511	-
KNOTT COUNTY ATTORNEY	County Attorneys	900,207	0.00479%	41,029	No	8.44%	41,029	-
KNOX COUNTY ATTORNEY	County Attorneys	5,454	0.00003%	257	No	8.44%	257	-
LARUE COUNTY ATTORNEY	County Attorneys	1,041,769	0.00554%	47,453	No	8.44%	47,453	-
LAUREL COUNTY ATTORNEY	County Attorneys	353,526	0.00188%	16,103	No	8.44%	16,103	-
LAWRENCE COUNTY ATTORNEY	County Attorneys	144	0.00000%	-	No	8.44%	-	-
LEE COUNTY ATTORNEY	County Attorneys	888,298	0.00472%	40,430	No	8.44%	40,430	-
LOGAN COUNTY ATTORNEY	County Attorneys	1,781,059	0.00947%	81,116	No	8.44%	81,116	-
MADISON COUNTY ATTORNEY	County Attorneys	6,471,517	0.03440%	294,657	No	8.44%	294,657	-
MAGOFFIN CO ATTORNEY	County Attorneys	195,563	0.00104%	8,908	No	8.44%	8,908	-
MCCRACKEN COUNTY ATTORNEY	County Attorneys	1,092,697	0.00581%	49,766	No	8.44%	49,766	-
MCCREARY COUNTY ATTORNEY	County Attorneys	1,920,823	0.01021%	87,455	No	8.44%	87,455	-
MEADE COUNTY ATTORNEY	County Attorneys	1,485,282	0.00790%	67,668	No	8.44%	67,668	-

Appendix D
Kentucky Employees Retirement System (Non-Hazardous) - Retirement and Insurance Combined
Employer Contribution by Agency

		Fixed Percentage of the Total Amortization Cost				Components of Required Contribution for FYE 2026		
Agency Name[1]	Agency Classification[1]	Accrued Liability based on June 30, 2019 Valuation[2]	Fixed Allocation of Amortization Cost	Amortization Cost for prior year (FYE2025)	Amortization Cost Remains Level until Actuarial Investigation[3]	Normal Cost (% of Pay)	Amortization Cost	Change in Amortization Cost from FY25 to FY26
(1)	(2)	(3)	(4) = (3) / $18,813M	(5)	(6), per KRS 61.565(1)(d)1d	(7) = 8.44%[4] of pay for all employers	(8) = (4) x $857M[4]	(9) = (8) - (5)
MENIFEE COUNTY ATTORNEY	County Attorneys	568,840	0.00302%	25,868	No	8.44%	25,868	-
MERCER COUNTY ATTORNEY	County Attorneys	507,084	0.00270%	23,127	No	8.44%	23,127	-
MONROE CO ATTORNEY	County Attorneys	617,699	0.00328%	28,095	No	8.44%	28,095	-
MONTGOMERY CO ATTORNEY	County Attorneys	1,684,951	0.00896%	76,748	No	8.44%	76,748	-
MORGAN COUNTY ATTORNEY	County Attorneys	1,815,404	0.00965%	82,658	No	8.44%	82,658	-
OLDHAM COUNTY ATTORNEY	County Attorneys	1,690,959	0.00899%	77,005	No	8.44%	77,005	-
OWEN COUNTY ATTORNEY	County Attorneys	490,212	0.00261%	22,356	No	8.44%	22,356	-
PENDLETON COUNTY ATTORNEY	County Attorneys	155,600	0.00083%	7,109	No	8.44%	7,109	-
POWELL COUNTY ATTORNEY	County Attorneys	26,895	0.00014%	1,199	No	8.44%	1,199	-
PULASKI COUNTY ATTORNEY	County Attorneys	1,602,159	0.00852%	72,979	No	8.44%	72,979	-
ROCKCASTLE CO ATTORNEY	County Attorneys	774,276	0.00412%	35,290	No	8.44%	35,290	-
ROWAN COUNTY ATTORNEY	County Attorneys	820,120	0.00436%	37,346	No	8.44%	37,346	-
SHELBY COUNTY ATTORNEY	County Attorneys	400,120	0.00213%	18,245	No	8.44%	18,245	-
SIMPSON COUNTY ATTORNEY	County Attorneys	521,989	0.00277%	23,727	No	8.44%	23,727	-
SPENCER COUNTY ATTORNEY	County Attorneys	1,200,709	0.00638%	54,649	No	8.44%	54,649	-
TRIGG COUNTY ATTORNEY	County Attorneys	933,350	0.00496%	42,485	No	8.44%	42,485	-
TRIMBLE COUNTY ATTORNEY	County Attorneys	749,934	0.00399%	34,177	No	8.44%	34,177	-
UNION COUNTY ATTORNEY	County Attorneys	293,278	0.00156%	13,362	No	8.44%	13,362	-
WAYNE COUNTY ATTORNEY	County Attorneys	668,657	0.00355%	30,408	No	8.44%	30,408	-
WEBSTER COUNTY ATTORNEY	County Attorneys	1,413,256	0.00751%	64,328	No	8.44%	64,328	-
WHITLEY COUNTY ATTORNEY	County Attorneys	2,013,956	0.01071%	91,738	No	8.44%	91,738	-
OHIO COUNTY ATTORNEY	County Attorneys	-	0.00000%	-	No	8.44%	-	-
GALLATIN COUNTY ATTORNEY	County Attorneys	-	0.00000%	-	No	8.44%	-	-
SCOTT COUNTY ATTORNEY	County Attorneys	-	0.00000%	-	No	8.44%	-	-
LETCHER COUNTY ATTORNEY	County Attorneys	-	0.00000%	-	No	8.44%	-	-
	Total	18,812,529,777	100.00000%	876,349,193	N/A	8.44%	856,561,041	(19,788,152)
Agencies that have ceased participation in the System:								
KENTUCKY BAR ASSOCIATION	Non-P1 State Agencies	9,726,855	N/A	N/A	N/A	N/A	N/A	N/A
KENTUCKY ASSOCIATION OF CHILDREN'S ADVO(	Non-P1 State Agencies	14,508	N/A	N/A	N/A	N/A	N/A	N/A
COMMONWEALTH CREDIT UNION	Non-P1 State Agencies	46,950,704	N/A	N/A	N/A	N/A	N/A	N/A
KENTUCKY EMPLOYERS MUTUAL INSURANCE	Non-P1 State Agencies	15,220,243	N/A	N/A	N/A	N/A	N/A	N/A
GATEWAY CHILD ADVOCACY	Non-P1 State Agencies	53,228	N/A	N/A	N/A	N/A	N/A	N/A
NORTHERN KY UNIVERSITY	Universities	216,716,312	N/A	N/A	N/A	N/A	N/A	N/A
KENTUCKY HOUSING CORP	Non-P1 State Assoc/Corp.	98,280,874	N/A	N/A	N/A	N/A	N/A	N/A
	Total	19,199,492,501	100.00000%	876,349,193	N/A	8.44%	856,561,041	(19,788,152)

Notes and Assumptions

[1] Agency names and classification information have been provided to GRS by KPPA. We have reviewed this data for consistency but did not audit the data.

[2] The accrued liability as of June 30, 2019 has been adjusted based on the approved employer appeals. The liability associated with these appeals was compiled by KPPA based on the liability amounts provided by GRS.

[3] The amortization cost for certain employers (as defined in KRS 61.565(1)(d)1d) will not be adjusted in terms of dollars paid by the individual employer, except for after the completion of an actuarial investigation as provided by KRS 61.670, so long as at least four years have passed since the last adjustment. Applicable employers are first eligible for an adjustment in their amortization cost in FYE 2026.

[4] The normal cost and amortization cost is based on the June 30, 2023 actuarial valuation, which set the contribution requirement for FYE 2025 and FYE 2026. The contribution requirement calculated in the June 30, 2024 actuarial valuation was for informational purposes only.

State Police Retirement System (SPRS)

Actuarial Valuation Report
as of June 30, 2024

GRS

P: 469.524.0000 | www.grsconsulting.com

November 8, 2024

Board of Trustees
Kentucky Retirement Systems
Perimeter Park West
1260 Louisville Road
Frankfort, KY 40601

Subject: Actuarial Valuation as of June 30, 2024

Dear Trustees of the Board:

This report describes the current actuarial condition of the State Police Retirement System (SPRS), provides the actuarially determined employer contribution rate, analyzes changes in SPRS's financial condition, and provides various summaries of the data. The results of this actuarial valuation, including the calculated employer contribution rates will be used by the Board and stakeholders for informational purposes only as the employer contribution rate for the fiscal years ending June 30, 2025 and June 30, 2026 were certified in the June 30, 2023 actuarial valuation, which was adopted by the Board and incorporated in the Commonwealth's budget for the biennium period.

Executive Summary of Valuation Results

The first page of the executive summary provides a table with a comparison of the valuation results from 2023 to 2024. Fund investments earned between 9% and 11% in Fiscal Year 2024, with returns varying by retirement and insurance funds which resulted in $37 million ($26 million pension and $11 million insurance) more in assets than expected at the beginning of the year.

The retirement fund liability was $11 million larger than expected, primarily attributable to salary increases for individual member being greater than expected. The insurance fund liability was within 0.1% of expected. The contribution rate decreased by 8.73% of pay to 59.37% of pay (retirement and insurance combined) because of the increase in covered payroll.

The following table provides the projected contributions for the next 30 years (retirement and insurance), as well as the unfunded actuarial accrued liability and funded ratio for the retirement fund (excluding insurance). These projections assume that all actuarial assumptions are realized and the full actuarially determined contributions are made each future year.

5605 North MacArthur Boulevard | Suite 870 | Irving, Texas 75038-2631

Table 1. Projected Contributions, Unfunded Liability, and Funded Ratio
($ in Millions)

	Year Ending June 30,				
	2024 Year 1	**2028** Year 5	**2033** Year 10	**2043** Year 20	**2053** Year 30
SPRS					
Employer Contribution Rate	68.10%	51.25%	49.90%	77.46%	20.69%
Unfunded Liability – Pension Only	$481	$375	$351	$262	$0
Funded Ratio – Pension Only	57%	67%	70%	79%	100%

The employer contribution is determined in accordance with Section 61.565 of Kentucky Statute. As specified by the Statute, the employer contribution is comprised of a normal cost contribution and an actuarial accrued liability contribution. The actuarial accrued liability contribution is calculated by amortizing the unfunded accrued liability as of June 30, 2019 over a closed 30-year amortization period (25 years remaining as of June 30, 2024). Gains and losses incurring in years after June 30, 2019 are amortized as separate closed 20-year amortization bases.

If the contributions made are equal to the Actuarially Determined Contribution (ADC), and if all actuarial assumptions are met, there will not be an unfunded accrued liability at the end of the 25-year period remaining from the original closed 30-year amortization base (i.e. as of June 30, 2049). Accordingly, the ADC under the funding policy can be considered a “Reasonable Actuarially Determined Contribution” as required by the Actuarial Standards of Practice.

FINANCING OBJECTIVES AND FUNDING POLICY

Separate reports are issued with regard to valuation results determined in accordance with Governmental Accounting Standards Board (GASB) Statements 67, 68, 74 and 75. Results of this report should not be used for any other purpose without consultation with the undersigned. Valuations are prepared annually as of June 30, the first day of the plan year for SPRS. This report was prepared at the request of the Board of Trustees of the Kentucky Retirement Systems (Board) and is intended for use by the Kentucky Public Pensions Authority (KPPA) staff and those designated or approved by the Board.

HB 1 was enacted in the 2024 legislative session and provided an additional $25 million to finance the unfunded actuarial accrued liability of the SPRS retirement fund in FY 2025 and FY 2026. The appropriation for FY 2025 has been reflected in the contribution requirement in this year’s valuation. The appropriation for FY 2026 will be reflected in the contribution requirement in next year’s valuation.

ASSUMPTIONS AND METHODS

The Board of Trustees, in consultation with the actuary, sets the actuarial assumptions and methods used in the actuarial valuation. Except where noted in this report, the assumptions used in this actuarial valuation are based on an experience study conducted with experience through June 30, 2022, adopted by the Board of Trustees on June 5, 2023.

The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can, and almost certainly will, differ as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rate, and funding periods. The actuarial calculations are intended to provide information for rational decision making.

BENEFIT PROVISIONS AND DATA

The benefit provisions reflected in these valuations are those which were in effect on June 30, 2024. There were no material benefit provision changes since the prior valuation. Member data for retired, active and inactive members was supplied as of June 30, 2024, by KPPA staff. The staff also supplied asset information as of June 30, 2024. We did not audit this data, but we did apply a number of tests to the data, and we concluded that it was reasonable and consistent with the prior year's data. GRS is not responsible for the accuracy or completeness of the information provided to us by KPPA.

CERTIFICATION

We certify that the information presented herein is accurate and fairly portrays the actuarial position of SPRS as of June 30, 2024.

All of our work conforms with generally accepted actuarial principles and practices, and is in conformity with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of Kentucky Code of Laws and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board.

To the best of our knowledge, this report is complete and accurate and is in accordance with generally recognized actuarial practices and methods. Mr. White and Ms. Shaw are Enrolled Actuaries. 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

Table of Contents

SECTION 1

EXECUTIVE SUMMARY

Summary of Principal Results

(Dollar amounts expressed in thousands)

	SPRS	
	June 30, 2024	June 30, 2023
Actuarially Determined Contribution:		
Retirement	57.91%	65.79%
Insurance	1.46%	2.31%
Total	59.37%	68.10%
Contribution Rate for Next Fiscal Year[1]	68.10%	68.10%
Assets:		
Retirement		
• Actuarial value (AVAR)	$631,186	$589,848
• Market value (MVAR)	$651,790	$591,514
• Ratio of actuarial to market value of assets	96.8%	99.7%
Insurance		
• Actuarial value (AVAI)	$263,369	$245,172
• Market value (MVAI)	$273,517	$248,109
• Ratio of actuarial to market value of assets	96.3%	98.8%
Funded Status:		
Retirement		
• Actuarial accrued liability	$1,112,310	$1,091,795
• Unfunded accrued liability on AVAR	$481,124	$501,947
• Funded ratio on AVAR	56.7%	54.0%
• Unfunded accrued liability on MVAR	$460,520	$500,281
• Funded ratio on MVAR	58.6%	54.2%
Insurance		
• Actuarial accrued liability	$251,178	$244,059
• Unfunded accrued liability on AVAI	($12,191)	($1,113)
• Funded ratio on AVAI	104.9%	100.5%
• Unfunded accrued liability on MVAI	($22,339)	($4,050)
• Funded ratio on MVAI	108.9%	101.7%
Membership:		
• Number of		
- Active Members	872	868
- Retirees and Beneficiaries	1,676	1,697
- Inactive Members	747	714
- Total	3,295	3,279
• Projected payroll of active members	$73,295	$65,913
• Average salary of active members	$84,054	$75,937

[1] Contribution rates calculated with the June 30, 2023 valuation are effective for fiscal years ending June 30, 2025 and June 30 2026.

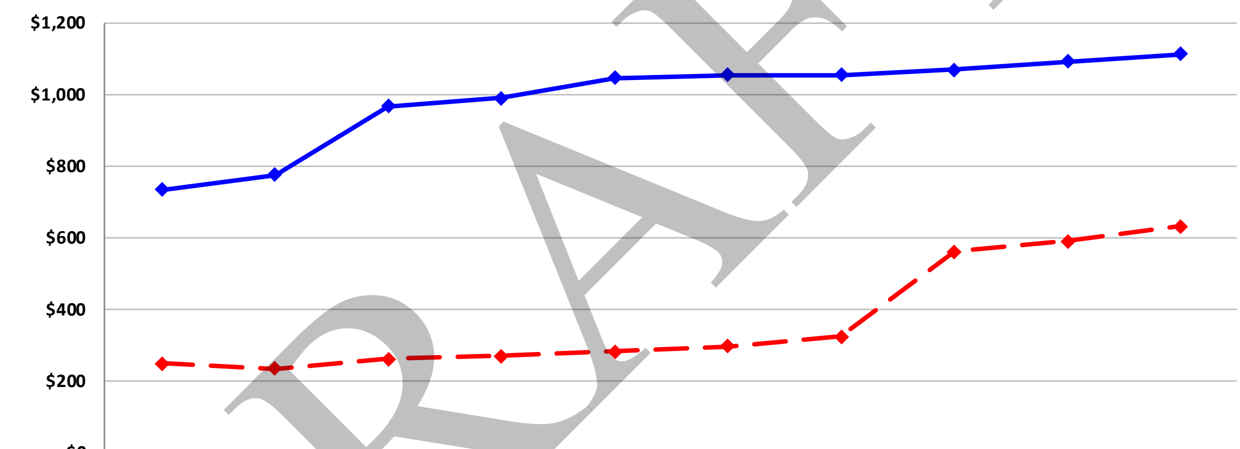
Executive Summary (Continued)

Retirement Fund

The unfunded actuarial accrued liability of the retirement fund decreased by $21 million since the prior year's valuation to $481 million. This decrease was approximately $4 million less than expected, primarily due to liability losses as a result of salary increases for individual members being greater than assumed. These liability losses were partially offset by favorable investment experience.

Below is a chart with the historical actuarial value of assets and actuarial accrued liability. The increase in the actuarial value of assets in FY 2022 was due to a one-time $215 million appropriation made by the Commonwealth.

History of Actuarial Assets vs. Actuarial Accrued Liability
(Dollars in Millions)



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
AAL	734	775	967	990	1,045	1,053	1,053	1,067	1,092	1,112
AVA	248	235	261	268	282	296	323	560	590	631

Insurance Fund

The funding surplus (assets in excess of the actuarial accrued liability) of the insurance fund increased by $11 million since the prior year's valuation to $12 million. This increase was approximately $4 million more than expected. This was primarily due to favorable investment experience.

On average, pre-Medicare premiums were approximately 5% lower than expected and Medicare premiums were approximately 38% higher than expected. In conjunction with the review of the healthcare per capita claims cost, the assumed increase in future healthcare costs, or trend assumption, is also reviewed on an annual basis. As a result of our review, the ultimate annual trend assumption was increased for pre-Medicare and Medicare Plans from 4.05% to 4.25%. Additionally, the trend assumption for the pre-Medicare Plans was increased during the select period. The updates to the trend assumption increased the liability for the insurance fund by approximately $8 million.

SECTION 2

DISCUSSION

Discussion

The State Police Retirement System (SPRS) is a defined benefit pension plan that provides coverage for uniformed state police officers. SPRS includes hazardous duty benefits only. This report presents the results of the June 30, 2024 actuarial funding valuation for both the Retirement Fund and Insurance Fund.

The primary purposes of the valuation report are to describe the current actuarial condition of SPRS, analyze changes in SPRS's financial condition, and provide various summaries of the data. The results of this actuarial valuation, including the calculated employer contribution rate, will be used by the Board and stakeholders for informational purposes only as the employer contribution rate for the fiscal years ending June 30, 2025 and June 30, 2026 was certified in the June 30, 2023 actuarial valuation, which was adopted by the Board and incorporated in the Commonwealth's budget for the biennium period.

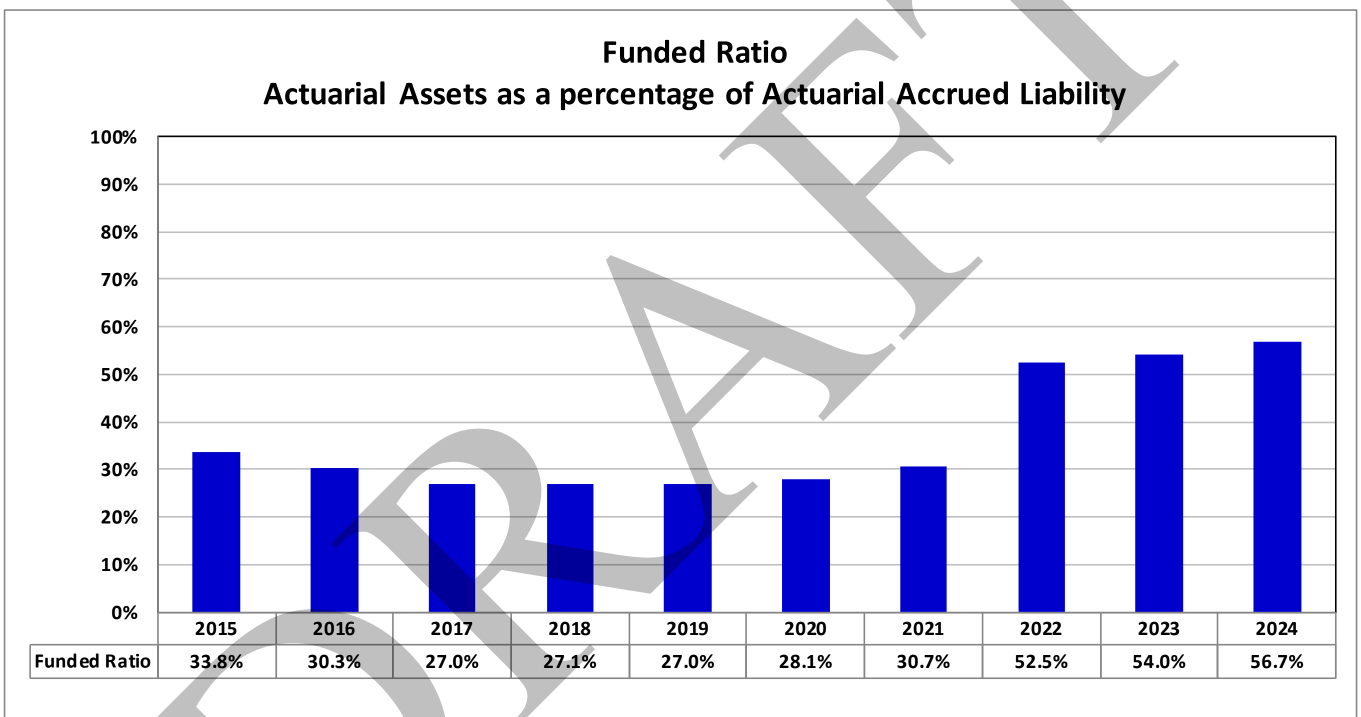
The actuarially determined contribution consist of two components: a normal cost rate and an amortization cost to finance the unfunded actuarial accrued liability. The normal cost rate is the theoretical amount which would be required to pay the members' benefits, based on the current plan provisions, if this amount had been contributed from each member's entry date and if the fund's experience exactly followed the actuarial assumptions. This is the amount that it should cost to provide the benefits for an average member. Since members contribute to the fund, only the excess of the normal cost rate over the member contribution rate is included in the employer contribution. The amortization cost is the amount necessary to amortize the unfunded actuarial accrued liability. The payroll growth rate and discount rate assumptions are selected by the Board. The funding period is specified in Section 61.565 of Kentucky Statute.

All of the actuarial and financial tables referenced by the other sections of this report appear in Section 3. Section 4 provides additional details related to the calculation of the amortization of the unfunded actuarial accrued liability. Section 5 provides member data and statistical information. Section 6 provides a discussion of various risk measures, which are intended to aid stakeholders in understanding the effects of future experience differing from the assumptions used in performing an actuarial valuation. Appendices A and B provide summaries of the principle actuarial assumptions and methods and plan provisions. Finally, Appendix C provides a glossary of technical terms that are used throughout this report.

Funding Progress

The following chart provides a ten-year history of the retirement fund's funded ratio (i.e. the Actuarial Value of Assets divided by the Actuarial Accrued Liability). The significant increase in the funded ratio from 2021 to 2022 was due to a $215 million appropriation made by the Commonwealth in fiscal year 2022.

Assuming the full actuarially determined contributions are paid in future years and absent material future unfavorable experience, the funded ratio is expected to continue improving. Also, the dollar amount of the unfunded actuarial accrued liability, or the difference between the actuarial accrued liability and the actuarial value of assets, is expected to continue a decreasing trend. Table 9, Schedule of Funding Progress, in the following section of the report provides additional detail regarding the funding progress of the retirement fund.



Asset Gains/ (Losses)

The actuarial value of assets ("AVA") is based on a smoothed market value of assets, using a systematic approach to phase-in the difference between the actual and expected investment return on the market value of assets (adjusted for receipts and disbursements during the year). This is appropriate because it dampens the short-term volatility inherent in investment markets. The return is computed net of investment expenses.

Retirement Fund

The actuarial value of assets for the retirement fund increased from $590 million to $631 million since the prior valuation. The rate of return on the market value of assets on a dollar-weighted basis for the prior fiscal year was 9.6% which is more than the 5.25% expected annual return. The return on an actuarial (smoothed) asset value was 6.4%, which resulted in a $7 million gain for the fiscal year. The market value of assets is $21 million more than the actuarial value of assets, which signifies that the retirement fund is in a position of net deferred investment gains to be realized in future years.

Table 6 in the following section of this report provides asset information that was included in the annual financial statements of the funds, as well as the estimated yield on a market value basis. Table 7 provides the development of the actuarial value of assets and the estimated yield on an actuarial value basis.

Actuarial Gains/ (Losses)

The annual actuarial valuation is a snapshot analysis of the benefit liabilities, assets and funded position of the funds as of the first day of the plan year. In any one fiscal year, the experience can be better or worse from that which is assumed or expected. The actuarial assumptions do not necessarily attempt to model what the experience will be for any one given fiscal year, but instead try to model the overall experience over many years. Therefore, as long as the actual experience of a retirement system is reasonably close to the current assumptions, the long-term funding requirements of the system will remain relatively consistent.

Below is a table that separately shows a reconciliation of the unfunded liability since the prior actuarial valuation for the retirement and health insurance funds, which include the effect of asset and liability gains and losses, changes in assumptions, and changes in plan provisions. See the discussion in the Executive Summary for additional information related to the liability experience and additional information in this section of the report related to the asset experience, plan changes, and assumption changes.

Experience Gain or (Loss)
(Dollar amounts expressed in thousands)

	Retirement	Insurance
A. Calculation of total actuarial gain or loss		
1. Unfunded actuarial accrued liability (UAAL), previous year	$ 501,947	$ (1,113)
2. Normal cost and administrative expenses	18,067	3,625
3. Less: contributions for the year	(67,701)	(10,558)
4. Interest accrual	25,049	(298)
5. Expected UAAL (Sum of Items 1 - 4)	$ 477,362	$ (8,344)
6. Actual UAAL as of June 30,2024	$ 481,124	$ (12,191)
7. Total gain (loss) for the year (Item 5 - Item 6)	$ (3,762)	$ 3,847
B. Source of gains and losses		
8. Asset gain (loss) for the year	$ 6,939	$ 3,866
9. Liability experience gain (loss) for the year	(10,701)	(19)
10. Plan Change	—	—
11. Assumption change	—	—
12. Total	$ (3,762)	$ 3,847

Note, the liability experience gain (loss) shown above includes the impact of any trend assumption changes made in conjunction with the review of the healthcare per capita claims cost, as described in the Executive Summary.

Actuarial Assumptions and Methods

In determining costs and liabilities, actuaries use assumptions about the future, such as rates of salary increase, probabilities of retirement, termination, death and disability, and an annual investment return assumption. The Board of Trustees, in consultation with the actuary, sets the actuarial assumptions and methods used in the actuarial valuation.

In conjunction with the review of the healthcare per capita claims cost, the assumed increase in future healthcare costs, or trend assumption, is reviewed on an annual basis. The trend assumption was increased as a result of our review. All other assumptions were adopted by the Board and are based on an experience study conducted based on experience through June 30, 2022. It is our opinion that the assumptions are internally consistent, reasonable, and reflect anticipated future experience of the System. Appendix A includes a summary of the actuarial assumptions and methods used in this valuation.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. This report does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

Benefit Provisions

Appendix B of this report includes a summary of the major benefit provisions for System. There have been no material plan provision changes since the prior valuation.

Annual Cost of Tier 3 Pay Credit for Unused Sick Leave (HB 259 Enacted in the 2022 Legislative Session)

Effective July 1, 2023, members earning benefits in the Tier 3 cash balance plan with five or more years of service credit will receive an additional employer pay credit equal to an amount by multiplying the member's unused sick leave in excess of 480 hours (i.e. 60 days) by the member's hourly base pay. Tier 3 members who retire from the State Police Retirement System will receive an additional employer pay credit equal to an amount by multiplying the member's hours of accumulated sick leave upon termination of employment by the member's hourly base pay.

Section KRS 7A.255 was also amended to require the Department of State Police and the Kentucky Public Pensions Authority to jointly report to the Public Pension Oversight Board on the costs and effectiveness of this benefit provided to the Tier 3 members.

The employer contribution rate documented in this report is intended to fund the expected cost of HB 259. The employer contribution rate, excluding the cost of HB 259, is documented below. Note, the information below is based upon the prior year's actuarial valuation as of June 30, 2023, which set the employer contribution rates for FY 2025 and FY 2026.

Development of Employer Contribution Rate without HB 259 Benefits

	Applicable for fiscal years ending	June 30, 2025 and June 30, 2026
	Based on the results of the actuarial valuation as of	June 30, 2023
1.	Projected payroll of active members	$ 65,913,000
2.	Projected payroll of active members - Tier 3 Only	$ 22,077,000
3.	Increase in Tier 3 normal cost rate due to HB 259	6.65%
4.	Increase in employer contribution due to HB 259 (Item 2 x Item 3)	$ 1,468,000
5.	Increase in employer contribution due to HB 259 as a percentage of payroll (Item 4 / Item 1)	2.23%
6.	**Employer contribution rate - with HB 259**	**68.10%**
7.	**Employer contribution rate - without HB 259** (Item 6 - Item 5)	**65.87%**

Note, the incremental difference in the Tier 3 normal cost rate of 6.65% of pay is expected to remain relatively unchanged in future years, however the amount of the dollar cost of this benefit enhancement as well as the impact on the employer contribution rate will increase over time as the number of members (and covered payroll) increase as new members enter the System and earn Tier 3 benefits.

SECTION 3

ACTUARIAL TABLES

Actuarial Tables

Development of Unfunded Actuarial Accrued Liability

(Dollar amounts expressed in thousands)

		June 30, 2024	
		Retirement (1)	Insurance (2)
1.	Projected payroll of active members	$ 73,295	$ 73,295
2.	Present value of future pay	$ 746,130	$ 675,913
3.	Normal cost rate		
	a. Total normal cost rate	27.33%	4.96%
	b. Less: member contribution rate	-8.00%	-0.60%
	c. Employer normal cost rate	19.33%	4.36%
4.	Actuarial accrued liability for active members		
	a. Present value of future benefits	$ 498,637	$ 95,060
	b. Less: present value of future normal costs	(195,262)	(23,780)
	c. Actuarial accrued liability	$ 303,375	$ 71,280
5.	Total actuarial accrued liability		
	a. Retirees and beneficiaries	$ 797,326	$ 176,612
	b. Inactive members	11,609	3,286
	c. Active members (Item 4c)	303,375	71,280
	d. Total	$ 1,112,310	$ 251,178
6.	Actuarial value of assets	$ 631,186	$ 263,369
7.	Unfunded actuarial accrued liability (UAAL) (Item 5d - Item 6)	$ 481,124	$ (12,191)
8.	Funded Ratio	56.7%	104.9%

Actuarial Present Value of Future Benefits

(Dollar amounts expressed in thousands)

		June 30, 2024	
		Retirement (1)	Insurance (2)
1.	Active members		
	a. Service retirement	$ 473,505	
	b. Deferred termination benefits and refunds	7,342	
	c. Survivor benefits	3,309	
	d. Disability benefits	14,481	
	e. Total	$ 498,637	$ 95,060
2.	Retired members		
	a. Service retirement	$ 718,451	
	b. Disability retirement	10,715	
	c. Beneficiaries	68,160	
	d. Total	$ 797,326	$ 176,612
3.	Inactive members		
	a. Vested terminations	$ 11,008	$ 3,286
	b. Nonvested terminations	601	N/A
	c. Total	$ 11,609	$ 3,286
4.	Total actuarial present value of future benefits	$ 1,307,572	$ 274,958

Development of Actuarially Determined Contribution Rate

		June 30, 2024	
		Retirement (1)	Insurance (2)
1.	Total normal cost rate		
	a. Service retirement	24.50%	
	b. Deferred termination benefits and refunds	1.26%	
	c. Survivor benefits	0.32%	
	d. Disability benefits	1.25%	
	e. Total	27.33%	4.96%
2.	Less: member contribution rate	-8.00%	-0.60%
3.	Total employer normal cost rate	19.33%	4.36%
4.	Administrative expenses	0.43%	0.10%
5.	Net employer normal cost rate	19.76%	4.46%
6.	UAAL amortization contribution rate	38.15%	-3.00%
7.	Total calculated employer contribution	57.91%	1.46%

Actuarial Balance Sheet

Retirement Benefits

(Dollar amounts expressed in thousands)

		June 30, 2024		June 30, 2023
		(1)		(2)
1. Assets - Present and Expected Future Resources				
a. Current assets (actuarial value)	$	631,186	$	589,848
b. Present value of future member contributions	$	59,690	$	53,971
c. Present value of future employer contributions				
i. Normal cost contributions	$	135,572	$	117,795
ii. Unfunded accrued liability contributions		481,124		501,947
iii. Total future employer contributions	$	616,696	$	619,742
d. Total assets	$	1,307,572	$	1,263,561
2. Liabilities - Present Value of Expected Future Benefit Payments				
a. Active members				
i. Present value of future normal costs	$	195,262	$	171,766
ii. Accrued liability		303,375		266,112
iii. Total present value of future benefits	$	498,637	$	437,878
b. Present value of benefits payable on account of current retired members and beneficiaries	$	797,326	$	814,982
c. Present value of benefits payable on account of current inactive members	$	11,609	$	10,701
d. Total liabilities	$	1,307,572	$	1,263,561

Actuarial Balance Sheet

Insurance Benefits

(Dollar amounts expressed in thousands)

		June 30, 2024 (1)	June 30, 2023 (2)
1.	Assets - Present and Expected Future Resources		
	a. Current assets (actuarial value)	$ 263,369	$ 245,172
	b. Present value of future member contributions	$ 5,776	$ 5,024
	c. Present value of future employer contributions		
	i. Normal cost contributions	$ 18,004	$ 18,773
	ii. Unfunded accrued liability contributions	(12,191)	(1,113)
	iii. Total future employer contributions	$ 5,813	$ 17,660
	d. Total assets	$ 274,958	$ 267,856
2.	Liabilities - Present Value of Expected Future Benefit Payments		
	a. Active members		
	i. Present value of future normal costs	$ 23,780	$ 23,797
	ii. Accrued liability	71,280	67,471
	iii. Total present value of future benefits	$ 95,060	$ 91,268
	b. Present value of benefits payable on account of current retired members and beneficiaries	$ 176,612	$ 172,154
	c. Present value of benefits payable on account of current inactive members	$ 3,286	$ 4,434
	d. Total liabilities	$ 274,958	$ 267,856

Reconciliation of Net Assets

(Dollar amounts expressed in thousands)[1]

	Year Ending	
	June 30, 2024	June 30, 2024
	(1)	(2)
	Retirement	**Insurance**
1. Value of assets at beginning of year	$ 591,514	$ 248,109
2. Revenue for the year		
a. Contributions		
i. Member contributions	$ 5,703	$ 396
ii. Employer contributions	61,998	10,158
iii. Other contributions (less 401h)	0	5
iv. Total	$ 67,701	$ 10,558
b. Income		
i. Interest, dividends, and other income	$ 21,959	$ 8,960
ii. Investment expenses	(3,285)	(2,434)
iii. Net	$ 18,673	$ 6,526
c. Net realized and unrealized gains (losses)	38,258	20,437
d. Total revenue	$ 124,633	$ 37,521
3. Expenditures for the year		
a. Disbursements		
i. Refunds	$ 221	$ 0
ii. Regular annuity benefits / Healthcare premiums	63,823	12,412
iii. Other benefit payments[2]	0	(369)
iv. Transfers to other systems	0	0
v. Total	$ 64,044	$ 12,043
b. Administrative expenses and depreciation	314	71
c. Total expenditures	$ 64,358	$ 12,113
4. Increase in net assets (Item 2. - Item 3.)	$ 60,275	$ 25,407
5. Value of assets at end of year (Item 1. + Item 4.)	$ 651,790	$ 273,517
6. Net external cash flow		
a. Dollar amount	$ 3,344	$ (1,555)
b. Percentage of market value	0.5%	-0.6%
7. Estimated annual return on net assets	9.6%	10.9%

[1] Amounts may not add due to rounding. Retirement assets exclude 401h assets. Insurance assets include 401h assets

[2] Insurance benefit payments have been offset by Medicare Drug Reimbursements, Insurance Premiums, and Humana Gain Share Payments

Development of Actuarial Value of Assets

Retirement Benefits
(Dollar amounts expressed in thousands)*

			June 30, 2024
	Year Ending		
1.	Actuarial value of assets at beginning of year	$	589,848
2.	Market value of assets at beginning of year	$	591,514
3.	Net new investments		
	a. Contributions	$	67,701
	b. Benefit payments		(64,044)
	c. Administrative expenses		(314)
	d. Subtotal	$	3,344
4.	Market value of assets at end of year	$	651,790
5.	Net earnings (Item 4. - Item 2. - Item 3.d.)	$	56,932
6.	Assumed investment return rate for fiscal year		5.25%
7.	Expected return for immediate recognition	$	31,142
8.	Excess return for phased recognition	$	25,789

9. Phased-in recognition, 20% of excess return on assets for prior years:

	Fiscal Year Ending June 30,		Excess Return		Recognized Amount
a.	2024	$	25,789	$	5,158
b.	2023		11,768		2,354
c.	2022		(40,859)		(8,172)
d.	2021		46,279		9,256
e.	2020		(8,720)		(1,744)
f.	Total			$	6,851

10.	Actuarial value of assets as of June 30, 2024 (Item 1. + Item 3.d. + Item 7.+ Item 9.f.)	$	631,186
11.	Ratio of actuarial value to market value		96.8%
12.	Estimated annual return on actuarial value of assets		6.4%

* Amounts may not add due to rounding

Development of Actuarial Value of Assets

Insurance Benefits

(Dollar amounts expressed in thousands)*

	Year Ending		June 30, 2024
1.	Actuarial value of assets at beginning of year	$	245,172
2.	Market value of assets at beginning of year	$	248,109
3.	Net new investments		
	a. Contributions	$	10,558
	b. Benefit payments		(12,043)
	c. Administrative expenses		(71)
	d. Subtotal	$	(1,555)
4.	Market value of assets at end of year	$	273,517
5.	Net earnings (Item 4. - Item 2. - Item 3.d.)	$	26,963
6.	Assumed investment return rate for fiscal year		6.50%
7.	Expected return for immediate recognition	$	16,077
8.	Excess return for phased recognition	$	10,886

9. Phased-in recognition, 20% of excess return on assets for prior years:

	Fiscal Year Ending June 30,		Excess Return		Recognized Amount
a.	2024	$	10,886	$	2,177
b.	2023		7,212		1,442
c.	2022		(26,141)		(5,228)
d.	2021		37,840		7,568
e.	2020		(11,419)		(2,284)
f.	Total			$	3,676

10.	Actuarial value of assets as of June 30, 2024 (Item 1. + Item 3.d. + Item 7.+ Item 9.f.)	$	263,369
11.	Ratio of actuarial value to market value		96.3%
12.	Estimated annual return on actuarial value of assets		8.1%

* Amounts may not add due to rounding

Schedule of Funding Progress
(Dollar amounts expressed in thousands)

June 30, (1)	Actuarial Value of Assets (AVA) (2)	Actuarial Accrued Liability (AAL) (3)	Unfunded Actuarial Accrued Liability (UAAL) (3) - (2) (4)	Funded Ratio (2)/(3) (5)	Annual Covered Payroll (6)	UAAL as % of Payroll (4)/(6) (7)
			Retirement			
2015	$ 248,388	$ 734,156	$ 485,768	33.8%	$ 45,765	1061.4%
2016	234,568	775,160	540,592	30.3%	45,551	1186.8%
2017	261,320	967,145	705,825	27.0%	48,598	1452.4%
2018	268,259	989,528	721,269	27.1%	48,808	1477.8%
2019	282,162	1,045,318	763,156	27.0%	47,752	1598.2%
2020	296,126	1,053,158	757,032	28.1%	46,145	1640.6%
2021	323,250	1,053,259	730,009	30.7%	45,338	1610.1%
2022	559,973	1,067,447	507,474	52.5%	47,885	1059.8%
2023	589,848	1,091,795	501,947	54.0%	65,913	761.5%
2024	631,186	1,112,310	481,124	56.7%	73,295	656.4%
			Insurance			
2015	$ 167,775	$ 254,839	$ 87,064	65.8%	$ 45,765	190.2%
2016	172,704	257,197	84,493	67.1%	45,551	185.5%
2017	180,464	276,641	96,177	65.2%	48,598	197.9%
2018	187,535	262,088	74,553	71.6%	48,808	152.7%
2019	197,395	276,809	79,414	71.3%	47,752	166.3%
2020	207,018	276,144	69,126	75.0%	46,145	149.8%
2021	223,251	272,406	49,155	82.0%	45,338	108.4%
2022	234,239	232,798	(1,441)	100.6%	47,885	-3.0%
2023	245,172	244,059	(1,113)	100.5%	65,913	-1.7%
2024	263,369	251,178	(12,191)	104.9%	73,295	-16.6%

Summary of Principal Assumptions and Methods

Below is a summary of the principal economic assumptions, cost method, and the method for financing the unfunded actuarial accrued liability:

Valuation date:	June 30, 2024
Actuarial cost method:	Entry Age Normal
Amortization method:	Level percentage of payroll (0% payroll growth assumed)
Amortization period for contribution rate:	30-year closed period at June 30, 2019 Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases
Asset valuation method:	5-Year Smoothed Market
Actuarial assumptions:	
Investment rate of return, retirement	5.25%
Investment rate of return, insurance	6.50%
Projected salary increases	3.55% to 16.05% (varies by service)
Inflation	2.50%
Post-retirement pension benefit adjustments	0.00%
Retiree Mortality	System-specific mortality table based on mortality experience from 2013 to 2022, projected with the ultimate rates from MP-2020 mortality improvement scale using a base year of 2023.

Solvency Test

(Dollar amounts expressed in thousands)

	Actuarial Accrued Liability				Portion of Aggregate Accrued Liabilities Covered by Assets		
June 30,	Active Member Contributions	Retired Members & Beneficiaries	Active Members (Employer Financed)	Valuation Assets	Active	Retired	ER Financed
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Retirement			
2015	$ 41,567	$ 605,855	$ 86,734	$ 248,388	100.0%	34.1%	0.0%
2016	41,871	636,499	96,791	234,568	100.0%	30.3%	0.0%
2017	44,798	773,982	148,365	261,320	100.0%	28.0%	0.0%
2018	43,835	800,788	144,905	268,259	100.0%	28.0%	0.0%
2019	41,948	848,397	154,973	282,162	100.0%	28.3%	0.0%
2020	40,831	863,580	148,747	296,126	100.0%	29.6%	0.0%
2021	42,035	860,801	150,423	323,250	100.0%	32.7%	0.0%
2022	42,027	870,200	155,220	559,973	100.0%	59.5%	0.0%
2023	47,394	825,683	218,718	589,848	100.0%	65.7%	0.0%
2024	52,957	808,935	250,418	631,186	100.0%	71.5%	0.0%
				Insurance			
2015	$ -	$ 170,447	$ 84,392	$ 167,775	100.0%	98.4%	0.0%
2016	-	177,094	80,103	172,704	100.0%	97.5%	0.0%
2017	-	186,390	90,251	180,464	100.0%	96.8%	0.0%
2018	-	183,151	78,937	187,535	100.0%	100.0%	5.6%
2019	-	199,959	76,850	197,395	100.0%	98.7%	0.0%
2020	-	207,638	68,506	207,018	100.0%	99.7%	0.0%
2021	-	206,707	65,699	223,251	100.0%	100.0%	25.2%
2022	-	172,664	60,134	234,239	100.0%	100.0%	100.0%
2023	-	176,588	67,471	245,172	100.0%	100.0%	100.0%
2024	-	179,898	71,280	263,369	100.0%	100.0%	100.0%

SECTION 4

AMORTIZATION BASES

Amortization of Unfunded Liability

Retirement

Valuation Year Base Established	Original Amortization Base	Remaining at June 30, 2024	Payments for FYE 2026	Funding Period at June 30, 2024
June 30, 2019	$ 763,156	$ 703,112	$ 49,853	25
June 30, 2020	3,748	4,590	420	16
June 30, 2021	(231,783)	(227,309)	(20,021)	17
June 30, 2022	16,308	15,353	1,305	18
June 30, 2023	170	(12,016)	(989)	19
June 30, 2024	(2,606)	(2,606)	(2,604)	20
Total		$ 481,124	$ 27,964	
Projected Payroll for FYE 2026			$ 73,295	
Amortization Payments as a Percentage of Payroll			38.15%	

Insurance

Valuation Year Base Established	Original Amortization Base	Remaining at June 30, 2024	Payments for FYE 2026	Funding Period at June 30, 2024
June 30, 2019	$ 79,414	$ 70,907	$ 5,633	25
June 30, 2020	(5,896)	(5,865)	(582)	16
June 30, 2021	(18,445)	(18,528)	(1,776)	17
June 30, 2022	(48,536)	(50,584)	(4,698)	18
June 30, 2023	4,090	(3,359)	(303)	19
June 30, 2024	(4,762)	(4,762)	(472)	20
Total		$ (12,191)	$ (2,198)	
Projected Payroll for FYE 2026			$ 73,295	
Amortization Payments as a Percentage of Payroll			-3.00%	

Note:
Budgeted contribution rates for FYE 2025 were known at the time of the June 30, 2024 Valuation. Amortization bases established at this valuation date were adjusted accordingly.

SECTION 5

MEMBERSHIP INFORMATION

Membership Tables

Summary of Membership Data
(Total dollar amounts expressed in thousands)

		June 30, 2024 (1)	June 30, 2023 (2)
1.	Active members		
	a. Males	844	841
	b. Females	28	27
	c. Total members	872	868
	d. Total annualized prior year salaries	$ 73,295	$ 65,913
	e. Average salary[2]	$ 84,054	$ 75,937
	f. Average age	37.4	36.9
	g. Average service	11.1	10.5
	h. Member contributions with interest	$ 52,957	$ 47,394
	i. Average contributions with interest[2]	$ 60,731	$ 54,601
2.	Vested inactive members[1]		
	a. Number	345	324
	b. Total annual deferred benefits	$ 1,226	$ 1,121
	c. Average annual deferred benefit[2]	$ 3,554	$ 3,460
	d. Average age at the valuation date	45.0	45.0
3.	Nonvested inactive members[1]		
	a. Number	402	390
	b. Total member contributions with interest	$ 599	$ 521
	c. Average contributions with interest[2]	$ 1,490	$ 1,336
4.	Service retirees		
	a. Number	1,368	1,385
	b. Total annual benefits	$ 54,168	$ 55,037
	c. Average annual benefit[2]	$ 39,596	$ 39,738
	d. Average age at the valuation date	65.0	64.4
5.	Disabled retirees		
	a. Number	51	54
	b. Total annual benefits	$ 834	$ 905
	c. Average annual benefit[2]	$ 16,353	$ 16,759
	d. Average age at the valuation date	58.5	58.3
6.	Beneficiaries		
	a. Number	257	258
	b. Total annual benefits	$ 7,620	$ 7,352
	c. Average annual benefit[2]	$ 29,650	$ 28,496
	d. Average age at the valuation date	69.2	68.1

[1] Vested inactive member section includes Tier 1 members eligible for a benefit equal to the actuarially equivalent of two times the member's contribution balance.

[2] Average dollar amounts shown are expressed to the dollar.

Summary of Historical Active Membership

	Active Members		Covered Payroll[1]		Average Annual Pay	
June 30,	Number	Percent Increase /(Decrease)	Amount in Thousands	Percent Increase /(Decrease)	Amount	Percent Increase /(Decrease)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2015	937		$ 45,765		$ 48,842	
2016	908	-3.1%	45,551	-0.5%	50,167	2.7%
2017	903	-0.6%	48,598	6.7%	53,819	7.3%
2018	886	-1.9%	48,808	0.4%	55,088	2.4%
2019	883	-0.3%	47,752	-2.2%	54,079	-1.8%
2020	798	-9.6%	46,145	-3.4%	57,826	6.9%
2021	775	-2.9%	45,338	-1.7%	58,501	1.2%
2022	844	8.9%	47,885	5.6%	56,736	-3.0%
2023	868	2.8%	65,913	37.6%	75,937	33.8%
2024	872	0.5%	73,295	11.2%	84,054	10.7%

[1] Covered payroll is the annualized, projected compensation for the following year and does not include payroll attributable to working retirees.

Distribution of Active Members by Age and by Years of Service

SPRS Members

Attained Age	Years of Credited Service												
	0 Count & Avg. Comp.	1 Count & Avg. Comp.	2 Count & Avg. Comp.	3 Count & Avg. Comp.	4 Count & Avg. Comp.	5-9 Count & Avg. Comp.	10-14 Count & Avg. Comp.	15-19 Count & Avg. Comp.	20-24 Count & Avg. Comp.	25-29 Count & Avg. Comp.	30-34 Count & Avg. Comp.	35 & Over Count & Avg. Comp.	Total Count & Avg. Comp.
Under 20	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
20-24	17	20	23	0	0	0	0	0	0	0	0	0	60
	$42,197	$62,359	$67,124	$0	$0	$0	$0	$0	$0	$0	$0	$0	$58,473
25-29	14	20	59	29	4	36	0	0	0	0	0	0	162
	$44,819	$63,218	$66,471	$68,803	$60,205	$73,284	$0	$0	$0	$0	$0	$0	$65,975
30-34	3	6	15	7	2	97	5	0	0	0	0	0	135
	$43,336	$63,896	$67,772	$68,024	$72,931	$87,439	$76,818	$0	$0	$0	$0	$0	$81,613
35-39	1	1	6	1	2	55	78	10	0	0	0	0	154
	$42,334	$61,304	$65,434	$71,392	$71,699	$83,113	$82,244	$92,024	$0	$0	$0	$0	$81,932
40-44	1	1	1	0	0	18	45	59	18	1	0	0	144
	$42,334	$63,535	$69,425	$0	$0	$82,108	$82,462	$96,969	$108,564	$122,917	$0	$0	$91,405
45-49	0	0	1	0	1	7	18	32	56	6	0	0	121
	$0	$0	$74,910	$0	$69,096	$92,425	$80,079	$97,018	$106,643	$123,142	$0	$0	$99,569
50-54	0	0	0	0	0	4	7	12	23	15	3	0	64
	$0	$0	$0	$0	$0	$119,509	$84,408	$97,262	$107,742	$114,418	$151,935	$0	$107,596
55-59	0	0	0	0	0	0	2	6	10	5	3	0	26
	$0	$0	$0	$0	$0	$0	$84,813	$88,792	$104,933	$122,443	$145,175	$0	$107,671
60-64	0	0	0	0	0	0	0	2	1	1	1	0	5
	$0	$0	$0	$0	$0	$0	$0	$87,841	$91,974	$109,180	$112,299	$0	$97,827
65 & Over	0	0	0	0	0	0	0	1	0	0	0	0	1
	$0	$0	$0	$0	$0	$0	$0	$78,499	$0	$0	$0	$0	$78,499
Total	36	48	105	37	9	217	155	122	108	28	7	0	872
	$43,319	$62,912	$66,849	$68,726	$66,575	$84,304	$82,012	$95,902	$106,903	$117,837	$143,376	$0	$84,054

Distribution of Annuitant Monthly Benefit by Status and Age
Retirees and Beneficiaries
(Dollar amounts expressed in thousands)

	Retirement		Disability		Survivors & Beneficiaries		Total	
Current Age	Number of Annuitants	Total Annual Benefit Amount	Number of Annuitants	Total Annual Benefit Amount	Number of Annuitants	Total Annual Benefit Amount	Number of Annuitants	Total Annual Benefit Amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Under 50	108	$ 3,844	11	$ 185	28	$ 404	147	$ 4,433
50 - 54	203	8,192	11	184	10	241	224	8,617
55 - 59	207	7,915	7	139	16	314	230	8,368
60 - 64	180	7,355	5	75	21	579	206	8,009
65 - 69	140	5,825	8	117	24	749	172	6,691
70 - 74	241	9,852	4	54	50	1,523	295	11,428
75 - 79	180	7,369	3	55	48	1,694	231	9,118
80 - 84	77	2,685	1	1	26	870	104	3,556
85 - 89	20	619	1	24	18	599	39	1,242
90 And Over	12	514	0	0	16	647	28	1,161
Total	**1,368**	**$ 54,168**	**51**	**$ 834**	**257**	**$ 7,620**	**1,676**	**$ 62,623**

*Amounts may not add due to rounding

Retired Lives Summary

Form of Payment	Male Lives			Female Lives			Total		
	Number		Monthly Benefit Amount	Number		Monthly Benefit Amount	Number		Monthly Benefit Amount
(1)	(2)		(3)	(4)		(5)	(6)		(7)
Basic	158	$	474,320	17	$	42,925	175	$	517,245
Joint & Survivor:									
100% to Beneficiary	182		530,096	2		9,093	184		539,189
66 2/3% to Beneficiary	92		338,527	2		7,542	94		346,068
50% to Beneficiary	77		273,055	2		7,515	79		280,570
Pop-up Option	663		2,332,061	6		11,230	669		2,343,292
Social Security Option:									
Age 62 Basic	24		57,726	0		0	24		57,726
Age 62 Survivorship	89		163,004	1		4,416	90		167,420
Partial Deferred (Old Plan)	0		0	0		0	0		0
Widows Age 60	0		0	0		0	0		0
5 Years Certain	0		0	0		0	0		0
10 Years Certain	8		26,125	0		0	8		26,125
10 Years Certain & Life	34		113,581	3		6,330	37		119,911
15 Years Certain & Life	17		46,210	2		9,579	19		55,789
20 Years Certain & Life	38		126,257	2		3,979	40		130,236
Total:	1,382	$	4,480,962	37	$	102,609	1,419	$	4,583,571

Beneficiary Lives Summary

	Male Lives			Female Lives			Total		
Form of Payment	Number		Monthly Benefit Amount	Number		Monthly Benefit Amount	Number		Monthly Benefit Amount
(1)	(2)		(3)	(4)		(5)	(6)		(7)
Basic	2	$	820	7	$	9,859	9	$	10,679
Joint & Survivor:									
100% to Beneficiary	6		10,268	60		170,993	66		181,261
66 2/3% to Beneficiary	2		1,272	21		53,447	23		54,718
50% to Beneficiary	2		2,249	21		33,566	23		35,816
Pop-up Option	1		365	72		219,257	73		219,622
Social Security Option:									
Age 62 Basic	0		0	3		3,103	3		3,103
Age 62 Survivorship	2		934	47		91,450	49		92,385
Partial Deferred (Old Plan)	0		0	0		0	0		0
Widows Age 60	0		0	0		0	0		0
5 Years Certain	0		0	1		7,845	1		7,845
10 Years Certain	1		2,038	2		14,018	3		16,056
10 Years Certain & Life	0		0	0		0	0		0
15 Years Certain & Life	0		0	1		721	1		721
20 Years Certain & Life	1		6,686	5		6,092	6		12,777
Total:	17	$	24,633	240	$	610,351	257	$	634,984

Schedule of Retirees Added to And Removed from Rolls

(Dollar amounts except average allowance expressed in thousands)

Year Ended	Added to Rolls: Number	Removed from Rolls: Number	Rolls End of the Year: Number	Rolls End of the Year: Annual Benefits	% Increase in Annual Benefit	Average Annual Benefit
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2015	62	15	1,460	$ 54,930		$ 37,624
2016	65	10	1,515	56,650	3.1%	37,393
2017	30	9	1,536	57,253	1.1%	37,274
2018	81	17	1,600	59,626	4.1%	37,266
2019	74	27	1,647	61,404	3.0%	37,282
2020	61	39	1,669	62,432	1.7%	37,407
2021	55	51	1,673	62,700	0.4%	37,477
2022	76	47	1,702	63,780	1.7%	37,473
2023	43	48	1,697	63,294	-0.8%	37,298
2024	41	62	1,676	62,623	-1.1%	37,364

SECTION 6

ASSESSMENT AND DISCLOSURE OF RISK

Risks Associated with Measuring the Accrued Liability And Actuarially Determined Contribution

(As Required by ASOP No. 51)

The determination of SPRS's accrued liability and actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. The risk measures illustrated in this section are intended to aid stakeholders in understanding the effects of future experience differing from the assumptions used in performing an actuarial valuation. These risk measures may also help with illustrating the potential volatility in the funded status and actuarially determined contributions that result from differences between actual experience and the expected experience based on the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience (economic and demographic) differing from the assumptions, changes in assumptions due to changing conditions, changes in contribution requirements due to modifications to the funding policy, and changes in the liability and cost due to changes in plan provisions or applicable law. The scope of this actuarial valuation does not include any analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the System's future financial condition include:

- Investment risk – actual investment returns may differ from expected returns;
- Longevity risk – members may live longer or shorter than expected and receive pensions for a time period different than assumed;
- Other demographic risks – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future contributions differing from expected;
- Salary and payroll risk – actual salaries and total payroll may differ from expected, resulting in actual future accrued liabilities or contributions differing from expected;
- Asset/Liability mismatch – changes in assets may be inconsistent with changes in liabilities, thereby altering the relative difference between the assets and liabilities which may alter the funded status and contribution requirements;
- Contribution risk – actual contributions may differ from expected future contributions (for example, actual contributions not being paid in accordance with the System's funding policy, withdrawal liability assessments or other anticipated payments to the plan are not being paid, or material changes occurring in the anticipated number of covered employees, covered payroll, or another relevant contribution base).

Effects of certain experience can generally be anticipated. For example, if investment returns since the most recent actuarial valuation are less (or more) than the assumed rate of return, then the funded status of the plan can be expected to decrease (or increase) more than anticipated.

The required contributions in this report were established in accordance with applicable Statutes and assumptions adopted by the Board. However, stakeholders should be aware that the scheduled contributions specified in State Code do not necessarily guarantee that the contribution requirements will not increase in a future year.

Employer Risk with Contribution Rates

Currently contributions are collected from the Commonwealth based on the total payroll of employees who are earning benefits in SPRS (i.e. covered payroll). The actuarially determined contribution rate is comprised of two components - the normal cost rate (to pay for the benefits accruing in the next year) and the unfunded amortization (to pay for the benefits accrued by members in previous years). The unfunded amortization is calculated by first determining the dollar amount necessary to pay for the unfunded liability based on SPRS's funding policy, and then by dividing that dollar amount by expected covered payroll to convert that contribution requirement to a percentage of payroll (i.e. a contribution rate).

As the contribution requirement, as a percentage of payroll, increases then there is increased incentive for participating employers to make deliberate business action to reduce their payroll reported to the System in order to reduce their pension cost.

Plan Specific Risk Measures

Risks faced by a pension plan evolve over time. A relatively new plan with virtually no assets and paying few benefits will experience lower investment risk than a mature plan with a significant amount of assets and large number of members receiving benefits. There are a few measures that can assist stakeholders in understanding and comparing the maturity of a plan to other systems, which include:

- Ratio of market value of assets to payroll: The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. If assets are approximately the same as covered payroll, an investment return that is 5% different than assumed would equal 5% of payroll. In another example, if the assets are approximately twice as large as covered payroll, an investment return that is 5% different than assumed would equal 10% of payroll. A ratio that increases over time generally indicates the potential of an increasing volatility in employer contribution rates as a percentage of payroll.
- Ratio of actuarial accrued liability to payroll: The ratio of actuarial accrued liability to payroll can be used as a measure to indicate the potential volatility of contributions due to volatility in the liability experience. For instance, if the actuarial accrued liability is 5 times the size of the covered payroll, then a change in the liability that is 2% different than expected would be a change in magnitude that is 10% of payroll. A ratio that increases over time generally indicates the potential of an increasing volatility in employer contribution rates as a percentage of payroll.
- Percentage of Expected Contributions Actually Received: This measure identifies the percentage difference between the contributions the fund expects to receive during the fiscal year to and actual contributions received by the fund during the fiscal year. A percentage that is less than 100% means that actual contributions the fund received were less than the expected contributions determined by a prior actuarial valuation. On the other hand, a percentage that is greater than 100% means that actual contributions the fund received were more than the expected contributions.

- Ratio of active to retired members: A relatively mature open plan is likely to have close to the same number of actives to retirees resulting in a ratio that is around 1.0. On the other hand, a super-mature plan, or a plan that is closed to new entrants will have more retirees than active members resulting in a ratio below 1.0. As this ratio declines, a larger portion of the total actuarial accrued liability in the System is attributable to retirees. This metric also typically moves in tandem with the liability to payroll metric, which provides an indication of potential contribution volatility.

The following tables provide a summary of these measures for SPRS for the current year and the prior four years so stakeholders can identify how these measures are trending. While ASOP No. 51 requires this disclosure with respect to only the retirement fund, we have included this information for the insurance fund for completeness.

SPRS

	Retirement Fund					Insurance Fund				
	June 30,					June 30,				
	2024	2023	2022	2021	2020	2024	2023	2022	2021	2020
Ratio of the market value of assets to total payroll	8.89	8.97	11.52	7.86	6.37	3.73	3.76	4.83	5.45	4.36
Ratio of actuarial accrued liability to payroll	15.18	16.56	22.29	23.23	22.82	3.43	3.70	4.86	6.01	5.98
Ratio of net cash flow to market value of assets	0.5%	-0.2%	47.9%	0.2%	0.5%	-0.6%	-1.9%	-2.2%	-1.9%	-0.5%
Percentage of Expected Contribution Actually Received	110% [1]	142%	107%	104%	103%	109% [1]	137%	107%	102%	101%
Ratio of actives to retirees and beneficiaries	0.52	0.51	0.50	0.46	0.48					

[1] Expected contribution for FYE2024 based on the actuarially determined contribution rate of 99.43% from the June 30, 2021 valuation and expected compensation based on census data from the June 30, 2023 valuation.

Low-Default-Risk Obligation Measure

Introduction

In December 2021, the Actuarial Standards Board (ASB) adopted a revision to Actuarial Standard of Practice (ASOP) No. 4, Measuring Pension Obligations and Determining Pension Plan Costs or Contributions. The revised ASOP No. 4 requires the calculation and disclosure of a liability referred to by the ASOP as the "Low-Default-Risk Obligation Measure" (LDROM). The rationale that the ASB cited for the calculation and disclosure of the LDROM was included in the Transmittal Memorandum of ASOP No. 4 and is presented below (emphasis added):

> "The ASB believes that the calculation and disclosure of this measure provides **appropriate, useful information for the intended user regarding the funded status of a pension plan.** The calculation and disclosure of this additional measure is **not intended to suggest that this is the "right" liability measure** for a pension plan. However, the ASB does believe that **this additional disclosure provides a more complete assessment of a plan's funded status and provides additional information regarding the security of benefits that members have earned as of the measurement date."**

Comparing the Accrued Liabilities and the LDROM

One of the fundamental financial objectives of the State Police Retirement System (SPRS) is to finance each member's retirement benefits over the period from the member's date of hire until the member's projected date of retirement (entry age actuarial cost method) as a level percentage of payroll. To fulfill this objective, the discount rate that is used to value the accrued liabilities of SPRS is set equal to the **expected return** on each fund's diversified portfolio of assets (referred to sometimes as the investment return assumption). For the retirement fund, the investment return assumption is 5.25%.

The LDROM is meant to approximately represent the lump sum cost to a plan to purchase low-default-risk fixed income securities whose resulting cash flows essentially replicate in timing and amount the benefits earned (or the costs accrued) as of the measurement date. The LDROM is very dependent upon market interest rates at the time of the LDROM measurement and can vary greatly from year to year. The lower the market interest rates, the higher the LDROM, and vice versa. The LDROM results presented in this report are based on the entry age actuarial cost method and discount rates based upon the intermediate rate from the FTSE Pension Discount Curve and Liability Index published by the Society of Actuaries. This rate is 5.32% as of June 30, 2024. *Note, since the investment return assumption for the retirement fund is currently less than the 5.32% rate, the LDROM measurement is shown as equal to the valuation liabilities.* This measure may not be appropriate for assessing the need for or amount of future contributions. This measure may not be appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligation.

In normal economic conditions, the difference between the two measures (Valuation and LDROM) is one illustration of the savings the sponsor anticipates by taking on risk in a diversified portfolio. However, the LDROM is not a particularly useful measure for SPRS as of June 30, 2024 because of the market rate used as a reference on this date to comply with this disclosure requirement.

Retirement Fund

Valuation Accrued Liabilities	LDROM
$1,112,310,302	$1,112,310,302

Appendix A

Actuarial Assumptions and Methods

Summary of Actuarial Methods and Assumptions

The following presents a summary of the actuarial assumptions and methods used in the valuation of the State Police Retirement System.

In general, the assumptions and methods used in the valuation are based on the actuarial experience study as of June 30, 2022 and adopted by the Board in June 2023.

Investment return rate:

Assumed annual rate of 5.25% net of investment expenses for the retirement fund

Assumed annual rate of 6.50% net of investment expenses for the insurance fund

Price Inflation:

Assumed annual rate of 2.50%

Payroll Growth Assumption (used for amortization of unfunded accrued liabilities):

Assumed annual rate of 0.00%

Rates of Annual Salary Increase:

Assumed rates of annual salary increases are shown below.

Service Years	Annual Rates of Salary Increases		
	Merit & Seniority	Price Inflation & Productivity	Total Increase
0	12.50%	3.55%	16.05%
1	5.00%	3.55%	8.55%
2	4.00%	3.55%	7.55%
3	2.00%	3.55%	5.55%
4	2.00%	3.55%	5.55%
5	2.00%	3.55%	5.55%
6	2.00%	3.55%	5.55%
7	1.00%	3.55%	4.55%
8	1.00%	3.55%	4.55%
9	0.00%	3.55%	3.55%
10 & Over	0.00%	3.55%	3.55%

Retirement rates:

Assumed annual rates of retirement are shown below. Rates are only applicable for members who are eligible for a service retirement.

Service	Members participating Before 9/1/2008[1]	Members participating on or after 9/1/2008[2]	Members participating after 1/1/2014[2]
20	22.0%		
21	22.0%		
22	22.0%		
23	28.0%		
24	28.0%		
25	28.0%	17.6%	16.0%
26	28.0%	17.6%	16.0%
27	28.0%	17.6%	16.0%
28	44.0%	22.4%	16.0%
29	44.0%	22.4%	16.0%
30	44.0%	22.4%	100.0%
31	58.0%	22.4%	
32	58.0%	22.4%	
33	58.0%	35.2%	
34	58.0%	35.2%	
35	58.0%	35.2%	
36	58.0%	46.4%	
37	58.0%	46.4%	
38	58.0%	46.4%	
39	58.0%	46.4%	
40+	58.0%	46.4%	

[1] The annual rate of service retirement is 100% at age 55.

[2] The annual rate of service retirement is 100% at age 60.

For members hired after 7/1/2003 and prior to 9/1/2008, the rates shown above are multiplied by 80% if the member is under the age of 55 to reflect the different retiree health insurance benefit.

Disability rates:

An abbreviated table with assumed rates of disability is show below.

Age	Annual Rates of Disability	
	Male	Female
20	0.05%	0.05%
30	0.09%	0.09%
40	0.20%	0.20%
50	0.56%	0.56%
60	1.46%	1.46%

Withdrawal rates (for causes other than disability and retirement):

Assumed annual rates of withdrawal are shown below and include pre-retirement mortality rates as described on the next page.

Service	Annual Rates of Withdrawal
1	15.00%
2	5.30%
3	4.14%
4	3.47%
5	2.98%
6	2.61%
7	2.30%
8	2.05%
9	1.83%
10	1.63%
11	1.45%
12	1.29%
13	1.14%
14	1.01%
15	0.88%
16	0.77%
17	0.66%
18	0.56%
19	0.46%
20	0.37%
21 & Over	0.00%

Mortality Assumption:

Pre-retirement mortality: PUB-2010 Public Safety Mortality, projected with the ultimate rates from the MP-2020 mortality improvement scale using a base year of 2010.

Post-retirement mortality (non-disabled): System-specific mortality table based on mortality experience from 2013-2022, projected with the ultimate rates from the MP-2020 mortality improvement scale using a base year of 2023.

The following table provides the life expectancy for a non-disabled retiree in future years based on the assumption with full generational projection:

Life Expectancy for an Age 65 Retiree in Years					
Gender	**Year of Retirement**				
	2025	**2030**	**2035**	**2040**	**2045**
Male	19.8	20.2	20.6	21.0	21.3
Female	22.4	22.7	23.1	23.4	23.7

Post-retirement mortality (disabled): PUB-2010 Disabled Mortality table, with rates multiplied by 150% for both male and female rates, projected with the ultimate rates from the MP-2020 mortality improvement scale using a base year of 2010.

Marital status:

100% of employees are assumed to be married, with the female spouse 3 years younger than the male spouse.

Line of Duty Disability

70% of disabilities are assumed to occur in the line of duty (10% of which are assumed to be "total and permanent")

Line of Duty Death

25% of deaths are assumed to occur in the line of duty

Dependent Children:

For members who receive a duty-related death or disability benefit, the member is assumed to be survived by two dependent children, each age 6 with payments for 15 years.

Form of Payment:

Members are assumed to elect a life-only annuity at retirement.

Actuarial Cost Method:

Entry Age Normal, Level Percentage of Pay. The Entry Age Normal actuarial cost method allocates the System's actuarial present value of future benefits to various periods based upon service. The portion of the present value of future benefits allocated to years of service prior to the valuation date is the actuarial accrued liability, and the portion allocated to years following the valuation date is the present value of future normal costs. The normal cost is determined for each active member as the level percent of pay necessary to fully fund the expected benefits to be earned over the career of each individual active member. The normal cost is partially funded with active member contributions with the remainder funded by employer contributions.

Health Care Age Related Morbidity/Claims Utilization:

To model the impact of aging on the underlying health care costs for Medicare retirees, the valuation relied on the Society of Actuaries' 2013 Study "Health Care Costs – From Birth to Death". Table 4 (Development of Plan Specific Medicare Age Curve) was used to model the impact of aging for ages 65 and over.

Health Care Cost Trend Rates:

Year	Non-Medicare Plans[1]	Medicare Plans[1]	Dollar Contribution[2]
2026	7.10%	8.00%	1.50%
2027	7.00%	8.00%	1.50%
2028	6.80%	8.00%	1.50%
2029	6.60%	7.50%	1.50%
2030	6.40%	7.00%	1.50%
2031	6.20%	6.50%	1.50%
2032	6.00%	6.00%	1.50%
2033	5.80%	5.50%	1.50%
2034	5.60%	5.00%	1.50%
2035	5.40%	4.50%	1.50%
2036	5.20%	4.25%	1.50%
2037	5.00%	4.25%	1.50%
2038	4.75%	4.25%	1.50%
2039	4.50%	4.25%	1.50%
2040 & Beyond	4.25%	4.25%	1.50%

[1]All increases are assumed to occur on January 1. The 2025 premiums were known at the time of the valuation and were incorporated into the liability measurement
[2]Applies to members participating on or after July 1, 2003. All increases are assumed to occur on July 1.

Health care trend assumptions are based on the model issued by the Society of Actuaries "Getzen model of Long-Run Medical Cost Trends for the SOA; Thomas E. Getzen, iHEA and Temple University 2014 © Society of Actuaries.

The underlying assumptions used to develop the health care trend rates include:

- A short run period-this is a period for which anticipated health care trend rates are manually set based on local information as well as plan-specific and carrier information.
- Long term real GDP growth – 1.75%
- Long term rate of inflation – 2.30%
- Long term nominal GDP growth – 4.25%
- Year that excess rate converges to 0 – 2036

Health care trend rates are thus the manually set rates for the short run period and rates which decline to an ultimate trend rate which equals the assumed nominal long-term GDP growth rate.

Health Care Participation Assumptions:

- Active members are assumed to elect health coverage at retirement at the following participation rates.

Service at Retirement	Members participating before 7/1/2003*	Members participating after 7/1/2003
Under 10	100%	100%
10-14	100%	100%
15-19	100%	100%
Over 20	100%	100%

* 100% of members with a duty disability or a duty death (in service) benefit are assumed to elect coverage at retirement.

- Future retirees are assumed to have a similar distribution by plan type as the current retirees.

Medicare Plan	Participation Percentage	Non-Medicare Plan	Participation Percentage
Medical Only[1]	5%	LivingWell Basic	4%
Essential Plan	7%	LivingWell CDHP	35%
Premium Plan	88%	LivingWell PPO	61%

[1] Includes Mirror Plans

- 100% of deferred vested members participating are assumed to elect health coverage at retirement.

- Deferred vested members are assumed to begin health coverage at age 50 for members participating before January 1, 2014 and at age 60 for members participating on or after January 1, 2014.

- 85% of future retirees, with hazardous service, are assumed to elect spouse health care coverage. 100% of spouses with health care coverage are assumed to continue coverage after the member's death.

Other Assumptions

1. Valuation payroll (used for determining the amortization contribution rate): Current fiscal year payroll.

2. Individual salaries used to project benefits: For salary amounts prior to the valuation date, the salary from the last fiscal year is projected backward with the valuation salary scale assumption. For future salaries, the salary from the last fiscal year is projected forward with one year's salary scale.

3. Pay increase timing: Beginning of (fiscal) year. This is equivalent to assuming that reported salaries represent amounts paid to members during the year ending on the valuation date.

4. Current active members that terminated employment (for reasons other than retirement, disability, or death) are assumed to commence their retirement benefits at first unreduced retirement eligibility. Members are assumed to elect a refund of member contributions if the value of their account balance exceeds the present value of the deferred benefit. Members participating in the Cash Balance plan are assumed to elect to receive a lump sum of their cash balance account if their account balance exceeds the present value of the deferred benefit and the member is not eligible for insurance benefits at termination.

5. The beneficiaries of current active members that die while active are assumed to commence their survivor benefits at the member's first unreduced retirement eligibility. Beneficiaries are assumed to elect a refund of member contributions if the value of the member's account balance exceeds the present value of the survivor benefit. Beneficiaries of active members that die while in the line of duty are assumed to commence their survivor benefits immediately at the death of the member.

6. There will be no recoveries once disabled.

7. Cash Balance Provisions: The cash balance interest crediting rate while a member is an active employee is assumed to equal 5.90%. The interest crediting rate after a member terminates employment is 4%.

8. Cash Balance Credit for Unused Sick Leave (annual and at retirement): It is assumed Tier 3 members will receive an additional 7.5% of pay employer pay credit each year due to the conversion of unused sick leave after the member attains five years of service. It is also assumed the Tier 3 members will have fund 480 hours of unused sick leave to convert to pay credit at the time of their retirement. It is assumed that the General Assembly will fund this benefit in all future years.

9. Decrement timing: Decrements of all types are assumed to occur mid-year. Decrement rates are used as described in this report, without adjustment for multiple decrement table effects.

10. Service: All members are assumed to accrue 1 year of benefit and eligibility service each year.

11. Eligibility testing: Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.

12. Incidence of Contributions: Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.

13. Current Inactive Population (Retirement Fund): All non-vested members are assumed to take an immediate refund of member contributions. Vested members are assumed to elect an immediate refund of member contributions at the valuation date if the value of their account balance exceeds the present value of their deferred benefit. Members hired prior to September 1, 2008 are assumed to retire at age 55 and members hired on or after September 1, 2008 are assumed to retire at age 60.

14. The additional $5 per year of service insurance dollar subsidy effective January 1, 2023 is assumed to be paid in all applicable years.

Participant Data

Participant data was supplied in electronic text files. There were separate files for (i) active and inactive members, and (ii) members and beneficiaries receiving benefits.

The data for active and terminated members included date of birth, gender, date of participation, benefit tier indicator, service with the current system, total vesting service, salary, employee contribution account balances, and employer pay credits for members participating in the cash balance plan. For retired members and beneficiaries, the data included date of birth, gender, spouse's date of birth (where applicable), amount of monthly benefit, date of retirement, and form of payment code.

Assumptions were made to correct for missing, bad, or inconsistent data. These had no material impact on the results presented.

Changes in assumptions since the prior valuation:

In conjunction with the review of healthcare per capita claims cost, the assumed increase in future healthcare costs, or trend assumption, is reviewed on an annual basis. The trend assumption was increased as a result of our review.

Development of Baseline Claims Cost

For non-Medicare retirees, the initial per capita costs were based on the plan premiums effective January 1, 2025, and are used for both current and future retirees. An inherent assumption in this methodology is that the projected future retirees will have a similar distribution by plan type as the current retirees. The spouse/dependent premium of $1,104.08 for non-Medicare retirees is based on a blending of Family and Couple premiums for the current retirees that have over 4 years of hazardous service. The fully-insured premiums paid to the Kentucky Employees' Health Plan (KEHP) are blended rates based on the combined experience of active and retired members. Because the average cost of providing health care benefits to retirees under age 65 is higher than the average cost of providing health care benefits to active employees, there is an implicit rate subsidy for the non-Medicare eligible retirees. Actuarial Standard of Practice No. 6 (ASOP No. 6) requires aging subsidies (or implicit rate subsidies) to be recognized. However, the health insurance trusts are only used to reimburse KEHP for the employer's portion of the blended premiums. Said another way, the trusts are not used to fund the difference between the underlying retiree claims and the blended KEHP premiums. As a result, the retiree health care liabilities developed in this report for the non-Medicare retirees are based solely on the premiums charged by KEHP, without any age-adjustment. GASB Statements No. 74 and No. 75 prohibit such a deviation from ASOP No. 6. The liabilities developed in this report are solely for the purpose of funding the benefits paid by the health insurance funds and are not appropriate for financial statement disclosures required by GASB. GRS provides separate GASB reports which include the liabilities associated with the implicit rate subsidy.

2025 Monthly Costs for Those Not Eligible for Medicare		
Age	Member	Spouse/Dependents
<65	$939.54	$1,104.08

For Medicare retirees, the initial per capita costs were estimated based on the plan premiums effective January 1, 2025, and are used for both current and future retirees. An inherent assumption in this methodology is that the projected future retirees will have a similar distribution by plan type as the current retirees. Age graded and sex distinct premiums are utilized for retirees over the age of 65. These costs are appropriate for the unique age and sex distribution currently existing. Over the future years covered by this valuation, the age and sex distribution will most likely change. Therefore, our process "distributes" the average premium over all age/sex combinations and assigns a unique premium for each combination. The age/sex specific costs more accurately reflect the health care utilization and cost at that age.

2025 Monthly Costs for Those Eligible for Medicare		
Age	Male	Female
65	$ 121.05	$ 114.17
75	141.62	138.19
85	149.75	151.51

Appendix B of the report provides a full schedule of premiums.

The percentage of the insurance premium paid by SPRS is calculated based on the Medical Only premium amounts. The majority of SPRS Medicare retirees are covered under the Premium Medicare Advantage plan. Because the premiums for the Medical Only plan are higher than the Premium Medical Advantage plan, retirees with less than 20 years of service pay a smaller contribution toward their insurance coverage. To model the impact of the employer contribution being based on the Medical Only Plan rather than the plan selected by the retiree, the employer share for retirees qualifying for percentage-based subsidies was blended to reflect retiree plan selection.

The above assumption implicitly implies that the Medical Only plan premiums will increase at a rate of 4.80% as of January 1, 2025, decreasing over 6 years to an ultimate trend rate of 4.25%, and that the remaining Medicare plan premiums will increase at the Medicare trend assumption used in the actuarial valuation.

Blake Orth is a Member of the American Academy of Actuaries (MAAA) and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Blake Orth

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Blake Orth, FSA, EA, MAAA

APPENDIX B

BENEFIT PROVISIONS

Summary of Benefit Provisions for State Police Retirement System (SPRS)

SPRS Employees

Retirement: Tier 1, Participation before 9/1/2008

Normal Retirement Eligibility	Age 55 with at least 1 month of service credit; or Any age with at least 20 years of service
Benefit Amount	If a member has at least 60 months of service, the monthly benefit is 2.50% times final average compensation times years of service. If a member has less than 60 months of service, the monthly benefit is the actuarial equivalent of two times the member's contributions with interest. Final average compensation is based on the member's highest 3 years of compensation.
Early Retirement Eligibility	Age 50 with at least 15 years of service
Early Retirement Reduction	Normal Retirement benefit reduced 6.5% per year for the first five years and 4.5% per year for the next five years for each year the member's retirement eligibility precedes the member's normal retirement date.

SPRS Employees (continued)

Retirement: Tier 2, Participation on or after 9/1/2008 but before 1/1/2014

Normal Retirement Eligibility	Age 60 with at least 5 years of service; or Any age with at least 25 years of service
Benefit Amount	The monthly benefit is equal to the applicable benefit multiplier times final average compensation times years of service.

Years of Service	Benefit Multiplier
10 or less	1.30%
10-20	1.50%
20-25	2.25%
Greater than 25	2.50%

Final compensation is based on the member's highest 3 years of compensation.

Early Retirement Eligibility	Age 50 with at least 15 years of service
Early Retirement Reduction	Normal Retirement benefit reduced 6.5% per year for the first five years and 4.5% per year for the next five years for each year the member's retirement date precedes the member's normal retirement eligibility.

Retirement: Tier 3, Participation on or after 1/1/2014

Normal Retirement Eligibility: Age 60 with at least 5 years of service; or
Any age with at least 25 years of service

Benefit Amount: Each year that the member is active, a 7.50% employer pay credit and the employee's 8.00% contribution will be credited to each member's hypothetical cash balance account. The hypothetical account will earn interest at a minimum rate of 4%, annually. If the System's geometric average net investment return for the previous five years exceeds 4%, then the hypothetical account will be credited with an additional amount of interest in that year equal to 75% of the amount of the return which exceeds 4%. All interest credits will be applied to the hypothetical account balance on June 30 based on the account balance as of June 30 of the previous year.

Each June 30 (beginning June 30, 2023), members with at least five years of service credit will receive an employer pay credit based on their unused sick leave in excess of 480 hours. Members will also receive an employer pay credit based on their balance of unused sick leave upon termination of employment.

At retirement, the member's hypothetical account balance may be converted into an annuity based on an actuarial factor.

Early Retirement Eligibility: N/A

SPRS Employees (continued)

Deferred Vested Benefit: Tier 1, Participation before 9/1/2008

Eligibility	At least 1 month of service credit
Benefit Amount	Normal retirement benefit deferred to normal retirement age, or a reduced retirement benefit at an early retirement age

Deferred Vested Benefit: Tier 2, Participation on or after 9/1/2008 but before 1/1/2014

Eligibility	5 years of service
Benefit Amount	Normal retirement benefit deferred to normal retirement age, or a reduced retirement benefit at an early retirement age

Deferred Vested Benefit Tier 3, Participation on or after 1/1/2014

Eligibility	5 years of service
Benefit Amount	At termination of employment, members may choose to leave their account balance with the System and retire once they are eligible. The hypothetical account balance will earn 4% annual interest after termination. Members may also choose to withdrawal their entire accumulated balance. If a member does not have 5 years of service at termination, the member is eligible to receive a partial refund of their account balance. This refund includes the member's contributions with interest.

Disability Retirement: Participation before 8/1/2004

Eligibility	60 months of service (requirement is waived if line of duty disability)
Disability Benefit	Disability benefits are calculated in the same manner as the normal retirement benefit with years of service and final compensation being determined as of the date of disability, except that if the member has less than 20 years of service at disability, service credit shall be added to the person's total service beginning with the last date of paid employment and continuing to the member's 55th birthday, with total service not exceeding 20 years. Total service credit added shall not be greater than the member's actual service at disability.

SPRS Employees (continued)

Disability Retirement: Participation on or after 8/1/2004 but before 1/1/2014

Eligibility	60 months of service (requirement is waived if line of duty disability)
Disability Benefit	The higher of 25% of the member's final monthly rate of pay or the member's normal retirement benefit (without reduction for early retirement) with years and final compensation being determined as of the date of disability.

Disability Retirement: Participation on or after 1/1/2014

Eligibility	60 months of service (requirement is waived if line of duty disability)
Disability Benefit	The higher of 25% of the member's final monthly rate of pay or the member's retirement benefit calculated at the member's normal retirement date.

Line of Duty Disability Benefit

Disability Benefit	If the disability is a direct result of an act in the line of duty, the benefit shall not be less than 25% of the member's final monthly final rate of pay. If the disability is deemed to be Total and Permanent, then this benefit shall not be less than 75% of the member's monthly average pay.
Child Benefit	Additionally, each eligible dependent child will receive 10% of the member's monthly average pay up to a maximum of 40%. Member and dependent payment shall not exceed 100% of member's monthly average pay.

Pre-Retirement Death Benefit

Eligibility	Eligible for early or normal retirement; or Under age 55 with at least 60 months of service and actively working at the time of death; or At least 144 months of service, if no longer actively working
Spouse Benefit	The member's retirement benefit calculated in the same manner as if the member had retired on the day of the member's death and elected a 100% joint and survivor benefit. The benefit is actuarially reduced if the member dies prior to their normal retirement age.

SPRS Employees (continued)

Pre-Retirement Death Benefit (Death in the Line of Duty)

Eligibility	One month of service credit
Spouse Benefit	A $10,000 lump sum payment plus a monthly payment of 75% of the deceased member's final monthly average pay. Each dependent child will receive 10% of the final monthly average pay (not to exceed a total child benefit of 25% while the spouse is alive). A spouse may also elect the non-line of duty death benefit.
Non-Spouse Benefit	If the beneficiary is only one person who is a dependent receiving at least 50% of his or her support from the member, the beneficiary may elect a lump sum payment of $10,000.
Child Benefit	In the event there is no surviving spouse, the benefit is 50% of final monthly average pay for one child, 65% of final average pay for two children, or 75% of final average pay for three or more eligible children.

Post-Retirement Death Benefit

Eligibility	48 months of service, and in receipt of retirement benefits
Death Benefit	A $5,000 lump sum payment

Member Contributions

Tier 1, Participation before 9/1/2008	8% of creditable compensation. Members who do not receive a retirement benefit are entitled to a full refund of contributions with interest. The annual interest rate is set by the Board, not less than 2.0%.
Tier 2, Participation on or after 9/1/2008 but before 1/1/2014	8% of creditable compensation plus 1% of creditable compensation, which is deposited into the 401(h) account and is not refundable. Members who do not receive a retirement benefit are entitled to a refund of non-401(h) contributions with interest. The annual interest rate is 2.5%.
Tier 3, Participation after 1/1/2014	8% of creditable compensation plus 1% of creditable compensation, which is deposited into the 401(h) account and is not refundable. Members who do not receive a retirement benefit are entitled to a refund of non-401(h) contributions with interest.

Changes in Retirement Benefits since the Prior Valuation

There have been no changes in benefits since the prior valuation.

Summary of Main Retiree Insurance Benefit Provisions

Insurance: Participation began before 7/1/2003

Benefit Eligibility Recipient of a retirement allowance

Benefit Amount

Non-Hazardous Service	Percentage of Member Premium Paid by Retirement System	Hazardous Service	Percentage of Member & Dependent Premium Paid by Retirement System
Less than 4 years	0%	Less than 4 years	0%
4 – 9 years	25%	4 – 9 years	25%
10 – 14 years	50%	10 – 14 years	50%
15 – 19 years	75%	15 – 19 years	75%
20 or more years	100%	20 or more years	100%

The percentage paid by the retirement system is applied to the 'contribution' plan selected by the Board.

Duty Disability Retirement If disability was a result of injuries sustained while in the line of duty, the member receives 100% of the maximum contribution for the member and dependents.

Duty Death in Service If an active employee's death was a result of injuries sustained while in the line of duty, the member's spouse and children receive a fully subsidized health insurance benefit.

Non-Duty Death in Service If the surviving spouses is in receipt of a pension allowance, he or she is eligible for continued health coverage. The percentage of the premium paid for by the retirement system is based on the member's years of hazardous service at the time of death.

Surviving Spouse of a Retiree A surviving spouse of a retiree, who is in receipt of a pension allowance, will receive a premium subsidy based on the member's years of hazardous service.

Hazardous employees who retired prior to August 1, 1998 System's contribution for spouse and dependents is based on total service.

Insurance: Participation began on or after 7/1/2003

Benefit Eligibility

Recipient of a retirement allowance with at least 120 months of service at retirement (180 months if participation began on or after 9/1/2008)

Non-Hazardous Subsidy

Monthly contribution of $10 for each year of earned non-hazardous service. The monthly contribution is increased by 1.5% each July 1. As of July 1, 2024, the Non-Hazardous monthly contribution was $14.63/year of service. Upon the retiree's death, the surviving spouse may continue coverage (if in receipt of a retirement allowance) but will be 100% responsible for the premiums.

Effective January 1, 2023, members will receive an insurance dollar contribution of $5 for every year of non-hazardous service a member attains over 27 years. This additional dollar contribution does not increase by 1.5% annually and is only payable for non-Medicare retirees. Also, it is only payable when the applicable insurance fund is at least 90% funded on an actuarial value of asset basis as of the last actuarial valuation.

Hazardous Subsidy

Monthly contribution of $15 for each year of earned hazardous service. The monthly contribution is increased by 1.5% each July 1. As of July 1, 2024, the hazardous monthly contribution was $21.94/year of service. Upon the retiree's death, the surviving spouse of a hazardous duty member will receive a monthly contribution of $10 ($14.63 as of July 1, 2024) for each year of hazardous service.

Effective January 1, 2023, members will receive an insurance dollar contribution of $5 for every year of hazardous service a Tier 1 member attains over 20 years and a Tier 2 member attains over 25 years. This additional dollar contribution does not increase by 1.5% annually and is only payable for non-Medicare retirees. Also, it is only payable when the applicable insurance fund is at least 90% funded on an actuarial value of asset basis as of the last actuarial valuation.

Duty Disability Retirement

If disability was a result of injuries sustained while in the line of duty or was duty-related, the member receives a benefit based on at least 20 years of service. This benefit is provided to members in the Non-Hazardous and Hazardous plans alike.

If the disability is deemed to be Total and Permanent, the insurance premium for the member, the member's spouse, and the member's dependent children shall also be paid in full by the System. For non-hazardous members to be eligible for this benefit, they must be working in a position that could be certified as a hazardous position.

Duty Death in Service

If an active employee's death was a result of injuries sustained while in the line of duty, the member's spouse and children receive a fully subsidized health insurance benefit.

Non-Duty Death in Service

If the surviving spouse is in receipt of a pension allowance, he or she is eligible for continued health coverage. The percentage of the premium paid for by the retirement system is based on the member's years of hazardous service at the time of death.

Monthly Health Plan Premiums – Effective January 1, 2025

Non-Medicare Plan Options					
Plan Option	Single	Parent Plus	Couple	Family	Family X-Ref
LivingWell PPO	$949.04	$1,320.40	$1,981.62	$2,185.78	$1,126.28
LivingWell CDHP	930.76	1,269.28	1,866.24	2,078.08	1,068.66
LivingWell Basic	901.04	1,234.80	1,863.04	2,069.88	1,057.40
LivingWell HDHP	835.42	1,144.86	1,727.36	1,919.14	980.38

Medicare Plan Options	
Medical Only Plan	$191.95
Essential Mirror Plan	202.69
Premium Mirror Plan	341.59
Essential Medical Advantage Plan	0.00
Premium Medical Advantage Plan	144.91

Contribution plan selected by the Board was the LivingWell PPO plan option for non-Medicare retirees. Contribution plan selected by the Board was the Medical Only plan for the Medicare retirees.

Dollar Contribution Amount for Participation on or after 7/1/2003

Monthly contribution amounts per year of service as of July 1, 2024.

Non-Hazardous Service	Hazardous Service
$14.63	$21.94

Note: Non-Hazardous benefits are applicable to SPRS members with prior service in a Non-Hazardous System.

Changes in Health Insurance Benefits since the Prior Valuation

None.

APPENDIX C

GLOSSARY

Glossary

Actuarial Accrued Liability (AAL): That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of Future Plan Benefits which is not provided for by future Normal Costs. It is equal to the Actuarial Present Value of Future Plan Benefits minus the actuarial present value of future Normal Costs.

Actuarial Assumptions: Assumptions as to future experience under the Fund. These include assumptions about the occurrence of future events affecting costs or liabilities, such as:

- mortality, withdrawal, disablement, and retirement;
- future increases in salary;
- future rates of investment earnings and future investment and administrative expenses;
- characteristics of members not specified in the data, such as marital status;
- characteristics of future members;
- future elections made by members; and
- other relevant items.

Actuarial Cost Method or ***Funding Method:*** A procedure for allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability. These items are used to determine the ADC.

Actuarial Gain or ***Actuarial Loss:*** A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., the fund's assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results that produce actuarial liabilities which are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.

Actuarially Equivalent: Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.

Actuarial Present Value (APV): The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. For purposes of this standard, each such amount or series of amounts is:

a. adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.)

b. multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination of employment, etc.) on which the payment is conditioned, and

c. discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Present Value of Future Plan Benefits: The Actuarial Present Value of those benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive, non-retired members either entitled to a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.

Actuarial Valuation: The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial valuation for a governmental retirement system typically also includes calculations that provide the financial information of the plan, such as the funded ratio, unfunded actuarial accrued liability and the ADC.

Actuarial Value of Assets or ***Valuation Assets:*** The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly actuaries use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the ADC.

Actuarially Determined: Values which have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.

Actuarially Determined Contribution (ADC): The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation. The ADC consists of the Employer Normal Cost and the Amortization Payment.

Amortization Method: A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.

Amortization Payment: The portion of the pension plan contribution or ADC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Closed Amortization Period: A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc. See Funding Period and Open Amortization Period.

Decrements: Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or termination.

Defined Benefit Plan: A retirement plan that is not a Defined Contribution Plan. Typically a defined benefit plan is one in which benefits are defined by a formula applied to the member's compensation and/or years of service.

Defined Contribution Plan: A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, and the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.

Employer Normal Cost: The portion of the Normal Cost to be paid by the employers. This is equal to the Normal Cost less expected member contributions.

Experience Study: A periodic review and analysis of the actual experience of the Fund which may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.

Funded Ratio: The ratio of the actuarial value of assets (AVA) to the actuarial accrued liability (AAL). Plans sometimes calculate a market funded ratio, using the market value of assets (MVA), rather than the AVA.

Funding Period or ***Amortization Period:*** The term "Funding Period" is used two ways. In the first sense, it is the period used in calculating the Amortization Payment as a component of the ADC. This funding period is specified in State statute. In the second sense, it is a calculated item: the number of years in the future that will theoretically be required to amortize (i.e., pay off or eliminate) the Unfunded Actuarial Accrued Liability, based on a statutory employer contribution rate, and assuming no future actuarial gains or losses.

GASB: Governmental Accounting Standards Board.

GASB 67 and ***GASB 68***: Governmental Accounting Standards Board Statements No. 67 and No. 68. These are the governmental accounting standards that set the accounting and reporting rules for public retirement systems and the employers that sponsor, participate in, or contribute to them. Statement No. 67 sets the accounting rules for the financial reporting of the retirement systems, while Statement No. 68 sets the rules for the employers that sponsor, participate in, or contribute to public retirement systems.

Normal Cost: That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method. Any payment in respect of an Unfunded Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits which are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated. Under the entry age normal cost method, the Normal Cost is intended to be the level cost (when expressed as a percentage of pay) needed to fund the benefits of a member from hire until ultimate termination, death, disability or retirement.

Open Amortization Period: An open amortization period is one which is used to determine the Amortization Payment but may not decrease by exactly one year in the subsequent year's actuarial valuation. For instance, if the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year.

Unfunded Actuarial Accrued Liability: The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus.

Valuation Date or Actuarial Valuation Date: The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date.

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October 30, 2024

Board of Trustees
Kentucky Retirement Systems
Perimeter Park West
1260 Louisville Road
Frankfort, KY 40601

Re: Sensitivity Analysis Based on Results of the June 30, 2024 Actuarial Valuation – KERS

Dear Members of the Board:

Per Kentucky State Statute 61.670, we are providing this supplemental information regarding the sensitivity of the valuation results to changes in some of the economic assumptions. Specifically, the enclosed tables show the impact for the **Kentucky Employees Retirement System (KERS)** due to changes in the investment return assumption, the inflation rate assumption, and the payroll growth rate assumption.

Background

Investment Assumption

The investment return assumption is used to discount future expected benefit payments to the valuation date in order to determine the liabilities of the plans. The lower the investment return assumption, the less the benefit payments are discounted and the higher the valuation liability. The current investment return assumption is 5.25% for the non-hazardous retirement fund, 6.25% for the hazardous retirement fund, and 6.50% for both insurance funds. The sensitivity analysis shows the financial impact of a 1.00% increase and a 1.00% decrease in the investment return assumption. For purposes of this sensitivity analysis, the inflation assumption and payroll growth assumption remain unchanged from the valuation assumption.

Inflation Assumption

The inflation assumption underlies most of the other economic assumptions, including the investment return, salary increases, and payroll growth rate. This is a macroeconomic assumption and as such the same assumption is used in the valuation of each of the retirement systems. The current assumption is 2.50% for all funds. The sensitivity analysis shows the financial impact of a 0.25% increase and a 0.25% decrease in the inflation assumption. Note, the change in the inflation assumption results in a corresponding change in the investment return assumption, the individual salary increase assumption for projecting members' benefit amounts, the payroll growth rate assumption, and the healthcare trend assumption that is used in the valuation of the health insurance funds.

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Payroll Growth Assumption

Participating employers of the hazardous fund make contributions to the system as a percentage of covered payroll. Therefore, as payroll changes over time these amortization payments will also change. If actual covered payroll increases at a rate that is less than assumed, then the retirement system receives fewer contribution dollars than expected to finance the unfunded liability, which means the contribution rate in future years will be required to increase in order to finance the unfunded liability over the same time period. The current payroll growth assumption is 0.00% for both the retirement and insurance funds. The analysis shows the impact of a 1.00% increase and a 1.00% decrease in the payroll growth assumption.

For completeness, we have included this sensitivity for the non-hazardous fund. House Bill 8 passed during the 2021 legislative session and changed how contributions are collected and allocated amongst employers. The portion of the required contribution that amortizes (or pays for) the unfunded liability for the non-hazardous fund is no longer collected as a percentage of payroll. This sensitivity for the non-hazardous fund shows the impact of assuming that the amortization cost contributions paid by employers either decrease by 1% or increase by 1% annually (versus the valuation assumption that they remain level through the end of the funding period).

Please note that the payroll growth assumption does not impact the valuation liabilities, unfunded liability, or funded status of the system. Rather, this assumption only impacts the amortization rate for financing the existing unfunded actuarial accrued liability and the actuarially determined employer contribution. For purposes of this analysis, the investment return assumption and the inflation assumption are held at their current valuation assumptions.

Certification

The information provided in this letter compliments the information provided in the June 30, 2024 actuarial valuation report. Please refer to the June 30, 2024 actuarial valuation report for additional discussion of the actuarial valuation, including the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

Actual results can, and almost certainly will, differ as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rate, and funding periods. The actuarial calculations are intended to provide information for rational decision making. The purpose of this information is to provide stakeholders the financial sensitivity of the unfunded liability and contribution rates to changes in the inflation, assumed rate of return, and payroll growth assumption.

To the best of our knowledge, this report is complete and accurate and is in accordance with generally recognized actuarial practices and methods. Mr. White and Ms. Shaw are Enrolled Actuaries. 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

Sensitivity Analysis - Discount Rate
Non-Hazardous Members
(Dollar amounts expressed in thousands)

	Decrease Discount Rate	Valuation Results	Increase Discount Rate
(1)	(2)	(3)	(4)
Payroll Growth Rate	0.00%	0.00%	0.00%
Inflation Rate	2.50%	2.50%	2.50%
Discount Rate - Retirement	4.25%	5.25%	6.25%
Discount Rate - Insurance	5.50%	6.50%	7.50%
Retirement			
Actuarial Accrued Liability	$ 18,630,281	$ 16,647,892	$ 15,001,505
Actuarial Value of Assets	4,122,269	4,122,269	4,122,269
Unfunded Actuarial Accrued Liability	14,508,012	12,525,623	10,879,236
Funded Ratio	22.1%	24.8%	27.5%
Normal Cost Rate	10.00%	6.85%	4.71%
Amortization Cost	$ 925,010	$ 853,517	$ 788,996
Insurance			
Actuarial Accrued Liability	$ 2,341,943	$ 2,094,744	$ 1,888,217
Actuarial Value of Assets	1,712,043	1,712,043	1,712,043
Unfunded Actuarial Accrued Liability	629,900	382,701	176,174
Funded Ratio	73.1%	81.7%	90.7%
Normal Cost Rate	1.64%	1.14%	0.76%
Amortization Cost	$ 30,617	$ 12,293	$ 0
Combined			
Actuarial Accrued Liability	$ 20,972,224	$ 18,742,636	$ 16,889,722
Actuarial Value of Assets	5,834,312	5,834,312	5,834,312
Unfunded Actuarial Accrued Liability	15,137,912	12,908,324	11,055,410
Funded Ratio	27.8%	31.1%	34.5%
Normal Cost Rate	11.64%	7.99%	5.47%
Amortization Cost	$ 955,627	$ 865,810	$ 788,996

Sensitivity Analysis - Inflation Rate
Non-Hazardous Members
(Dollar amounts expressed in thousands)

	Decrease Inflation Rate	Valuation Results	Increase Inflation Rate
(1)	(2)	(3)	(4)
Payroll Growth Rate	-0.25%	0.00%	0.25%
Inflation Rate	2.25%	2.50%	2.75%
Discount Rate - Retirement	5.00%	5.25%	5.50%
Discount Rate - Insurance	6.25%	6.50%	6.75%
Retirement			
Actuarial Accrued Liability	$ 17,076,523	$ 16,647,892	$ 16,238,220
Actuarial Value of Assets	4,122,269	4,122,269	4,122,269
Unfunded Actuarial Accrued Liability	12,954,254	12,525,623	12,115,951
Funded Ratio	24.1%	24.8%	25.4%
Normal Cost Rate	7.30%	6.85%	6.43%
Amortization Cost	$ 888,400	$ 853,517	$ 820,088
Insurance			
Actuarial Accrued Liability	$ 2,117,742	$ 2,094,744	$ 2,073,030
Actuarial Value of Assets	1,712,043	1,712,043	1,712,043
Unfunded Actuarial Accrued Liability	405,699	382,701	360,987
Funded Ratio	80.8%	81.7%	82.6%
Normal Cost Rate	1.20%	1.14%	1.08%
Amortization Cost	$ 14,514	$ 12,293	$ 10,184
Combined			
Actuarial Accrued Liability	$ 19,194,265	$ 18,742,636	$ 18,311,250
Actuarial Value of Assets	5,834,312	5,834,312	5,834,312
Unfunded Actuarial Accrued Liability	13,359,953	12,908,324	12,476,938
Funded Ratio	30.4%	31.1%	31.9%
Normal Cost Rate	8.50%	7.99%	7.51%
Amortization Cost	$ 902,914	$ 865,810	$ 830,272

Sensitivity Analysis - Payroll Growth
Non-Hazardous Members
(Dollar amounts expressed in thousands)

(1)	Decrease Payroll Growth (2)	Valuation Results (3)	Increase Payroll Growth (4)
Payroll Growth Rate	-1.00%	0.00%	1.00%
Inflation Rate	2.50%	2.50%	2.50%
Discount Rate - Retirement	5.25%	5.25%	5.25%
Discount Rate - Insurance	6.50%	6.50%	6.50%
Retirement			
Actuarial Accrued Liability	$ 16,647,892	$ 16,647,892	$ 16,647,892
Actuarial Value of Assets	4,122,269	4,122,269	4,122,269
Unfunded Actuarial Accrued Liability	12,525,623	12,525,623	12,525,623
Funded Ratio	24.8%	24.8%	24.8%
Normal Cost Rate	6.85%	6.85%	6.85%
Amortization Cost	$ 935,250	$ 853,517	$ 775,988
Insurance			
Actuarial Accrued Liability	$ 2,094,744	$ 2,094,744	$ 2,094,744
Actuarial Value of Assets	1,712,043	1,712,043	1,712,043
Unfunded Actuarial Accrued Liability	382,701	382,701	382,701
Funded Ratio	81.7%	81.7%	81.7%
Normal Cost Rate	1.14%	1.14%	1.14%
Amortization Cost	$ 16,129	$ 12,293	$ 8,675
Combined			
Actuarial Accrued Liability	$ 18,742,636	$ 18,742,636	$ 18,742,636
Actuarial Value of Assets	5,834,312	5,834,312	5,834,312
Unfunded Actuarial Accrued Liability	12,908,324	12,908,324	12,908,324
Funded Ratio	31.1%	31.1%	31.1%
Normal Cost Rate	7.99%	7.99%	7.99%
Amortization Cost	$ 951,379	$ 865,810	$ 784,663

Sensitivity Analysis - Discount Rate
Hazardous Members
(Dollar amounts expressed in thousands)

	Decrease Discount Rate	Valuation Results	Increase Discount Rate
(1)	(2)	(3)	(4)
Payroll Growth Rate	0.00%	0.00%	0.00%
Inflation Rate	2.50%	2.50%	2.50%
Discount Rate - Retirement	5.25%	6.25%	7.25%
Discount Rate - Insurance	5.50%	6.50%	7.50%
Retirement			
Actuarial Accrued Liability	$ 1,624,303	$ 1,442,619	$ 1,298,044
Actuarial Value of Assets	985,075	985,075	985,075
Unfunded Actuarial Accrued Liability	639,228	457,544	312,969
Funded Ratio	60.6%	68.3%	75.9%
Actuarially Determined Contribution Rate	28.90%	20.68%	14.08%
Insurance			
Actuarial Accrued Liability	$ 425,124	$ 379,568	$ 341,988
Actuarial Value of Assets	652,349	652,349	652,349
Unfunded Actuarial Accrued Liability	(227,225)	(272,781)	(310,361)
Funded Ratio	153.4%	171.9%	190.8%
Actuarially Determined Contribution Rate	0.00%	0.00%	0.00%
Combined			
Actuarial Accrued Liability	$ 2,049,427	$ 1,822,187	$ 1,640,032
Actuarial Value of Assets	1,637,424	1,637,424	1,637,424
Unfunded Actuarial Accrued Liability	412,003	184,763	2,608
Funded Ratio	79.9%	89.9%	99.8%
Actuarially Determined Contribution Rate	28.90%	20.68%	14.08%

Sensitivity Analysis - Inflation Rate
Hazardous Members
(Dollar amounts expressed in thousands)

(1)	Decrease Inflation Rate (2)	Valuation Results (3)	Increase Inflation Rate (4)
Payroll Growth Rate	-0.25%	0.00%	0.25%
Inflation Rate	2.25%	2.50%	2.75%
Discount Rate - Retirement	6.00%	6.25%	6.50%
Discount Rate - Insurance	6.25%	6.50%	6.75%
Retirement			
Actuarial Accrued Liability	$ 1,481,290	$ 1,442,619	$ 1,406,254
Actuarial Value of Assets	985,075	985,075	985,075
Unfunded Actuarial Accrued Liability	496,215	457,544	421,179
Funded Ratio	66.5%	68.3%	70.0%
Actuarially Determined Contribution Rate	22.67%	20.68%	18.83%
Insurance			
Actuarial Accrued Liability	$ 384,533	$ 379,568	$ 374,897
Actuarial Value of Assets	652,349	652,349	652,349
Unfunded Actuarial Accrued Liability	(267,816)	(272,781)	(277,452)
Funded Ratio	169.6%	171.9%	174.0%
Actuarially Determined Contribution Rate	0.00%	0.00%	0.00%
Combined			
Actuarial Accrued Liability	$ 1,865,823	$ 1,822,187	$ 1,781,151
Actuarial Value of Assets	1,637,424	1,637,424	1,637,424
Unfunded Actuarial Accrued Liability	228,399	184,763	143,727
Funded Ratio	87.8%	89.9%	91.9%
Actuarially Determined Contribution Rate	22.67%	20.68%	18.83%

Sensitivity Analysis - Payroll Growth
Hazardous Members
(Dollar amounts expressed in thousands)

	Decrease Payroll Growth	Valuation Results	Increase Payroll Growth
(1)	(2)	(3)	(4)
Payroll Growth Rate	-1.00%	0.00%	1.00%
Inflation Rate	2.50%	2.50%	2.50%
Discount Rate - Retirement	6.25%	6.25%	6.25%
Discount Rate - Insurance	6.50%	6.50%	6.50%
Retirement			
Actuarial Accrued Liability	$ 1,442,619	$ 1,442,619	$ 1,442,619
Actuarial Value of Assets	985,075	985,075	985,075
Unfunded Actuarial Accrued Liability	457,544	457,544	457,544
Funded Ratio	68.3%	68.3%	68.3%
Actuarially Determined Contribution Rate	22.04%	20.68%	19.40%
Insurance			
Actuarial Accrued Liability	$ 379,568	$ 379,568	$ 379,568
Actuarial Value of Assets	652,349	652,349	652,349
Unfunded Actuarial Accrued Liability	(272,781)	(272,781)	(272,781)
Funded Ratio	171.9%	171.9%	171.9%
Actuarially Determined Contribution Rate	0.00%	0.00%	0.00%
Combined			
Actuarial Accrued Liability	$ 1,822,187	$ 1,822,187	$ 1,822,187
Actuarial Value of Assets	1,637,424	1,637,424	1,637,424
Unfunded Actuarial Accrued Liability	184,763	184,763	184,763
Funded Ratio	89.9%	89.9%	89.9%
Actuarially Determined Contribution Rate	22.04%	20.68%	19.40%

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October 30, 2024

Board of Trustees
Kentucky Retirement Systems
Perimeter Park West
1260 Louisville Road
Frankfort, KY 40601

Re: Sensitivity Analysis Based on Results of the June 30, 2024 Actuarial Valuation – SPRS

Dear Members of the Board:

Per Kentucky State Statute 61.670, we are providing this supplemental information regarding the sensitivity of the valuation results to changes in some of the economic assumptions. Specifically, the attached tables show the impact for the **State Police Retirement System (SPRS)** due to changes in the investment return assumption, the inflation rate assumption, and the payroll growth rate assumption.

Background

Investment Assumption

The investment return assumption is used to discount future expected benefit payments to the valuation date in order to determine the liabilities of the plans. The lower the investment return assumption, the less the benefit payments are discounted and the higher the valuation liability. The current investment return assumption is 5.25% for the retirement fund and 6.50% for the insurance fund. The sensitivity analysis shows the financial impact of a 1.00% increase and a 1.00% decrease in the investment return assumption. For purposes of this sensitivity analysis, the inflation assumption and payroll growth assumption remain unchanged from the valuation assumption.

Inflation Assumption

The inflation assumption underlies most of the other economic assumptions, including the investment return, salary increases, and payroll growth rate. This is a macroeconomic assumption and as such the same assumption is used in the valuation of each of the retirement systems. The current assumption is 2.50% for all funds. The sensitivity analysis shows the financial impact of a 0.25% increase and a 0.25% decrease in the inflation assumption. Note, the change in the inflation assumption results in a corresponding change in the investment return assumption, the individual salary increase assumption for projecting members' benefit amounts, the payroll growth rate assumption, and the healthcare trend assumption that is used in the valuation of the health insurance funds.

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Payroll Growth Assumption

Participating employers of SPRS make contributions to the system as a percentage of covered payroll. Therefore, as payroll changes over time these amortization payments will also change. If actual covered payroll increases at a rate that is less than assumed, then the retirement system receives fewer contribution dollars than expected to finance the unfunded liability, which means the contribution rates in future years will be required to increase in order to finance the unfunded liability over the same time period. The current payroll growth assumption is 0.00% for both the retirement and insurance funds. The analysis shows the impact of a 1.00% increase and a 1.00% decrease in the payroll growth assumption.

Please note that the payroll growth assumption does not impact the valuation liabilities, unfunded liability, or funded status of the system. Rather, this assumption only impacts the amortization rate for financing the existing unfunded actuarial accrued liability and the actuarially determined employer contribution. For purposes of this analysis, the investment return assumption and the inflation assumption are held at their current valuation assumptions.

Certification

The information provided in this letter compliments the information provided in the June 30, 2024 actuarial valuation report. Please refer to the June 30, 2024 actuarial valuation report for additional discussion of the actuarial valuation, including the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

Actual results can, and almost certainly will, differ as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rate, and funding periods. The actuarial calculations are intended to provide information for rational decision making. The purpose of this information is to provide stakeholders the financial sensitivity of the unfunded liability and contribution rates to changes in the inflation, assumed rate of return, and payroll growth assumption.

To the best of our knowledge, this report is complete and accurate and is in accordance with generally recognized actuarial practices and methods. Mr. White and Ms. Shaw are Enrolled Actuaries. 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

Sensitivity Analysis - Discount Rate

(Dollar amounts expressed in thousands)

	Decrease Discount Rate	Valuation Results	Increase Discount Rate
(1)	(2)	(3)	(4)
Payroll Growth Rate	0.00%	0.00%	0.00%
Inflation Rate	2.50%	2.50%	2.50%
Discount Rate - Retirement	4.25%	5.25%	6.25%
Discount Rate - Insurance	5.50%	6.50%	7.50%
Retirement			
Actuarial Accrued Liability	$ 1,253,211	$ 1,112,310	$ 996,309
Actuarial Value of Assets	631,186	631,186	631,186
Unfunded Actuarial Accrued Liability	622,025	481,124	365,123
Funded Ratio	50.4%	56.7%	63.4%
Actuarially Determined Contribution Rate	77.13%	57.91%	41.39%
Insurance			
Actuarial Accrued Liability	$ 278,397	$ 251,178	$ 228,407
Actuarial Value of Assets	263,369	263,369	263,369
Unfunded Actuarial Accrued Liability	15,028	(12,191)	(34,962)
Funded Ratio	94.6%	104.9%	115.3%
Actuarially Determined Contribution Rate	6.30%	1.46%	0.00%
Combined			
Actuarial Accrued Liability	$ 1,531,608	$ 1,363,488	$ 1,224,716
Actuarial Value of Assets	894,555	894,555	894,555
Unfunded Actuarial Accrued Liability	637,053	468,933	330,161
Funded Ratio	58.4%	65.6%	73.0%
Actuarially Determined Contribution Rate	83.43%	59.37%	41.39%

Sensitivity Analysis - Inflation Rate
(Dollar amounts expressed in thousands)

	Decrease Inflation Rate	Valuation Results	Increase Inflation Rate
(1)	(2)	(3)	(4)
Payroll Growth Rate	-0.25%	0.00%	0.25%
Inflation Rate	2.25%	2.50%	2.75%
Discount Rate - Retirement	5.00%	5.25%	5.50%
Discount Rate - Insurance	6.25%	6.50%	6.75%
	Retirement		
Actuarial Accrued Liability	$ 1,143,769	$ 1,112,310	$ 1,082,362
Actuarial Value of Assets	631,186	631,186	631,186
Unfunded Actuarial Accrued Liability	512,583	481,124	451,176
Funded Ratio	55.2%	56.7%	58.3%
Actuarially Determined Contribution Rate	62.95%	57.91%	53.13%
	Insurance		
Actuarial Accrued Liability	$ 253,100	$ 251,178	$ 249,359
Actuarial Value of Assets	263,369	263,369	263,369
Unfunded Actuarial Accrued Liability	(10,269)	(12,191)	(14,010)
Funded Ratio	104.1%	104.9%	105.6%
Actuarially Determined Contribution Rate	1.90%	1.46%	1.03%
	Combined		
Actuarial Accrued Liability	$ 1,396,869	$ 1,363,488	$ 1,331,721
Actuarial Value of Assets	894,555	894,555	894,555
Unfunded Actuarial Accrued Liability	502,314	468,933	437,166
Funded Ratio	64.0%	65.6%	67.2%
Actuarially Determined Contribution Rate	64.85%	59.37%	54.16%

Sensitivity Analysis - Payroll Growth
(Dollar amounts expressed in thousands)

(1)	Decrease Payroll Growth (2)	Valuation Results (3)	Increase Payroll Growth (4)
Payroll Growth Rate	-1.00%	0.00%	1.00%
Inflation Rate	2.50%	2.50%	2.50%
Discount Rate - Retirement	5.25%	5.25%	5.25%
Discount Rate - Insurance	6.50%	6.50%	6.50%
Retirement			
Actuarial Accrued Liability	$ 1,112,310	$ 1,112,310	$ 1,112,310
Actuarial Value of Assets	631,186	631,186	631,186
Unfunded Actuarial Accrued Liability	481,124	481,124	481,124
Funded Ratio	56.7%	56.7%	56.7%
Actuarially Determined Contribution Rate	62.69%	57.91%	53.46%
Insurance			
Actuarial Accrued Liability	$ 251,178	$ 251,178	$ 251,178
Actuarial Value of Assets	263,369	263,369	263,369
Unfunded Actuarial Accrued Liability	(12,191)	(12,191)	(12,191)
Funded Ratio	104.9%	104.9%	104.9%
Actuarially Determined Contribution Rate	1.40%	1.46%	1.52%
Combined			
Actuarial Accrued Liability	$ 1,363,488	$ 1,363,488	$ 1,363,488
Actuarial Value of Assets	894,555	894,555	894,555
Unfunded Actuarial Accrued Liability	468,933	468,933	468,933
Funded Ratio	65.6%	65.6%	65.6%
Actuarially Determined Contribution Rate	64.09%	59.37%	54.98%

Kentucky Public Pensions Authority
KERS Non-Hazardous Retirement Fund
($ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution (excluding Appropriations)	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll (Normal Cost)	Employer Contribution (Amortization Cost)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2024	$ 16,648	$ 4,122	$ 12,526	25%	$ 985	$ 93	$ 1,862	6.99%	$ 855
2025	16,662	4,722	11,940	28%	985	93	1,862	6.99%	855
2026	16,645	5,242	11,403	32%	947	93	1,862	6.66%	823
2027	16,603	5,490	11,113	33%	947	93	1,862	6.66%	823
2028	16,538	5,718	10,820	35%	940	93	1,862	6.36%	821
2029	16,450	5,905	10,545	36%	940	93	1,862	6.36%	821
2030	16,343	6,087	10,256	37%	932	93	1,862	6.10%	818
2031	16,220	6,264	9,956	39%	932	93	1,862	6.10%	818
2032	16,083	6,444	9,639	40%	928	93	1,862	5.88%	818
2033	15,934	6,628	9,306	42%	928	93	1,862	5.88%	818
2034	15,775	6,819	8,956	43%	924	93	1,862	5.70%	818
2035	15,614	7,028	8,586	45%	924	93	1,862	5.70%	818
2036	15,447	7,250	8,197	47%	921	93	1,862	5.54%	818
2037	15,280	7,492	7,788	49%	921	93	1,862	5.54%	818
2038	15,116	7,758	7,358	51%	919	93	1,862	5.43%	818
2039	14,957	8,052	6,905	54%	919	93	1,862	5.43%	818
2040	14,806	8,378	6,428	57%	921	93	1,862	5.36%	821
2041	14,665	8,741	5,924	60%	950	93	1,862	5.36%	850
2042	14,533	9,170	5,363	63%	954	93	1,862	5.30%	856
2043	14,411	9,644	4,767	67%	1,000	93	1,862	5.30%	902
2044	14,299	10,208	4,091	71%	1,001	93	1,862	5.26%	903
2045	14,199	10,819	3,380	76%	1,031	93	1,862	5.26%	933
2046	14,109	11,509	2,600	82%	1,029	93	1,862	5.22%	932
2047	14,030	12,250	1,780	87%	1,032	93	1,862	5.22%	935
2048	13,963	13,048	915	93%	1,035	93	1,862	5.20%	938
2049	13,907	13,907	-	100%	97	93	1,862	5.19%	-
2050	13,865	13,865	-	100%	96	93	1,862	5.18%	-
2051	13,835	13,835	-	100%	96	93	1,862	5.17%	-
2052	13,820	13,820	-	100%	96	93	1,862	5.17%	-
2053	13,819	13,819	-	100%	96	93	1,862	5.17%	-

Notes and assumptions:

The projection is based on the results of the June 30, 2024 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 normal cost portion of the actuarially determined contribution.

The full actuarially determined amortization cost is assumed to be allocated amongst employers each biennium.

The second year of a biannual budget is assumed to take into account any expiring amortization bases.

Per HB1 and HB6 (passed in the 2024 legislative session), $300 million in additional appropriations assumed to be received in FYE 2025 and FYE 2026

Kentucky Public Pensions Authority
KERS Hazardous Retirement Fund
($ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2024	$ 1,443	$ 985	$ 458	68%	$ 62	$ 21	$ 260	23.74%	23.74%
2025	1,486	1,064	422	72%	62	21	260	23.74%	20.68%
2026	1,527	1,116	411	73%	51	21	260	19.46%	19.46%
2027	1,566	1,178	388	75%	51	21	260	19.46%	19.55%
2028	1,604	1,234	370	77%	49	21	260	18.87%	18.87%
2029	1,642	1,280	362	78%	49	21	260	18.87%	18.43%
2030	1,680	1,327	353	79%	48	21	260	18.33%	18.33%
2031	1,719	1,375	344	80%	48	21	260	18.33%	18.29%
2032	1,760	1,424	336	81%	47	21	260	18.25%	18.25%
2033	1,803	1,477	326	82%	47	21	260	18.25%	18.23%
2034	1,848	1,532	316	83%	47	21	260	18.20%	18.20%
2035	1,898	1,592	306	84%	47	21	260	18.20%	18.18%
2036	1,949	1,655	294	85%	47	21	260	18.15%	18.15%
2037	2,003	1,720	283	86%	47	21	260	18.15%	18.13%
2038	2,057	1,787	270	87%	47	21	260	18.11%	18.11%
2039	2,113	1,856	257	88%	47	21	260	18.11%	18.09%
2040	2,171	1,928	243	89%	45	21	260	17.40%	17.40%
2041	2,230	2,001	229	90%	45	21	260	17.40%	19.11%
2042	2,292	2,077	215	91%	52	21	260	19.98%	19.98%
2043	2,356	2,163	193	92%	52	21	260	19.98%	20.64%
2044	2,423	2,253	170	93%	54	21	260	20.66%	20.66%
2045	2,491	2,348	143	94%	54	21	260	20.66%	21.71%
2046	2,561	2,446	115	96%	56	21	260	21.59%	21.59%
2047	2,632	2,550	82	97%	56	21	260	21.59%	22.16%
2048	2,704	2,656	48	98%	59	21	260	22.55%	22.55%
2049	2,777	2,777	-	100%	18	21	260	7.07%	7.07%
2050	2,849	2,849	-	100%	18	21	260	7.07%	7.07%
2051	2,921	2,921	-	100%	18	21	260	7.08%	7.08%
2052	2,992	2,992	-	100%	18	21	260	7.08%	7.08%
2053	3,061	3,061	-	100%	18	21	260	7.09%	7.09%

Notes and assumptions:

The projection is based on the results of the June 30, 2024 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
SPRS Retirement Fund
($ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2024	$ 1,112	$ 631	$ 481	57%	$ 48	$ 6	$ 73	65.79%	65.79%
2025	1,125	688	437	61%	48	6	73	65.79%	57.91%
2026	1,134	735	399	65%	39	6	73	52.77%	52.77%
2027	1,140	754	386	66%	39	6	73	52.77%	52.49%
2028	1,146	771	375	67%	38	6	73	51.25%	51.25%
2029	1,151	780	371	68%	38	6	73	51.25%	50.39%
2030	1,156	790	366	68%	37	6	73	50.15%	50.15%
2031	1,160	799	361	69%	37	6	73	50.15%	50.02%
2032	1,165	809	356	69%	37	6	73	49.90%	49.90%
2033	1,171	820	351	70%	37	6	73	49.90%	49.81%
2034	1,177	832	345	71%	36	6	73	49.74%	49.74%
2035	1,184	844	340	71%	36	6	73	49.74%	49.70%
2036	1,192	858	334	72%	36	6	73	49.65%	49.65%
2037	1,201	873	328	73%	36	6	73	49.65%	49.60%
2038	1,210	889	321	74%	36	6	73	49.57%	49.57%
2039	1,219	906	313	74%	36	6	73	49.57%	49.51%
2040	1,230	923	307	75%	36	6	73	48.90%	48.90%
2041	1,240	941	299	76%	36	6	73	48.90%	76.20%
2042	1,250	959	291	77%	56	6	73	76.69%	76.69%
2043	1,261	999	262	79%	56	6	73	76.69%	78.03%
2044	1,272	1,040	232	82%	60	6	73	81.69%	81.69%
2045	1,283	1,086	197	85%	60	6	73	81.69%	86.40%
2046	1,292	1,133	159	88%	64	6	73	86.82%	86.82%
2047	1,301	1,186	115	91%	64	6	73	86.82%	87.82%
2048	1,309	1,240	69	95%	65	6	73	88.56%	88.56%
2049	1,317	1,317	-	100%	15	6	73	20.63%	20.63%
2050	1,323	1,323	-	100%	15	6	73	20.64%	20.64%
2051	1,328	1,328	-	100%	15	6	73	20.66%	20.66%
2052	1,332	1,332	-	100%	15	6	73	20.68%	20.68%
2053	1,333	1,333	-	100%	15	6	73	20.69%	20.69%

Notes and assumptions:

The projection is based on the results of the June 30, 2024 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.

Per HB1 (passed in the 2024 legislative session), $25 million in additional appropriations assumed to be received in FYE 2025 and FYE 2026

Kentucky Public Pensions Authority
KERS Non-Hazardous Insurance Fund
($ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll (Normal Cost)	Employer Contribution (Amortization Cost)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2024	$ 2,095	$ 1,712	$ 383	82%	$ 29	$ 11	$ 1,850	1.45%	$ 2
2025	2,148	1,774	374	83%	29	11	1,850	1.45%	2
2026	2,193	1,786	407	81%	29	12	1,850	1.03%	10
2027	2,228	1,832	396	82%	29	13	1,850	1.03%	10
2028	2,254	1,858	396	82%	24	14	1,850	0.83%	9
2029	2,271	1,858	413	82%	24	14	1,850	0.83%	9
2030	2,279	1,848	431	81%	19	15	1,850	0.65%	7
2031	2,278	1,827	451	80%	19	15	1,850	0.65%	7
2032	2,271	1,798	473	79%	16	16	1,850	0.49%	7
2033	2,259	1,762	497	78%	16	16	1,850	0.49%	7
2034	2,242	1,721	521	77%	14	17	1,850	0.36%	7
2035	2,222	1,674	548	75%	14	17	1,850	0.36%	7
2036	2,202	1,626	576	74%	12	17	1,850	0.27%	7
2037	2,182	1,576	606	72%	12	18	1,850	0.27%	7
2038	2,164	1,526	638	71%	11	18	1,850	0.21%	7
2039	2,149	1,476	673	69%	11	18	1,850	0.21%	7
2040	2,136	1,427	709	67%	33	18	1,850	0.16%	30
2041	2,127	1,403	724	66%	48	18	1,850	0.16%	45
2042	2,122	1,398	724	66%	133	18	1,850	0.13%	130
2043	2,122	1,485	637	70%	136	18	1,850	0.13%	134
2044	2,125	1,585	540	75%	126	18	1,850	0.11%	124
2045	2,132	1,685	447	79%	128	18	1,850	0.11%	126
2046	2,141	1,795	346	84%	126	18	1,850	0.09%	125
2047	2,151	1,911	240	89%	129	18	1,850	0.09%	127
2048	2,161	2,036	125	94%	130	18	1,850	0.07%	129
2049	2,170	2,170	-	100%	1	18	1,850	0.06%	-
2050	2,177	2,177	-	100%	1	18	1,850	0.05%	-
2051	2,183	2,183	-	100%	1	18	1,850	0.05%	-
2052	2,189	2,189	-	100%	1	18	1,850	0.04%	-
2053	2,193	2,193	-	100%	1	18	1,850	0.03%	-

Notes and assumptions:

The projection is based on the results of the June 30, 2024 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 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 normal cost portion of the actuarially determined contribution.

The full actuarially determined amortization cost is assumed to be allocated amongst employers each biennium.

The second year of a biannual budget is assumed to take into account any expiring amortization bases.

Kentucky Public Pensions Authority
KERS Hazardous Insurance Fund
($ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2024	$ 380	$ 652	$ (272)	172%	$ -	$ 2	$ 259	0.00%	0.00%
2025	387	690	(303)	178%	-	2	259	0.00%	0.00%
2026	393	708	(315)	180%	-	2	259	0.00%	0.00%
2027	397	739	(342)	186%	-	2	259	0.00%	0.00%
2028	399	767	(368)	192%	-	2	259	0.00%	0.00%
2029	401	790	(389)	197%	-	2	259	0.00%	0.00%
2030	401	813	(412)	203%	-	2	259	0.00%	0.00%
2031	402	838	(436)	209%	-	2	259	0.00%	0.00%
2032	401	863	(462)	215%	-	3	259	0.00%	0.00%
2033	401	891	(490)	222%	-	3	259	0.00%	0.00%
2034	401	920	(519)	229%	-	3	259	0.00%	0.00%
2035	401	951	(550)	237%	-	3	259	0.00%	0.00%
2036	401	985	(584)	246%	-	3	259	0.00%	0.00%
2037	402	1,022	(620)	254%	-	3	259	0.00%	0.00%
2038	403	1,062	(659)	264%	-	3	259	0.00%	0.00%
2039	406	1,105	(699)	272%	-	3	259	0.00%	0.00%
2040	409	1,151	(742)	281%	-	3	259	0.00%	0.00%
2041	413	1,202	(789)	291%	-	3	259	0.00%	0.00%
2042	418	1,256	(838)	301%	-	3	259	0.00%	0.00%
2043	424	1,314	(890)	310%	-	3	259	0.00%	0.00%
2044	430	1,377	(947)	320%	-	3	259	0.00%	0.00%
2045	437	1,444	(1,007)	330%	-	3	259	0.00%	0.00%
2046	445	1,515	(1,070)	340%	-	3	259	0.00%	0.00%
2047	452	1,590	(1,138)	352%	-	3	259	0.00%	0.00%
2048	459	1,669	(1,210)	364%	-	3	259	0.00%	0.00%
2049	466	1,753	(1,287)	376%	-	3	259	0.00%	0.00%
2050	472	1,841	(1,369)	390%	-	3	259	0.00%	0.00%
2051	478	1,935	(1,457)	405%	-	3	259	0.00%	0.00%
2052	484	2,033	(1,549)	420%	-	3	259	0.00%	0.00%
2053	488	2,137	(1,649)	438%	-	3	259	0.00%	0.00%

Notes and assumptions:

The projection is based on the results of the June 30, 2024 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 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
SPRS Insurance Fund
($ in Millions)

Fiscal Year Beginning July 1,	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio (3) / (2)	Employer Contribution	Member Contribution	Covered Payroll	Employer Contribution as % of Covered Payroll	Employer Actuarially Determined Contribution
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2024	$ 251	$ 263	$ (12)	105%	$ 2	$ -	$ 73	2.31%	2.31%
2025	255	273	(18)	107%	2	1	73	2.31%	1.46%
2026	257	273	(16)	106%	-	1	73	0.00%	0.00%
2027	257	276	(19)	107%	-	1	73	0.00%	0.00%
2028	256	277	(21)	108%	-	1	73	0.00%	0.00%
2029	254	274	(20)	108%	-	1	73	0.00%	0.00%
2030	252	271	(19)	108%	-	1	73	0.00%	0.00%
2031	249	267	(18)	107%	-	1	73	0.00%	0.00%
2032	245	263	(18)	107%	-	1	73	0.00%	0.00%
2033	240	258	(18)	108%	-	1	73	0.00%	0.00%
2034	236	253	(17)	107%	-	1	73	0.00%	0.00%
2035	231	248	(17)	107%	-	1	73	0.00%	0.00%
2036	226	243	(17)	108%	-	1	73	0.00%	0.00%
2037	222	238	(16)	107%	-	1	73	0.00%	0.00%
2038	218	234	(16)	107%	-	1	73	0.00%	0.00%
2039	215	231	(16)	107%	-	1	73	0.00%	0.00%
2040	212	227	(15)	107%	-	1	73	0.00%	0.00%
2041	210	225	(15)	107%	-	1	73	0.00%	0.00%
2042	209	223	(14)	107%	1	1	73	0.77%	0.77%
2043	208	222	(14)	107%	1	1	73	0.77%	1.17%
2044	208	222	(14)	107%	1	1	73	1.85%	1.85%
2045	209	223	(14)	107%	1	1	73	1.85%	2.86%
2046	210	225	(15)	107%	2	1	73	2.84%	2.84%
2047	211	228	(17)	108%	2	1	73	2.84%	3.43%
2048	212	231	(19)	109%	3	1	73	3.94%	3.94%
2049	214	235	(21)	110%	-	1	73	0.00%	0.00%
2050	215	237	(22)	110%	-	1	73	0.00%	0.00%
2051	216	238	(22)	110%	-	1	73	0.00%	0.00%
2052	217	239	(22)	110%	-	1	73	0.00%	0.00%
2053	217	239	(22)	110%	-	1	73	0.00%	0.00%

Notes and assumptions:

The projection is based on the results of the June 30, 2024 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 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.

P: 469.524.0000 | www.grsconsulting.com

November 8, 2024

Mr. Ryan Barrow
Executive Director
Kentucky Public Pensions Authority
1260 Louisville Road
Frankfort, KY 40601

Re: Contribution Necessary to Fully Prefund a 1.5% Increase in Retiree Benefits on the Systems Operated by the Kentucky Public Pensions Authority on July 1, 2024

Dear Mr. Barrow:

The purpose of this letter is to communicate the financial cost if the General Assembly enacts an increase in monthly retirement allowances as permitted under KRS 61.691(2) and KRS 78.5518(2).

As of the June 30, 2024 actuarial valuation, there are no pension funds with a funding level greater than 100%, and therefore, no increase in monthly retirement allowance can be paid under KRS 61.691(2)(b)1 and KRS 78.5518(2)(b)1.

The contribution necessary to fully prefund a 1.5% increase in all monthly retirement allowances paid by the corresponding pension funds as of July 1, 2025 is provided below. The respective appropriations provided below are sufficient and appropriate to fund a 1.5% benefit increase and therefore, the benefit increase would not impact the on-going employer contribution requirement for the pension funds.

Pension Fund	Appropriation Necessary to Fully Prefund a 1.5% Increase in Retirement Allowances as of July 1, 2025
KERS Non-Hazardous	$168 million
KERS Hazardous	$13 million
SPRS	$12 million
CERS Non-Hazardous	$140 million
CERS Hazardous	$59 million

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, 2024. 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.

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 and Actuary

Krysti Kiesel, ASA, MAAA
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