

Kentucky Retirement Systems Board of Trustees

Quarterly Board Meeting

December 1, 2022, 10:00 a.m. ET

Live Video Conference/Facebook Live

AGENDA

- | | |
|--|---|
| 1. Call to Order | Lynn Hampton |
| 2. Legal Public Statement | Office of Legal Services |
| 3. Roll Call/Public Comment | Sherry Rankin |
| 4. Approval of Minutes – November 1, 2022* | Lynn Hampton |
| 5. Approval of 2022 Actuarial Valuation and Contribution Rates* | Danny White, GRS
Janie Shaw, GRS |
| 6. Joint Audit Committee Report and Recommendations* | Kristen Coffey |
| a. Approval of Audited Financial Statements | Connie Davis |
| b. GASB 67 and GASB 74 | Alan Norvell, Blue & Co
Ryan Graham, Blue & Co |
| 7. Quarterly Investment Performance Report | Steve Willer/Wilshire |
| 8. Hazardous Duty Position Requests* | D’Juan Surratt |
| 9. Quarterly Financial Statements | Connie Davis |
| a. Quarterly Administrative Expenses to Budget | |
| b. Contribution Report | |
| c. Outstanding Invoices | |
| d. Penalty Waiver | |
| 10. Update on Annual Comprehensive Financial Report and
 Summary Annual Financial Report | Connie Davis |
| 11. KRS CEO Update | John Chilton |
| 12. KPPA Update | David Eager |
| 13. New Business** | Lynn Hampton |
| 14. Closed Session ** | Lynn Hampton |
| 15. Adjourn* | Lynn Hampton |

**Board Action Required*

***Board Action May Be Required*

**MINUTES OF MEETING
KENTUCKY RETIREMENT SYSTEMS
BOARD OF TRUSTEES SPECIAL CALLED MEETING
NOVEMBER 1, 2022 AT 10:00 AM ET
VIA LIVE VIDEO TELECONFERENCE**

At the meeting of the Kentucky Retirement Systems Board of Trustees held on November 1, 2022, the following members were present: Lynn Hampton (Chair), Keith Peercy, David Adkins, John Cheshire, Prewitt Lane, Pamela Thompson, Ramsey Bova, Dr. Crystal Miller, and William Summers, V. Staff members present were KRS CEO John Chilton, CERS CEO Ed Owens, III, David Eager, Erin Surratt, Victoria Hale, Connie Pettyjohn, Kristen Coffey, Connie Davis, D’Juan Surratt, Leigh Ann Davis, Dominique McKinley, Ann Case, Jared Crawford, Elizabeth Smith, Ashley Gabbard, Steve Willer, Katie Park, Phillip Cook, and Sherry Rankin. Others present included Larry Loew and Tracey Garrison with Humana, Danny White and Janie Shaw with GRS, and Allen Norvell and Ryan Graham with Blue and Co.

Ms. Hampton called the meeting to order.

Ms. Hale read the Legal Public Statement.

Ms. Rankin called roll.

There being no *Public Comment* submitted, Ms. Hampton introduced agenda item *Approval of Minutes – September 14, 2022*. A motion was made by Mr. Adkins and seconded by Mr. Lane to approve the September 14, 2022 minutes as presented. The motion passed unanimously.

Ms. Hampton introduced agenda item *Status Update of FY22 Financial Statement External Audit*. Mr. Allen Norvell with Blue and Co. introduced his colleague, Ryan Graham to the KRS Board of Trustees. Audit Director Ryan Graham with Blue and Co. presented the Status Update of FY22 Financial Statement External Audit. He stated that Blue and Co. has received early drafts of the statements and that the drafts are in review. He hopes to provide the final draft within the next few weeks. Mr. Chilton asked Mr. Graham if he had any concerns to report. Mr. Graham stated that there were no concerns to report. Ms. Hampton asked if Mr. Graham if Blue and Co. was on schedule and he confirmed that the audit is on schedule.

Ms. Hampton introduced agenda item *Review DRAFT 2022 Actuarial Valuation*. Mr. Danny White presented the valuation results as of June 30, 2022. Since the Commonwealth sets a two-year budget, the presented report was informational, said Mr. White. He discussed the impact of legislation passed in 2022 on the valuation. Active membership declined in both KERS funds and increased in SPRS, said Mr. White. Covered payroll increased by 1.7% in KERS Hazardous and by 5.6% in SPRS. There was a -5% to -6% return on market value in pension and insurance funds. Additionally, there was a \$306 million dollar loss for all KERS and SPRS retirement funds combined, and a \$1,054 million dollar gain for all KERS and SPRS insurance funds combined. Mr. White stated that about \$300 million of the loss in the retirement funds was attributed to retirees who receive a benefit from both Hazardous and Nonhazardous. Mr. Eager clarified that these losses are not a loss in assets but an experience loss as it relates to the liability. Mr. White agreed and confirmed that the losses are due to the liability being higher than expected. Mr. Chilton asked why the Medicare premiums had decreased. Mr. Eager stated that Humana would need to provide that answer, not GRS. Ms. Janie Shaw with GRS continued the presentation. She advised that it is imperative to maintain or increase the contribution effort for the Nonhazardous retirement fund. Ms. Shaw reviewed the change in required actuarially determined employer contributions of each KRS plan, the amortization cost for KERS Nonhazardous, and the unfunded actuarial accrued liability of the pension and insurance funds with the Board of Trustees. Ms. Shaw stated that active membership count is important because it is a driver of covered payroll which is how contributions are collected for the KERS Hazardous and SPRS plans. She presented the active membership count over the last ten years and reported that active membership has decreased in KERS Nonhazardous and KERS Hazardous, however, active membership had increased in SPRS. Covered payroll in KERS Nonhazardous has begun to level-off and increased in KERS Hazardous and SPRS, said Ms. Shaw. Additionally, she reported that retired membership count and pension benefit distributions continue to increase. Ms. Shaw briefly explained the funding results for the KERS plans to the Board. Mr. Eager advised that the gains and funded status increments are small but will increase each year, particularly in KERS Nonhazardous which has a funded ratio of 18.5%. They bottomed out at 12.9% in FY19, said Mr. Eager. Mr. Eager stated that he is pleased with the direction of funding and the support of legislators and House Bill 8. He also advised that the 18.5% funded ratio does not include the \$480 million dollars that has been received and will be recorded in the valuation for next year. Ms. Hampton asked what the expected outcome for FY22 was after the funding method change. Mr. White stated that the funding of the health insurance plan puts KPPA in an elite group. He advised that these insurance plans are well funded because KPPA has done a

great job managing the costs and the benefits provided by the health insurance. Next, Mr. White reviewed the projection assumptions of KERS Nonhazardous, KERS Hazardous, and SPRS. Mr. Eager commented that the projected assumptions assume that the assumptions will be realized. These assumptions are on the conservative side and may be adjusted overtime, if needed. The legislature could reset the amortization period as they did four years ago, however, Mr. Eager expressed confidence that the PPOB would wish to continue the current path until year 2049. Mr. Peercy stated that the projection of over funding within the KERS Hazardous plan is expected; however, the presented graphs project that funding decreases a few years prior to rebounding in the KERS Nonhazardous and SPRS plans. Mr. Peercy requested that Mr. White explain the decrease. Mr. White explained that the decrease is due to a mechanism of the funding policy that is in statute. Further, Mr. Peercy asked if KPPA should treat SPRS like KERS Hazardous or like the CERS plans which are over 50% funded and if it would be appropriate to change the assumption to 6.25 and increase risk in the portfolio. Mr. White stated that increased assumptions would decrease the contributions and lead to less funding; therefore, if the Board wishes to increase risk, the risk should be added in the investment policy. Mr. Eager reminded the Board that changes in assumptions should be done in small increments overtime. Mr. Lane reported that the Investment Committee has discussed if changes to assumptions are needed and how those changes would be made. In summary, Mr. White stated that it is imperative that the State and participating employers continue contributing the actuarially determined contributions in each future year to improve the System's financial security. Ms. Hampton thanked Mr. White and Ms. Shaw for their presentation. Mr. Eager asked Mr. White to explain the next steps in the valuation process. Mr. White advised that there is a reporting deadline of approximately November 15, 2022 to provide the information to the Legislative Research Commission (LRC) and the val report will be presented to the Board at the next Board of Trustees meeting on December 5, 2022 for adoption. Further, Mr. Eager explained that the data is from the period ending June 30, 2022, and was presented to the Board in December of 2022, which is FY23 and goes into effect July 1, 2023 which is FY24. Mr. Peercy made a motion to approve the Draft 2022 Actuarial Valuation. Ms. Bova seconded the motion and the motion passed unanimously.

Ms. Hampton introduced agenda item *Joint Retiree Health Plan Committee Report*. Ms. Connie Pettyjohn reported that the Joint Retiree Health Plan Committee met on October 24, 2022 and reviewed an informational presentation from Humana regarding 2023 Pharmacy Review, 2022 Member Satisfaction Survey Results, and 2023 CMS Star Ratings. She stated that the recently passed Inflation Reduction Act has an immediate impact to some of the Medicare and other benefits. The

Act will allow vaccines to be given at a zero-member cost share beginning next year, said Ms. Pettyjohn. She also reported that Humana has star ratings which have risen to 4.5 stars. Ms. Tracey Garrison with Humana commented that the vaccines which will now be covered at 100% are those which are administered in a pharmacy setting. Ms. Garrison was pleased to announce that Humana reached a 4.5-star rating across the country. She stated that all memberships in the KPPA plans will be in the 4.5-star plan for 2023. In addition, 500 KPPA retirees participated via phone in the 2022 Member Satisfaction Survey which was the highest number of participants seen in recent years. Overall, Overall satisfaction has not changed with 68% being Very Satisfied vs. 61% for 2021, and Satisfied at 23% vs. 29% for 2021, and Somewhat Satisfied/Dissatisfied at 6% vs. 8% for 2021. Ms. Pettyjohn provided an update on open enrollment for non-Medicare retirees. She reported that 8,334 calls had been received in the month of October and that emails were delivered to 26,941 individuals. Web-enrollments have been successful, and in-person retiree meetings have been conducted in partnership with Humana at numerous locations such as Lexington, Louisville, Frankfort, and Bowling Green. Mr. Chilton asked if Ms. Pettyjohn had any information regarding the decrease in Medicare premiums for the current year and any forecast of what to expect in future years. Ms. Pettyjohn stated that the Inflation Reduction Act will affect Medicare premium changes moving forward as the act directly affects the drug store/point of sale benefit. Mr. Larry Loew with Humana advised that Humana is still evaluating years of data regarding the impact of the Inflation Reduction Act. He reported that there will be changes to the structure of the Part D drug benefit that will take effect in 2024 and that all changes are positive for members. As part of the request for proposal (RFP), Humana agreed to a cap on premiums; premiums cannot increase more than 5% in 2024. Mr. Loew stated that the rates for 2023 are a result of the favorable claims experience and positive reimbursement rates from CMS. Mr. Chilton and Ms. Hampton asked Ms. Pettyjohn to review and provide a recommendation to the Joint Retiree Health Plan Committee regarding decreasing the contribution rate. Mr. Eager stated that this discussion took place recently and it was decided to not change the contribution rate. Ms. Surratt advised that this may be a discussion for future years as the contribution rate has already been set by the Joint Retiree Health Plan Committee and the Board of Trustees for 2023.

Ms. Hampton introduced agenda item *KRS Update*. KRS CEO John Chilton presented the KRS Update. He stated that meetings with the Public Pension Oversight Board (PPOB) continue monthly and have been beneficial and productive. The details of the Housekeeping Bill are being discussed. Additionally, Mr. Chilton reminded Trustees of their education requirements which are required by statute and encouraged all to utilize Board Smart for to complete their required education hours. Ms.

Hampton endorsed Board Smart and stated that it is an informative and useful tool for Trustees.

Ms. Hampton introduced agenda item *KPPA Update*. Mr. Eager provided a KPPA Update. He stated that meetings with PPOB have been helpful and that an education session for legislators is being scheduled. Ms. Carrie Bass is working diligently on the Housekeeping Bill which has been sponsored by Representative Tipton. Mr. Eager reported that KPPA is staffed with 248 employees and has maintained that level for staffing for the last ten years. He added that there are vacancies within the agency, especially within the Office of Investments. He reported that employees are retiring at a slower rate within both CERS and KRS. The Strategic Plan request for proposal (RFP) is in the final stages and is expected to be posted on November 4, 2022. Lastly, Mr. Eager stated that meetings with Mr. Willer, Dr. Hackbart, and Mr. Lane have taken place regarding investments and staffing within the Office of Investments. They are working to determine which assets should be managed passively or in-house to save on management fees. Mr. Willer is collaborating with KPPA Human Resources to modify job descriptions for the portfolio managers and create additional Investment Analyst positions to provide support to Portfolio Managers. There are currently three employees managing \$22 billion dollars in assets, said Mr. Eager. Mr. Eager stated that Dr. Hackbart is interested in creating a formal process by which KPPA follows investment trends and best practices etc. It was also discussed whether a Chief Operating Officer (COO) in the investment management area would be a beneficial addition to the division. Lastly, Mr. Eager would like to formulate a plan to reduce fees. Ms. Hampton asked if there are still interns working within the Office of Investments. Mr. Eager stated that there is one active intern and one open intern position which will likely be filled next summer. He also stated that recruitment at various local universities will need to accelerate to acquire interns and the needed staff for Investments.

Ms. Hampton introduced *Department Spotlight-IT*. The Division Director of Enterprise and Technology Services, Dominique McKinley, presented the Department Spotlight. Ms. McKinley reviewed the mission, vision, and responsibilities/areas of support of the Enterprise and Technology Services Division with the Board of Trustees. The Division is currently staffed with 46 employees; ten of those are contracted employees. Mr. Eager asked Ms. McKinley to briefly touch on contract employees as the most recent hire within the Division is a contract employee. Ms. McKinley confirmed that a new contract employee did start on October 31, 2022 and is a former KPPA employee who retired ten year ago and is now rejoining the Authority. She advised that contract positions are common in the IT field and that she has had great success with contract employees. Ms. Hampton asked how contracted employees are managed. Ms. McKinley stated

that these contracted employees are treated as if they were full-time State employees; however, they are often assigned to special projects. Further, Ms. Hampton asked if contracted employees are contracted for a specific period. These contracts are for one year, said Ms. McKinley. Mr. Chilton asked how many employees within the Division regularly work at the KPPA office. Ms. McKinley stated that Service Desk employees work in-office on a rotating basis and that all other employees can work 100% from home if they choose to do so. She emphasized the importance of security within her division. Ms. McKinley advised that a migration to Microsoft 365 is being rolled out in phases to all KPPA employees and will provide several new upgrades. Ms. Hale reminded Ms. McKinley that Trustees are also impacted by the migration to Microsoft 365. Ms. McKinley advised the Board of Trustees that Boxer mobile application will no longer be used to receive their KPPA emails; it will be replaced by the Microsoft Outlook mobile application. She advised that additional changes would come later in the roll out. Lastly, Ms. McKinley expressed her continued emphasis on security and works to educate employees on potential threats and how to identify them. Mr. Chilton stated that the START System is proprietary and very complex due to the difference in the five different plans administered by KPPA. Ms. McKinley stated that the START System was purchased in 2011 from Deloitte and since has been modified to meet KPPA needs. Ms. Hampton asked if there is an annual fee for the system since KPPA owns the system. There is no annual fee for the system, said Ms. McKinley.

Ms. Hampton stated that there would be no *New Business* or *Closed Session*.

Ms. Hampton opened the floor for a motion to adjourn. Mr. Adkins made a motion and was seconded by Ms. Bova to adjourn the meeting. The motion passed unanimously.

Copies of all documents presented are incorporated as part of the Minutes of the Board of Trustees held November 1, 2022 except documents provided during a closed session conducted pursuant to the open meetings act and exempt under the open records act.

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CERTIFICATION

I do certify that I was present at this meeting, and I have recorded the above actions of the Trustees on the various items considered by it at this meeting. Further, I certify that all requirements of KRS 61.805-61.850 were met in conjunction with this meeting.

Recording Secretary

I, the Chair of the Board of Trustees of the Kentucky Retirement Systems, do certify that the Minutes of Meeting held on November 1, 2022 were approved on December 5, 2022.

Chair of the Board of Trustees

I have reviewed the Minutes of the November 1, 2022 Board of Trustees Meeting for content, form, and legality.

Executive Director
Office of Legal Services



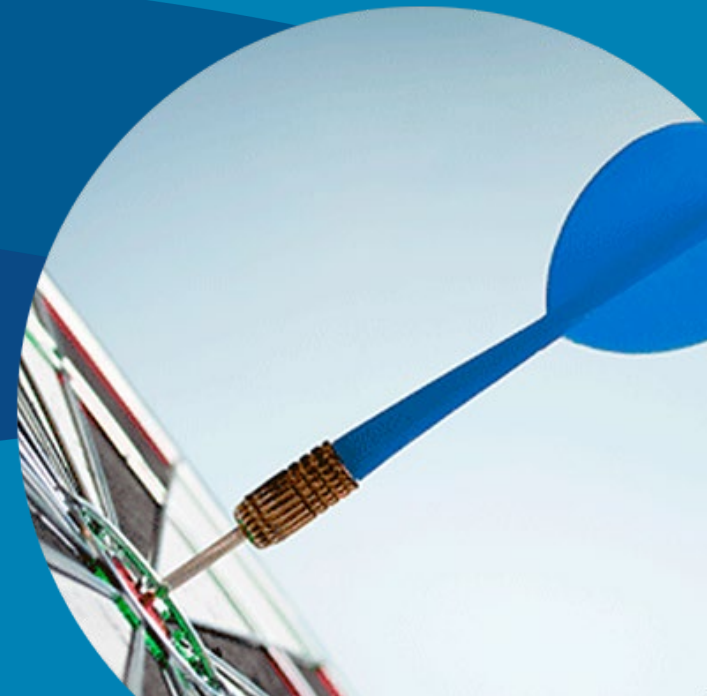
Kentucky Retirement Systems

2022 Actuarial Valuation Results

December 1, 2022

Janie Shaw, ASA, EA, MAAA

Danny White, FSA, EA, MAAA



Comments on Valuation Results

- Overview of legislation passed in 2022
 - **SB 209:** increased health insurance benefits to members hired after July 1, 2003
 - **HB 259:** conversion of unused sick leave to employer pay credits to SPRS members earning benefits in the cash balance plan
 - **HB 1 and HB 604:** provides \$240 million in additional appropriations to the non-hazardous retirement fund each year for two years (FY 2023 and FY 2024)
 - **HB 1:** also provided \$215 million in additional appropriations to the SPRS retirement fund in FY 2022



Comments on Valuation Results

- Change in active membership and covered payroll
 - Active membership declined in both KERS funds and increased for SPRS
 - Hazardous: 1.7% increase in covered payroll
 - SPRS: 5.6% increase in covered payroll
 - Employer contribution for the non-hazardous fund is no longer tied to payroll



Comments on Valuation Results

- FYE 2022 Investment Experience
 - -5% to -6% return on market value (varies by fund)
 - Assumed rate of return: 5.25% for Non-Hazardous KERS and SPRS retirement funds
 - Assumed rate of return: 6.25% for KERS Hazardous retirement fund and Insurance funds
 - Fund assets \$743M less than expected for KERS and SPRS (\$471M pension and \$272M insurance)
 - \$41M in asset gains recognized this year (\$31M pension and \$10M insurance)



Comments on Valuation Results

- Retirement Fund Liability Experience
 - \$306M loss for all KERS/SPRS retirement funds combined
 - Liability within 2.0% of expected
- Insurance Fund Liability Experience
 - \$1,054M gain for all KERS/SPRS insurance funds combined
 - Medicare premiums decreased significantly from 2022 to 2023



Comments on KERS Non-Haz Retirement Fund

- Imperative to maintain or increase contribution effort for the non-hazardous retirement fund
 - June 30, 2022 plan assets were \$3,014 million
 - Fund distributed \$1,048 million in benefit payments and administrative expenses in FYE 2022
 - Fund received \$1,206 million in employer and member contributions in FYE 2022



Actuarially Determined Employer Contributions

	KERS Non-Hazardous		KERS Hazardous		SPRS	
	2021 Val	2022 Val	2021 Val	2022 Val	2021 Val	2022 Val
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pension Fund	7.82%	7.74%	31.82%	30.12%	85.32%	85.39%
Insurance Fund	<u>2.15%</u>	<u>1.86%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>14.11%</u>	<u>3.68%</u>
Actuarially Determined Contribution Rate, payable as a percentage of payroll	9.97%	9.60%	31.82%	30.12%	99.43%	89.07%
Difference		(0.37)%		(1.70)%		(10.36)%
Amortization Cost – Pension	\$ 906M	\$ 901M				
Amortization Cost – Insurance	<u>88M</u>	<u>5M</u>				
Amortization Cost - Total	\$ 994M	\$ 906M	N/A	N/A	N/A	N/A
Difference		\$ (88)				

Note: The 2021 valuation established the contribution requirement for FYE2023 and FYE2024.



Actuarially Determined Employer Contributions (\$millions)

	KERS Non-Hazardous		KERS Hazardous		SPRS	
	2021 Val	2022 Val	2021 Val	2022 Val	2021 Val	2022 Val
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pension Fund	\$ 1,012	\$ 1,006	\$ 52	\$ 50	\$ 39	\$ 41
Insurance Fund	<u>117</u>	<u>30</u>	<u>0</u>	<u>0</u>	<u>6</u>	<u>2</u>
Total Actuarially Determined Employer Contribution	\$ 1,129	\$ 1,036	\$ 52	\$ 50	\$ 45	\$ 43
Change in Actuarially Determined Employer Contribution		\$ (93)		\$ (2)		\$ (2)

Note: The 2021 valuation established the contribution requirement for FYE2023 and FYE2024.
The 2022 valuation was provided for informational purposes only.



Change in Required Employer Contributions

KERS Non-Hazardous – Amortization Cost

	KERS Non-Hazardous (\$millions)		
	Pension	Insurance	Total
Amortization Cost – 2021 Val	\$ 906	\$ 88	\$ 994
\$240M in Appropriations	(20)	0	(20)
Investment Experience	(2)	(1)	(3)
Demographic Experience	17	(85)	(68)
Plan Change – SB 209	<u>0</u>	<u>3</u>	<u>3</u>
Total Change	\$(5)	\$(83)	\$(88)
Amortization Cost – 2022 Val	\$ 901	\$ 5	\$ 906

Reflects only appropriations budgeted for FY 2023. Next year's valuation expected to recognize an additional \$20 million reduction due to FY 2024 appropriations.

Significant decrease in Medicare health insurance premiums from 2022 to 2023



Change in Required Employer Contributions

KERS Haz – Actuarially Determined Contribution Rate

	KERS Hazardous (% of pay)		
	Pension	Insurance	Total
Contribution Rate – 2021 Val	31.82%	0.00%	31.82%
Investment Experience	(0.29)%	N/A	(0.29)%
Demographic Experience	(1.41)%	N/A	(1.41)%
Plan Change – SB 209	<u>0 %</u>	<u>N/A</u>	<u>0.00 %</u>
Total Change	(1.70)%	N/A	(1.70)%
Contribution Rate – 2022 Val	30.12%	0.00%	30.12%



Change in Required Employer Contributions

SPRS – Actuarially Determined Contribution Rate

	SPRS (% of pay)		
	Pension	Insurance	Total
Contribution Rate – 2021 Val	85.32%	14.11%	99.43%
Investment Experience	(0.42)%	(0.51)%	(0.93)%
Demographic Experience	(1.66)%	(11.58)%	(13.24)%
Plan Change – HB 259 / SB 209	<u>2.15 %</u>	<u>1.66 %</u>	<u>3.81 %</u>
Total Change	0.07 %	(10.43)%	(10.36)%
Contribution Rate – 2022 Val	85.39%	3.68%	89.07%

Return on actuarial value of assets
6% pension, 7% insurance

Significant decrease in Medicare
health insurance premiums from
2022 to 2023

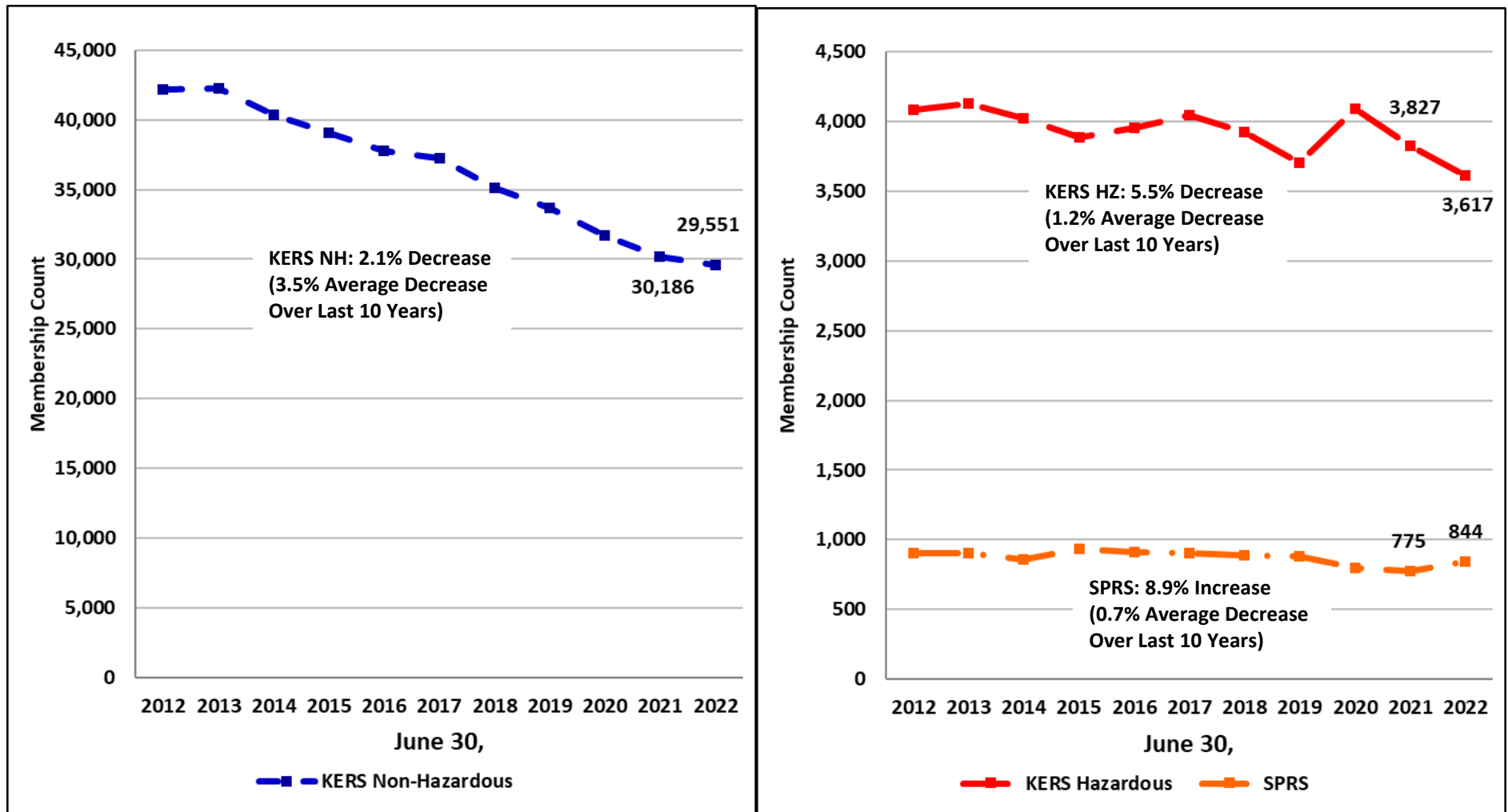


Unfunded Actuarial Accrued Liability – Actuarial Value of Asset Basis (\$ in Billions)

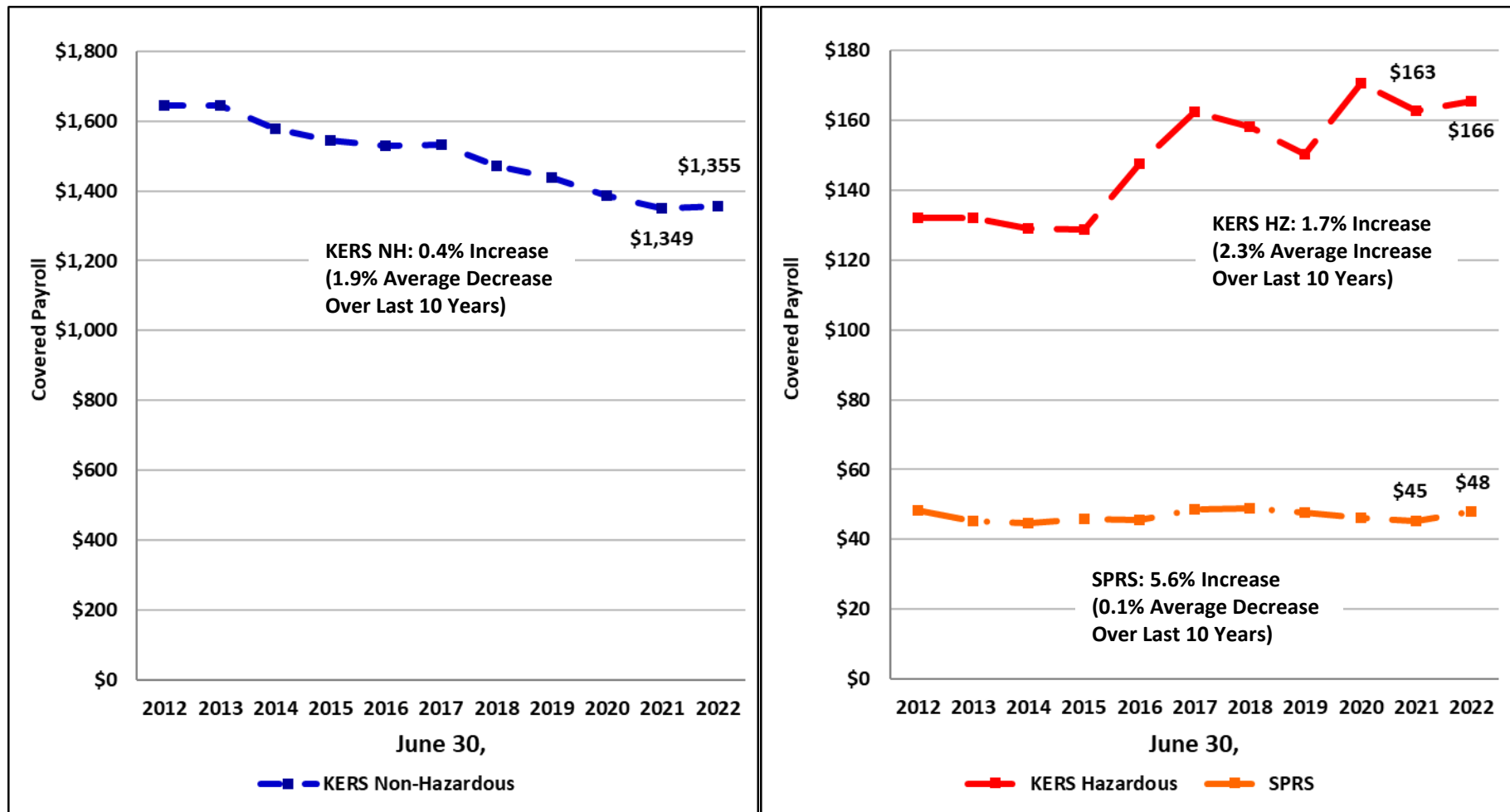
	KERS Non-Hazardous		KERS Hazardous		SPRS	
	2021 Val	2022 Val	2021 Val	2022 Val	2021 Val	2022 Val
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pension Fund	\$ 13.59	\$ 13.51	\$ 0.51	\$ 0.48	\$ 0.73	\$ 0.51
Insurance Fund	<u>1.28</u>	<u>0.37</u>	<u>(0.15)</u>	<u>(0.25)</u>	<u>0.05</u>	<u>0.00</u>
Total Unfunded Actuarial Accrued Liability	\$ 14.87	\$ 13.88	\$ 0.36	\$ 0.23	\$ 0.78	\$ 0.51
Change in Unfunded Actuarial Accrued Liability		\$ (0.99)		\$ (0.13)		\$ (0.27)



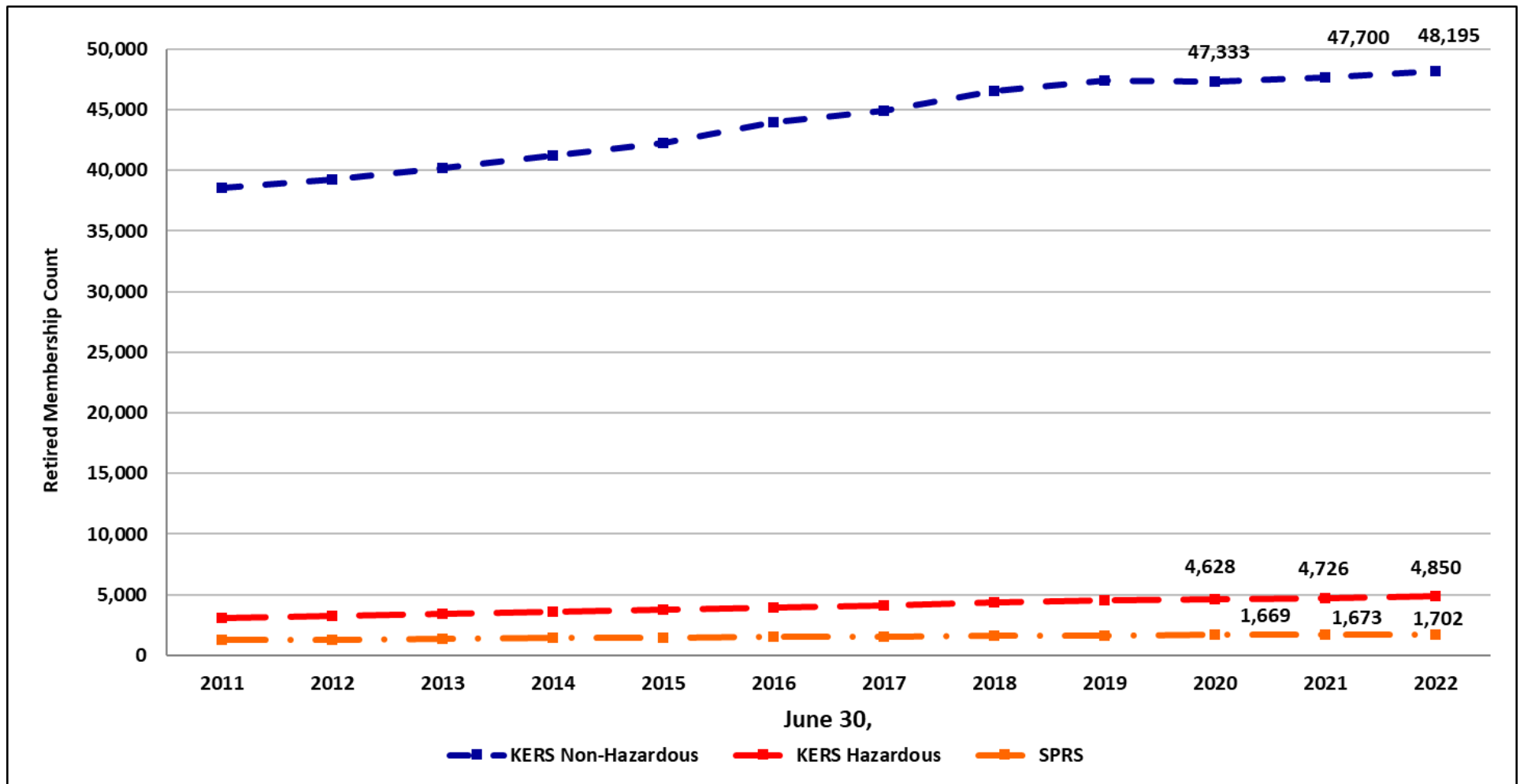
Active Membership Count



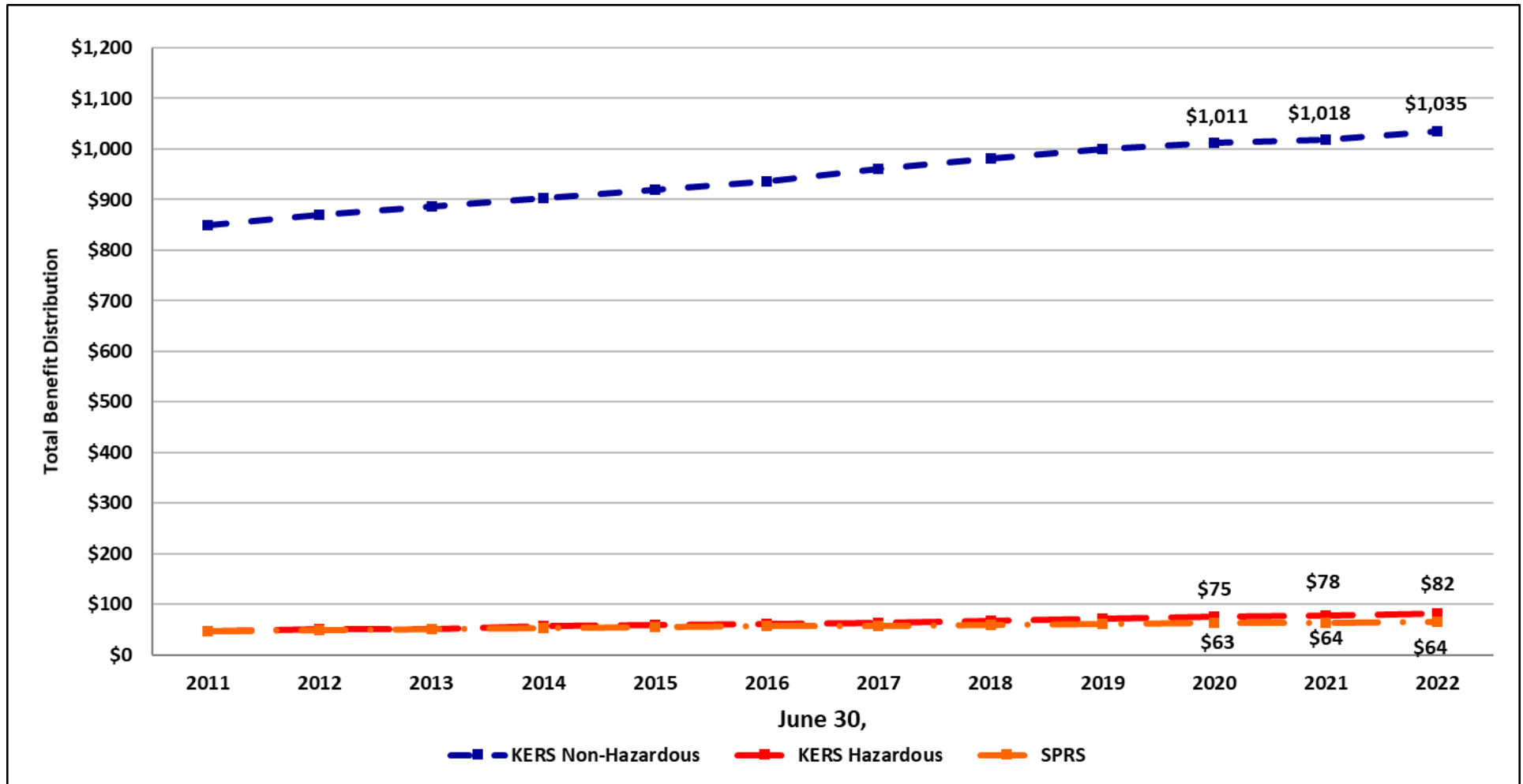
Covered Payroll (\$ in Millions)



Retired Membership Count



Pension Benefit Distributions (\$ in Millions)



Funding Results – KERS (\$ in millions)

Item	Non-Hazardous System				Hazardous System			
	Pension		Insurance		Pension		Insurance	
	2021	2022	2021	2022	2021	2022	2021	2022
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Total Normal Cost Rate	11.96%	11.76%	2.54%	2.29%	16.01%	15.72%	4.46%	4.07%
Member Rate	<u>(5.00%)</u>	<u>(5.00%)</u>	<u>(0.45%)</u>	<u>(0.49%)</u>	<u>(8.00%)</u>	<u>(8.00%)</u>	<u>(0.66%)</u>	<u>(0.70%)</u>
Employer Normal Cost Rate	6.96%	6.76%	2.09%	1.80%	8.01%	7.72%	3.80%	3.37%
Administrative Expenses	0.86%	0.98%	0.06%	0.06%	0.77%	0.88%	0.07%	0.08%
Amortization Cost	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>23.04%</u>	<u>21.52%</u>	<u>(7.59%)</u>	<u>(13.39%)</u>
Total Actuarially Determined Rate	7.82%	7.74%	2.15%	1.86%	31.82%	30.12%	0.00%	0.00%
Amortization Cost to be Allocated	\$906	\$901	\$88	\$5	N/A	N/A	N/A	N/A
Actuarial Accrued Liability (AAL)	\$16,321	\$16,577	\$2,574	\$1,782	\$1,295	\$1,317	\$424	\$347
Actuarial Value of Assets	<u>2,736</u>	<u>3,065</u>	<u>1,291</u>	<u>1,410</u>	<u>782</u>	<u>832</u>	<u>575</u>	<u>598</u>
Unfunded AAL	\$13,585	\$13,511	\$1,283	\$373	\$513	\$484	(\$151)	(\$251)
Funded Ratio	16.8%	18.5%	50.2%	79.1%	60.4%	63.2%	135.5%	172.2%



Funding Results – SPRS (\$ in millions)

Item	Pension		Insurance	
	2021	2022	2021	2022
(1)	(2)	(3)	(4)	(5)
Total Normal Cost Rate	26.13%	26.92%	7.35%	7.03%
Member Rate	<u>(8.00%)</u>	<u>(8.00%)</u>	<u>(0.46%)</u>	<u>(0.52%)</u>
Employer Normal Cost Rate	18.13%	18.92%	6.89%	6.51%
Administrative Expenses	0.47%	0.57%	0.20%	0.15%
Amortization Cost	<u>66.72%</u>	<u>65.90%</u>	<u>7.02%</u>	<u>(2.98%)</u>
Total Actuarially Determined Rate	85.32%	85.39%	14.11%	3.68%
Actuarial Accrued Liability (AAL)	\$1,053	\$1,067	\$272	\$233
Actuarial Value of Assets	<u>323</u>	<u>560</u>	<u>223</u>	<u>234</u>
Unfunded AAL	\$730	\$507	\$49	\$(1)
Funded Ratio	30.7%	52.5%	82.0%	100.6%



PROJECTION INFORMATION PENSION AND INSURANCE

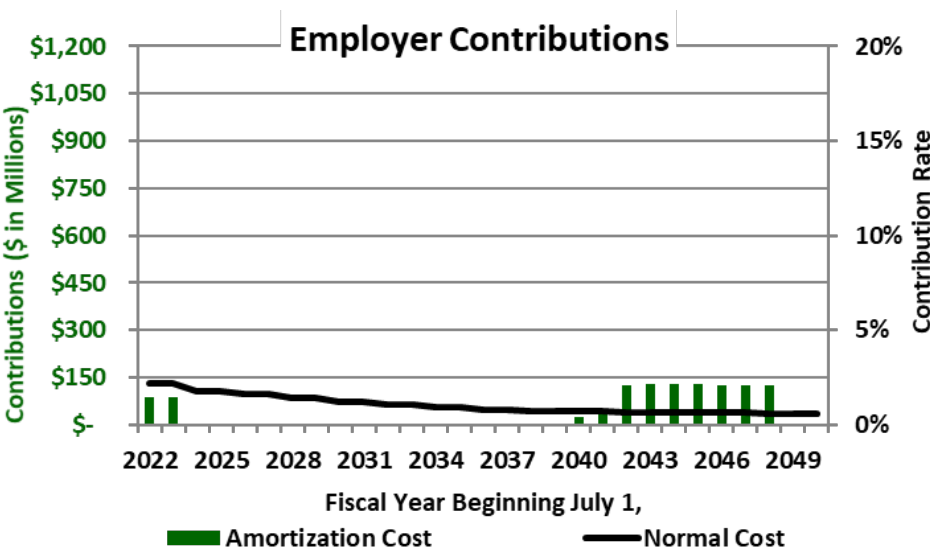
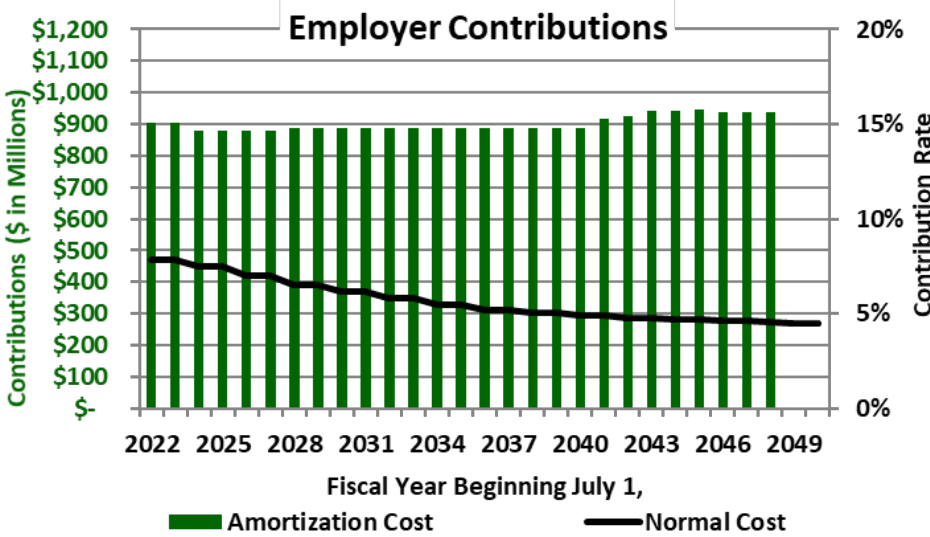
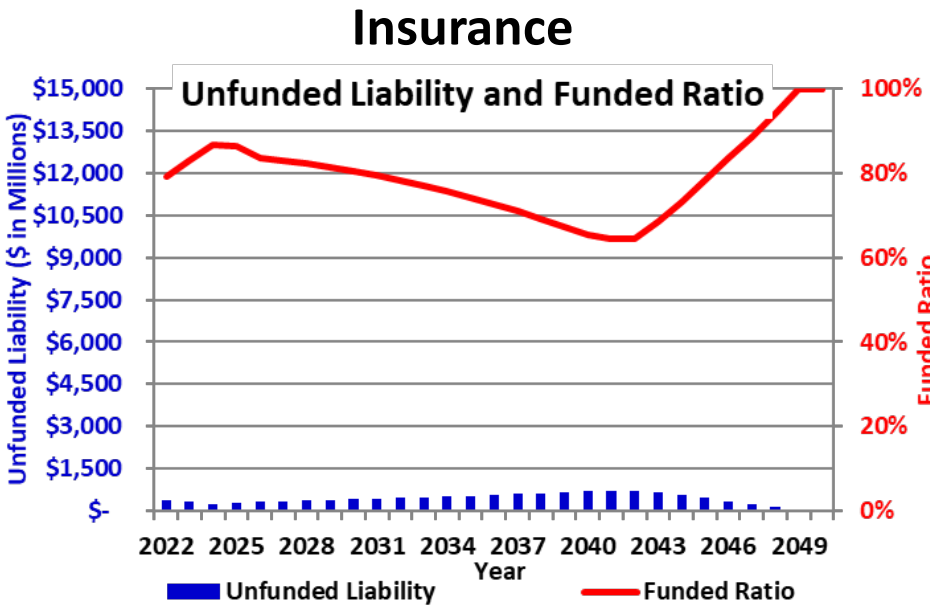
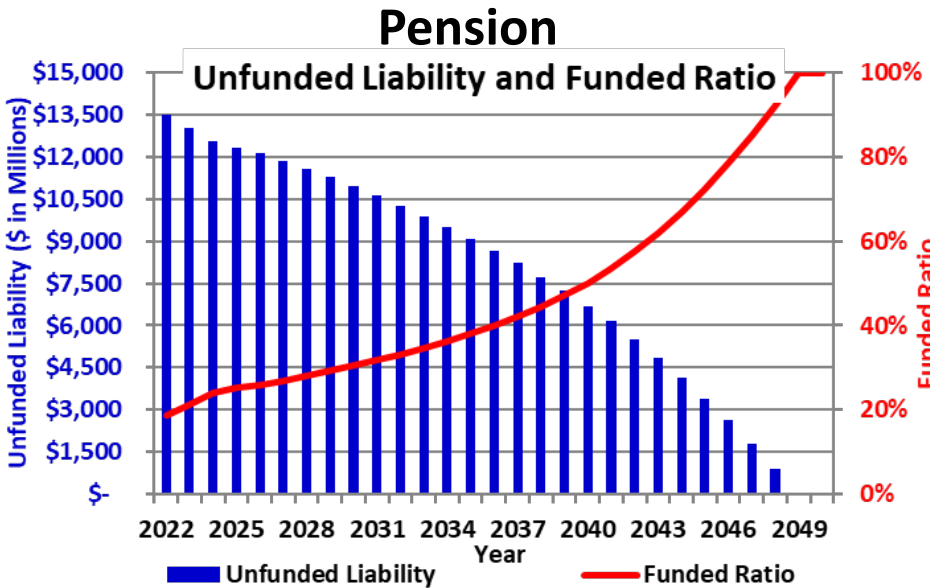


Projection Assumptions

- Assumes that all actuarial assumptions are realized, including the assumed annual asset return of 5.25%/6.25%
- Full actuarially determined contribution paid each biennium
- Covered payroll assumed to remain level
 - Total active population assumed to decrease 2% each year

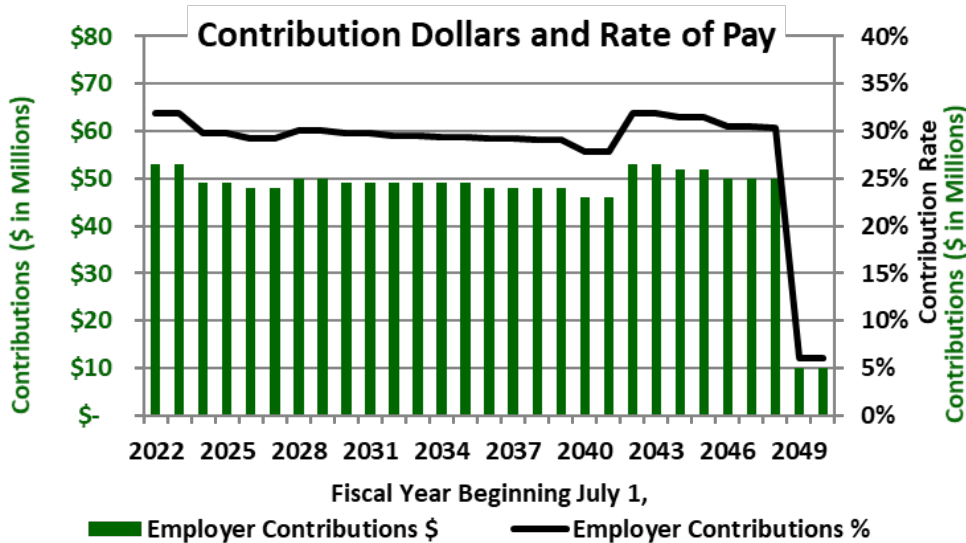
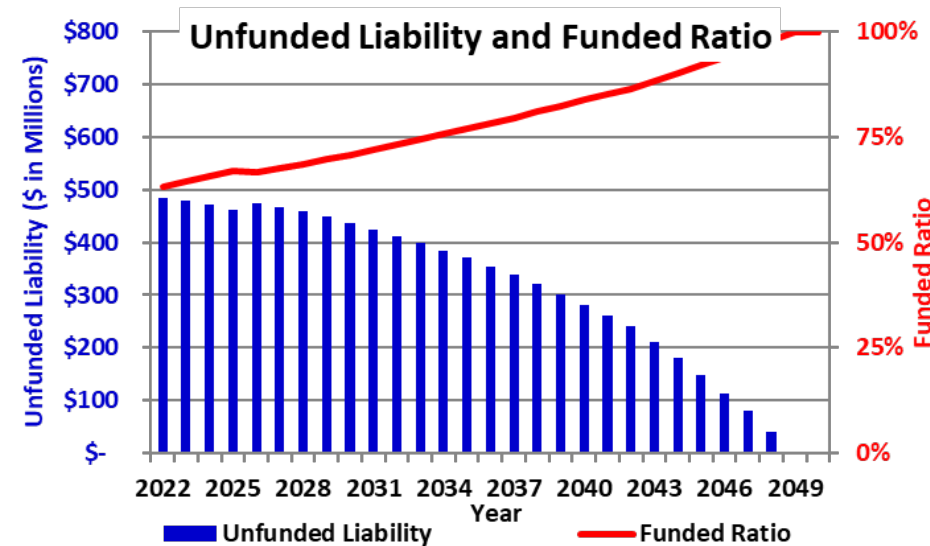


KERS Non-Hazardous Projection

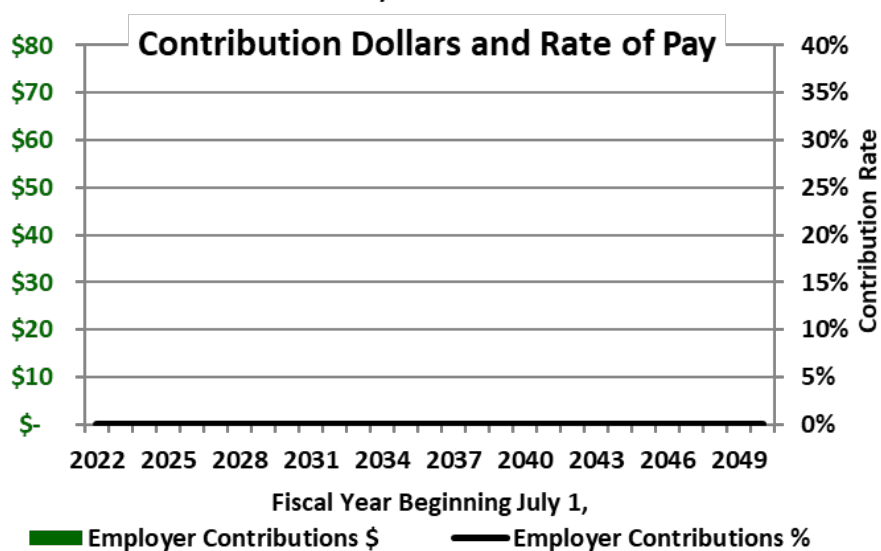
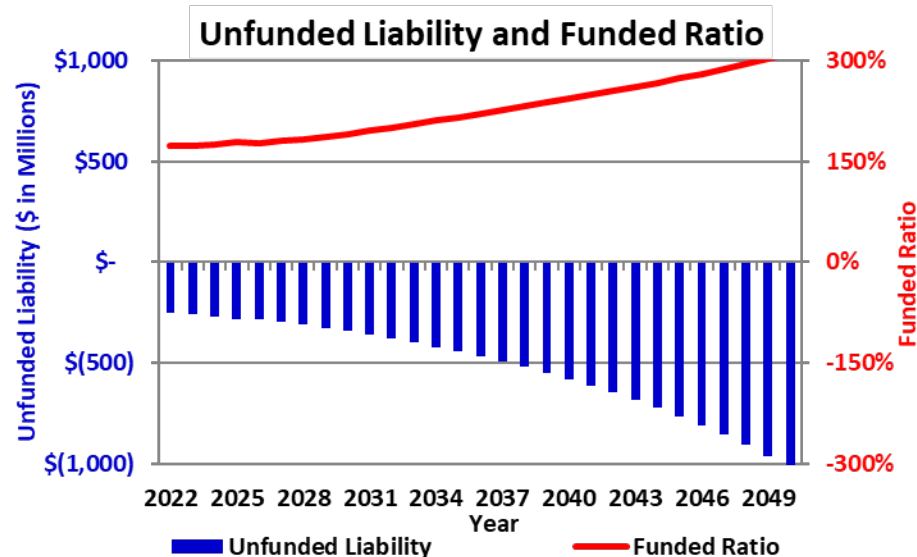


KERS Hazardous Projection

Pension

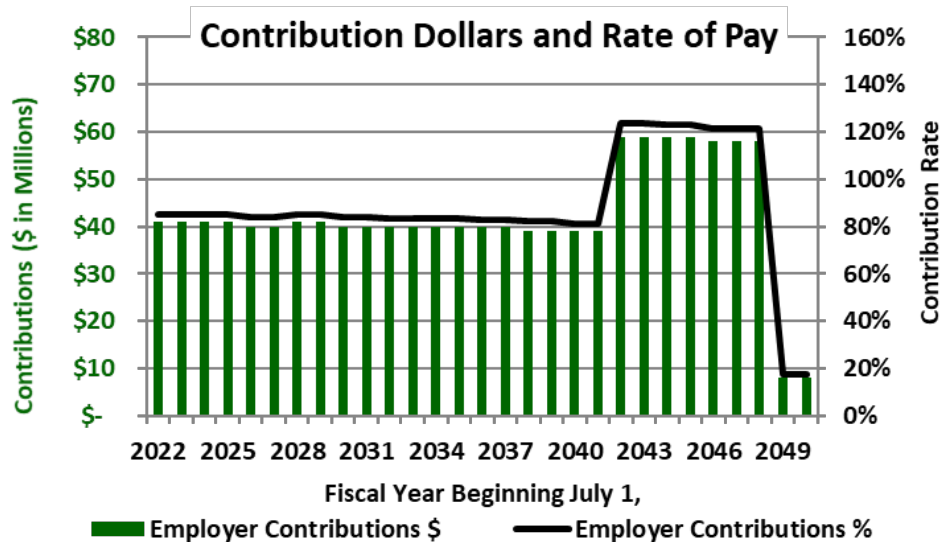
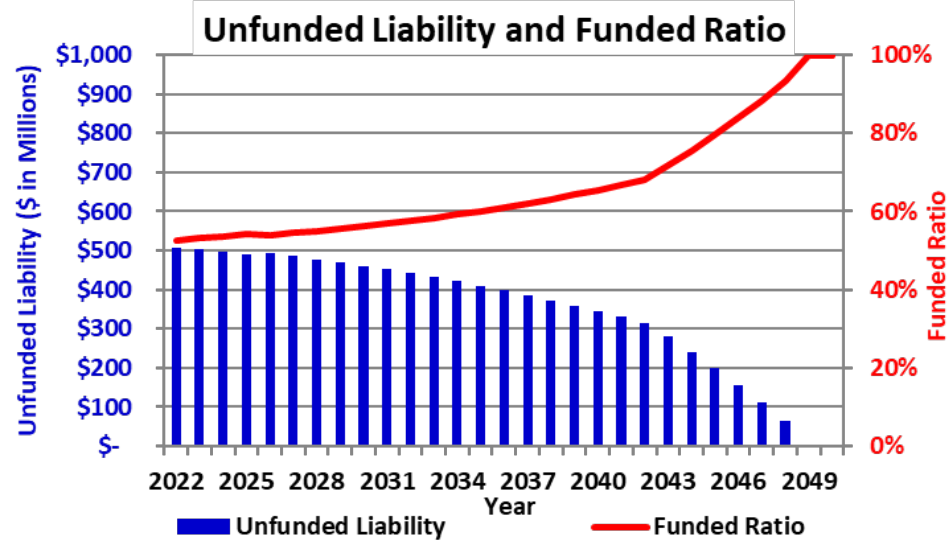


Insurance

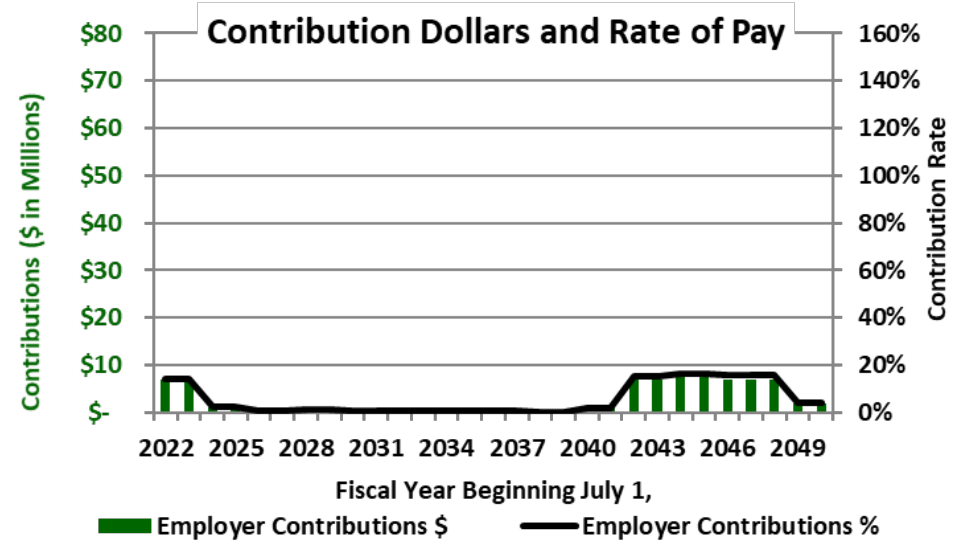
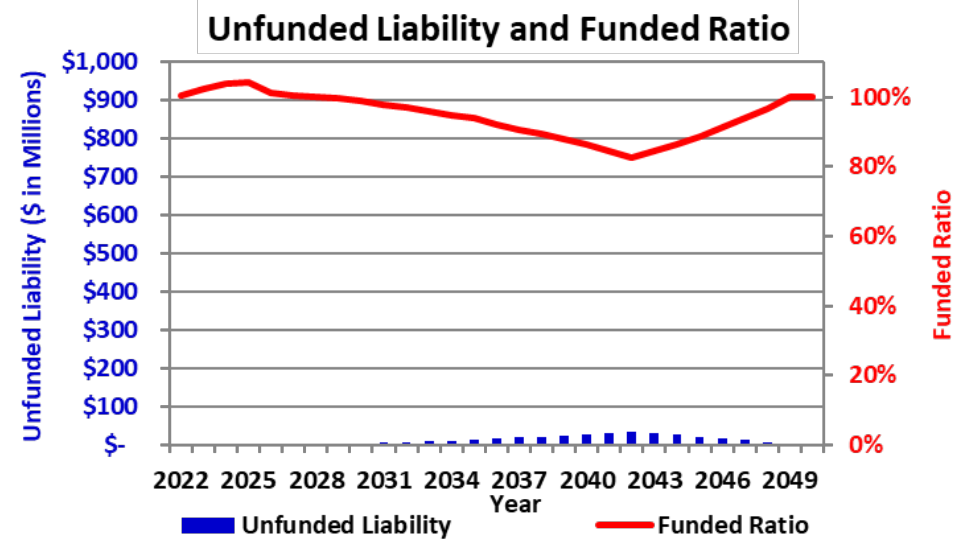


SPRS Projection

Pension



Insurance



Closing Comments on 2022 Valuation Results

- The decrease in the Medicare premiums from 2022 to 2023 significantly improved the funded status of the insurance funds and lowered the required contribution effort across all funds
- The FYE 2022 investment losses almost offset the FYE 2021 investment gains (compared to the investment return assumption)
- It is imperative the State and participating employers continue contributing the actuarially determined contributions in each future year to improve the System's financial security



Disclaimers

- This presentation is intended to be used in conjunction with the actuarial valuation as of June 30, 2022. This presentation should not be relied on for any purpose other than the purpose described in the valuation report.
- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- Readers are cautioned to examine original source materials and to consult with subject matter experts before making decisions related to the subject matter of this presentation.





KENTUCKY PUBLIC PENSIONS AUTHORITY

David L. Eager, Executive Director

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To: Kentucky Retirement System Board of Trustees

From: William O'Mara, Chair
Joint Audit Committee
Kristen N. Coffey, CICA *KNC*
Division Director, Internal Audit Administration

Date: December 1, 2022

Subject: Summary of Joint Audit Committee Meeting

The County Employees Retirement System (CERS) and Kentucky Retirement Systems (KRS) Joint Audit Committee held a regularly scheduled meeting on November 28, 2022.

1. Items to be forwarded to the Kentucky Public Pensions Authority:

- a. **Draft results of the fiscal year ended June 30, 2022 audit, including the draft Financial Section of the Annual Report***

The Joint Audit Committee accepted the reports and requests that the KRS Board approve the report and authorize KPPA staff to publish the reports. This passed unanimously. The draft Annual Report will also be presented for acceptance by the KRS Board of Trustees at the December 1, 2022 meeting, the CERS Board of Trustees at the December 5, 2022 meeting, and KPPA at the December 7, 2022 meeting.

- b. **Purchase of Infrastructure and Application Security Assessment***

The Joint Audit Committee approved the purchase of the Security assessment as presented and recommended authorizing KPPA staff to complete the procurement process. This passed unanimously.

RECOMMENDATION: We request the KRS Board of Trustees ratify the actions taken by the Joint Audit Committee.

2. The following other items were also discussed during the Joint Audit Committee meeting. These are presented for informational purposes only.

- a. External Audit Management Letter Comments
- b. Auditor Communications with those Charged with Governance
- c. Financial statements for the quarter year ended September 30, 2022.
- d. Draft response to Government Finance Officers Association.
- e. Update on security requirements for KPPA subcontractors with access to confidential information.
- f. Update on invalid addresses.

- g. Information disclosures – *5 disclosures identified, effecting 5 members.*
- h. Anonymous Tips – *7 open cases.*
- i. Introduction of Internal Audit Staff
- j. Internal Audit Budget – *80% of budget remaining.*
- k. Status of current internal audits – *16 current projects and 1 completed project.*
- l. Update on inability of JP Morgan Chase to serve as a fiduciary.

***Board of Trustees action may be required**

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REPORT OF INDEPENDENT AUDITORS

To the Members
Kentucky Public Pensions Authority
Frankfort, Kentucky

Report on the Audit of Financial Statements

Opinion

We have audited the accompanying financial statements of Kentucky Public Pensions Authority (KPPA), a component unit of the Commonwealth of Kentucky, as of and for the year ended June 30, 2022, and the related notes to the financial statements, which collectively comprise KPPA's financial statements as listed in the table of contents.

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of KPPA, as of June 30, 2022, and the changes in fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of KPPA and to meet our other ethical responsibilities in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about KPPA's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that

REPORT OF INDEPENDENT AUDITORS (Continued)

includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with generally accepted auditing standards and *Government Auditing Standards* will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgement made by a reasonable user based on the financial statements.

In performing an audit in accordance with generally accepted auditing standards and *Government Auditing Standards*, we:

- Exercise professional judgement and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of KPPA's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgement, there are conditions or events, considered in the aggregate, that raise substantial doubt about KPPA's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control related matters that we identified during the audit.

Summarized Comparative Information

We have previously audited KPPA's 2021 financial statements, and we expressed an unmodified audit opinion on those audited financial statements in our report dated December 8, 2021. In our opinion, the summarized comparative information presented herein as of and for the year ended June 30, 2021, is consistent, in all material respects, with the audited financial statements from which it has been derived.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis on pages 5 through 13, and the defined benefit pension plan and other post-employment benefit plan supplemental schedules on pages 80 through 106, be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a

REPORT OF INDEPENDENT AUDITORS (Continued)

part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming opinion on the financial statements that collectively comprise KPPA's basic financial statements. The accompanying schedules of administrative expense, direct investment expenses, and professional consultant fees are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the schedules of administrative expense, direct investment expenses, and professional consultant fees are fairly stated, in all material respects, in relation to the basic financial statements as a whole.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated --DATE-- on our consideration of KPPA's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of KPPA's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering KPPA's internal control over financial reporting and compliance.

Blue & Co., LLC

Lexington, Kentucky

--DATE--

Management's Discussion & Analysis (Unaudited)

This section provides a discussion and analysis of the financial performance of the retirement and OPEB plans administered by the Kentucky Public Pensions Authority (KPPA) for the year ended June 30, 2022. The discussion and analysis of the plans' financial performance is within the context of the accompanying basic financial statements, notes to the financial statements, required supplementary schedules, and additional information following this section.

The Authority is responsible for administering cost-sharing, multiple-employer defined benefit pension plans for various employer agencies of Kentucky, along with a single-employer defined benefit pension plan and defined benefit OPEB plans. All plans are fiduciary plans.

The defined benefit pension plans include:

County Employees Retirement System (includes CERS Nonhazardous and CERS Hazardous)
Kentucky Employees Retirement System (includes KERS Nonhazardous and KERS Hazardous)
State Police Retirement System

The defined benefit OPEB plans are in the Kentucky Retirement System Insurance Trust Fund. The Insurance Fund provides health benefits for CERS Nonhazardous, CERS Hazardous, KERS Nonhazardous, KERS Hazardous, and SPRS plans for retired members and beneficiaries.

The Management Discussion and Analysis is the KPPA leadership summary of the management of the CERS, KERS, and SPRS Fiduciary Pension Plans (collectively the Pension Funds) and Insurance Trust Fund. KPPA is a component unit of the Commonwealth of Kentucky, (the Commonwealth) for financial and reporting purposes.

PENSION FUNDS

The following highlights are explained in more detail later in this report.

Total Pension Funds Fiduciary Net Position was \$15.9 billion at the beginning of the fiscal year and decreased by (4.40)% to \$15.2 billion as of June 30, 2022. The \$(0.7) billion decrease is primarily attributable to unrealized investment losses.

CONTRIBUTIONS

Total contributions reported for fiscal year 2022 were \$2,653.1 million compared to \$2,243.5 million in fiscal year 2021. The increase is the result of rising Employer Contribution rates for CERS Nonhazardous, CERS Hazardous and SPRS; the Actuarially Accrued Liability Contribution received in KERS Nonhazardous; a General Fund appropriation to SPRS in the amount of \$215.0 million; as well as an increase in covered payroll for CERS Nonhazardous, CERS Hazardous, KERS Hazardous and SPRS.

INVESTMENTS

The investment portfolio for the Pension Funds reported a net negative return of 5.73% for fiscal year 2022 compared to a net positive return of 25.00% for fiscal year 2021.

The net depreciation in the fair value of investments for fiscal year 2022 was \$1,175.9 million compared to net appreciation of \$2,898.3 million for the previous fiscal year.

Interest, dividends, and net securities lending income for fiscal year 2022 was \$431.2 million compared to \$392.0 million in fiscal year 2021. All investment returns are reported net of fees and investment expenses, including carried interests. Investment expenses totaled \$140.0 million for fiscal year 2021 compared to \$171.6 million in the current fiscal year. The increase in fees is a result of additional money invested and gains in the private equity, specialty credit and real estate asset classes in fiscal year 2022.

DEDUCTIONS

Pension benefits paid to retirees and beneficiaries for fiscal year 2022 totaled \$2,328.6 million compared to \$2,263.4 million in fiscal year 2021, a 2.88% increase. The increase was due to a 2.22% increase in the number of retirees to 139,738. Refunded contributions paid to former members upon termination of employment for fiscal year 2022 totaled \$42.9 million compared to \$32.1 million in fiscal year 2021, a 33.64% increase, as more members elected a refund at employment termination.

Management's Discussion & Analysis (Unaudited)

KPPA's fiscal year 2022 Pension administrative expense totaled \$39.7 million compared to \$36.8 million in the prior year. The increase was mainly due to the June 30 payroll being paid on June 30, 2022, instead of July 1, 2022, as in previous years, resulting in a twenty-fifth KPPA employee payroll in June of 2022, related employer benefit expenses, an increase in legal expenses, as well as information technology expenses.

INSURANCE FUND

The following highlights are explained in more detail later in this report.

The combined fiduciary net position of the Insurance Fund decreased by \$(377.0) million during fiscal year 2022. Total combined net position for the fiscal year was \$6,596.6 million. Total contributions and net investment income of \$7.7 million offset deductions of \$384.6 million which resulted in the net position decrease.

CONTRIBUTIONS

Employer contributions of \$319.0 million were received in fiscal year 2022 compared to \$346.0 million in fiscal year 2021. Total contributions changed (7.80)% primarily due to a decrease in Employer Contributions, Humana Gain Share Payment, and Employer Cessation Contributions. As well as a decrease in covered payroll for KERS Non-Hazardous.

The reimbursement of retired/reemployed health insurance for fiscal year 2022 totaled \$12.7 million compared to \$12.5 million in the prior fiscal year. The increase is due to an increase in retired/re-employed members for whom employers are paying health insurance reimbursements.

INVESTMENTS

Interest, dividends, and net securities lending income for fiscal year 2022 was \$193.5 million compared to \$162.4 million in fiscal year 2021. The increase in income and dividends is the result of an increase in allocation to the public equities and fixed income asset classes.

The investment portfolio reported a net negative return of 5.34% for the fiscal year, which was much lower than fiscal year 2021's record net positive return of 24.95%. The investment return was below the 6.25% assumed rate of return used for actuarial calculations.

The net depreciation in the fair value of investments for fiscal year 2022 was \$482.5 million compared to net appreciation of \$1,286.3 million for the previous fiscal year. This \$(1,769) million decrease in fiscal year 2022 was due to unfavorable market returns compared to fiscal year 2021.

Investment expenses totaled \$84.0 million for fiscal year 2022 compared to \$71.2 million in the prior fiscal year. The increase in fees is a result of additional money invested and gains in the private equity, specialty credit and real estate asset classes in fiscal year 2022.

DEDUCTIONS

Total insurance premiums, plus self-funded reimbursements were \$382.2 million for fiscal year 2022. The fiscal year 2022 insurance premiums were comparable to fiscal year 2021 rates, the number of covered lives only increased approximately 1% year-over-year.

Insurance administrative expenses for retirees under age 65, increased from \$2.35 million in fiscal year 2021 to \$2.45 million in fiscal year 2022.

Management's Discussion & Analysis (Unaudited)

Using This Financial Report

Because of the long-term nature of a defined benefit pension plan and post-employment healthcare benefit plan, the combining financial statements alone cannot provide sufficient information to properly reflect the Plans' ongoing financial perspective. This financial report consists of three combining financial statements and two schedules of historical trend information. All plans within KPPA are included in the aforementioned combining financial statements. The Combining Statement of Fiduciary Net Position for the Pension Funds on page ## and the Statement of Fiduciary Net Position for the Insurance Fund on page ## provide a snapshot of the financial position of each of the three systems as of fiscal year end 2022. The Combining Statement of Changes in Fiduciary Net Position for the Pension Funds on page ## , and the Statement of Changes in Fiduciary Net Position for the Insurance Fund on page ## , summarize the additions and deductions that occurred for each of the ten funds during fiscal year 2022.

The economic assumptions for the Pension Funds and Insurance Fund for fiscal year 2022 are on page ##, the Schedules of Changes in Employers' Total Pension Liability on pages ##-##, the Schedules of the Employer Net Pension Liability on pages ##-##; the Schedule of Changes in Employers' Total Other Post-Employment Benefits (OPEB) Liability are on pages ###-###; and, the Schedule of the Employers' Net OPEB Liabilities are on pages ###-###. These schedules include current and historical trend information about the actuarially funded status of each plan from a long-term, ongoing plan perspective and the progress made in accumulating sufficient assets to pay benefits and insurance premiums when due. The Schedules of the Employers' Contributions – Pensions are on pages ##-##, and the Schedules of the Employers' Contributions – OPEB are on pages ###-###. These schedules present current and historical trend information about the annual required contributions and the contributions made in relation to the requirement. These schedules provide information that contributes to understanding the changes over time in the funded status of the plans.

Kentucky Public Pensions Authority Combined

KPPA's combined fiduciary net position changed by \$(1,051) million in fiscal year 2022, compared to the fiduciary net position for the previous fiscal year. The decrease in fiduciary net position for the fiscal year 2022 is primarily attributable to negative investment performance. This analysis focuses on the net position table and changes in the fiduciary net position table for KPPA's Pension and Insurance Funds.

Management's Discussion & Analysis (Unaudited)

Fiduciary Net Position As of June 30 (\$ in Thousands)

	Pension Plans			Insurance Plans			Total		
	2022	2021	2020	2022	2021	2020	2022	2021	2020
Cash & Invest.	\$15,418,076	\$16,391,137	\$13,150,428	\$6,766,874	\$7,184,408	\$5,687,583	\$22,184,950	\$23,575,545	\$18,838,011
Receivables	337,832	361,429	295,988	77,410	122,132	87,102	415,242	483,561	383,090
Capital Assets	324	677	1,619	-	-	-	324	677	1,619
Total Assets	15,756,232	16,753,243	13,448,035	6,844,284	7,306,540	5,774,685	22,600,516	24,059,783	19,222,720
Total Liabilities	(508,052)	(830,553)	(586,817)	(247,644)	(332,927)	(250,019)	(755,696)	(1,163,480)	(836,836)
Fiduciary Net Position	\$15,248,180	\$15,922,690	\$12,861,218	\$6,596,640	\$6,973,613	\$5,524,666	\$21,844,820	\$22,896,303	\$18,385,884
<i>Capital Assets include capital assets, intangible assets, depreciation and amortization.</i>									

Pension Plan Activities

Member contributions increased by \$28.2 million. This is primarily due to an increase in member service purchases and covered payroll in CERS Nonhazardous, CERS Hazardous, KERS Hazardous, and SPRS. Retirement contributions are calculated by applying a percentage factor to salary and are remitted by each employer on behalf of members. Nonhazardous Tier 1 members pay pension contributions of 5.00% of creditable compensation and Hazardous Tier 1 members contribute 8.00% of creditable compensation; whereas, Nonhazardous Tier 2 and 3 members pay contributions of 6.00% of creditable compensation and Hazardous Tier 2 and 3 members contribute 9% of creditable compensation.

Employer contributions increased by \$279.6 million for fiscal year 2022. For CERS Nonhazardous and CERS Hazardous the increase in contributions was the result of the increase in rates due to the phase-out of the statutory relief. While KERS Nonhazardous saw an increase in contributions due to the Actuarial Assumed Liability Contributions (AALC) payments received.

Total Pension Plans deductions increased by \$79.0 million. The 3.39% increase was primarily driven by the normal increase in retirements across all plans.

Net investment income declined by \$(4,066.6) million. This is illustrated in the Investment Income Pension table on the next page. The decrease in fair value of investments during fiscal year 2022 was the driving force of the decline in net investment income. However, despite the decrease in fair value of investments, the Pension Plans experienced an increase in income when compared to fiscal year 2021, due to the increase in allocation to the public equities and fixed income asset classes.

Overall, KPPA reported a net negative return of 5.73% for the fiscal year. This outperformed the IPS policy benchmark return of negative 5.76% but failed to meet the actuarial assumed rate of return of 6.25% used by CERS Nonhazardous, CERS Hazardous and KERS Hazardous, and 5.25% used by KERS Nonhazardous and SPRS.

Management's Discussion & Analysis (Unaudited)

Changes in Fiduciary Net Position For the fiscal year ending June 30 (\$ in Thousands)									
	Pension Plans			Insurance Plans			Total		
	2022	2021	2020	2022	2021	2020	2022	2021	2020
Additions:									
Member Cont.	\$371,181	\$342,980	\$353,360	\$-	\$-	\$-	\$371,181	\$342,980	\$353,360
Employer Cont.	1,091,160	1,724,309	1,709,544	217,318	346,026	369,573	1,308,478	2,070,335	2,079,117
Heath Ins. Cont.	(208)	(4)	11	27,791	24,409	23,142	27,583	24,405	23,153
Humana Gain Share	-	-	-	18,382	42,897	-	18,382	42,897	-
Pension Spiking Cont.	122	222	369	-	-	-	122	222	369
General Fund Appro.	215,000	384	1,086	-	-	-	215,000	384	1,086
Employer Cessation Cont.	63,113	175,600	20	2,405	28,400	25	65,518	204,000	45
Premiums Rec'd	-	-	-	364	563	730	364	563	730
Retired Reemp Ins.	-	-	-	12,667	12,535	11,482	12,667	12,535	11,482
Medicare Subsidy	-	-	-	2	3	7	2	3	7
AAL Contributions	912,705	-	-	101,637	-	-	1,014,342	-	-
Invest. Inc. (net)	(916,320)	3,150,288	139,534	(372,900)	1,377,531	23,263	(1,289,220)	4,527,819	162,797
Total Additions	1,736,753	5,393,779	2,203,924	7,666	1,832,364	428,222	1,744,419	7,226,143	2,632,146
Deductions:									
Benefit payments	2,328,594	2,263,388	2,205,859	-	-	-	2,328,594	2,263,388	2,205,859
Refunds	42,927	32,130	33,511	-	-	-	42,927	32,130	33,511
Admin. Exp.	39,742	36,789	37,668	2,454	2,354	2,415	42,196	39,143	40,083
Healthcare Costs	-	-	-	382,167	381,063	381,780	382,167	381,063	381,780
Excise Tax	-	-	-	18	-	-	18	-	-
Total Deductions	2,411,263	2,332,307	2,277,038	384,639	383,417	384,195	2,795,902	2,715,724	2,661,233
Increase (Decrease) in Fiduciary Net Position	(674,510)	3,061,472	(73,114)	(376,973)	1,448,947	44,027	(1,051,483)	4,510,419	(29,087)
Beginning of Period	15,922,690	12,861,218	12,934,332	6,973,613	5,524,666	5,480,639	22,896,303	18,385,884	18,414,971
End of Period	\$15,248,180	\$15,922,690	\$12,861,218	\$6,596,640	\$6,973,613	\$5,524,666	\$21,844,820	\$22,896,303	\$18,385,884

Management's Discussion & Analysis (Unaudited)

CERS			
As of June 30 (\$ in Thousands)			
CERS Nonhazardous Investment Income - Pension	2022	2021	2020
Increase (decrease) in fair value of investments	\$(1,011,822)	\$1,331,722	\$(418,825)
Investment income net of investment expense	136,769	135,711	133,875
Gain on sale of investments	374,057	316,798	341,632
Total Investment Income from Investing Activity	\$(500,996)	\$1,784,231	\$56,682
CERS Hazardous Investment Income - Pension	2022	2021	2020
Increase (decrease) in fair value of investments	\$(350,070)	\$447,895	\$(143,942)
Investment income net of investment expense	48,654	45,850	46,351
Gain on sale of investments	125,985	106,985	113,583
Total Investment Income from Investing Activity	\$(175,431)	\$600,730	\$15,992
KERS			
As of June 30 (\$ in Thousands)			
KERS Nonhazardous Investment Income - Pension	2022	2021	2020
Increase (decrease) in fair value of investments	\$(310,014)	\$380,850	\$(74,946)
Investment income net of investment expense	52,680	50,630	38,727
Gain on sale of investments	91,430	96,959	89,915
Total Investment Income from Investing Activity	\$(165,904)	\$528,439	\$53,696
KERS Hazardous Investment Income - Pension	2022	2021	2020
Increase (decrease) in fair value of investments	\$(102,300)	\$129,806	\$(38,820)
Investment income net of investment expense	15,111	13,943	13,346
Gain on sale of investments	35,348	31,173	32,279
Total Investment Income from Investing Activity	\$(51,841)	\$174,922	\$6,805
SPRS			
As of June 30 (\$ in Thousands)			
Investment Income - Pension	2022	2021	2020
Increase (decrease) in fair value of investments	\$(39,791)	\$45,055	\$(11,168)
Investment income net of investment expense	6,347	5,885	5,314
Gain on sale of investments	11,296	11,026	12,213
Total Investment Income from Investing Activity	\$(22,148)	\$61,966	\$6,359

Insurance Plan Activities

Employer contributions paid into the Insurance Plans decreased by \$27.1 million in fiscal year 2022 over the prior fiscal year. The decrease in employer contributions is directly related to a decrease in covered payroll for KERS Nonhazardous as well as a decrease in the insurance contribution rate for CERS Nonhazardous, CERS Hazardous, KERS Nonhazardous and SPRS employer contributions.

Income from investment activities decreased by \$1,750.4 million in fiscal year 2022 compared to fiscal year 2021. Overall, KPPA reported a net negative return of 5.34% for the fiscal year. This underperformed both the negative IPS policy benchmark of 5.21% and the actuarial assumed rate of return of 6.25% used by all of the Insurance Plan Funds.

Management's Discussion & Analysis (Unaudited)

CERS

As of June 30 (\$ in Thousands)

CERS Nonhazardous Investment Income - Insurance	2022	2021	2020
Increase (decrease) in fair value of investments	\$(360,292)	\$469,201	\$(145,098)
Investment income net of investment expense	51,633	41,009	47,683
Gain on sale of investments	137,960	109,383	106,071
Total Investment Income from Investing Activities	\$(170,699)	\$619,593	\$8,656
CERS Hazardous Investment Income - Insurance	2022	2021	2020
Increase (decrease) in fair value of investments	\$(177,397)	\$245,549	\$(80,031)
Investment income net of investment expense	24,818	20,284	24,998
Gain on sale of investments	74,126	56,984	57,270
Total Investment Income from Investing Activities	\$(78,453)	\$322,817	\$2,237

KERS

KERS Nonhazardous Investment Income - Insurance	2022	2021	2020
Increase (decrease) in fair value of investments	\$(146,482)	\$195,110	\$(41,651)
Investment income net of investment expense	20,023	18,478	18,946
Gain on sale of investments	40,904	45,007	33,329
Total Investment Income from Investing Activities	\$(85,555)	\$258,595	\$10,624
KERS Hazardous Investment Income - Insurance	2022	2021	2020
Increase (decrease) in fair value of investments	\$(63,789)	\$96,312	\$(30,360)
Investment income net of investment expense	9,471	8,372	9,884
Gain on sale of investments	26,912	21,791	21,114
Total Investment Income from Investing Activities	\$(27,406)	\$126,475	\$638

SPRS

Investment Income - Insurance	2022	2021	2020
Increase (decrease) in fair value of investments	\$(25,758)	\$38,253	\$(11,431)
Investment income net of investment expense	3,632	3,060	3,670
Gain on sale of investments	11,339	8,738	8,869
Total Investment Income from Investing Activities	\$(10,787)	\$50,051	\$1,108

Management's Discussion & Analysis (Unaudited)

Historical Trends

Accounting standards require that the Combining Statement of Fiduciary Net Position state asset values at fair value and include benefits and refunds due plan members and beneficiaries; unrealized investment income (loss); and administrative expenses as of the reporting date. Information regarding the actuarial funding status of the Pension and Insurance Funds is provided in the Schedules of Net Pension Liability (NPL) on page ###-## and Net OPEB Liability on pages ###-##. The asset values stated in the Schedules of Changes in Employers' Total Pension Liability (TPL) on pages ###-## and Total OPEB Liability on pages ###-### are the actuarial value of assets. The actuarial value of assets recognizes a portion of the difference between the fair value of assets and the expected fair value of assets based on the investment return assumption. The amount recognized each year is 20% of the difference between fair value and expected fair value. The actuarial accrued liability is calculated using the entry age normal cost funding method. This actuarial accrued liability is the measure of the cost of benefits that have been earned to date by CERS, KERS and SPRS' members, but not yet paid. The difference in value between the actuarial accrued liability and the actuarial value of assets is defined as the unfunded actuarial accrued liability.

The unfunded actuarial accrued liability from the June 30, 2022, actuarial valuation in the Pension Plans increased by \$93.4million for a total unfunded amount of \$25,101.5 million in fiscal year 2022, compared to an unfunded amount of \$25,008.1 million in fiscal year 2021. The overall funding increase is the result of a loss in funds due to less than favorable market conditions during fiscal year 2022. However, both CERS plans experienced a slight increase as a result of the phase-in of higher contribution rates as adjusted by the provisions of House Bill 362 passed during the 2018 legislative session.

The Insurance Plan's unfunded actuarial accrued liability from the June 30, 2022, actuarial valuation for fiscal year 2022, was negative \$663.0 million compared to \$1,960.0 million for fiscal year 2021. This is a decrease in the unfunded actuarial accrued liability of \$2,623.0 million. The decrease is due to the gains for all funds and the significant decrease in Medicare premiums.. Please see the charts on the following page for the unfunded actuarial accrued liability.

Annual required actuarially determined contributions by the employers and actual contributions made by employers and other contributing entities in relation to the required contributions, are provided in the Schedules of Employer Contributions - Pension on pages ###-##, and in the Schedules of Contributions - OPEB on pages ###-###. The difference in the annual required contributions and actual contributions made by employers and other contributing entities in the KERS and SPRS funds is attributable to the fact that the employer contribution rate set by the Kentucky General Assembly was less than the rate recommended by the KPPA actuary in prior years and adopted by the Board.

Information Requests

This financial report is designed to provide a general overview of the CERS, KERS, SPRS, and Insurance Fund finances. Questions concerning any of the information provided in this report or requests for additional information should be directed to:

ATTN: Director of Accounting
Kentucky Public Pensions Authority
1260 Louisville Road
Frankfort, KY. 40601
(502) 696-8800

Management's Discussion & Analysis (Unaudited)

Schedule of Unfunded Actuarial Accrued Liability CERS

As of June 30 (\$ in Millions)

Item	CERS Non-Hazardous				CERS Hazardous			
	Pension		Insurance		Pension		Insurance	
	2022	2021	2022	2021	2022	2021	2022	2021
Actuarial Accrued Liability (AAL)	\$15,674	\$14,895	\$2,392	\$3,450	\$5,862	\$5,629	\$1,538	\$1,751
Actuarial Value of Assets	8,149	7,716	3,160	2,947	2,789	2,629	1,554	1,476
Unfunded AAL	\$7,525	\$7,179	\$(768)	\$503	\$3,073	\$3,000	\$(16)	\$275
Funded Ratio	51.99%	51.80%	132.11%	85.42%	47.58%	46.69%	101.02%	84.26%

Schedule of Unfunded Actuarial Accrued Liability KRS

As of June 30 (\$ in Millions)

Item	KERS Non-Hazardous				KERS Hazardous				SPRS			
	Pension		Insurance		Pension		Insurance		Pension		Insurance	
	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021
Actuarial Accrued Liability (AAL)	\$16,576	\$16,321	\$1,782	\$2,574	\$1,316	\$1,295	\$347	\$424	\$1,067	\$1,053	\$233	\$272
Actuarial Value of Assets	3,065	2,736	1,409	1,291	832	782	598	575	560	323	234	223
Unfunded AAL	\$13,511	\$13,585	\$373	\$1,283	\$484	\$513	\$(251)	\$(151)	\$507	\$730	\$(1)	\$49
Funded Ratio	18.49%	16.76%	79.08%	50.17%	63.22%	60.41%	172.23%	135.47%	52.46%	30.69%	100.62%	81.96%

Combining Statement of Fiduciary Net Position - Pension

As of June 30, 2022, with Comparative Totals as of June 30, 2021 (\$ in Thousands)

	CERS	CERS	KERS	KERS	SPRS	Pension Total	Pension Total
	Nonhazardous	Hazardous	Nonhazardous	Hazardous		2022	2021
ASSETS							
CASH AND SHORT-TERM INVESTMENTS							
Cash Deposits	\$170	\$17	\$128	\$35	\$17	\$367	\$712
Short-term Investments	286,875	114,933	492,114	77,438	145,573	1,116,933	935,745
Total Cash and Short-term Investments	287,045	114,950	492,242	77,473	145,590	1,117,300	936,457
RECEIVABLES							
Accounts Receivable	120,621	35,408	85,356	3,808	10,606	255,799	147,299
Accounts Receivable - Investments	43,002	14,694	16,447	4,627	3,263	82,033	214,130
Total Receivables	163,623	50,102	101,803	8,435	13,869	337,832	361,429
INVESTMENTS, AT FAIR VALUE							
Core Fixed Income	894,977	303,150	619,736	103,032	109,439	2,030,334	2,287,125
Public Equities	3,592,281	1,224,631	894,601	329,332	152,376	6,193,221	6,877,974
Private Equities	753,384	251,589	196,183	69,313	19,462	1,289,931	1,235,393
Specialty Credit	1,692,750	574,070	573,266	169,678	88,065	3,097,829	2,617,613
Derivatives	(1,091)	(373)	(1,076)	(141)	(183)	(2,864)	(85)
Real Return	244,801	80,777	60,546	22,364	9,328	417,816	998,141
Opportunistic	-	-	-	-	-	-	404,069
Real Estate	494,607	157,478	164,991	45,860	19,823	882,759	610,215
Total Investments, at Fair Value	7,671,709	2,591,322	2,508,247	739,438	398,310	13,909,026	15,030,445
Securities Lending Collateral Invested	208,156	70,856	77,505	21,277	13,957	391,751	424,235
CAPITAL/INTANGIBLE ASSETS							
Capital Assets	1,701	153	929	91	11	2,885	2,885
Intangible Assets	9,961	826	5,920	493	100	17,300	17,301
Accumulated Depreciation	(1,701)	(153)	(929)	(91)	(11)	(2,885)	(2,885)
Accumulated Amortization	(9,794)	(823)	(5,772)	(488)	(100)	(16,977)	(16,624)
Total Capital Assets	167	3	148	5	-	323	677
Total Assets	8,330,700	2,827,233	3,179,945	846,628	571,726	15,756,232	16,753,243
LIABILITIES							
Accounts Payable	4,156	811	1,766	254	61	7,048	13,983
Investment Accounts Payable	56,042	18,638	23,931	5,860	4,782	109,253	392,335
Securities Lending Collateral	208,156	70,856	77,505	21,277	13,957	391,751	424,235
Total Liabilities	268,354	90,305	103,202	27,391	18,800	508,052	830,553
Total Fiduciary Net Position							
Restricted for Pension Benefits	\$8,062,346	\$2,736,928	\$3,076,743	\$819,237	\$552,926	\$15,248,180	\$15,922,690

See accompanying notes which are an integral part of these combining financial statements.

Note: The displayed fair values include investable assets held by each System and its associated contributions, payables, equipment and intangible assets; unlike those found in the Investment Section, which include only those investable assets held by each System.

The Opportunistic asset class was merged with Specialty Credit.

Combining Statement of Changes In Fiduciary Net Position - Pension

For the fiscal year ending June 30, 2022, with Comparative Totals as of June 30, 2021 (\$ in Thousands)

	CERS	CERS	KERS	KERS	SPRS	Pension Total	PensionTotal
	Nonhazardous	Hazardous	Nonhazardous	Hazardous		2022	2021
ADDITIONS							
Member Contributions	\$186,648	\$69,565	\$89,607	\$20,588	\$4,773	\$371,181	\$342,980
Employer Contributions	606,772	221,968	141,027	59,052	62,341	1,091,160	1,724,309
Actuarially Accrued Liability Contributions	-	-	912,705	-	-	912,705	-
General Fund Appropriations	-	-	-	-	215,000	215,000	384
Pension Spiking Contributions	35	60	24	3	-	122	222
Health Insurance Contributions (HB1)	(60)	(104)	(13)	(5)	(26)	(208)	(4)
Employer Cessation Contributions	-	-	63,113	-	-	63,113	175,600
Total Contributions	793,395	291,489	1,206,463	79,638	282,088	2,653,073	2,243,491
INVESTMENT INCOME							
From Investing Activities							
Net Appreciation (Depreciation) in FV of Investments	(637,765)	(224,085)	(218,584)	(66,952)	(28,495)	(1,175,881)	2,898,268
Interest/Dividends	239,643	81,324	75,029	24,179	9,201	429,376	390,618
Total Investing Activities Income/Loss	(398,122)	(142,761)	(143,555)	(42,773)	(19,294)	(746,505)	3,288,886
Less: Investment Expense	45,454	14,044	10,406	3,921	1,362	75,187	62,509
Less: Performance Fees	58,431	18,972	12,277	5,250	1,532	96,462	77,481
Net Income/Loss from Investing Activities	(502,007)	(175,777)	(166,238)	(51,944)	(22,188)	(918,154)	3,148,896
From Securities Lending Activities							
Securities Lending Income	891	308	321	92	40	1,652	936
Less: Securities Lending Borrower Rebates (Income)/Expense	(298)	(99)	(72)	(29)	(7)	(505)	(700)
Less: Securities Lending Agent Fees	178	61	59	18	7	323	244
Net Income from Securities Lending	1,011	346	334	103	40	1,834	1,392
Net Investment Income/Loss	(500,996)	(175,431)	(165,904)	(51,841)	(22,148)	(916,320)	3,150,288
Total Additions	292,399	116,058	1,040,559	27,797	259,940	1,736,753	5,393,779
DEDUCTIONS							
Benefit Payments	858,261	305,790	1,023,375	77,047	64,121	2,328,594	2,263,388
Refunds	19,789	5,766	12,116	4,976	280	42,927	32,130
Administrative Expenses	22,670	1,995	13,339	1,465	273	39,742	36,789
Total Deductions	900,720	313,551	1,048,830	83,488	64,674	2,411,263	2,332,307
Net Increase (Decrease) in Fiduciary Net Position Restricted for Pension Benefits	(608,321)	(197,493)	(8,271)	(55,691)	195,266	(674,510)	3,061,472
Total Fiduciary Net Position Restricted for Pension Benefits							
Beginning of Period	8,670,667	2,934,421	3,085,014	874,928	357,660	\$15,922,690	12,861,218
End of Period	\$8,062,346	\$2,736,928	\$3,076,743	\$819,237	\$552,926	\$15,248,180	\$15,922,690
<i>See accompanying notes, which are an integral part of these combining financial statements.</i>							

Combining Statement of Fiduciary Net Position - Insurance

As of June 30, 2022, with Comparative Totals as of June 30, 2021 (\$ In Thousands)

	CERS	CERS	KERS	KERS	SPRS	Insurance Total	Insurance Total
	Nonhazardous	Hazardous	Nonhazardous	Hazardous		2022	2021
ASSETS							
CASH AND SHORT-TERM INVESTMENTS							
Cash Deposits	\$101	\$19	\$91	\$25	\$19	\$255	\$416
Short-term Investments	144,398	46,794	187,679	39,120	13,696	431,687	429,500
Total Cash and Short-term Investments	144,499	46,813	187,770	39,145	13,715	431,942	429,916
RECEIVABLES							
Accounts Receivable	19,338	6,289	12,995	344	949	39,915	36,356
Investment Accounts Receivable	18,395	8,282	6,922	2,735	1,161	37,495	85,776
Total Receivables	37,733	14,571	19,917	3,079	2,110	77,410	122,132
INVESTMENTS, AT FAIR VALUE							
Core Fixed Income	334,374	168,783	155,502	68,122	26,732	753,513	856,629
Public Equities	1,354,737	672,981	518,643	233,379	91,893	2,871,633	3,085,630
Specialty Credit	637,910	324,019	263,472	126,429	50,056	1,401,886	1,163,959
Private Equities	292,493	164,729	84,753	57,568	25,912	625,455	584,978
Derivatives	(390)	(185)	(202)	(128)	(29)	(934)	52
Real Return	74,169	39,856	27,755	16,365	6,096	164,241	422,670
Opportunistic	-	-	-	-	-	-	205,755
Real Estate	171,044	93,762	53,737	39,387	15,064	372,994	258,216
Total Investments, at Fair Value	2,864,337	1,463,945	1,103,660	541,122	215,724	6,188,788	6,577,889
Securities Lending Cash Collateral Invested	66,459	33,425	28,391	12,806	5,063	146,144	176,603
Total Assets	3,113,028	1,558,754	1,339,738	596,152	236,612	6,844,284	7,306,540
LIABILITIES							
Accounts Payable	45,712	11,654	133	-	2	57,501	462
Investment Accounts Payable	19,633	9,698	9,692	3,444	1,532	43,999	155,862
Securities Lending Cash Collateral	66,459	33,425	28,391	12,806	5,063	146,144	176,603
Total Liabilities	131,804	54,777	38,216	16,250	6,597	247,644	332,927
Total Fiduciary Net Position Restricted for OPEB	\$2,981,224	\$1,503,977	\$1,301,522	\$579,902	\$230,015	\$6,596,640	\$6,973,613

See accompanying notes, which are an integral part of these combining financial statements.

Note: The displayed fair values include investable assets held by each System and its associated contributions, payables, equipment and intangible assets; unlike those found in the Investment Section, which include only those investable assets held by each System.

The Opportunistic asset class was merged with Specialty Credit.

Combining Statement of Changes In Fiduciary Net Position - Insurance

For the fiscal year ending June 30, 2022, with Comparative Totals as of June 30, 2021 (\$ In Thousands)

	CERS	CERS	KERS	KERS	SPRS	Insurance Total	Insurance Total
	Nonhazardous	Hazardous	Nonhazardous	Hazardous		2022	2021
ADDITIONS							
Employer Contributions	\$118,550	\$58,374	\$31,611	\$1	\$8,782	\$217,318	\$346,026
Actuarially Accrued Liability Contributions	-	-	101,637	-	-	101,637	-
Medicare Drug Reimbursement	1	-	-	1	-	2	3
Insurance Premiums	534	(271)	182	(54)	(27)	364	563
Humana Gain Share Payment	8,912	1,259	7,321	548	342	18,382	42,897
Retired Reemployed Healthcare	4,816	1,530	5,041	1,280	-	12,667	12,535
Health Insurance Contributions (HB1)	15,985	3,758	6,560	1,232	256	27,791	24,409
Employer Cessation Contributions	-	-	2,405	-	-	2,405	28,400
Total Contributions	148,798	64,650	154,757	3,008	9,353	380,566	454,833
INVESTMENT INCOME							
From Investing Activities							
Net Appreciation (Depreciation) in FV of Investments	(222,332)	(103,271)	(105,578)	(36,877)	(14,419)	(482,477)	1,286,327
Interest/Dividends	89,003	45,282	34,138	17,519	6,861	192,803	161,768
Total Investing Activities Income	(133,329)	(57,989)	(71,440)	(19,358)	(7,558)	(289,674)	1,448,095
Less: Investment Expense	15,664	8,279	5,992	3,264	1,279	34,478	30,076
Less: Performance Fees	22,044	12,355	8,270	4,849	1,976	49,494	41,086
Net Income/Loss from Investing Activities	(171,037)	(78,623)	(85,702)	(27,471)	(10,813)	(373,646)	1,376,933
From Securities Lending Activities							
Securities Lending Income	312	154	134	56	23	679	403
Less: Securities Lending Borrower Rebates (Income)/Expense	(86)	(46)	(39)	(20)	(8)	(199)	(300)
Less: Securities Lending Agent Fees	60	30	26	11	5	132	105
Net Income/Loss from Securities Lending	338	170	147	65	26	746	598
Net Investment Income/Loss	(170,699)	(78,453)	(85,555)	(27,406)	(10,787)	(372,900)	1,377,531
Total Additions	(21,901)	(13,803)	69,202	(24,398)	(1,434)	7,666	1,832,364
DEDUCTIONS							
Healthcare Premiums Subsidies	134,428	89,319	118,451	20,355	14,461	377,014	375,598
Administrative Expenses	933	502	821	125	73	2,454	2,354
Self-Funded Healthcare Costs	3,288	210	1,525	109	21	5,153	5,465
Excise Tax Insurance	12	-	6	-	-	18	-
Total Deductions	138,661	90,031	120,803	20,589	14,555	384,639	383,417
Net Increase (Decrease) in Fiduciary Net Position Restricted for OPEB	(160,562)	(103,834)	(51,601)	(44,987)	(15,989)	(376,973)	1,448,947
Total Fiduciary Net Position Restricted for OPEB							
Beginning of Period	3,141,786	1,607,811	1,353,123	624,889	246,004	6,973,613	5,524,666
End of Period	\$2,981,224	\$1,503,977	\$1,301,522	\$579,902	\$230,015	\$6,596,640	\$6,973,613
See accompanying notes, which are an integral part of these combining financial statements.							

Combining Statement of Fiduciary Net Position

As of June 30, 2022 with Comparative Totals as of June 30, 2021 (\$ in Thousands)

			KPPA Total	KPPA Total
	Pension	Insurance	2022	2021
ASSETS				
CASH AND SHORT-TERM INVESTMENTS				
Cash Deposits	\$367	\$255	\$622	\$1,128
Short-term Investments	1,116,933	431,687	1,548,620	1,365,245
Total Cash and Short-term Investments	1,117,300	431,942	1,549,242	1,366,373
RECEIVABLES				
Accounts Receivable	255,799	39,915	295,714	183,655
Accounts Receivable - Investments	82,033	37,495	119,528	299,906
Total Receivables	337,832	77,410	415,242	483,561
INVESTMENTS, AT FAIR VALUE				
Core Fixed Income	2,030,334	753,513	2,783,847	3,143,754
Public Equities	6,193,221	2,871,633	9,064,854	9,963,604
Private Equities	1,289,931	625,455	1,915,386	1,820,371
Specialty Credit	3,097,829	1,401,886	4,499,715	3,781,572
Derivatives	(2,864)	(934)	(3,798)	(33)
Real Return	417,816	164,241	582,057	1,420,811
Opportunistic	-	-	-	609,824
Real Estate	882,759	372,994	1,255,753	868,431
Total Investments, at Fair Value	13,909,026	6,188,788	20,097,814	21,608,334
Securities Lending Cash Collateral Invested	391,751	146,144	537,895	600,838
CAPITAL/INTANGIBLE ASSETS				
Capital Assets	2,885	-	2,885	2,885
Intangible Assets	17,300	-	17,300	17,301
Accumulated Depreciation	(2,885)	-	(2,885)	(2,885)
Accumulated Amortization	(16,977)	-	(16,977)	(16,624)
Total Capital Assets	323	-	323	677
Total Assets	15,756,232	6,844,284	22,600,516	24,059,783
LIABILITIES				
Accounts Payable	7,048	57,501	64,549	14,445
Investment Accounts Payable	109,253	43,999	153,252	548,197
Securities Lending Cash Collateral	391,751	146,144	537,895	600,838
Total Liabilities	508,052	247,644	755,696	1,163,480
Total Fiduciary Net Position Restricted for Benefits				
	\$15,248,180	\$6,596,640	\$21,844,820	\$22,896,303

See accompanying notes which are an integral part of these combining financial statements.

Note: The displayed fair values include investable assets held by each System and its associated contributions, payables, equipment and intangible assets; unlike those found in the Investment Section, which include only those investable assets held by each System.

The Opportunistic asset class was merged with Specialty Credit.

Combining Statement of Changes In Fiduciary Net Position

For the fiscal year ending June 30, 2022, with Comparative Totals as of June 30, 2021 (\$ In Thousands)

For the fiscal year ending June 30, 2022, with comparative totals as of June 30, 2021 (\$ in thousands)				
	Pension	Insurance	KPPA Total 2022	KPPA Total 2021
ADDITIONS				
Member Contributions	\$371,181	\$-	\$371,181	\$342,980
Employer Contributions	1,091,160	217,318	1,308,478	2,070,335
Actuarially Accrued Liability Contributions	912,705	101,637	1,014,342	-
Medicare Drug Reimbursement	-	2	2	3
Insurance Premiums	-	364	364	563
Humana Gain Share	-	18,382	18,382	42,897
General Fund Appropriations	215,000	-	215,000	384
Pension Spiking Contributions	122	-	122	222
Retired Reemployed Healthcare	-	12,667	12,667	12,535
Health Insurance Contributions (HB1)	(208)	27,791	27,583	24,405
Employer Cessation Contributions	63,113	2,405	65,518	204,000
Total Contributions	2,653,073	380,566	3,033,639	2,698,324
INVESTMENT INCOME				
From Investing Activities				
Net Appreciation (Depreciation) in FV of Investments	(1,175,881)	(482,477)	(1,658,358)	4,184,595
Interest/Dividends	429,376	192,803	622,179	552,386
Total Investing Activities Income/Loss	(746,505)	(289,674)	(1,036,179)	4,736,981
Less: Investment Expense	75,187	34,478	109,665	92,585
Less: Performance Fees	96,462	49,494	145,956	118,567
Net Income/Loss from Investing Activities	(918,154)	(373,646)	(1,291,800)	4,525,829
From Securities Lending Activities				
Securities Lending Income	1,652	679	2,331	1,339
Less: Securities Lending Borrower Rebates (Income)/Expense	(505)	(199)	(704)	(1,000)
Less: Securities Lending Agent Fees	323	132	455	349
Net Income from Securities Lending	1,834	746	2,580	1,990
Net Investment Income/Loss	(916,320)	(372,900)	(1,289,220)	4,527,819
Total Additions	1,736,753	7,666	1,744,419	7,226,143
DEDUCTIONS				
Benefit Payments	2,328,594	-	2,328,594	2,263,388
Refunds	42,927	-	42,927	32,130
Healthcare Premiums Subsidies	-	377,014	377,014	375,598
Self Funded Healthcare Costs	-	5,153	5,153	5,465
Administrative Expenses	39,742	2,454	42,196	39,143
Excise Tax Insurance	-	18	18	-
Total Deductions	2,411,263	384,639	2,795,902	2,715,724
Net Increase (Decrease) in Fiduciary Net Position Restricted for Benefits				
	(674,510)	(376,973)	(1,051,483)	4,510,419
Total Fiduciary Net Position Restricted for Benefits				
Beginning of Period	15,922,690	6,973,613	22,896,303	18,385,884
End of Period	\$15,248,180	\$6,596,640	21,844,820	\$22,896,303
See accompanying notes, which are an integral part of these combining financial statements.				

NOTE A. Summary of Significant Accounting Policies

Kentucky Retirement Systems (KRS) is now responsible for the administration of the Kentucky Employees Retirement System (KERS) and the State Police Retirement System (SPRS). HB 484, passed in the 2020 Legislative Session, also created a separate governing board in KRS 78.782, County Employees Retirement System (CERS), to administer the statewide cost-sharing plans for local government employers. KPPA is responsible for administering the single personnel system for the pension plans, a system of accounting, day-to-day administrative needs of CERS and KRS, selecting consulting and service contractors to provide administrative services including an external auditor. KPPA is also responsible for promulgating administrative regulations on behalf of KRS and CERS, individually or collectively. It is additionally tasked with administering and operating any jointly held assets for KRS and CERS including, but not limited to real estate, office space, equipment, and supplies. KPPA staff manages assets in accordance with investment policies developed by the CERS and KRS Investment Committees and approved by each Board. KPPA staff recommends to the Boards the hiring, retention and termination of investment managers. Each Board is responsible for selection of investment services for the management and custody of the assets while KPPA is responsible for the remaining investment services.

This summary of KPPA's significant accounting policies is presented to assist in understanding the combining financial statements for CERS and KRS. The combining financial statements and notes are representations of KPPA's management, which is responsible for their integrity and objectivity. These accounting policies conform to Generally Accepted Accounting Principles (GAAP) and have been consistently applied in the preparation of the combining financial statements.

Basis of Accounting

KPPA's combining financial statements are prepared using the accrual basis of accounting. Plan member contributions are recognized in the period in which contributions are due. Employer contributions to the plan are recognized when due and the employer has made a formal commitment to provide the contributions. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan. Premium payments are recognized when due and payable in accordance with the insurance terms of the plan. Administrative and investment expenses are recognized when incurred. The net position represents the five funds of CERS, KERS, SPRS and the five funds of the Kentucky Retirement Insurance Trust Fund (Insurance Fund) that have accumulated thus far to pay pension benefits for retirees, active and inactive members, and health care premiums for current and future employees.

Method Used to Value Investments

Investments are reported at fair value. Fair value is the price that would be received upon selling an asset or the amount paid to transfer a liability in an orderly transaction between market participants at the measurement date. Short-term investments are reported at cost, which approximates fair value. See Investments Note D for further discussion of fair value measurements. Purchases and sales of securities are recorded on a trade-date basis. Interest income is recorded on the accrual basis. Dividends are recorded on the dividend date. Gain (loss) on investments includes gains and losses on investments bought and sold as well as held during the fiscal year. Investment returns are recorded in all plans net of investment fees.

Investment Unitization

Within the plan accounting structure there are two primary types of accounts: Plan Accounts and Pool Accounts. Plan Accounts are the owners of the investment pool. An account is established for each plan/fund and these accounts hold Units of Participation that represent the plan's/fund's invested value of the investment pool. Pool Accounts are accounts that hold the assets of the investment pool where all investment related activity and earnings occur. The pooled accounts are the investment strategies of the pool. Units of Participation are bought and sold as each plan/fund contributes or withdraws cash or assets from the investment pool. The investment pool earnings are then allocated to plans utilizing a cost distribution method that allows for fluctuating prices experienced in capital markets. This involves earnings allocated to the plan accounts with an increase or decrease in cost on the Unit of Participation Holdings of the Plan Accounts. Correspondingly, the price of the Unit of Participation Holdings is updated to reflect change in market value in the investment pool. Earnings are allocated based on the daily weighted average of Master Trust Units held by each plan/fund account during each monthly earnings period. This method is commonly used when plans make multiple contributions or withdrawals from the investment pool throughout the month as it eliminates allocation distortion due to large end of month cash flows.

Estimates

The preparation of financial statements in accordance with GAAP requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

Equipment

Office equipment is valued at historical cost and depreciation is computed utilizing the straight-line method over the estimated useful lives of the assets ranging from three to ten years. Improvements, which increase the useful life of the equipment, are capitalized. Maintenance and repairs are charged as an expense when incurred. The capitalization threshold used in fiscal year 2022 was \$3,000 (see Equipment Note J for further information).

Intangible Assets

Intangible assets, currently computer software, are valued at historical cost and amortization is computed utilizing the straight-line method over the estimated useful lives of the assets which is ten years. The capitalization threshold used in fiscal year 2022 was \$3,000 (see Intangible Assets Note K for further information).

Accounts Receivable

Accounts Receivable consist of amounts due from employers. KPPA management considers accounts receivable to be fully collectible; accordingly, no allowance for doubtful accounts is considered necessary. If amounts become uncollectible, they will be charged to operations when that determination is made. If amounts previously written off are collected, they will be credited to income when received.

The Investment Accounts Receivable and Investment Accounts Payable consist of investment management earnings and fee accruals, as well as all buys and sells of securities which have not closed as of the reporting date.

Payment of Benefits

Benefits are recorded when paid.

Expense Allocation

KPPA administrative expenses are allocated based on a hybrid allocation developed by the Boards. The hybrid allocation is based on a combination of plan membership and direct plan expenses. All investment related expenses are allocated in proportion to the percentage of investment assets held by each plan.

Component Unit

KPPA is a component unit of the Commonwealth of Kentucky (the Commonwealth) for financial reporting purposes.

CERS was created by the Kentucky General Assembly on July 1, 1958, pursuant to Kentucky Revised Statute 78.520, and the separate governing board was created in 2021. KERS was created by the Kentucky General Assembly on July 1, 1956, pursuant to Kentucky Revised Statute 61.515. SPRS was created by the Kentucky General Assembly on July 1, 1958, pursuant to Kentucky Revised Statute 16.510. The KRS Insurance Trust Fund was created by the Kentucky General Assembly pursuant to Kentucky Revised Statute 61.701. KPPA's administrative budget is subject to approval by the Kentucky General Assembly. Employer contribution rates for KERS and SPRS are also subject to legislative approval. Employer contribution rates for CERS are determined by the Board of CERS without further legislative review. The methods used to determine the employer rates for CERS and KRS (KERS and SPRS) are specified in Kentucky Revised Statutes 78.635 and 61.565. Employee contribution rates are set by statute and may be changed only by the Kentucky General Assembly.

Perimeter Park West, Incorporated (PPW) is governed by a three-member board selected by shareholders. Although it is legally separate from KPPA, PPW is reported as part of KPPA, because its sole ownership is Kentucky Retirement Systems, and therefore through unitization is owned by KERS, CERS, and SPRS. PPW functions as a real estate holding company for the offices used by the plans administered by KPPA.

Recent Accounting Pronouncements

In June 2017, the Governmental Accounting Standards Board (GASB) issued *Statement Number 87 Leases*. The objective of this Statement is to address government lessee's recognition of lease liabilities, intangible assets, and report amortization expense for using the leased asset, interest expense on the lease liability, and note disclosures about the lease. Another objective of this Statement is to address government lessor's recognition of a lease receivable, deferred inflow, and report lease revenue, interest income, and note disclosures about the lease. Due to COVID-19, *Statement Number 87 Leases* was updated by GASB to extend the requirement of this standard to take effect for financial statements starting with the fiscal year that ends June 30, 2022. KPPA determined that the KPPA lease agreements are not material to the overall financial statements. Therefore, KPPA did not report the leases according to *Statement Number 87 Leases*.

GASB *Statement Number 96, Subscription-Based Information Technology Arrangements (SBITAs)* established standards of accounting and financial reporting for SBITAs by a government end user (a government). The requirements of this Statement apply to financial statements of all state and local governments. The underlying accounting principles for SBITAs are similar to the standards established in *Statement Number 87, Leases*, as amended. The requirements of this Statement will take effect for financial statements starting with the fiscal year that ends June 30, 2023. KPPA is evaluating the impact of the Statement to the financial report.

GASB *Statement Number 98, "The Annual Comprehensive Financial Report"* required the name change of the annual report. The new name for the annual report is the Annual Comprehensive Financial Report (ACFR)

Note B. Descriptions & Contribution Information

CERS Membership Combined			
As of June 30			
	2022		
Members	Nonhazardous	Hazardous	Total
Retirees and Beneficiaries Receiving Benefits	65,266	9,121	74,387
Inactive Memberships	101,508	3,481	104,989
Active Members	80,263	9,149	89,412
Total	247,037	21,751	268,788
Number of Participating Employers			1,122

KERS Membership Combined			
As of June 30			
	2022		
Members	Nonhazardous	Hazardous	Total
Retirees and Beneficiaries Receiving Benefits	44,952	3,440	48,392
Inactive Memberships	50,529	6,889	57,418
Active Members	29,069	3,607	32,676
Total	124,550	13,936	138,486
Number of Participating Employers			325

SPRS Membership			
As of June 30			
	2022		
Members	Nonhazardous	Hazardous	Total
Retirees and Beneficiaries Receiving Benefits	-	1,562	1,562
Inactive Memberships	-	402	402
Active Members	-	844	844
Total	-	2,808	2,808
Number of Participating Employers			1

Note: Each person is only counted once in the Membership by System report. A member who has both a membership account and a retired account is included in the retired count. Members who have multiple membership accounts are included under the system where they most recently contributed. Members who have more than one retirement account are included in the system with the greatest service credit. If the retired accounts have equal service credit, they are counted first in SPRS, CERS Hazardous, KERS Hazardous, CERS Non-Hazardous, then KERS Non-Hazardous.

Retiree Medical Insurance Coverage As of June 30, 2022

	Single	Couple/ Family	Parent	Medicare Without Prescription	Medicare With Prescription
CERS Nonhazardous	8,692	543	225	1,958	29,001
CERS Hazardous	1,810	2,961	468	134	4,284
CERS Total	10,502	3,504	693	2,092	33,285
KERS Nonhazardous	7,141	612	434	989	22,903
KERS Hazardous	686	477	116	84	1,746
KERS Total	7,827	1,089	550	1,073	24,649
SPRS	217	454	90	14	1,016
Total	18,546	5,047	1,333	3,179	58,950

The total number of Participating Employers is 1,448.

Note: Medical Insurance coverage is provided based on the member's initial participation date and length of service. Members receive either a percentage or dollar amount for insurance coverage. The counts are the number of medical plans contracted with the Department of Employee Insurance or Medicare vendor and are not representative of the number of persons.

Plan Descriptions

The County Employees Retirement System (CERS), the Kentucky Employees Retirement System (KERS), and the State Police Retirement System (SPRS) provide retirement, disability, and death benefits to system members. Retirement benefits may be extended to beneficiaries of members under certain circumstances. KPPA provides administrative support to CERS, KERS, SPRS, and Kentucky Retirement System Insurance Trust Fund (Insurance Fund). In addition to executive management, the CERS, KERS, SPRS, and Insurance Fund share investment management, accounting, and information system services, the costs of which are allocated to the plans on an equitable basis.

CERS - County Employees Retirement System

CERS was established by Kentucky Revised Statute 78.520. The CERS system is comprised of two plans - CERS Nonhazardous plan and CERS Hazardous plan. The CERS Nonhazardous plan was established to provide retirement benefits to all regular full-time members employed in positions of each participating county, city, school board, and any additional eligible local agencies electing to participate in CERS. The membership of the CERS Hazardous plan includes employees whose position is considered hazardous with principal job duties including, but are not limited to, active law enforcement, probation and parole officers, detectives, pilots, paramedics, and emergency medical technicians, with duties that require frequent exposure to a high degree of danger and also require a high degree of physical condition.

The responsibility for the general administration and operation of the plans within CERS is vested in the CERS Board of Trustees. The CERS Board of Trustees consists of 9 members. Six trustees are appointed by the governor and three are elected by CERS members (active, inactive, and/or retired). The six appointed trustees are selected from a list of candidates provided to the Governor's Office by one of three employer advocacy groups: Kentucky League of Cities, Kentucky Association of Counties, or Kentucky School Board Association. Of the six appointed trustees, three must have investment experience and three must have retirement experience as defined by statute. All appointments by the governor are subject to Senate confirmation.

KERS - Kentucky Employees Retirement System

KERS was established by Kentucky Revised Statute 61.515. The KERS system is comprised of two plans - KERS Nonhazardous plan and KERS Hazardous plan. The KERS Nonhazardous plan was established to provide retirement benefits to all regular full-time members employed in positions of any state department, board, or agency directed by Executive Order to participate in KERS. The membership of the KERS Hazardous plan includes employees whose position is considered hazardous with principal job duties including, but are not limited to, active law enforcement, probation and parole officer, detective, pilots, paramedics, and emergency medical technicians, with duties that require frequent exposure to a high degree of danger and also require a high degree of physical condition. The responsibility for the general administration and operation of KERS is vested with the Kentucky Retirement Systems (KRS) Board of Trustees. The KRS Board of Trustees consist of 9 members. Six trustees are appointed by the governor and three are elected. Of the elected trustees, two are elected by KERS members and one is elected by SPRS members. Active, inactive and retired members of the appropriate system are invited to participate in the election of trustees. Of the six appointed trustees, three must have investment experience and three must have retirement experience as defined by statute. All appointments by the governor are subject to Senate confirmation. The two trustees elected by the KERS membership must be members of or retired from KERS. The one trustee elected by the SPRS membership must be a member of or retired from SPRS.

SPRS - State Police Retirement System

SPRS is a single employer defined benefit pension plan and was established by Kentucky Revised Statute 16.510 to provide retirement benefits to all full-time state troopers employed in positions by the Kentucky State Police. The responsibility for the general administration and operation of the SPRS is vested with the KRS Board of Trustees (see KERS - Kentucky Employees Retirement System for KRS Board composition).

Kentucky Retirement System Insurance Trust Fund

The Insurance Fund was established by Kentucky Revised Statute 61.701 for the purpose of providing hospital and medical insurance benefits for eligible members receiving benefits from CERS Nonhazardous, CERS Hazardous, KERS Nonhazardous, KERS Hazardous, and SPRS (collectively the Insurance Fund). The responsibility for the general administration and operation of the Insurance Fund is vested with both the CERS Board of Trustees and the KRS Boards of Trustees. Each of the OPEB funds: CERS Nonhazardous, CERS Hazardous, KERS Nonhazardous, KERS Hazardous, and SPRS is legally separated with benefits only eligibility to be paid for each of the respective membership groups.

Cost of Living Adjustment (COLA)

Prior to July 1, 2009, COLAs were provided to Retirees annually equal to the percentage increase in the annual average of the consumer price index (CPI) for all urban consumers for the most recent calendar year, not to exceed 5% in any plan year. After July 1, 2009, the COLAs were to be limited to 1.50%.

In 2013 the General Assembly created a new law to govern how COLAs will be granted. Language included in Senate Bill 2 during the 2013 Regular Session states COLAs will only be granted in the future if the Systems' Boards determine that assets of the Systems are greater than 100% of the actuarial liabilities and legislation authorizes the use of surplus funds for the COLA; or the General Assembly fully prefunds the COLA or directs the payment of funds in the year the COLA is provided. Kentucky Revised Statute 78.5518 governs how COLAs may be granted for members of CERS. The granting of COLAs for the KERS and SPRS membership is covered under Kentucky Revised Statute 61.691.

No COLA has been granted since July 1, 2011.

Employer Contributions

Local government participating employers are required to contribute an actuarially determined rate for CERS pension contributions, per the Kentucky Revised Statute Section 78.635. The CERS Board of Trustees establishes the employer contribution rate based on Kentucky Revised Statute section 78.454(33) each year following the annual actuarial valuation as of July 1 and prior to July 1 of the succeeding fiscal year for local governments in Kentucky.

The Commonwealth is required to contribute at an actuarially determined rate for KERS and SPRS pensions. The KRS Board of Trustees recommends the rates each year following the annual actuarial valuation, but the rates are set by the legislature within the budget bill for each biennium. The contribution rate from July 1, 2021, through June 30, 2022, was set within HB 192 passed in the 2021 Regular Legislative Session for SPRS and KERS Hazardous employers.

The KERS Nonhazardous employer contribution rate shall include, (1) the normal cost contribution and (2) the prorated amount of the actuarially accrued liability assigned to each individual nonhazardous employer in accordance with Kentucky Revised Statute 61.565(1)(d). Each employer pays the normal cost as a percentage of reported payroll plus a flat amount to cover the employer-specific actuarially accrued liability contribution for the fiscal year as determined by the annual valuation.

Per Kentucky Revised Statute Section 61.565 and 16.645(18), normal contribution and past service contribution rates shall be determined by the KRS Board on the basis of the last annual valuation preceding July 1 of a new biennium. The KRS Board may amend contribution rates as of the first day of July of the second year of a biennium, if it is determined on the basis of a subsequent actuarial valuation that amended contribution rates are necessary to satisfy requirements determined in accordance with actuarial bases adopted by the KRS Board. However, formal commitment to provide the contributions by the employer is made through the biennial budget for KERS and SPRS.

For the fiscal year ended June 30, 2022, participating employers of CERS Nonhazardous, CERS Hazardous, KERS Hazardous, and SPRS contributed a percentage of each employee's creditable compensation. The actuarially determined rates set by the Boards for the fiscal year is a percentage of each employee's creditable compensation. Participating employers of KERS Nonhazardous contributed the normal cost percentage of each employee's creditable compensation, and the employer's portion of the actuarially accrued liability. Administrative costs of KPPA are financed through employer contributions and investment earnings. See the charts on the following page for the fiscal year employer contribution rates, including the actuarially recommended rates.

Contribution Rate Breakdown by Fund As of June 30, 2022

Fund	Pension		Insurance		Combined Total	
	Employer Contribution Rates	Actuarially Recommended Rates	Employer Contribution Rates	Actuarially Recommended Rates	Employer Contribution Rates	Actuarially Recommended Rates
CERS Nonhazardous**	22.78%	22.78%	4.17%	4.17%	26.95%	26.95%
CERS Hazardous**	35.60%	35.60%	8.73%	8.73%	44.33%	44.33%
KERS Nonhazardous *	7.90%	7.90%	2.20%	2.20%	10.10%	10.10%
KERS Hazardous	33.43%	33.43%	0.00%	0.00%	33.43%	33.43%
SPRS	127.99%	127.99%	18.07%	18.07%	146.06%	146.06%

* House Bill 8 passed during the 2021 legislative session required, beginning July 1, 2021, the KERS Nonhazardous employers pay the normal cost for all employees plus a flat amount which is equal to their assigned percentage of the annual dollar amount that is sufficient to amortize the total unfunded actuarial accrued liability of the system over a closed period. The percentage is based on the liability that was attributable to the agency as of June 30, 2019.

**House Bill 362 passed during the 2018 legislative session caps CERS employer contribution rate increases up to 12% per year over the prior fiscal year for the period of July 1, 2018 to June 30, 2028.

As of June 30, 2022, the date of the most recent actuarial valuation, membership consisted of:

TIER 1:

Tier 1 plan members who began participating prior to September 1, 2008, are required to contribute 5% (Nonhazardous) or 8% (Hazardous) of their annual creditable compensation. These members are classified in the Tier 1 structure of benefits. Interest is paid each June 30 on members' accounts at a rate of 2.5%. If a member terminates employment and applies to take a refund, the member is entitled to a full refund of contributions and interest.

TIER 2:

Tier 2 plan members, who began participating on or after September 1, 2008, and before January 1, 2014, are required to contribute 6% (Nonhazardous) or 9% (Hazardous) of their annual creditable compensation. Further, 1% of these contributions are deposited to an account created for the payment of health insurance benefits under 26 USC Section 401(h) in the Insurance Fund (see Kentucky Administrative Regulation (KAR) 105 KAR 1:420). These members are classified in the Tier 2 structure of benefits. Interest is paid each June 30 on members' accounts at a rate of 2.5%. If a member terminates employment and applies to take a refund, the member is entitled to a full refund of contributions and interest; however, the 1% Health Insurance Contribution (HIC) to the 401(h) account is non-refundable and is forfeited.

TIER 3:

Tier 3 plan members, who began participating on or after January 1, 2014, are required to contribute to the Cash Balance Plan. The Cash Balance Plan is known as a hybrid plan because it has characteristics of both a defined benefit plan and a defined contribution plan. Members contribute 5% (Nonhazardous) or 8% (Hazardous) of their monthly creditable compensation which is deposited into their account, and an additional 1% which is deposited to an account created for payment of health insurance benefits under 26 USC Section 401(h) in the Insurance Fund (see 105 KAR1:420), which is not refundable. Tier 3 member accounts are also credited with an employer pay credit in the amount of 4% (Non-Hazardous) or 7.5% (Hazardous) of the member's monthly creditable compensation. The employer pay credit amount is deducted from the total employer contribution rate paid on the member's monthly creditable compensation. If a vested (60 months of service) member terminates employment and applies to take a refund, the member is entitled to the members contributions (less HIC) plus employer pay credit plus interest (for both employee contributions and employer pay). If a non-vested (less than 60 months) member terminates employment and applies to take a refund, the member is entitled to receive employee contributions (less HIC) plus interest (on employee contributions only).

Tier 3

Interest is paid into the Tier 3 member's account. The account currently earns 4% interest credit on the member's accumulated account balance as of June 30 of the previous year. The member's account may be credited with additional interest if the fund's five-year Geometric Average Net Investment Return (GANIR) exceeded 4%. If the member was actively employed and participating in the fiscal year, and if KPPA's GANIR for the previous five years exceeds 4%, then the member's account will be credited with 75% of the amount of the returns over 4% on the account balance as of June 30 of the previous year (Upside Sharing Interest). It is possible that one fund in KPPA may get an Upside Sharing Interest, while another may not.

Upside Sharing Interest

Upside Sharing Interest is credited to both the member contribution balance and Employer Pay Credit balance. Upside Sharing Interest is an additional interest credit. Member accounts automatically earn 4% interest annually. The GANIR is calculated on an individual fund basis.

The chart below shows the interest calculated on the members' balances as of June 30, 2021, and credited to each member's account on June 30, 2022.

(A-B) = C x 75% = D then B + D = Interest (\$ in Thousands)						
	A	B	C	D		
Fund	5-Year Geometric Average Return	Less Guarantee Rate of 4%	Upside Sharing Interest	Upside Sharing Interest X 75% = Upside Gain	Interest Rate Earned (4% + Upside)	Total Interest Credited to Member Accounts
CERS Nonhazardous	6.24%	4.00%	2.24%	1.68%	5.68%	\$19,197
CERS Hazardous	6.38%	4.00%	2.38%	1.79%	5.79%	\$6,354
KERS Nonhazardous	5.70%	4.00%	1.70%	1.28%	5.28%	\$7,948
KERS Hazardous	6.26%	4.00%	2.26%	1.70%	5.70%	\$2,484
SPRS	6.10%	4.00%	2.10%	1.58%	5.58%	\$382

Insurance Fund Description

The Insurance Fund was established to provide hospital and medical insurance for eligible members receiving benefits from CERS, KERS, and SPRS. The eligible non-Medicare retirees are covered by the Department of Employee Insurance (DEI) plans. The KPPA Board contracts with Humana to provide health care benefits to the eligible Medicare retirees through a Medicare Advantage Plan. KPPA submits the premium payments to DEI and Humana. The Insurance Fund pays a prescribed contribution for whole or partial payment of required premiums to purchase hospital and medical insurance. For the fiscal year ended June 30, 2022, insurance premiums withheld from benefit payments for KPPA's members were \$24.0 million and \$3.7 million for CERS Nonhazardous and Hazardous, respectively; \$20.1 million and \$1.4 million for KERS Nonhazardous and Hazardous, respectively; and, \$379,559 for SPRS.

The amount of benefit paid by the Insurance Fund is based on years of service. For members who began participating prior to July 1, 2003, a percentage of the contribution rate is paid based on years of service with 100% of the contribution rate being paid with 20 years of service. Since the passage of House Bill 290 (2004 Kentucky General Assembly), medical insurance benefits have been calculated differently for members who began participating on or after July 1, 2003. Once members reach a minimum vesting period of 10 years, Nonhazardous employees whose participation began on or after July 1, 2003, earn \$10 per month for insurance benefits at retirement for every year of earned service. Hazardous employees whose participation began on or after July 1, 2003 earn \$15 per month for insurance benefits at retirement for every year of earned service without regard to a maximum dollar amount. Upon death of a Hazardous employee, the employee's spouse receives \$10 per month for insurance benefits for each year of the deceased employee's earned Hazardous service. This dollar amount is subject to adjustment annually, which is currently 1.5%, based upon Kentucky Revised Statutes. House Bill 1 (2008 Kentucky General Assembly) changed the minimum vesting requirement for participation in the health insurance plan to 15 years for members whose participation began on or after September 1, 2008. This benefit is not protected under the inviolable contract provisions of Kentucky Revised Statutes 16.652, 61.692 and 78.852. The Kentucky General Assembly reserves the right to suspend or reduce this benefit if, in its judgment, the welfare of the Commonwealth so demands. The Insurance Plan pays 100% of the contribution rate for hospital and medical insurance premiums for the spouse and dependents of members who die as a direct result of an act in the line of duty or from a duty-related injury.

For members participating prior to July 1, 2003, years of service and respective percentages of the maximum benefit are as follows:

Portion Paid by Insurance Fund As of June 30, 2022	
Years of Service	Paid by Insurance Fund (%)
20+ years	100.00%
15-19 years	75.00%
10-14 years	50.00%
4-9 years	25.00%
Less than 4 years	0.00%

The amount of benefit paid by the Insurance Fund is based on years of service. For members participating on or after July 1, 2003, the dollar amounts of the benefit per year of service are as follows:

Dollar Contribution for Fiscal Year 2022 For Member participation date on or after July 1, 2003	
	(in Whole \$)
CERS Nonhazardous	\$13.99
CERS Hazardous	\$20.99
KERS Nonhazardous	\$13.99
KERS Hazardous	\$20.99
SPRS	\$20.99

Note C. Cash, Short-Term Investments & Securities Lending Collateral

The provisions of GASB *Statement No. 28 Accounting and Financial Reporting for Securities Lending Transactions* require that cash received as collateral on securities lending transactions and investments made with that cash must be reported as assets on the financial statements. The non-cash collateral is not reported because the securities received as collateral are unable to be pledged or sold unless the borrower defaults. In accordance with GASB No. 28, KPPA classifies certain other investments, not related to the securities lending program, as short-term. Cash and short-term investments consist of the following:

Cash, Short-Term Investments, & Securities Lending Collateral			
As of June 30 (\$ in Thousands)			
CERS			
	Pension	Insurance	
	2022	2022	2022
CERS Nonhazardous			
Cash	\$170		\$101
Short-Term Investments	286,875		144,398
Securities Lending Collateral Invested	208,156		66,459
Total	\$495,201		\$210,958
CERS Hazardous			
Cash	\$17		\$19
Short-Term Investments	114,933		46,794
Securities Lending Collateral Invested	70,856		33,425
Total	\$185,806		\$80,238
KERS			
	Pension	Insurance	
	2022	2022	2022
KERS Nonhazardous			
Cash	\$128		\$91
Short-Term Investments	492,114		187,679
Securities Lending Collateral Invested	77,505		28,391
Total	\$569,747		\$216,161
KERS Hazardous			
Cash	\$35		\$25
Short-Term Investments	77,438		39,120
Securities Lending Collateral Invested	21,277		12,806
Total	\$98,750		\$51,951
SPRS			
	Pension	Insurance	
	2022	2022	2022
Cash	\$17		\$19
Short-Term Investments	145,573		13,696
Securities Lending Collateral Invested	13,957		5,063
Total	\$159,547		\$18,778

Note D. Investments

Kentucky Revised Statutes Sections 61.650 and 78.790 specifically state that the Board of Trustees for the respective retirement Plan(s) shall have the full and exclusive power to invest and reinvest the funds of the Plan(s) they govern. In addition, Kentucky Revised Statutes Sections 61.645 and 78.782 require three (3) members of each Board to have at least ten (10) years of investment experience as defined by the statute(s). The Boards of Trustees are required to establish Investment Committees who are specifically charged with implementing the investment policies adopted by the Board of Trustees and to act on behalf of the Board of Trustees on all investment-related matters. The Board of Trustees and the Investment Committee members are required to discharge their duty to invest the funds of the Plans in accordance with the "Prudent Person Rule" as set forth in Kentucky Revised Statutes Sections 61.650 and 78.790 and to manage those funds consistent with the long-term nature of the trusts and solely in the interest of the members and beneficiaries. All internal investment staff of the Kentucky Public Pensions Authority, and investment consultants must adhere to the Code of Ethics and Standards of Professional Conduct of the CFA Institute and all board trustees must adhere to the Code of Conduct for Members of a Pension Scheme Governing Body of the CFA Institute. The Boards of Trustees are authorized to adopt policies. The Boards of Trustees have adopted Investment Policy Statements (IPS) which define the framework for investing the assets of the Plans. The IPS is intended to provide general principles for establishing the investment goals of the Plans, the allocation of assets, employment of outside asset management, and monitoring the results of the respective Plans. A copy of each Board's IPS can be found on the KPPA website. By statute, the Boards, through adopted written policies, shall maintain ownership and control over its assets held in its unitized managed custodial account. Additionally, the Investment Committees establish specific investment guidelines that are summarized below and are included in the Investment Management Agreement (IMA) for each investment management firm.

Equity

Public Equity

Investments may be made in common stock; securities convertible into common stock; preferred stock of publicly traded companies on stock markets; asset class relevant Exchange Traded Funds (ETFs); or any other type of security contained in a manager's benchmark. Each individual equity account has a comprehensive set of investment guidelines, which contains a listing of permissible investments, portfolio restrictions, and standards of performance.

Private Equity

Subject to the specific approval of the Investment Committees, Private Equity investments may be made for the purpose of creating a diversified portfolio of alternative investments under the Equity umbrella. Private equity investments are expected to achieve attractive risk-adjusted returns and, by definition, possess a higher degree of risk with a higher return potential than traditional investments. Accordingly, total rates of return from private equity investments are expected to be greater than those that might be obtained from conventional public equity or debt investments.

Fixed Income

Core Fixed Income

The Core Fixed Income accounts may include, but are not limited to, the following securities: U.S. government and agency bonds; investment grade U.S. corporate credit; investment grade non-U.S. corporate credit; mortgages, including residential mortgage-backed securities; commercial mortgage-backed securities and whole loans; asset-backed securities; and, asset class relevant ETFs.

Specialty Credit

The Specialty Credit accounts may include, but are not limited to, the following types of securities and investments: non-investment grade U.S. corporate credit including both bonds and bank loans; non-investment grade non-U.S. corporate credit including bonds and bank loans; private debt; municipal bonds; non-U.S. sovereign debt; mortgages, including residential mortgage-backed securities; commercial mortgage backed securities and whole loans; asset-backed securities and emerging market debt (EMD), including both sovereign EMD and corporate EMD; and asset class relevant ETFs. Each individual Specialty Credit account shall have a comprehensive set of investment guidelines which contains a listing of permissible investments, portfolio restrictions, risk parameters, and standards of performance for the account.

Cash and Cash Equivalent Securities

The following short-term investment vehicles are considered acceptable: Publicly traded investment grade corporate bonds; variable rate demand notes; government and agency bonds; mortgages, municipal bonds, and collective short-term investment funds (STIFs), money market funds or instruments (including, but not limited to certificates of deposit, bank notes, deposit notes, bankers' acceptance and commercial paper) and repurchase agreements relating to the above instruments. Instruments may be selected from among those having an investment grade rating at the time of purchase by at least one recognized bond rating service. In cases where the instrument has a split rating, the lower of the two ratings shall prevail. All instruments shall have a maturity at the time of purchase that does not exceed 397 days.

Fixed income managers, who utilize cash equivalent securities as an integral part of their investment strategy, are exempt from the permissible investments contained in the preceding paragraph. Permissible short-term investments for Fixed Income managers shall be included in the investment manager's investment guidelines.

Inflation Protected

Real Estate and Real Return

Subject to the specific approval of the corresponding Investment Committee, investments may be made to create a diversified portfolio of alternative investments. Investments are made in equity and debt real estate for the purpose of achieving the highest total rate of return possible consistent with a prudent level of risk. The purpose of the Real Return investments are to identify strategies that provide both favorable stand-alone risk-adjusted returns as well as the benefit of hedging inflation for the broader plans.

Investment Expenses

In accordance with GASB *Statement No. 67 and No. 74, Financial Reporting for Pension Plans and Other Postemployment Benefit Plans other than Pension Plans*, KPPA has exercised professional judgment to report investment expenses. It is not cost-beneficial to separate certain investment expenses from either the related investment income or the general administrative expenses. In fiscal year 2015, KPPA changed Private Equity investment fees from a gross basis to a net basis. The Boards made the decision to enhance transparency reporting. Prior to 2015, the majority of the trusts' Private Equity investment fees were netted against investment activity which is the standard used within the Private Equity sector. Trusts' net investment income has always included these fees regardless of the reporting method used. During the 2017 Regular Session of the Kentucky General Assembly, legislators passed SB 2 which requires the reporting of all investment fees and expenses. KPPA staff continues to work with managers to enhance fee and expense reporting.

Derivatives

Derivative instruments are financial contracts that have various effective dates and maturity dates and whose values depend on the values of one or more underlying assets, reference rates, or financial indices. External managers and KPPA Investment Staff are permitted to invest in derivative securities, or strategies which make use of derivative investments, for exposure, cost efficiency and risk management purposes, if such investments do not cause the portfolio to be leveraged beyond a 100% invested position. Any derivative security shall be sufficiently liquid that it can be expected to be sold at, or near, its most recently quoted market price. Examples of such derivatives include, but are not limited to the following securities: foreign currency forward contracts; futures; options; and swaps.

For accounting and financial reporting purposes, all derivative instruments are considered investment derivative instruments. The derivatives have been segregated on the Combining Statement of Fiduciary Net Position for both the Pension and Insurance Funds.

In accordance with GASB *Statement No. 53, Accounting and Financial Reporting for Derivative Instruments*, KPPA provides additional disclosure regarding its derivatives. The charts included represent the derivatives by types as of June 30, 2022. The chart shows the change in fair value of derivative types as well as the current fair value and notional value. The notional value is the reference amount of the underlying asset times its current spot price. The trusts hold investments in options, commitments, futures, and forward foreign exchange contracts.

CERS Pension and Insurance Derivative Instruments - GASB 53**As of June 30, 2022 (\$ in Thousands)**

Derivatives (by Type)	Net Appreciation (Depreciation) in Fair Value	Classification	Fair Value	Notional
CERS Nonhazardous - Pension				
FX Spots and Forwards	\$834	Investment	\$834	-
Futures	(1,929)	Investment	(1,929)	333,042
Commits and Options	-	Investment	4	-
Swaps	-	Investment	-	-
CERS Nonhazardous - Insurance				
FX Spots and Forwards	\$258	Investment	\$258	-
Futures	(649)	Investment	(649)	109,998
Commits and Options	-	Investment	1	-
Swaps	-	Investment	-	-
CERS Hazardous - Pension				
FX Spots and Forwards	\$278	Investment	\$278	-
Futures	(653)	Investment	(652)	112,825
Commits and Options	-	Investment	1	-
Swaps	-	Investment	-	-
CERS Hazardous - Insurance				
FX Spots and Forwards	\$141	Investment	\$141	-
Futures	(326)	Investment	(327)	55,431
Commits and Options	-	Investment	1	-
Swaps	-	Investment	-	-

KERS Pension and Insurance Derivative Instruments - GASB 53**As of June 30, 2022 (\$ in Thousands)**

Derivatives (by Type)	Net Appreciation (Depreciation) in Fair Value	Classification	Fair Value	Notional
KERS Nonhazardous - Pension				
FX Spots and Forwards	\$149	Investment	\$149	-
Futures	(1,226)	Investment	(1,226)	231,295
Commits and Options	-	Investment	1	-
Swaps	-	Investment	-	-
KERS Nonhazardous - Insurance				
FX Spots and Forwards	\$93	Investment	\$93	-
Futures	(295)	Investment	(295)	51,186
Commits and Options	-	Investment	-	-
Swaps	-	Investment	-	-
KERS Hazardous - Pension				
FX Spots and Forwards	\$73	Investment	\$73	-
Futures	(215)	Investment	(215)	38,341
Commits and Options	-	Investment	1	-
Swaps	-	Investment	-	-
KERS Hazardous - Insurance				
FX Spots and Forwards	\$4	Investment	\$4	-
Futures	(132)	Investment	(132)	22,723
Commits and Options	-	Investment	-	-
Swaps	-	Investment	-	-

SPRS Pension and Insurance Derivative Instruments - GASB 53**As of June 30, 2022 (\$ in Thousands)**

Derivatives (by Type)	Net Appreciation (Depreciation) in Fair Value	Classification	Fair Value	Notional
SPRS Pension				
FX Spots and Forwards	\$31	Investment	\$31	-
Futures	(214)	Investment	(214)	40,766
Commits and Options	-	Investment	-	-
Swaps	-	Investment	-	-
SPRS Insurance				
FX Spots and Forwards	\$21	Investment	\$21	-
Futures	(51)	Investment	(50)	8,763
Commits and Options	-	Investment	-	-
Swaps	-	Investment	-	-

Derivative Instruments Subject to Counterparty Credit Risk - GASB 53
As of June 30, 2022

Pension						
Counterparty	S & P Ratings	CERS Percentage of Net Exposure	CERS Haz Percentage of Net Exposure	KERS Percentage of Net Exposure	KERS Haz Percentage of Net Exposure	SPRS Percentage of Net Exposure
Derivative Instruments - Pension						
Australia & New Zealand Banking Group Ltd	AA-	1.75%	0.58%	0.31%	0.15%	0.07%
Bank of America Corp	A-	0.00%	0.00%	0.00%	0.00%	0.00%
Bank of Montreal	A+	0.11%	0.04%	0.02%	0.01%	0.00%
The Bank of New York Mellon Corp	A	0.21%	0.07%	0.06%	0.02%	0.01%
Barclays PLC	BBB	1.71%	0.57%	0.31%	0.15%	0.06%
Canadian Imperial Bank of Commerce	A+	5.08%	1.69%	0.91%	0.45%	0.19%
Citigroup Inc	BBB+	7.73%	2.58%	1.39%	0.68%	0.29%
The Goldman Sachs Group Inc	BBB+	1.11%	0.37%	0.20%	0.10%	0.04%
HSBS Holding PLC	A-	6.31%	2.10%	1.13%	0.55%	0.23%
JPMorgan Chase & Co	A-	5.79%	1.93%	1.04%	0.51%	0.21%
Morgan Stanley	A-	6.70%	2.23%	1.20%	0.59%	0.25%
Royal Bank of Canada	AA-	1.97%	0.66%	0.36%	0.17%	0.07%
Standard Chartered PLC	BBB+	1.13%	0.38%	0.20%	0.10%	0.04%
State Street Corp	A	13.26%	4.42%	2.38%	1.17%	0.49%
UBS Group AG	A-	8.19%	2.73%	1.47%	0.72%	0.30%
TOTAL		61.05%	20.35%	10.98%	5.37%	2.25%

Derivative Instruments Subject to Counterparty Credit Risk - GASB 53
As of June 30, 2022

Insurance						
Counterparty	S & P Ratings	CERS Percentage of Net Exposure	CERS Haz Percentage of Net Exposure	KERS Percentage of Net Exposure	KERS Haz Percentage of Net Exposure	SPRS Percentage of Net Exposure
Derivative Instruments - Insurance						
Australia & New Zealand Banking Group Ltd	AA-	1.45%	0.79%	0.52%	0.02%	0.12%
Bank of America Corp	A-	0.00%	0.00%	0.00%	0.00%	0.00%
Bank of Montreal	A+	0.09%	0.05%	0.03%	0.00%	0.01%
The Bank of New York Mellon Corp	A	0.21%	0.11%	0.10%	0.04%	0.02%
Barclays PLC	BBB	1.40%	0.76%	0.50%	0.02%	0.11%
Canadian Imperial Bank of Commerce	A+	4.14%	2.26%	1.49%	0.07%	0.34%
Citigroup Inc	BBB+	6.21%	3.38%	2.23%	0.10%	0.51%
The Goldman Sachs Group Inc	BBB+	0.91%	0.49%	0.33%	0.02%	0.07%
HSBS Holding PLC	A-	5.13%	2.80%	1.84%	0.08%	0.42%
JPMorgan Chase & Co	A-	4.66%	2.54%	1.68%	0.07%	0.38%
Morgan Stanley	A-	5.45%	2.97%	1.96%	0.08%	0.44%
Royal Bank of Canada	AA-	1.60%	0.87%	0.58%	0.02%	0.13%
Standard Chartered PLC	BBB+	0.91%	0.50%	0.33%	0.01%	0.07%
State Street Corp	A	10.81%	5.89%	3.89%	0.17%	0.88%
UBS Group AG	A-	6.69%	3.65%	2.41%	0.10%	0.55%
Westpac Banking Corp	AA-	0.24%	0.12%	0.11%	0.05%	0.02%
TOTAL		49.90%	27.18%	18.00%	0.85%	4.07%

Custodial Credit Risk for Deposits

Custodial credit risk for deposits is the risk that may occur as a result of a financial institution's failure, whereby KPPA deposits may not be returned. All non-investment related bank balances are held by JP Morgan Chase and each individual account is insured by the Federal Deposit Insurance Corporation (FDIC). None of these balances were exposed to custodial credit risk as they were either insured or collateralized at required levels.

Custodial Credit Risk for Deposits - GASB 40	
As of June 30 (\$ in Thousands)	
	2022
CERS Nonhazardous Pension	\$951
CERS Hazardous Pension	11
KERS Nonhazardous Pension	846
KERS Hazardous Pension	30
SPRS Pension	35
CERS Nonhazardous Insurance	108
CERS Hazardous Insurance	19
KERS Nonhazardous Insurance	92
KERS Hazardous Insurance	25
SPRS Insurance	20
Clearing	445
Excess Benefit	-
Note: All the above balances are held at JPM Chase	

Custodial Credit Risk for Investments

Custodial credit risk for investments is the risk that, in the event of the failure of the counterparty to a transaction, KPPA will not be able to recover the value of an investment or collateral securities that are in the possession of an outside party. As of June 30, 2022, the currencies in the chart below were uninsured and unregistered, with securities held by the counterparty or by its trust department or agent but not in Trust's name. Below are total cash and securities held by Global Managers and consist of various currencies.

Custodial Credit Risk for Investments - GASB 40	
As of June 30, 2022 (\$ in Thousands)	
	2022
CERS	
CERS Nonhazardous Pension Fund Foreign Currency	\$991,215
CERS Hazardous Pension Fund Foreign Currency	334,846
CERS Nonhazardous Insurance Fund Foreign Currency	360,386
CERS Hazardous Insurance Fund Foreign Currency	184,037
KERS	
KERS Nonhazardous Pension Fund Foreign Currency	253,108
KERS Hazardous Pension Fund Foreign Currency	96,224
KERS Nonhazardous Insurance Fund Foreign Currency	150,239
KERS Hazardous Insurance Fund Foreign Currency	67,578
SPRS	
SPRS Pension Fund Foreign Currency	45,244

Pension Plans Securities

CERS Pension Investment Summary - GASB 40

As of June 30, 2022 (\$ in Thousands)

Type	Fair Value	
	Nonhazardous	Hazardous
Core Fixed Income	\$894,977	\$303,150
Public Equities	3,592,281	1,224,631
Private Equities	753,384	251,589
Specialty Credit	1,692,750	574,070
Derivatives	(1,091)	(373)
Real Return	244,801	80,777
Real Estate	494,607	157,478
Short-Term Investments	286,875	114,933
Accounts Receivable (Payable), Net	(13,040)	(3,944)
Total	\$7,945,544	\$2,702,311

KERS Pension Investment Summary - GASB 40

As of June 30, 2022 (\$ in Thousands)

Type	Fair Value	
	Nonhazardous	Hazardous
Core Fixed Income	\$619,736	\$103,032
Public Equities	894,601	329,332
Private Equities	196,183	69,313
Specialty Credit	573,266	169,678
Derivatives	(1,076)	(141)
Real Return	60,546	22,364
Real Estate	164,991	45,860
Short-Term Investments	492,114	77,438
Accounts Receivable (Payable), Net	(7,484)	(1,233)
Total	\$2,992,877	\$815,643

SPRS Pension Investment Summary - GASB 40

As of June 30, 2022 (\$ in Thousands)

Type	Fair Value	
	Nonhazardous	Hazardous
Core Fixed Income		\$109,439
Public Equities		152,376
Private Equities		19,462
Specialty Credit		88,065
Derivatives		(183)
Real Return		9,328
Real Estate		19,823
Short-Term Investments		145,573
Accounts Receivable (Payable), Net		(1,519)
Total		\$542,364

Insurance Plans Securities

CERS Insurance Investment Summary - GASB 40

As of June 30, 2022 (\$ in Thousands)

Type	Fair Value	
	Nonhazardous	Hazardous
Core Fixed Income	\$334,374	\$168,783
Public Equities	1,354,737	672,981
Private Equities	292,493	164,729
Specialty Credit	637,910	324,019
Derivatives	(390)	(185)
Real Return	74,169	39,856
Real Estate	171,044	93,762
Short-Term Investments	144,398	46,794
Accounts Receivable (Payable), Net	(1,238)	(1,416)
Total	\$3,007,497	\$1,509,323

KERS Insurance Investment Summary - GASB 40

As of June 30, 2022 (\$ in Thousands)

Type	Fair Value	
	Nonhazardous	Hazardous
Core Fixed Income	\$155,502	\$68,122
Public Equities	518,643	233,379
Private Equities	84,753	57,568
Specialty Credit	263,472	126,429
Derivatives	(202)	(128)
Real Return	27,755	16,365
Real Estate	53,737	39,387
Short-Term Investments	187,679	39,120
Accounts Receivable (Payable), Net	(2,770)	(709)
Total	\$1,288,569	\$579,533

SPRS Insurance Investment Summary - GASB 40

As of June 30, 2022 (\$ in Thousands)

Type	Fair Value	
	Nonhazardous	Hazardous
Core Fixed Income		\$26,732
Public Equities		91,893
Private Equities		25,912
Specialty Credit		50,056
Derivatives		(29)
Real Return		6,096
Real Estate		15,064
Short-Term Investments		13,696
Accounts Receivable (Payable), Net		(371)
Total		\$229,049

Credit Risk Debt Securities

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. The debt security portfolios are managed by the Office of Investments staff and by external investment management firms. All portfolio managers are required by the CERS IPS and/or the KRS IPS to maintain diversified portfolios. Each portfolio is also required to be in compliance with risk management guidelines that are assigned to them based upon the portfolio's specific mandate. In total, the Pension and Insurance Funds' debt securities portfolios are managed using the following guidelines adopted by the Board:

- Bonds, notes, or other obligations issued or guaranteed by the U.S. Government, its agencies or instrumentalities are permissible investments and may be held without restrictions.
- The duration of the core fixed income portfolios combined shall not vary from that of the system's Fixed Income Index by more than +/- 25% duration as measured by effective duration, modified duration or dollar duration except when the system's Investment Committee has determined a target duration to be used for an interim basis.
- The amount invested in the debt of a single corporation shall not exceed 5% of the total market value of CERS and KRS' assets.
- No public Fixed Income manager shall invest more than 5% of the market value of assets held in any single issue Short-Term instrument with the exception of U.S. Government issued, guaranteed or agency obligations.

As of June 30, 2022, the Pension portfolio had \$911.9 million in debt securities rated below BBB- which does not include unrated (NR) securities.

Pension Debt Securities - GASB 40 As of June 30, 2022 (\$ in Thousands)					
Rating	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
AAA	\$241,678	\$81,819	\$163,232	\$27,612	\$28,870
AA+	4,196	1,416	2,422	457	432
AA	13,495	4,565	8,740	1,522	1,550
AA-	14,816	5,011	9,549	1,668	1,693
A+	8,978	3,031	5,292	985	944
A	15,755	5,328	10,065	1,769	1,786
A-	45,536	15,416	30,761	5,207	5,443
BBB+	73,384	24,843	49,513	8,379	8,756
BBB	88,431	29,943	55,453	9,945	9,867
BBB-	135,398	46,079	77,000	15,279	13,913
BB+	94,622	33,524	43,040	10,860	7,728
BB	58,417	21,397	28,172	7,455	5,108
BB-	71,888	26,041	33,768	9,002	6,188
B+	66,056	23,675	30,578	8,537	5,873
B	78,547	28,216	32,497	10,614	6,657
B-	49,751	17,718	19,742	7,014	4,319
CCC+	22,630	8,561	12,773	3,074	2,229
CCC	6,983	2,664	3,991	977	701
CCC-	141	47	26	22	10
CC	14	6	9	2	1
C	0	0	0	0	0
NR	1,268,275	420,607	433,831	116,836	60,083
WD	1,106	369	232	101	66
Total Credit Risk Debt Securities	2,360,097	800,277	1,050,686	247,316	172,220
Government Agencies	8,178	2,752	3,956	851	716
Government Mortgage-Backed Securities	79,526	26,937	55,069	9,155	9,725
Government Issued Commercial Mortgage Backed	3,671	1,243	2,542	423	449
Government Collateralized Mortgage Obligations	6,302	2,122	3,163	662	570
Government Bonds	129,953	43,888	77,586	14,303	13,825
Total	\$2,587,727	\$877,220	\$1,193,002	\$272,710	\$197,504
<p><i>Note: These ratings are based on Standard & Poor's (S&P) Global Ratings. Where S&P ratings are unavailable, equivalent Fitch and Moody's Ratings are used as proxies.</i></p> <p><i>Differences due to rounding.</i></p> <p><i>Government Agencies, Government Mortgage-Backed Securities, Government Issued Commercial Mortgage Backed and Government Bonds are highly rated securities since they are backed by the US Government.</i></p> <p><i>The NR reported indicate a rating has not been assigned.</i></p>					

As of June 30, 2022, the Insurance portfolio had \$389.3 million in debt securities rated below BBB- which does not include unrated (NR) securities.

Insurance Debt Securities - GASB 40 As of June 30, 2022 (\$ in Thousands)					
Rating	CERS	CERS Hazardous	KERS	KERS Hazardous	SPRS
AAA	\$83,799	\$42,391	\$38,735	\$16,609	\$6,703
AA+	5,193	2,635	2,380	996	416
AA	4,747	2,414	2,161	884	380
AA-	5,384	2,736	2,456	1,011	431
A+	3,401	1,738	1,526	594	273
A	6,851	3,479	3,132	1,299	549
A-	18,265	9,231	8,467	3,644	1,461
BBB+	27,430	13,878	12,671	5,436	2,194
BBB	33,290	16,854	15,237	6,161	2,659
BBB-	50,109	24,899	23,326	8,619	3,952
BB+	36,267	17,016	15,269	4,688	2,696
BB	24,177	10,310	10,962	3,674	1,693
BB-	28,614	12,426	13,226	4,284	2,036
B+	26,473	11,307	13,580	4,352	1,894
B	32,538	13,358	18,274	5,535	2,300
B-	19,854	7,905	12,489	3,696	1,406
CCC+	9,827	3,997	4,291	1,647	662
CCC	3,104	1,225	1,402	538	206
CCC-	48	18	42	10	4
CC	7	3	3	1	0
C	0	0	0	0	0
NR	467,130	251,306	180,441	105,182	38,000
WD	259	135	112	19	21
Total Credit Risk Debt Securities	886,765	449,259	380,183	178,881	69,936
Government Agencies	3,193	1,657	1,365	436	257
Government Mortgage-Backed Securities	33,122	16,719	15,403	6,748	2,648
Government Issued Commercial Mortgage Backed	1,538	776	715	313	123
Government Collateralized Mortgage Obligations	2,129	1,104	914	297	171
Government Bonds	45,537	23,286	20,393	7,875	3,653
Total	\$972,284	\$492,802	\$418,974	\$194,551	\$76,788
<p><i>Note: These ratings are based on Standard & Poor's (S&P) Global Ratings. Where S&P ratings are unavailable, equivalent Fitch and Moody's Ratings are used as proxies.</i></p> <p><i>Differences due to rounding.</i></p> <p><i>Government Agencies, Government Mortgage-Backed Securities, Government Issued Commercial Mortgage Backed and Government Bonds are highly rated securities since they are backed by the US Government.</i></p> <p><i>The NR reported indicate a rating has not been assigned.</i></p> <p><i>The WD reported are ratings which have been withdrawn.</i></p>					

Concentration of Credit Risk Debt Securities

Concentration of credit risk is the risk of loss attributed to the magnitude of an entity's exposure in a single issuer. The total debt securities portfolio is managed using the following general guidelines adopted by the CERS and KRS Boards: bonds, notes, or other obligations issued or guaranteed by the U.S. Government, its agencies, or instrumentalities are permissible investments and may be held without restrictions. The amount invested in the debt of a single issuer shall not exceed 5% of the total market value of the Plans' fixed income assets.

Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. Duration measures the sensitivity of the market prices of fixed income securities to changes in the yield curve and can be measured using two methodologies: effective or modified duration. Effective duration uses the present value of cash flows, weighted for those cash flows as a percentage of the investment's full price, and makes adjustments for any bond features that would retire the bonds prior to maturity. The modified duration, similar to effective duration, measures the sensitivity of the market prices to changes in the yield curve, but does not assume the securities will be called prior to maturity.

Below are the market values and modified durations for the combined fixed income securities.

Interest Rate Risk - Modified Duration - GASB 40				
As of June 30, 2022 (\$ in Thousands)				
CERS Pension				
TYPE	Fair Value	Weighted Avg Modified Duration	Fair Value	Weighted Avg Modified Duration
	Nonhazardous		Hazardous	
Asset Backed Securities	\$188,386	1.45	\$63,794	1.45
Financial Institutions	262,780	2.29	89,677	2.31
Collateralized Mortgage Obligations	30,062	2.11	10,162	2.12
Commercial Mortgage Backed Securities	116,399	2.83	39,403	2.83
Corporate Bonds - Industrial	505,123	3.52	180,002	3.58
Corporate Bonds - Utilities	42,127	3.24	14,618	3.30
Agencies	8,178	4.20	2,752	4.19
Government Bonds - Sovereign Debt	2,771	7.61	927	7.61
Mortgage Back Securities Pass-through - Not CMO's	79,891	6.75	27,061	6.75
Local Authorities - Municipal Bonds	5,298	4.40	1,779	4.41
Supranational - Multi-National Bonds	1,627	2.04	543	2.04
Treasuries	129,952	4.74	43,888	4.74
Unclassified	1,208,695	0.06	400,442	0.06
Other	6,438	4.90	2,172	4.90
Total	\$2,587,727	1.75	\$877,220	1.80

Interest Rate Risk - Modified Duration - GASB 40				
As of June 30, 2022 (\$ in Thousands)				
KERS Pension				
TYPE	Fair Value	Weighted Avg Modified Duration	Fair Value	Weighted Avg Modified Duration
	Nonhazardous		Hazardous	
Asset Backed Securities	\$127,837	1.44	\$21,727	1.43
Financial Institutions	141,408	2.36	31,133	2.29
Collateralized Mortgage Obligations	18,870	2.29	3,358	2.17
Commercial Mortgage Backed Securities	78,329	2.80	13,280	2.82
Corporate Bonds - Industrial	258,995	3.49	61,983	3.45
Corporate Bonds - Utilities	27,361	3.17	4,964	3.28
Agencies	3,956	3.45	851	4.01
Government Bonds - Sovereign Debt	770	7.71	258	7.62
Mortgage Back Securities Pass-through - Not CMO's	55,321	6.75	9,197	6.75
Local Authorities - Municipal Bonds	2,183	5.01	531	4.54
Supranational - Multi-National Bonds	292	2.04	143	2.04
Treasuries	77,587	4.80	14,303	4.75
Unclassified	398,179	0.03	110,320	0.08
Other	1,914	4.81	662	4.55
Total	\$1,193,002	2.15	\$272,710	1.93

Interest Rate Risk - Modified Duration - GASB 40**As of June 30, 2022 (\$ in Thousands)****SPRS Pension**

TYPE	Fair Value	Weighted Avg Modified Duration
Asset Backed Securities	\$22,712	1.43
Financial Institutions	27,434	2.24
Collateralized Mortgage Obligations	3,352	2.28
Commercial Mortgage Backed Securities	13,855	2.80
Corporate Bonds - Industrial	47,243	3.38
Corporate Bonds - Utilities	4,808	3.13
Agencies	716	3.51
Government Bonds - Sovereign Debt	148	7.69
Mortgage Back Securities Pass-through - Not CMO's	9,769	6.75
Local Authorities - Municipal Bonds	400	4.95
Supranational - Multi-National Bonds	60	2.04
Treasuries	13,825	4.79
Unclassified	52,795	0.07
Other	387	4.54
Total	\$197,504	2.32

Interest Rate Risk - Modified Duration - GASB 40**As of June 30, 2022 (\$ in Thousands)****CERS Insurance**

TYPE	Fair Value	Weighted Avg Modified Duration	Fair Value	Weighted Avg Modified Duration
	Nonhazardous		Hazardous	
Asset Backed Securities	\$65,752	1.40	\$33,067	1.41
Financial Institutions	102,504	2.27	49,126	2.26
Collateralized Mortgage Obligations	10,211	2.06	5,202	2.04
Commercial Mortgage Backed Securities	42,530	2.63	21,524	2.64
Corporate Bonds - Industrial	198,706	3.61	89,344	3.61
Corporate Bonds - Utilities	16,509	3.55	8,020	3.48
Agencies	3,193	4.38	1,657	4.42
Government Bonds - Sovereign Debt	733	8.76	394	8.73
Mortgage Back Securities Pass-through - Not CMO's	33,247	6.80	16,782	6.80
Local Authorities - Municipal Bonds	1,993	4.79	1,043	4.74
Supranational - Multi-National Bonds	552	2.03	301	2.03
Treasuries	45,536	5.40	23,286	5.38
Unclassified	448,699	0.06	241,986	0.05
Other	2,119	4.87	1,070	5.07
Total	\$972,284	1.83	\$492,802	1.72

Interest Rate Risk - Modified Duration - GASB 40**As of June 30, 2022 (\$ in Thousands)****KERS Insurance**

TYPE	Fair Value	Weighted Avg	Fair Value	Weighted Avg
		Modified Duration		Modified Duration
	Nonhazardous		Hazardous	
Asset Backed Securities	\$30,969	1.37	\$13,282	1.37
Financial Institutions	52,532	2.16	19,325	2.13
Collateralized Mortgage Obligations	4,622	2.10	1,855	2.26
Commercial Mortgage Backed Securities	19,631	2.62	8,400	2.59
Corporate Bonds - Industrial	92,295	3.24	31,973	3.30
Corporate Bonds - Utilities	7,434	3.41	3,125	3.40
Agencies	1,365	4.27	436	3.72
Government Bonds - Sovereign Debt	278	8.86	36	10.23
Mortgage Back Securities Pass-through - Not CMO's	15,462	6.80	6,773	6.80
Local Authorities - Municipal Bonds	831	4.95	235	5.79
Supranational - Multi-National Bonds	198	2.03	9	2.03
Treasuries	20,393	5.44	7,875	5.58
Unclassified	172,013	0.11	101,039	0.04
Other	951	4.16	188	3.61
Total	\$418,974	1.89	\$194,551	1.54

Interest Rate Risk - Modified Duration - GASB 40**As of June 30, 2022 (\$ in Thousands)****SPRS Insurance**

TYPE	Fair Value	Weighted Avg Modified Duration
Asset Backed Securities	\$5,250	1.41
Financial Institutions	7,949	2.25
Collateralized Mortgage Obligations	818	2.05
Commercial Mortgage Backed Securities	3,402	2.63
Corporate Bonds - Industrial	14,525	3.55
Corporate Bonds - Utilities	1,275	3.47
Agencies	257	4.39
Government Bonds - Sovereign Debt	60	8.75
Mortgage Back Securities Pass-through - Not CMO's	2,658	6.80
Local Authorities - Municipal Bonds	161	4.78
Supranational - Multi-National Bonds	45	2.03
Treasuries	3,653	5.39
Unclassified	36,568	0.06
Other	167	4.92
Total	\$76,788	1.76

Foreign Currency Risk

Foreign currency risk is the risk that occurs if exchange rates adversely affect the value of a non-U.S. dollar based investment or deposit within the portfolios. Currency risk exposure, or exchange rate risk, primarily resides with the portfolios Non-U.S. equity holdings, but also affects other asset classes. Neither KRS or CERS have a formal policy to limit foreign currency risk; however, some individual managers are given the latitude to hedge some currency exposures. All foreign currency transactions are classified as Short-Term Investments. All gains and losses associated with these transactions are recorded in the Net Appreciation (Depreciation) in Fair Value of Investments on the combining financial statements.

Foreign Currency Risk for the Pension - GASB 40					
As of June 30, 2022 (\$ in Thousands)					
	CERS		KERS		SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
Australian Dollar	\$15,509	\$5,281	\$4,317	\$1,551	\$763
Brazilian Real	14,327	4,856	3,680	1,395	667
Canadian Dollar	51,732	17,533	13,266	5,034	2,404
Chinese Yuan Renminbi	229	76	41	20	8
Colombian Peso	733	244	131	64	27
Czech Koruna	2,013	683	527	197	95
Danish Krone	33,835	11,480	8,851	3,314	1,594
Egyptian Pound	427	145	112	42	20
Euro	400,964	134,651	99,740	38,539	17,564
Hong Kong Dollar	76,544	25,971	20,023	7,497	3,607
Hungarian Forint	2,914	989	762	285	137
Indian Rupee	24,949	8,463	6,505	2,440	1,171
Indonesian Rupiah	18,006	6,080	4,300	1,714	797
Israeli Shekel	4,384	1,487	1,147	429	207
Japanese Yen	86,105	29,215	22,524	8,434	4,057
Malaysian Ringgit	3,237	1,083	631	291	126
Mexican Peso	5,192	1,756	1,277	499	234
New Taiwan Dollar	31,986	10,853	8,367	3,133	1,507
New Zealand Dollar	3,308	1,103	594	291	122
Norwegian Krone	5,059	1,705	1,166	476	219
Philippine Peso	473	158	85	42	17
Polish Zloty	344	117	90	34	16
Pound Sterling	92,296	31,316	24,146	9,040	4,349
Singapore Dollar	1,264	451	637	161	98
South African Rand	5,498	1,865	1,438	538	259
South Korean Won	32,394	10,991	8,474	3,173	1,527
Swedish Krona	23,758	8,061	6,217	2,327	1,119
Swiss Franc	39,628	13,446	10,369	3,882	1,867
Thai Baht	9,327	3,165	2,440	914	440
Turkish Lira	2,705	918	708	265	128
UAE Dirham	2,075	704	543	203	98
Total Foreign Investment Securities	991,215	334,846	253,108	96,224	45,244
U.S. Dollar	6,954,329	2,367,465	2,739,769	719,419	497,120
Total Investment Securities	\$7,945,544	\$2,702,311	\$2,992,877	\$815,643	\$542,364

Foreign Currency Risk for the Insurance Funds- GASB 40
As of June 30, 2022 (\$ in Thousands)

	CERS		KERS		SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
Australian Dollar	\$5,614	\$2,800	\$2,630	\$1,246	\$435
Brazilian Real	5,091	2,584	2,280	929	398
Canadian Dollar	19,025	9,661	8,507	3,451	1,488
Chinese Yuan Renminbi	71	39	26	1	6
Colombian Peso	227	123	82	3	18
Czech Koruna	1,090	551	493	208	85
Danish Krone	13,023	6,585	5,888	2,486	1,016
Egyptian Pound	116	59	52	22	9
Euro	146,051	75,494	53,699	27,363	11,713
Hong Kong Dollar	27,434	13,873	12,404	5,237	2,141
Hungarian Forint	1,016	514	459	194	79
Indian Rupee	9,118	4,617	4,110	1,718	712
Indonesian Rupiah	5,815	3,000	2,491	847	459
Israeli Shekel	1,634	826	739	312	128
Japanese Yen	30,924	15,638	13,982	5,904	2,413
Malaysian Ringgit	1,055	566	400	55	85
Mexican Peso	1,788	916	779	286	141
New Taiwan Dollar	11,579	5,855	5,236	2,210	904
New Zealand Dollar	1,043	569	375	16	85
Norwegian Krone	1,740	903	733	231	138
Philippine Peso	178	97	64	3	15
Polish Zloty	120	61	54	23	9
Pound Sterling	34,564	17,478	15,628	6,599	2,697
Singapore Dollar	592	254	374	315	42
South African Rand	1,933	977	874	369	151
South Korean Won	11,791	5,962	5,331	2,251	920
Swedish Krona	8,669	4,384	3,920	1,655	677
Swiss Franc	14,991	7,581	6,778	2,862	1,170
Thai Baht	3,235	1,636	1,463	618	253
Turkish Lira	859	434	388	164	67
Total Foreign Investment Securities	360,386	184,037	150,239	67,578	28,454
U.S. Dollar	2,647,111	1,325,286	1,138,330	511,955	200,595
Total Investment Securities	\$3,007,497	\$1,509,323	\$1,288,569	\$579,533	\$229,049

Fair Value Measurement and Applications (GASB 72)

In accordance with GASB *Statement No. 72, Fair Value Measurement and Application*, KPPA provides this additional disclosure regarding the fair value of its Pension and Insurance investments. KPPA categorizes its fair value measurements within the fair value hierarchy established by GAAP.

KPPA defined the Fair Value Hierarchy and Levels as follows:

Level 1

Quoted prices (unadjusted) in an active market for identical assets or liabilities that KPPA has the ability to access at the measurement date (e.g., prices derived from NYSE, NASDAQ, Chicago Board of Trade, and Pink Sheets). Debt and equity securities classified in Level 1 of the fair value hierarchy are valued using quoted prices (unadjusted) in an active market for identical assets or liabilities that KPPA has the ability to access at the measurement date.

Level 2

Inputs (other than quoted prices included within Level 1) that are observable for an asset or liability, either directly or indirectly. These inputs can include matrix pricing, market corroborated pricing and inputs such as yield curves and indices.

Level 3

Unobservable inputs for an asset or liability, which generally results in using the best information available for the valuation of the assets or liabilities being reported.

Net Asset Value (NAV)

The remaining investments not categorized under the fair value hierarchy are shown at net asset value (NAV). These are investments in non-governmental entities for which a readily determinable fair value is not available, such as member units or an ownership interest in partners' capital to which a proportionate share of net assets is attributed.

Fair Value Measurements and Application (GASB 72) Pension As of June 30, 2022 (\$ in Thousands)

Asset Type	CERS Nonhazardous			Total	CERS Hazardous			Total
	Level			Fair Value	Level			Fair Value
	1	2	3		1	2	3	
Public Equity								
Emerging Markets	\$162,276	\$-	\$-	\$162,276	\$55,060	\$-	\$-	\$55,060
US Equity	2,124,793	-	-	2,124,793	724,680	-	-	724,680
Non-US Equity	864,053	-	-	864,053	293,172	-	-	293,172
Total Public Equity	3,151,122	-	-	3,151,122	1,072,912	-	-	1,072,912
Fixed Income								
Agencies	-	1,717	-	1,717	-	582	-	582
Asset-Backed	-	208,655	-	208,655	-	70,581	-	70,581
Bank & Finance	-	153,034	167,863	320,897	-	52,155	56,717	108,872
Cash & Cash Equivalent	13,611	92,332	-	105,943	4,610	48,232	-	52,842
Corporate	8,452	464,548	2,014	475,014	2,819	167,075	681	170,575
Healthcare	-	16,280	-	16,280	-	5,544	-	5,544
Insurance	-	5,220	-	5,220	-	1,779	-	1,779
Mortgage-backed securities	-	230,118	-	230,118	-	77,908	-	77,908
Municipals	-	1,988	-	1,988	-	673	-	673
Sovereign Debt	-	29,168	-	29,168	-	9,727	-	9,727
US Government	108,570	-	-	108,570	36,760	-	-	36,760
Total Fixed Income	130,633	1,203,060	169,877	1,503,570	44,189	434,256	57,398	535,843
Derivatives								
Futures	(1,929)	-	-	(1,929)	(653)	-	-	(653)
Options	-	4	-	4	-	1	-	1
Swaps				-				-
Total Derivatives	(1,929)	4	-	(1,925)	(653)	1	-	(652)
Real Return								
Real Return	81,794	398	-	82,192	28,168	137	-	28,305
Real Return - Fixed Income				-				-
Total Real Return	81,794	398	-	82,192	28,168	137	-	28,305
Total Investments at Fair Value	3,361,620	1,203,462	169,877	4,734,959	1,144,616	434,394	57,398	1,636,408
Investments Measured at NAV								
Specialty Credit	-	-	-	1,187,792	-	-	-	393,438
Private Equity	-	-	-	753,384	-	-	-	251,589
Real Estate	-	-	-	494,607	-	-	-	157,478
Real Return	-	-	-	164,017	-	-	-	52,957
Fixed Income	-	-	-	58,219	-	-	-	20,029
Non US Equity	-	-	-	457,526	-	-	-	157,272
Emerging Markets	-	-	-	3,084	-	-	-	1,046
US Equity	-	-	-	22,358	-	-	-	7,550
Total Investments Measured at NAV	-	-	-	3,140,987	-	-	-	1,041,359
Cash and Accruals	-	-	-	69,598	-	-	-	24,544
Total Investments	\$3,361,620	\$1,203,462	\$169,877	\$7,945,544	\$1,144,616	\$434,394	\$57,398	\$2,702,311

Note: The fair value hierarchies do not reflect cash and accruals thus totals differ from the Investment Summaries.

Note: Cash Equivalents include publicly traded investment grade corporate bonds; variable rate demand notes; government and agency bonds; mortgages; municipal bonds; Short Term Investment Funds (STIF); money market funds or instruments (including, but not limited to, certificates of deposit, bank notes, deposit notes, bankers' acceptances and commercial paper); and repurchase agreements.

Fair Value Measurements and Application (GASB 72) Pension As of June 30, 2022 (\$ in Thousands)

Asset Type	KERS Nonhazardous			Total	KERS Hazardous			Total	SPRS			Total
	Level			Fair Value	Level			Fair Value	Level			Fair Value
	1	2	3		1	2	3		1	2	3	
Public Equity												
Emerging Markets	\$42,450	\$-	\$-	\$42,450	\$15,895	\$-	\$-	\$15,895	\$7,647	\$-	\$-	\$7,647
US Equity	538,612	-	-	538,612	197,891	-	-	197,891	91,751	-	-	91,751
Non-US Equity	226,030	-	-	226,030	84,633	-	-	84,633	40,716	-	-	40,716
Total Public Equity	807,092	-	-	807,092	298,419	-	-	298,419	140,114	-	-	140,114
Fixed Income												
Agencies	-	1,189	-	1,189	-	198	-	198	-	210	-	210
Asset-Backed	-	134,554	-	134,554	-	23,560	-	23,560	-	24,867	-	24,867
Bank & Finance	-	99,468	52,028	151,496	-	17,457	22,224	39,681	-	17,572	13,032	30,604
Cash & Cash Equivalent	9,425	407,178	-	416,603	1,567	56,760	-	58,327	1,664	132,320	-	133,984
Corporate	1,625	262,963	1,106	265,694	751	56,355	247	57,353	330	45,885	214	46,429
Healthcare	-	6,901	-	6,901	-	1,698	-	1,698	-	1,261	-	1,261
Insurance	-	2,961	-	2,961	-	575	-	575	-	526	-	526
Mortgage-backed securities	-	153,926	-	153,926	-	26,237	-	26,237	-	27,246	-	27,246
Municipals	-	1,376	-	1,376	-	229	-	229	-	243	-	243
Sovereign Debt	-	5,596	-	5,596	-	2,584	-	2,584	-	1,134	-	1,134
US Government	73,749	-	-	73,749	12,423	-	-	12,423	13,038	-	-	13,038
Total Fixed Income	84,799	1,076,112	53,134	1,214,045	14,741	185,653	22,471	222,865	15,032	251,264	13,246	279,542
Derivatives												
Futures	(1,226)	-	-	(1,226)	(215)	-	-	(215)	(214)	-	-	(214)
Options	-	1	-	1	-	-	-	-	-	-	-	-
Swaps	-	-	-	-	-	-	-	-	-	-	-	-
Total Derivatives	(1,226)	1	-	(1,225)	(215)	-	-	(215)	(214)	-	-	(214)
Real Return												
Real Return	32,530	158	-	32,688	8,148	40	-	8,188	3,254	16	-	3,270
Real Return - Fixed Income	-	-	-	-	-	-	-	-	-	-	-	-
Total Real Return	32,530	158	-	32,688	8,148	40	-	8,188	3,254	16	-	3,270
Total Investments at Fair Value	923,195	1,076,271	53,134	2,052,600	321,093	185,693	22,471	529,257	158,186	251,280	13,246	422,712
Investments Measured at NAV												
Specialty Credit	-	-	-	393,962	-	-	-	107,907	-	-	-	51,664
Private Equity	-	-	-	196,183	-	-	-	69,314	-	-	-	19,462
Real Estate	-	-	-	164,991	-	-	-	45,860	-	-	-	19,823
Real Return	-	-	-	28,418	-	-	-	14,317	-	-	-	6,114
Fixed Income	-	-	-	30,949	-	-	-	6,885	-	-	-	5,768
Non US Equity	-	-	-	91,777	-	-	-	32,509	-	-	-	13,030
Emerging Markets	-	-	-	807	-	-	-	302	-	-	-	145
US Equity	-	-	-	5,448	-	-	-	1,988	-	-	-	871
Total Investments Measured at NAV	-	-	-	912,535	-	-	-	279,082	-	-	-	116,877
Cash and Accruals	-	-	-	27,742	-	-	-	7,304	-	-	-	2,775
Total Investments	\$923,195	\$1,076,271	\$53,134	\$2,992,877	\$321,093	\$185,693	\$22,471	\$815,643	\$158,186	\$251,280	\$13,246	\$542,364

Note: The fair value hierarchies do not reflect cash and accruals thus totals differ from the Investment Summaries.

Note: Cash Equivalents include publicly traded investment grade corporate bonds; variable rate demand notes; government and agency bonds; mortgages; municipal bonds; Short Term Investment Funds (STIF); money market funds or instruments (including, but not limited to, certificates of deposit, bank notes, deposit notes, bankers' acceptances and commercial paper); and repurchase agreements.

The investments measured at net asset value (NAV) are presented in the chart below:

Fair Value Measurements and Application (GASB 72) Pension
As of June 30, 2022 (\$ in Thousands)

Asset Type	CERS Nonhazardous				CERS Hazardous			
	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Specialty Credit ⁽¹⁾	\$1,187,792	\$198,499	Daily - Quarterly	90 Days	\$393,438	\$66,160	Daily - Quarterly	90 Days
Real Estate ⁽²⁾	494,607	128,198			157,478	40,537		
Real Return ⁽³⁾	164,017	31,285	Daily	30 - 60 Days	52,957	10,137	Daily	30 - 60 Days
Private Equity ⁽⁴⁾	753,384	191,800			251,589	63,064		
Fixed Income ⁽⁵⁾	58,219	-	Daily		20,029	-	Daily	
Non US Equity ⁽⁵⁾	460,610	-	Daily		158,318	-	Daily	
US Equity ⁽⁵⁾	22,358	-	Daily		7,550	-	Daily	
Total Investments Measured at NAV	\$3,140,987	\$549,782			\$1,041,359	\$179,898		

⁽¹⁾ This type includes 14 high yield specialty credit managers with multiple strategies. These managers may invest in U.S. or non-U.S. investment grade corporate credit, U.S. or non U.S. non-investment grade corporate credit, including both bonds and bank loans, municipal bonds, non-U.S. sovereign debt, mortgages including residential mortgage backed securities, commercial mortgage backed securities and whole loans, asset-backed securities and emerging market debt.

⁽²⁾ This type includes 11 real estate funds that invest primarily in U.S. commercial real estate; however, there is one manager who invests solely in non-U.S. commercial real estate. The fair value of the investments have been determined using the NAV per share of the Plan's ownership interest and in the partners' capital. Distributions from each fund will be received as the underlying investments of the funds are liquidated. It is expected that the funds will be liquidated over the next 7 to 10 years. Because it is not probable that any individual investment will be sold, the fair value of each individual investment has been determined using the NAV per share of the Plan's ownership interest in the partners' capital. Due to restrictions in the contract, redemptions are not likely until the assets of the fund are liquidated.

⁽³⁾ This type includes 18 real return managers that invest in multiple strategies such as infrastructure, agriculture, royalties, commodities, and natural resources. These investments are intended to provide both favorable risk-adjusted returns and correlation with inflation to help with the hedging of inflation for the broader plan. This group of managers also includes any hedge fund managers remaining in the portfolio which have all been terminated and are only awaiting payouts.

⁽⁴⁾ This type includes 36 managers with multiple strategies. These investments cannot be redeemed. Instead, the investments are redeemed throughout the life of the investment. Distributions are received through the liquidation of the underlying assets of the fund. It is expected that each fund will remain invested for a period of 5 to 10 years. It is probable that the all of the investments in this type will be sold at an amount different from the NAV per share of the Plan's ownership interest in partners' capital. Therefore, the fair values of the investment in this asset class have been determined using recent observable transaction information.

⁽⁵⁾ This type includes short-term commingled investment instruments issued by the US Government, Federal agencies, sponsored agencies or sponsored corporations.

The investments measured at net asset value (NAV) are presented in the chart below:

Fair Value Measurements and Application (GASB 72) Pension
As of June 30, 2022 (\$ in Thousands)

Asset Type	KERS Nonhazardous				KERS Hazardous				SPRS			
	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Specialty Credit ⁽¹⁾	\$393,962	\$58,836	Daily - Quarterly	90 Days	\$107,907	\$18,667	Daily - Quarterly	90 Days	\$51,664	\$6,619	Daily - Quarterly	90 Days
Real Estate ⁽²⁾	164,991	40,154			45,860	11,636			19,823	4,864		
Real Return ⁽³⁾	28,418	2,760	Daily	30 - 60 Days	14,317	2,793	Daily	30 - 60 Days	6,114	1,039	Daily	30 - 60 Days
Private Equity ⁽⁴⁾	196,183	47,386			69,314	17,743			19,462	5,564		
Fixed Income ⁽⁵⁾	30,949	-	Daily		6,885	-	Daily		5,768	-	Daily	
Non US Equity ⁽⁵⁾	92,584	-	Daily		32,811	-	Daily		13,175	-	Daily	
US Equity ⁽⁵⁾	5,448	-	Daily		1,988	-	Daily		871	-	Daily	
Total Investments Measured at NAV	\$912,535	\$149,136			\$279,082	\$50,839			\$116,877	\$18,086		

⁽¹⁾ This type includes 10 high yield specialty credit managers with multiple strategies. These managers may invest in U.S. or non-U.S. investment grade corporate credit, U.S. or non U.S. non-investment grade corporate credit, including both bonds and bank loans, municipal bonds, non-U.S. sovereign debt, mortgages including residential mortgage backed securities, commercial mortgage backed securities and whole loans, asset-backed securities and emerging market debt.

⁽²⁾ This type includes 11 real estate funds that invest primarily in U.S. commercial real estate; however, there is one manager who invests solely in non-U.S. commercial real estate. The fair value of the investments have been determined using the NAV per share of the Plan's ownership interest and in the partners' capital. Distributions from each fund will be received as the underlying investments of the funds are liquidated. It is expected that the funds will be liquidated over the next 7 to 10 years. Because it is not probable that any individual investment will be sold, the fair value of each individual investment has been determined using the NAV per share of the Plan's ownership interest in the partners' capital. Due to restrictions in the contract, redemptions are not likely until the assets of the fund are liquidated.

⁽³⁾ This type includes 18 real return managers that invest in multiple strategies such as infrastructure, agriculture, royalties, commodities, and natural resources. These investments are intended to provide both favorable risk-adjusted returns and correlation with inflation to help with the hedging of inflation for the broader plan. This group of managers also includes any hedge fund managers remaining in the portfolio which have all been terminated and are only awaiting payouts.

⁽⁴⁾ This type includes 36 managers with multiple strategies. These investments cannot be redeemed. Instead, the investments are redeemed throughout the life of the investment. Distributions are received through the liquidation of the underlying assets of the fund. It is expected that each fund will remain invested for a period of 5 to 10 years. It is probable that the all of the investments in this type will be sold at an amount different from the NAV per share of the Plan's ownership interest in partners' capital. Therefore, the fair values of the investment in this asset class have been determined using recent observable transaction information.

⁽⁵⁾ This type includes short-term commingled investment instruments issued by the US Government, Federal agencies, sponsored agencies or sponsored corporations.

Fair Value Measurements and Application (GASB 72) Insurance As of June 30, (\$ in Thousands)

Asset Type	CERS Nonhazardous			Total	CERS Hazardous			Total
	Level			Fair Value	Level			Fair Value
	1	2	3		1	2	3	
Public Equity								
Emerging Markets	\$56,842	\$-	\$-	\$56,842	\$28,743	\$-	\$-	\$28,743
US Equity	795,684	-	-	795,684	391,849	-	-	391,849
Non-US Equity	314,478	-	-	314,478	159,024	-	-	159,024
Total Public Equity	1,167,004	-	-	1,167,004	579,616	-	-	579,616
Fixed Income								
Agencies	-	650	-	650	-	328	-	328
Asset-Backed	-	74,257	-	74,257	-	37,492	-	37,492
Bank & Finance	422	58,057	63,188	121,667	230	29,111	27,049	56,390
Cash & Cash Equivalent	-	76,471	-	76,471	-	13,018	-	13,018
Corporate	2,404	187,416	696	190,516	1,301	85,208	333	86,842
Healthcare	-	5,879	-	5,879	-	2,981	-	2,981
Insurance	-	1,778	-	1,778	-	894	-	894
Mortgage-backed securities	-	88,382	-	88,382	-	44,703	-	44,703
Municipals	-	898	-	898	-	453	-	453
Sovereign Debt	-	8,955	-	8,955	-	4,873	-	4,873
US Government	43,776	184	-	43,960	22,132	93	-	22,225
Total Fixed Income	46,602	502,927	63,884	613,413	23,663	219,154	27,382	270,199
Derivatives								
Futures	(649)	-	-	(649)	(326)	-	-	(326)
Options	-	1	-	1	-	1	-	1
Swaps				-				-
Total Derivatives	(649)	1	-	(648)	(326)	1	-	(325)
Real Return								
Real Return	21,738	-	-	21,738	11,203	-	-	11,203
Real Return - Fixed Income	-	-	2	2	-	-	1	1
Total Real Return	21,738	-	2	21,740	11,203	-	1	11,204
Total Investments at Fair Value	1,234,695	502,928	63,886	1,801,509	614,156	219,155	27,383	860,694
Investments Measured at NAV								
Specialty Credit	-	-	-	440,159	-	-	-	238,052
Private Equity	-	-	-	292,493	-	-	-	164,729
Real Estate	-	-	-	171,045	-	-	-	93,762
Real Return	-	-	-	53,385	-	-	-	29,146
Fixed Income	-	-	-	19,294	-	-	-	9,153
Non US Equity	-	-	-	194,194	-	-	-	96,628
Emerging Markets	-	-	-	1,270	-	-	-	642
US Equity	-	-	-	8,273	-	-	-	4,117
Total Investments Measured at NAV	-	-	-	1,180,113	-	-	-	636,229
Cash and Accruals	-	-	-	25,875	-	-	-	12,400
Total Investments	\$1,234,695	\$502,928	\$63,886	\$3,007,497	\$614,156	\$219,155	\$27,383	\$1,509,329

Note: The fair value hierarchies do not reflect cash and accruals thus totals differ from the Investment Summaries.

Note: Cash Equivalents include publicly traded investment grade corporate bonds; variable rate demand notes; government and agency bonds; mortgages; municipal bonds; Short Term Investment Funds (STIF); money market funds or instruments (including, but not limited to, certificates of deposit, bank notes, deposit notes, bankers' acceptances and commercial paper); and repurchase agreements.

Fair Value Measurements and Application (GASB 72) Insurance As of June 30, (\$ in Thousands)

	KERS Nonhazardous			Total	KERS Hazardous			Total	SPRS			Total
	Level				Level				Level			
Asset Type	1	2	3	Fair Value	1	2	3	Fair Value	1	2	3	Fair Value
Public Equity												
Emerging Markets	\$25,701	\$-	\$-	\$25,701	\$10,852	\$-	\$-	\$10,852	\$4,436	\$-	\$-	\$4,436
US Equity	311,247	-	-	311,247	139,841	-	-	139,841	55,019	-	-	55,019
Non-US Equity	142,192	-	-	142,192	60,037	-	-	60,037	24,543	-	-	24,543
Total Public Equity	479,140	-	-	479,140	210,730	-	-	210,730	83,998	-	-	83,998
Fixed Income												
Agencies	-	302	-	302	-	133	-	133	-	52	-	52
Asset-Backed	-	34,596	-	34,596	-	15,160	-	15,160	-	5,898	-	5,898
Bank & Finance	152	26,325	43,841	70,318	7	11,006	11,284	22,297	34	4,599	4,795	9,428
Cash & Cash Equivalent	-	156,102	-	156,102	-	26,224	-	26,224	-	8,452	-	8,452
Corporate	891	79,847	379	81,117	78	30,231	130	30,439	196	13,650	55	13,901
Healthcare	-	2,464	-	2,464	-	703	-	703	-	463	-	463
Insurance	-	778	-	778	-	294	-	294	-	140	-	140
Mortgage-backed securities	-	40,812	-	40,812	-	17,396	-	17,396	-	7,067	-	7,067
Municipals	-	417	-	417	-	183	-	183	-	72	-	72
Sovereign Debt	-	3,244	-	3,244	-	178	-	178	-	730	-	730
US Government	20,268	85	-	20,353	8,757	37	-	8,794	3,501	15	-	3,516
Total Fixed Income	21,311	344,972	44,220	410,503	8,842	101,545	11,414	121,801	3,731	41,138	4,850	49,719
Derivatives												
Futures	(295)	-	-	(295)	(132)	-	-	(132)	(51)	-	-	(51)
Options	-	-	-	-	-	-	-	-	-	-	-	-
Swaps	-	-	-	-	-	-	-	-	-	-	-	-
Total Derivatives	(295)	-	-	(295)	(132)	-	-	(132)	(51)	-	-	(51)
Real Return												
Real Return	9,618	-	-	9,618	4,398	-	-	4,398	1,717	-	-	1,717
Real Return - Fixed Income	-	-	1	1	-	-	-	-	-	-	-	-
Total Real Return	9,618	-	1	9,619	4,398	-	-	4,398	1,717	-	-	1,717
Total Investments at Fair Value												
	509,774	344,972	44,221	898,967	223,838	101,545	11,414	336,797	89,395	41,138	4,850	135,383
Investments Measured at NAV												
Specialty Credit	-	-	-	166,813	-	-	-	99,958	-	-	-	35,905
Private Equity	-	-	-	84,753	-	-	-	57,568	-	-	-	25,912
Real Estate	-	-	-	53,737	-	-	-	39,387	-	-	-	15,064
Real Return	-	-	-	18,560	-	-	-	12,160	-	-	-	4,455
Fixed Income	-	-	-	9,689	-	-	-	3,388	-	-	-	1,486
Non US Equity	-	-	-	42,401	-	-	-	23,874	-	-	-	8,397
Emerging Markets	-	-	-	574	-	-	-	242	-	-	-	99
US Equity	-	-	-	3,211	-	-	-	1,422	-	-	-	568
Total Investments Measured at NAV												
	-	-	-	379,738	-	-	-	237,999	-	-	-	91,886
Cash and Accruals												
	-	-	-	9,864	-	-	-	4,737	-	-	-	1,780
Total Investments												
	\$509,774	\$344,972	\$44,221	\$1,288,569	\$223,838	\$101,545	\$11,414	\$579,533	\$89,395	\$41,138	\$4,850	\$229,049

Note: The fair value hierarchies do not reflect cash and accruals thus totals differ from the Investment Summaries.

Note: Cash Equivalents include publicly traded investment grade corporate bonds; variable rate demand notes; government and agency bonds; mortgages; municipal bonds; Short Term Investment Funds (STIF); money market funds or instruments (including, but not limited to, certificates of deposit, bank notes, deposit notes, bankers' acceptances and commercial paper); and repurchase agreements.

The investments measured at net asset value (NAV) are presented in the chart below:

Fair Value Measurements and Application (GASB 72) Insurance As of June 30, 2022 (\$ in Thousands)								
Asset Type	Fair Value	CERS Nonhazardous				CERS Hazardous		
		Unfunded Commitments	Redemption Frequency	Redemption Notice Period		Fair Value	Unfunded Commitments	Redemption Frequency
Specialty Credit ⁽¹⁾	\$440,159	\$67,076	Daily - Quarterly	90 Days		\$238,052	\$35,965	Daily - Quarterly
Real Estate ⁽²⁾	171,045	44,019				93,762	24,143	
Real Return ⁽³⁾	53,385	8,740	Daily	30 - 60 Days		29,146	4,727	Daily
Private Equity ⁽⁴⁾	292,493	80,491				164,729	43,671	30 - 60 Days
Fixed Income ⁽⁵⁾	19,294	-	Daily			9,153	-	Daily
Non US Equity ⁽⁵⁾	195,464	-	Daily			97,270	-	Daily
US Equity ⁽⁵⁾	8,273	-	Daily			4,117	-	Daily
Total Investments Measured at NAV	\$1,180,113	\$200,326				\$636,229	\$108,506	
⁽¹⁾ This type includes 14 high yield specialty credit managers with multiple strategies. These managers may invest in U.S. or non-U.S. investment grade corporate credit, U.S. or non U.S. non-investment grade corporate credit, including both bonds and bank loans, municipal bonds, non-U.S. sovereign debt, mortgages including residential mortgage backed securities, commercial mortgage backed securities and whole loans, asset-backed securities and emerging market debt.								
⁽²⁾ This type includes 11 real estate funds that invest primarily in U.S. commercial real estate; however, there is one manager who invests solely in non-U.S. commercial real estate. The fair value of the investments have been determined using the NAV per share of the Plan's ownership interest and in the partners' capital. Distributions from each fund will be received as the underlying investments of the funds are liquidated. It is expected that the funds will be liquidated over the next 7 to 10 years. Because it is not probable that any individual investment will be sold, the fair value of each individual investment has been determined using the NAV per share of the Plan's ownership interest in the partners' capital. Due to restrictions in the contract, redemptions are not likely until the assets of the fund are liquidated.								
⁽³⁾ This type includes 18 real return managers that invest in multiple strategies such as infrastructure, agriculture, royalties, commodities, and natural resources. These investments are intended to provide both favorable risk-adjusted returns and correlation with inflation to help with the hedging of inflation for the broader plan. This group of managers also includes any hedge fund managers remaining in the portfolio which have all been terminated and are only awaiting payouts.								
⁽⁴⁾ This type includes 38 managers with multiple strategies. These investments cannot be redeemed. Instead, the investments are redeemed throughout the life of the investment. Distributions are received through the liquidation of the underlying assets of the fund. It is expected that each fund will remain invested for a period of 5 to 10 years. It is probable that the all of the investments in this type will be sold at an amount different from the NAV per share of the Plan's ownership interest in partners' capital. Therefore, the fair values of the investment in this asset class have been determined using recent observable transaction information.								
⁽⁵⁾ This type includes short-term commingled investment instruments issued by the US Government, Federal agencies, sponsored agencies or sponsored corporations.								

The investments measured at net asset value (NAV) are presented in the chart below:

Fair Value Measurements and Application (GASB 72) Insurance As of June 30, 2022 (\$ in Thousands)													
Asset Type	KERS Nonhazardous				KERS Hazardous				SPRS				
	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period	
Specialty Credit ⁽¹⁾	\$166,813	\$25,502	Daily - Quarterly	90 Days	\$99,958	\$14,643	Daily - Quarterly	90 Days	\$35,905	\$5,494	Daily - Quarterly	90 Days	
Real Estate ⁽²⁾	53,737	13,620			39,387	10,180			15,064	3,890			
Real Return ⁽³⁾	18,560	3,474	Daily	30 - 60 Days	12,160	1,999	Daily	30 - 60 Days	4,455	721	Daily	30 - 60 Days	
Private Equity ⁽⁴⁾	84,753	21,567			57,568	15,063			25,912	6,732			
Fixed Income ⁽⁵⁾	9,689	-	Daily		3,388	-	Daily		1,486	-	Daily		
Non US Equity ⁽⁵⁾	42,975	-	Daily		24,116	-	Daily		8,496	-	Daily		
US Equity ⁽⁵⁾	3,211	-	Daily		1,422	-	Daily		568	-	Daily		
Total Investments Measured at NAV	\$379,738	\$64,163			\$237,999	\$41,885			\$91,886	\$16,837			
⁽¹⁾ This type includes 17 high yield specialty credit managers with multiple strategies. These managers may invest in U.S. or non-U.S. investment grade corporate credit, U.S. or non U.S. non-investment grade corporate credit, including both bonds and bank loans, municipal bonds, non-U.S. sovereign debt, mortgages including residential mortgage backed securities, commercial mortgage backed securities and whole loans, asset-backed securities and emerging market debt.													
⁽²⁾ This type includes 15 real estate funds that invest primarily in U.S. commercial real estate; however, there is one manager who invests solely in non-U.S. commercial real estate. The fair value of the investments have been determined using the NAV per share of the Plan's ownership interest and in the partners' capital. Distributions from each fund will be received as the underlying investments of the funds are liquidated. It is expected that the funds will be liquidated over the next 7 to 10 years. Because it is not probable that any individual investment will be sold, the fair value of each individual investment has been determined using the NAV per share of the Plan's ownership interest in the partners' capital. Due to restrictions in the contract, redemptions are not likely until the assets of the fund are liquidated.													
⁽³⁾ This type includes 18 real return managers that invest in multiple strategies such as infrastructure, agriculture, royalties, commodities, and natural resources. These investments are intended to provide both favorable risk-adjusted returns and correlation with inflation to help with the hedging of inflation for the broader plan. This group of managers also includes any hedge fund managers remaining in the portfolio which have all been terminated and are only awaiting payouts.													
⁽⁴⁾ This type includes 36 managers with multiple strategies. These investments cannot be redeemed. Instead, the investments are redeemed throughout the life of the investment. Distributions are received through the liquidation of the underlying assets of the fund. It is expected that each fund will remain invested for a period of 5 to 10 years. It is probable that the all of the investments in this type will be sold at an amount different from the NAV per share of the Plan's ownership interest in partners' capital. Therefore, the fair values of the investment in this asset class have been determined using recent observable transaction information.													
⁽⁵⁾ This type includes short-term commingled investment instruments issued by the US Government, Federal agencies, sponsored agencies or sponsored corporations.													

Money-Weighted Rates of Return

In accordance with GASB *Statement No. 67, Financial Reporting for Pension Plans*, and GASB *Statement No. 74, Financial Reporting for Post-Employment Benefit Plans Other than Pension Plans*, KPPA provides this additional disclosure regarding its money-weighted rate of return for the period of June 30, 2022. The money-weighted rate of return is a method of calculating period-by-period returns on the Pension and Insurance Funds' investments that adjusts for the changing amounts actually invested. For the purposes of this Statement, money-weighted rate of return is calculated as the internal rate of return on investments, net of investment expenses, then adjusted for the changing amounts actually invested.

Money-Weighted Rates of Return As of June 30 - Pension

	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
2022	(5.83)%	(6.02)%	(5.29)%	(5.94)%	(5.80)%

Money-Weighted Rates of Return As of June 30 - Insurance

	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
2022	(5.49)%	(4.95)%	(6.22)%	(4.43)%	(4.43)%

Note E. Securities Lending Transactions

Kentucky Revised Statutes Sections 61.650 and 386.020(2) permit the Pension and Insurance Trust Funds to lend their securities to broker-dealers and other entities. KPPA utilizes a securities lending program to temporarily lend securities to qualified agents in exchange for either cash collateral or other securities with an initial fair value of 102% or 105% of the value of the borrowed securities. The borrowers of the securities simultaneously agree to return the borrowed securities in exchange for the collateral. The types of securities lent include U.S. Treasuries, U.S. Agencies, U.S. Corporate Bonds, U.S. Equities, Global Fixed Income Securities, and Global Equities Securities. Securities Lending transactions are accounted for in accordance with GASB 28. The net earnings for the Pension and Insurance Trust Funds was \$1.8 million and \$0.7 million, respectively.

The IPS does not address any restrictions on the amount of loans that can be made. As of June 30, 2022, KPPA had no credit risk exposure to borrowers because the collateral amounts received exceeded the amounts out on loan. The contracts with the custodial bank require them to indemnify KPPA if the borrowers fail to return the securities and one or both of the custodial banks have failed to live up to their contractual responsibilities relating to the lending of securities.

All securities loans can be terminated on demand by either party to the transaction. BNY Mellon invests cash collateral as permitted by state statute and Board policy. The agent, BNY Mellon, of the Funds cannot pledge or sell collateral securities received unless the borrower defaults. KPPA maintains a conservative approach to investing the cash collateral with BNY Mellon, emphasizing capital preservation, liquidity, and credit quality.

Cash collateral is invested in guaranteed, short-term obligations of the U.S. government, select government agencies and repurchase agreements with qualified agents. KPPA cannot pledge or sell collateral securities received unless the borrower defaults. BNY Mellon as the lending agent also indemnifies KPPA from any financial loss associated with a borrower's default and collateral inadequacy.

As of June 30, 2022, the average days to maturity for loans was one day, and the weighted average investment maturity of cash collateral investments was one day. The trusts had no credit risk exposure to borrowers because the amounts owed to borrowers exceeded the amounts the borrowers owed the trust, and no losses resulted during the period.

Security lending programs can entail interest rate risk and credit risk. KPPA minimizes interest rate risk by limiting the term of cash collateral investments to several days. The credit risk is controlled by investing cash collateral in securities with qualities similar to the credit worthiness of lent securities.

As of June 30, 2022, the cash collateral received for the securities on loan for the Pension and Insurance Trust Funds was \$391.8 million and \$146.1 million, respectively. The securities non-cash collateral received a total of \$136.2 million and \$50.3 million, respectively. The collateral volume of the total underlying securities was \$528.0 million for Pension and \$196.4 million for the Insurance Trust Funds, respectively.

Securities Lending Cash Collateral

As of June 30, 2022

	CERS	CERS	KERS	KERS	SPRS	Pension Total
	Nonhazardous	Hazardous	Nonhazardous	Hazardous		2022
Pension	\$208,156	\$70,856	\$77,505	\$21,277	\$13,957	\$391,751
Insurance	\$66,459	\$33,425	\$28,391	\$12,806	\$5,063	\$146,144

Note F. Risk of Loss

KPPA is exposed to various risks of loss related to torts; thefts of, damage to, and destruction of assets; errors and omissions; injuries to employees; and natural disasters. Under the provisions of the Kentucky Revised Statutes the Office of Claims and Appeals is vested with full power and authority to investigate, hear proof, and compensate persons for damages sustained to either person or property as a result of negligence of the agency or any of its employees. Awards are limited to \$250,000 for a single claim and \$400,000 in aggregate per occurrence. Awards and a pro rata share of the operating cost of the Office of Claims and Appeals are paid from the fund of the agency having a claim or claims before the Office of Claims and Appeals.

Claims against the CERS Board, KRS Board and the KPPA Board, or any of its staff as a result of an actual or alleged breach of fiduciary duty, are self-insured effective May 26, 2019.

Claims for job-related illnesses or injuries to employees are insured by the state's self-insured workers' compensation program. Payments approved by the program are not subject to maximum limitations. All medical expenses related to a work injury or illness are paid based upon appropriate statutory and regulatory reductions, and up to 66.67% of wages for temporary disability. Each agency pays premiums based on fund reserves and payroll. Settlements did not exceed insurance coverage in any of the past three fiscal years. Thus, no secondary insurance had to be utilized. There were no claims which were appealed to the Kentucky Workers' Compensation Board.

Note G. Contingencies

In the normal course of business, KPPA is involved in litigation concerning the right of participants, or their beneficiaries, to receive benefits. KPPA does not anticipate any material losses for CERS, KERS, SPRS or the Insurance Fund as a result of the contingent liabilities. KPPA is involved in other litigation; therefore, please see Note O. Litigation, for further information.

Note H. Defined Benefit Pension Plan

KPPA is an agency within the Executive branch of the Commonwealth of Kentucky. All regular full-time employees in nonhazardous positions of any Kentucky State Department, Board, or Agency are directed by Executive Order (EO) to participate in KERS. These employees participate in KERS Nonhazardous, a cost-sharing, multiple-employer defined pension fund that provides retirement, disability, and death benefits to fund members. Fund benefits are extended to beneficiaries of fund members under certain circumstances. Tier 1 Fund members contributed 5% of creditable compensation for the fiscal year ended June 30, 2022. Tier 2 and Tier 3 Fund members contributed 6% of creditable compensation for the fiscal year ended June 30, 2022.

The chart below includes the covered payroll and contribution amounts for the employees of KPPA:

Payroll and Contributions as of June 30 (\$ in Thousands)	
	2022
Covered Payroll	14,399
Required Employer Contributions	1,463
Employer Percentage Contributed	100%
<i>Note: KRS 61.565, as amended by the 2021 Regular Legislative Session House Bill 8, requires the employers to contribute a normal cost for retirement plus and actuarially determined unfunded liability contribution. The Office of the State Budget Director determined the percentage of the contribution for FY 2022 for the Executive Branch to be 73.87% for the actuarially determined unfunded liability and 10.10% for the normal cost.</i>	

Note I. Income Tax Status

The Internal Revenue Service (IRS) has ruled that plans administered by KPPA qualify under Section 401(a) of the Internal Revenue Code are, generally, not subject to tax. The plans are subject to income tax on any unrelated business income (UBI).

Note J. Equipment

Equipment as of June 30, 2022 (\$ in Thousands)	
	2022
Equipment, cost	\$2,885
Less Accumulated Depreciation	(2,885)
Equipment, net	\$0

Note K. Intangible Assets

The provisions of GASB *Statement No. 51, Accounting and Financial Reporting for Intangible Assets*, requires that intangible assets be recognized in the Combining Statement of Fiduciary Net Position only if they are considered identifiable. In accordance with the Statement, KPPA has capitalized software costs as indicated below for the Strategic Technology Advancements for the Retirement of Tomorrow (START) project.

Software Expenses as of June 30 (\$ in Thousands)	
	2022
Software, Cost	\$17,300
Less Accumulated Amortization	(16,977)
Intangible Assets, Net	\$323

Note L. Actuarial Valuation

KPPA's actuary, Gabriel, Roeder, Smith & Co. (GRS), completed the actuarial valuation for the calculation of the employer contribution rates for the CERS, KERS, SPRS and Insurance Fund for the period ended June 30, 2022. The last experience study for the five-year period ended June 30, 2018, was completed prior to the June 2019 valuation. At that time, the actuary made changes to the actuarial assumptions used in the annual valuation. For example, one of the more significant changes was to the mortality assumption rate, which presumes improvement in life expectancy. The 2021 valuation utilized the same assumptions. The following two charts show the economic assumptions and target asset allocations for the Pension and Insurance.

Economic Assumptions - Pension as of June 30										
	CERS		CERS		KERS		KERS		SPRS	
	Hazardous				Hazardous					
	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021
Assumed Investment Return	6.25%	6.25%	6.25%	6.25%	5.25%	5.25%	6.25%	6.25%	5.25%	5.25%
Inflation Factor	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%
Payroll Growth	2.00%	2.00%	2.00%	2.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Economic Assumptions - Insurance as of June 30										
	CERS		CERS		KERS		KERS		SPRS	
	Hazardous				Hazardous					
	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021
Assumed Investment Return	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%
Inflation Factor	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%
Payroll Growth	2.00%	2.00%	2.00%	2.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Note M.

Financial Report for Pension Plans (GASB 67) and Postemployment Benefit Plans (GASB 74)

The following details actuarial information and assumptions utilized in determining the unfunded (overfunded) actuarial accrued liabilities for CERS, KERS, SPRS and Insurance Fund. Please note that calculations for TPL, net fiduciary position, NPL, total OPEB liability, net OPEB fiduciary position, and net OPEB liability are reported in the Plans' Required Supplementary Information (RSI) on pages ###-### are based on June 30, 2021, actuarial valuations, rolled forward to June 30, 2022. The prior year valuations are used as the basis for the roll forward method and are applied to complete the current year pension and OPEB valuations as of the measurement date, June 30, 2022, in accordance with GASB *Statement No. 67*, paragraph 37, and GASB *Statement No. 74*, paragraph 41.

Financial Report for Pension Plan (GASB 67)

Basis of Calculations

GRS completed reports by plan in compliance with GASB *Statement No. 67 Financial Reporting for Pension Plans*. The TPL, NPL, and sensitivity information are based on an actuarial valuation date of June 30, 2021. The TPL was rolled forward from the valuation date to the Plans' fiscal year ended June 30, 2022, using generally accepted actuarial principles. Information disclosed for years prior to June 30, 2017, were prepared by KPPA's prior actuary. GRS will provide separate reports at a later date with additional accounting information determined in accordance with GASB *Statement No. 68, Accounting and Financial Reporting for Pensions*.

Assumptions

There have been no changes in actuarial assumptions since June 30, 2021. Based on the June 30, 2020, actuarial valuation report, the actuarial methods and assumptions used to calculate these contributions rates are:

- Investment Return - 6.25% for CERS Nonhazardous, and CERS Hazardous, KERS Hazardous, 5.25% for KERS Nonhazardous and SPRS.
- Inflation - 2.30% for all plans.
- Salary Increases - 3.30% to 10.30% for CERS Nonhazardous, 3.55% to 19.05% for CERS Hazardous, 3.30% to 15.30% for KERS Nonhazardous, 3.55% to 20.05% for KERS Hazardous, and 3.55% to 16.05% for SPRS, varies by service.
- Payroll Growth - 2% for CERS Nonhazardous and Hazardous, 0% for KERS Nonhazardous and Hazardous, and SPRS.
- Mortality - System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019.

Plan Provisions

House Bill 259 passed during the 2022 legislative session and will increase the benefits in the SPRS Tier 3 cash balance plan by allowing the conversion of unused sick leave in excess of 480 hours to cash balance pay credits at the end of each fiscal year. Similarly, House Bill 259 will also allow the conversion of an SPRS member's balance of unused sick leave to cash balance pay credits upon termination of employment. The total pension liability for the SPRS pension plan as of June 30, 2022 is determined using these updated benefit provisions. There have been no other plan provision changes that would materially impact the total pension liability since June 30, 2021.

House Bill 259 also provided meaningful salary increases effective July 1, 2022 for eligible State Troopers. Additionally, House Bill 1 passed during the 2022 legislative session and included a provision that provided an approximate 8% across-the-board salary increase effective July 1, 2022, for eligible State employees. While these salary increases may produce an actuarial loss with respect to the liability attributable to Tier 1 and Tier 2 active members (i.e. a higher total pension liability than expected based on current actuarial assumptions), there is not sufficient information available at this time to make a reasonable adjustment to the roll-forward Total Pension Liability to reflect these anticipated salary increases. It is GRS' opinion that these procedures for determining the information contained in these reports are reasonable, appropriate, and comply with applicable requirements under GASB No. 67.

Discount Rate

A single discount rate of 5.25% was used for the KERS Nonhazardous pension plan and SPRS pension plan, and a single discount rate of 6.25% was used for the KERS Hazardous pension plan, the CERS Nonhazardous pension plan, and the CERS Hazardous pension plan to measure the total pension liability for the fiscal year ending June 30, 2022. These single discount rates were based on the expected rate of return on pension plan investments. Based on the stated assumptions and the projection of cash flows as of each fiscal year ending, the pension plan's fiduciary net position and future contributions were projected to be sufficient to finance all the future benefit payments of the current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of the projected benefit payments to determine the total pension liability.

The projection of cash flows used to determine the single discount rate must include an assumption regarding actual employer contributions made each future year. Except where noted below, future contributions are projected assuming that the entire actuarially determined employer contribution is received by each plan each future year, calculated in accordance with the current funding policy. The assumed future employer contributions for the CERS plans reflect the provisions of House Bill 362 (passed during the 2018 legislative session) which limit the increases to the employer contribution rates to 12% over the prior fiscal year through June 30, 2028.

Additional health care contributions (IRC 401(h) Subaccount)

Based on guidance issued by GASB in connection with GASB *Statement No. 74*, the 1% of pay member contributions for Tier 2 and Tier 3 members to a 401(h) subaccount is considered as an Other Post Employment Benefit (OPEB) asset. As a result, the reported pension fiduciary net positions as of June 30, 2017, and later are net of the 401(h) asset balance.

Additional Disclosures

The reports are based upon information furnished to GRS by KPPA, which includes benefit provisions, membership information, and financial data. GRS did not audit this data and information, but did apply a number of tests and concluded that it was reasonable and consistent. GRS is not responsible for the accuracy or completeness of the information provided by KPPA. Please see the "Actuarial Valuation Report as of June 30, 2021", for each system for additional discussion of the nature of the actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions. These reports should be considered together as a complete report for KPPA's fiscal year ending June 30, 2022.

Financial Reporting for Postemployment Benefit Plans (GASB 74)

GRS completed reports by plan in compliance with GASB *Statement No. 74, Financial Reporting for Postemployment Benefit Plans Other than Pension Plans* for the fiscal year ended June 30, 2022. GRS will provide separate reports at a later date with additional accounting information determined in accordance with GASB *Statement No. 75, Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*.

Basis of Calculations

The total OPEB liability, net OPEB liability (NOL), and sensitivity information are based on an actuarial valuation date of June 30, 2021. The total OPEB liability was rolled forward from the valuation date to the plan's fiscal year ended June 30, 2022, using generally accepted actuarial principles.

Assumptions

The discount rates used to calculate the total OPEB liability increased for each fund since the prior year (see further discussion on the calculation of the single discount rates later in this section). There were no other material assumption changes and it is GRS' opinion that these procedures are reasonable and appropriate, and comply with applicable requirements under GASB No. 74.

The actuarially determined contribution rates effective for fiscal year ended 2022 that are documented in the schedules were calculated as of June 30, 2020. Based on the June 30, 2020, actuarial valuation reports the actuarial methods and assumptions used to calculate the required contributions are:

- Investment Return - 6.25%.
- Inflation - 2.30%.

- Salary Increases - 3.30% to 10.30% for CERS Nonhazardous, 3.55% to 19.05% for CERS Hazardous, 3.30% to 15.30% for KERS Nonhazardous, 3.55% to 20.05% for KERS Hazardous, 3.55% to 16.30% for SPRS, varies by service.
- Payroll Growth - 2.00% for CERS Nonhazardous and CERS Hazardous, 0.00% for KERS Nonhazardous, KERS Hazardous, and SPRS.
- Mortality - System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019.
- Health Care Trend Rates:
 - Pre-65 - Initial trend starting at 6.40% on January 1, 2022, and gradually decreasing to an ultimate trend rate of 4.05% over a period of 14 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement.
 - Post-65 - Initial trend starting at 6.30% on January 1, 2023, and gradually decreasing to an ultimate trend rate of 4.05% over a period of 13 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement. Additionally, Humana provided "Not to Exceed" 2022 Medicare premiums, which were incorporated and resulted in an assumed 2.90% increase in Medicare premiums at January 1, 2022.

Plan Provisions

Senate Bill 209 passed during the 2022 legislative session increased the insurance dollar contribution for members hired on or after July 1, 2003 by \$5 for each year of service a member attains over certain thresholds, depending on a member's retirement eligibility requirement. This increase in the insurance dollar contribution does not increase by 1.5% annually and is only payable for non-Medicare retirees. Additionally, it is only payable when the member's applicable insurance fund is at least 90% funded. The increase is first payable January 1, 2023.

To model the financial impact of the requirement for the funds to be 90% funded, GRS assumed the increase in the insurance dollar contribution is payable in all calendar years for the KERS hazardous plan, the CERS plans, and the SPRS plan, as they were above or approaching 90% funded as of the June 30, 2021 Actuarial Valuation. For the KERS nonhazardous insurance plan, we have assumed the increases begin in the year 2047, which is our best estimate of when the fund will begin approaching 90% funding.

Senate Bill 209 also allows members receiving the insurance dollar contribution to participate in a medical insurance reimbursement plan that would provide the reimbursement of premiums for health plans other than those administered by KPPA. In general, allowing members to receive reimbursement to participate in health plans other than those administered by KPPA would increase the utilization of the dollar benefit. The current election assumption for future members receiving the dollar insurance benefit is 100%, so there is no immediate change in the total OPEB liability for active members due to this benefit change. For current retirees and beneficiaries eligible for the dollar insurance benefit who have not yet elected coverage, GRS assumed 50% would elect coverage under this benefit change.

The total OPEB liability as of June 30, 2022 is determined using these updated benefit provisions. There were no other plan provision changes that would materially impact the total OPEB liability and it is GRS' opinion that these procedures are reasonable and appropriate, and comply with applicable requirements under GASB No. 74.

Implicit Employer Subsidy for non-Medicare retirees

The fully-insured premiums paid for the Kentucky Employees' Health Plan 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 employer subsidy for the non-Medicare eligible retirees. GASB No. 74 requires that the liability associated with this implicit subsidy be included in the calculation of the Total OPEB Liability.

Discount Rates

The following single discount rates were used to measure the total OPEB liability for the fiscal year ending June 30, 2022.

CERS Nonhazardous	5.70%
CERS Hazardous	5.61%
KERS Nonhazardous	5.72%
KERS Hazardous	5.59%
SPRS	5.69%

The single discount rates are based on the expected rate of return on OPEB plan investments of 6.25% and a municipal bond rate of 3.69%, as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 30, 2022. Based on the stated assumptions and the projection of cash flows as of each fiscal year ending, the plan's fiduciary net position and future contributions were projected to be sufficient to finance the future benefit payments of the current plan members. Therefore, the long-term expected rate of return on insurance plan investments was applied to all periods of the projected benefit payments paid from the retirement system. However, the cost associated with the implicit employer subsidy is not currently being included in the calculation of the plan's actuarial determined contributions, and it is our understanding that any cost associated with the implicit subsidy will not be paid out of the plan's trust. Therefore, the municipal bond rate was applied to future expected benefit payments associated with the implicit subsidy.

The projection of cash flows used to determine the single discount rate must include an assumption regarding actual employer contributions made each future year. Future contributions are projected assuming that the entire actuarially determined employer contribution is received by each plan each future year, calculated in accordance with the current funding policy.

Additional health care contributions (IRC 401(h) Subaccount)

Based on guidance issued by GASB in connection with GASB Statement No. 74, the 1% of pay member contributions for Tier 2 and Tier 3 members to a 401(h) subaccount is considered an OPEB asset. As a result, the reported fiduciary net position includes these 401(h) assets. Additionally, these member contributions and associated investment income and administrative expenses are included in the reconciliation of the fiduciary net position.

Additional Disclosures¹

The reports are based upon information furnished to GRS by the KPPA, which includes benefit provisions, membership information, and financial data. GRS did not audit this data and information, but GRS applied a number of tests and concluded that it was reasonable and consistent. GRS is not responsible for the accuracy or completeness of the information provided by KPPA. Please see the "Actuarial Valuation Report as of June 30, 2021" for additional discussion of the nature of the actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions. These reports should be considered together as a complete report for fiscal year ending June 30, 2022.

Target Asset Allocation

The long-term (10-year) expected rates of return were determined by using a building block method in which best estimated ranges of expected future real rates of return were developed for each asset class. The ranges were combined by weighting the expected future real rate of return by the target asset allocation percentage. The target allocation and best estimates of arithmetic real rate of return for each major asset class are summarized in the tables below.

¹ Note: Data and information regarding GASB 67 and GASB 74 reporting was provided by GRS Retirement Consulting.

Target Asset Allocation - CERS Pension and Insurance As of June 30, 2022

Allocations apply to All Pension and Insurance Funds maintained by CERS

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Equity		
Public Equity	50.00%	4.45%
Private Equity	10.00%	10.15%
Fixed Income		
Core Fixed Income	10.00%	0.28%
Specialty Credit	10.00%	2.28%
Cash	0.00%	-0.91%
Inflation Protected		
Real Estate	7.00%	3.67%
Real Return	13.00%	4.07%

Target Asset Allocation - Pension As of June 30, 2022

Allocations apply to KERS Nonhazardous and SPRS Pension Funds

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Equity		
Public Equity	32.50%	4.45%
Private Equity	7.00%	10.15%
Fixed Income		
Core Fixed Income	20.50%	0.28%
Specialty Credit	15.00%	2.28%
Cash	5.00%	-0.91%
Inflation Protected		
Real Estate	10.00%	3.67%
Real Return	10.00%	4.07%

Target Asset Allocation - Pension and Insurance As of June 30, 2022

Allocations apply to KERS Hazardous Pension and all KRS Insurance Funds

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Equity		
Public Equity	43.50%	4.45%
Private Equity	10.00%	10.15%
Fixed Income		
Core Fixed Income	10.00%	0.28%
Specialty Credit	15.00%	2.28%
Cash	1.50%	-0.91%
Inflation Protected		
Real Estate	10.00%	3.67%
Real Return	10.00%	4.07%

NOTE: Minor deviations are expected between the actuarial assumed rate of return and the expected rate of return reported in the above charts. The actuarial assumed rates of return are based on a review of economic assumptions completed periodically as warranted but not longer than every 5 years; whereas, the expected rate of return is calculated annually for GASB purposes by taking the current asset allocation and applying the most relevant long term market expectations (September 2020) for each asset class.

Sensitivity of the NPL to Changes in the Discount Rate Fiscal Year 2022
As of June 30, 2022 (\$ in Thousands)

	CERS	CERS	KERS	KERS	SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
	Current 6.25%	Current 6.25%	Current 5.25%	Current 6.25%	Current 5.25%
1% Decrease	\$9,035,370	\$3,801,089	\$15,259,602	\$670,608	\$642,237
Current Discount Rate	7,229,013	3,051,457	13,267,343	507,516	506,053
1% Increase	\$5,735,007	\$2,440,928	\$11,626,900	\$375,348	\$395,014

Sensitivity of the Net OPEB Liability to Changes in the Discount Rate and Healthcare Trend Rate
As of June 30, 2022 (\$ in Thousands)

	CERS	CERS	KERS	KERS	SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
	Single 5.70%	Single 5.61%	Single 5.72%	Single 5.59%	Single 5.69%
Sensitivity of the Net OPEB Liability to Changes in the Discount Rate					
1% Decrease	\$2,638,273	\$1,183,531	\$2,648,282	\$91,455	\$167,531
Single Discount Rate	1,973,514	851,786	2,212,111	7,627	120,211
1% Increase	\$1,423,979	\$582,347	\$1,810,717	\$(60,421)	\$81,657
Sensitivity of the Net OPEB Liability to Changes in the Current Healthcare Cost Trend Rate					
1% Decrease	\$1,467,264	\$594,791	\$1,818,723	\$(53,939)	\$81,720
Current Healthcare Cost Trend Rate	1,973,514	851,786	2,212,111	7,627	120,211
1% Increase	\$2,581,425	\$1,165,048	\$2,634,576	\$82,395	\$166,889

Development of Single Discount Rate for OPEB
As of June 30, 2022

	CERS	CERS	KERS	KERS	SPRS
	Nonhazardous	Hazardous	NonHazardous	Hazardous	
	2022				
Single Discount Rate	5.70%	5.61%	5.72%	5.59%	5.69%
Long-Term Expected Rate of Return	6.25%	6.25%	6.25%	6.25%	6.25%
Long-Term Municipal Bond Rate	3.69%	3.69%	3.69%	3.69%	3.69%

Note: 1. Fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 30, 2022.

Schedule of Employers' NPL - CERS Nonhazardous**As of June 30, 2022 (\$ in Thousands)**

Total Pension Liability (TPL)	\$15,192,599
Plan Fiduciary Net Position	7,963,586
Net Pension Liability	\$7,229,013
Ratio of Plan Fiduciary Net Position to TPL	52.42%
Covered Payroll ⁽¹⁾	\$2,835,173
Net Pension Liability as a Percentage of Covered Payroll	254.98%

Schedule of Employers' NPL - CERS Hazardous**As of June 30, 2022 (\$ in Thousands)**

Total Pension Liability (TPL)	\$5,769,691
Plan Fiduciary Net Position	2,718,234
Net Pension Liability	\$3,051,457
Ratio of Plan Fiduciary Net Position to TPL	47.11%
Covered Payroll ⁽¹⁾	\$666,346
Net Pension Liability as a Percentage of Covered Payroll	457.94%

Schedule of Employers' NPL - KERS Nonhazardous**As of June 30, 2022 (\$ in Thousands)**

Total Pension Liability (TPL)	\$16,281,188
Plan Fiduciary Net Position	3,013,845
Net Pension Liability	\$13,267,343
Ratio of Plan Fiduciary Net Position to TPL	18.51%
Covered Payroll ⁽¹⁾	\$1,432,960
Net Pension Liability as a Percentage of Covered Payroll	925.87%

Schedule of Employers' NPL - KERS Hazardous**As of June 30, 2022 (\$ in Thousands)**

Total Pension Liability (TPL)	\$1,318,494
Plan Fiduciary Net Position	810,978
Net Pension Liability	\$507,516
Ratio of Plan Fiduciary Net Position to TPL	61.51%
Covered Payroll ⁽¹⁾	\$188,648
Net Pension Liability as a Percentage of Covered Payroll	269.03%

Schedule of Employer's NPL - SPRS**As of June 30, 2022 (\$ in Thousands)**

Total Pension Liability (TPL)	\$1,057,752
Plan Fiduciary Net Position	551,699
Net Pension Liability	\$506,053
Ratio of Plan Fiduciary Net Position to TPL	52.16%
Covered Payroll ⁽¹⁾	\$48,061
Net Pension Liability as a Percentage of Covered Payroll	1,052.94%

⁽¹⁾ Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later.

Schedule of the Employers' Net OPEB Liability - CERS Nonhazardous
As of June 30, 2022 (\$ in Thousands)

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Payroll ⁽¹⁾	Net OPEB Liability as a Percentage of Covered Payroll
2022	\$5,053,498	\$3,079,984	\$1,973,514	60.95%	\$2,843,218	69.41%

⁽¹⁾ Based on derived compensation using the provided employer contribution information.

Schedule of the Employers' Net OPEB Liability - CERS Hazardous
As of June 30, 2022 (\$ in Thousands)

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Payroll ⁽¹⁾	Net OPEB Liability as a Percentage of Covered Payroll
2022	\$2,374,457	\$1,522,671	\$851,786	64.13%	\$668,667	127.39%

⁽¹⁾ Based on derived compensation using the provided employer contribution information.

Schedule of the Employers' Net OPEB Liability - KERS Nonhazardous
As of June 30, 2022 (\$ in Thousands)

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Payroll ⁽¹⁾	Net OPEB Liability as a Percentage of Covered Payroll
2022	\$3,576,530	\$1,364,419	\$2,212,111	38.15%	\$1,437,132	153.93%

⁽¹⁾ Based on derived compensation using the provided employer contribution information.

Schedule of the Employers' Net OPEB Liability - KERS Hazardous
As of June 30, 2022 (\$ in Thousands)

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Payroll ⁽¹⁾	Net OPEB Liability as a Percentage of Covered Payroll
2022	\$595,789	\$588,162	\$7,627	98.72%	\$188,648	4.04%

⁽¹⁾ Based on derived compensation using the provided employer contribution information. For 2021 and 2022, derived compensation based on pension contribution information, as there were no required employer contributions for the insurance fund for FYE 2021 and FYE 2022.

Schedule of the Employer's Net OPEB Liability-SPRS Plan
As of June 30, 2022 (\$ in Thousands)

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Payroll ⁽¹⁾	Net OPEB Liability as a Percentage of Covered Payroll
2022	\$351,453	\$231,242	\$120,211	65.80%	\$48,600	247.35%

⁽¹⁾ Based on derived compensation using the provided employer contribution information.

Note N. Pension Legislation

2022 Regular Session

The 2022 Regular Session of the Kentucky General Assembly adjourned on Thursday, April 14, 2022. Highlights of the 2022 Session include:

HOUSE BILLS:

House Bill 1 (State/Executive Branch budget bill): House Bill 1, sponsored by Representative Jason Petrie, set the Employer Contribution rates for KERS Hazardous and SPRS at the Actuarially Determined Rate as approved by the KRS Board of Trustees. The KERS Nonhazardous rate for Executive Branch employers will once again be determined by the State Budget Director in accordance with House Bill 8 from the 2021 Regular Session.

In addition, the bill includes money to assist with the anticipated increase in retirement costs over each quasi-state agency employer's fiscal year 2019-2020 baseline contribution per House Bill 8 from the 2021 Regular Session; and it allocates \$200 million to the Kentucky Permanent Pension Fund in FY 2023-24. This Fund was created by the 2016 General Assembly to address the unfunded liabilities of the Commonwealth's public employee pension funds (the systems operated by KPPA as well as the Teachers' and Judicial/Legislator Retirement Systems).

One of the most significant parts of House Bill 1 is that it allocates an additional \$485 million in General Fund dollars to the systems. This amount includes \$215 million in FY 2021-2022 for the State Police Retirement System (SPRS) pension fund to be applied to the unfunded liability, which immediately lowered the SPRS contribution rate from the planned 146.06% to 99.43% for the 2022-2023 fiscal year. The rest of the \$485 million will consist of \$135 million in each fiscal year of the biennium (2022-23 and 2023-24) for the KERS Nonhazardous pension fund to be applied to the unfunded liability.

Finally, the bill contained an 8% raise for State employees effective July 1, 2022, and no Cost of Living Adjustments (COLAs) for retirees.

House Bill 604: KERS Nonhazardous receives additional allocations

On the last day of the Session, House Bill 604 (sponsored by Rep. Kimberly Moser) was amended by a Senate Committee Substitute to allocate \$105 million in each fiscal year to be applied to the unfunded liability of the KERS Nonhazardous pension fund.

House Bill 9: Charter Schools

House Bill 9 (Rep. Chad McCoy) requires public charter school classified employees to participate in the County Employees Retirement Systems, and for the public charter school to make employer contributions to the retirement systems and health insurance plans.

House Bill 49: Pension Spiking

When a member retires, KPPA evaluates creditable compensation growth to determine if "pension spiking," a 10% increase during the last five years of employment, has occurred. Pension spiking provisions are intended to prevent abuse of the benefit calculation formula: receiving large salary increases in the final years of employment can result in the artificial inflation of a member's final retirement benefit.

Some statutory exemptions to the spiking provisions have been previously enacted by the General Assembly. **House Bill 49** (Rep. Jerry Miller) adds two additional pension spiking exemptions:

1. The first one hundred (100) hours of mandatory overtime required by the employer during a fiscal year are exempt; and

2. Overtime performed as a result of a local government issued state of emergency in which the Governor authorizes mobilization of the Kentucky National Guard is now exempt. This provision is retroactive to May 28, 2020 and will apply toward any overtime worked as a result of the emergency through May 11, 2021 regardless of whether the National Guard was mobilized for the entire period. Retired members who had a spike for this reason will have their benefit recalculated based upon correctly completed verification from the employer.

House Bill 76: Enhanced Frequency and Scope of Actuarial Studies/ Service purchase for Educational Students

House Bill 76 (Rep. Jerry Miller and Rep. C. Ed Massey) enhances the frequency and scope of actuarial studies for the state's pension plans. The bill requires the plans to perform an actuarial investigation of economic assumptions (inflation rate, investment return, payroll growth assumptions, etc.) once every two years rather than once every five years. House Bill 76 also requires CERS to provide projections in the annual actuarial valuation related to experience studies, assumption changes, and other changes made by the boards of each system over a 30-year period rather than a 20-year period.

Finally, the bill allows those people who were "bound by an educational contract prior to December 31, 2003" to have a membership date based on the earliest date in the contract and purchase service credit, and have that credit apply to their retirement eligibility and benefit determination. Previous legislation passed in the early 2000's placed restrictions on those service purchases effective August 1, 2004. The systems' independent actuary says this will not have a measurable fiscal impact on the systems.

House Bill 259: Sick Leave Buyback Program for SPRS Tier 3 participants

For members earning benefits in the SPRS Tier 3 hybrid cash balance plan, **House Bill 259** (Rep. Scott Lewis) converts unused sick leave in excess of 480 hours (i.e. 60 days) to cash balance pay credits at the end of each fiscal year. The bill also converts the member's balance of unused sick leave to cash balance pay credits upon termination of employment.

In addition, House Bill 259 increased the base pay for cadet Troopers to \$45,000 and increased base pay for Troopers and commercial vehicle enforcement based on years of service and rank. The salary schedule increase began July 1, 2022 and is subject to the General Assembly funding the benefit in the executive branch budget bill. Funding has been provided for the upcoming biennium from July 1, 2022 – June 30, 2024.

House Bill 259 only applies to SPRS Tier 3 members: there is no change in benefits for members earning Tier 1 and Tier 2 benefits.

House Bill 297: Passage creates new health insurance plan for Medicare eligible retired-reemployed members

House Bill 297 (sponsored by Rep. Jerry Miller), the KPPA housekeeping bill, included a statutory amendment allowing KPPA to offer a new health insurance plan for Medicare eligible members who are reemployed with a participating employer and are affected by the Medicare Secondary Payer Act. This new plan will be effective October 1, 2022.

In addition to the traditional "cleanup" of current statutes and administrative issues that gives a "housekeeping bill" its name, House Bill 297 also gives KPPA needed flexibility to compete with other public pension plans in attracting,

hiring, and retaining key investment positions. The bill allows KPPA to hire a total of six (6) unclassified investment specialists who would not be subject to the salary limitations of the state personnel system.

Other provisions of House Bill 297 include a requirement for KPPA to conduct an annual performance evaluation of the executive director, pre-approve future unclassified positions, and approve an annual personnel report before submission to the Public Pension Oversight Board. The bill also requires KPPA to approve the biennial budget unit request before submitting it.

House Bill 668: Exemptions from House Bill 8 Reporting Requirements for Contracts with “Non-Core Services Independent Contractors”

House Bill 668 (Rep. Jim DuPlessis) exempts contracts for services through a non-core services independent contractor used by a KERS quasi-governmental employer from the reporting requirements established in KRS 61.5991 by House Bill 8 during the 2021 Regular Session.

A “non-core services independent contractor” is defined to mean a company or business that is not owned or controlled by an employer participating in the system, whose business also provides services to the general public or other public agencies not participating in the system, such as facilities services, grounds services, custodial services, bookstore services, dining services, etc.

The bill also requires KERS to provide employers with the member data provided to the actuary and the data the actuary produced as it relates to prorating liabilities to each employer under House Bill 8 passed during the 2021 Regular Session. The bill is retroactive to July 1, 2021.

House Bill 777: New Agency Created/Employees Given Opportunity to Join KERS

House Bill 777 (Rep. Ken Fleming) creates the Kentucky Board of Emergency Medical Services as an independent agency. The bill provides a 30-day window to allow employees of this Agency who are currently participating in the 403(b) defined contribution plan maintained by the Kentucky Community and Technical College System (KCTCS) to either remain in employment with KCTCS and be assigned to provide services to the Agency, or to elect to be transferred and employed directly by the Agency.

Employees who elect to be transferred and employed directly by the Agency will become KERS members. The Benefit Tier for these employees will be based on the earlier of the date of initial participation in KERS and the 403(b) defined contribution plan maintained by KCTCS. However, there will be no duplication of benefits and the member will not receive additional benefit service credit prior to the transfer date.

SENATE BILLS:

Senate Bill 27: Part-Time Adjunct Instructors for the Kentucky Fire Commission

Senate Bill 27 (Senator Michael Nemes) allows part-time adjunct instructors for the Kentucky Fire Commission who are eligible to retire from the CERS and have not participated in KERS prior to retirement, to retire and draw benefits without being required to resign from their position as part-time adjunct instructor.

Senate Bill 209: Health Insurance Benefits

Senate Bill 209 (Senator Michael Nemes) increases the non-Medicare eligible retiree health subsidy for career members of KERS, CERS, and SPRS who began participating in the system on or after July 1, 2003, who are eligible for a fixed-dollar retiree health subsidy not tied to the premium. This increase in the insurance dollar contribution is only payable for non-Medicare eligible retirees when the member’s applicable insurance fund is at least 90% funded.

Additionally, the insurance changes in Senate Bill 209 would allow members who are eligible for the insurance dollar contribution to be reimbursed for premiums for health insurance plans other than those administered by KPPA. These reimbursement provisions take effect January 1, 2023.

State Senate Confirms Gubernatorial Appointments to CERS and KRS Boards

State law requires gubernatorial appointments to the CERS and KRS boards receive Senate approval. On April 14, three Senate Resolutions confirming Governor Andy Beshear's recent appointments to the boards were unanimously adopted by a vote of 36-0. Each Resolution was sponsored by Senator Julie Raque Adams:

- A. **Senate Resolution 198** confirmed the appointment of **Pamela F. Thompson** to the Board of Trustees of the Kentucky Retirement Systems for a term expiring June 17, 2023;
- B. **Senate Resolution 242** confirmed the appointment of **Martin I. Milkman** to the Board of Trustees of the County Employees Retirement System for a term ending July 1, 2025; and
- C. **Senate Resolution 261** confirmed the appointment of **E. Lynn Hampton** to the Board of Trustees of the Kentucky Retirement Systems for a term expiring June 17, 2022.

The Resolutions only required Senate confirmation and did not need to be adopted in the House.

Note O. Litigation

Seven Counties

Seven Counties Services, Inc. (Seven Counties) filed for Chapter 11 bankruptcy in the United States Bankruptcy Court for the Western District of Kentucky (the Bankruptcy Court) in April 2013. Seven Counties provides mental health services for the Cabinet for Health and Family Services for the greater Louisville, Kentucky area and surrounding counties. Seven Counties participated in KERS for approximately twenty-five years. Seven Counties identified KERS as a creditor with a primary objective of discharging its continuing obligation to remit retirement contributions for approximately 1,300 employees and to terminate its participation in KERS. If Seven Counties is successful in discharging its obligations to KERS, the estimated member pension and insurance actuarial accrued liability is in the range of \$145 to \$150 million.

KERS opposed Seven Counties' attempt to discharge its obligations and terminate its participation. KERS asserted that Seven Counties is a Governmental Unit properly participating in KERS by Executive Order issued in 1978 and thus ineligible for Chapter 11 relief. Consequently, Seven Counties would remain statutorily obligated to continue participation and remit contributions. On May 30, 2014, the Bankruptcy Court held that Seven Counties was not a Governmental Unit and could move forward with its Chapter 11 bankruptcy case. The Bankruptcy Court further held that Seven Counties' statutory obligation to participate in and remit contributions to KERS was a "contract" eligible for rejection. KRS appealed this decision.

On August 24, 2018, the U.S. Court of Appeals for the Sixth Circuit (the Sixth Circuit) issued a two to one Opinion affirming the decision that Seven Counties is eligible to file for bankruptcy under Chapter 11. However, the Sixth Circuit went on to state, "lacking state court precedent characterizing the nature of the relationship between Seven Counties and KERS, we certify that question to the Kentucky Supreme Court." KERS filed a petition to have the Opinion Reheard En Banc by the entire Sixth Circuit. On October 5, 2018, the Sixth Circuit issued an order holding the petition in abeyance pending a response from the Kentucky Supreme Court on the certified question of law. On November 1, 2018, the Supreme Court of Kentucky issued an Order granting certification of the question. The certified question of law was briefed by the parties and oral arguments were held before the Supreme Court of Kentucky on March 6, 2019. On August 29, 2019, the Supreme Court of Kentucky ruled that Seven Counties' participation in and its contributions to KERS are based on a statutory obligation. The Supreme Court of Kentucky's ruling was forwarded to the Sixth Circuit for further consideration.

On July 20, 2020, the Sixth Circuit Court of Appeals issued an Opinion stating that they affirmed their previous determination that Seven Counties was eligible to file a Chapter 11 bankruptcy case. The Sixth Circuit also reversed the conclusion that Seven Counties can reject its obligation to participate as an executory contract and that Seven Counties need not maintain its statutory contribution obligation during the pendency of the bankruptcy. The Sixth Circuit dismissed Seven Counties' cross appeal and remanded the case for further proceedings consistent with the opinion. KERS again filed a petition to have the Opinion regarding Seven Counties' ability to file a Chapter 11 bankruptcy Reheard En Banc by the entire Sixth Circuit. This petition was denied in an Order dated September 11, 2020. The case was remanded back to the Bankruptcy Court.

The parties were able to stipulate to the principal amount of Seven Counties unpaid employer contributions for the post-petition time-frame of April 6, 2014 through February 5, 2015. A limited hearing occurred in February 2022 regarding whether interest is applicable to the stipulated amount. The Bankruptcy Court entered an order that set the amount of the contributions, but did not order Seven Counties to pay that amount. The order was silent regarding the application of interest. Both Seven Counties and KERS appealed the Bankruptcy Court's order to the United States District Court where it will be joined with the pending appeal of the confirmation of Seven Counties' reorganization plan.

Mayberry

In December 2017, members and beneficiaries of KERS filed a derivative action suit in Franklin Circuit Court naming KRS as a nominal defendant. The suit alleges that investment managers actively pursued KRS while it was under the control of Trustees who were acting adversely to its interests, and that the investment managers recommended risky investments in alternative investment strategies which resulted in billions of dollars in losses to KRS. The Amended Complaint alleges numerous claims against KRS Trustees and Officers, hedge fund sellers, actuarial, fiduciary, and investment advisors, and an annual report certifier. Plaintiffs alleged that the defendants breached statutory, fiduciary, and other duties and engaged in civil conspiracy. The Complaint further alleged claims against Officers and hedge fund sellers, actuarial, fiduciary, and investment advisors, and an annual report certifier for aiding and abetting breaches of statutory, fiduciary, and other duties. Plaintiffs sought compensatory and punitive damages, as well as equitable relief. More specifically, plaintiffs sought compensatory damages against defendants for the violations of statutory, fiduciary, and other duties; while also seeking punitive damages against hedge fund

sellers, investment, actuarial, and fiduciary advisors and each of their principals/officers named as defendants. Further, plaintiffs requested several forms of equitable relief, which included directing a complete accounting of fees associated with fund of hedge funds and other absolute return strategies.

On April 19, 2018, KRS and plaintiffs filed a Joint Notice to the Court and Parties notifying the parties that (1) KRS will not pursue the claims asserted by plaintiffs; and (2) KRS would not have been in a position to pursue those claims had they been brought prior to the filing of the Complaint. Since then, the Franklin Circuit Court has ruled on various defendants' motions to dismiss, denying nearly all of them. On January 10, 2019, Kohlberg, Kravis, Roberts (KKR), Henry Kravis and George Roberts (collectively, "KKR Parties") amended their Answer to assert cross-claims against KRS. Certain Officer and Trustee defendants appealed the denial of their Motion to Dismiss on immunity grounds to the Court of Appeals and that appeal was transferred to the Supreme Court of Kentucky. The hedge fund defendants filed a Petition for Writ of Prohibition in the Court of Appeals arguing that the Circuit Judge acted outside his jurisdiction. The Writ was issued on April 23, 2019, and the judgment granting standing was vacated. Plaintiffs promptly appealed the Court of Appeals' decision to the Supreme Court of Kentucky. On July 9, 2020, the Supreme Court of Kentucky issued an Opinion stating that the plaintiffs, as beneficiaries of a defined-benefit plan who have received all of their vested benefits so far and are legally entitled to receive their benefits for the rest of their lives, do not have a concrete stake in this case and therefore lack standing to bring this claim. The case was remanded to the circuit court with directions to dismiss the complaint. Thereafter, plaintiffs filed a motion seeking to amend their complaint to add parties and claims that would purportedly correct the standing defect identified by the Supreme Court of Kentucky. Furthermore, the Attorney General of the Commonwealth sought leave to intervene in this action through a motion filed July 20, 2020, and an Intervening Complaint on July 22, 2020. On February 1, 2021, a new group of Tier 3 KRS members sought to intervene on a derivative basis, and filed a 3rd Amended Complaint in the Mayberry matter. The Attorney General filed an Amended Complaint on May 24, 2021. On June 14, 2021, the Franklin Circuit Court denied the Tier 3 Motion to Intervene as well as denied their 3rd Amended Complaint. The Tier 3 plaintiffs also filed an independent lawsuit with similar allegations to those they seek to pursue in *Mayberry*. That independent action is still in the initial stages and is pending with Franklin Circuit Court.

A number of related cases have also developed based on issues raised in the above referenced Mayberry action. The hedge fund sellers have filed suits against KRS in various states seeking reimbursement of their legal fees. KRS has filed an action against Hallmark Specialty Insurance seeking a declaratory judgment that Hallmark has a duty to defend and indemnify Kentucky Retirement Systems in the Mayberry action. There has been an action filed by a number of the Trustees and Officers named in Mayberry seeking reimbursement by Kentucky Retirement Systems of their legal fees. Finally, the Commonwealth brought a suit against the hedge fund sellers seeking a declaratory judgment that the indemnification clauses in the contracts between the hedge fund sellers and KRS violate the Kentucky Constitution and are unenforceable.

Bayhills

In 2018, Kentucky Retirement Systems sued Bayhills for breach of contract seeking to terminate Bayhills as investment managers. Kentucky Retirement Systems filed the suit in Franklin Circuit Court, but Bayhills removed it to federal district court. Kentucky Retirement Systems successfully had the case remanded back to state court. The case is now pending before Franklin Circuit Court. The Court entered an injunction preventing Bayhills from paying themselves management and other fees during the litigation. Bayhills has appealed this ruling to the Court of Appeals. The Court of Appeals and the Kentucky Supreme Court denied Bay Hills their requested relief on appeal. Litigation is still ongoing.

Kentucky State Lodge & Linda Cook

In January and February 2022, two complaints were filed on behalf of specific named plaintiffs and others similarly situated based on the same facts that gave rise to the former River City Fraternal Order of Police (FOP) complaint. KPPA was aware that the River City FOP case impacted more individuals than the named plaintiffs and had been working on legislative and regulatory solutions. Legislation passed by the 2022 General Assembly allows individuals negatively impacted by the Medicare Secondary Payer Act to receive their health insurance through the Kentucky Employees Health Plan, and KPPA has promulgated a regulation to reimburse those individuals who had to pay for health insurance consistent with the Sixth Circuit Opinion. The two lawsuits from January and February are currently in the discovery phase concerning class certification.

Mountain Comprehensive Care Center & Adanta

In 2022, Mountain Comprehensive Care Center and Adanta filed separate suits challenging the actuarially accrued liability assigned these two entities via the process outlined in KRS 61.565, known as House Bill 8 from the 2021 Regular Session of the Kentucky General Assembly. The suits challenge not only the liability assigned to them, but they challenge the constitutionality of the statutory scheme. These suits are currently in the early stages of litigation.

Note P. Reciprocity Agreement

In accordance with Kentucky Revised Statutes 78.5536 and 61.702, CERS and KRS have reciprocity agreements with Teachers' Retirement System of Kentucky (TRS), and Judicial Form Retirement System (JFRS) for the payment of insurance benefits for those members who have creditable service in CERS, KERS, and/or SPRS, and TRS and/or JFRS systems.

Note Q. Reimbursement of Retired Re-Employed Health Insurance, Active Member Health Insurance Contributions, and Retired Re-Employed Employer Contributions

Reimbursement of Retired Re-Employed Health Insurance

If a retiree is re-employed in a regular full-time position and has chosen health insurance coverage through KPPA, the employer is required to reimburse KPPA for the health insurance premium paid on the retiree's behalf, not to exceed the cost of the single premium rate. Exceptions for retired members who re-employ as a police officer, sheriff or school resource officer exist which may exempt employers from paying employer contributions and health insurance reimbursements if certain requirements are met. For the fiscal year ended June 30, 2022, the reimbursement totaled \$12.7 million.

Active Member Health Insurance Contributions

For new plan participants after August 31, 2008, an active member contribution of 1% in addition to the member pension contribution is required. This 1% is applicable to all Nonhazardous and Hazardous funds, and reported in the Insurance Fund. For the fiscal year ended June 30, 2022, members paid into the Insurance Fund \$27.8 million.

Retired Re-Employed Employer Contributions

Employers are required to report employer contributions on retired members who are employed in a regular full-time position. These members are referred to as retired re-employed members. These are reported within the employer contributions on the financial statements. Please see the chart below for the breakdown.

Retired Re-employed Employer Contributions As of June 30 (\$ in Thousands)	CERS	CERS	KERS	KERS	SPRS	KPPA Total
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous		
FY 2022	\$17,074	\$6,364	\$4,603	\$2,673	\$-	\$30,714

Note R. General Fund Appropriations

The 2022 Regular Session of the Kentucky General Assembly allocated an additional \$485 million in general fund dollars to the KERS plans and the SPRS plan. This amount includes \$215 million in FY 2021-2022 for the SPRS pension fund to be applied to the unfunded liability, which immediately lowered the SPRS contribution rate from the planned 146.06% to 99.43% for the 2022-2023 fiscal year. The rest of the \$485 million will consist of \$135 million in each fiscal year of the biennium (2022-23 and 2023-24) for the KERS Nonhazardous pension fund to be applied to the unfunded liability. Also, House Bill 604 allocated \$105 million in fiscal year 2023 and fiscal year 2024 to be applied to the unfunded liability of the KERS Nonhazardous pension plan.

Note S. Prisma Daniel Boone Fund

The funds invested with Prisma Daniel Boone Fund continue to be held in a contingency reserve to cover potential obligations arising from the Mayberry Action (see Note O for details of Mayberry Case). The total reported in reserve as of June 30, 2022 is \$96.7 million for the Pension Plans and \$40.2 million for the Insurance Plan. This is based on the May 31, 2022 report because Absolute Return managers are reported on a one month lag.

Note T. Subsequent Events

Management has evaluated the period June 30, 2022 to December 8, 2022 (the date the combining financial statements were available to be issued) for items requiring recognition or disclosure in the combining financial statements.

Note U. Employer Cessation

Kentucky Revised Statutes 61.522, 61.523 and 78.535 allow for an employer of KERS or CERS to make an election to cease participating in the systems operated by KPPA. The statutes require that the employer ceasing from the plan must pay the employer's portion of the unfunded liability as calculated by the actuary. HB 1 of the 2019 Regular Session established a one-time, voluntary cessation window for KERS Quasi-Governmental Employers, including universities and community colleges, to cease participation for its nonhazardous employees by June 30, 2020. SB 249 of the 2020 Regular session extended the cessation date to June 30, 2021. HB 1 also added additional parameters apart from the normal cessation process including a soft freeze option (Tier 1 and Tier 2 employees continue to earn service credit after the cessation date), created an installment payment option and established different discount rates for use in calculating the cost. Northern Kentucky University (NKU) and Kentucky Housing Corporation (KHC) elected to cease participation effective June 30, 2021, under HB 1. HB 8 of the 2021 Regular Session further adjusted the discount rate to be used to calculate the cessation cost for universities and community colleges. NKU elected a soft-freeze, lump sum payment option, and its actuarially determined estimated portion of the cessation cost was \$204.0 million. NKU paid \$175.6 million for the pension portion and \$28.4 million for the insurance portion of the cessation cost in the 2021 fiscal year. The final cost was calculated in early 2022, and NKU received refunds of \$(13.4) million for the pension portion, and \$(8.5) million for the insurance portion of the cessation cost. KHC did not make a payment in fiscal year 2021. KHC elected a hard freeze, lump sum payment option, and its actuarially determined estimated portion of the cessation cost was \$87.4 million. KHC paid \$76.5 million for the pension portion and \$10.9 million for the insurance portion of the cessation cost. The deadline has passed for Quasi-Governmental Employers to cease participation under special provisions, therefore, any future cessations will be calculated under normal parameters unless new legislation is enacted.

REQUIRED SUPPLEMENTARY INFORMATION

INCLUDING GASB 67 AND 74

CERS Nonhazardous

CERS Hazardous

KERS Nonhazardous

KERS Hazardous

SPRS

CERS Nonhazardous

CERS Hazardous

KERS Nonhazardous

KERS Hazardous

SPRS

Notes to Schedule of Employers' Contributions

CERS Nonhazardous

CERS Hazardous

KERS Nonhazardous

KERS Hazardous

SPRS

CERS Nonhazardous

CERS Hazardous

KERS Nonhazardous

KERS Hazardous

SPRS

CERS Nonhazardous

CERS Hazardous

KERS Nonhazardous

KERS Hazardous

SPRS

Notes to Schedule of Employers' OPEB Contribution

CERS Nonhazardous

CERS Hazardous

KERS Nonhazardous

KERS Hazardous

SPRS

Money Weighted Rates of Return

Report on Internal Control

Schedule of Employers' NPL - CERS Nonhazardous Pension
As of June 30 (\$ in Thousands)

Year	Total Pension Liability (TPL)	Plan Fiduciary Net Position	Net Pension Liability	Ratio of Plan Fiduciary Net Position to TPL	Covered Payroll ⁽¹⁾	Net Pension Liability as a Percentage of Covered Payroll
2022	\$15,192,599	\$7,963,586	\$7,229,013	52.42%	\$2,835,173	254.98%
2021	14,941,437	8,565,652	6,375,785	57.33%	2,446,612	260.60%
2020	14,697,244	7,027,327	7,669,917	47.81%	2,462,752	311.44%
2019	14,192,966	7,159,921	7,033,045	50.45%	2,424,796	290.05%
2018	13,109,268	7,018,963	6,090,305	53.54%	2,454,927	248.08%
2017	12,540,545	6,687,237	5,853,308	53.32%	2,376,290	246.32%
2016	11,065,013	6,141,395	4,923,618	55.50%	2,417,187	203.69%
2015	10,740,325	6,440,800	4,299,525	59.97%	2,296,716	187.20%
2014	\$9,772,522	\$6,528,146	\$3,244,376	66.80%	\$2,272,270	142.78%

⁽¹⁾ Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later. These tables are intended to show information for ten years; additional year's information will be displayed as it becomes available.

Schedule of Employers' NPL - CERS Hazardous Pension
As of June 30 (\$ in Thousands)

Year	Total Pension Liability (TPL)	Plan Fiduciary Net Position	Net Pension Liability	Ratio of Plan Fiduciary Net Position to TPL	Covered Payroll ⁽¹⁾	Net Pension Liability as a Percentage of Covered Payroll
2022	\$5,769,691	\$2,718,234	\$3,051,457	47.11%	\$666,346	457.94%
2021	5,576,567	2,914,408	2,662,159	52.26%	572,484	465.02%
2020	5,394,732	2,379,704	3,015,028	44.11%	559,551	538.83%
2019	5,176,003	2,413,708	2,762,295	46.63%	553,541	499.02%
2018	4,766,794	2,348,337	2,418,457	49.26%	562,853	429.68%
2017	4,455,275	2,217,996	2,237,279	49.78%	526,559	424.89%
2016	3,726,115	2,010,174	1,715,941	53.95%	526,334	326.02%
2015	3,613,308	2,078,202	1,535,106	57.52%	483,641	317.41%
2014	\$3,288,826	\$2,087,002	\$1,201,824	63.46%	\$479,164	250.82%

⁽¹⁾ Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later. These tables are intended to show information for ten years; additional year's information will be displayed as it becomes available.

Schedule of Employers' NPL - KERS Nonhazardous Pension**As of June 30 (\$ in Thousands)**

				Ratio of Plan		Net Pension
	Total Pension	Plan Fiduciary	Net Pension	Fiduciary Net	Covered	Liability as a
Year	Liability (TPL)	Net Position	Liability	Position to TPL	Payroll ⁽¹⁾	Percentage of Covered Payroll
2022	\$16,281,188	\$3,013,845	\$13,267,343	18.51%	\$1,432,960	925.87%
2021	16,335,657	3,018,660	13,316,997	18.48%	1,441,337	923.93%
2020	16,472,733	2,308,080	14,164,653	14.01%	1,476,156	959.56%
2019	16,356,674	2,233,672	14,123,002	13.66%	1,485,854	950.50%
2018	15,608,221	2,004,446	13,603,775	12.84%	1,509,955	900.94%
2017	15,445,206	2,056,870	13,388,336	13.32%	1,602,396	835.52%
2016	13,379,781	1,980,292	11,399,489	14.80%	1,631,025	698.92%
2015	12,359,673	2,327,783	10,031,890	18.83%	1,544,234	649.64%
2014	\$11,550,110	\$2,578,291	\$8,971,819	22.32%	\$1,577,496	568.74%

⁽¹⁾ Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later. These tables are intended to show information for ten years; additional year's information will be displayed as it becomes available.

Schedule of Employers' NPL - KERS Hazardous Pension**As of June 30 (\$ in Thousands)**

				Ratio of Plan		Net Pension
	Total Pension	Plan Fiduciary	Net Pension	Fiduciary Net	Covered	Liability as a
Year	Liability (TPL)	Net Position	Liability	Position to TPL	Payroll ⁽¹⁾	Percentage of Covered Payroll
2022	\$1,318,494	\$810,978	\$507,516	61.51%	\$188,648	269.03%
2021	1,311,767	866,140	445,627	66.03%	172,725	258.00%
2020	1,251,027	690,350	560,677	55.18%	171,840	326.28%
2019	1,227,226	680,932	546,294	55.49%	160,600	340.16%
2018	1,150,610	645,485	505,125	56.10%	152,936	330.29%
2017	1,098,630	601,529	497,101	54.75%	178,511	278.47%
2016	919,517	527,879	391,638	57.41%	158,828	246.58%
2015	895,433	552,468	342,965	61.70%	128,680	266.53%
2014	\$816,850	\$561,484	\$255,366	68.74%	\$129,076	197.84%

⁽¹⁾ Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later. These tables are intended to show information for ten years; additional year's information will be displayed as it becomes available.

Schedule of Employer's NPL - SPRS Pension**As of June 30 (\$ in Thousands)**

				Ratio of Plan		Net Pension
	Total Pension	Plan Fiduciary	Net Pension	Fiduciary Net	Covered	Liability as a
Year	Liability (TPL)	Net Position	Liability	Position to TPL	Payroll ⁽¹⁾	Percentage of Covered Payroll
2022	\$1,057,752	\$551,699	\$506,053	52.16%	\$48,061	1,052.94%
2021	1,055,824	356,346	699,478	33.75%	47,873	1,461.11%
2020	1,049,237	293,949	755,288	28.02%	49,019	1,540.81%
2019	1,035,000	286,165	748,835	27.65%	49,515	1,512.34%
2018	969,622	267,572	702,050	27.60%	50,346	1,394.45%
2017	943,271	255,737	687,534	27.11%	54,065	1,271.68%
2016	795,421	218,012	577,409	27.41%	46,685	1,236.82%
2015	734,156	247,228	486,928	33.68%	45,765	1,063.97%
2014	\$681,118	\$260,974	\$420,144	38.32%	\$44,616	941.69%

⁽¹⁾ Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later. These tables are intended to show information for ten years; additional year's information will be displayed as it becomes available.

Schedule of Changes in Employers' TPL - CERS Nonhazardous
As of June 30 (\$ in Thousands)

Total Pension Liability (TPL)	2022	2021	2020	2019	2018	2017	2016	2015	2014
Service Cost	\$272,250	\$280,165	\$280,092	\$254,643	\$254,169	\$193,082	\$209,101	\$207,400	\$192,482
Interest	906,401	892,309	861,720	794,935	760,622	803,555	780,587	733,002	710,526
Benefit Changes	-	4,106	-	-	15,708	-	-	-	-
Difference between Expected and Actual Experience	(49,439)	(91,776)	173,345	87,377	279,401	(208,015)	-	49,966	-
Changes of Assumptions	-	-	-	727,351	-	1,388,800	-	606,293	-
Benefit Payments	(878,050)	(840,611)	(810,879)	(780,608)	(741,177)	(701,891)	(665,000)	(628,858)	(597,136)
Net Change in TPL	251,162	244,193	504,278	1,083,698	568,723	1,475,532	324,687	967,803	305,872
TPL – Beginning	14,941,437	14,697,244	14,192,966	13,109,268	12,540,545	11,065,013	10,740,325	9,772,522	9,466,650
TPL – Ending (a)	\$15,192,599	\$14,941,437	\$14,697,244	\$14,192,966	\$13,109,268	\$12,540,545	\$11,065,013	\$10,740,325	\$9,772,522
Plan Fiduciary Net Position ⁽¹⁾									
Contributions – Employer	\$606,807	\$472,228	\$475,416	\$393,453	\$358,017	\$333,554	\$284,105	\$298,565	\$324,231
Contributions – Member ⁽²⁾	186,648	165,698	168,994	159,064	160,370	150,715	141,674	140,311	128,568
Net Investment Income ⁽²⁾	(494,801)	1,762,739	56,178	390,664	573,829	825,900	(40,800)	110,568	895,530
Retirement Benefit	(858,261)	(826,749)	(795,960)	(766,221)	(726,569)	(687,461)	(651,246)	(615,335)	(582,850)
Administrative Expense	(22,670)	(21,729)	(22,304)	(21,659)	(19,592)	(19,609)	(19,385)	(18,212)	(18,615)
Refunds of Contributions	(19,789)	(13,862)	(14,918)	(14,387)	(14,608)	(14,430)	(13,753)	(13,523)	(14,286)
Other	-	-	-	44 ⁽⁵⁾	361 ⁽⁵⁾	(42,827) ⁽⁴⁾	-	10,280	-
Net Change in Plan Fiduciary Net Position	(602,066)	1,538,325	(132,594)	140,958	331,808	545,843	(299,405)	(87,346)	732,578
Plan Fiduciary Net Position - Beginning	8,565,652	7,027,327	7,159,921	7,018,963	6,687,237	6,141,395	6,440,800	6,528,146	5,795,568
Prior Year Adjustment	-	-	-	-	(82)	-	-	-	-
Plan Fiduciary Net Position – Ending (b)	7,963,586	8,565,652	7,027,327	7,159,921	7,018,963	6,687,237	6,141,395	6,440,800	6,528,146
Net Pension Liability – Ending (a) – (b)	\$7,229,013	\$6,375,785	\$7,669,917	\$7,033,045	\$6,090,305	\$5,853,308	\$4,923,618	\$4,299,525	\$3,244,376
Plan Fiduciary Net Position as a Percentage	52.42%	57.33%	47.81%	50.45%	53.54%	53.32%	55.50%	59.97%	66.80%
Covered Payroll ⁽³⁾	\$2,835,173	\$2,446,612	\$2,462,752	\$2,424,796	\$2,454,927	\$2,376,290	\$2,417,187	\$2,296,716	\$2,272,270
Net Pension Liability as a Percentage of Covered Payroll	254.98%	260.60%	311.44%	290.05%	248.08%	246.32%	203.69%	187.20%	142.78%

⁽¹⁾ Does not include 401(h) assets for fiscal years 2017 and later. Assets totaled \$98,760,000 as of June 30, 2022.

⁽²⁾ Does not include 401(h) contributions or associated investment income for fiscal years 2017 and later. For fiscal year 2022, 401(h) contributions equaled \$(60,000); and associated investment return equaled \$(6,196,000).

⁽³⁾ Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later.

⁽⁴⁾ Adjustment due to 401(h) plan asset balance being considered an OPEB asset under GASB 74 for fiscal years 2017 and later.

⁽⁵⁾ Northern Trust Settlement.

This table is intended to show information for ten years; additional year's information will be displayed as it becomes available.

Schedule of Changes in Employers' TPL - CERS Hazardous
As of June 30 (\$ in Thousands)

Total Pension Liability (TPL)	2022	2021	2020	2019	2018	2017	2016	2015	2014
Service Cost	\$109,683	\$109,350	\$109,887	\$77,426	\$81,103	\$58,343	\$66,249	\$71,934	\$66,761
Interest	338,799	327,963	314,762	289,741	270,694	270,860	262,886	247,008	238,665
Benefit Changes	-	333	-	-	2,172	-	-	-	-
Difference between Expected and Actual Experience	56,197	38,850	73,696	27,364	205,882	92,588	-	41,935	-
Changes of Assumptions	-	-	-	276,541	-	536,667	-	166,849	-
Benefit Payments	(311,555)	(294,661)	(279,616)	(261,863)	(248,332)	(229,299)	(216,327)	(203,244)	(192,299)
Net Change in TPL	193,124	181,835	218,729	409,209	311,519	729,159	112,807	324,482	113,127
TPL – Beginning	5,576,567	5,394,732	5,176,003	4,766,794	4,455,275	3,726,115	3,613,308	3,288,826	3,175,699
TPL – Ending (a)	\$5,769,691	\$5,576,567	\$5,394,732	\$5,176,003	\$4,766,794	\$4,455,275	\$3,726,115	\$3,613,308	\$3,288,826
Plan Fiduciary Net Position ⁽¹⁾									
Contributions – Employer	\$222,028	\$172,205	\$168,443	\$138,053	\$127,660	\$115,947	\$105,713	\$108,071	\$115,240
Contributions – Member ⁽²⁾	69,565	62,367	63,236	58,661	61,089	60,101	52,972	47,692	43,722
Net Investment Income ⁽²⁾	(174,217)	596,641	15,914	132,232	191,324	270,473	(9,020)	37,104	288,490
Retirement Benefit	(305,789)	(289,999)	(275,802)	(259,009)	(244,118)	(226,984)	(213,448)	(200,134)	(189,635)
Administrative Expense	(1,995)	(1,848)	(1,981)	(1,726)	(1,504)	(1,421)	(1,366)	(1,288)	(1,721)
Refunds of Contributions	(5,766)	(4,662)	(3,814)	(2,854)	(4,214)	(2,315)	(2,879)	(3,111)	(2,664)
Other	-	-	-	14 ⁽⁵⁾	111 ⁽⁵⁾	(7,979) ⁽⁴⁾	-	2,865	-
Net Change in Plan Fiduciary Net Position	(196,174)	534,704	(34,004)	65,371	130,348	207,822	(68,028)	(8,801)	253,432
Plan Fiduciary Net Position – Beginning	2,914,408	2,379,704	2,413,708	2,348,337	2,217,996	2,010,174	2,078,202	2,087,002	1,833,570
Prior Year Adjustment	-	-	-	-	(7)	-	-	-	-
Plan Fiduciary Net Position – Ending (b)	2,718,234	2,914,408	2,379,704	2,413,708	2,348,337	2,217,996	2,010,174	2,078,202	2,087,002
Net Pension Liability – Ending (a) – (b)	\$3,051,457	\$2,662,159	\$3,015,028	\$2,762,295	\$2,418,457	\$2,237,279	\$1,715,941	\$1,535,106	\$1,201,824
Plan Fiduciary Net Position as a Percentage	47.11%	52.26%	44.11%	46.63%	49.26%	49.78%	53.95%	57.52%	63.46%
Covered Payroll ⁽³⁾	\$666,346	\$572,484	\$559,551	\$553,541	\$562,853	\$526,559	\$526,334	\$483,641	\$479,164
Net Pension Liability as a Percentage of Covered Payroll	457.94%	465.02%	538.83%	499.02%	429.68%	424.89%	326.02%	317.41%	250.82%

⁽¹⁾ Does not include 401(h) assets for fiscal years 2017 and later. Assets totaled \$18,694,000 as of June 30, 2022

⁽²⁾ Does not include 401(h) contributions or associated investment income for fiscal years 2017 and later. For fiscal year 2022, 401(h) contributions equaled \$(104,000); and associated investment return equaled \$(1,215,000).

⁽³⁾ Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later.

⁽⁴⁾ Adjustment due to 401(h) plan asset balance being considered an OPEB asset under GASB 74 for fiscal years 2017 and later.

⁽⁵⁾ Northern Trust Settlement.

This table is intended to show information for ten years; additional year's information will be displayed as it becomes available.

Schedule of Changes in Employers' TPL - KERS Nonhazardous
As of June 30 (\$ in Thousands)

Total Pension Liability (TPL)	2022	2021	2020	2019	2018	2017	2016	2015	2014
Service Cost	\$165,616	\$171,472	\$179,702	\$184,988	\$195,681	\$143,858	\$139,631	\$143,847	\$133,361
Interest	830,440	838,084	832,178	793,163	785,123	870,725	891,897	859,509	853,653
Benefit Changes	-	2,091	-	-	9,624	-	-	-	-
Difference between Expected and Actual Experience	(15,034)	(130,268)	115,515	70,529	153,565	(134,379)	-	30,958	-
Changes of Assumptions	-	-	-	700,464	-	2,145,530	923,999	694,592	-
Benefit Payments	(1,035,491)	(1,018,455)	(1,011,336)	(1,000,691)	(980,978)	(960,309)	(935,419)	(919,343)	(903,564)
Net Change in TPL	(54,469)	(137,076)	116,059	748,453	163,015	2,065,425	1,020,108	809,563	83,450
TPL – Beginning	16,335,657	16,472,733	16,356,674	15,608,221	15,445,206	13,379,781	12,359,673	11,550,110	11,466,660
TPL – Ending (a)	\$16,281,188	\$16,335,657	\$16,472,733	\$16,356,674	\$15,608,221	\$15,445,206	\$13,379,781	\$12,359,673	\$11,550,110
Plan Fiduciary Net Position ⁽¹⁾									
Contributions – Employer Other ⁽⁶⁾	\$1,116,869	\$1,134,232	\$948,592	\$1,035,462	\$689,143	\$757,121	\$513,084	\$521,691	\$296,836
Contributions – Member ⁽²⁾	89,607	90,202	96,594	93,759	104,972	100,543	106,494	104,606	97,487
Net Investment Income ⁽²⁾	(162,461)	516,223	52,499	112,371	144,881	220,985	(20,663)	44,570	337,923
Retirement Benefit	(1,023,375)	(1,009,502)	(999,813)	(988,349)	(967,375)	(948,490)	(923,288)	(905,791)	(889,937)
Administrative Expense	(13,339)	(11,622)	(11,941)	(11,712)	(10,692)	(10,957)	(10,989)	(10,474)	(11,145)
Refunds of Contributions	(12,116)	(8,953)	(11,523)	(12,342)	(13,603)	(11,819)	(12,130)	(13,552)	(13,627)
Other	-	-	-	37 ⁽⁵⁾	301 ⁽⁵⁾	(30,805) ⁽⁴⁾	-	8,442	-
Net Change in Fiduciary Net Position	(4,815)	710,580	74,408	229,226	(52,373)	76,578	(347,491)	(250,508)	(182,463)
Plan Fiduciary Net Position – Beginning	3,018,660	2,308,080	2,233,672	2,004,446	2,056,870	1,980,292	2,327,783	2,578,291	2,760,754
Prior Year Adjustment	-	-	-	-	(51)	-	-	-	-
Plan Fiduciary Net Position – Ending (b)	3,013,845	3,018,660	2,308,080	2,233,672	2,004,446	2,056,870	1,980,292	2,327,783	2,578,291
Net Pension Liability – Ending (a) – (b)	\$13,267,343	\$13,316,997	\$14,164,653	\$14,123,002	\$13,603,775	\$13,388,336	\$11,399,489	\$10,031,890	\$8,971,819
Plan Fiduciary Net Position as a Percentage	18.51%	18.48%	14.01%	13.66%	12.84%	13.32%	14.80%	18.83%	22.32%
Covered Payroll ⁽³⁾	\$1,432,960	\$1,441,337	\$1,476,156	\$1,485,854	\$1,509,955	\$1,602,396	\$1,631,025	\$1,544,234	\$1,577,496
Net Pension Liability as a Percentage of Covered Payroll	925.87%	923.93%	959.56%	950.50%	900.94%	835.52%	698.92%	649.64%	568.74%

⁽¹⁾ Does not include 401(h) assets for fiscal years 2017 and later. Assets totaled \$62,898,000 as of June 30, 2022

⁽²⁾ Does not include 401(h) contributions or associated investment income for fiscal year 2017 and later. For fiscal year 2022 401(h) contributions equaled \$(13,000); and associated investment return equaled \$(3,444,000)

⁽³⁾ Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later.

⁽⁴⁾ Adjustment due to 401(h) plan asset balance being considered an OPEB asset under GASB 74 for fiscal years 2017 and later.

⁽⁵⁾ Northern Trust Settlement.

⁽⁶⁾ Includes \$63.1 million and \$175.6 million employer cessation contributions for fiscal year 2022 and 2021, respectively

This table is intended to show information for ten years; additional year's information will be displayed as it becomes available.

Schedule of Changes in Employers' TPL - KERS Hazardous**As of June 30 (\$ in Thousands)**

Total Pension Liability (TPL)	2022	2021	2020	2019	2018	2017	2016	2015	2014
Service Cost	\$26,885	\$28,450	\$25,568	\$27,117	\$28,641	\$21,081	\$20,751	\$18,729	\$16,880
Interest	79,422	75,743	74,357	69,657	66,536	66,589	64,851	61,005	59,594
Benefit Changes	-	26	-	-	705	-	-	-	-
Difference between Expected and Actual Experience	(17,557)	34,789	(1,095)	1,395	24,215	26,902	-	6,067	-
Changes of Assumptions	-	-	-	50,658	-	127,878	-	52,165	-
Benefit Payments	(82,023)	(78,268)	(75,029)	(72,211)	(68,117)	(63,338)	(61,518)	(59,383)	(57,151)
Net Change in TPL	6,727	60,740	23,801	76,616	51,980	179,112	24,084	78,583	19,323
TPL – Beginning	1,311,767	1,251,027	1,227,226	1,150,610	1,098,630	919,517	895,433	816,850	797,527
TPL – Ending (a)	\$1,318,494	\$1,311,767	\$1,251,027	\$1,227,226	\$1,150,610	\$1,098,630	\$919,517	\$895,433	\$816,850
Plan Fiduciary Net Position ⁽¹⁾									
Contributions – Employer	\$59,055	\$62,200	\$59,115	\$55,259	\$43,661	\$52,974	\$23,759	\$28,536	\$11,670
Contributions - Member ⁽²⁾	20,588	19,961	19,769	17,118	17,891	17,524	15,739	13,207	12,546
Net Investment Income ⁽²⁾	(51,317)	173,152	6,739	36,380	51,467	70,994	(1,653)	8,701	80,724
Retirement Benefit	(77,047)	(73,888)	(71,861)	(69,527)	(65,616)	(61,231)	(59,306)	(56,773)	(54,320)
Administrative Expense	(1,465)	(1,255)	(1,176)	(1,103)	(975)	(919)	(916)	(844)	(897)
Refunds of Contributions	(4,976)	(4,380)	(3,168)	(2,684)	(2,501)	(2,106)	(2,211)	(2,610)	(2,830)
Other	-	-	-	4 ⁽⁵⁾	33 ⁽⁵⁾	(3,586) ⁽⁴⁾	-	767	-
Net Change in Plan Fiduciary Net Position	(55,162)	175,790	9,418	35,447	43,960	73,650	(24,588)	(9,016)	46,893
Plan Fiduciary Net Position – Beginning	866,140	690,350	680,932	645,485	601,529	527,879	552,468	561,484	514,591
Prior Year Adjustment	-	-	-	-	(4)	-	-	-	-
Fiduciary Net Position – Ending (b)	810,978	866,140	690,350	680,932	645,485	601,529	527,879	552,468	561,484
Net Pension Liability – Ending (a) – (b)	\$507,516	\$445,627	\$560,677	\$546,294	\$505,125	\$497,101	\$391,638	\$342,965	\$255,366
Plan Fiduciary Net Position as a Percentage	61.51%	66.03%	55.18%	55.49%	56.10%	54.75%	57.41%	61.70%	68.74%
Covered Payroll ⁽³⁾	\$188,648	\$172,725	\$171,840	\$160,600	\$152,936	\$178,511	\$158,828	\$128,680	\$129,076
Net Pension Liability as a Percentage of Covered Payroll	269.03%	258.00%	326.28%	340.16%	330.29%	278.47%	246.58%	266.53%	197.84%

⁽¹⁾ Does not include 401(h) assets for fiscal years 2017 and later. Assets totaled \$8,260,000 as of June 30, 2022.

⁽²⁾ Does not include 401(h) contributions or associated investment income for fiscal years 2017 and later. For fiscal years 2022, 401(h) contributions equaled \$(5,000); and associated investment return equaled \$(523,000).

⁽³⁾ Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later.

⁽⁴⁾ Adjustment due to 401(h) plan asset balance being considered an OPEB asset under GASB 74 for fiscal years 2017 and later.

⁽⁵⁾ Northern Trust Settlement.

This table is intended to show information for ten years; additional year's information will be displayed as it becomes available.

Schedule of Changes in Employer's TPL - SPRS**As of June 30 (\$ in Thousands)**

Total Pension Liability (TPL)	2022	2021	2020	2019	2018	2017	2016	2015	2014
Service Cost	\$12,158	\$12,530	\$13,192	\$11,726	\$11,890	\$8,297	\$8,402	\$7,695	\$7,142
Interest	53,740	53,417	52,697	49,301	47,978	51,769	52,951	50,661	50,391
Benefit Changes	3,130	35	-	-	184	-	-	-	-
Difference between Expected and Actual Experience	(2,700)	4,127	10,859	20,952	25,126	8,143	-	9,331	-
Changes of Assumptions	-	-	-	44,510	-	136,602	56,191	40,201	-
Benefit Payments	(64,400)	(63,522)	(62,511)	(61,111)	(58,827)	(56,960)	(56,279)	(54,850)	(53,239)
Net Change in TPL	1,928	6,587	14,237	65,378	26,351	147,850	61,265	53,038	4,294
TPL - Beginning	1,055,824	1,049,237	1,035,000	969,622	943,271	795,421	734,156	681,118	676,824
TPL - Ending (a)	\$1,057,752	\$1,055,824	\$1,049,237	\$1,035,000	\$969,622	\$943,271	\$795,421	\$734,156	\$681,118
Plan Fiduciary Net Position ⁽¹⁾									
Contributions - Employer	\$277,341	\$59,650	\$59,453	\$60,048	\$46,877	\$63,239	\$25,822	\$31,990	\$20,279
Contributions - Member ⁽²⁾	4,773	4,752	4,767	5,062	5,522	5,348	5,263	5,244	5,075
Net Investment Income ⁽²⁾	(22,088)	61,729	6,341	14,816	18,437	26,795	(3,843)	3,426	40,374
Retirement Benefit	(64,120)	(63,249)	(62,423)	(60,949)	(58,805)	(56,934)	(56,268)	(54,765)	(53,026)
Administrative Expense	(273)	(212)	(266)	(225)	(194)	(181)	(178)	(201)	(215)
Refunds of Contributions	(280)	(273)	(88)	(162)	(22)	(26)	(11)	(85)	(213)
Other	-	-	-	3 ⁽⁵⁾	21 ⁽⁵⁾	(517) ⁽⁴⁾	-	645	-
Net Change in Plan Fiduciary Net Position	195,353	62,397	7,784	18,593	11,836	37,724	(29,215)	(13,746)	12,274
Plan Fiduciary Net Position - Beginning	356,346	293,949	286,165	267,572	255,737	218,012	247,228	260,974	248,700
Prior Year Adjustment	-	-	-	-	(1)	-	-	-	-
Plan Fiduciary Net Position - Ending (b)	551,699	356,346	293,949	286,165	267,572	255,737	218,012	247,228	260,974
Net Pension Liability - Ending (a) - (b)	\$506,053	\$699,478	\$755,288	\$748,835	\$702,050	\$687,534	\$577,409	\$486,928	\$420,144
Plan Fiduciary Net Position as a Percentage	52.16%	33.75%	28.02%	27.65%	27.60%	27.11%	27.41%	33.68%	38.32%
Covered Payroll ⁽³⁾	\$48,061	\$47,873	\$49,019	\$49,515	\$50,346	\$54,065	\$46,685	\$45,765	\$44,616
Net Pension Liability as a Percentage of Covered Payroll	1,052.94%	1,461.11%	1,540.81%	1,512.34%	1,394.45%	1,271.68%	1,236.82%	1,063.97%	941.69%

⁽¹⁾ Does not include 401(h) assets for fiscal years 2017 and later. Assets totaled \$1,227,000 as of June 30, 2022.

⁽²⁾ Does not include 401(h) contributions or associated investment income for fiscal years 2017 and later. For fiscal year 2022, 401(h) contributions equaled (\$26,000); and associated investment return equaled (\$61,000).

⁽³⁾ Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later.

⁽⁴⁾ Adjustment due to 401(h) plan asset balance being considered an OPEB asset under GASB 74 for fiscal years 2017 and later.

⁽⁵⁾ Northern Trust Settlement.

This table is intended to show information for ten years; additional year's information will be displayed as it becomes available.

The actuarially determined contributions effective for fiscal year ending 2022 that are documented in the schedules on the following pages, were calculated as of June 30, 2020. Based on the June 30, 2020, actuarial valuation report, the actuarial methods and assumptions used to calculate these contribution rates are below:

Notes to Schedule of Employers' Contribution					
Item	CERS	CERS	KERS	KERS	SPRS
	Hazardous		Hazardous		
Determined by the Actuarial Valuation as of:	June 30, 2020	June 30, 2020	June 30, 2020	June 30, 2020	June 30, 2020
Actuarial Cost Method:	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal
Asset Valuation Method:	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized
Amortization Method:	Level Percent of Pay	Level Percent of Pay	Level Percent of Pay	Level Percent of Pay	Level Percent of Pay
Amortization Period:	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	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	30-year closed period at June 30, 2019, Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases
Payroll Growth	2.00%	2.00%	0.00%	0.00%	0.00%
Investment Return:	6.25%	6.25%	5.25%	6.25%	5.25%
Inflation:	2.30%	2.30%	2.30%	2.30%	2.30%
Salary Increase:	3.30% to 10.30%, varies by service	3.55% to 19.05%, varies by service	3.30% to 15.30%, varies by service	3.55% to 20.05%, varies by service	3.55% to 16.05%, varies by service
Mortality:	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019
Phase-In provision	Board certified rate is phased into the actuarially determined rate in accordance with HB 362 enacted in 2018.	Board certified rate is phased into the actuarially determined rate in accordance with HB 362 enacted in 2018.	N/A	N/A	N/A

Schedule of Employers' Contributions Pension - CERS Nonhazardous
As of June 30 (\$ in Thousands)

Fiscal Year Ending	Actuarially Determined Contribution ⁽¹⁾	Total Employer Contribution	Contribution Deficiency (Excess)	Covered Payroll ⁽²⁾	Actual Contributions as a Percentage of Covered Payroll
2022	\$636,071	\$606,807	\$29,264	\$2,835,173	21.40%
2021	582,538	472,228	110,310	2,446,612	19.30%
2020	554,612	475,416	79,196	2,462,752	19.30%
2019	529,575	393,453	136,122	2,424,796	16.23%
2018	355,473	358,017	(2,544)	2,454,927	14.58%
2017	331,492	333,554	(2,062)	2,376,290	14.04%
2016	282,767	284,106	(1,339)	2,417,187	11.75%
2015	297,715	298,566	(851)	2,296,716	13.00%
2014	324,231	324,231	-	2,272,270	14.27%
2013	\$294,914	\$294,914	\$-	\$2,236,277	13.19%

⁽¹⁾ Actuarially determined contribution for fiscal year ending 2022 is based on the contribution rate calculated with the June 30, 2020, actuarial valuation.

⁽²⁾ Based on derived compensation using the provided employer contribution information for fiscal years 2017, and later.

Schedule of Employers' Contributions Pension - CERS Hazardous
As of June 30 (\$ in Thousands)

Fiscal Year Ending	Actuarially Determined Contribution ⁽¹⁾	Total Employer Contribution	Contribution Deficiency (Excess)	Covered Payroll ⁽²⁾	Actual Contributions as a Percentage of Covered Payroll
2022	\$269,542	\$222,028	\$47,514	\$666,346	33.32%
2021	240,558	172,205	68,353	572,484	30.08%
2020	206,922	168,443	38,479	559,551	30.10%
2019	197,559	138,053	59,506	553,541	24.94%
2018	124,953	127,660	(2,707)	562,853	22.68%
2017	114,316	115,947	(1,631)	526,559	22.02%
2016	104,952	105,713	(761)	526,334	20.08%
2015	107,514	108,071	(557)	483,641	22.35%
2014	115,240	115,240	-	479,164	24.05%
2013	\$120,140	\$120,140	\$-	\$461,673	26.02%

⁽¹⁾ Actuarially determined contribution for fiscal year ending 2022 is based on the contribution rate calculated with the June 30, 2020, actuarial valuation.

⁽²⁾ Based on derived compensation using the provided employer contribution information for fiscal years 2017, and later.

Schedule of Employers' Contributions Pension - KERS Nonhazardous
As of June 30 (\$ in Thousands)

Fiscal Year Ending	Actuarially Determined Contribution ⁽¹⁾	Total Employer Contribution	Contribution Deficiency (Excess)	Covered Payroll ⁽²⁾	Actual Contributions as a Percentage of Covered Payroll
2022	\$1,048,861	\$1,116,869	\$(68,008)	\$1,432,960	77.94%
2021	1,056,211	1,134,232	(78,021)	1,441,337	78.69%
2020	1,048,513	948,592	99,921	1,476,156	64.26%
2019	1,055,402	1,035,462	19,940	1,485,854	69.69%
2018	633,879	689,143	(55,264)	1,509,955	45.64%
2017	623,813	757,121	(133,308)	1,602,396	47.25%
2016	512,670	513,084	(414)	1,631,025	31.46%
2015	520,948	521,691	(743)	1,544,234	33.78%
2014	520,765	296,836	223,929	1,577,496	18.82%
2013	\$485,396	\$280,874	\$204,522	\$1,644,409	17.08%

⁽¹⁾ Actuarially determined contribution for fiscal year ending 2022 is based on the contribution rate calculated with the June 30, 2020, actuarial valuation, as amended by HB8 (2021 legislative session) which adjusted how the employer contribution would be allocated amongst participating employers.

⁽²⁾ Based on derived compensation using the provided employer contribution information for fiscal year ended 2017, and later.

Schedule of Employers' Contributions Pension - KERS Hazardous
As of June 30 (\$ in Thousands)

Fiscal Year Ending	Actuarially Determined Contribution ⁽¹⁾	Total Employer Contribution	Contribution Deficiency (Excess)	Covered Payroll ⁽²⁾	Actual Contributions as a Percentage of Covered Payroll
2022	\$59,052	\$59,055	\$(3)	\$188,648	31.30%
2021	62,181	62,200	(19)	172,725	36.01%
2020	59,096	59,115	(19)	171,840	34.40%
2019	55,230	55,259	(29)	160,600	34.41%
2018	31,321	43,661	(12,340)	152,936	28.55%
2017	37,630	52,974	(15,344)	178,511	29.68%
2016	23,690	23,759	(69)	158,828	14.96%
2015	28,374	28,536	(162)	128,680	22.18%
2014	13,570	11,670	1,900	129,076	9.04%
2013	\$21,502	\$27,334	\$(5,832)	\$131,015	20.86%

⁽¹⁾ Actuarially determined contribution for fiscal year ending 2022 is based on the contribution rate calculated with the June 30, 2020, actuarial valuation.

⁽²⁾ Based on derived compensation using the provided employer contribution information for fiscal year ended 2017, and later.

Schedule of Employer's Contributions Pension - SPRS**As of June 30 (\$ in Thousands)**

Fiscal Year Ending	Actuarially Determined Contribution ⁽¹⁾	Total Employer Contribution	Contribution Deficiency (Excess)	Covered Payroll ⁽²⁾	Actual Contributions as a Percentage of Covered Payroll
2022	\$62,341	\$277,341	\$(215,000)	\$48,061	577.06%
2021	59,263	59,650	(387)	47,873	124.60%
2020	58,358	59,453	(1,095)	49,019	121.29%
2019	58,948	60,048	(1,100)	49,515	121.27%
2018	36,033	46,877	(10,844)	50,346	93.11%
2017	35,937	63,240	(27,303)	54,065	116.97%
2016	25,723	25,822	(99)	46,685	55.31%
2015	31,444	31,990	(546)	45,765	69.90%
2014	25,808	20,279	5,529	44,616	45.45%
2013	\$23,117	\$18,501	\$4,616	\$45,256	40.88%

⁽¹⁾ Actuarially determined contribution for fiscal year ending 2022 is based on the contribution rate calculated with the June 30, 2020, actuarial valuation.

⁽²⁾ Based on derived compensation using the provided employer contribution information for fiscal years ended 2017, and later.

Schedule of the Employers' Net OPEB Liability - CERS Nonhazardous
As of June 30 (\$ in Thousands)

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Payroll ⁽¹⁾	Net OPEB Liability as a Percentage of Covered Payroll
2022	\$5,053,498	\$3,079,984	\$1,973,514	60.95%	\$2,843,218	69.41%
2021	5,161,251	3,246,801	1,914,450	62.91%	2,619,695	73.08%
2020	4,996,309	2,581,613	2,414,696	51.67%	2,620,585	92.14%
2019	4,251,466	2,569,511	1,681,955	60.44%	2,577,378	65.26%
2018	4,189,606	2,414,126	1,775,480	57.62%	2,570,156	69.08%
2017	\$4,222,878	\$2,212,536	\$2,010,342	52.39%	\$2,480,130	81.06%

⁽¹⁾ Based on derived compensation using the provided employer contribution information. This table is intended to show information for ten years; additional year's information will be displayed as it becomes available.

Schedule of the Employers' Net OPEB Liability - CERS Hazardous
As of June 30 (\$ in Thousands)

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Payroll ⁽¹⁾	Net OPEB Liability as a Percentage of Covered Payroll
2022	\$2,374,457	\$1,522,671	\$851,786	64.13%	\$668,667	127.39%
2021	2,436,383	1,627,824	808,559	66.81%	613,985	131.69%
2020	2,245,222	1,321,117	924,105	58.84%	596,001	155.05%
2019	2,080,574	1,340,714	739,860	64.44%	583,632	126.77%
2018	1,993,941	1,280,982	712,959	64.24%	588,526	121.14%
2017	\$2,015,673	\$1,189,001	\$826,672	58.99%	\$542,710	152.32%

⁽¹⁾ Based on derived compensation using the provided employer contribution information. This table is intended to show information for ten years; additional year's information will be displayed as it becomes available.

Schedule of the Employers' Net OPEB Liability - KERS Nonhazardous
As of June 30 (\$ in Thousands)

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Payroll ⁽¹⁾	Net OPEB Liability as a Percentage of Covered Payroll
2022	\$3,576,530	\$1,364,419	\$2,212,111	38.15%	\$1,437,132	153.93%
2021	3,698,804	1,419,477	2,279,327	38.38%	1,452,345	156.94%
2020	3,599,557	1,060,649	2,538,908	29.47%	1,482,431	171.27%
2019	3,217,985	995,089	2,222,896	30.92%	1,515,953	146.63%
2018	3,262,117	891,205	2,370,912	27.32%	1,573,898	150.64%
2017	\$3,353,332	\$817,370	\$2,535,962	24.37%	\$1,593,097	159.18%

⁽¹⁾ Based on derived compensation using the provided employer contribution information. This table is intended to show information for ten years; additional year's information will be displayed as it becomes available.

Schedule of the Employers' Net OPEB Liability - KERS Hazardous
As of June 30 (\$ in Thousands)

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Payroll ⁽¹⁾	Net OPEB Liability as a Percentage of Covered Payroll
2022	\$595,789	\$588,162	\$7,627	98.72%	\$188,648	4.04%
2021	622,152	633,677	(11,525)	101.85%	172,725	(6.67)%
2020	564,524	521,755	42,769	92.42%	182,209	23.47%
2019	507,204	534,053	(26,849)	105.29%	151,448	(17.73)%
2018	485,904	519,072	(33,168)	106.83%	190,317	(17.43)%
2017	\$494,869	\$488,838	\$6,031	98.78%	\$171,087	3.53%

⁽¹⁾ Based on derived compensation using the provided employer contribution information. For 2021, derived compensation based on pension contribution information, as there were no required employer contributions for the insurance fund for FYE 2021. This table is intended to show information for ten years; additional year's information will be displayed as it becomes available.

Schedule of the Employer's Net OPEB Liability - SPRS
As of June 30 (\$ in Thousands)

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Payroll ⁽¹⁾	Net OPEB Liability as a Percentage of Covered Payroll
2022	\$351,453	\$231,242	\$120,211	65.80%	\$48,600	247.35%
2021	364,899	247,318	117,581	67.78%	47,155	249.35%
2020	339,942	201,340	138,602	59.23%	48,231	287.37%
2019	312,553	201,206	111,347	64.38%	48,780	228.26%
2018	301,012	190,847	110,165	63.40%	50,064	220.05%
2017	\$313,234	\$178,838	\$134,396	57.09%	\$48,873	274.99%

⁽¹⁾ Based on derived compensation using the provided employer contribution information. This table is intended to show information for ten years; additional year's information will be displayed as it becomes available.

Schedule of Changes in Employers' Net OPEB Liability - CERS Nonhazardous
As of June 30 (\$ in Thousands)

	2022	2021	2020	2019	2018	2017
Total OPEB Liability						
Service Cost	\$138,225	\$132,407	\$131,289	\$119,011	\$122,244	\$85,468
Interest on Total OPEB liability	263,390	262,128	236,126	240,352	242,048	240,854
Benefit Changes	74,108	3,359	-	-	4,306	-
Difference between Expected and Actual Experience	(68,111)	(340,831)	505,843	(404,301)	(240,568)	(6,641)
Assumption Changes	(323,247)	282,975	60,225	268,842	(4,876)	520,286
Benefit Payments ^{(1) (2)}	(192,118)	(175,096)	(188,640)	(162,044)	(156,426)	(140,120)
Net Change in Total OPEB Liability	(107,753)	164,942	744,843	61,860	(33,272)	699,847
Total OPEB Liability - Beginning	5,161,251	4,996,309	4,251,466	4,189,606	4,222,878	3,523,031
Total OPEB Liability - Ending (a)	\$5,053,498	\$5,161,251	\$4,996,309	\$4,251,466	\$4,189,606	\$4,222,878
Plan Fiduciary Net Position						
Contributions – Employer ⁽²⁾	\$187,204	\$186,509	\$179,521	\$168,905	\$145,809	\$133,326
Contributions – Member	15,925	13,613	12,964	11,801	10,825	9,158
Benefit Payments ^{(1) (2)}	(192,118)	(175,096)	(188,640)	(162,044)	(156,426)	(140,120)
OPEB Plan Net Investment Income	(176,895)	641,084	9,160	137,591	202,068	264,782
OPEB Plan Administrative Expense	(933)	(922)	(903)	(877)	(761)	(789)
Other ⁽⁴⁾	-	-	-	9	75	-
Net Change in Plan Fiduciary Net Position	(166,817)	665,188	12,102	155,385	201,590	266,357
Plan Fiduciary Net Position – Beginning	3,246,801	2,581,613	2,569,511	2,414,126	2,212,536	1,946,179
Plan Fiduciary Net Position – Ending (b)	3,079,984	3,246,801	2,581,613	2,569,511	2,414,126	2,212,536
Net OPEB Liability – Ending (a) – (b)	\$1,973,514	\$1,914,450	\$2,414,696	\$1,681,955	\$1,775,480	\$2,010,342
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	60.95%	62.91%	51.67%	60.44%	57.62%	52.39%
Covered Payroll ⁽³⁾	\$2,843,218	\$2,619,695	\$2,620,585	\$2,577,378	\$2,570,156	\$2,480,130
Net OPEB Liability as a Percentage of Covered Payroll	69.41%	73.08%	92.14%	65.26%	69.08%	81.06%

⁽¹⁾ Benefit payments include expected benefits due to the implicit subsidy for members under age 65. They are also offset by insurance premiums received from retirees, Medicare Drug Reimbursements, and Humana Gain Share Payments (in applicable years).

⁽²⁾ Employer contributions include expected benefits due to the implicit subsidy for members under age 65, equal to \$63,837,433 for fiscal year 2022.

⁽³⁾ Based on derived compensation using the provided employer contribution information.

⁽⁴⁾ Northern Trust Settlement.

This table is intended to show information for ten years; additional year's information will be displayed as it becomes available.

Schedule of Changes in Employers' Net OPEB Liability - CERS Hazardous
As of June 30 (\$ in Thousands)

	2022	2021	2020	2019	2018	2017
Total OPEB Liability						
Service Cost	\$52,265	\$48,413	\$47,443	\$32,623	\$33,948	\$20,493
Interest on Total OPEB liability	120,640	116,710	115,998	116,768	118,009	113,166
Benefit Changes	44,909	1,146	-	-	484	-
Difference between Expected and Actual Experience	(7,814)	(47,937)	38,156	(103,317)	(100,348)	(2,470)
Assumption Changes	(176,969)	159,106	46,925	116,618	(2,500)	391,061
Benefit Payments ^{(1) (2)}	(94,957)	(86,277)	(83,874)	(76,059)	(71,325)	(63,656)
Net Change in Total OPEB Liability	(61,926)	191,161	164,648	86,633	(21,732)	458,594
Total OPEB Liability - Beginning	2,436,383	2,245,222	2,080,574	1,993,941	2,015,673	1,557,079
Total OPEB Liability - Ending (a)	\$2,374,457	\$2,436,383	\$2,245,222	\$2,080,574	\$1,993,941	\$2,015,673
Plan Fiduciary Net Position						
Contributions – Employer ⁽²⁾	\$66,320	\$63,509	\$59,662	\$60,445	\$51,615	\$44,325
Contributions – Member	3,654	3,098	2,762	2,458	2,173	1,708
Benefit Payments ^{(1) (2)}	(94,957)	(86,277)	(83,874)	(76,059)	(71,325)	(63,656)
OPEB Plan Net Investment Income	(79,668)	326,905	2,315	73,317	109,854	143,892
OPEB Plan Administrative Expense	(502)	(528)	(462)	(434)	(376)	(381)
Other ⁽⁴⁾	-	-	-	5	40	-
Net Change in Plan Fiduciary Net Position	(105,153)	306,707	(19,597)	59,732	91,981	125,888
Plan Fiduciary Net Position – Beginning	1,627,824	1,321,117	1,340,714	1,280,982	1,189,001	1,063,113
Plan Fiduciary Net Position – Ending (b)	1,522,671	1,627,824	1,321,117	1,340,714	1,280,982	1,189,001
Net OPEB Liability – Ending (a) – (b)	\$851,786	\$808,559	\$924,105	\$739,860	\$712,959	\$826,672
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	64.13%	66.81%	58.84%	64.44%	64.24%	58.99%
Covered Payroll ⁽³⁾	\$668,667	\$613,985	\$596,001	\$583,632	\$588,526	\$542,710
Net OPEB Liability as a Percentage of Covered Payroll	127.39%	131.69%	155.05%	126.77%	121.14%	152.32%

⁽¹⁾ Benefit payments include expected benefits due to the implicit subsidy for members under age 65. They are also offset by insurance premiums received from retirees, Medicare Drug Reimbursements, and Humana Gain Share Payments (in applicable years).

⁽²⁾ Employer contributions include expected benefits due to the implicit subsidy for members under age 65, equal to \$6,415,278 for fiscal year 2022.

⁽³⁾ Based on derived compensation using the provided employer contribution information.

⁽⁴⁾ Northern Trust Settlement.

This table is intended to show information for ten years; additional year's information will be displayed as it becomes available.

Schedule of Changes in Employers' Net OPEB Liability - KERS Nonhazardous
As of June 30 (\$ in Thousands)

	2022	2021	2020	2019	2018	2017
Total OPEB Liability						
Service Cost	\$62,548	\$58,831	\$59,600	\$61,345	\$66,360	\$46,992
Interest	190,531	191,624	179,811	186,820	191,178	192,911
Benefit Changes	21,884	1,382	-	-	1,865	-
Difference between Expected and Actual Experience	(37,249)	(231,631)	288,235	(302,189)	(191,147)	(3,921)
Changes of Assumptions	(206,907)	220,184	13,767	158,004	(11,235)	414,835
Benefit Payments ^{(1) (2)}	(153,081)	(141,143)	(159,841)	(148,112)	(148,236)	(139,601)
Net Change in Total OPEB Liability	(122,274)	99,247	381,572	(44,132)	(91,215)	511,216
Total OPEB Liability - Beginning	3,698,804	3,599,557	3,217,985	3,262,117	3,353,332	2,842,116
Total OPEB Liability - Ending (a)	\$3,576,530	\$3,698,804	\$3,599,557	\$3,217,985	\$3,262,117	\$3,353,332
Plan Fiduciary Net Position						
Contributions – Employer ⁽²⁾⁽⁵⁾	181,294	\$223,661	\$208,300	\$201,155	\$152,985	\$162,636
Contributions – Member	6,547	6,318	6,128	5,963	5,786	5,156
Benefit Payments ^{(1) (2)}	(153,081)	(141,143)	(159,841)	(148,112)	(148,236)	(139,601)
OPEB Plan Net Investment Income	(88,998)	270,811	11,820	45,749	64,028	94,239
OPEB Plan Administrative Expense	(820)	(819)	(847)	(875)	(760)	(861)
Other ⁽⁴⁾	-	-	-	4	32	-
Net Change in Plan Fiduciary Net Position	(55,058)	358,828	65,560	103,884	73,835	121,569
Plan Fiduciary Net Position – Beginning	1,419,477	1,060,649	995,089	891,205	817,370	695,801
Plan Fiduciary Net Position – Ending (b)	1,364,419	1,419,477	1,060,649	995,089	891,205	817,370
Net OPEB Liability – Ending (a) – (b)	\$2,212,111	\$2,279,327	\$2,538,908	\$2,222,896	\$2,370,912	\$2,535,962
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	38.15%	38.38%	29.47%	30.92%	27.32%	24.37%
Covered Payroll ⁽³⁾	\$1,437,132	\$1,452,345	\$1,482,431	\$1,515,953	\$1,573,898	\$1,593,097
Net OPEB Liability as a Percentage of Covered Payroll	153.93%	156.94%	171.27%	146.63%	150.64%	159.18%
⁽¹⁾ Benefit payments are offset by insurance premiums received from retirees, Medicare Drug Reimbursements, and Humana Gain Share Payments (in applicable years).						
⁽²⁾ Employer contributions and benefit payments include expected benefits due to the implicit subsidy for members under age 65, equal to \$40,600,669 for fiscal year 2022.						
⁽³⁾ Based on derived compensation using the provided employer contribution information.						
⁽⁴⁾ Northern Trust Settlement.						
⁽⁵⁾ Includes \$2.4 million and \$28.4 million employer cessation contribution for fiscal year 2022, and 2021, respectively.						
This table is intended to show information for ten years; additional year's information will be displayed as it becomes available.						

Schedule of Changes in Employers' Net OPEB Liability - KERS Hazardous
As of June 30 (\$ in Thousands)

	2022	2021	2020	2019	2018	2017
Total OPEB Liability						
Service Cost	\$14,474	\$13,633	\$11,548	\$12,337	\$12,893	\$8,002
Interest on Total OPEB liability	30,599	29,254	28,101	27,990	28,500	27,591
Benefit Changes	10,289	48	-	-	167	-
Difference between Expected and Actual Experience	(12,515)	(6,402)	27,668	(30,947)	(31,240)	(1,029)
Assumption Changes	(46,406)	42,022	11,428	31,687	(581)	89,401
Benefit Payments ^{(1) (2)}	(22,804)	(20,927)	(21,425)	(19,767)	(18,704)	(16,618)
Net Change in Total OPEB Liability	(26,363)	57,628	57,320	21,300	(8,965)	107,347
Total OPEB Liability - Beginning	622,152	564,524	507,204	485,904	494,869	387,522
Total OPEB Liability - Ending (a)	\$595,789	\$622,152	\$564,524	\$507,204	\$485,904	\$494,869
Plan Fiduciary Net Position						
Contributions – Employer ⁽²⁾	\$4,116	\$3,556	\$7,441	\$5,556	\$5,165	\$4,579
Contributions – Member	1,227	1,167	1,105	934	909	811
Benefit Payments ^{(1) (2)}	(22,804)	(20,927)	(21,425)	(19,767)	(18,704)	(16,618)
OPEB Plan Net Investment Income	(27,929)	128,244	704	28,373	42,950	59,614
OPEB Plan Administrative Expense	(125)	(118)	(123)	(117)	(104)	(105)
Other ⁽⁴⁾	-	-	-	2	18	-
Net Change in Plan Fiduciary Net Position	(45,515)	111,922	(12,298)	14,981	30,234	48,281
Plan Fiduciary Net Position – Beginning	633,677	521,755	534,053	519,072	488,838	440,557
Plan Fiduciary Net Position – Ending (b)	588,162	633,677	521,755	534,053	519,072	488,838
Net OPEB Liability – Ending (a) – (b)	\$7,627	\$(11,525)	\$42,769	\$(26,849)	\$(33,168)	\$6,031
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	98.72%	101.85%	92.42%	105.29%	106.83%	98.78%
Covered Payroll ⁽³⁾	\$188,648	\$172,725	\$182,209	\$151,448	\$190,317	\$171,087
Net OPEB Liability as a Percentage of Covered Employee Payroll	4.04%	(6.67)%	23.47%	(17.73)%	(17.43)%	3.53%
⁽¹⁾ Benefit payments are offset by insurance premiums received from retirees, Medicare Drug Reimbursements, and Humana Gain Share Payments (in applicable years).						
⁽²⁾ Employer contributions and benefit payments include expected benefits due to the implicit subsidy for members under age 65, equal to \$2,835,815 for fiscal year 2022.						
⁽³⁾ Based on derived compensation using the provided employer contribution information. For 2021 and 2022, derived compensation based on pension contribution information, as there were no required employer contributions for the insurance fund for FYE 2021 and for FYE 2022.						
⁽⁴⁾ Northern Trust Settlement.						
This table is intended to show information for ten years; additional year's information will be displayed as it becomes available.						

Schedule of Changes in Employer's Net OPEB Liability - SPRS
As of June 30 (\$ in Thousands)

	2022	2021	2020	2019	2018	2017
Total OPEB Liability						
Service Cost	\$5,605	\$5,218	\$5,389	\$4,816	\$6,087	\$4,147
Interest on Total OPEB liability	18,592	17,984	17,600	17,724	18,432	17,993
Benefit Changes	4,975	101	-	-	34	-
Difference between Expected and Actual Experience	(5,952)	(6,318)	13,810	(14,295)	(23,320)	(573)
Assumption Changes	(21,937)	21,784	4,578	16,483	(358)	57,312
Benefit Payments ^{(1) (2)}	(14,729)	(13,812)	(13,988)	(13,187)	(13,097)	(12,123)
Net Change in Total OPEB Liability	(13,446)	24,957	27,389	11,541	(12,222)	66,756
Total OPEB Liability - Beginning	364,899	339,942	312,553	301,012	313,234	246,478
Total OPEB Liability - Ending (a)	\$351,453	\$364,899	\$339,942	\$312,553	\$301,012	\$313,234
Plan Fiduciary Net Position						
Contributions – Employer ⁽²⁾	\$9,343	\$9,381	\$12,873	\$12,623	\$8,535	\$7,862
Contributions – Member	230	209	196	176	155	131
Benefit Payments ^{(1) (2)}	(14,729)	(13,812)	(13,988)	(13,187)	(13,097)	(12,123)
OPEB Plan Net Investment Income	(10,847)	50,289	1,124	10,815	16,470	21,627
OPEB Plan Administrative Expense	(73)	(89)	(71)	(69)	(62)	(66)
Other ⁽⁴⁾	-	-	-	1	8	-
Net Change in Plan Fiduciary Net Position	(16,076)	45,978	134	10,359	12,009	17,431
Plan Fiduciary Net Position – Beginning	247,318	201,340	201,206	190,847	178,838	161,407
Plan Fiduciary Net Position – Ending (b)	231,242	247,318	201,340	201,206	190,847	178,838
Net OPEB Liability – Ending (a) – (b)	\$120,211	\$117,581	\$138,602	\$111,347	\$110,165	\$134,396
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	65.80%	67.78%	59.23%	64.38%	63.40%	57.09%
Covered Payroll ⁽³⁾	\$48,600	\$47,155	\$48,231	\$48,780	\$50,064	\$48,873
Net OPEB Liability as a Percentage of Covered Payroll	247.35%	249.35%	287.37%	228.26%	220.05%	274.99%
⁽¹⁾ Benefit payments are offset by insurance premiums received from retirees, Medicare Drug Reimbursements, and Humana Gain Share Payments (in applicable years).						
⁽²⁾ Employer contributions and benefit payments include expected benefits due to the implicit subsidy for members under age 65, equal to \$561,417 for fiscal year 2022.						
⁽³⁾ Based on derived compensation using the provided employer contribution information.						
⁽⁴⁾ Northern Trust Settlement.						
This table is intended to show information for ten years; additional year's information will be displayed as it becomes available.						

The actuarially determined contribution effective for fiscal year ending 2022 that is documented in the schedule below was calculated as of June 30, 2020. Separate contribution rates are determined for each fund based on the liabilities associated with the current active members, former inactive members, and members receiving benefits from each respective fund, as well as the separately maintained asset balances for each fund.

Based on the June 30, 2020, actuarial valuation report, the actuarial methods and assumptions used to calculate the required contributions follow.

Notes to Schedule of Employers' OPEB Contributions

Item	CERS	CERS	KERS	KERS	SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
Determined by the Actuarial Valuation as of:	June 30, 2020	June 30, 2020	June 30, 2020	June 30, 2020	June 30, 2020
Actuarial Cost Method:	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal
Asset Valuation Method:	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized.	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized.	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized.	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized.	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized.
Amortization Method:	Level Percent of Pay	Level Percent of Pay	Level Percent of Pay	Level Percent of Pay	Level Percent of Pay
Amortization Period:	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.	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.	30-year closed period at June 30, 2019 Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases.
Payroll Growth Rate:	2.00%	2.00%	0.00%	0.00%	0.00%
Investment Return:	6.25%	6.25%	6.25%	6.25%	6.25%
Inflation:	2.30%	2.30%	2.30%	2.30%	2.30%
Salary Increase:	3.30% to 10.30%, varies by service.	3.55% to 19.05%, varies by service.	3.30% to 15.30%, varies by service.	3.55% to 20.05%, varies by service.	3.55% to 16.30%, varies by service.
Mortality:	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019.	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019.	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019.	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019.	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019.

Notes to Schedule of Employers' OPEB Contributions

Item	CERS	CERS	KERS	KERS	SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
Healthcare Trend Rates:					
Pre-65	Initial trend starting at 6.40% at January 1, 2022 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 14 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement.	Initial trend starting at 6.40% at January 1, 2022 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 14 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement.	Initial trend starting at 6.40% at January 1, 2022 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 14 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement.	Initial trend starting at 6.40% at January 1, 2022 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 14 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement.	Initial trend starting at 6.40% at January 1, 2022 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 14 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement.
Post-65	Initial trend starting at 6.30% at January 1, 2023 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 13 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement. Additionally, Humana provided "Not to Exceed" 2022 Medicare premiums, which were incorporated and resulted in an assumed 2.90% increase in Medicare premiums at January 1, 2022.	Initial trend starting at 6.30% at January 1, 2023 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 13 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement. Additionally, Humana provided "Not to Exceed" 2022 Medicare premiums, which were incorporated and resulted in an assumed 2.90% increase in Medicare premiums at January 1, 2022.	Initial trend starting at 6.30% at January 1, 2023 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 13 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement. Additionally, Humana provided "Not to Exceed" 2022 Medicare premiums, which were incorporated and resulted in an assumed 2.90% increase in Medicare premiums at January 1, 2022.	Initial trend starting at 6.30% at January 1, 2023 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 13 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement. Additionally, Humana provided "Not to Exceed" 2022 Medicare premiums, which were incorporated and resulted in an assumed 2.90% increase in Medicare premiums at January 1, 2022.	Initial trend starting at 6.30% at January 1, 2023 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 13 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement. Additionally, Humana provided "Not to Exceed" 2022 Medicare premiums, which were incorporated and resulted in an assumed 2.90% increase in Medicare premiums at January 1, 2022.

Schedule of Employers' OPEB Contributions - CERS NonHazardous
As of June 30 (\$ in Thousands)

Fiscal Year Ending ⁽¹⁾	Actuarially Determined Contribution ⁽²⁾	Total Employer Contribution ⁽³⁾	Contribution Deficiency (Excess)	Covered Payroll ⁽⁴⁾	Actual Contributions as a Percentage of Covered Payroll
2022	\$118,551	\$123,366	\$(4,815)	\$2,843,218	4.34%
2021	142,249	129,903	12,346	2,619,695	4.96%
2020	124,740	129,267	(4,527)	2,620,585	4.93%
2019	160,055	139,655	20,400	2,577,378	5.42%
2018	120,797	124,619	(3,822)	2,570,156	4.85%
2017	122,270	120,712	1,558	2,480,130	4.87%
2016	110,987	111,836	(849)	2,352,762	4.75%
2015	119,511	119,444	67	2,296,716	5.20%
2014	130,652	123,278	7,374	2,272,270	5.43%
2013	\$195,561	\$159,993	\$35,568	\$2,236,277	7.15%

⁽¹⁾ Data for years prior to 2018 is based on contribution data provided in the 2017 ACFR, based on calculations provided by the prior actuary.

⁽²⁾ Actuarially determined contribution for fiscal year ending 2022 is based on the contribution rate calculated with the June 30, 2020, actuarial valuation.

⁽³⁾ Employer contributions do not include the expected implicit subsidy.

⁽⁴⁾ Based on derived compensation using the provided employer contribution information.

Schedule of Employers' OPEB Contributions - CERS Hazardous
As of June 30 (\$ in Thousands)

Fiscal Year Ending ⁽¹⁾	Actuarially Determined Contribution ⁽²⁾	Total Employer Contribution ⁽³⁾	Contribution Deficiency (Excess)	Covered Payroll ⁽⁴⁾	Actual Contributions as a Percentage of Covered Payroll
2022	\$58,375	\$59,905	\$(1,530)	\$668,667	8.96%
2021	60,539	59,799	740	613,985	9.74%
2020	56,739	57,897	(1,158)	596,001	9.71%
2019	71,028	62,272	8,756	583,632	10.67%
2018	55,027	56,002	(975)	588,526	9.52%
2017	53,131	51,537	1,594	542,710	9.50%
2016	64,253	67,619	(3,366)	492,851	13.72%
2015	69,103	71,778	(2,675)	483,641	14.84%
2014	74,360	74,792	(432)	479,164	15.61%
2013	\$102,011	\$85,319	\$16,692	\$461,673	18.48%

⁽¹⁾ Data for years prior to 2018 is based on contribution data provided in the 2017 ACFR, based on calculations provided by the prior actuary.

⁽²⁾ Actuarially determined contribution for fiscal year ended 2022 is based on the contribution rate calculated with the June 30, 2020, actuarial valuation.

⁽³⁾ Employer contributions do not include the expected implicit subsidy.

⁽⁴⁾ Based on derived compensation using the provided employer contribution information.

Schedule of Employers' OPEB Contributions - KERS NonHazardous
As of June 30 (\$ in Thousands)

Fiscal Year Ending ⁽¹⁾	Actuarially Determined Contribution ⁽²⁾	Total Employer Contribution ⁽³⁾	Contribution Deficiency (Excess)	Covered Payroll ⁽⁴⁾	Actual Contributions as a Percentage of Covered Payroll
2022	\$135,809	\$140,694	\$(4,885)	\$1,437,132	9.79%
2021	161,936	186,676	(24,740)	1,452,345	12.85%
2020	183,821	175,007	8,814	1,482,431	11.81%
2019	187,978	178,964	9,014	1,515,953	11.81%
2018	132,365	136,419	(4,054)	1,573,898	8.67%
2017	133,024	152,356	(19,332)	1,593,097	9.56%
2016	121,899	135,816	(13,917)	1,529,249	8.88%
2015	130,455	135,940	(5,485)	1,544,234	8.80%
2014	208,881	166,610	42,271	1,577,496	10.56%
2013	\$286,143	\$165,331	\$120,812	\$1,644,409	10.05%

⁽¹⁾ Data for years prior to 2018 is based on contribution data provided in the 2017 ACFR, based on calculations provided by the prior actuary.

⁽²⁾ Actuarially determined contribution for fiscal year ended 2022 is based on the contribution rate calculated with the June 30, 2020, actuarial valuation, as amended by HB8 (2021 legislative session) which adjusted how the employer contribution would be allocated amongst participating employers.

⁽³⁾ Employer contributions do not include the expected implicit subsidy.

⁽⁴⁾ Based on derived compensation using the provided employer contribution information.

Schedule of Employers' OPEB Contributions - KERS Hazardous
As of June 30 (\$ in Thousands)

Fiscal Year Ending ⁽¹⁾	Actuarially Determined Contribution ⁽²⁾	Total Employer Contribution ⁽³⁾	Contribution Deficiency (Excess)	Covered Payroll ⁽⁴⁾	Actual Contributions as a Percentage of Covered Payroll
2022	\$-	\$1,281	\$(1,281)	\$188,648	0.68%
2021	-	1,300	(1,300)	172,725	0.75%
2020	4,482	5,776	(1,294)	182,209	3.17%
2019	3,726	4,970	(1,244)	151,448	3.28%
2018	2,550	5,288	(2,738)	190,317	2.78%
2017	4,688	5,620	(932)	171,087	3.28%
2016	9,186	16,766	(7,580)	147,563	11.36%
2015	13,152	14,882	(1,730)	128,680	11.57%
2014	15,627	23,874	(8,247)	129,076	18.50%
2013	\$26,253	\$25,682	\$571	\$132,015	19.45%

⁽¹⁾ Data for years prior to 2018 is based on contribution data provided in the 2017 ACFR, based on calculations provided by the prior actuary.

⁽²⁾ Actuarially determined contribution for fiscal year ended 2022 is based on the contribution rate calculated with the June 30, 2020, actuarial valuation.

⁽³⁾ Employer contributions do not include the expected implicit subsidy.

⁽⁴⁾ Based on derived compensation using the provided employer contribution information. For 2021 and 2022, derived compensation based on pension contribution information as there were no required employer contributions for the insurance fund for FYE 2021 and FYE 2022.

Schedule of Employer's OPEB Contributions - SPRS
As of June 30 (\$ in Thousands)

Fiscal Year Ending ⁽¹⁾	Actuarially Determined Contribution ⁽²⁾	Total Employer Contribution ⁽³⁾	Contribution Deficiency (Excess)	Covered Payroll ⁽⁴⁾	Actual Contributions as a Percentage of Covered Payroll
2022	\$8,782	\$8,782	\$-	\$48,600	18.07%
2021	9,285	9,285	-	47,155	19.69%
2020	13,133	13,133	-	48,231	27.23%
2019	13,283	13,288	(5)	48,780	27.24%
2018	9,062	9,397	(335)	50,064	18.77%
2017	9,222	9,222	-	48,873	18.87%
2016	8,553	10,237	(1,684)	45,551	22.47%
2015	9,890	10,382	(492)	45,765	22.69%
2014	20,879	14,493	6,386	44,616	32.48%
2013	\$27,234	\$16,829	\$10,405	\$45,256	37.19%

⁽¹⁾ Data for years prior to 2018 is based on contribution data provided in the 2017 ACFR, based on calculations provided by the prior actuary.

⁽²⁾ Actuarially determined contribution for fiscal year ended 2022 is based on the contribution rate calculated with the June 30, 2020, actuarial valuation.

⁽³⁾ Employer contributions do not include the expected implicit subsidy.

⁽⁴⁾ Based on derived compensation using the provided employer contribution information

Money-Weighted Rates of Return

In accordance with GASB, KPPA provides this additional disclosure regarding the money-weighted rate of return for the Pension Funds and Insurance Fund. The money-weighted rate of return is a method of calculating period-by-period returns on Pension Funds' and Insurance Fund's investments that adjusts for the changing amounts actually invested. For purposes of this statement, money-weighted rate of return is calculated as the internal rate of return on Pension Funds' and Insurance Fund's investments, net of Pension Funds' and Insurance Fund's investment expense, adjusted for the changing amounts actually invested.

See below for the money-weighted rates of return for multiple periods including fiscal year June 30, 2022, as calculated by the custodian bank, BNY Mellon:

Money - Weighted Rates of Return As of June 30					
	CERS	CERS	KERS	KERS	SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
Pension					
2022	(5.83)%	(6.02)%	(5.29)%	(5.94)%	(5.80)%
2021	25.72%	25.58%	22.53%	25.21%	21.70%
2020	0.84%	0.71%	2.35%	0.96%	2.21%
2019	5.72%	5.76%	5.77%	5.68%	5.67%
2018	8.82%	8.82%	7.63%	8.69%	7.68%
2017	13.80%	13.72%	12.08%	13.45%	12.50%
2016	(0.62)%	(0.46)%	(0.97)%	(0.33)%	(1.76)%
2015	1.90%	1.95%	2.30%	1.84%	1.80%
2014	15.56%	15.50%	15.50%	15.65%	15.66%
Insurance					
	CERS	CERS	KERS	KERS	SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
2022	(5.49)%	(4.95)%	(6.22)%	(4.43)%	(4.43)%
2021	24.81%	24.99%	25.16%	24.99%	25.36%
2020	0.36%	0.27%	0.98%	0.21%	0.64%
2019	5.73%	5.78%	5.04%	5.56%	5.73%
2018	9.22%	9.35%	7.95%	8.93%	9.39%
2017	13.67%	13.69%	13.77%	13.75%	13.69%
<i>Note: This table is intended to show information for ten years; additional year's information will be displayed as it becomes available.</i>					

Additional Supporting Schedules

Schedule of Administrative Expenses

Schedule of Direct Investment Expenses

Schedule of Professional Consultant Fees

Report on Internal Control

Schedule of Administrative Expenses
As of June 30 (\$ in Thousands)

	2022	2021
Personnel		
Salaries and Per Diem	\$15,803	\$14,426
Pension, Insurance Related Benefits	16,165	14,875
Unemployment Compensation	-	-
Tuition Assistance	10	10
Total Personnel	31,978	29,311
Contractual		
Actuarial Services	474	449
Audit Services	142	72
Healthcare	6	-
Legal Counsel	1,126	754
Medical Review Services	1,593	316
Miscellaneous	124	88
Total Contractual	3,465	1,679
Communication		
Printing	77	107
Telephone	123	106
Postage	377	552
Travel	32	15
Total Communication	609	780
Internal Audit		
Travel/Conferences	2	1
Dues/Subscriptions	1	2
Total Internal Audit	3	3
Investments-Pension Funds		
Travel/Conferences	7	-
Dues/Subscriptions	8	9
Legal	-	10
Total Investments	15	19
Rentals		
Office Space	1,013	1,061
Equipment	90	67
Total Rentals	1,103	1,128
Information Technology		
Software	2,972	2,430
Total Information Technology	2,972	2,430
Miscellaneous		
Utilities	142	153
Supplies	85	47
Insurance	5	4
Dues & Subscriptions	57	44
Maintenance	-	1
Other	34	1
COVID Expenses	13	153
Total Miscellaneous	336	403
Depreciation/Amortization/Accruals	(739)	1,113
Bayhills legal fees paid out of admin	-	(77)
Total Pension Fund Administrative Expense	39,742	36,789
Healthcare Fees	2,454	2,354
Total Insurance Fund Administrative Expense	2,454	2,354
Total Administrative Expenses	\$42,196	\$39,143

Pension Fund Schedule of Direct Investment Expenses
As of June 30 (\$ in Thousands)

	CERS		KERS		SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
Security Lending Fees					
Borrower (Income) Rebates	\$(298)	\$(99)	\$(72)	\$(29)	\$(7)
Lending Agent Fees	178	61	59	18	7
Total Security Lending	(120)	(38)	(13)	(11)	0
Contractual Services					
Investment Management	44,097	13,583	9,908	3,783	1,298
Security Custody	884	300	326	90	42
Investment Consultant	473	161	172	48	22
Performance Fees	58,431	18,972	12,277	5,250	1,532
Total Contractual Services	\$103,885	\$33,016	\$22,683	\$9,171	\$2,894

Insurance Fund Schedule of Direct Investment Expenses
As of June 30 (\$ in Thousands)

	CERS		KERS		SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
Security Lending Fees					
Borrower (Income) Rebates	\$(86)	(46)	(39)	(20)	(8)
Lending Agent Fees	60	30	26	11	5
Total Security Lending	(26)	(16)	(13)	(9)	(3)
Contractual Services					
Investment Management	15,043	7,965	5,725	3,143	1,231
Security Custody	446	225	192	87	34
Investment Consultant	175	89	75	34	14
Performance Fees	22,044	12,355	8,270	4,849	1,976
Total Contractual Services	\$37,708	\$20,634	\$14,262	\$8,113	\$3,255

Schedule of Professional Consultant Fees
As of June 30 (\$ in Thousands)

	2022	2021
Actuarial Services	\$474	\$448
Medical Review Services	1,593	316
Audit Services	142	72
Legal Counsel	1,126	687
Healthcare	6	-
Miscellaneous	124	88
Total	\$3,465	\$1,611

**REPORT OF INDEPENDENT AUDITORS ON INTERNAL CONTROL OVER FINANCIAL REPORTING
AND ON COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL
STATEMENTS PERFORMED IN ACCORDANCE WITH GOVERNMENT AUDITING STANDARDS**

To the Members
Kentucky Public Pensions Authority
Frankfort, Kentucky

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of Kentucky Public Pensions Authority, as of and for the year ended June 30, 2022, and the related notes to the financial statements, which collectively comprise the Kentucky Public Pensions Authority's basic financial statements, and have issued our report thereon dated --DATE--.

Report on Internal Control Over Financial Reporting

In planning and performing our audit of the financial statements, we considered the Kentucky Public Pensions Authority's internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Kentucky Public Pensions Authority's internal control. Accordingly, we do not express an opinion on the effectiveness of the Kentucky Public Pensions Authority's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses or significant deficiencies may exist that have not been identified.

**REPORT OF INDEPENDENT AUDITORS ON INTERNAL CONTROL OVER FINANCIAL REPORTING
AND ON COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL
STATEMENTS PERFORMED IN ACCORDANCE WITH *GOVERNMENT AUDITING STANDARDS*
(Continued)**

Report on Compliance and Other Matters

As part of obtaining reasonable assurance about whether the Kentucky Public Pensions Authority's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the financial statements. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the Kentucky Public Pensions Authority's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Kentucky Public Pensions Authority's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Blue & Co., LLC

Lexington, Kentucky

--DATE--



October 6, 2022

Board of Trustees
Kentucky Public Pensions Authority
Perimeter Park West
1260 Louisville Road
Frankfort, KY 40601

Re: GASB 67 Reporting – Actuarial Information

Dear Members of the Board:

The reports provided herein contain certain information for the County Employees Retirement System (CERS), the Kentucky Employees Retirement System (KERS), and the State Police Retirement System (SPRS) in connection with the Governmental Accounting Standards Board (GASB) Statement No. 67, “Financial Reporting for Pension Plans” for the fiscal year ending June 30, 2022. Separate reports will be provided at a later date with additional accounting information determined in accordance with GASB Statement No. 68, “Accounting and Financial Reporting for Pensions”.

Basis of Calculations

The liability calculations presented in the reports were performed for the purpose of satisfying the requirements of GASB No. 67 and are not applicable for other purposes, such as determining the plans’ funding requirements. The plans’ liability for other purposes may produce significantly different results.

The total pension liability, net pension liability, and sensitivity information are based on an actuarial valuation date of June 30, 2021. The total pension liability was rolled-forward from the valuation date to the plan’s fiscal year ending June 30, 2022 using generally accepted actuarial principles.

Assumptions

There have been no changes in actuarial assumptions or methods since June 30, 2021.

Plan Provisions

House Bill 259 passed during the 2022 legislative session and will increase the benefits in the SPRS Tier 3 cash balance plan by allowing the conversion of unused sick leave in excess of 480 hours to cash balance pay credits at the end of each fiscal year. Similarly, House Bill 259 will also allow the conversion of an SPRS member’s balance of unused sick leave to cash balance pay credits upon termination of employment. The total pension liability for the SPRS pension plan as of June 30, 2022 is determined using these updated benefit provisions. There have been no other plan provision changes that would materially impact the total pension liability since June 30, 2021.

Board of Trustees
October 6, 2022
Page 2

House Bill 259 also provided meaningful salary increases effective July 1, 2022 for eligible State Troopers. Additionally, House Bill 1 passed during the 2022 legislative session and included a provision that provided an approximate 8% across-the-board salary increase effective July 1, 2022 for eligible State employees. While these salary increases may produce an actuarial loss with respect to the liability attributable to Tier 1 and Tier 2 active members (i.e. a higher total pension liability than expected based on current actuarial assumptions), there is not sufficient information available at this time to make a reasonable adjustment to the roll-forward Total Pension Liability to reflect these anticipated salary increases. It is our opinion that these procedures for determining the information contained in these reports are reasonable, appropriate, and comply with applicable requirements under GASB No. 67.

Discount Rates

A single discount rate of 5.25% was used for the KERS Non-Hazardous pension plan and SPRS pension plan, and a single discount rate of 6.25% was used for the KERS Hazardous pension plan, the CERS Non-Hazardous pension plan, and the CERS Hazardous pension plan to measure the total pension liability for the fiscal year ending June 30, 2022. These single discount rates were based on the expected rate of return on pension plan investments. Based on the stated assumptions and the projection of cash flows as of each fiscal year ending, the pension plan's fiduciary net position and future contributions were projected to be sufficient to finance all the future benefit payments of the current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of the projected benefit payments to determine the total pension liability.

The projection of cash flows used to determine the single discount rate must include an assumption regarding actual employer contributions made each future year. Except where noted below, future contributions are projected assuming that the entire actuarially determined employer contribution is received by each plan each future year, calculated in accordance with the current funding policy. The assumed future employer contributions for the CERS plans reflect the provisions of House Bill 362 (passed during the 2018 legislative session) which limit the increases to the employer contribution rates to 12% over the prior fiscal year through June 30, 2028.

401(h) Subaccount

Based on guidance issued by GASB in connection with GASB Statement No. 74, the 1% of pay member contributions for Tier 2 and Tier 3 members to a 401(h) subaccount is considered an OPEB asset. As a result, the reported fiduciary net positions as of June 30, 2017 and later are net of the 401(h) asset balance.

Additional Disclosures

These reports are based upon information, furnished to us by the Kentucky Public Pensions Authority (KPPA), which includes benefit provisions, membership information, and financial data. We did not audit this data and information, but we did apply a number of tests and concluded that it was reasonable and consistent. GRS is not responsible for the accuracy or completeness of the information provided by KPPA. Please see the "Actuarial Valuation Report as of June 30, 2021" for each system for additional discussion of the nature of the actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions. These reports should be considered together as a complete report for the fiscal year ending June 30, 2022.

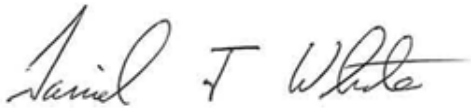


Board of Trustees
October 6, 2022
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To the best of our knowledge, these reports are complete and accurate and are in accordance with generally recognized actuarial practices and methods. Both of the undersigned are Enrolled Actuaries, members of the American Academy of Actuaries and meet all of the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. In addition, both 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 and Actuary



Janie Shaw, ASA, EA, MAAA
Consultant and Actuary



Kentucky Employees Retirement System

GASB No. 67 Accounting Valuation Report
As of June 30, 2022





October 6, 2022

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

Re: GASB 67 Reporting – Actuarial Information – Kentucky Employees Retirement System

Dear Members of the Board:

This report provided herein contains certain information for the **Kentucky Employees Retirement System (KERS)** in connection with the Governmental Accounting Standards Board (GASB) Statement No. 67, “Financial Reporting for Pension Plans” for the fiscal year ending June 30, 2022. A separate report will be provided at a later date with additional accounting information determined in accordance with GASB Statement No. 68, “Accounting and Financial Reporting for Pensions”.

The liability calculations presented in this report were performed for the purpose of satisfying the requirements of GASB No. 67 and are not applicable for other purposes, such as determining the plan’s funding requirements. The plan’s liability for other purposes may produce significantly different results. This report may be provided to parties other than the Board of Trustees of the Kentucky Retirement Systems only in its entirety and only with the permission of the Board.

The total pension liability, net pension liability, and sensitivity information shown in this report are based on an actuarial valuation date of June 30, 2021. The total pension liability was rolled-forward from the valuation date to the plan’s fiscal year ending June 30, 2022 using generally accepted actuarial principles. GASB 67 requires the disclosure of a 10-year history of certain information in the Required Supplementary Information within the annual financial report. The exhibits provided in this report include the applicable information for historical years that were calculated in accordance with this accounting standard. Information disclosed for years prior to June 30, 2017 were prepared by the prior actuary.

Actuarial Assumptions and Plan Provisions

There have been no actuarial assumption or method changes since June 30, 2021. Additionally, there have been no plan provision changes that would materially impact the total pension liability since June 30, 2021.

Board of Trustees
October 6, 2022
Page 2

House Bill 1 passed during the 2022 legislative session and included a provision that provided an approximate 8% across-the-board salary increase effective July 1, 2022 for eligible State employees. While this salary increase may produce an actuarial loss with respect to the liability attributable to Tier 1 and Tier 2 active members (i.e. a higher total pension liability than expected based on current actuarial assumptions), there is not sufficient information available at this time to make a reasonable adjustment to the roll-forward Total Pension Liability to reflect these anticipated salary increases. It is our opinion that these procedures for determining the information contained in this report are reasonable, appropriate, and comply with applicable requirements under GASB No. 67.

Single Discount Rate

Single discount rates of 5.25% for the non-hazardous plan and 6.25% for the hazardous plan were used to measure the total pension liability for the fiscal year ending June 30, 2022. This single discount rate was based on the expected rate of return on pension plan investments for each plan. Based on the stated assumptions and the projection of cash flows as of each fiscal year ending, the pension plan's fiduciary net position and future contributions were projected to be sufficient to finance all the future benefit payments of the current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of the projected benefit payments to determine the total pension liability for each plan.

The projection of cash flows used to determine the single discount rate must include an assumption regarding actual employer contributions made each future year. Future contributions are projected assuming that the entire actuarially determined employer contribution is received by each plan each future year, calculated in accordance with the current funding policy.

401(h) Subaccount

Based on guidance issued by GASB in connection with GASB Statement No. 74, the 1% of pay member contributions for Tier 2 and Tier 3 members to a 401(h) subaccount is considered an OPEB asset. As a result, the reported fiduciary net positions as of June 30, 2017 and later are net of the 401(h) asset balance.

Additional Disclosures

This report is based upon information, furnished to us by the Kentucky Public Pensions Authority (KPPA), which includes benefit provisions, membership information, and financial data. We did not audit this data and information, but we did apply a number of tests and concluded that it was reasonable and consistent. GRS is not responsible for the accuracy or completeness of the information provided by KPPA. Please see the "Actuarial Valuation Report as of June 30, 2021" for additional discussion of the nature of the actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions. These reports should be considered together as a complete report for the fiscal year ending June 30, 2022.



Board of Trustees

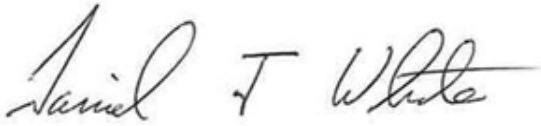
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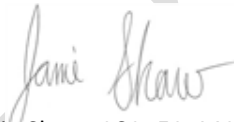
To the best of our knowledge, this report is complete and accurate and is in accordance with generally recognized actuarial practices and methods. Both of the undersigned are Enrolled Actuaries, members of the American Academy of Actuaries and meet all of the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. In addition, both 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 & Co.



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



Janie Shaw, ASA, EA, MAAA
Consultant and Actuary



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SECTION 1

EXHIBIT 1a

Schedule of the Employers' Net Pension Liability – KERS Non-Hazardous Plan
(\$ in thousands)

Fiscal Year Ending June 30,	Total Pension Liability	Plan Fiduciary Net Position	Employers' Net Pension Liability (Asset)	Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	Covered Employee Payroll ¹	Net Pension Liability as a Percentage of Covered Employee Payroll
(1)	(2)	(3)	(4) = (2) - (3)	(5) = (3) / (2)	(6)	(7) = (4) / (6)
2022	\$ 16,281,188	\$ 3,013,845	\$ 13,267,343	18.51%	\$ 1,432,960	925.87%
2021	16,335,657	3,018,660	13,316,997	18.48%	1,441,337	923.93%
2020	16,472,733	2,308,080	14,164,653	14.01%	1,476,156	959.56%
2019	16,356,674	2,233,672	14,123,002	13.66%	1,485,854	950.50%
2018	15,608,221	2,004,446	13,603,775	12.84%	1,509,955	900.94%
2017	15,445,206	2,056,870	13,388,336	13.32%	1,602,396	835.52%
2016	13,379,781	1,980,292	11,399,489	14.80%	1,631,025	698.92%
2015	12,359,673	2,327,783	10,031,890	18.83%	1,544,234	649.64%
2014	11,550,110	2,578,291	8,971,819	22.32%	1,577,496	568.74%

Note:

¹ Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later.

EXHIBIT 1b

Schedule of the Employers' Net Pension Liability – KERS Hazardous Plan
(\$ in thousands)

Fiscal Year Ending June 30,	Total Pension Liability	Plan Fiduciary Net Position	Employers' Net Pension Liability (Asset)	Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	Covered Employee Payroll ¹	Net Pension Liability as a Percentage of Covered Employee Payroll
(1)	(2)	(3)	(4) = (2) - (3)	(5) = (3) / (2)	(6)	(7) = (4) / (6)
2022	\$ 1,318,494	\$ 810,978	\$ 507,516	61.51%	\$ 188,648	269.03%
2021	1,311,767	866,140	445,627	66.03%	172,725	258.00%
2020	1,251,027	690,350	560,677	55.18%	171,840	326.28%
2019	1,227,226	680,932	546,294	55.49%	160,600	340.16%
2018	1,150,610	645,485	505,125	56.10%	152,936	330.29%
2017	1,098,630	601,529	497,101	54.75%	178,511	278.47%
2016	919,517	527,879	391,638	57.41%	158,828	246.58%
2015	895,433	552,468	342,965	61.70%	128,680	266.53%
2014	816,850	561,484	255,366	68.74%	129,076	197.84%

Note:

¹ Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later.



EXHIBIT 2a

Schedule of the Employers' Net Pension Liability – KERS Non-Hazardous Plan

(\$ in thousands)

Change in the Net Pension Liability	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability									
Service Cost	\$ 165,616	\$ 171,472	\$ 179,702	\$ 184,988	\$ 195,681	\$ 143,858	\$ 139,631	\$ 143,847	\$ 133,361
Interest	830,440	838,084	832,178	793,163	785,123	870,725	891,897	859,509	853,653
Benefit Changes	0	2,091	0	0	9,624	0	0	0	0
Difference between actual and expected experience	(15,034)	(130,268)	115,515	70,529	153,565	(134,379)	0	30,958	0
Assumption Changes	0	0	0	700,464	0	2,145,530	923,999	694,592	0
Benefit Payments	(1,035,491)	(1,018,455)	(1,011,336)	(1,000,691)	(980,978)	(960,309)	(935,419)	(919,343)	(903,564)
Net Change in Total Pension Liability	\$ (54,469)	\$ (137,076)	\$ 116,059	\$ 748,453	\$ 163,015	\$ 2,065,425	\$ 1,020,108	\$ 809,563	\$ 83,450
Total Pension Liability - Beginning	\$ 16,335,657	\$ 16,472,733	\$ 16,356,674	\$ 15,608,221	\$ 15,445,206	\$ 13,379,781	\$ 12,359,673	\$ 11,550,110	\$ 11,466,660
Total Pension Liability - Ending (a)	\$ 16,281,188	\$ 16,335,657	\$ 16,472,733	\$ 16,356,674	\$ 15,608,221	\$ 15,445,206	\$ 13,379,781	\$ 12,359,673	\$ 11,550,110
Plan Fiduciary Net Position¹									
Contributions - Employer	\$ 1,116,869 ⁶	\$ 1,134,232 ⁶	\$ 948,592	\$ 1,035,462	\$ 689,143	\$ 757,121	\$ 513,084	\$ 521,691	\$ 296,836
Contributions - Member ²	89,607	90,202	96,594	93,759	104,972	100,543	106,495	104,606	97,487
Refunds of contributions to members	(12,116)	(8,953)	(11,523)	(12,342)	(13,603)	(11,819)	(12,130)	(13,552)	(13,627)
Retirement benefits	(1,023,375)	(1,009,502)	(999,813)	(988,349)	(967,375)	(948,490)	(923,288)	(905,791)	(889,937)
Net Investment Income ²	(162,461)	516,223	52,499	112,371	144,881	220,985	(20,663)	44,570	337,923
Administrative Expense	(13,339)	(11,622)	(11,941)	(11,712)	(10,692)	(10,957)	(10,989)	(10,474)	(11,145)
Other	0	0	0	37 ⁵	301 ⁵	(30,805) ⁴	0	8,442	0
Net Change in Plan Fiduciary Net Position	\$ (4,815)	\$ 710,580	\$ 74,408	\$ 229,226	\$ (52,373)	\$ 76,578	\$ (347,491)	\$ (250,508)	\$ (182,463)
Plan Fiduciary Net Position - Beginning	\$ 3,018,660	\$ 2,308,080	\$ 2,233,672	\$ 2,004,446	\$ 2,056,870	\$ 1,980,292	\$ 2,327,783	\$ 2,578,291	\$ 2,760,754
Prior Year Adjustment	0	0	0	0	(51)	0	0	0	0
Plan Fiduciary Net Position - Ending (b)	\$ 3,013,845	\$ 3,018,660	\$ 2,308,080	\$ 2,233,672	\$ 2,004,446	\$ 2,056,870	\$ 1,980,292	\$ 2,327,783	\$ 2,578,291
Net Pension Liability - Ending (a) - (b)	\$ 13,267,343	\$ 13,316,997	\$ 14,164,653	\$ 14,123,002	\$ 13,603,775	\$ 13,388,336	\$ 11,399,489	\$ 10,031,890	\$ 8,971,819
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	18.51%	18.48%	14.01%	13.66%	12.84%	13.32%	14.80%	18.83%	22.32%
Covered Employee Payroll³	\$ 1,432,960	\$ 1,441,337	\$ 1,476,156	\$ 1,485,854	\$ 1,509,955	\$ 1,602,396	\$ 1,631,025	\$ 1,544,234	\$ 1,577,496
Net Pension Liability as a Percentage of Covered Employee Payroll	925.87%	923.93%	959.56%	950.50%	900.94%	835.52%	698.92%	649.64%	568.74%

Notes:

¹ Does not include 401(h) assets for fiscal years 2017 and later. Assets totaled \$62,898,000 as of June 30, 2022

² Does not include 401(h) contributions or associated investment income for fiscal years 2017 and later

For fiscal year 2022, 401(h) contributions equaled -\$13,000; and associated investment return equaled -\$3,444,000

³ Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later

⁴ Adjustment due to 401(h) plan asset balance being considered an OPEB asset under GASB 74 for fiscal years 2017 and later

⁵ Northern Trust Settlement

⁶ Includes \$63.1 million and \$175.6 million employer cessation contributions in fiscal year 2022 and 2021, respectively



EXHIBIT 2b

Schedule of the Employers' Net Pension Liability – KERS Hazardous Plan (\$ in thousands)

Change in the Net Pension Liability	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability									
Service Cost	\$ 26,885	\$ 28,450	\$ 25,568	\$ 27,117	\$ 28,641	\$ 21,081	\$ 20,751	\$ 18,729	\$ 16,880
Interest	79,422	75,743	74,357	69,657	66,536	66,589	64,851	61,005	59,594
Benefit Changes	0	26	0	0	705	0	0	0	0
Difference between actual and expected experience	(17,557)	34,789	(1,095)	1,395	24,215	26,902	0	6,067	0
Assumption Changes	0	0	0	50,658	0	127,878	0	52,165	0
Benefit Payments	(82,023)	(78,268)	(75,029)	(72,211)	(68,117)	(63,338)	(61,518)	(59,383)	(57,151)
Net Change in Total Pension Liability	\$ 6,727	\$ 60,740	\$ 23,801	\$ 76,616	\$ 51,980	\$ 179,112	\$ 24,084	\$ 78,583	\$ 19,323
Total Pension Liability - Beginning	\$ 1,311,767	\$ 1,251,027	\$ 1,227,226	\$ 1,150,610	\$ 1,098,630	\$ 919,517	\$ 895,433	\$ 816,850	\$ 797,527
Total Pension Liability - Ending (a)	\$ 1,318,494	\$ 1,311,767	\$ 1,251,027	\$ 1,227,226	\$ 1,150,610	\$ 1,098,630	\$ 919,517	\$ 895,433	\$ 816,850
Plan Fiduciary Net Position¹									
Contributions - Employer	\$ 59,055	\$ 62,200	\$ 59,115	\$ 55,259	\$ 43,661	\$ 52,974	\$ 23,759	\$ 28,536	\$ 11,670
Contributions - Member ²	20,588	19,961	19,769	17,118	17,891	17,524	15,739	13,207	12,546
Refunds of contributions to members	(4,976)	(4,380)	(3,168)	(2,684)	(2,501)	(2,106)	(2,211)	(2,610)	(2,830)
Retirement benefits	(77,047)	(73,888)	(71,861)	(69,527)	(65,616)	(61,231)	(59,306)	(56,773)	(54,320)
Net Investment Income ²	(51,317)	173,152	6,739	36,380	51,467	70,994	(1,653)	8,701	80,724
Administrative Expense	(1,465)	(1,255)	(1,176)	(1,103)	(975)	(919)	(916)	(844)	(897)
Other	0	0	0	4 ⁵	33 ⁵	(3,586) ⁴	0	767	0
Net Change in Plan Fiduciary Net Position	\$ (55,162)	\$ 175,790	\$ 9,418	\$ 35,447	\$ 43,960	\$ 73,650	\$ (24,588)	\$ (9,016)	\$ 46,893
Plan Fiduciary Net Position - Beginning	\$ 866,140	\$ 690,350	\$ 680,932	\$ 645,485	\$ 601,529	\$ 527,879	\$ 552,468	\$ 561,484	\$ 514,591
Prior Year Adjustment	0	0	0	0	(4)	0	0	0	0
Plan Fiduciary Net Position - Ending (b)	\$ 810,978	\$ 866,140	\$ 690,350	\$ 680,932	\$ 645,485	\$ 601,529	\$ 527,879	\$ 552,468	\$ 561,484
Net Pension Liability - Ending (a) - (b)	\$ 507,516	\$ 445,627	\$ 560,677	\$ 546,294	\$ 505,125	\$ 497,101	\$ 391,638	\$ 342,965	\$ 255,366
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	61.51%	66.03%	55.18%	55.49%	56.10%	54.75%	57.41%	61.70%	68.74%
Covered Employee Payroll³	\$ 188,648	\$ 172,725	\$ 171,840	\$ 160,600	\$ 152,936	\$ 178,511	\$ 158,828	\$ 128,680	\$ 129,076
Net Pension Liability as a Percentage of Covered Employee Payroll	269.03%	258.00%	326.28%	340.16%	330.29%	278.47%	246.58%	266.53%	197.84%

Notes:

¹ Does not include 401(h) assets for fiscal years 2017 and later. Assets totaled \$8,260,000 as of June 30, 2022

² Does not include 401(h) contributions or associated investment income for fiscal years 2017 and later

For fiscal year 2022, 401(h) contributions equaled -\$5,000; and associated investment return equaled -\$523,000

³ Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later

⁴ Adjustment due to 401(h) plan asset balance being considered an OPEB asset under GASB 74 for fiscal years 2017 and later

⁵ Northern Trust Settlement



EXHIBIT 3a**Schedule of Employers' Contributions – KERS Non-Hazardous Plan**
(\$ in thousands)

Fiscal Year Ending	Actuarially Determined Contribution¹	Total Employer Contributions	Contribution Deficiency (Excess)	Covered Employee Payroll²	Actual Contributions as a Percentage of Covered Payroll
2022	\$ 1,048,861	\$ 1,116,869	\$ (68,008)	\$ 1,432,960	77.94%
2021	1,056,211	1,134,232	(78,021)	1,441,337	78.69%
2020	1,048,513	948,592	99,921	1,476,156	64.26%
2019	1,055,402	1,035,462	19,940	1,485,854	69.69%
2018	633,879	689,143	(55,264)	1,509,955	45.64%
2017	623,813	757,121	(133,308)	1,602,396	47.25%
2016	512,670	513,084	(414)	1,631,025	31.46%
2015	520,948	521,691	(743)	1,544,234	33.78%
2014	520,765	296,836	223,929	1,577,496	18.82%
2013	485,396	280,874	204,522	1,644,409	17.08%

Notes:

¹ Actuarially determined contribution for fiscal year ending 2022 is based on the contribution rate calculated with the June 30, 2020 actuarial valuation, as amended by HB8 (2021 legislative session) which adjusted how the employer contribution would be allocated amongst participating employers.

² Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later.

EXHIBIT 3b**Schedule of Employers' Contributions – KERS Hazardous Plan**
(\$ in thousands)

Fiscal Year Ending	Actuarially Determined Contribution ¹	Total Employer Contributions	Contribution Deficiency (Excess)	Covered Employee Payroll ²	Actual Contributions as a Percentage of Covered Payroll
2022	\$ 59,052	\$ 59,055	\$ (3)	\$ 188,648	31.30%
2021	62,181	62,200	(19)	172,725	36.01%
2020	59,096	59,115	(19)	171,840	34.40%
2019	55,230	55,259	(29)	160,600	34.41%
2018	31,321	43,661	(12,340)	152,936	28.55%
2017	37,630	52,974	(15,344)	178,511	29.68%
2016	23,690	23,759	(69)	158,828	14.96%
2015	28,374	28,536	(162)	128,680	22.18%
2014	13,570	11,670	1,900	129,076	9.04%
2013	21,502	27,334	(5,832)	131,015	20.86%

Notes:

¹ Actuarially determined contribution for fiscal year ending 2022 is based on the contribution rate calculated with the June 30, 2020 actuarial valuation.

² Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later.



Notes to Schedule of Employers' Contributions for FYE 2022

The actuarially determined contributions effective for fiscal year ending 2022 that are documented in the schedules on the previous pages were calculated as of June 30, 2020. Based on the June 30, 2020 actuarial valuation report, the actuarial methods and assumptions used to calculate these contribution rates are below:

Item	KERS Non-Hazardous Plan	KERS Hazardous Plan
Determined by the Actuarial Valuation as of:	June 30, 2020	June 30, 2020
Actuarial Cost Method:	Entry Age Normal	Entry Age Normal
Asset Valuation Method:	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized
Amortization Method:	Level Percent of Pay	Level Percent of Pay
Amortization Period:	30-year closed period at June 30, 2019 <i>Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases</i>	30-year closed period at June 30, 2019 <i>Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases</i>
Payroll Growth Rate	0.00%	0.00%
Investment Return:	5.25%	6.25%
Inflation:	2.30%	2.30%
Salary Increases:	3.30% to 15.30%, varies by service	3.55% to 20.05%, varies by service
Mortality:	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019



EXHIBIT 4

Sensitivity of the Net Pension Liability to Changes in the Discount Rate
(\$ in thousands)

Table 1. Sensitivity of the Net Pension Liability to Changes in the Discount Rate for KERS (Non-Hazardous)

1.00% Decrease (4.25%)	Current Discount Rate (5.25%)	1.00% Increase (6.25%)
\$ 15,259,602	\$ 13,267,343	\$ 11,626,900

Table 2. Sensitivity of the Net Pension Liability to Changes in the Discount Rate for KERS (Hazardous)

1.00% Decrease (5.25%)	Current Discount Rate (6.25%)	1.00% Increase (7.25%)
\$ 670,608	\$ 507,516	\$ 375,348

State Police Retirement System

GASB No. 67 Accounting Valuation Report

As of June 30, 2022

DRAFT





October 6, 2022

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

Re: GASB 67 Reporting – Actuarial Information – State Police Retirement System

Dear Members of the Board:

This report provided herein contains certain information for the **State Police Retirement System (SPRS)** in connection with the Governmental Accounting Standards Board (GASB) Statement No. 67, “Financial Reporting for Pension Plans” for the fiscal year ending June 30, 2022. A separate report will be provided at a later date with additional accounting information determined in accordance with GASB Statement No. 68, “Accounting and Financial Reporting for Pensions”.

The liability calculations presented in this report were performed for the purpose of satisfying the requirements of GASB No. 67 and are not applicable for other purposes, such as determining the plan’s funding requirements. The plan’s liability for other purposes may produce significantly different results. This report may be provided to parties other than the Board of Trustees of the Kentucky Retirement Systems only in its entirety and only with the permission of the Board.

The total pension liability, net pension liability, and sensitivity information shown in this report are based on an actuarial valuation date of June 30, 2021. The total pension liability was rolled-forward from the valuation date to the plan’s fiscal year ending June 30, 2022 using generally accepted actuarial principles. GASB 67 requires the disclosure of a 10-year history of certain information in the Required Supplementary Information within the annual financial report. The exhibits provided in this report include the applicable information for historical years that were calculated in accordance with this accounting standard. Information disclosed for years prior to June 30, 2017 were prepared by the prior actuary.

Actuarial Assumptions and Plan Provisions

There have been no actuarial assumption or method changes since June 30, 2021. House Bill 259 passed during the 2022 legislative session and will increase the benefits in the Tier 3 cash balance plan by allowing the conversion of unused sick leave in excess of 480 hours to cash balance pay credits at the end of each fiscal year. Similarly, House Bill 259 will also allow the conversion of a member’s balance of unused sick leave to cash balance pay credits upon termination of employment. The total pension liability as of June 30, 2022 is determined using these updated benefit provisions. There have been no other plan provision changes that would materially impact the total pension liability since June 30, 2021.

Board of Trustees
October 6, 2022
Page 2

House Bill 259 also provided meaningful salary increases effective July 1, 2022 for eligible State Troopers. While these salary increases may produce an actuarial loss with respect to the liability attributable to Tier 1 and Tier 2 active members (i.e. a higher total pension liability than expected based on current actuarial assumptions), there is not sufficient information available at this time to make a reasonable adjustment to the roll-forward Total Pension Liability to reflect these anticipated salary increases. It is our opinion that these procedures for determining the information contained in this report are reasonable, appropriate, and comply with applicable requirements under GASB No. 67.

Single Discount Rate

A single discount rate of 5.25% was used to measure the total pension liability for the fiscal year ending June 30, 2022. This single discount rate was based on the expected rate of return on pension plan investments. Based on the stated assumptions and the projection of cash flows as of each fiscal year ending, the pension plan's fiduciary net position and future contributions were projected to be sufficient to finance all the future benefit payments of the current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of the projected benefit payments to determine the total pension liability.

The projection of cash flows used to determine the single discount rate must include an assumption regarding actual employer contributions made each future year. Future contributions are projected assuming that the entire actuarially determined employer contribution is received each future year, calculated in accordance with the current funding policy.

401(h) Subaccount

Based on guidance issued by GASB in connection with GASB Statement No. 74, the 1% of pay member contributions for Tier 2 and Tier 3 members to a 401(h) subaccount is considered an OPEB asset. As a result, the reported fiduciary net positions as of June 30, 2017 and later are net of the 401(h) asset balance.

Additional Disclosures

This report is based upon information, furnished to us by the Kentucky Public Pensions Authority (KPPA), which includes benefit provisions, membership information, and financial data. We did not audit this data and information, but we did apply a number of tests and concluded that it was reasonable and consistent. GRS is not responsible for the accuracy or completeness of the information provided by KPPA. Please see the "Actuarial Valuation Report as of June 30, 2021" for additional discussion of the nature of the actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions. These reports should be considered together as a complete report for the fiscal year ending June 30, 2022.



Board of Trustees

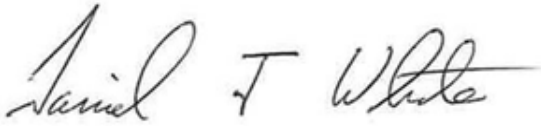
October 6, 2022

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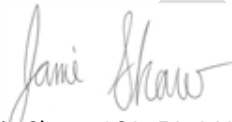
To the best of our knowledge, this report is complete and accurate and is in accordance with generally recognized actuarial practices and methods. Both of the undersigned are Enrolled Actuaries, members of the American Academy of Actuaries and meet all of the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. In addition, both 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 & Co.



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



Janie Shaw, ASA, EA, MAAA
Consultant and Actuary



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SECTION 1

EXHIBIT 1

Schedule of the Employers' Net Pension Liability – SPRS Plan
(\$ in thousands)

Fiscal Year Ending June 30,	Total Pension Liability	Plan Fiduciary Net Position	Employers' Net Pension Liability (Asset)	Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	Covered Employee Payroll ¹	Net Pension Liability as a Percentage of Covered Employee Payroll
(1)	(2)	(3)	(4) = (2) - (3)	(5) = (3) / (2)	(6)	(7) = (4) / (6)
2022	\$ 1,057,752	\$ 551,699	\$ 506,053	52.16%	\$ 48,061	1,052.94%
2021	1,055,824	356,346	699,478	33.75%	47,873	1,461.11%
2020	1,049,237	293,949	755,288	28.02%	49,019	1,540.81%
2019	1,035,000	286,165	748,835	27.65%	49,515	1,512.34%
2018	969,622	267,572	702,050	27.60%	50,346	1,394.45%
2017	943,271	255,737	687,534	27.11%	54,065	1,271.68%
2016	795,421	218,012	577,409	27.41%	46,685	1,236.82%
2015	734,156	247,228	486,928	33.68%	45,765	1,063.97%
2014	681,118	260,974	420,144	38.32%	44,616	941.69%

Note:

¹ Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later.



EXHIBIT 2

Schedule of the Employers' Net Pension Liability – SPRS Plan (\$ in thousands)

Change in the Net Pension Liability	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability									
Service Cost	\$ 12,158	\$ 12,530	\$ 13,192	\$ 11,726	\$ 11,890	\$ 8,297	\$ 8,402	\$ 7,695	\$ 7,142
Interest	53,740	53,417	52,697	49,301	47,978	51,769	52,951	50,661	50,391
Benefit Changes	3,130	35	0	0	184	0	0	0	0
Difference between actual and expected experience	(2,700)	4,127	10,859	20,952	25,126	8,143	0	9,331	0
Assumption Changes	0	0	0	44,510	0	136,602	56,191	40,201	0
Benefit Payments	(64,400)	(63,522)	(62,511)	(61,111)	(58,827)	(56,960)	(56,279)	(54,850)	(53,239)
Net Change in Total Pension Liability	\$ 1,928	\$ 6,587	\$ 14,237	\$ 65,378	\$ 26,351	\$ 147,850	\$ 61,265	\$ 53,038	\$ 4,294
Total Pension Liability - Beginning	\$ 1,055,824	\$ 1,049,237	\$ 1,035,000	\$ 969,622	\$ 943,271	\$ 795,421	\$ 734,156	\$ 681,118	\$ 676,824
Total Pension Liability - Ending (a)	\$ 1,057,752	\$ 1,055,824	\$ 1,049,237	\$ 1,035,000	\$ 969,622	\$ 943,271	\$ 795,421	\$ 734,156	\$ 681,118
Plan Fiduciary Net Position¹									
Contributions - Employer	\$ 277,341	\$ 59,650	\$ 59,453	\$ 60,048	\$ 46,877	\$ 63,239	\$ 25,822	\$ 31,990	\$ 20,279
Contributions - Member ²	4,773	4,752	4,767	5,062	5,522	5,348	5,263	5,244	5,075
Refunds of contributions to members	(280)	(273)	(88)	(162)	(22)	(26)	(11)	(85)	(213)
Retirement benefits	(64,120)	(63,249)	(62,423)	(60,949)	(58,805)	(56,934)	(56,268)	(54,765)	(53,026)
Net Investment Income ²	(22,088)	61,729	6,341	14,816	18,437	26,795	(3,843)	3,426	40,374
Administrative Expense	(273)	(212)	(266)	(225)	(194)	(181)	(178)	(201)	(215)
Other	0	0	0	3 ⁵	21 ⁵	(517) ⁴	0	645	0
Net Change in Plan Fiduciary Net Position	\$ 195,353	\$ 62,397	\$ 7,784	\$ 18,593	\$ 11,836	\$ 37,724	\$ (29,215)	\$ (13,746)	\$ 12,274
Plan Fiduciary Net Position - Beginning	\$ 356,346	\$ 293,949	\$ 286,165	\$ 267,572	\$ 255,737	\$ 218,012	\$ 247,228	\$ 260,974	\$ 248,700
Prior Year Adjustment	0	0	0	0	(1)	0	0	0	0
Plan Fiduciary Net Position - Ending (b)	\$ 551,699	\$ 356,346	\$ 293,949	\$ 286,165	\$ 267,572	\$ 255,737	\$ 218,012	\$ 247,228	\$ 260,974
Net Pension Liability - Ending (a) - (b)	\$ 506,053	\$ 699,478	\$ 755,288	\$ 748,835	\$ 702,050	\$ 687,534	\$ 577,409	\$ 486,928	\$ 420,144
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	52.16%	33.75%	28.02%	27.65%	27.60%	27.11%	27.41%	33.68%	38.32%
Covered Employee Payroll³	\$ 48,061	\$ 47,873	\$ 49,019	\$ 49,515	\$ 50,346	\$ 54,065	\$ 46,685	\$ 45,765	\$ 44,616
Net Pension Liability as a Percentage of Covered Employee Payroll	1052.94%	1461.11%	1540.81%	1512.34%	1394.45%	1271.68%	1236.82%	1063.97%	941.69%

Notes:

¹ Does not include 401(h) assets for fiscal years 2017 and later. Assets totaled \$1,227,000 as of June 30, 2022

² Does not include 401(h) contributions or associated investment income for fiscal years 2017 and later
For fiscal year 2022, 401(h) contributions equaled -\$26,000; and associated investment return equaled -\$61,000

³ Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later

⁴ Adjustment due to 401(h) plan asset balance being considered an OPEB asset under GASB 74 for fiscal years 2017 and later

⁵ Northern Trust Settlement



EXHIBIT 3**Schedule of Employers' Contributions – SPRS Plan**
(\$ in thousands)

Fiscal Year Ending	Actuarially Determined Contribution ¹	Total Employer Contributions	Contribution Deficiency (Excess)	Covered Employee Payroll ²	Actual Contributions as a Percentage of Covered Payroll
2022	\$ 62,341	\$ 277,341	\$ (215,000)	\$ 48,061	577.06%
2021	59,263	59,650	(387)	47,873	124.60%
2020	58,358	59,453	(1,095)	49,019	121.29%
2019	58,948	60,048	(1,100)	49,515	121.27%
2018	36,033	46,877	(10,844)	50,346	93.11%
2017	35,937	63,240	(27,303)	54,065	116.97%
2016	25,723	25,822	(99)	46,685	55.31%
2015	31,444	31,990	(546)	45,765	69.90%
2014	25,808	20,279	5,529	44,616	45.45%
2013	23,117	18,501	4,616	45,256	40.88%

Notes:

¹ Actuarially determined contribution for fiscal year ending 2022 is based on the contribution rate calculated with the June 30, 2020 actuarial valuation.

² Based on derived compensation using the provided employer contribution information for fiscal years 2017 and later.



Notes to Schedule of Employers' Contributions for FYE 2022

The actuarially determined contribution effective for fiscal year ending 2022 that is documented in the schedule on the previous page was calculated as of June 30, 2020. Based on the June 30, 2020 actuarial valuation report, the actuarial methods and assumptions used to calculate these contribution rates are below:

Item	SPRS Plan
Determined by the Actuarial Valuation as of:	June 30, 2020
Actuarial Cost Method:	Entry Age Normal
Asset Valuation Method:	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized
Amortization Method:	Level Percent of Pay
Amortization Period:	30-year closed period at June 30, 2019 <i>Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases</i>
Payroll Growth Rate	0.00%
Investment Return:	5.25%
Inflation:	2.30%
Salary Increases:	3.55% to 16.05%, varies by service
Mortality:	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019

EXHIBIT 4

Sensitivity of the Net Pension Liability to Changes in the Discount Rate
(\$ in thousands)

1.00% Decrease (4.25%)	Current Discount Rate (5.25%)	1.00% Increase (6.25%)
\$ 642,237	\$ 506,053	\$ 395,014



October 7, 2022

Board of Trustees
Kentucky Public Pensions Authority
Perimeter Park West
1260 Louisville Road
Frankfort, KY 40601

Re: GASB No. 74 Reporting – Actuarial Information

Dear Members of the Board:

The reports provided herein contain certain information for the County Employees Retirement System (CERS) non-hazardous insurance plan and hazardous insurance plan; the Kentucky Employees Retirement System (KERS) non-hazardous insurance plan and hazardous insurance plan; and the State Police Retirement System (SPRS) insurance plan in connection with the Governmental Accounting Standards Board (GASB) Statement No. 74, "Financial Reporting for Postemployment Benefit Plans Other than Pension Plans" for the fiscal year ending June 30, 2022. Separate reports will be provided at a later date with additional accounting information determined in accordance with GASB Statement No. 75, "Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions".

Basis of Calculations

The liability calculations presented in the reports were performed for the purpose of satisfying the requirements of GASB No. 74 and are not applicable for other purposes, such as determining the plan's funding requirements. The plan's liability for other purposes may produce significantly different results.

The total OPEB liability, net OPEB liability, and sensitivity information are based on an actuarial valuation date of June 30, 2021. The total OPEB liability was rolled-forward from the valuation date to the plan's fiscal year ending June 30, 2022 using generally accepted actuarial principles.

Assumptions

The discount rates used to calculate the total OPEB liability increased for each fund since the prior year (see further discussion on the calculation of the single discount rates later in this letter). There were no other material assumption changes and it is our opinion that these procedures are reasonable and appropriate, and comply with applicable requirements under GASB No. 74.

Board of Trustees
October 7, 2022
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Plan Provisions

Senate Bill 209 passed during the 2022 legislative session and increased the insurance dollar contribution for members hired on or after July 1, 2003 by \$5 for each year of service a member attains over certain thresholds, depending on a member's retirement eligibility requirement. This increase in the insurance dollar contribution does not increase by 1.5% annually and is only payable for non-Medicare retirees. Additionally, it is only payable when the member's applicable insurance fund is at least 90% funded. The increase is first payable January 1, 2023.

To model the financial impact of the requirement for the funds to be 90% funded, we have assumed the increase in the insurance dollar contribution is payable in all calendar years for the KERS hazardous plan, the CERS plans, and the SPRS plan, as they were above or approaching 90% funded as of the June 30, 2021 Actuarial Valuation. For the KERS non-hazardous insurance plan, we have assumed the increases begin in the year 2047, which is our best estimate of when the fund will begin approaching 90% funded.

Senate Bill 209 also allows members receiving the insurance dollar contribution to participate in a medical insurance reimbursement plan that would provide the reimbursement of premiums for health plans other than those administered by KPPA. In general, allowing members to receive reimbursement to participate in health plans other than those administered by KPPA would increase the utilization of the dollar benefit. The current election assumption for future members receiving the dollar insurance benefit is 100%, so there is no immediate change in the total OPEB liability for active members due to this benefit change. For current retirees and beneficiaries eligible for the dollar insurance benefit who have not yet elected coverage, we have assumed 50% would elect coverage under this benefit change.

The total OPEB liability as of June 30, 2022 is determined using these updated benefit provisions. There were no other plan provision changes that would materially impact the total OPEB liability and it is our opinion that these procedures are reasonable and appropriate, and comply with applicable requirements under GASB No. 74.

Implicit Employer Subsidy for Non-Medicare Retirees

The fully-insured premiums paid for the Kentucky Employees' Health Plan 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 employer subsidy for the non-Medicare eligible retirees. GASB No. 74 requires that the liability associated with this implicit subsidy be included in the calculation of the Total OPEB Liability.



Board of Trustees
October 7, 2022
Page 3

Single Discount Rate

The following single discount rates were used to measure the total OPEB liability for the fiscal year ending June 30, 2022.

KERS Non-Hazardous	5.72%
KERS Hazardous	5.59%
CERS Non-Hazardous	5.70%
CERS Hazardous	5.61%
SPRS	5.69%

The single discount rates are based on the expected rate of return on OPEB plan investments of 6.25% and a municipal bond rate of 3.69%, as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 30, 2022. Based on the stated assumptions and the projection of cash flows as of each fiscal year ending, the plan's fiduciary net position and future contributions were projected to be sufficient to finance the future benefit payments of the current plan members. Therefore, the long-term expected rate of return on insurance plan investments was applied to all periods of the projected benefit payments paid from the retirement system. However, the cost associated with the implicit employer subsidy is not currently being included in the calculation of the plan's actuarial determined contributions, and it is our understanding that any cost associated with the implicit subsidy will not be paid out of the plan's trust. Therefore, the municipal bond rate was applied to future expected benefit payments associated with the implicit subsidy.

The projection of cash flows used to determine the single discount rate must include an assumption regarding actual employer contributions made each future year. Future contributions are projected assuming that the entire actuarially determined employer contribution is received by each plan each future year, calculated in accordance with the current funding policy.

401(h) Subaccount

Based on guidance issued by GASB in connection with GASB Statement No. 74, the 1% of pay member contributions for Tier 2 and Tier 3 members to a 401(h) subaccount is considered an OPEB asset. As a result, the reported fiduciary net position includes these 401(h) assets. Additionally, these member contributions and associated investment income and administrative expenses are included in the reconciliation of the fiduciary net position.

Additional Disclosures

This information is based upon information, furnished to us by the Kentucky Public Pensions Authority (KPPA), which includes benefit provisions, membership information, and financial data. We did not audit this data and information, but we did apply a number of tests and concluded that it was reasonable and consistent. GRS is not responsible for the accuracy or completeness of the information provided by KPPA. Please see the "Actuarial Valuation Report as of June 30, 2021" for additional discussion of the nature of the actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions. These reports should be considered together as a complete report for fiscal year ending June 30, 2022.



Board of Trustees

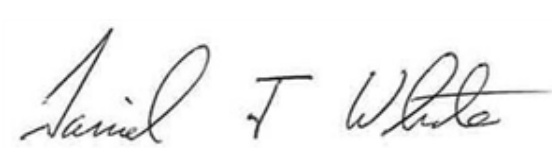
October 7, 2022

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To the best of our knowledge, this report is complete and accurate and is in accordance with generally recognized actuarial practices and methods. Both of the undersigned are Enrolled Actuaries, members of the American Academy of Actuaries and meet all of the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. In addition, both 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 and Actuary



Jamie Shaw, ASA, EA, MAAA
Consultant and Actuary



Kentucky Employees Retirement System

GASB No. 74 Accounting Valuation Report
As of June 30, 2022





October 7, 2022

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

Re: GASB No. 74 Reporting – Actuarial Information – Kentucky Employees Retirement System

Dear Members of the Board:

This report provided herein contains certain information for the **Kentucky Employees Retirement System (KERS)** in connection with the Governmental Accounting Standards Board (GASB) Statement No. 74, “Financial Reporting for Postemployment Benefit Plans Other than Pension Plans” for the fiscal year ending June 30, 2022. A separate report will be provided at a later date with additional accounting information determined in accordance with GASB Statement No. 75, “Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions”.

The liability calculations presented in this report were performed for the purpose of satisfying the requirements of GASB No. 74 and are not applicable for other purposes, such as determining the plan’s funding requirements. The plan’s liability for other purposes may produce significantly different results. This report may be provided to parties other than the Board of Trustees of the Kentucky Retirement Systems only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The total OPEB liability, net OPEB liability, and sensitivity information shown in this report are based on an actuarial valuation date of June 30, 2021. The total OPEB liability was rolled-forward from the valuation date to the plan’s fiscal year ending June 30, 2022, using generally accepted actuarial principles. GASB No. 74 requires the disclosure of a 10-year history of certain information in the Required Supplementary Information within the annual financial report. The exhibits provided in this report include the applicable information for historical years that were calculated in accordance with this accounting standard. Information disclosed for years prior to June 30, 2017 were prepared by the prior actuary.

Actuarial Assumptions

The discount rate used to calculate the total OPEB liability increased from 5.26% to 5.72% for the non-hazardous plan and from 5.01% to 5.59% for the hazardous plan (see further discussion on the calculation of the single discount rate later in this letter). There were no other material assumption changes and it is our opinion that these procedures are reasonable and appropriate, and comply with applicable requirements under GASB No. 74.

Board of Trustees
October 7, 2022
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Plan Provisions

Senate Bill 209 passed during the 2022 legislative session and increased the insurance dollar contribution for members hired on or after July 1, 2003 by \$5 for each year of service a member attains over certain thresholds, depending on a member's retirement eligibility requirement. This increase in the insurance dollar contribution does not increase by 1.5% annually and is only payable for non-Medicare retirees. Additionally, it is only payable when the member's applicable insurance fund is at least 90% funded. The increase is first payable January 1, 2023.

To model the financial impact of the requirement for the funds to be 90% funded, we have assumed the increase in the insurance dollar contribution is payable in all calendar years for the KERS hazardous plan, as it was above 90% funded as of the June 30, 2021 Actuarial Valuation. For the KERS non-hazardous insurance plan, we have assumed the increases begin in the year 2047, which is our best estimate of when the fund will begin approaching 90% funded.

Senate Bill 209 also allows members receiving the insurance dollar contribution to participate in a medical insurance reimbursement plan that would provide the reimbursement of premiums for health plans other than those administered by KPPA. In general, allowing members to receive reimbursement to participate in health plans other than those administered by KPPA would increase the utilization of the dollar benefit. The current election assumption for future members receiving the dollar insurance benefit is 100%, so there is no immediate change in the total OPEB liability for active members due to this benefit change. For current retirees and beneficiaries eligible for the dollar insurance benefit who have not yet elected coverage, we have assumed 50% would elect coverage under this benefit change.

The total OPEB liability as of June 30, 2022 is determined using these updated benefit provisions. There were no other plan provision changes that would materially impact the total OPEB liability and it is our opinion that these procedures are reasonable and appropriate, and comply with applicable requirements under GASB No. 74.

Implicit Employer Subsidy for Non-Medicare Retirees

The fully-insured premiums paid for the Kentucky Employees' Health Plan 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 employer subsidy for the non-Medicare eligible retirees. GASB No. 74 requires that the liability associated with this implicit subsidy be included in the calculation of the Total OPEB Liability.

Single Discount Rate

Single discount rates of 5.72% for the non-hazardous plan and 5.59% for the hazardous plan were used to measure the total OPEB liability for the fiscal year ending June 30, 2022. They are based on the expected rate of return on OPEB plan investments of 6.25% and a municipal bond rate of 3.69%, as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 30, 2022.



Board of Trustees
October 7, 2022
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Based on the stated assumptions and the projection of cash flows as of each fiscal year ending, the plan's fiduciary net position and future contributions were projected to be sufficient to finance the future benefit payments of the current plan members. Therefore, the long-term expected rate of return on insurance plan investments was applied to all periods of the projected benefit payments paid from the retirement system. However, the cost associated with the implicit employer subsidy is not currently being included in the calculation of the plan's actuarial determined contributions, and it is our understanding that any cost associated with the implicit subsidy will not be paid out of the plan's trust. Therefore, the municipal bond rate was applied to future expected benefit payments associated with the implicit subsidy.

The projection of cash flows used to determine the single discount rate must include an assumption regarding actual employer contributions made each future year. Future contributions are projected assuming that the entire actuarially determined employer contribution is received by each plan each future year, calculated in accordance with the current funding policy.

401(h) Subaccount

Based on guidance issued by GASB in connection with GASB Statement No. 74, the 1% of pay member contributions for Tier 2 and Tier 3 members to a 401(h) subaccount is considered an OPEB asset. As a result, the reported fiduciary net position includes these 401(h) assets. Additionally, these member contributions and associated investment income and administrative expenses are included in the reconciliation of the fiduciary net position.

Additional Disclosures

This report is based upon information, furnished to us by the Kentucky Public Pensions Authority (KPPA), which includes benefit provisions, membership information, and financial data. We did not audit this data and information, but we did apply a number of tests and concluded that it was reasonable and consistent. GRS is not responsible for the accuracy or completeness of the information provided by KPPA. Please see the "Actuarial Valuation Report as of June 30, 2021" for additional discussion of the nature of the actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions. These reports should be considered together as a complete report for the fiscal year ending June 30, 2022.



Board of Trustees

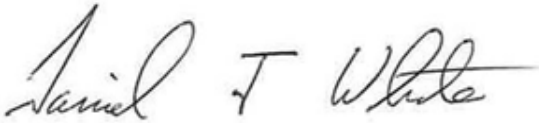
October 7, 2022

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To the best of our knowledge, this report is complete and accurate and is in accordance with generally recognized actuarial practices and methods. Both of the undersigned are Enrolled Actuaries, members of the American Academy of Actuaries and meet all of the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. In addition, both 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 and Actuary



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SECTION 1

EXHIBIT 1a

Schedule of the Employers' Net OPEB Liability – KERS Non-Hazardous Plan
(\$ in thousands)

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Employee Payroll ¹	Net OPEB Liability as a Percentage of Covered Employee Payroll
(1)	(2)	(3)	(4) = (2) - (3)	(5) = (3) / (2)	(6)	(7) = (4) / (6)
2022	\$ 3,576,530	\$ 1,364,419	\$ 2,212,111	38.15%	\$ 1,437,132	153.93%
2021	3,698,804	1,419,477	2,279,327	38.38%	1,452,345	156.94%
2020	3,599,557	1,060,649	2,538,908	29.47%	1,482,431	171.27%
2019	3,217,985	995,089	2,222,896	30.92%	1,515,953	146.63%
2018	3,262,117	891,205	2,370,912	27.32%	1,573,898	150.64%
2017	3,353,332	817,370	2,535,962	24.37%	1,593,097	159.18%

Note:

¹ Based on derived compensation using the provided employer contribution information.

EXHIBIT 1b

Schedule of the Employers' Net OPEB Liability – KERS Hazardous Plan
(\$ in thousands)

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Employee Payroll ¹	Net OPEB Liability as a Percentage of Covered Employee Payroll
(1)	(2)	(3)	(4) = (2) - (3)	(5) = (3) / (2)	(6)	(7) = (4) / (6)
2022	\$ 595,789	\$ 588,162	\$ 7,627	98.72%	\$ 188,648	4.04%
2021	622,152	633,677	(11,525)	101.85%	172,725	-6.67%
2020	564,524	521,755	42,769	92.42%	182,209	23.47%
2019	507,204	534,053	(26,849)	105.29%	151,448	-17.73%
2018	485,904	519,072	(33,168)	106.83%	190,317	-17.43%
2017	494,869	488,838	6,031	98.78%	171,087	3.53%

Note:

¹ Based on derived compensation using the provided employer contribution information. For 2021 and 2022, derived compensation based on pension contribution information, as there were no required employer contributions for the insurance fund for FYE2021 and FYE2022.



EXHIBIT 2**Development of Single Discount Rate**

	<u>KERS Non-Hazardous</u>	<u>KERS Hazardous</u>
Single Discount Rate	5.72%	5.59%
Long-Term Expected Rate of Return	6.25%	6.25%
Long-Term Municipal Bond Rate ¹	3.69%	3.69%

Notes:

¹ Fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 30, 2022.



EXHIBIT 3a**Schedule of the Employers' Net OPEB Liability – KERS Non-Hazardous Plan**
(\$ in thousands)

Change in the Net OPEB Liability	2022	2021	2020	2019	2018	2017
Total OPEB liability						
Service Cost	\$ 62,548	\$ 58,831	\$ 59,600	\$ 61,345	\$ 66,360	\$ 46,992
Interest on the total OPEB liability	190,531	191,624	179,811	186,820	191,178	192,911
Benefit Changes	21,884	1,382	0	0	1,865	0
Difference between actual and expected experience	(37,249)	(231,631)	288,235	(302,189)	(191,147)	(3,921)
Assumption Changes	(206,907)	220,184	13,767	158,004	(11,235)	414,835
Benefit Payments ^{1,2}	(153,081)	(141,143)	(159,841)	(148,112)	(148,236)	(139,601)
Net Change in Total OPEB Liability	(122,274)	99,247	381,572	(44,132)	(91,215)	511,216
Total OPEB Liability - Beginning	\$ 3,698,804	\$ 3,599,557	\$ 3,217,985	\$ 3,262,117	\$ 3,353,332	\$ 2,842,116
Total OPEB Liability - Ending (a)	\$ 3,576,530	\$ 3,698,804	\$ 3,599,557	\$ 3,217,985	\$ 3,262,117	\$ 3,353,332
Plan Fiduciary Net Position						
Contributions - Employer ²	\$ 181,294 ⁵	\$ 223,661 ⁵	\$ 208,300	\$ 201,155	\$ 152,985	\$ 162,636
Contributions - Member	6,547	6,318	6,128	5,963	5,786	5,156
Benefit Payments ^{1,2}	(153,081)	(141,143)	(159,841)	(148,112)	(148,236)	(139,601)
OPEB Plan Net Investment Income	(88,998)	270,811	11,820	45,749	64,028	94,239
OPEB Plan Administrative Expense	(820)	(819)	(847)	(875)	(760)	(861)
Other	0	0	0	4 ⁴	32 ⁴	0
Net Change in Plan Fiduciary Net Position	(55,058)	358,828	65,560	103,884	73,835	121,569
Plan Fiduciary Net Position - Beginning	\$ 1,419,477	\$ 1,060,649	\$ 995,089	\$ 891,205	\$ 817,370	\$ 695,801
Plan Fiduciary Net Position - Ending (b)	\$ 1,364,419	\$ 1,419,477	\$ 1,060,649	\$ 995,089	\$ 891,205	\$ 817,370
Net OPEB Liability - Ending (a) - (b)	2,212,111	2,279,327	2,538,908	2,222,896	2,370,912	2,535,962
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	38.15%	38.38%	29.47%	30.92%	27.32%	24.37%
Covered Employee Payroll³	\$ 1,437,132	\$ 1,452,345	\$ 1,482,431	\$ 1,515,953	\$ 1,573,898	\$ 1,593,097
Net OPEB Liability as a Percentage of Covered Employee Payroll	153.93%	156.94%	171.27%	146.63%	150.64%	159.18%

Notes:

¹ Benefit payments are offset by insurance premiums received from retirees, Medicare Drug Reimbursements, and Humana Gain Share Payments (in applicable years).² Employer contributions and benefit payments include expected benefits due to the implicit subsidy for members under age 65, equal to \$40,600,669 for fiscal year 2022.³ Based on derived compensation using the provided employer contribution information.⁴ Northern Trust Settlement⁵ Includes \$2.4 million and \$28.4 million employer cessation contribution for fiscal year 2022 and 2021, respectively

EXHIBIT 3b**Schedule of the Employers' Net OPEB Liability – KERS Hazardous Plan**
(\$ in thousands)

Change in the Net OPEB Liability	2022	2021	2020	2019	2018	2017
Total OPEB liability						
Service Cost	\$ 14,474	\$ 13,633	\$ 11,548	\$ 12,337	\$ 12,893	\$ 8,002
Interest on the total OPEB liability	30,599	29,254	28,101	27,990	28,500	27,591
Benefit Changes	10,289	48	0	0	167	0
Difference between actual and expected experience	(12,515)	(6,402)	27,668	(30,947)	(31,240)	(1,029)
Assumption Changes	(46,406)	42,022	11,428	31,687	(581)	89,401
Benefit Payments ^{1,2}	(22,804)	(20,927)	(21,425)	(19,767)	(18,704)	(16,618)
Net Change in Total OPEB Liability	(26,363)	57,628	57,320	21,300	(8,965)	107,347
Total OPEB Liability - Beginning	\$ 622,152	\$ 564,524	\$ 507,204	\$ 485,904	\$ 494,869	\$ 387,522
Total OPEB Liability - Ending (a)	\$ 595,789	\$ 622,152	\$ 564,524	\$ 507,204	\$ 485,904	\$ 494,869
Plan Fiduciary Net Position						
Contributions - Employer ²	\$ 4,116	\$ 3,556	\$ 7,441	\$ 5,556	\$ 5,165	\$ 4,579
Contributions - Member	1,227	1,167	1,105	934	909	811
Benefit Payments ^{1,2}	(22,804)	(20,927)	(21,425)	(19,767)	(18,704)	(16,618)
OPEB Plan Net Investment Income	(27,929)	128,244	704	28,373	42,950	59,614
OPEB Plan Administrative Expense	(125)	(118)	(123)	(117)	(104)	(105)
Other	0	0	0	2 ⁴	18 ⁴	0
Net Change in Plan Fiduciary Net Position	(45,515)	111,922	(12,298)	14,981	30,234	48,281
Plan Fiduciary Net Position - Beginning	\$ 633,677	\$ 521,755	\$ 534,053	\$ 519,072	\$ 488,838	\$ 440,557
Plan Fiduciary Net Position - Ending (b)	\$ 588,162	\$ 633,677	\$ 521,755	\$ 534,053	\$ 519,072	\$ 488,838
Net OPEB Liability - Ending (a) - (b)	7,627	(11,525)	42,769	(26,849)	(33,168)	6,031
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	98.72%	101.85%	92.42%	105.29%	106.83%	98.78%
Covered Employee Payroll³	\$ 188,648	\$ 172,725	\$ 182,209	\$ 151,448	\$ 190,317	\$ 171,087
Net OPEB Liability as a Percentage of Covered Employee Payroll	4.04%	-6.67%	23.47%	-17.73%	-17.43%	3.53%

Notes:

¹ Benefit payments are offset by insurance premiums received from retirees, Medicare Drug Reimbursements, and Humana Gain Share Payments (in applicable years).² Employer contributions and benefit payments include expected benefits due to the implicit subsidy for members under age 65, equal to \$2,835,815 for fiscal year 2022.³ Based on derived compensation using the provided employer contribution information. For 2021 and 2022, derived compensation based on pension contribution information, as there were no required employer contributions for the insurance fund for FYE2021 and FYE2022.⁴ Northern Trust Settlement

EXHIBIT 4a**Schedule of Employers' Contributions – KERS Non-Hazardous Plan**
(\$ in thousands)

Fiscal Year Ending ¹	Actuarially Determined Contribution ²	Total Employer Contributions ³	Contribution Deficiency (Excess)	Covered Employee Payroll ⁴	Actual Contributions as a Percentage of Covered Payroll
2022	\$ 135,809	\$ 140,694	\$ (4,885)	\$ 1,437,132	9.79%
2021	161,936	186,676	(24,740)	1,452,345	12.85%
2020	183,821	175,006	8,815	1,482,431	11.81%
2019	187,978	178,964	9,014	1,515,953	11.81%
2018	132,365	136,419	(4,054)	1,573,898	8.67%
2017	133,024	152,356	(19,332)	1,593,097	9.56%
2016	121,899	135,816	(13,917)	1,529,249	8.88%
2015	130,455	135,940	(5,485)	1,544,234	8.80%
2014	208,881	166,610	42,271	1,577,496	10.56%
2013	286,143	165,331	120,812	1,644,409	10.05%

Notes:

¹ Data for years prior to 2018 is based on contribution data provided in the 2017 ACFR, based on calculations provided by the prior actuary.

² Actuarially determined contribution for fiscal year ending 2022 is based on the contribution rate calculated with the June 30, 2020 actuarial valuation, as amended by HB8 (2021 legislative session) which adjusted how the employer contribution would be allocated amongst participating employers.

³ Employer contributions do not include the expected implicit subsidy included in exhibit 3.

⁴ Based on derived compensation using the provided employer contribution information.



EXHIBIT 4b**Schedule of Employers' Contributions – KERS Hazardous Plan**
(\$ in thousands)

Fiscal Year Ending ¹	Actuarially Determined Contribution ²	Total Employer Contributions ³	Contribution Deficiency (Excess)	Covered Employee Payroll ⁴	Actual Contributions as a Percentage of Covered Payroll
2022	\$ 0	\$ 1,281	\$ (1,281)	\$ 188,648	0.68%
2021	0	1,300	(1,300)	172,725	0.75%
2020	4,482	5,776	(1,294)	182,209	3.17%
2019	3,726	4,970	(1,244)	151,448	3.28%
2018	2,550	5,288	(2,738)	190,317	2.78%
2017	4,688	5,620	(932)	171,087	3.28%
2016	9,186	16,766	(7,580)	147,563	11.36%
2015	13,152	14,882	(1,730)	128,680	11.57%
2014	15,627	23,874	(8,247)	129,076	18.50%
2013	26,253	25,682	571	132,015	19.45%

Notes:

¹ Data for years prior to 2018 is based on contribution data provided in the 2017 ACFR, based on calculations provided by the prior actuary.

² Actuarially determined contribution for fiscal year ending 2022 is based on the contribution rate calculated with the June 30, 2020 actuarial valuation.

³ Employer contributions do not include the expected implicit subsidy included in exhibit 3.

⁴ Based on derived compensation using the provided employer contribution information. For 2021 and 2022, derived compensation based on pension contribution information, as there were no required employer contributions for the insurance fund for FYE2021 and FYE2022.



Notes to Schedule of Employers' Contributions for FYE 2022

The actuarially determined contributions effective for fiscal year ending 2022 that are documented in the schedule on the previous pages were calculated as of June 30, 2020. Based on the June 30, 2020 actuarial valuation report, the actuarial methods and assumptions used to calculate these contributions are below:

Item	KERS Non-Hazardous	KERS Hazardous
Determine by the Actuarial Valuation as of:	June 30, 2020	June 30, 2020
Actuarial Cost Method:	Entry Age Normal	Entry Age Normal
Asset Valuation Method:	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized
Amortization Method:	Level Percent of Pay	Level Percent of Pay
Amortization Period:	30-year closed period at June 30, 2019 <i>Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases</i>	30-year closed period at June 30, 2019 <i>Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases</i>
Payroll Growth Rate:	0.00%	0.00%
Investment Return:	6.25%	6.25%
Inflation:	2.30%	2.30%
Salary Increases:	3.30% to 15.30%, varies by service	3.55% to 20.05%, varies by service
Mortality:	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019.	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019.
Healthcare Trend Rates:		
Pre-65	Initial trend starting at 6.40% at January 1, 2022, gradually decreasing to an ultimate trend rate of 4.05% over a period of 14 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement.	Initial trend starting at 6.40% at January 1, 2022, gradually decreasing to an ultimate trend rate of 4.05% over a period of 14 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement.
Post-65	Initial trend starting at 6.30% at January 1, 2023 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 13 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement. Additionally, Humana provided "Not to Exceed" 2022 Medicare premiums, which were incorporated and resulted in an assumed 2.90% increase in Medicare premiums at January 1, 2022.	Initial trend starting at 6.30% at January 1, 2023 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 13 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement. Additionally, Humana provided "Not to Exceed" 2022 Medicare premiums, which were incorporated and resulted in an assumed 2.90% increase in Medicare premiums at January 1, 2022.



EXHIBIT 5a

Sensitivity of the Net OPEB Liability to Changes in the Discount Rate and Healthcare Trend Rate
KERS Non-Hazardous Plan
(\$ in thousands)

Table 1. Sensitivity of the Net OPEB Liability to Changes in the Discount Rate

1.00% Decrease, 4.72%	Current Discount Rate, 5.72%	1.00% Increase, 6.72%
\$ 2,648,282	\$ 2,212,111	\$ 1,810,717

Table 2. Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rate

1.00% Decrease	Current Healthcare Cost Trend Rate	1.00% Increase
\$ 1,818,723	\$ 2,212,111	\$ 2,634,576

EXHIBIT 5b

Sensitivity of the Net OPEB Liability to Changes in the Discount Rate and Healthcare Trend Rate
KERS Hazardous Plan
(\$ in thousands)

Table 1. Sensitivity of the Net OPEB Liability to Changes in the Discount Rate

1.00% Decrease, 4.59%	Current Discount Rate, 5.59%	1.00% Increase, 6.59%
\$ 91,455	\$ 7,627	\$ (60,421)

Table 2. Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rate

1.00% Decrease	Current Healthcare Cost Trend Rate	1.00% Increase
\$ (53,939)	\$ 7,627	\$ 82,395



APPENDIX 1

Appendix 1

Development of Baseline Claims Cost

Due to the impact of the COVID-19 pandemic on claims experience for calendar years 2020 and 2021, the initial per capita costs were developed using retiree claims experience for calendar year 2019 for non-Medicare retirees. The claims were projected on an incurred claim basis, adjusted for prescription drug rebates, and loaded for administrative expense. The per capita costs shown in the table below also include HRA contributions for retirees on the CDHP plans. 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 fully-insured premiums paid to the Kentucky Employees' Health Plan 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 employer subsidy for the non-Medicare eligible retirees.

For Medicare retirees, the initial per capita costs were estimated based on the plan premiums effective January 1, 2022, 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 by this valuation. 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.

FOR THOSE NOT ELIGIBLE FOR MEDICARE		
AGE	MALE	FEMALE
40	\$394.59	\$641.19
50	639.64	787.97
60	1,087.09	1,070.41
64	1,321.93	1,247.54

FOR THOSE ELIGIBLE FOR MEDICARE		
AGE	MALE	FEMALE
65	\$188.91	\$178.18
75	221.03	215.67
85	233.72	236.47

Mehdi Riazi and Blake Orth are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.



Mehdi Riazi, FSA, EA, MAAA



Blake Orth, FSA, EA, MAAA



State Police Retirement System

GASB No. 74 Accounting Valuation Report

As of June 30, 2022

DRAFT





October 7, 2022

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

Re: GASB No. 74 Reporting – Actuarial Information – State Police Retirement System

Dear Members of the Board:

This report provided herein contains certain information for the **State Police Retirement System (SPRS)** in connection with the Governmental Accounting Standards Board (GASB) Statement No. 74, "Financial Reporting for Postemployment Benefit Plans Other than Pension Plans" for the fiscal year ending June 30, 2022. A separate report will be provided at a later date with additional accounting information determined in accordance with GASB Statement No. 75, "Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions".

The liability calculations presented in this report were performed for the purpose of satisfying the requirements of GASB No. 74 and are not applicable for other purposes, such as determining the plan's funding requirements. The plan's liability for other purposes may produce significantly different results. This report may be provided to parties other than the Board of Trustees of the Kentucky Retirement Systems only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The total OPEB liability, net OPEB liability, and sensitivity information shown in this report are based on an actuarial valuation date of June 30, 2021. The total OPEB liability was rolled-forward from the valuation date to the plan's fiscal year ending June 30, 2022, using generally accepted actuarial principles. GASB No. 74 requires the disclosure of a 10-year history of certain information in the Required Supplementary Information within the annual financial report. The exhibits provided in this report include the applicable information for historical years that were calculated in accordance with this accounting standard. Information disclosed for years prior to June 30, 2017 were prepared by the prior actuary.

Actuarial Assumptions

The discount rate used to calculate the total OPEB liability increased from 5.20% to 5.69% (see further discussion on the calculation of the single discount rate later in this letter). There were no other material assumption changes and it is our opinion that these procedures are reasonable and appropriate, and comply with applicable requirements under GASB No. 74.

Board of Trustees
October 7, 2022
Page 2

Plan Provisions

Senate Bill 209 passed during the 2022 legislative session and increased the insurance dollar contribution for members hired on or after July 1, 2003 by \$5 for each year of service a member attains over certain thresholds, depending on a member's retirement eligibility requirement. This increase in the insurance dollar contribution does not increase by 1.5% annually and is only payable for non-Medicare retirees. Additionally, it is only payable when the member's applicable insurance fund is at least 90% funded. The increase is first payable January 1, 2023.

To model the financial impact of the requirement for the funds to be 90% funded, we have assumed the increase in the insurance dollar contribution is payable in all calendar years. The SPRS insurance plan is approaching 90% funded as of the June 30, 2021 Actuarial Valuation, and it is likely it could be 90% funded within a year or two given the inherent volatility in the valuation of OPEB plans.

Senate Bill 209 also allows members receiving the insurance dollar contribution to participate in a medical insurance reimbursement plan that would provide the reimbursement of premiums for health plans other than those administered by KPPA. In general, allowing members to receive reimbursement to participate in health plans other than those administered by KPPA would increase the utilization of the dollar benefit. The current election assumption for future members receiving the dollar insurance benefit is 100%, so there is no immediate change in the total OPEB liability for active members due to this benefit change. For current retirees and beneficiaries eligible for the dollar insurance benefit who have not yet elected coverage, we have assumed 50% would elect coverage under this benefit change.

The total OPEB liability as of June 30, 2022 is determined using these updated benefit provisions. There were no other plan provision changes that would materially impact the total OPEB liability and it is our opinion that these procedures are reasonable and appropriate, and comply with applicable requirements under GASB No. 74.

Implicit Employer Subsidy for Non-Medicare Retirees

The fully-insured premiums paid for the Kentucky Employees' Health Plan 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 employer subsidy for the non-Medicare eligible retirees. GASB No. 74 requires that the liability associated with this implicit subsidy be included in the calculation of the Total OPEB Liability.

Single Discount Rate

A single discount rate of 5.69% was used to measure the total OPEB liability for the fiscal year ending June 30, 2022. It is based on the expected rate of return on OPEB plan investments of 6.25% and a municipal bond rate of 3.69%, as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 30, 2022.



Board of Trustees
October 7, 2022
Page 3

Based on the stated assumptions and the projection of cash flows as of each fiscal year ending, the plan's fiduciary net position and future contributions were projected to be sufficient to finance the future benefit payments of the current plan members. Therefore, the long-term expected rate of return on insurance plan investments was applied to all periods of the projected benefit payments paid from the retirement system. However, the cost associated with the implicit employer subsidy is not currently being included in the calculation of the plan's actuarial determined contributions, and it is our understanding that any cost associated with the implicit subsidy will not be paid out of the plan's trust. Therefore, the municipal bond rate was applied to future expected benefit payments associated with the implicit subsidy.

The projection of cash flows used to determine the single discount rate must include an assumption regarding actual employer contributions made each future year. Future contributions are projected assuming that the entire actuarially determined employer contribution is received by each plan each future year, calculated in accordance with the current funding policy.

401(h) Subaccount

Based on guidance issued by GASB in connection with GASB Statement No. 74, the 1% of pay member contributions for Tier 2 and Tier 3 members to a 401(h) subaccount is considered an OPEB asset. As a result, the reported fiduciary net position includes these 401(h) assets. Additionally, these member contributions and associated investment income and administrative expenses are included in the reconciliation of the fiduciary net position.

Additional Disclosures

This report is based upon information, furnished to us by the Kentucky Public Pensions Authority (KPPA), which includes benefit provisions, membership information, and financial data. We did not audit this data and information, but we did apply a number of tests and concluded that it was reasonable and consistent. GRS is not responsible for the accuracy or completeness of the information provided by KPPA. Please see the "Actuarial Valuation Report as of June 30, 2021" for additional discussion of the nature of the actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions. These reports should be considered together as a complete report for the fiscal year ending June 30, 2022.



Board of Trustees

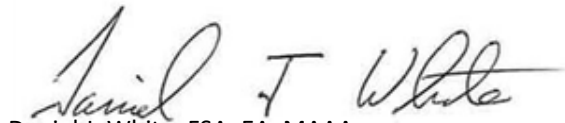
October 7, 2022

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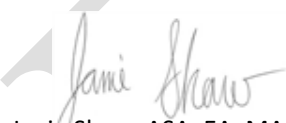
To the best of our knowledge, this report is complete and accurate and is in accordance with generally recognized actuarial practices and methods. Both of the undersigned are Enrolled Actuaries, members of the American Academy of Actuaries and meet all of the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. In addition, both 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 & Co.



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



Janie Shaw, ASA, EA, MAAA
Consultant and Actuary



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SECTION 1

EXHIBIT 1

Schedule of the Employers' Net OPEB Liability
(\$ in thousands)

Year		Total OPEB Liability		Plan Fiduciary Net Position		Net OPEB Liability/(Asset)		Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability		Covered Employee Payroll ¹		Net OPEB Liability as a Percentage of Covered Employee Payroll
(1)		(2)		(3)		(4) = (2) - (3)		(5) = (3) / (2)		(6)		(7) = (4) / (6)
2022	\$	351,453	\$	231,242	\$	120,211		65.80%		\$ 48,600		247.35%
2021		364,899		247,318		117,581		67.78%		47,155		249.35%
2020		339,942		201,340		138,602		59.23%		48,231		287.37%
2019		312,553		201,206		111,347		64.38%		48,780		228.26%
2018		301,012		190,847		110,165		63.40%		50,064		220.05%
2017		313,234		178,838		134,396		57.09%		48,873		274.99%

Note:

¹ Based on derived compensation using the provided employer contribution information.

EXHIBIT 2**Development of Single Discount Rate**

	<u>SPRS</u>
Single Discount Rate	5.69%
Long-Term Expected Rate of Return	6.25%
Long-Term Municipal Bond Rate ¹	3.69%

Notes:

¹ Fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 30, 2022.



EXHIBIT 3**Schedule of the Employers' Net OPEB Liability**
(\$ in thousands)

Change in the Net OPEB Liability	2022	2021	2020	2019	2018	2017
Total OPEB liability						
Service Cost	\$ 5,605	\$ 5,218	\$ 5,389	\$ 4,816	\$ 6,087	\$ 4,147
Interest on the total OPEB liability	18,592	17,984	17,600	17,724	18,432	17,993
Benefit Changes	4,975	101	0	0	34	0
Difference between actual and expected experience	(5,952)	(6,318)	13,810	(14,295)	(23,320)	(573)
Assumption Changes	(21,937)	21,784	4,578	16,483	(358)	57,312
Benefit Payments ^{1,2}	(14,729)	(13,812)	(13,988)	(13,187)	(13,097)	(12,123)
Net Change in Total OPEB Liability	(13,446)	24,957	27,389	11,541	(12,222)	66,756
Total OPEB Liability - Beginning	\$ 364,899	\$ 339,942	\$ 312,553	\$ 301,012	\$ 313,234	\$ 246,478
Total OPEB Liability - Ending (a)	\$ 351,453	\$ 364,899	\$ 339,942	\$ 312,553	\$ 301,012	\$ 313,234
Plan Fiduciary Net Position						
Contributions - Employer ²	\$ 9,343	\$ 9,381	\$ 12,873	\$ 12,623	\$ 8,535	\$ 7,862
Contributions - Member	230	209	196	176	155	131
Benefit Payments ^{1,2}	(14,729)	(13,812)	(13,988)	(13,187)	(13,097)	(12,123)
OPEB Plan Net Investment Income	(10,847)	50,289	1,124	10,815	16,470	21,627
OPEB Plan Administrative Expense	(73)	(89)	(71)	(69)	(62)	(66)
Other	0	0	0	1 ⁴	8 ⁴	0
Net Change in Plan Fiduciary Net Position	(16,076)	45,978	134	10,359	12,009	17,431
Plan Fiduciary Net Position - Beginning	\$ 247,318	\$ 201,340	\$ 201,206	\$ 190,847	\$ 178,838	\$ 161,407
Plan Fiduciary Net Position - Ending (b)	\$ 231,242	\$ 247,318	\$ 201,340	\$ 201,206	\$ 190,847	\$ 178,838
Net OPEB Liability - Ending (a) - (b)	120,211	117,581	138,602	111,347	110,165	134,396
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	65.80%	67.78%	59.23%	64.38%	63.40%	57.09%
Covered Employee Payroll³	\$ 48,600	\$ 47,155	\$ 48,231	\$ 48,780	\$ 50,064	\$ 48,873
Net OPEB Liability as a Percentage of Covered Employee Payroll	247.35%	249.35%	287.37%	228.26%	220.05%	274.99%

Notes:

¹ Benefit payments are offset by insurance premiums received from retirees, Medicare Drug Reimbursements, and Humana Gain Share Payments (in applicable years).² Employer contributions and benefit payments include expected benefits due to the implicit subsidy for members under age 65, equal to \$561,417 for fiscal year 2022.³ Based on derived compensation using the provided employer contribution information.⁴ Northern Trust Settlement

EXHIBIT 4**Schedule of Employers' Contributions**

(\$ in thousands)

Fiscal Year Ending¹	Actuarially Determined Contribution²	Total Employer Contributions³	Contribution Deficiency (Excess)	Covered Employee Payroll⁴	Actual Contributions as a Percentage of Covered Payroll
2022	\$ 8,782	\$ 8,782	\$ 0	\$ 48,600	18.07%
2021	9,285	9,285	0	47,155	19.69%
2020	13,133	13,133	0	48,231	27.23%
2019	13,283	13,288	(5)	48,780	27.24%
2018	9,062	9,397	(335)	50,064	18.77%
2017	9,222	9,222	0	48,873	18.87%
2016	8,553	10,237	(1,684)	45,551	22.47%
2015	9,890	10,382	(492)	45,765	22.69%
2014	20,879	14,493	6,386	44,616	32.48%
2013	27,234	16,829	10,405	45,256	37.19%

Notes:

¹ Data for years prior to 2018 is based on contribution data provided in the 2017 ACFR, based on calculations provided by the prior actuary.

² Actuarially determined contribution for fiscal year ending 2022 is based on the contribution rate calculated with the June 30, 2020 actuarial valuation.

³ Employer contributions do not include the expected implicit subsidy included in exhibit 3.

⁴ Based on derived compensation using the provided employer contribution information.



Notes to Schedule of Employers' Contributions for FYE 2022

The actuarially determined contribution effective for fiscal year ending 2022 that is documented in the schedule on the previous page was calculated as of June 30, 2020. Based on the June 30, 2020 actuarial valuation report, the actuarial methods and assumptions used to calculate the contribution are below:

Item	SPRS
Determine by the Actuarial Valuation as of:	June 30, 2020
Actuarial Cost Method:	Entry Age Normal
Asset Valuation Method:	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized
Amortization Method:	Level Percent of Pay
Amortization Period:	30-year closed period at June 30, 2019 <i>Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases</i>
Payroll Growth Rate:	0.00%
Investment Return:	6.25%
Inflation:	2.30%
Salary Increases:	3.55% to 16.30%, varies by service
Mortality:	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019.
Healthcare Trend Rates:	Initial trend starting at 6.40% at January 1, 2022, gradually decreasing to an ultimate trend rate of 4.05% over a period of 14 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement.
Pre-65	
Post-65	Initial trend starting at 6.30% at January 1, 2023 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 13 years. The 2021 premiums were known at the time of the valuation and were incorporated into the liability measurement. Additionally, Humana provided "Not to Exceed" 2022 Medicare premiums, which were incorporated and resulted in an assumed 2.90% increase in Medicare premiums at January 1, 2022.



EXHIBIT 5

Sensitivity of the Net OPEB Liability to Changes in the Discount Rate and Healthcare Trend Rate
(\$ in thousands)

Table 1. Sensitivity of the Net OPEB Liability to Changes in the Discount Rate

1.00% Decrease, 4.69%	Current Discount Rate, 5.69%	1.00% Increase, 6.69%
\$ 167,531	\$ 120,211	\$ 81,657

Table 2. Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rate

1.00% Decrease	Current Healthcare Cost Trend Rate	1.00% Increase
\$ 81,720	\$ 120,211	\$ 166,889



APPENDIX 1

Appendix 1

Development of Baseline Claims Cost

Due to the impact of the COVID-19 pandemic on claims experience for calendar years 2020 and 2021, the initial per capita costs were developed using retiree claims experience for calendar year 2019 for non-Medicare retirees. The claims were projected on an incurred claim basis, adjusted for prescription drug rebates, and loaded for administrative expense. The per capita costs shown in the table below also include HRA contributions for retirees on the CDHP plans. 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 fully-insured premiums paid to the Kentucky Employees' Health Plan 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 employer subsidy for the non-Medicare eligible retirees.

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Age graded and sex distinct premiums are utilized by this valuation. 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.

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Mehdi Riazi and Blake Orth are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.



Mehdi Riazi, FSA, EA, MAAA



Blake Orth, FSA, EA, MAAA



Kentucky Retirement Systems

Investment Review and Update

Quarter Ending: September 30, 2022

Asset Class Performance

Asset Class Returns - Best to Worst

2017	2018	2019	2020	2021	2022 YTD	Annualized 5-Year as of 9/22
Emrg Mrkts 37.7%	T-Bills 1.9%	U.S. Equity 31.0%	U.S. Equity 20.8%	REITs 46.2%	Commodities 13.6%	U.S. Equity 8.8%
Developed 25.6%	Core Bond 0.0%	REITs 25.8%	Emrg Mrkts 18.7%	Commodities 27.1%	T-Bills 0.4%	Commodities 7.0%
U.S. Equity 21.0%	U.S. TIPS -1.3%	Developed 22.7%	U.S. TIPS 11.0%	U.S. Equity 26.7%	U.S. TIPS -13.6%	REITs 2.9%
High Yield 7.5%	High Yield -2.1%	Emrg Mrkts 18.9%	Developed 8.3%	Developed 11.8%	Core Bond -14.6%	U.S. TIPS 2.0%
REITs 4.2%	REITs -4.8%	High Yield 14.3%	Core Bond 7.5%	U.S. TIPS 6.0%	High Yield -14.7%	High Yield 1.6%
Core Bond 3.6%	U.S. Equity -5.3%	Core Bond 8.7%	High Yield 7.1%	High Yield 5.3%	U.S. Equity -24.4%	T-Bills 1.1%
U.S. TIPS 3.0%	Commodities -11.2%	U.S. TIPS 8.4%	T-Bills 0.7%	T-Bills 0.0%	Developed -26.8%	Core Bond -0.3%
Commodities 1.7%	Developed -13.4%	Commodities 7.7%	Commodities -3.1%	Core Bond -1.5%	Emrg Mrkts -26.9%	Developed -0.4%
T-Bills 0.8%	Emrg Mrkts -14.2%	T-Bills 2.3%	REITs -7.9%	Emrg Mrkts -2.2%	REITs -29.7%	Emrg Mrkts -1.4%

Data Sources: Bloomberg

Note: Developed asset class is developed equity markets ex-U.S., ex-Canada

September
2022

KPPA MONTHLY PERFORMANCE UPDATE

KERS/KERS-H/SPRS

What's going on in the marketplace?

The quarter was defined by elevated volatility. Markets rallied to start the quarter in response to the Fed potentially slowing the pace of rate hikes as the expectation of falling inflation began to take hold. However, markets turned sharply negative in response to August inflation data that painted a very different picture. While some segments of the CPI revealed slowing inflation, like energy and materials, other areas, such as services, shelter, and food prices remained stubbornly elevated. This spurred hawkish comments from the Fed, who announced additional interest rate hikes while using the phrasing of “higher for longer” sending markets lower.

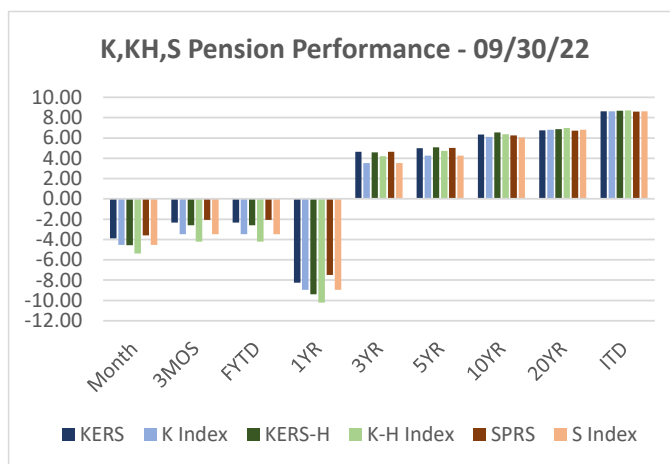
Rising rates in the U.S. are creating pressure on currency markets and ultimately on other economies around the world, many of whom are already weaker due to their own inflationary pressures. Foreign central banks are responding by raising rates to defend their currencies and attempt to curb elevated inflation in their home markets. These actions have led to greater concerns regarding economic growth.

The current environment of rising costs, erosion of savings, and tight labor markets point to a continued growth slowdown. Further rate hikes to combat inflation raise concerns about the inevitability of a recession. So far during 2022, there have been few places to hide. High quality, valuation, and traditionally defensive segments of the market have held up best. Growth segments such as communications, technology, consumer discretionary, and rate-sensitive real estate have been the most difficult portions of the market.

Looking forward, the market is likely to remain range bound as competing narratives emerge from one day to the next. Supply chain disruptions and moderating inflation versus inflation remaining elevated, the chance of a Fed pause versus continued tightening, low unemployment versus odds of a recession, etc. These are just a few of the issues likely to produce continued volatility. Ultimately, market direction is dependent on inflation and the Fed's reaction to it.

The KPPA Pension Trust portfolio fell -4.68% during the month of September, providing 92bps of downside protection versus a blended benchmark. The KRS Pension Composite produced a -3.97% return during the month. The KERS and SPRS Pension portfolios returned -3.89% and -3.58% respectively, while their benchmark returned -4.53%. The KERS-H Pension portfolio declined -4.55% versus its benchmark return of -5.37%. All three funds outperformed their respective benchmarks with similar drivers of attribution. KERS and KERS-H benefitted from strong selection in the Specialty Credit and Core Fixed Income asset classes. The underweight to both Real Return and Real Estate weighed on relative performance, but was partially offset by overweight cash positions. The SPRS plan experienced similar drivers; however, the significant cash position provided downside protection during a volatile month.

For the quarter, the KPPA Pension Trust portfolio fell -2.77%, outperforming the benchmark return of -4.41% while the KRS Pension Composite returned -2.34% during the quarter. The KERS and SPRS Pension portfolios returned -2.32% and -2.07%, against a benchmark return of -3.48%. The KERS-H Pension portfolio lost -2.60% while its benchmark fell -4.20%. All three funds outperformed due to similar attribution



drivers. Relative outperformance was driven by solid performance in the Core Fixed Income and Public Equities portfolio. The portfolios benefitted from their overweights to cash during a weak quarter.

Global equity markets experienced a significant sell-off during the month of September, as evidenced by the MSCI ACWI Index returning -9.57%. Domestic markets held up better than their Non-US market counterpart (R3000: -9.27% versus MSCI ACWI Ex-US: -10.14%). This brought the quarterly return for global markets to -6.82%, driven by weakness in the international markets, which have fallen -9.69%. US markets have now fallen -4.24% during the first quarter of the fiscal year.

US equity markets fell -9.27% during the month (Russell 3000), while the KPPA portfolio fared slightly better, returning -9.22%. All market segments were significantly weaker; with value continuing to hold up better than growth (R3000V: -8.86% versus R3000G: -9.68%).

For the quarter, US markets were down -4.46%, while the KPPA portfolio provided 22 bps of downside protection. During the quarter, small and midcaps held up much better than their large cap counterparts (R2000: -2.19% versus MC: -2.46% versus SP500: -4.88%). For the quarter, growth outperformed value (-3.37% versus -5.56%) driven by strong performance in July, prior to a sharp reversal in August spurred by inflation data. The KPPA portfolio's relative outperformance has been driven by its slight overweight down market cap, and positively skewing relative performance at the individual strategy level.

NonUS equity markets returned -10.14% (MSCI ACWI Ex-US) during the month. Developed markets returned -9.22% (MSCI World Ex-US) during the period while emerging markets fell -11.72% (MSCI EM). The KPPA portfolio lost -9.49% during the month, outperforming its benchmark by 65bps. Relative outperformance was driven by stock selection, as most individual mandates outperformed their respective benchmarks.

For the quarter, NonUS markets fell -9.69%. Developed markets held up better than their emerging market counterparts, which were significantly weaker, returning -11.57%. A significant portion (approaching half) of the negative performance can be attributed to the currency market, as the basket of global currencies have weakened dramatically versus the US dollar and hampered local performance.

The specialty credit portfolio outperformed its benchmark during the month, returning -0.59% versus -3.12%. The High Yield market declined (-3.97%) as spreads widened and rates rose in response to a continued risk-off sentiment. The leveraged loan segment of the market held up marginally better as the Morningstar LSTA Leveraged Loan Index fell -2.27% during the month. For the quarter, the portfolio significantly outperformed its benchmark, falling -0.45% versus -8.41%. Notably, the High Yield market has been significantly weaker, as that index fell -14.14%. The portfolio's strong relative outperformance was driven by across the board strength among individual mandates.

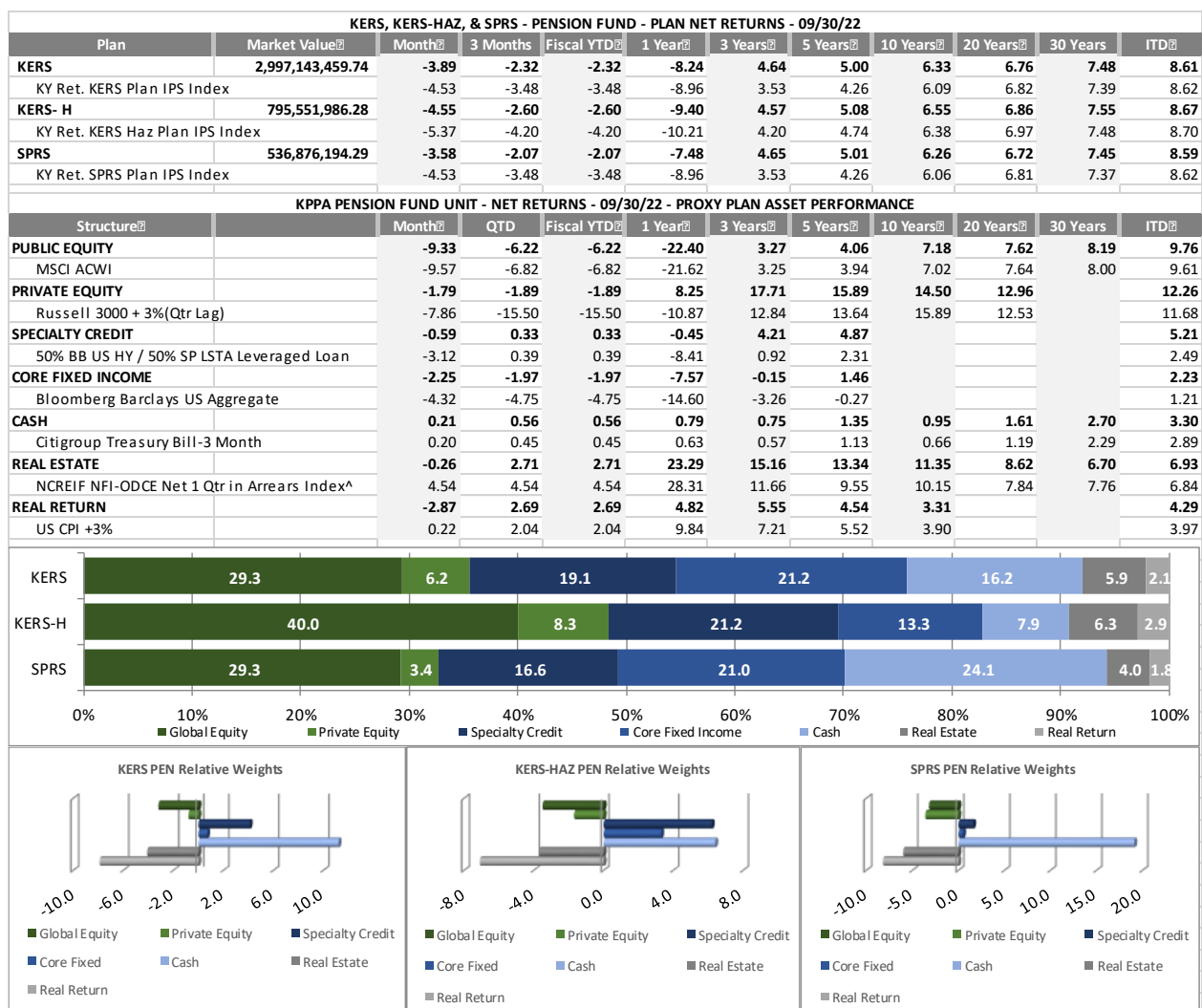
The core fixed income portfolio lost -2.25% compared to the Bloomberg Aggregate Index return of -4.32%. Relative outperformance was attributable to positioning within the allocation; the portfolios remain underweight overall duration given the outlook for rising rates and elevated volatility. Both shorter-term and intermediate credit market segments held up better. For the quarter, the portfolio returned -1.97% compared to the benchmark return of -4.75%. The month of September heavily influenced the quarter, which experienced a similar phenomenon where the shorter end of the curve performed better.

The private equity allocation fell -1.79% during the month, bringing the quarter return to -1.89%. Trailing public marks have begun to affect the overall performance of the portfolio. The 1-year return is still positive at 8.25%; however, that is down from just shy of 21% last month.

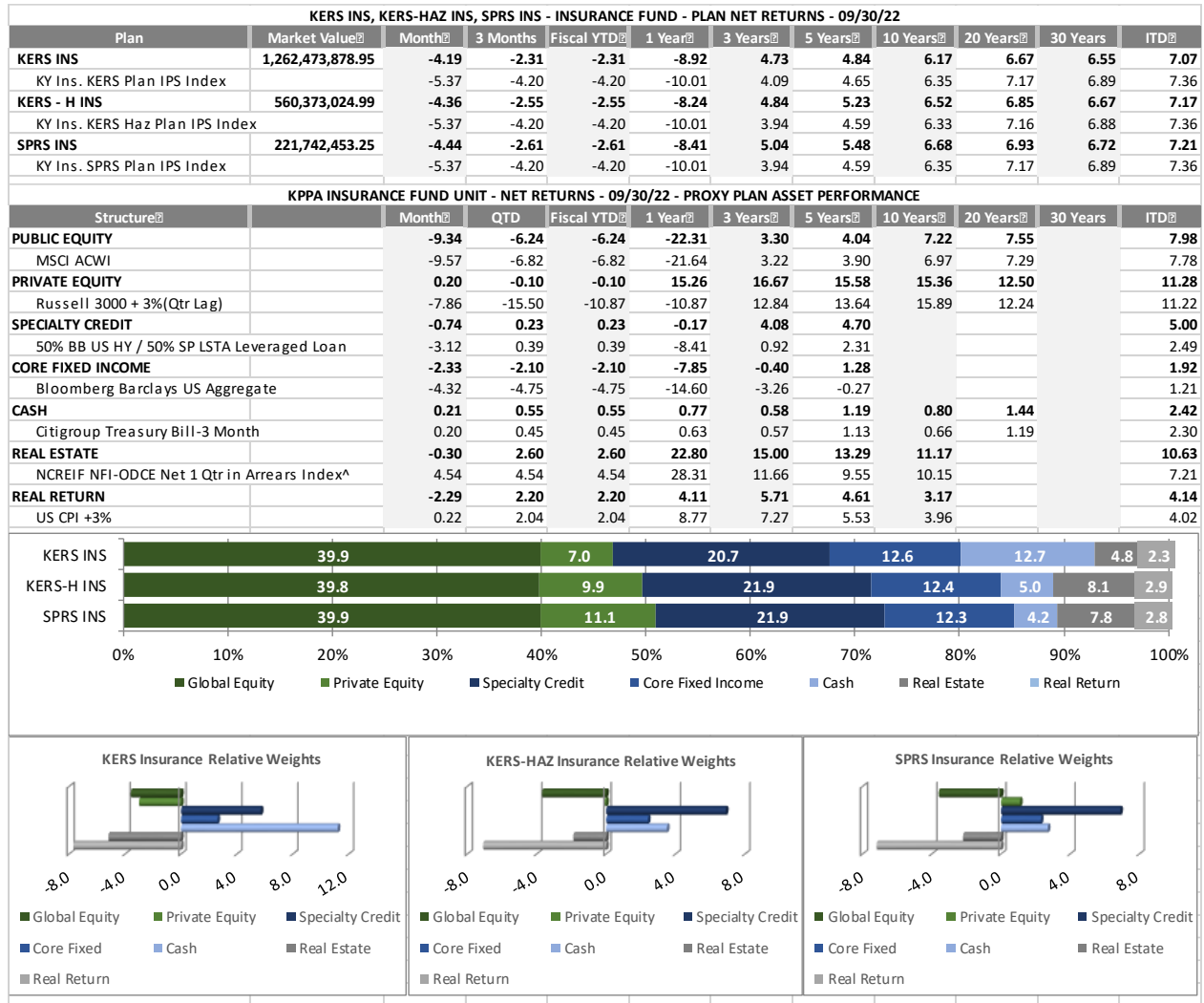
The **real return portfolio** fell -2.87% during the month, compared to its benchmark return of 0.22%. As with the past few months, performance was driven by the MLP portion of the portfolio; however, this month it was to the downside, as this portion of the portfolio was down -7.68%. For the quarter, the portfolio has returned 2.69%, bringing the 1-year return to 4.82%.

Real estate remained relatively flat during the month, falling 26bps. The latest quarter performance of 2.71% was lower than that of a year ago, thus the 1-year return fell to 23.29% versus in excess of 27% prior month. The portfolio has benefitted from recent strength in industrial, multi-family, student housing, and storage properties.

The **cash portfolio** performed in-line with its benchmark, with the 3-month T-bill returning 0.21% for the month. This brought the quarterly return to 0.56%, and the 1-year return to 0.79% (versus 0.63%).



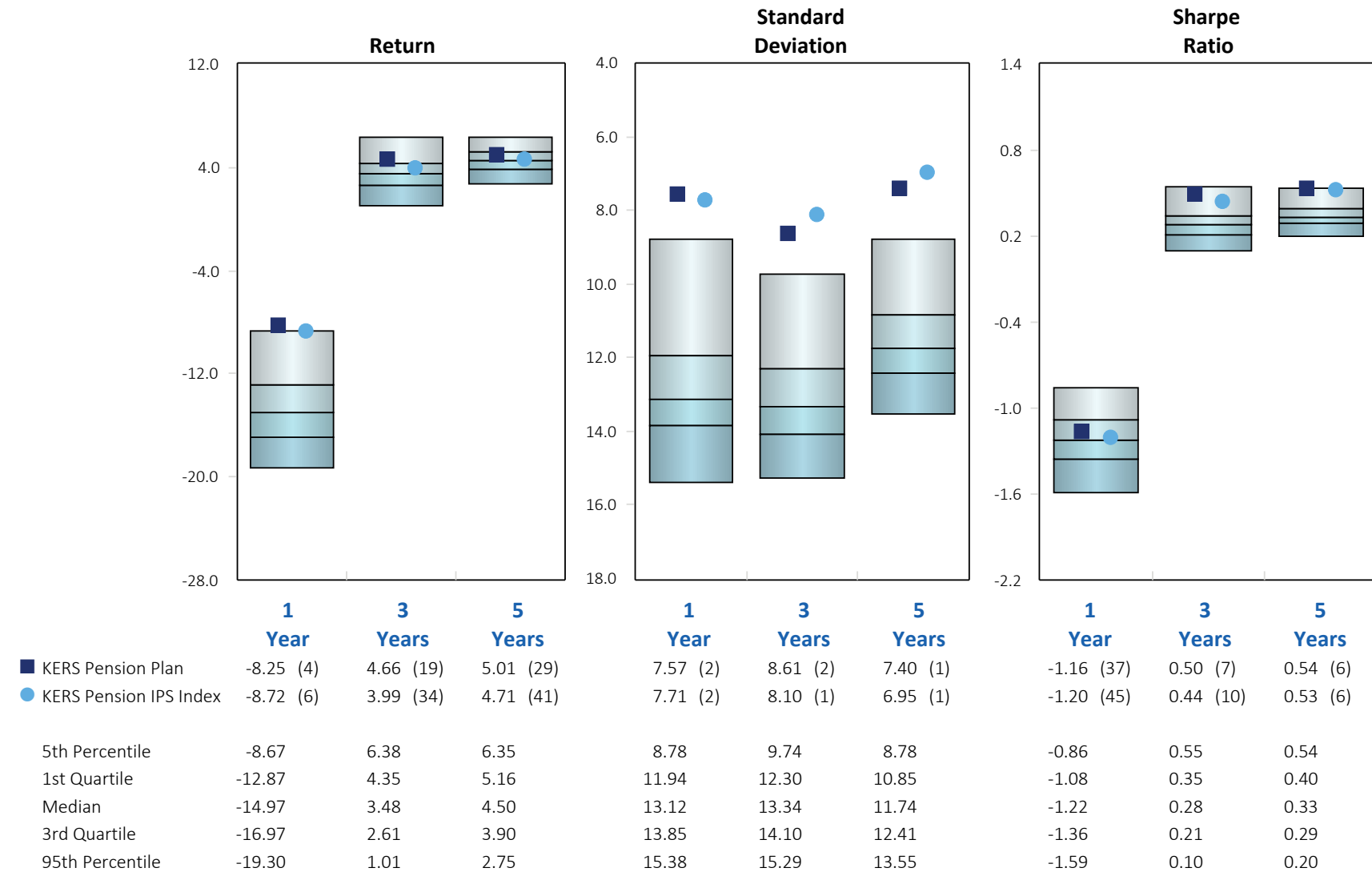
KRS Board Meeting - Quarterly Investment Performance Report



Plan Sponsor Peer Group Analysis - Multi Statistics

KERS Pension Plan vs All Public Plans-Total Fund

Periods Ended September 30, 2022

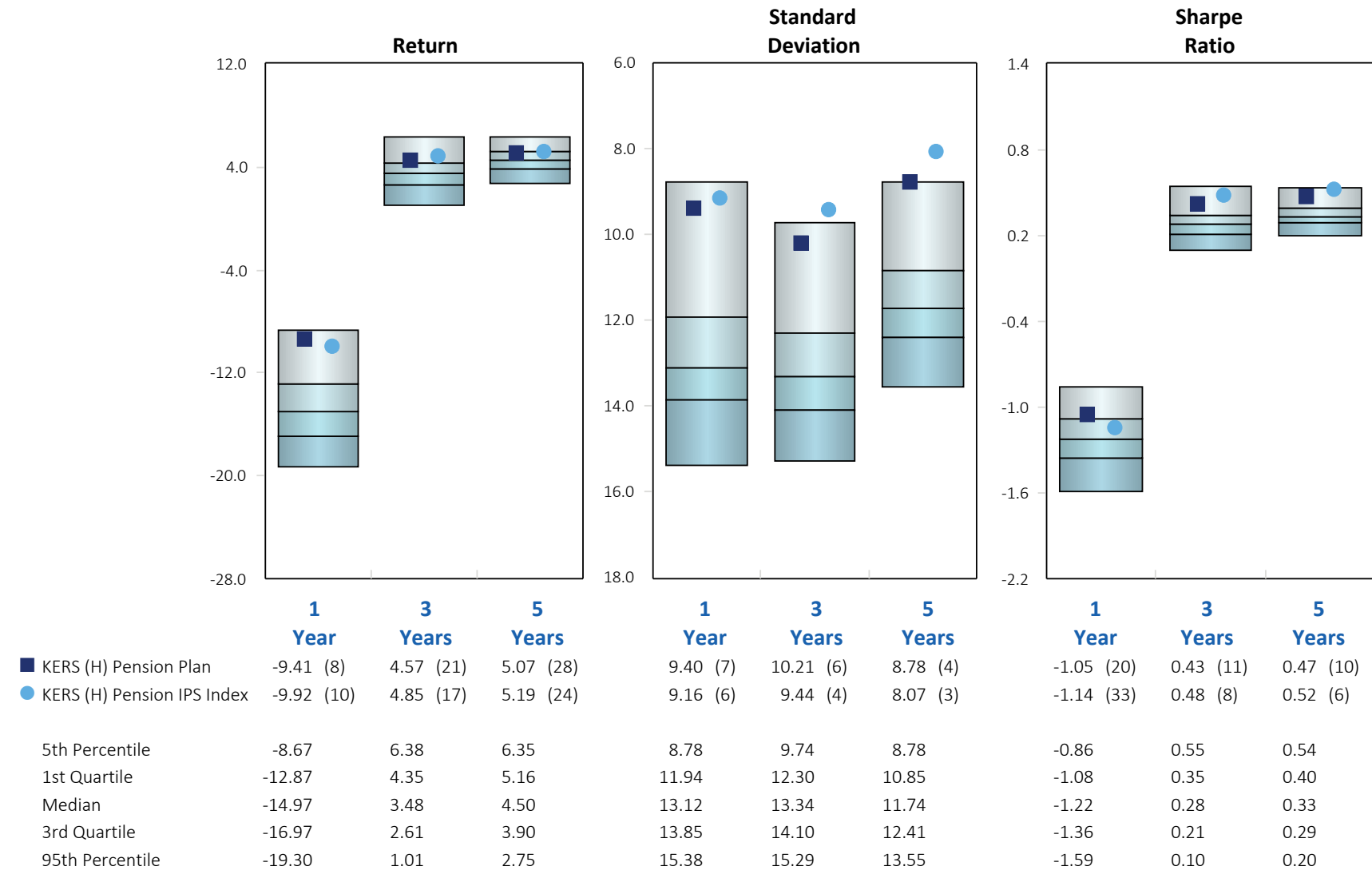


Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis - Multi Statistics

KERS (H) Pension Plan vs All Public Plans-Total Fund

Periods Ended September 30, 2022

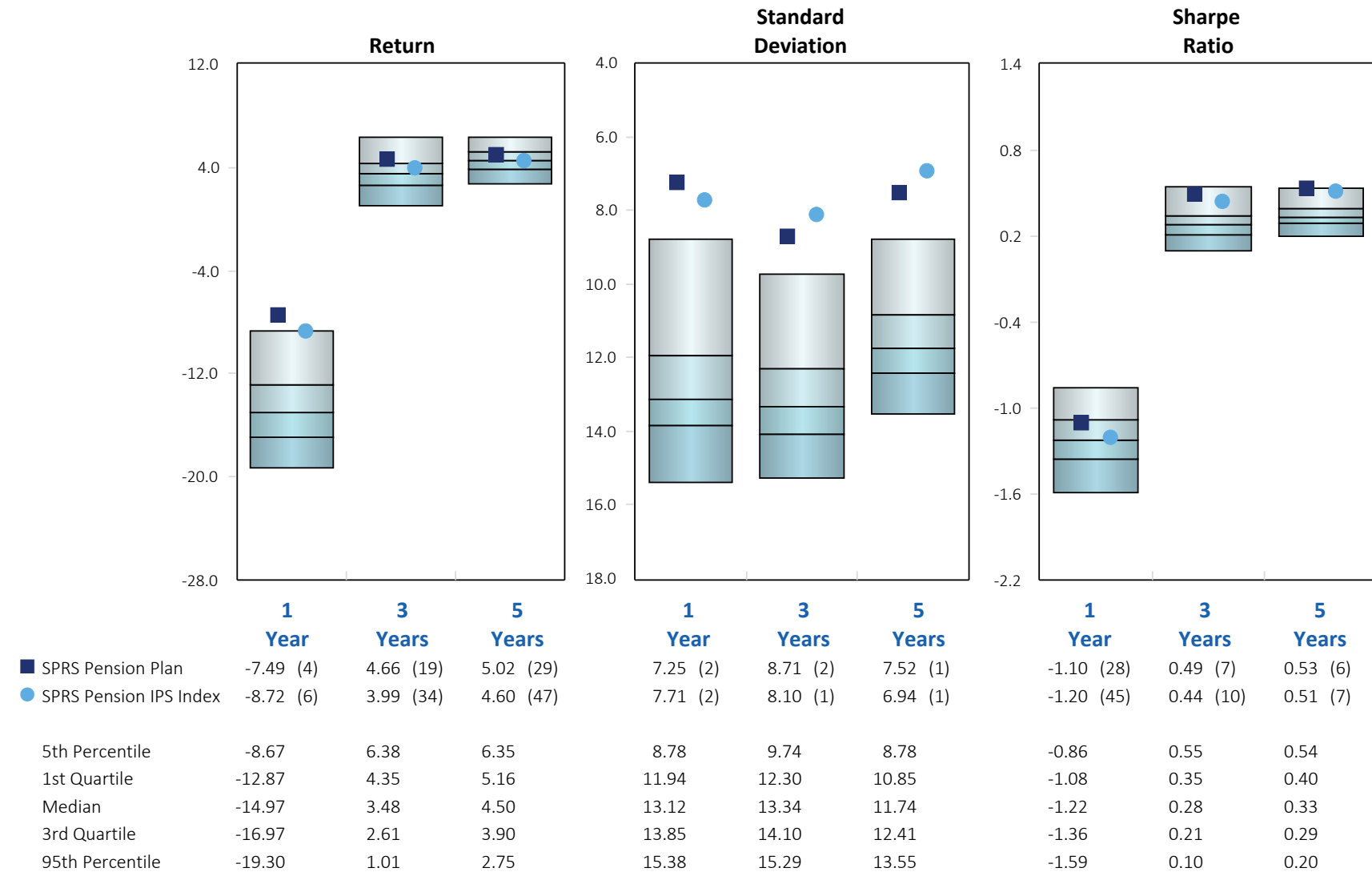


Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis - Multi Statistics

SPRS Pension Plan vs All Public Plans-Total Fund

Periods Ended September 30, 2022

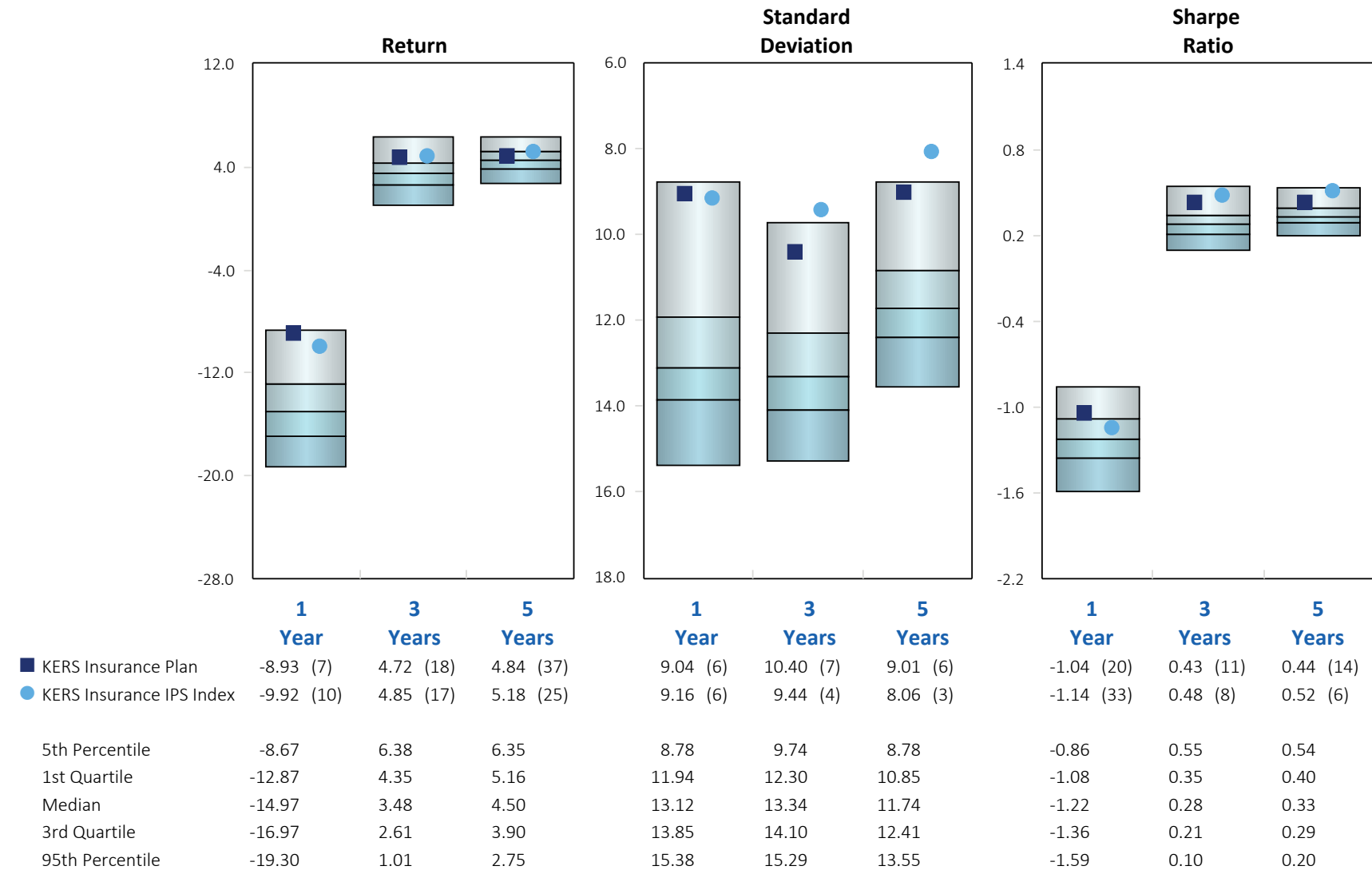


Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis - Multi Statistics

KERS Insurance Plan vs All Public Plans-Total Fund

Periods Ended September 30, 2022

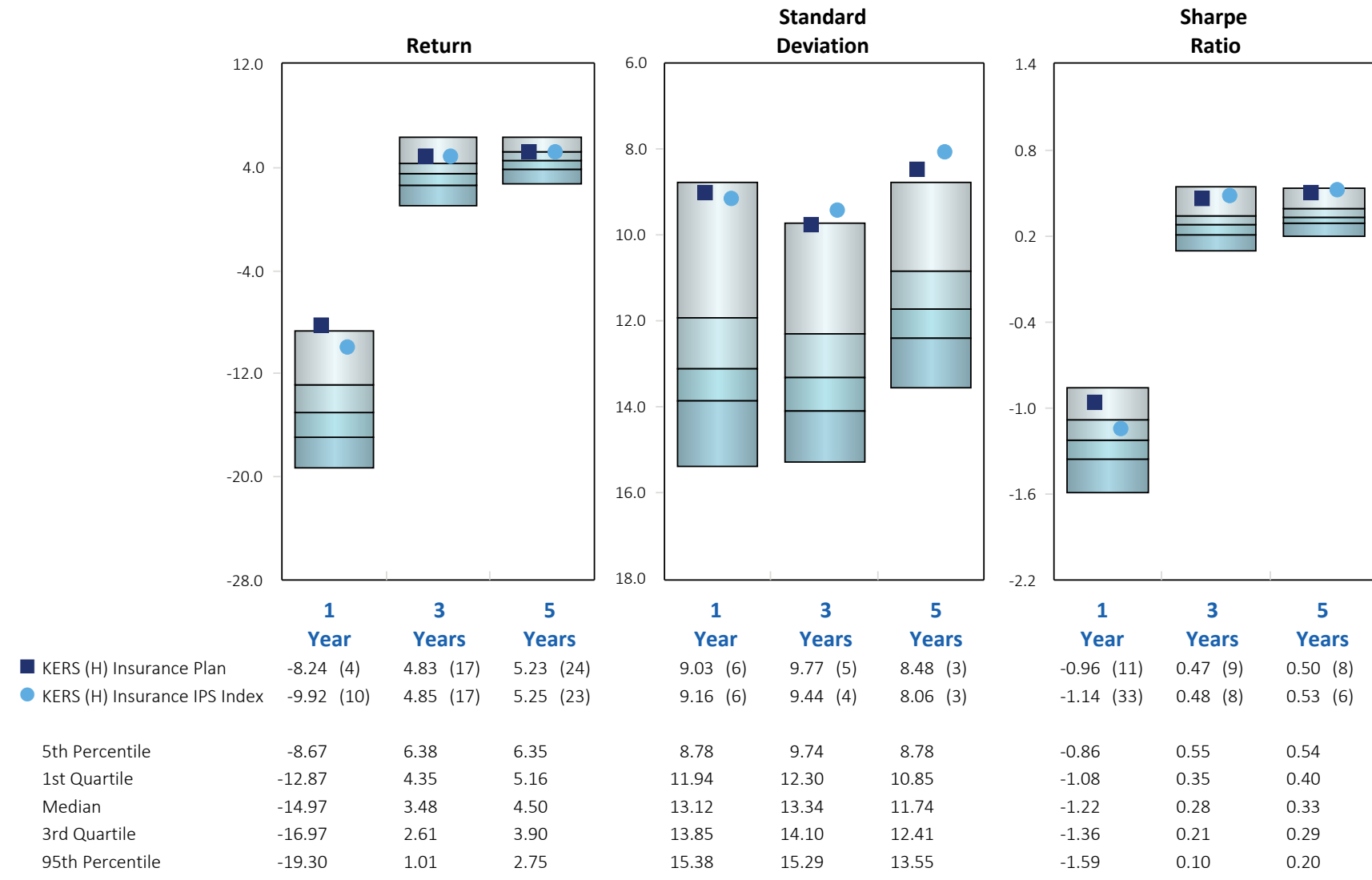


Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis - Multi Statistics

KERS (H) Insurance Plan vs All Public Plans-Total Fund

Periods Ended September 30, 2022

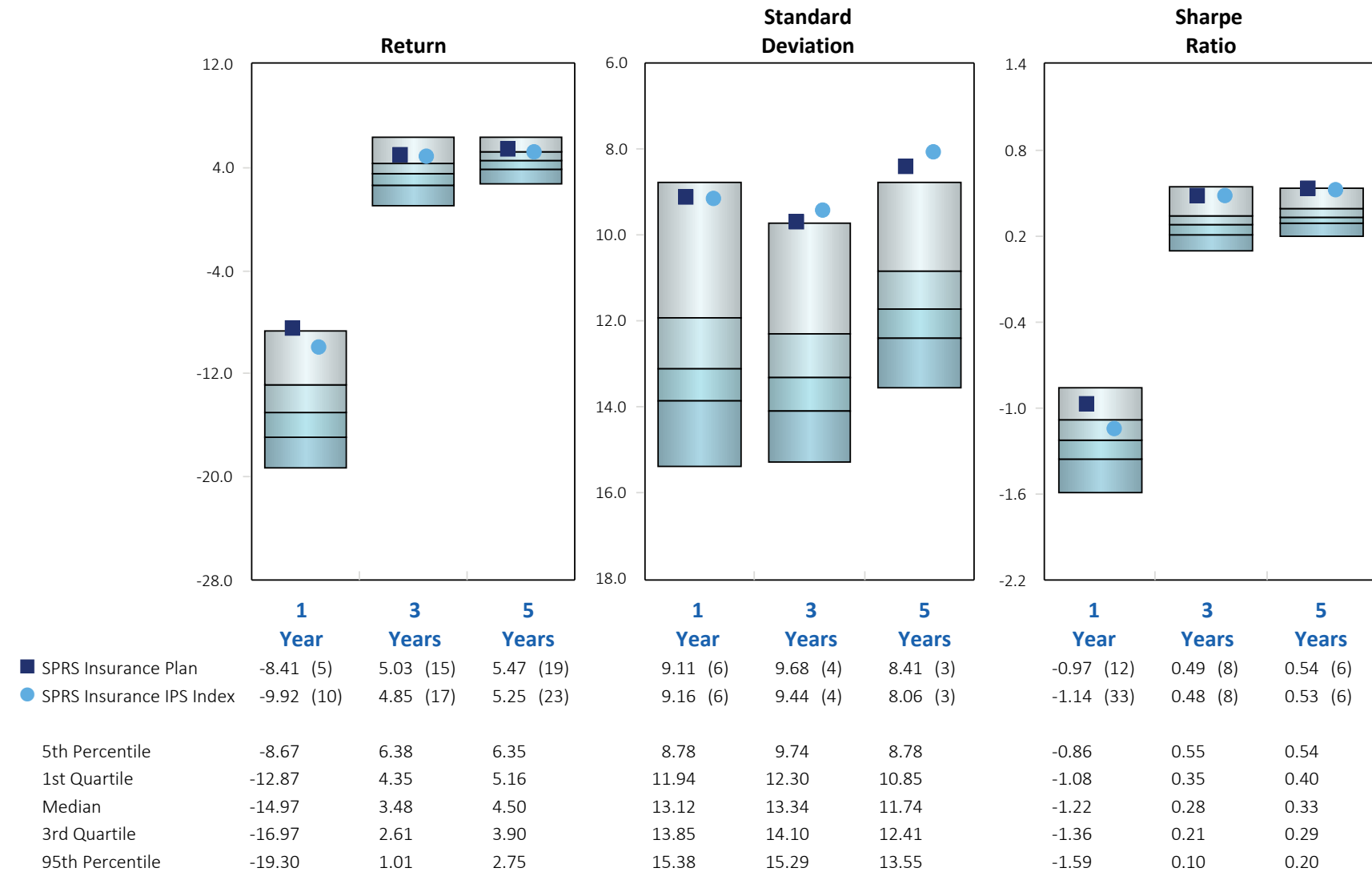


Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis - Multi Statistics

SPRS Insurance Plan vs All Public Plans-Total Fund

Periods Ended September 30, 2022



Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Asset Allocation & Performance

Total Fund

Periods Ended September 30, 2022

	Market Value \$	Performance (%) net of fees										
		QTD	YTD	FYTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	Since Inception	Inception Date
KERS Pension Plan	2,997,143,459	-2.32	-10.44	-2.32	-8.25	4.66	5.01	6.34	6.76	7.48	8.61	4/1/1984
KERS Pension IPS Index		-3.59	-11.29	-3.59	-8.72	3.99	4.71					
Value Added		1.27	0.85	1.27	0.47	0.67	0.30					
KERS Pension Attribution Index		-2.80	-11.75	-2.80	-9.09	3.89						
Value Added		0.48	1.31	0.48	0.84	0.77						
Assumed Rate 5.25%		1.29	3.91	1.29	5.25	5.25	5.25					
Value Added		-3.61	-14.35	-3.61	-13.50	-0.59	-0.24					
KERS Insurance Plan	1,262,473,877	-2.31	-11.90	-2.31	-8.93	4.72	4.84	6.17	6.67	6.55	7.07	4/1/1987
KERS Insurance IPS Index		-4.33	-12.99	-4.33	-9.92	4.85	5.18					
Value Added		2.02	1.09	2.02	0.99	-0.13	-0.34					
KERS Insurance Attribution Index		-2.26	-11.09	-2.26	-7.46	5.15						
Value Added		-0.05	-0.81	-0.05	-1.47	-0.43						
Assumed Rate 6.25%		1.53	4.65	1.53	6.25	6.25	6.25					
Value Added		-3.84	-16.55	-3.84	-15.18	-1.53	-1.41					
KERS (H) Pension Plan	795,551,986	-2.60	-12.31	-2.60	-9.41	4.57	5.07	6.54	6.86	7.55	8.67	4/1/1984
KERS (H) Pension IPS Index		-4.33	-12.99	-4.33	-9.92	4.85	5.19					
Value Added		1.73	0.68	1.73	0.51	-0.28	-0.12					
KERS (H) Pension Attribution Index		-2.81	-12.19	-2.81	-8.80	4.76						
Value Added		0.21	-0.12	0.21	-0.61	-0.19						
Assumed Rate 6.25%		1.53	4.65	1.53	6.25	6.25	6.25					
Value Added		-4.13	-16.96	-4.13	-15.66	-1.68	-1.18					

Asset Allocation & Performance

Total Fund

Periods Ended September 30, 2022

	Market Value \$	Performance (%) net of fees										
		QTD	YTD	FYTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	Since Inception	Inception Date
KERS (H) Insurance Plan	560,373,024	-2.55	-11.39	-2.55	-8.24	4.83	5.23	6.52	6.85	6.67	7.16	4/1/1987
KERS (H) Insurance IPS Index		-4.33	-12.99	-4.33	-9.92	4.85	5.25					
Value Added		1.78	1.60	1.78	1.68	-0.02	-0.02					
KERS (H) Insurance Attribution Index		-2.73	-11.92	-2.73	-8.38	4.70						
Value Added		0.18	0.53	0.18	0.14	0.13						
Assumed Rate 6.25%		1.53	4.65	1.53	6.25	6.25	6.25					
Value Added		-4.08	-16.04	-4.08	-14.49	-1.42	-1.02					
SPRS Pension Plan	536,876,194	-2.07	-9.89	-2.07	-7.49	4.66	5.02	6.26	6.72	7.45	8.59	4/1/1984
SPRS Pension IPS Index		-3.59	-11.29	-3.59	-8.72	3.99	4.60					
Value Added		1.52	1.40	1.52	1.23	0.67	0.42					
SPRS Pension Attribution Index		-2.64	-11.29	-2.64	-8.54	3.88						
Value Added		0.57	1.40	0.57	1.05	0.78						
Assumed Rate 5.25%		1.29	3.91	1.29	5.25	5.25	5.25					
Value Added		-3.36	-13.80	-3.36	-12.74	-0.59	-0.23					
SPRS Insurance Plan	221,742,453	-2.61	-11.53	-2.61	-8.41	5.03	5.47	6.67	6.92	6.72	7.21	4/1/1987
SPRS Insurance IPS Index		-4.33	-12.99	-4.33	-9.92	4.85	5.25					
Value Added		1.72	1.46	1.72	1.51	0.18	0.22					
SPRS Insurance Attribution Index		-2.73	-11.96	-2.73	-8.41	4.72						
Value Added		0.12	0.43	0.12	0.00	0.31						
Assumed Rate 6.25%		1.53	4.65	1.53	6.25	6.25	6.25					
Value Added		-4.14	-16.18	-4.14	-14.66	-1.22	-0.78					

Asset Allocation & Performance

Pension Plan Accounts

Periods Ended September 30, 2022

	Performance (%) net of fees								
	1 Month	QTD	YTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Public Equity	-9.33	-6.23	-26.23	-6.23				-23.21	12/1/2021
Public Equity Policy Index	-9.71	-7.08	-25.73	-7.08				-22.73	
Value Added	0.38	0.85	-0.50	0.85				-0.48	
US Equity Composite	-9.22	-4.24	-23.96	-4.24	-17.02	7.48	8.24	10.92	4/1/1984
Russell 3000 Index	-9.27	-4.46	-24.62	-4.46	-17.63	7.70	8.62	10.82	
Value Added	0.05	0.22	0.66	0.22	0.61	-0.22	-0.38	0.10	
S&P 500 Index	-9.25	-4.90	-23.72	-4.90	-15.34	8.51	9.52	7.65	7/1/2001
S&P 500 Index	-9.21	-4.88	-23.87	-4.88	-15.47	8.16	9.24	7.26	
Value Added	-0.04	-0.02	0.15	-0.02	0.13	0.35	0.28	0.39	
Scientific Beta	-9.10	-5.46	-21.56	-5.46	-14.26	4.46	6.76	8.25	7/1/2016
S&P 500 Index	-9.21	-4.88	-23.87	-4.88	-15.47	8.16	9.24	10.96	
Value Added	0.11	-0.58	2.31	-0.58	1.21	-3.70	-2.48	-2.71	
River Road FAV	-9.83	-6.38	-25.46	-6.38	-21.49	-1.38	3.00	6.86	7/1/2016
Russell 3000 Value Index	-8.86	-5.56	-17.97	-5.56	-11.79	4.37	5.11	7.15	
Value Added	-0.97	-0.82	-7.49	-0.82	-9.70	-5.75	-2.11	-0.29	
Westfield Capital	-9.53	-2.79	-28.63	-2.79	-22.18	10.49	11.61	12.10	7/1/2011
Russell 3000 Growth Index	-9.68	-3.37	-30.57	-3.37	-23.01	10.16	11.57	12.86	
Value Added	0.15	0.58	1.94	0.58	0.83	0.33	0.04	-0.76	
Internal US Mid Cap	-9.14	-2.32	-21.44	-2.32	-15.17	6.45	6.43	8.00	8/1/2014
S&P MidCap 400 Index	-9.19	-2.46	-21.52	-2.46	-15.25	6.01	5.82	7.67	
Value Added	0.05	0.14	0.08	0.14	0.08	0.44	0.61	0.33	
NTGI Structured	-9.57	-3.21	-22.91	-3.21	-19.45	5.83	5.30	9.24	10/1/1999
Russell 2000 Index	-9.58	-2.19	-25.10	-2.19	-23.50	4.29	3.55	7.50	
Value Added	0.01	-1.02	2.19	-1.02	4.05	1.54	1.75	1.74	

Asset Allocation & Performance

Pension Plan Accounts

Periods Ended September 30, 2022

	Performance (%) net of fees								
	1 Month	QTD	YTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Next Century Growth	-6.39	9.47	-26.05	9.47	-25.76			28.77	11/1/2019
Russell Microcap Growth Index	-9.33	2.14	-31.60	2.14	-37.05			3.67	
Value Added	2.94	7.33	5.55	7.33	11.29			25.10	
Non-US Equity Composite	-9.49	-9.11	-29.26	-9.11	-28.58	-1.42	-0.11	2.56	7/1/2000
MSCI ACWI ex US IMI (10/17)	-10.14	-9.69	-26.92	-9.69	-25.72	-1.27	-0.78	2.61	
Value Added	0.65	0.58	-2.34	0.58	-2.86	-0.15	0.67	-0.05	
BlackRock World Ex US	-9.20	-9.11	-25.90	-9.11	-23.54	-0.76	-0.26	4.75	7/1/2009
MSCI World ex US (11/19)	-9.26	-9.20	-26.23	-9.20	-23.91	-1.13	-0.58	4.49	
Value Added	0.06	0.09	0.33	0.09	0.37	0.37	0.32	0.26	
American Century	-9.65	-7.77	-35.23	-7.77	-33.49	1.32	3.00	3.44	7/1/2014
MSCI ACWI ex US IMI (10/17)	-10.14	-9.69	-26.92	-9.69	-25.72	-1.27	-0.78	0.72	
Value Added	0.49	1.92	-8.31	1.92	-7.77	2.59	3.78	2.72	
Franklin Templeton	-10.71	-7.41	-38.38	-7.41	-39.59	-5.08	-1.20	1.89	7/1/2014
MSCI ACWI ex US IMI (10/17)	-10.14	-9.69	-26.92	-9.69	-25.72	-1.27	-0.78	0.72	
Value Added	-0.57	2.28	-11.46	2.28	-13.87	-3.81	-0.42	1.17	
Lazard Asset Mgmt	-9.15	-9.74	-26.06	-9.74	-26.36	-1.94	-0.06	1.36	7/1/2014
MSCI ACWI ex US IMI (10/17)	-10.14	-9.69	-26.92	-9.69	-25.72	-1.27	-0.78	0.72	
Value Added	0.99	-0.05	0.86	-0.05	-0.64	-0.67	0.72	0.64	
LSV Asset Mgmt	-8.92	-10.97	-24.65	-10.97	-23.91	-2.37	-1.53	0.27	7/1/2014
MSCI ACWI ex US IMI (10/17)	-10.14	-9.69	-26.92	-9.69	-25.72	-1.27	-0.78	0.72	
Value Added	1.22	-1.28	2.27	-1.28	1.81	-1.10	-0.75	-0.45	
Axiom	-10.02	-7.69	-38.75	-7.69				-35.97	12/1/2021
MSCI AC World ex USA Small Cap (Net)	-11.04	-8.37	-29.37	-8.37				-26.38	
Value Added	1.02	0.68	-9.38	0.68				-9.59	

Asset Allocation & Performance

Pension Plan Accounts

Periods Ended September 30, 2022

	Performance (%) net of fees								
	1 Month	QTD	YTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
JP Morgan Emerging Markets	-11.01	-10.61	-35.42	-10.61	-37.94			-4.00	11/1/2019
MSCI Emerging Markets IMI	-11.46	-10.62	-26.51	-10.62	-27.18			-2.24	
Value Added	0.45	0.01	-8.91	0.01	-10.76			-1.76	
Pzena Emerging Markets	-9.13	-7.74	-17.93	-7.74	-19.03			0.34	11/1/2019
MSCI Emerging Markets (Net)	-11.72	-11.57	-27.16	-11.57	-28.11			-3.50	
Value Added	2.59	3.83	9.23	3.83	9.08			3.84	
Private Equity Composite	-1.79	-1.90	4.13	-1.90	8.25	17.74	15.92	12.27	7/1/2002
KRS Short-Term PE Index	-1.79	-1.90	4.13	-1.90	8.25	17.74	15.92	12.27	
Value Added	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Russell 3000 +3% 1 Quarter Lag	-8.14	-16.08	-11.85	-16.08	-11.28	13.07	13.92	11.52	
Value Added	6.35	14.18	15.98	14.18	19.53	4.67	2.00	0.75	
Core Fixed Composite	-2.25	-1.97	-7.21	-1.97	-7.57	-0.17		1.81	10/1/2018
Blmbg. U.S. Aggregate	-4.32	-4.75	-14.61	-4.75	-14.60	-3.26		-0.03	
Value Added	2.07	2.78	7.40	2.78	7.03	3.09		1.84	
Loomis Sayles Intmd	-3.52	-3.88	-11.20	-3.88	-11.67	-1.81		-0.05	2/1/2019
Blmbg. U.S. Intermediate Aggregate	-3.48	-3.84	-11.04	-3.84	-11.49	-2.33		-0.52	
Value Added	-0.04	-0.04	-0.16	-0.04	-0.18	0.52		0.47	
Lord Abbett	-1.70	-1.19	-5.37	-1.19	-5.74	-0.22		1.19	10/1/2018
ICE BofAML 1-3 Year U.S. Corporate	-1.45	-1.30	-5.39	-1.30	-5.91	-0.20		1.16	
Value Added	-0.25	0.11	0.02	0.11	0.17	-0.02		0.03	
NISA	-4.38	-4.73	-14.36	-4.73	-14.35	-2.78	0.05	2.73	2/1/2009
Blmbg. U.S. Aggregate	-4.32	-4.75	-14.61	-4.75	-14.60	-3.26	-0.27	2.47	
Value Added	-0.06	0.02	0.25	0.02	0.25	0.48	0.32	0.26	

Asset Allocation & Performance

Pension Plan Accounts

Periods Ended September 30, 2022

	Performance (%) net of fees								
	1 Month	QTD	YTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
High Yield / Specialty Credit Composite	-0.60	0.32	-1.94	0.32	-0.47	4.20		4.98	10/1/2018
Policy Index	-3.12	0.39	-9.08	0.39	-8.41	0.92		1.86	
Value Added	2.52	-0.07	7.14	-0.07	7.94	3.28		3.12	
Adams St SPC II A	0.56	0.56	14.81	0.56	16.60			15.56	6/1/2020
Adams St SPC II B	2.29	2.29	-0.76	2.29	1.14			9.91	6/1/2020
Arrowmark	-0.43	1.69	4.86	1.69	8.10	8.38		8.84	6/1/2018
Morningstar LSTA US Leveraged Loan	-2.27	1.37	-3.25	1.37	-2.53	2.21		2.70	
Value Added	1.84	0.32	8.11	0.32	10.63	6.17		6.14	
Blue Torch	2.87	2.87	9.02	2.87	13.28			8.97	8/1/2020
BSP Coinvestment	1.68	1.68	5.02	1.68	6.68	6.45		6.45	10/1/2019
Morningstar LSTA US Leveraged Loan	-2.27	1.37	-3.25	1.37	-2.53	2.21		2.21	
Value Added	3.95	0.31	8.27	0.31	9.21	4.24		4.24	
BSP Private Credit	-1.01	-1.01	2.48	-1.01	5.40	6.73		5.55	2/1/2018
Morningstar LSTA US Leveraged Loan	-2.27	1.37	-3.25	1.37	-2.53	2.21		2.74	
Value Added	1.26	-2.38	5.73	-2.38	7.93	4.52		2.81	
Capital Springs	-0.55	-0.55	4.45	-0.55	5.08			8.49	2/1/2020
Morningstar LSTA US Leveraged Loan	-2.27	1.37	-3.25	1.37	-2.53			1.62	
Value Added	1.72	-1.92	7.70	-1.92	7.61			6.87	
Cerberus Capital Mgmt	0.83	1.86	7.80	1.86	10.47	11.61	10.58	9.69	9/1/2014
Morningstar LSTA US Leveraged Loan	-2.27	1.37	-3.25	1.37	-2.53	2.21	2.98	3.20	
Value Added	3.10	0.49	11.05	0.49	13.00	9.40	7.60	6.49	
Columbia	-3.71	-0.10	-13.48	-0.10	-12.77	-0.38	1.87	4.97	11/1/2011
Blmbg. U.S. Corp: High Yield	-3.97	-0.65	-14.74	-0.65	-14.14	-0.45	1.57	4.74	
Value Added	0.26	0.55	1.26	0.55	1.37	0.07	0.30	0.23	

Asset Allocation & Performance

Pension Plan Accounts

Periods Ended September 30, 2022

	Performance (%) net of fees								
	1 Month	QTD	YTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Manulife Asset Mgmt	-3.79	-1.59	-12.00	-1.59	-11.97	0.36	1.59	3.17	12/1/2011
Policy Index	-4.31	-4.45	-14.90	-4.45	-14.92	-3.11	-0.18	0.64	
Value Added	0.52	2.86	2.90	2.86	2.95	3.47	1.77	2.53	
Marathon Bluegrass	0.76	-3.06	-3.41	-3.06	-0.26	4.53	5.14	6.18	1/1/2016
Blmbg. U.S. Corp: High Yield	-3.97	-0.65	-14.74	-0.65	-14.14	-0.45	1.57	4.60	
Value Added	4.73	-2.41	11.33	-2.41	13.88	4.98	3.57	1.58	
Shenkman Capital	-2.61	0.87	-3.96	0.87	-3.21	1.74	2.74	3.94	10/1/2010
Morningstar LSTA US Leveraged Loan	-2.27	1.37	-3.25	1.37	-2.53	2.21	2.98	4.01	
Value Added	-0.34	-0.50	-0.71	-0.50	-0.68	-0.47	-0.24	-0.07	
Waterfall	1.98	3.97	1.81	3.97	3.34	3.42	5.36	9.56	2/1/2010
Policy Index	-2.06	0.43	-8.86	0.43	-8.65	0.34	1.76	4.03	
Value Added	4.04	3.54	10.67	3.54	11.99	3.08	3.60	5.53	
White Oak Yield Spectrum	1.18	1.18	4.45	1.18	5.69	5.85		5.34	3/1/2018
Morningstar LSTA US Leveraged Loan	-2.27	1.37	-3.25	1.37	-2.53	2.21		2.75	
Value Added	3.45	-0.19	7.70	-0.19	8.22	3.64		2.59	
H/2 Credit Partner	0.00	0.00	5.07	0.00	1.62	2.60	1.39	4.32	7/1/2011
Mesa West Core Lend	1.06	1.06	3.93	1.06	3.94	5.49	6.50	6.53	5/1/2013
Mesa West IV	-2.35	-2.35	1.12	-2.35	4.25	6.60	6.86	5.97	3/1/2017
Cash Composite	0.21	0.56	0.76	0.56	0.79	0.75	1.35	3.30	1/1/1988
FTSE 3 Month T-Bill	0.20	0.45	0.62	0.45	0.63	0.57	1.13	2.89	
Value Added	0.01	0.11	0.14	0.11	0.16	0.18	0.22	0.41	

Asset Allocation & Performance

Pension Plan Accounts

Periods Ended September 30, 2022

	Performance (%) net of fees								
	1 Month	QTD	YTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Real Estate Composite	-0.25	2.72	17.41	2.72	23.15	15.19	12.75	6.85	7/1/1984
NCREIF ODCE NOF 1 Quarter Lag	4.54	4.54	20.58	4.54	28.31	11.66	9.55		
Value Added	-4.79	-1.82	-3.17	-1.82	-5.16	3.53	3.20		
Baring	-5.44	-9.10	1.72	-9.10	1.96	14.29		17.71	1/1/2019
Barings Euro RE II	-2.34	-5.28	-4.66	-5.28	18.40			-18.93	12/1/2020
Divcowest IV	0.64	0.64	21.05	0.64	29.68	11.08	16.34	19.29	3/1/2014
Fundamental Partners III	0.90	0.90	15.58	0.90	26.62	20.73	16.09	15.09	5/1/2017
Greenfield Acq VI	-12.58	-12.58	-23.14	-12.58	-7.47	-43.25	-37.98	-17.21	12/1/2012
Greenfield Acq VII	4.48	4.48	23.31	4.48	24.75	20.01	17.91	15.59	7/1/2014
Harrison Street	0.00	6.19	11.83	6.19	13.82	8.54	8.20	8.46	5/1/2012
Lubert Adler VII	-0.35	-0.35	9.56	-0.35	12.49	-2.81	2.66	-0.63	7/1/2014
Lubert Adler VII B	3.06	3.06	17.77	3.06	38.02	24.80	16.66	15.80	7/1/2017
Patron Capital	0.19	-3.63	2.37	-3.63	6.95	6.32	10.08	4.55	8/1/2016
Prologis Targeted US	0.00	5.80	34.57	5.80	50.06	28.28	23.81	19.99	10/1/2014
Rubenstein PF II	-6.16	-6.16	-2.54	-6.16	-2.25	-4.93	2.68	7.38	7/1/2013
Stockbridge Sm/Mkts	0.00	0.00	20.34	0.00	20.34	13.74	11.45	10.73	5/1/2014
Walton St RE VI	3.26	3.26	14.59	3.26	18.31	3.94	4.19	-11.96	5/1/2009
Walton St RE VII	6.24	6.24	6.81	6.24	8.12	-1.01	0.19	6.31	7/1/2013

Asset Allocation & Performance

Pension Plan Accounts

Periods Ended September 30, 2022

	Performance (%) net of fees								
	1 Month	QTD	YTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Real Return Composite	-2.86	2.69	1.77	2.69	4.78	5.54	4.55	4.29	7/1/2011
Real Return (P)	-2.86	2.69	1.77	2.69	4.78	5.54	4.51	3.54	
Value Added	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.75	
Putnam	-0.22	-0.71	-6.34	-0.71	-2.05			9.77	7/1/2020
Policy Index	-7.28	-4.79	-20.80	-4.79	-16.89			1.60	
Value Added	7.06	4.08	14.46	4.08	14.84			8.17	
Tortoise Capital	-7.68	8.09	20.15	8.09	22.29	5.95	2.41	8.63	8/1/2009
Alerian MLP Index	-7.62	8.05	18.90	8.05	19.56	4.46	1.90	5.87	
Value Added	-0.06	0.04	1.25	0.04	2.73	1.49	0.51	2.76	
Amerra AGRI Fund II	5.08	5.08	17.17	5.08	17.59	12.68	6.86	6.42	12/1/2012
Amerra AGRI Holdings	-1.38	-1.38	-0.31	-1.38	-0.50	-2.05	-1.92	-1.41	8/1/2015
BTG Pactual	-0.58	-0.58	9.91	-0.58	11.13	3.71	2.20	-2.93	12/1/2014
IFM Infrastructure	0.72	0.72	2.87	0.72	2.89	4.24		4.25	7/1/2019
Magnetar MTP EOF II	4.74	4.74	195.01	4.74	207.78	69.93	42.57	27.47	8/1/2015
Oberland Capital	2.52	2.52	6.54	2.52	15.00	13.48		13.76	8/1/2018
Taurus Mine Finance	17.33	17.33	68.92	17.33	81.53	12.77	14.29	14.94	4/1/2015
TPF II	-1.48	-1.48	34.64	-1.48	34.47	5.82	5.95	-0.44	10/1/2008
Blackstone Strat Opp	0.08	0.40	3.95	0.40	5.78	-3.30	-2.17	-2.01	8/1/2017
Luxor Capital	-0.04	-0.12	0.31	-0.12	10.40	-7.87	0.50	-0.42	4/1/2014
Myriad Opportunities	-0.04	-0.29	-43.20	-0.29	-48.55	-21.03	-14.54	-9.38	5/1/2016
Pine River	-0.17	5.11	-8.85	5.11	-6.46	2.86	4.53	2.83	5/1/2014
PRISMA Capital	-0.25	-0.78	-1.00	-0.78	-2.30	-0.16	0.89	2.39	9/1/2011

Asset Allocation & Performance

Pension Plan Accounts

Periods Ended September 30, 2022

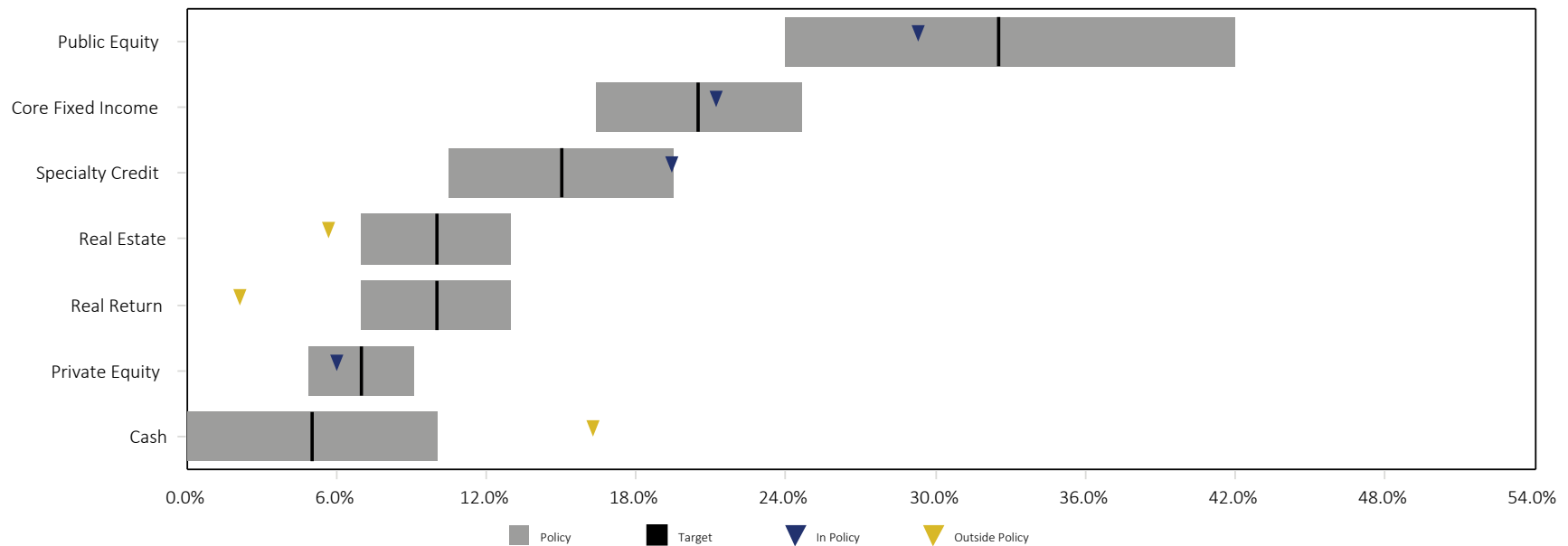
	Performance (%) net of fees								
	1 Month	QTD	YTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
SRS Partners US	0.00	0.00	0.00	0.00	-0.01	8.31	6.91	8.74	8/1/2017
Tricadia Select	0.00	0.00	0.00	0.00	0.00	0.00	-4.94	-4.91	9/1/2017

Asset Allocation Compliance

KERS Pension Plan

Periods Ended As of September 30, 2022

Executive Summary



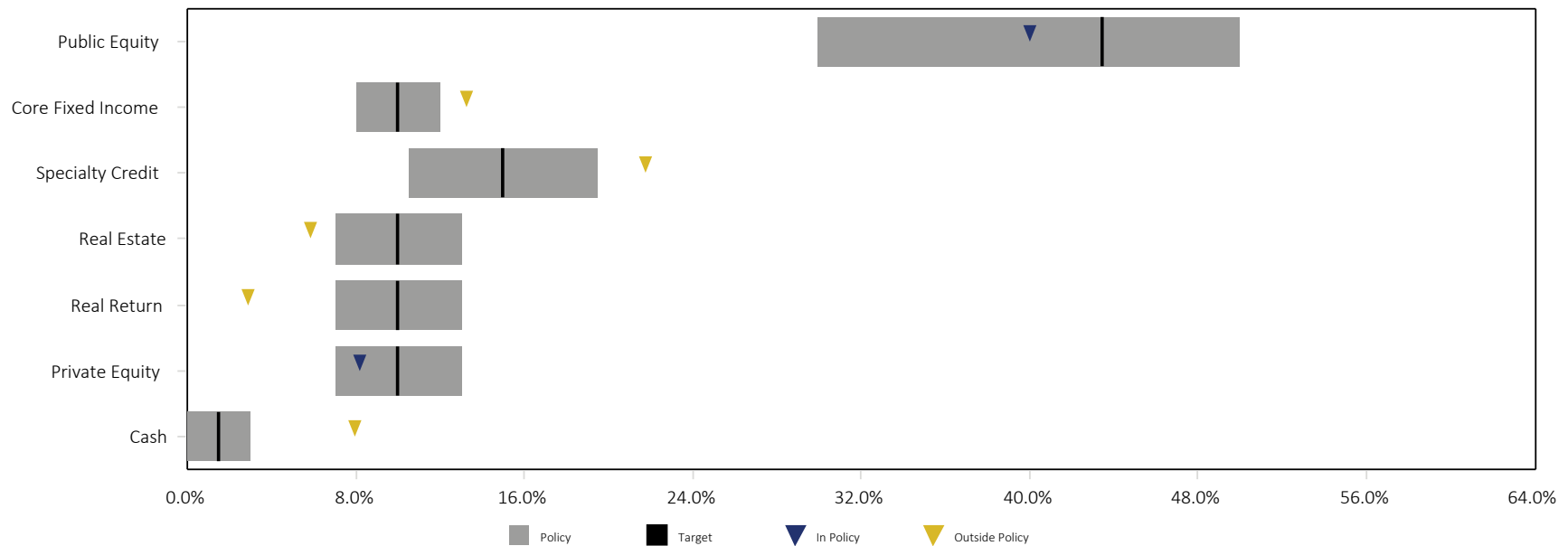
	Asset Allocation \$	Asset Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)	Target Rebalance \$
Public Equity	878,953,733	29.33	24.00	42.00	32.50	95,117,891
Core Fixed Income	636,254,156	21.23	16.40	24.60	20.50	-21,839,747
Specialty Credit	583,103,111	19.46	10.50	19.50	15.00	-133,531,592
Real Estate	169,452,358	5.65	7.00	13.00	10.00	130,261,988
Real Return	64,003,053	2.14	7.00	13.00	10.00	235,711,293
Private Equity	178,663,508	5.96	4.90	9.10	7.00	31,136,534
Cash	486,713,540	16.24	0.00	10.00	5.00	-336,856,367
Total Fund	2,997,143,459	100.00			100.00	

Asset Allocation Compliance

KERS (H) Pension Plan

Periods Ended As of September 30, 2022

Executive Summary



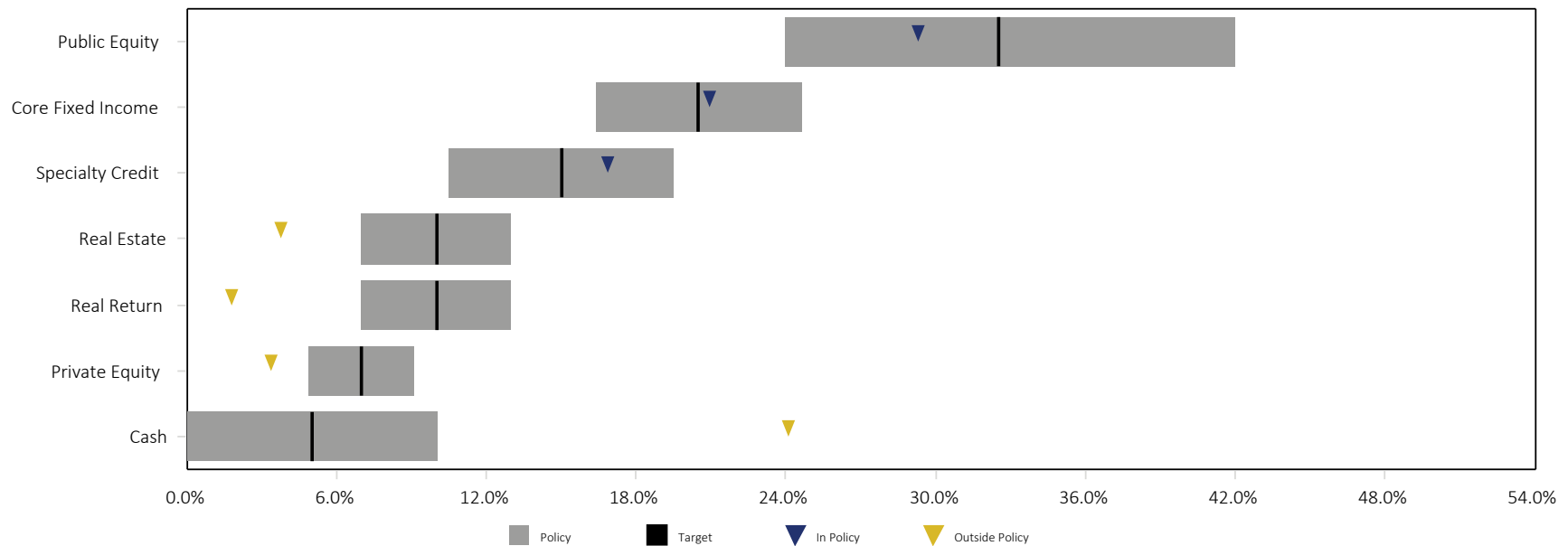
	Asset Allocation \$	Asset Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)	Target Rebalance \$
Public Equity	318,428,329	40.03	30.00	50.00	43.50	27,636,785
Core Fixed Income	105,777,907	13.30	8.00	12.00	10.00	-26,222,708
Specialty Credit	173,254,904	21.78	10.50	19.50	15.00	-53,922,106
Real Estate	46,707,083	5.87	7.00	13.00	10.00	32,848,116
Real Return	22,735,610	2.86	7.00	13.00	10.00	56,819,588
Private Equity	65,363,165	8.22	7.00	13.00	10.00	14,192,033
Cash	63,284,988	7.95	0.00	3.00	1.50	-51,351,708
Total Fund	795,551,986	100.00			100.00	

Asset Allocation Compliance

SPRS Pension Plan

Periods Ended As of September 30, 2022

Executive Summary



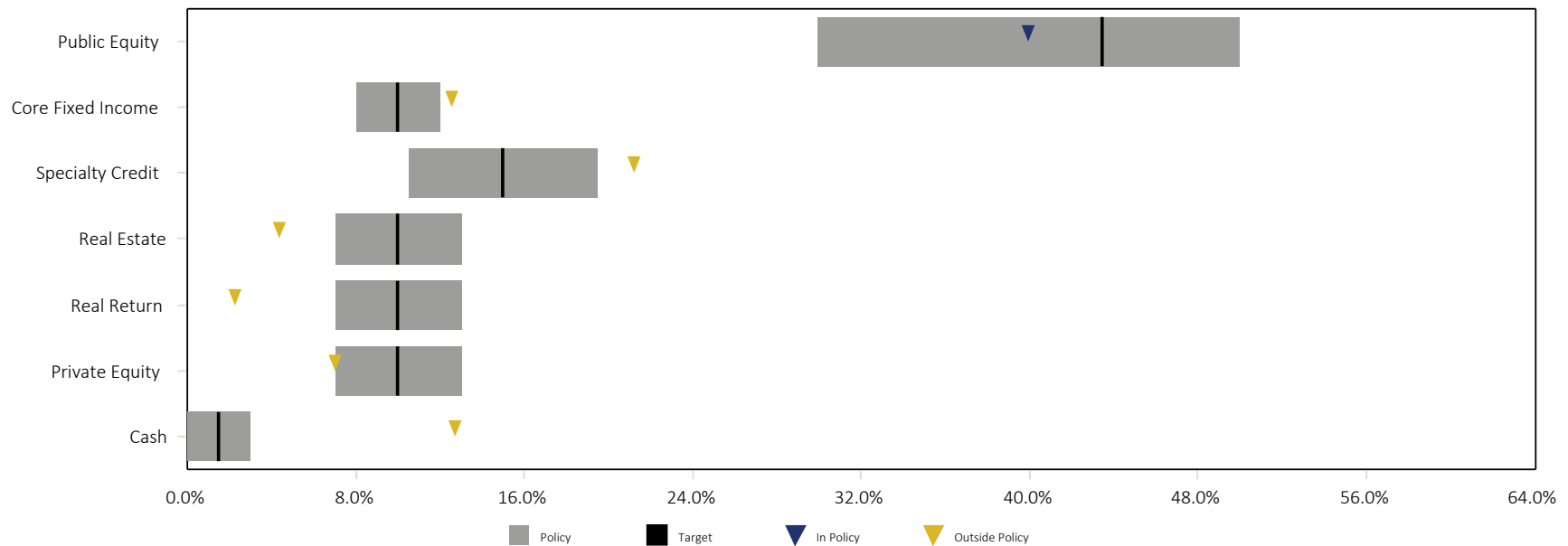
	Asset Allocation \$	Asset Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)	Target Rebalance \$
Public Equity	157,214,590	29.28	24.00	42.00	32.50	17,270,174
Core Fixed Income	112,355,785	20.93	16.40	24.60	20.50	-2,296,165
Specialty Credit	90,526,852	16.86	10.50	19.50	15.00	-9,995,422
Real Estate	20,236,764	3.77	7.00	13.00	10.00	33,450,856
Real Return	9,419,413	1.75	7.00	13.00	10.00	44,268,206
Private Equity	17,885,280	3.33	4.90	9.10	7.00	19,696,054
Cash	129,237,511	24.07	0.00	10.00	5.00	-102,393,702
Total Fund	536,876,194	100.00			100.00	

Asset Allocation Compliance

KERS Insurance Plan

Periods Ended As of September 30, 2022

Executive Summary



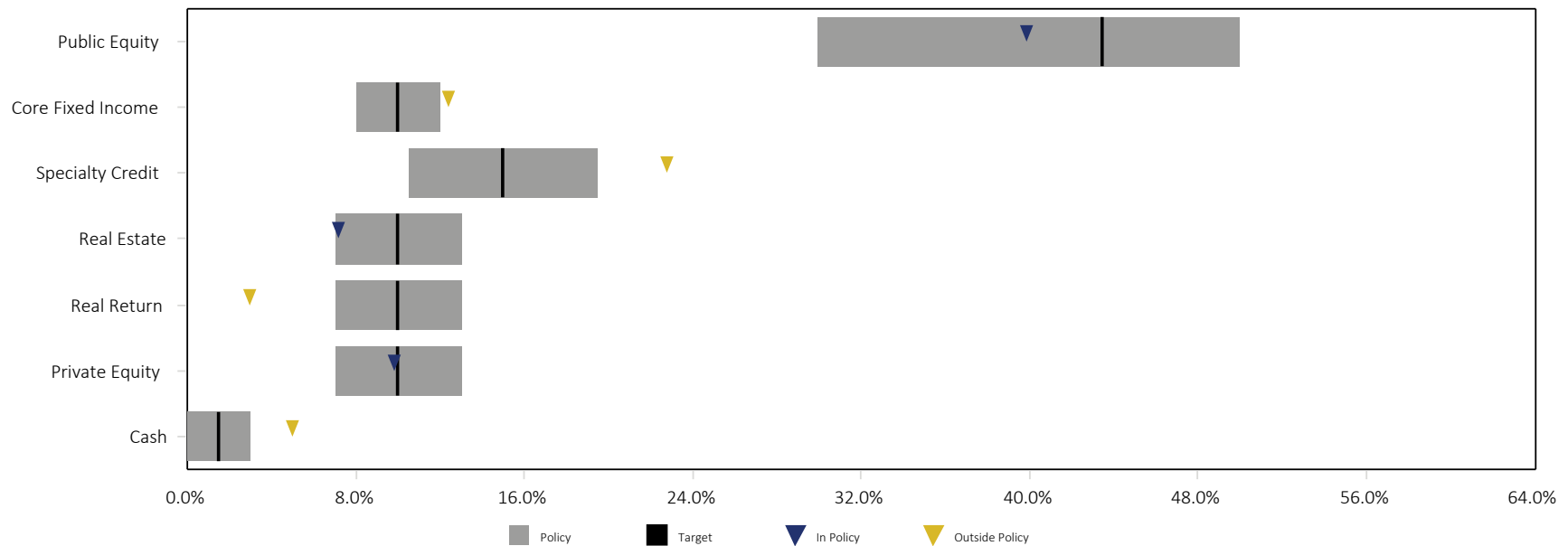
	Asset Allocation \$	Asset Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)	Target Rebalance \$
Public Equity	504,101,066	39.93	30.00	50.00	43.50	45,075,070
Core Fixed Income	158,330,693	12.54	8.00	12.00	10.00	-32,083,305
Specialty Credit	267,615,378	21.20	10.50	19.50	15.00	-78,244,296
Real Estate	54,790,455	4.34	7.00	13.00	10.00	71,456,933
Real Return	28,454,502	2.25	7.00	13.00	10.00	97,792,885
Private Equity	88,343,919	7.00	7.00	13.00	10.00	37,903,468
Cash	160,837,863	12.74	0.00	3.00	1.50	-141,900,755
Total Fund	1,262,473,877	100.00			100.00	

Asset Allocation Compliance

KERS (H) Insurance Plan

Periods Ended As of September 30, 2022

Executive Summary



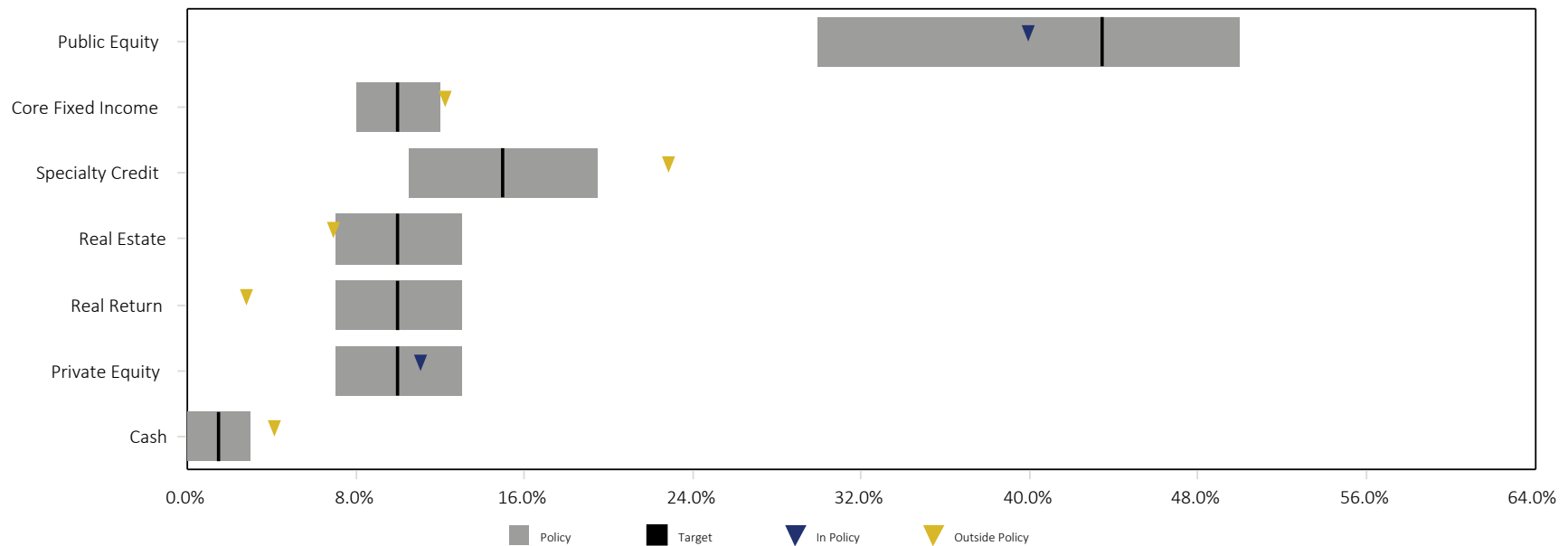
	Asset Allocation \$	Asset Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)	Target Rebalance \$
Public Equity	223,280,423	39.84	30.00	50.00	43.50	20,481,842
Core Fixed Income	69,361,090	12.38	8.00	12.00	10.00	-13,323,788
Specialty Credit	127,837,337	22.81	10.50	19.50	15.00	-43,781,383
Real Estate	40,150,049	7.16	7.00	13.00	10.00	15,887,253
Real Return	16,486,224	2.94	7.00	13.00	10.00	39,551,079
Private Equity	55,141,003	9.84	7.00	13.00	10.00	896,300
Cash	28,116,898	5.02	0.00	3.00	1.50	-19,711,303
Total Fund	560,373,024	100.00			100.00	

Asset Allocation Compliance

SPRS Insurance Plan

Periods Ended As of September 30, 2022

Executive Summary



	Asset Allocation \$	Asset Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)	Target Rebalance \$
Public Equity	88,615,554	39.96	30.00	50.00	43.50	7,842,413
Core Fixed Income	27,218,624	12.27	8.00	12.00	10.00	-5,044,378
Specialty Credit	50,654,765	22.84	10.50	19.50	15.00	-17,393,398
Real Estate	15,357,335	6.93	7.00	13.00	10.00	6,816,911
Real Return	6,152,327	2.77	7.00	13.00	10.00	16,021,919
Private Equity	24,521,242	11.06	7.00	13.00	10.00	-2,346,997
Cash	9,222,606	4.16	0.00	3.00	1.50	-5,896,469
Total Fund	221,742,453	100.00			100.00	



KENTUCKY PUBLIC PENSIONS AUTHORITY

David L. Eager, Executive Director

1260 Louisville Road • Frankfort, Kentucky 40601
kyret.ky.gov • Phone: 502-696-8800 • Fax: 502-696-8822



To: KRS Board of Trustees

From: D’Juan Surratt
Director of Employer Reporting, Compliance and Education

Date: December 1, 2022

Subject: Hazardous Position Classification

AGENCIES ARE REQUESTING HAZARDOUS DUTY COVERAGE FOR THE FOLLOWING POSITIONS:

<u>Agency</u>	<u>Position</u>	<u>Effective Date</u>
Kentucky State Police	CVE Officer Senior	7/1/2022
Kentucky State Police	CVE Master Officer	7/1/2022
Kentucky State Police	CVE Officer First Class	7/1/2022

Kentucky Public Pensions Authority has reviewed the above requests and pursuant to KRS 16.052 KSP needs this series of Commercial Vehicle Enforcement officer positions effective as of July 1, 2022. Position Questionnaires and Job Descriptions are attached.



Combining Statement of Fiduciary Net Position - Pension Funds

As of September 30, 2022, with Comparative Totals as of September 30, 2021 (\$ in Thousands)
(Unaudited)

	KERS		SPRS	KRS TOTAL		Percentage of	Note
ASSETS	Nonhazardous	Hazardous		FY 2023	FY 2022	Change	
CASH AND SHORT-TERM INVESTMENTS							
Cash Deposits	\$267	\$38	\$12	\$317	\$1,865	(83.02)%	1
Short-term Investments	534,728	75,389	138,065	748,181	530,584	41.01%	2
Total Cash and Short-term Investments	534,994	75,427	138,077	748,498	532,448	40.58%	
RECEIVABLES							
Accounts Receivable	86,484	3,527	4,377	94,388	97,763	(3.45)%	
Accounts Receivable - Investments	29,145	6,737	5,484	41,367	41,188	0.43%	
Total Receivables	115,630	10,265	9,861	135,755	138,951	(2.30)%	
INVESTMENTS, AT FAIR VALUE							
Core Fixed Income	622,907	103,559	109,999	836,465	852,629	(1.90)%	
Public Equities	865,407	313,517	154,710	1,333,634	1,483,319	(10.09)%	3
Private Equities	178,664	65,363	17,885	261,912	297,816	(12.06)%	4
Specialty Credit	572,987	170,035	88,507	831,529	737,815	12.70%	5
Derivatives	(2,680)	(431)	(468)	(3,578)	1,123	(418.54)%	6
Real Return	62,389	22,329	9,256	93,974	240,308	(60.89)%	7
Opportunistic	-	-	-	-	103,847	(100.00)%	8
Real Estate	169,452	46,707	20,237	236,396	173,218	36.47%	9
Total Investments, at Fair Value	2,469,126	721,079	400,126	3,590,331	3,890,076	(7.71)%	
Securities Lending Collateral Invested	115,662	30,933	20,775	167,370	125,441	33.43%	10
CAPITAL/INTANGIBLE ASSETS							
Capital Assets	929	91	11	1,031	1,031	0.00%	
Intangible Assets	5,920	494	100	6,513	6,513	0.00%	
Accumulated Depreciation	(929)	(91)	(11)	(1,031)	(1,031)	0.00%	
Accumulated Amortization	(5,812)	(490)	(100)	(6,402)	(6,235)	2.68%	
Total Capital Assets	107	4	-	111	278	(60.00)%	
Total Assets	3,235,519	837,707	568,839	4,642,065	4,687,194	(0.96)%	
LIABILITIES							
Accounts Payable	2,090	316	31	2,437	2,375	2.60%	
Investment Accounts Payable	35,856	7,653	6,799	50,307	104,281	(51.76)%	11
Securities Lending Collateral	115,662	30,933	20,775	167,370	125,441	33.43%	12
Total Liabilities	153,607	38,902	27,605	220,114	232,097	(5.16)%	
Total Fiduciary Net Position Restricted for Pension Benefits	\$3,081,912	\$798,805	\$541,234	\$4,421,951	\$4,455,098	(0.74)%	

NOTE - Variance Explanation*Differences due to rounding.*

- 1) Variance is a result of continuous fluctuation of deposits and transactions that flow through the cash account.
- 2) Short Term Investments are primarily comprised of the cash on hand at the custodial bank, the balance is larger than normal due to additional General Fund appropriations for KERS Nonhazardous.
- 3) The decline in Public Equities market values is the result of unrealized losses for the period.
- 4) The majority of KRS pension funds private equity investments are in older funds that are in runoff status, and the remaining market value of those funds will keep declining as they continue making distributions. Since the KRS pension funds did not commit to any new private equity funds from 2011-2020, they have less contributions and appreciation from newer funds to offset the distributions from the older funds.
- 5) The increase in Specialty Credit is due to the merging of the Specialty Credit asset class and the Opportunistic asset class.
- 6) Variance is a result of hedging and arbitration of risk within the portfolios.
- 7) The decrease in Real Return is a result of the redemption of Putnam and continued liquidation of hedge funds.
- 8) The decrease in Opportunistic is due to the merging of the Opportunistic asset class with the Specialty Credit asset class.
- 9) The increase in Real Estate is due to additional funding and increasing market values for current managers.
- 10) The variance is a result of the demand of the Securities Lending Program.
- 11) The variance in Investment Accounts Payable is due to pending trades.
- 12) The variance is a result of the demand of the Securities Lending Program.



Combining Statement of Changes In Fiduciary Net Position - Pension Funds

For the three month period ending September 30, 2022, with Comparative Totals for the three month period ending September 30, 2021 (\$ in Thousands) (Unaudited)

ASSETS	KERS		SPRS	KRS Total		Percentage of	Note
	Nonhazardous	Hazardous		FY 2023	FY 2022	Change	
Member Contributions	\$24,927	\$6,129	\$1,607	\$32,663	\$28,122	16.15%	1
Employer Contributions	27,742	15,425	14,427	57,593	91,259	(36.89)%	2
Actuarially Accrued Liability Contributions (AALC)	226,639	-	-	226,639	228,328	(0.74)%	
General Fund Appropriation	60,000	-	-	60,000	-		3
Pension Spiking Contributions	3	-	-	3	3	(17.87)%	4
Health Insurance Contributions (HB1)	(1)	-	(1)	(2)	2	215.79%	5
Employer Cessation Contributions	-	-	-	-	50,464	100.00%	6
Total Contributions	339,309	21,555	16,032	376,896	398,177	(5.34)%	
INVESTMENT INCOME							
From Investing Activities							
Net Appreciation (Depreciation) in							
FV of Investments	(90,083)	(26,032)	(14,922)	(131,037)	23,304	(662.29)%	7
Interest/Dividends	21,506	5,980	3,864	31,350	27,303	14.82%	8
Total Investing Activities Income	(68,578)	(20,051)	(11,058)	(99,687)	50,607		
Less: Investment Expense	3,418	1,116	505	5,039	4,284	17.61%	9
Less: Performance Fees	(184)	108	60	(15)	5,812	(100.25)%	10
Net Income from Investing Activities	(71,812)	(21,276)	(11,623)	(104,711)	40,511		
From Securities Lending Activities							
Securities Lending Income	523	149	88	760	70		
Less: Securities Lending Borrower Rebates	422	121	72	615	(156)		
Less: Securities Lending Agent Fees	15	4	2	22	34		
Net Income from Securities Lending	86	24	14	123	192	(35.96)%	11
Net Investment Income	(71,726)	(21,252)	(11,610)	(104,588)	40,703	(356.95)%	
Total Additions	267,583	302	4,423	272,308	438,880	(37.95)%	
DEDUCTIONS							
Benefit Payments	255,797	19,468	15,985	291,250	292,989	(0.59)%	
Refunds	3,385	912	61	4,358	4,602	(5.30)%	
Administrative Expenses	3,232	354	70	3,655	3,794	(3.66)%	
Total Deductions	262,414	20,734	16,115	299,263	301,385	(0.70)%	
Net Increase (Decrease) in Fiduciary Net Position Restricted for Pension Benefits	5,169	(20,432)	(11,692)	(26,955)	137,495		
Total Fiduciary Net Position Restricted for Pension Benefits							
Beginning of Period	3,076,743	819,237	552,926	4,448,906	4,317,602	3.04%	
End of Period	\$3,081,912	\$798,806	\$541,234	\$4,421,951	\$4,455,098	(0.74)%	

NOTE - Variance Explanation

Differences due to rounding.

- 1) Member Contributions increased due to an increase in covered payroll.
- 2) Employer Contributions decreased due to the receipt of the 06/30/2021 payroll from PC001/KHRIS (at the 73.285% rate), paid and posted to 07/2021 (FY 2022).
- 3) General Fund Appropriation 1st Quarter (KERS only): HB1 \$33,750,000; HB604 \$26,250,000;
- 4) Pension Spiking contributions decreased due to a change in statute. Pension spiking is now the member's responsibility.
- 5) Health Insurance Contributions continue to fluctuate in the Pension accounts due to Tier 2 and Tier 3 retiree health insurance system costs as well as corrections being processed to previous fiscal years.
- 6) Employer Cessation payment received from Kentucky Housing Corporation FY2022.
- 7) The decrease in Net Appreciation in Fair Value of Investments is due to unfavorable market conditions resulting in unrealized losses primarily within the public equity asset class.
- 8) The Increase in investment income is a result of increased income from Cash and Core Fixed Income.
- 9) The increase in Investment Expense is a result of increased market values primarily in the Private Equity, Specialty Credit and Real Estate asset classes which have higher fees.
- 10) The drop in performance fees is the result in less than favorable market conditions causing returns to drop when compared to the first quarter of FY22.



Combining Statement of Fiduciary Net Position - Insurance Funds

As of September 30, 2022, with Comparative Totals as of September 30, 2021 (\$ in Thousands)
(Unaudited)

	KERS		SPRS	KRS Total		Percentage of	
ASSETS	Nonhazardous	Hazardous		FY 2023	FY 2022	Change	
CASH AND SHORT-TERM INVESTMENTS							
Cash Deposits	\$92	\$37	\$46	\$175	\$384	(54.55)%	1
Short-term Investments	178,836	35,215	12,122	226,173	296,566	(23.74)%	2
Total Cash and Short-term Investments	178,927	35,252	12,168	226,348	296,951	(23.78)%	
RECEIVABLES							
Accounts Receivable	12,435	339	898	13,673	14,710	(7.05)%	
Investment Accounts Receivable	8,920	3,481	1,544	13,945	19,387	(28.07)%	3
Total Receivables	21,355	3,820	2,442	27,618	34,097	(35.12)%	
INVESTMENTS, AT FAIR VALUE							
Core Fixed Income	155,480	68,112	26,729	250,321	273,831	(8.59)%	
Public Equities	496,460	220,065	87,299	803,825	988,493	(18.68)%	4
Private Equities	88,344	55,141	24,521	168,006	156,993	7.01%	
Specialty Credit	263,144	126,362	50,033	439,538	385,937	13.89%	5
Derivatives	(651)	(320)	(107)	(1,078)	459	(334.68)%	6
Real Return	27,688	16,119	6,010	49,816	123,510	(59.67)%	7
Opportunistic	-	-	-	-	66,205	(100.00)%	8
Real Estate	54,790	40,150	15,357	110,298	83,166	32.62%	9
Total Investments, at Fair Value	1,085,256	525,629	209,842	1,820,726	2,078,596	(12.41)%	
Securities Lending Collateral Invested	36,271	16,191	6,407	58,869	43,022	36.83%	10
Total Assets	1,321,809	580,892	230,859	2,133,561	2,452,666	(13.01)%	
LIABILITIES							
Accounts Payable	128	-	-	128	110	16.94%	11
Investment Accounts Payable	10,537	3,952	1,766	16,255	153,713	(89.43)%	12
Securities Lending Collateral	36,271	16,191	6,407	58,869	43,022	36.83%	13
Total Liabilities	46,937	20,143	8,173	75,252	196,845	(61.77)%	
Total Fiduciary Net Position Restricted for OPEB	\$1,274,873	\$560,749	\$222,686	\$2,058,308	\$2,255,822	(8.76)%	

NOTE - Variance Explanation**Differences due to rounding.**

- 1) Variance is a result of continuous fluctuation of deposits and transactions that flow through the cash account.
- 2) Short term investments are primarily comprised of cash on hand at the custodial bank, the balance decline is the result of excess cash being invested.
- 3) The variance in Investment Accounts Receivables is due to pending trades.
- 4) The decline in Public Equities market values is the result of unrealized losses for the period.
- 5) The increase in Specialty Credit is due to the merging of the Specialty Credit asset class and the Opportunistic asset class.
- 6) Variance is a result of hedging and arbitration of risk within the portfolios.
- 7) The decrease in Real Return is a result of the redemption of Putnam and continued liquidation of hedge funds.
- 8) The decline in Opportunistic is a result of the merging of the Opportunistic asset class with the Specialty Credit asset class.
- 9) The increase in Real Estate is due to additional funding and increasing market values for current managers.
- 10) Variance is a result of the demands of the Securities Lending Program.
- 11) The increase in Accounts Payable is due to an increase in outstanding employer credit invoices.
- 12) The variance in Investment Accounts Payable is due to pending trades.
- 13) Variance is a result of the demands of the Securities Lending Program.



Combining Statement of Changes In Fiduciary Net Position - Insurance Funds

For the three month period ending September 30, 2022, with Comparative Totals for the three month period ending September 30, 2021 (\$ In Thousands) (Unaudited)



	KERS		SPRS	KRS Total		Percentage of
	Hazardous			FY 2023	FY 2022	Change
ADDITIONS						
Employer Contributions	\$8,574	\$2	\$2,236	\$10,812	\$10,460	3.36%
Actuarially Accrued Liability Contributions (AALC)	22,114	-	-	22,114	25,426	(13.03)% 1
Medicare Drug Reimbursement	-	-	-	-	-	
Insurance Premiums	50	0	(0)	50	43	16.58% 2
Humana Gain Share Payment	-	-	-	-	-	
Retired Re-employed Healthcare	1,341	324	-	1,665	1,530	8.84%
Health Insurance Contributions (HB1)	1,935	363	82	2,380	1,921	23.87% 3
Employer Cessation Contributions	-	-	-	-	9,536	(100.00)% 4
Total Contributions	34,014	689	2,317	37,020	48,917	(24.32)%
INVESTMENT INCOME						
From Investing Activities						
Net Appreciation (Depreciation) in FV of Investments	(37,032)	(18,048)	(7,327)	(62,407)	14,115	(542.15)% 5
Interest/Dividends	9,514	4,248	1,702	15,464	14,968	3.32%
Total Investing Activities Income	(27,518)	(13,801)	(5,625)	(46,943)	29,083	
Less: Investment Expense	1,629	898	355	2,882	2,618	10.11% 6
Less: Performance Fees	900	(56)	(31)	814	5,397	(84.92)% 7
Net Income from Investing Activities	(30,047)	(14,643)	(5,949)	(50,640)	21,068	
From Securities Lending Activities						
Securities Lending Income	206	83	36	325	35	
Less: Securities Lending Borrower Rebates	163	66	29	258	(88)	
Less: Securities Lending Agent Fees	6	3	1	10	19	
Net Income from Securities Lending	36	14	6	56	105	(46.20)% 8
Net Investment Income	(30,012)	(14,629)	(5,943)	(50,583)	21,173	(338.91)%
Total Additions	4,002	(13,940)	(3,625)	(13,563)	70,089	(119.35)%
DEDUCTIONS						
Healthcare Premiums Subsidies	30,002	5,162	3,680	38,844	37,563	3.41%
Administrative Expenses	198	31	18	248	258	(3.91)%
Self-Funded Healthcare Costs	452	19	5	476	460	3.42%
Excise Tax Insurance	-	-	-	-	3	(100.00)% 9
Total Deductions	30,652	5,213	3,703	39,568	38,284	3.35%
Net Increase (Decrease) in Fiduciary Net Position Restricted for OPEB						
Net Position Restricted for OPEB	(26,650)	(19,152)	(7,329)	(53,131)	31,805	
Total Fiduciary Net Position Restricted for OPEB						
Beginning of Period	1,301,522	579,902	230,015	2,111,438	2,224,016	(5.06)%
End of Period	\$1,274,872	\$560,750	\$222,686	\$2,058,307	\$2,255,821	(8.76)%

NOTE - Variance Explanation *Differences due to rounding*

- 1) AALC will fluctuate year to year based on the actuarial valuation.
- 2) Insurance Premiums increased due to an increase in the KERS retirees required to contribute to their health insurance premiums.
- 3) Health Insurance Contributions will continue to rise as Tier 2 and Tier 3 members increase.
- 4) Employer Cessation payment received from Kentucky Housing Corporation FY2022.
- 5) The decrease in Net Appreciation in Fair Value of Investments is due to unfavorable market conditions resulting in unrealized losses primarily within the public equity asset class.
- 6) The increase in Investment Expense is a result of increased market values primarily in the Private Equity, Specialty Credit and Real Estate asset classes which have higher fees.
- 7) The drop in performance fees is the result in less than favorable market conditions causing returns to drop when compared to the first quarter of FY22.
- 8) Variance is a result of the demand of the Securities Lending Program.
- 9) The Excise Tax will fluctuate based on the timing of the posting of the payment.

Pension Funds Contribution Report

For the three month period ending September 30, 2022, with Comparative Totals for the three month period ending September 30, 2021 (\$ in Millions)

 	Kentucky Employees Retirement System				State Police Retirement System	
	Nonhazardous		Hazardous			
	FY23	FY22	FY23	FY22	FY23	FY22
Member Contributions	\$24.9	\$22.2	\$6.1	\$4.7	\$1.6	\$1.2
Employer Contributions	27.8	61.8	15.4	14.0	14.4	15.4
Actuarially Accrued Liability Contributions	226.6	228.3	-	-	-	-
Employer Cessation Contributions	-	50.5	-	-	-	-
General Fund Appropriations	60.0	-	-	-	-	-
Net Investment Income	18.4	12.3	4.8	3.7	3.3	1.4
Total Inflows	357.7	375.1	26.3	22.4	19.3	18.0
Benefit Payments/Refund	259.2	261.3	20.4	20.3	16.0	16.0
Administrative Expenses	3.2	3.3	0.3	0.3	0.1	0.1
Total Outflows	262.4	264.6	20.7	20.6	16.1	16.1
NET Contributions	95.3	110.5	5.6	1.8	3.2	1.9
Realized Gain/(Loss)	(3.9)	11.6	(0.2)	7.2	(1.0)	2.2
Unrealized Gain/(Loss)	(86.1)	3.9	(25.8)	(1.3)	(13.9)	(0.3)
Change in Net Position	5.3	126.0	(20.4)	7.7	(11.7)	3.8
Beginning of Period	3,076.7	3,085.0	819.2	874.9	552.9	357.7
End of Period	\$3,082.0	\$3,211.0	\$798.8	\$882.6	\$541.2	\$361.5



Differences due to rounding.

Net Contributions*	\$77.0	\$98.2	\$0.8	(\$1.8)	(\$0.1)	\$0.5
Cash Flow as % of Assets	2.50%	3.06%	0.10%	(0.21)%	(0.02)%	0.14%
Net Investment Income	\$18.4	\$12.3	\$4.8	\$3.7	\$3.3	\$1.4
Yield as % of Assets	0.60%	0.38%	0.60%	0.42%	0.61%	0.39%

**Net Contributions are less Net Investment Income.*

Insurance Fund Contribution Report

For the three month period ending September 30, 2022, with Comparative Totals for the three month period ending September 30, 2021 (\$ in Millions)

 	Kentucky Employees Retirement System				State Police Retirement System	
	Nonhazardous		Hazardous			
	FY23	FY22	FY23	FY22	FY23	FY22
Employer Contributions	\$8.6	\$8.0	\$-	\$0.2	\$2.2	\$2.2
Actuarially Accrued Liability Contributions	22.1	25.4	-	-	-	-
Employer Cessation Contributions	-	9.6	-	-	-	-
Insurance Premiums	-	-	-	-	-	-
Humana Gain Share	-	-	-	-	-	-
Retired Reemployed Healthcare	1.4	1.2	0.3	0.3	-	-
Health Insurance Contributions	1.9	1.6	0.4	0.3	0.1	0.1
Net Investment Income	7.0	4.6	3.4	1.8	1.4	0.6
Total Inflows	41.0	50.4	4.1	2.6	3.7	2.9
Healthcare Premiums	30.5	29.3	5.2	5.3	3.7	3.5
Administrative Expenses	0.2	0.2	-	-	-	-
Total Outflows	30.7	29.5	5.2	5.3	3.7	3.5
NET Contributions	10.3	20.9	(1.1)	(2.7)	0.0	(0.6)
Realized Gain/(Loss)	(2.3)	9.1	(0.3)	6.6	(0.1)	2.9
Unrealized Gain/(Loss)	(34.6)	(4.8)	(17.8)	0.2	(7.2)	0.2
Change in Net Position	(26.6)	25.2	(19.2)	4.1	(7.3)	2.5
Beginning of Period	1,301.5	1,353.1	579.9	624.9	230.0	246.0
End of Period	\$1,274.9	\$1,378.3	\$560.7	\$629.0	\$222.7	\$248.5

Differences due to rounding.

Net Contributions*	\$3.3	\$16.3	(\$4.5)	(\$4.5)	(\$1.4)	(\$1.2)
Cash Flow as % of Assets	0.26%	1.18%	(0.80)%	(0.72)%	(0.61)%	(0.48)%
Net Investment Income	\$7.0	\$4.6	\$3.4	\$1.8	\$1.4	\$0.6
Yield as % of Assets	0.55%	0.33%	0.61%	0.29%	0.62%	0.25%

**Net Contributions are less Net Investment Income.*

KPPA ADMINISTRATIVE BUDGET FY 2022-2023 BUDGET-TO-ACTUAL ANALYSIS FOR THE THREE MONTH PERIOD ENDING SEPTEMBER 30, 2022, WITH COMPARATIVE TOTALS FOR THE THREE MONTH PERIOD ENDING SEPTEMBER 30, 2021						
Account Name	Budgeted	FY 2023 Expense	Remaining	Percent Remaining	FY 2022 Expense	Percent Difference
PERSONNEL						
Staff						
Salaries/Wages	\$17,000,000	\$4,117,295	\$12,882,705	75.78%	\$4,316,718	(4.62)%
Wages (Overtime)	285,000	42,947	242,053	84.93%	48,884	(12.15)%
Emp Paid Retirement	13,482,300	3,029,365	10,452,935	77.53%	3,426,929	(11.60)%
Emp Paid Health Ins	2,700,000	557,530	2,142,470	76.91%	735,904	(24.24)%
Emp Paid Sick Leave	115,000	28,831	86,169	74.93%	-	100.00%
Adoption Assistance Benefit	8,000	-	8,000	100.00%	-	0.00%
Workers Compensation	75,000	11,116	63,884	85.18%	75,163	(85.21)%
Unemployment	8,000	-	8,000	100.00%	-	0.00%
Other Personnel	1,273,448	294,019	979,429	76.91%	309,998	(5.15)%
Employee Training	18,000	2,680	15,320	85.11%	2,421	10.70%
Bonds	-	-	-	0.00%	-	0.00%
Staff Subtotal	34,964,748	8,083,783	26,880,965	76.88%	8,916,017	(9.33)%
LEGAL & AUDITING SERVICES						
Legal Hearing Officers	100,000	36,941	63,059	63.06%	16,665	121.67%
Legal (Stoll, Keenon)	150,000	16,461	133,539	89.03%	9,199	78.94%
Frost Brown (Tax Advisor)	80,000	10,902	69,098	86.37%	(11,335)	(196.18)%
Reinhart	25,000	-	25,000	100.00%	-	0.00%
Ice Miller	300,000	21,270	278,730	92.91%	303	6919.80%
Johnson, Bowman, Branco LLC	150,000	28,683	121,318	80.88%	-	100.00%
Dentons Bingham & Greenebaum	150,000	22,274	127,726	85.15%	-	100.00%
Legal Expense	25,000	-	25,000	100.00%	-	0.00%
Auditing	200,000	6,578	193,422	96.71%	41,385	(84.11)%
CONSULTING SERVICES						
Medical Reviewers	1,800,000	181,080	1,618,920	89.94%	300,493	(39.74)%
Escrow for Actuary Fees	-	(28,866)	28,866	0.00%	-	(100.00)%
CONTRACTUAL SERVICES						
Miscellaneous Contracts	100,000	9,886	90,114	90.11%	8,850	11.71%
Human Resources Consulting	8,000	-	8,000	100.00%	5,794	(100.00)%
Actuarial Services	500,000	79,953	420,047	84.01%	81,179	(1.51)%
Facility Security Charges	80,000	13,105	66,895	83.62%	17,887	(26.73)%
PERSONNEL SUBTOTAL	\$38,640,748	\$8,482,049	\$30,180,973	78.11%	\$11,169,773	(24.06)%
OPERATIONAL						
Natural Gas	35,000	1,446	33,554	95.87%	1,227	17.85%
Electric	125,000	32,045	92,955	74.36%	30,238	5.98%
Rent-Non State Building	56,000	12,661	43,339	77.39%	12,661	0.00%
Building Rental - PPW	1,000,000	240,492	759,508	75.95%	240,524	(0.01)%
Copier Rental	67,000	-	67,000	100.00%	15,890	(100.00)%
Rental Carpool	5,500	1,065	4,435	80.63%	970	9.79%
Vehicle/Equip. Maint.	1,000	-	1,000	100.00%	249	(100.00)%
Postage	420,000	41,377	378,623	90.15%	24,300	70.28%
Freight	200	-	200	100.00%	114	(100.00)%
Printing (State)	12,000	100	11,900	99.17%	320	(68.75)%
Printing (non-state)	105,000	2,977	102,023	97.17%	4,219	(29.44)%
Insurance	12,000	5,572	6,428	53.57%	5,422	2.77%
Garbage Collection	6,000	1,810	4,190	69.83%	1,324	36.71%
Conference Expense	35,000	2,878	32,122	91.78%	4,307	(33.18)%
Conference Exp. Investment	-	-	-	0.00%	-	0.00%
Conference Exp. Audit	2,000	-	2,000	100.00%	-	0.00%
MARS Usage	50,000	6,775	43,225	86.45%	6,775	0.00%
COVID-19 Expenses	12,000	-	12,000	100.00%	3,716	(100.00)%
Office Supplies	75,000	21,490	53,510	71.35%	16,170	32.90%
Furniture & Office Equipment	20,000	-	20,000	100.00%	-	0.00%
Travel (In-State)	15,000	3,577	11,423	76.15%	1,565	128.56%

KPPA ADMINISTRATIVE BUDGET 2022-23 BUDGET-TO-ACTUAL ANALYSIS						
FOR THE THREE MONTH PERIOD ENDING SEPTEMBER 30, 2022, WITH COMPARATIVE TOTALS FOR THE THREE MONTH PERIOD ENDING SEPTEMBER 30, 2021						
Account Name	Budgeted	FY 2023 Expense	Remaining	Percent Remaining	FY 2022 Expense	Percent Difference
Travel (In-State) Investment	1,000	-	1,000	100.00%	-	0.00%
Travel (In-State) Audit	500	-	500	100.00%	-	0.00%
Travel (Out of State)	75,000	6,796	68,204	90.94%	-	100.00%
Travel (Out of State) Investment	100,000	4,448	95,552	95.55%	-	100.00%
Travel (Out of State) Audit	500	-	500	100.00%	-	0.00%
Dues & Subscriptions	70,000	13,742	56,258	80.37%	10,559	30.14%
Dues & Subscriptions Invest	17,000	3,990	13,010	76.53%	3,613	10.43%
Dues & Subscriptions Audit	1,500	-	1,500	100.00%	1,700	(100.00)%
Miscellaneous	70,000	14,670	55,330	79.04%	128	11,360.94%
Miscellaneous Investment	-	-	-	0.00%	-	0.00%
Miscellaneous Audit	200	-	200	100.00%	-	0.00%
COT Charges	25,000	3,609	21,391	85.56%	3,940	(8.40)%
Telephone - Wireless	7,000	1,428	5,572	79.60%	1,368	4.39%
Telephone - Other	150,000	24,517	125,483	83.66%	26,541	(7.63)%
Telephone - Video Conference	12,000	2,421	9,579	79.82%	-	100.00%
Computer Equip./Software	3,500,000	507,190	2,992,810	85.51%	696,646	(27.20)%
Comp. Equip./Software Invest	-	-	-	0.00%	-	0.00%
Comp. Equip./Software Audit	3,000	-	3,000	100.00%	-	0.00%
OPERATIONAL SUBTOTAL	\$6,086,400	\$957,077	\$5,129,324	84.28%	\$417,838	129.05%
SUB-TOTAL	\$44,727,148	\$9,439,126	\$35,288,022	78.90%	\$11,587,611	(18.54)%
Reserve	5,457,352	-	5,457,352	0.00%		
TOTAL	\$50,184,500	\$9,439,126	\$40,767,648	81.24%	\$11,587,611	(18.54)%
<i>Differences due to rounding</i>						

Plan	Budgeted	FY 2023 Expense	% of Total KPPA FY 2023 Expense
CERS Nonhazardous	\$28,896,235	\$5,435,049	57.58%
CERS Hazardous	2,559,410	481,395	5.10%
KERS Nonhazardous	16,543,320	3,111,608	32.965%
KERS Hazardous	1,824,207	343,112	3.635%
SPRS	361,328	67,962	0.720%
TOTAL	\$50,184,500	\$9,439,126	



KRS Outstanding Invoices by Type and Employer

Invoice Type	9/30/2022	6/30/2022	Change H/(L)
Employer Free Military and Decompression Service	71,628	187,007	(62)%
Member Pension Spiking Refund	(16,766)	(20,481)	(18)%
Monthly Reporting Invoice	(304,716)	(179,559)	70%
Penalty – Monthly Reporting	17,000	24,000	(29)%
Reinstatement	2,245	2,245	0%
Actuarially Accrued Liability Contribution	2,391,476	1,597,576	50%
Total	2,160,867	1,610,788	
Health Insurance Reimbursement	588,228	715,159	(18)%
Omitted Employer	270,677	251,997	7%
Employer Pension Spiking*	188,633	216,219	(13)%
Standard Sick Leave	2,980,718	9,448,800	(68)%
USERRA Protected Military	319,086	319,086	0%
Total	4,347,341	10,951,262	(60)%
Grand Total	\$6,508,208	\$12,562,050	(48)%

*Pension Spiking invoices on this report are Employer Pension Spiking. By statute these invoices are due 12 months from the invoice date. Employer Pension Spiking is in effect only for retirements prior to July 1, 2018, therefore, unless there has been a recently created invoice for a backdated retirement, all of these invoices are greater than 12 months old.

Employer Name (Top Ten)	9/30/2022	6/30/2022	Change H/(L)
Kentucky State Police	\$2,976,590	\$9,870,468	(70)%
Kentucky River Community Care Inc.	1,813,480	1,450,732	25%
Cumberland River Behavioral Health, Inc.	445,962	-	100%
Dept. for Behavioral Health Dev. Intell. Disabilities	147,221	82,768	78%
Department of Military Affairs	130,294	53,488	144%
Seven County Services, Inc.	125,817	130,915	(4)%
Department of Parks	116,532	31,377	271%
Jefferson County Attorney	74,921	75,419	(1)%
Judicial Department Admin. Office of the Courts	49,297	61,634	(20)%
Health and Family Services Office of the Secretary	\$48,276	\$19,493	148%

	Total Unpaid Balance	Invoice Count
KERS	\$3,851,131	1,010
KERSH	241,147	53
SPRS	2,283,265	39
Grand Total:	\$6,375,543	



KENTUCKY PUBLIC PENSIONS AUTHORITY

Penalty Invoices Report

From: 7/1/2022 To: 9/30/2022

Note: Delinquent Interest amounts are included in the totals for the invoice

Invoice Amount	Invoice Remaining Balance	Delinquent Interest	Invoice Status Date	Invoice Due Date	Invoice Status	Employer Classification	Comments
\$1,000	\$-	\$-	8/10/2022	10/8/2016	CANC	Master Commissioner	New Employer Reporting Official
1,000	-	-	8/9/2022	4/10/2021	CANC	Master Commissioner	New Employer Reporting Official
1,000	-	-	8/9/2022	7/21/2021	CANC	Master Commissioner	New Employer Reporting Official
1,000	-	-	8/9/2022	7/22/2021	CANC	Master Commissioner	New Employer Reporting Official
1,000	-	-	8/9/2022	7/22/2021	CANC	Master Commissioner	New Employer Reporting Official
1,000	-	-	8/9/2022	7/22/2021	CANC	Master Commissioner	New Employer Reporting Official
1,000	-	-	8/9/2022	7/22/2021	CANC	Master Commissioner	New Employer Reporting Official
1,000	-	-	8/9/2022	7/22/2021	CANC	Master Commissioner	New Employer Reporting Official
1,000	-	-	9/7/2022	9/16/2022	CANC	Non-P1 State Agencies	KPPA system issue.
Total	\$8,000						
\$1,000	\$1,000	\$-	9/9/2022	10/9/2022	CRTD	County Attorneys	
1,000	1,000	-	9/9/2022	10/9/2022	CRTD	County Attorneys	
1,000	1,000	-	9/9/2022	10/9/2022	CRTD	County Attorneys	
Total	\$3,000						
\$1,000	\$-	\$-	8/18/2022	6/2/2016	PAID	Master Commissioner	
1,000	-	-	8/18/2022	5/20/2021	PAID	Master Commissioner	
1,000	-	-	8/29/2022	8/28/2022	PAID	Universities	
1,000	-	-	8/24/2022	9/18/2022	PAID	County Attorneys	
Total	\$4,000						

Notes:

Invoice Status:

CANC - Cancelled

CRTD - Created

PAID - Paid



December 21, 2022

Hon. Attorney General Daniel Cameron
700 Capital Avenue, Suite 118
Frankfort, KY 40601

State Treasurer Allison Ball
1050 US Highway 127 South, Suite 100
Frankfort, KY 40601

RE: “ESG” and Opinion of the Attorney General 22-05

Dear Hon. Attorney General Cameron and State Treasurer Ball:

We are in receipt of your letter dated October 31, 2022, regarding “ESG” and the Opinion of the Attorney General 22-05. As David Eager, Executive Director of KPPA, wrote to you in his letter dated November 2, 2022, investment policy and decision-making are the purview of the Investment Committees and the Boards of Trustees of the County Employees Retirement Systems (“CERS”)¹ and the Kentucky Retirement Systems (“KRS”)², respectively.

Your letter sought clarification that ESG considerations were not being implemented in investment decisions. We can assure you that each investment decision of the CERS Investment Committee, the KRS Investment Committee, and their respective boards, is made with a clear focus on the highest level of fiduciary responsibility owed to the over 410,000 members of our Systems.

On April 25, 2022, we provided testimony to the Public Pensions Oversight Board (“PPOB”) on this very issue. The relevant portions of that presentation are attached hereto and incorporated by reference.

Federal and state law make it clear that a fiduciary has a duty to act in the best interest of the Trust as if it had no other competing interest to protect. The duty requires an undivided loyalty to members and beneficiaries.³ Kentucky statutes codify this duty by stating, in part: “Notwithstanding any other evidence of legislative intent, it is hereby declared to be the controlling legislative intent that the provisions of KRS 78.510 to 78.852 conform with federal statute or regulation and meet the qualification requirements under 26 U.S.C. sec. 401 (a), applicable federal regulations, and other published guidance.”⁴

¹ KRS 78.790(1)(b)(2)

² KRS 61.650(1)(b)(2)

³ 26 U.S.C. § 401 (a) and 29 U.S.C. § 1104 (a)

⁴ KRS 78.782 9(d)

The courts have also weighed in on how fiduciary duties must be carried out to benefit membership. The Sixth U.S. Circuit Court of Appeals has explained that fiduciary duties have three (3) component parts. First, all decisions must be made with an eye to the interests of the participants and beneficiaries. Second, the fiduciary must act as a prudent person would act with single-minded devotion to those same plan participants and beneficiaries. Third, the fiduciary must act for the exclusive purpose of providing benefits to beneficiaries.⁵

With this duty of loyalty in mind, on November 10, 2021, the CERS Board of Trustees amended the Investment Policy Statement to read:

The CERS Trustees recognize the importance of responsible investing. Accordingly, the Trustees acknowledge that integrating Environment, Social, and Governance (ESG) policy principles that engage the issue from a risk, opportunity and fiduciary duty perspective will enhance investment results. The overriding consideration for the Trustees will continue to be investing to maximize the long-term returns for plan beneficiaries.

The investment policy is designed to acknowledge that in some instances considering ESG factors may minimize risk or highlight opportunities but must always be done with an eye toward the unwavering fiduciary duty owed to every member of the Plan. The policy is emphatic. The overriding consideration for every investment will be the decision which enhances the long-term return for beneficiaries.

While the CERS and KRS Investment Policy Statements are not identical, we feel that the process provided for in both statements allows the Investment Committees and the Boards to fulfill their fiduciary responsibilities at both the state and federal levels.

Proxy Voting

Although our decisions regarding proxy voting were not explicitly requested in your letter, we wanted to take the opportunity to emphasize how seriously we take our fiduciary duty. As you know, the firm BlackRock, with approximately \$9.5 Trillion of Assets Under Management (“AUM”), has become synonymous with ESG investing. They have, on their own admission, used the proxy vote that has been granted them by investors to become advocates for ESG-driven policy and change, often, with little communication of their agenda to affected investors.

CERS and KRS have approximately \$1 billion in non-U.S. equity index funds that are managed by BlackRock. All our investment managers are fiduciaries to our plan, thereby agreeing to submit to the will of our beneficiaries. The CERS and KRS Boards of Trustees have taken proactive steps to ensure that the will of our beneficiaries will be paramount in proxy voting.

Although CERS and KRS will continue to utilize Institutional Shareholder Services (“ISS”) for our proxy voting, we are implementing a policy that all internally and externally managed accounts will be voted in accordance with the CERS Investment Proxy Voting Policy and the KRS Investment Proxy Voting Policy, which were adopted by their respective boards in March 2022.

All external managers, including BlackRock, have agreed to implement this change. Our Investment Office staff is currently working to add an addendum to or update the various Investment Management

⁵ *Chao v. Hall Holding Co., Inc.*, 285 F.3d 415, 426 (6th Cir. 2002)

Agreements (“IMA”). Staff is also working to implement a system of random audits of proxy votes taken by ISS. The sheer number of proxy votes in any given quarter or year makes a full review of every single vote impossible; however, we believe random audits, combined with our strong Proxy Voting Policy, will ensure that proxy votes taken on our behalf reflect the will of our beneficiaries.

Conclusion

Attorney General Cameron and Secretary Ball, we greatly appreciate the opportunity to share with you our commitment to the beneficiaries of the CERS and KRS Plans. The duty of loyalty owed to them is always at the center of our decision-making. If we can be of further assistance, or provide additional information, please do not hesitate to contact us.

Sincerely,

Ed Owens III
CEO, County Employees Retirement System

John E. Chilton
CEO, Kentucky Retirement Systems