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June 17, 2025

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

Re: Economic Assumptions for Use in the Upcoming June 30, 2025 Actuarial Valuation

Dear Trustees of the Board:

Kentucky Statute §61.670(1)(c)(1) requires the Board to investigate the principal economic assumptions (i.e. price inflation, investment return assumption, and payroll growth) for use in the actuarial valuation at least once every two years. The purpose of this letter and information is for the Board to satisfy that requirement for the Kentucky Employees Retirement System (KERS) and the State Police Retirement System (SPRS).

Economic assumptions used in an actuarial valuation should be representative of the System's expected long-term experience. These assumptions are not intended to consistently model short-term (e.g. the next two to five years) experience, but are supposed to be representative of expected long-term trends. As a result, short-term experience may differ significantly from the long-term assumption used in an actuarial valuation.

The three primary economic assumptions used in an actuarial valuation include the price inflation, investment return, and payroll growth assumption. The following analysis and exhibits provide our recommended assumptions to be adopted by the Board for use in the June 30, 2025 actuarial valuation and rationale for each recommendation.

Assumption	June 30, 2024 Valuation Adopted Assumption	June 30, 2025 Valuation Recommended Assumption
Price Inflation	2.50%	2.50%
Investment Return		
- KERS Non-Hazardous	5.25%	5.25%
- KERS Hazardous	6.25%	6.25%
- SPRS	5.25%	5.25%
- All Insurance Funds	6.50%	6.50%
Payroll Growth		
- KERS Non-Hazardous	N/A	N/A
- KERS Hazardous & SPRS	0.00%	0.00%

Price Inflation Assumption

Benefits provided to members in KERS and SPRS are not explicitly impacted by the actual change in price inflation. The current price inflation assumption is 2.50% and was increased from 2.30% in the last experience study conducted in 2022. We reviewed several sources that provide various perspectives of forward-looking inflation expectations and recommend the continued use of a 2.50% inflation assumption in the 2025 actuarial valuation.

We recognized that actual inflation as measured by CPI has been higher than the current 2.50% assumption during the last 48 months. Additionally, many investment professionals and economists expect that inflation volatility and risk have the potential to remain elevated above historical levels for the next 12 to 24 months. However, given the long-time horizon of an actuarial valuation, the Federal Reserve's conviction to return to a 2.00% target inflation, and the relative immateriality of this assumption in the actuarial valuation, we believe a 2.50% inflation assumption continues to be reasonable for this purpose. Please see Exhibit 1 for more information on the comparison of future inflation expectations.

Investment Return Assumption

The investment return assumption is perhaps the most important and most subjective assumption used in an actuarial valuation. It represents the expected long-term return on plan assets and is used to discount future expected benefit payments to the valuation date in order to determine the liabilities of the plan. The investment return assumption for the KERS Non-Hazardous and SPRS pension funds is 5.25%, while the return assumption for the KERS Hazardous pension fund is 6.25%. The investment return assumption for all three insurance funds was increased from 6.25% to 6.50% as of the June 30, 2023 actuarial valuation and remained at 6.50% for the June 30, 2024 actuarial valuation.

We believe the most appropriate approach in identifying a reasonable investment return assumption is to understand forward-looking expectations developed by professional investment consulting firms. To do this, we have analyzed the investment policy for each fund to capital market assumptions from eight nationally recognized investment consultants, including Wilshire Advisors which is KRS's investment consultant. The asset allocation used in this analysis is based on the target asset allocation outlined in the February 21, 2025 investment committee material.

Also, since investment consultants update their assumptions on at least an annual basis, we also compared their expectations developed in 2025, to their prior two-year assumptions using the same target asset allocation to identify and isolate the change in return expectations due to changes in capital market expectations. Attached is Exhibit 2 (i.e. Exhibits 2a, 2b, and 2c) that provides this comparison for each investment consulting firm for 2023, 2024, and 2025.

Based on the information reviewed, it is our recommendation that the Board adopt the continued use of the June 30, 2024 investment return assumptions for use in the June 30, 2025 actuarial valuation.

Payroll Growth Assumption

The payroll growth assumption is only used in the development of the amortization cost component of the contribution rate. When emerging membership payroll changes are consistent with the payroll growth assumption, the amortization cost will remain relatively constant as a percentage of payroll (assuming there are no other gains or losses). However, if the future change in payroll is consistently less (more) than assumed, then the amortization cost will gradually increase (decrease) as a percentage of membership payroll. Note, due to the actuarial backloading in the amortization payments, there is greater financial risk to having a payroll growth assumption that is too high versus too low.

The current payroll growth assumption used for the KERS Hazardous and SPRS funds (pension and insurance) is 0.00%. In other words, the actuarial valuation assumes that total payroll will remain relatively unchanged each future year. In the event that total membership payroll increases, then the amortization cost as a percentage of payroll will decrease.

HB 8 enacted during the 2021 legislative session changed the method for the KERS Non-Hazardous fund (pension and insurance) to collect contributions from participating employers such that the System now “invoices” each employer their amortization cost and the only payroll-based contribution is the normal cost rate. In the context of the KERS Non-Hazardous fund, the payroll growth assumption determines whether the aggregate amortization that is proportioned amongst the participation employers is assumed to remain flat (i.e. a 0.00% payroll growth assumption) or is assumed in increase each year (i.e. a payroll growth assumption greater than 0.00%).

Exhibit 3. provides a ten-year historical experience of the change in membership headcount and membership payroll for each fund. However, as we also consider the relatively low funded status of these pension funds, we recommend the continued use of a 0.00% payroll growth assumption for the KERS Hazardous, and SPRS funds for use in the June 30, 2025 actuarial valuation. In addition, we believe a 0.00% payroll growth assumption remains appropriate for determining the aggregate amortization cost for the KERS Non-Hazardous fund (pension and insurance) as this assumption results in a level-dollar amortization cost for the participating employers for this fund.

Closing Comments

This analysis was conducted in accordance with generally accepted actuarial principles and practices. We believe these recommended assumptions comply with Actuarial Standard of Practice No. 27, Selection of Economic Assumptions for Measuring Pension Obligations.

All 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 contained herein. In addition, all of the undersigned are experienced in performing valuations for large public retirement systems.

Sincerely,

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

Janie Shaw, ASA, EA, MAAA
Consultant

Krysti Kiesel, ASA MAAA
Consultant

Enclosure

Exhibit 1.
Comparison of Price Inflation Assumption to Sources of Forward-Looking Expectations

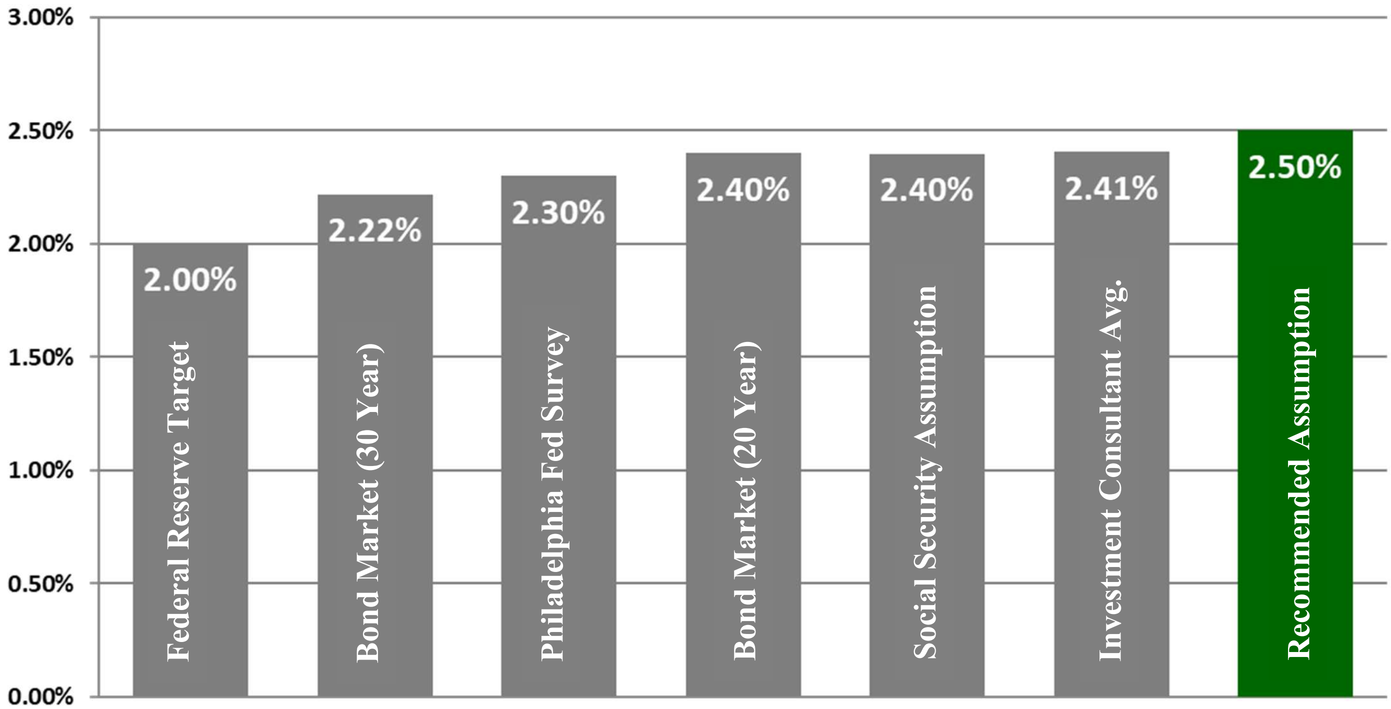

Exhibit 2.a.
KERS Non-Hazardous and SPRS Pension Funds

	Investment Consultant	50th Percentiale Expected Return (Geometric) 2025	2024	2023	Probability of Exeeding 5.25% 2025	2024	2023
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
7 to 10 Year Expectations	1	6.0%	6.3%	6.9%	59%	63%	69%
	2	6.2%	6.6%	6.5%	62%	66%	66%
	3	6.3%	5.8%	6.2%	63%	56%	62%
	4	6.6%	6.3%	5.9%	69%	64%	59%
	5	6.7%	7.0%	7.0%	68%	69%	69%
	6	6.7%	7.0%	6.5%	68%	71%	65%
	7	6.9%	6.9%	7.2%	68%	70%	73%
	8	7.1%	6.7%	7.0%	73%	69%	72%
20 to 30 Year Expectations	1	5.9%	5.8%	6.0%	59%	58%	60%
	2	7.1%	6.9%	7.1%	73%	71%	72%
	3	7.1%	7.0%	7.0%	71%	71%	71%
	4	7.2%	7.2%	7.3%	74%	71%	72%
	5	7.2%	6.9%	6.9%	73%	69%	70%
7-10 Year Expectation Avg:		6.6%	6.6%	6.7%	66%	66%	67%
20-30 Year Expectation Avg:		6.9%	6.8%	6.9%	70%	68%	69%

The asset allocation used in this analysis is based on the target asset allocation outlined in the February 21, 2025 investment committee material. The primary purpose of performing this analysis using multiple investment consulting firms is to quantify the possible difference in forward looking return expectations within the professional investment community. We have provided this analysis based on information from the following investment consulting firms:

- Aon
- BNY Mellon
- Callan
- Cambridge
- Mercer
- NEPC
- RVK
- Wilshire Associates

Exhibit 2.b.
KERS Hazardous Pension Fund

	Investment Consultant	50th Percentiale Expected Return (Geometric) 2025	2024	2023	Probability of Exeeding 6.25% 2025	2024	2023
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
7 to 10 Year Expectations	1	6.0%	6.5%	7.3%	48%	53%	60%
	2	6.4%	5.9%	6.4%	52%	46%	52%
	3	6.6%	6.9%	7.1%	53%	57%	59%
	4	6.9%	7.1%	7.2%	57%	59%	60%
	5	7.1%	6.7%	6.3%	59%	55%	51%
	6	7.1%	7.2%	7.6%	58%	60%	64%
	7	7.2%	7.4%	7.0%	59%	62%	57%
	8	7.4%	7.1%	7.5%	62%	59%	63%
20 to 30 Year Expectations	1	6.2%	6.2%	6.3%	49%	49%	51%
	2	7.5%	7.5%	7.7%	63%	63%	64%
	3	7.5%	7.4%	7.7%	64%	62%	64%
	4	7.6%	7.5%	7.5%	62%	63%	63%
	5	7.6%	7.2%	7.3%	63%	60%	61%
7-10 Year Expectation Avg:		6.8%	6.9%	7.1%	56%	56%	58%
20-30 Year Expectation Avg:		7.3%	7.2%	7.3%	60%	59%	61%

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- BNY Mellon
- Callan
- Cambridge
- Mercer
- NEPC
- RVK
- Wilshire Associates

Exhibit 2.c.
KERS and SPRS Insurance Funds

	Investment Consultant	50th Percentiale Expected Return (Geometric) 2025	2024	2023	Probability of Exeeding 6.50% 2025	2024	2023
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
7 to 10 Year Expectations	1	6.2%	6.5%	7.3%	45%	50%	58%
	2	6.4%	5.9%	6.4%	49%	44%	49%
	3	6.6%	6.9%	7.1%	51%	54%	56%
	4	6.9%	7.1%	7.2%	54%	56%	57%
	5	7.1%	6.7%	6.3%	56%	52%	48%
	6	7.1%	7.2%	7.6%	56%	57%	61%
	7	7.2%	7.4%	7.0%	57%	59%	55%
	8	7.4%	7.1%	7.5%	59%	56%	60%
20 to 30 Year Expectations	1	6.2%	6.2%	6.3%	47%	47%	48%
	2	7.5%	7.5%	7.7%	61%	60%	62%
	3	7.5%	7.4%	7.7%	62%	59%	61%
	4	7.6%	7.5%	7.5%	60%	60%	60%
	5	7.6%	7.2%	7.3%	61%	57%	58%
7-10 Year Expectation Avg:		6.9%	6.9%	7.1%	53%	54%	56%
20-30 Year Expectation Avg:		7.3%	7.2%	7.3%	58%	57%	58%

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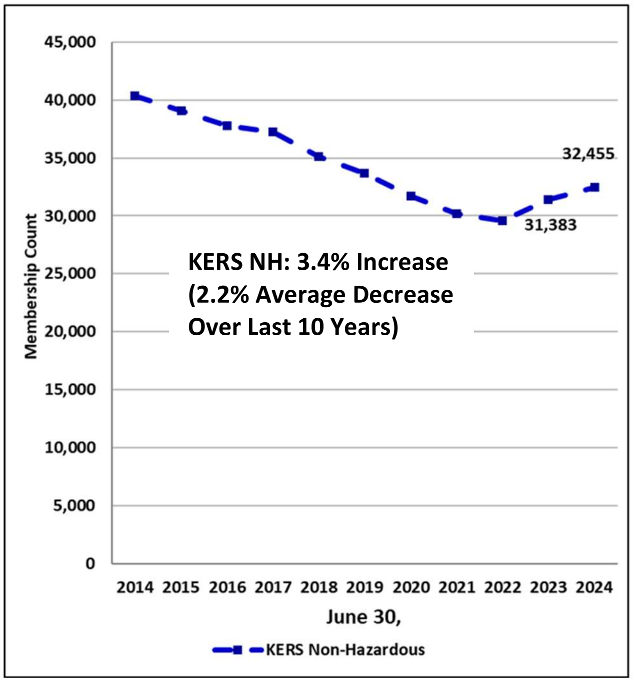
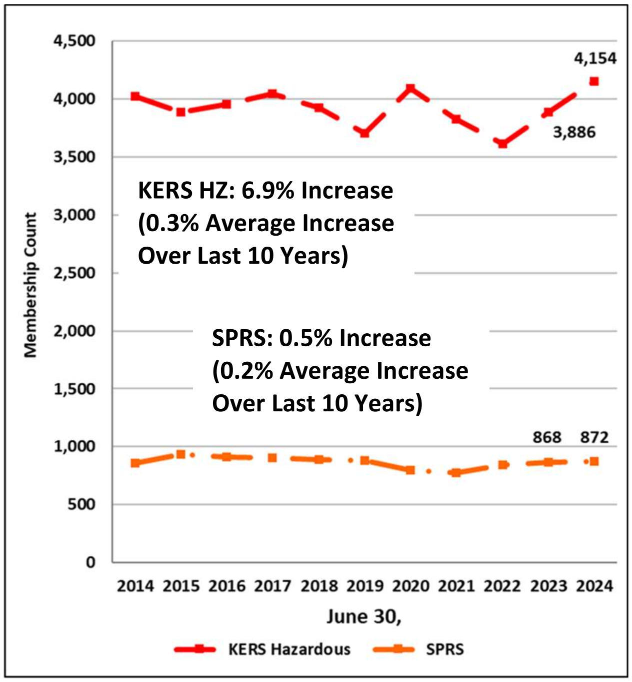
Exhibit 3.
Review of Historical
Change in Active Membership Headcount and Payroll

Change in Active Membership Headcount





Change in Membership Payroll