



**County Employees Retirement System
Board of Trustees – Regular Quarterly Meeting
December 4, 2023, at 2:00 pm ET (1:00 pm CT)
Live Video Conference/Facebook Live**

AGENDA

- | | | |
|-----|--|---------------------------|
| 1. | Call to Order | Betty Pendergrass |
| 2. | Opening Statement | Eric Branco |
| 3. | Roll Call | Sherry Rankin |
| 4. | Public Comment | Sherry Rankin |
| 5. | Approval of Minutes* -- November 8, 2023 | Betty Pendergrass |
| 6. | Actuarial | |
| | a. Revised 2023 Valuation | GRS |
| | b. Employer Contribution rates FY 24-25 | Betty Pendergrass |
| | c. Annuity conversion & service purchase rates | Betty Pendergrass |
| 7. | Finance Committee Report | Bill O'Mara |
| | a. Hazardous duty requests* | D'Juan Surratt |
| | b. Agency participation requests* | D'Juan Surratt |
| | c. Quarterly financial reports | Mike Lamb |
| 8. | KPPA Audit Committee Report | Bill O'Mara |
| | a. FY23 External Audit report | Bill O'Mara |
| 9. | Investment Committee Report* | Dr. Merl Hackbart |
| | a. Investment Office quarterly update | Steve Willer |
| | b. Investment administrative budget | Steve Willer |
| | c. Asset Allocation Study Update* | Steve Willer and Wilshire |
| 10. | Administrative | |
| | a. 2024 Meeting Calendar* | Betty Pendergrass |
| | b. CEO Report | Ed Owens, III |
| | c. KPPA Update | David Eager |
| 11. | Closed Session* | Eric Branco |
| 12. | Adjourn | Betty Pendergrass |

*Board May Take Action

**MINUTES OF MEETING
COUNTY EMPLOYEES RETIREMENT SYSTEM
BOARD OF TRUSTEES MEETING
NOVEMBER 8, 2023, AT 2:00 P.M. ET
VIA LIVE VIDEO TELECONFERENCE**

At the Meeting of the County Employees Retirement System Board of Trustees held on November 8, 2023, the following members were present: Betty Pendergrass (Chair), Dr. Patricia Carver, George Cheatham, Michael Foster, JT Fulkerson, Dr. Merl Hackbart, Dr. Martin Milkman, William O'Mara, and Jerry Powell. Staff members present were CERS CEO Ed Owens, III, David Eager, Rebecca Adkins, Erin Surratt, Connie Pettyjohn, Michael Lamb, Connie Davis, Michael Board, Leigh Ann Davis, Steve Willer, Anthony Chiu, Ashley Gabbard, Katie Park, Shaun Case, and Sherry Rankin. Others present included David Lindberg and Chris Tessman with Wilshire, Danny White and Janie Shaw with GRS, and Eric Branco with Johnson Bowman Branco, LLP.

Ms. Pendergrass called the meeting to order.

Mr. Branco read the Legal Opening Statement.

Ms. Rankin called Roll.

There being no **Public Comment** received, Ms. Pendergrass introduced agenda item **Approval of Minutes – September 7, 2023, and September 13, 2023** (Video 00:09:10 to 00:09:57). Dr. Hackbart made a motion to approve all minutes as presented and was seconded by Dr. Milkman. The motion passed unanimously.

Ms. Pendergrass wished to amend the order of the agenda to discuss items *Joint Retiree Health Plan Committee* (#7) and *Administrative* (#8) prior to item *Actuarial Committee Report* (#6). Mr. Powell made a motion to amend the agenda. Mr. Cheatham seconded the motion and the motion passed unanimously.

Ms. Pendergrass introduced agenda item **Joint Retiree Health Plan Committee** (Video 00:11:03 to 00:18:18). Mr. Powell stated that The Joint CERS & KRS Retiree Health Plan (RHP) Committee met October 23, 2023. Ms. Pettyjohn advised that the Committee reviewed an informational

presentation from Humana regarding 2024 Pharmacy Review, Pharmacogenomics, and Medication Therapy Management (MTM). She briefly discussed 2024 Formulary changes, open enrollment, and retiree engagement/outreach efforts. Mr. Powell added that contract negotiations continue between Humana and Baptist Health Medical Group (BHMGM).

Ms. Pendergrass introduced agenda item *Administrative* (Video 00:18:19 to 00:37:21). Ms. Pendergrass reviewed proposed amendments to the CERS Bylaws. She advised that a change to the proposed recurring meeting schedule was needed; the CERS Board of Trustees meeting scheduled for the 2nd Monday in December would move to the 1st Monday in December.

Mr. Cheatham wished to clarify the language in Section 2.1 Standing Committees to ensure there is no violation of the Open Meetings Act. He proposed that the last line in the section be replaced with the following: “Any trustee who wishes to observe a meeting or a committee of which he or she is not a member shall do so by watching via live broadcast.” Mr. Cheatham made a motion to make his proposed change to the CERS Bylaws. The motion was seconded by Mr. Fulkerson. No vote was taken.

Ms. Pendergrass requested that the CERS Bylaws be brought back for further review at the December 2023 meeting.

Mr. Cheatham expressed concern regarding the creation of a standing CERS Legislative Committee. There was discussion of whether the proposed committee should be an ad hoc/standing committee or a working group. Ms. Pendergrass suggested that the topic be tabled for in-depth discussion in March of 2024. Mr. Cheatham requested that Mr. Branco provide the Board of Trustees with guidance on the matter. Dr. Hackbart made a motion to table the discussion to March of 2024. Mr. Powell seconded the motion and the motion passed unanimously.

Next, the contract of the CERS Chief Executive Officer was discussed. Ms. Pendergrass stated that there are concerns regarding the Termination Without Cause section of the contract. The current contract offers three months of compensation to be paid should employment be terminated prior to the end of the contract term for reasons other than Cause. Several other contracts have been given six months of compensation, said Ms. Pendergrass. Mr. Powell made a motion to amend the contract of CERS CEO Ed Owens III to reflect the similarity with other contracts to include a six-month payout. Mr. Powell clarified his motion to state that there is no change to the

contract term. Mr. Foster seconded the motion and the motion passed unanimously.

Ms. Pendergrass reminded the Trustees that the proposed recurring meeting schedule for 2024 was included in the tabled CERS Bylaws. She advised that all CERS Board and Committee meetings would be special called meetings until the Bylaws receive final approval.

Mr. O'Mara made a motion to adopt the 2024 proposed recurring meeting schedule with the discussed modification: the CERS Board of Trustees meeting scheduled for the 2nd Monday in December would move to the 1st Monday in December. Mr. Powell seconded the motion.

Ms. Surratt advised that the CERS Board of Trustees meeting scheduled for the 3rd Wednesday in September would need to be rescheduled to an earlier date. Therefore, Ms. Pendergrass requested that the motion be tabled for discussion at the December 2023 meeting. Mr. O'Mara made a motion to table the item and was seconded by Dr. Milkman. The motion passed unanimously.

Ms. Pendergrass introduced agenda item *Actuarial Committee Report* (Video 00:37:22 to 02:02:03). Mr. Foster introduced Mr. Danny White and Ms. Janie Shaw with GRS to review the 2023 Draft Actuarial Valuation Results as presented to the CERS Actuarial Committee on November 1, 2023. Mr. White noted that there was a recent adjustment made to the financial statements for CERS. Mr. Lamb briefly described the adjustment to employer contributions. Ms. Pendergrass recommended that the CERS Board of Trustees accept the 2023 Draft Actuarial Valuation Results with the understanding that some figures will change. The final results will be presented in December of 2023 and will be used to adopt the contribution rates, said Ms. Pendergrass.

Ms. Shaw and Mr. White presented the 2023 Valuation Results.

Ms. Pendergrass requested a motion to accept the draft report with the understanding that GRS is going to rerun the valuation to include the audit adjustment for June 30th. A motion to accept the draft motion was made by Mr. Foster and seconded by Dr. Carver. The motion passed unanimously.

Next, the actuarial factors used in the administration of benefits were discussed. Ms. Pendergrass requested that Mr. White further explain the provided Comparison of Certain Actuarial Factors at

Select Ages schedule. There was extensive discussion regarding which actuarial factors should be adopted by the CERS Board of Trustees and the potential impact of each proposed factor.

Mr. Eager added that the use of a single rate is preferred to efficiently administer benefits and indicated that Kentucky Retirement Systems (KRS) may wish to compromise on a single rate.

Mr. Cheatham believed a rate of 5.875% would be a good compromise for both systems going forward. Mr. O'Mara suggested that a representative from CERS work to obtain the opinion of the KRS Board of Trustees regarding the use of a single rate of 5.875%. Ms. Pendergrass asked CERS CEO Mr. Owens III if he had been in communication with KRS CEO Mr. Chilton regarding a rate of 5.875%. Mr. Owens III advised that he and Mr. Chilton had previously discussed everything from 5.25% up to 6.50%. He advised that the KRS Board of Trustees had not committed to any specific rate.

Dr. Hackbart asked when a decision was required; Ms. Pendergrass advised that there was no specific deadline, however, it would take at least six-months to implement the selected rate.

Ms. Pendergrass stated that Mr. Owens III can further discuss the rate recommended by the CERS Board of Trustees with Mr. Chilton. Ms. Pendergrass requested a motion directing Mr. Owens III to exchange conversations with Mr. Chilton regarding a recommended rate of 5.875%.

Dr. Hackbart suggested that a motion be made to approve the 5.875% and then table the motion pending KRS deliberations. Dr. Milkman expressed opposition to making a recommendation. Mr. Fulkerson stated that a rate of 5.875% would be the best recommendation.

Mr. O'Mara proposed that Mr. Owens III discuss the issue with Mr. Chilton and report back to the CERS Board of Trustees.

Mr. Owens III stated that he was in favor of the Board voting a number contingent upon agreement from the KRS Board of Trustees as it would strengthen his leverage when speaking with Mr. Chilton regarding a specific rate.

Dr. Hackbart made a motion to recommend a rate of 5.875% to the KRS Board of Trustees. Mr. Fulkerson seconded the motion. Dr. Hackbart made a motion to table the motion and was seconded

by Mr. Fulkerson. A roll call vote was taken. The motion passed with Trustees Pendergrass, Fulkerson, Hackbart, Milkman, and O'Mara voting in favor, and Trustees Carver, Cheatham, Foster, and Powell voting against. Therefore, the motion was tabled.

Ms. Pendergrass requested that Mr. Owens III summarize what he planned to discuss with Mr. Chilton on behalf of the CERS Board of Trustees. He stated that the Board is very focused and centered around 5.875% as a single rate for the CERS with the understanding that it is a compromised rate for both CERS and KRS. However, if KRS is not in favor of this rate, discussions of two separate rates or another blended rate would need to take place, said Mr. Owens III.

Ms. Pendergrass noted that the intent of tabling the motion was to not take a final vote on the matter; therefore, remain open to negotiations with KRS. Mr. Owens III will provide an update on the matter in December, announced Ms. Pendergrass.

Ms. Pendergrass directed the Trustees to the presented CERS Bylaws. She requested that Mr. Foster and Mr. Cheatham to work with Mr. Branco and Mr. Bowman to study the issues surrounding the creation of a standing CERS Legislative Committee and draft alternative language for the bylaws.

Ms. Pendergrass introduced agenda item ***Closed Session*** (Video 02:02:04 to 02:03:02). Mr. Cheatham made a motion to enter closed session to discuss pending litigation pursuant to KRS 61.810(c). The motion was seconded by Dr. Carver and passed unanimously.

Ms. Pendergrass read the following closed session statement: A motion having been made in open session to move into a closed session for a specific purpose, and such motion having carried by majority vote in open, public session, the Board shall now enter closed session to consider litigation, pursuant to KRS 61.810(1)(c), because of the necessity of protecting the confidentiality of the Systems' litigation strategy and preserving any available attorney-client privilege.

****Mr. Fulkerson exited the meeting prior to the start of Closed Session****

Closed Session (Video - Part 2 - 00:00:26 to 00:00:30)

Coming back into open session, Ms. Pendergrass announced that no action would be taken because of the discussions in Closed Session.

Ms. Pendergrass opened the floor for adjournment. Mr. Powell made a motion and was seconded by Mr. Cheatham 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 8, 2023, 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 County Employees Retirement System, do certify that the Minutes of Meeting held on November 8, 2023, were approved on December 4, 2023.

Chair of the Board of Trustees

I have reviewed the Minutes of the November 8, 2023, Board of Trustees Meeting for content, form, and legality.

Executive Director
Office of Legal Services



MEMORANDUM

TO: County Employees Retirement System Board of Trustees

From: Mike Foster, Chair
Actuary Committee

Date: December 4, 2023

Subject: Summary of Actuary Committee Meeting

The County Employees Retirement System Actuary Committee held a regularly scheduled meeting on November 1, 2023.

1. **The following items were approved by the Actuary Committee and are being forwarded to the County Employees Retirement System Board of Trustees for ratification***
 - a. **2023 Draft Actuarial Valuation Results** – The Actuary Committee considered the presentation of GRS, the System Actuary, concerning the 2023 Draft Actuarial Valuation results. After hearing the presentation from GRS the Committee unanimously agreed to recommend the Draft Valuation for approval of the entire Board of Trustees prior to its statutorily required presentation to the Legislative Research Commission (LRC) on or before November 15, 2023.
 - b. **Actuarial Factors Used in Administration of Benefits** – The Actuary Committee entertained a presentation by GRS concerning the assumed rate which should be used for conversion of optional forms of payment and service credit. After considerable discussion of various rates that could be utilized, the Committee unanimously agreed to recommend an assumed rate of **5.875%** as a single rate to be utilized by all plans administered by KPPA to the entire CERS Board of Trustees.

RECOMMENDATION: The Actuary Committee requests the County Employees Retirement System Board of Trustees ratify the actions taken by the Actuary Committee.

2. The following items were also discussed during the Finance Committee meeting:

- a. KPPA staff presented quarterly financial reports consisting of:
 - a. YTD Financial Spreadsheet
 - b. Administration Expense to Budget
 - c. Investment Expense to Budget
 - d. Contribution Report
 - e. Outstanding Invoice Report
 - f. Penalty Waiver Report

- b. There were questions asked by the Committee concerning the legal expense attributed to the Investment Budget. Staff indicated there was significant movement expected in several of the pending legal matters leading to the significant increase in budgeted legal expense. The Committee also questioned staff concerning the consulting contracts utilized by the Investment Office. Staff indicated those contracts were under review and there could be some adjustment made in the services required and the provider group in the future.

- c. The Committee further inquired about the lack of movement on the Outstanding Invoice Report. Staff indicated there would be a presentation made to the September CERS Board meeting concerning a matter on the Invoice report. It should be noted that many of the items listed on that report are the subject of on-going litigation.

***Board of Trustees Action Required**



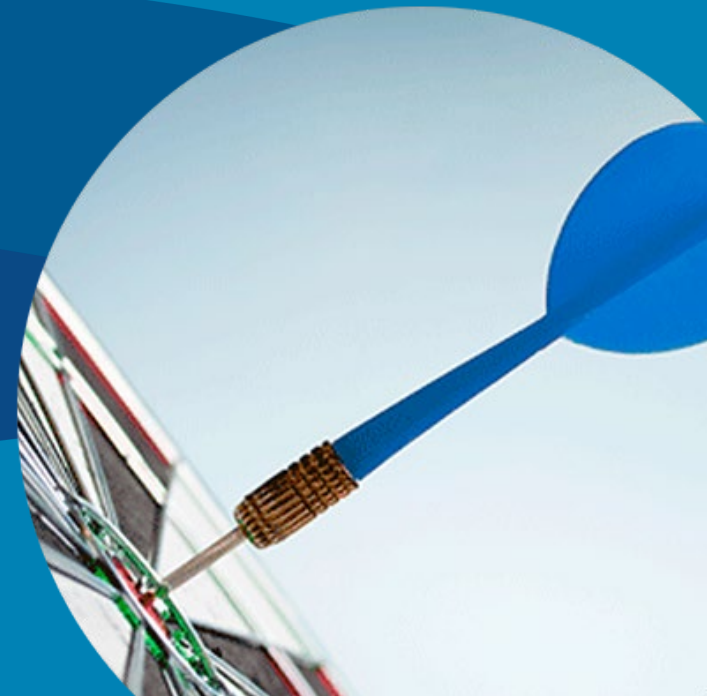
County Employees Retirement System

2023 Actuarial Valuation Results

December 4, 2023

Janie Shaw, ASA, EA, MAAA

Danny White, FSA, EA, MAAA



Comments on Valuation Results

- Board adopted new assumptions in May 2023
 - **Investment Return Assumption:** Increased to 6.50% for all funds
 - **Mortality:** Update the base mortality assumption to reflect recent experience (data dependent). Update the improvement assumption based on more recent published report (anticipated trend).
 - Increase disability mortality. No change to pre-retirement mortality
 - **Termination/Withdrawal:** Increase the rates of termination prior to retirement age
 - **Disability incidence:** Decrease the rate of disability incidence
 - **Individual salary increases:** Increase assumption at certain service intervals
 - **Cash Balance Interest Credit:** Increased to 6.75%



Comments on Valuation Results

- Change in active membership and payroll
 - Active membership increased across both funds
 - Non-Hazardous: 8% increase in membership payroll
 - Hazardous: 9% increase in membership payroll
- Overview of legislation passed in 2023
 - **HB 506:** reinstated the Partial Lump Sum Option Form of payment, and adjusted the minimum required separation period for return to work



Comments on Valuation Results

- FYE 2023 Investment Experience
 - 10% return on market value
 - Assumed rate of return: 6.25% (6.50% after the 2023 after the valuation date)
 - Fund assets \$600M more than expected for CERS (\$420M pension and \$180M insurance)
 - \$44M in asset gains recognized this year (\$33M pension and \$11M insurance)



Comments on Valuation Results

- Retirement Fund Liability Experience
 - \$328M loss for both retirement funds combined
 - Primarily attributed to salary increases greater than expected for individual active members
- Insurance Fund Liability Experience
 - \$331M loss for both insurance funds combined
 - 2024 Pre-Medicare premiums higher than expected partially offset by Medicare premiums lower than expected



Required Employer Contributions

	CERS Non-Hazardous		CERS Hazardous	
	2022 Val	2023 Val	2022 Val	2023 Val
(1)	(2)	(3)	(4)	(5)
Pension Fund	23.34%	19.71%	41.11%	36.49%
Insurance Fund	<u>0.00%</u>	<u>0.00%</u>	<u>2.58%</u>	<u>2.12%</u>
Actuarially Determined Contribution Rate, payable as a percentage of payroll	23.34%	19.71%	43.69%	38.61%
Difference		-3.63%		-5.08%

Note: 2022 Valuation set the contribution rates for FYE2024.
 2023 Valuation will be used to set the contribution rates for FYE2025.



Required Employer Contributions (\$millions)

	CERS Non-Hazardous		CERS Hazardous	
	2022 Val	2023 Val	2022 Val	2023 Val
(1)	(2)	(3)	(4)	(5)
Pension Fund	\$641	\$583	\$260	\$252
Insurance Fund	<u>0</u>	<u>0</u>	<u>16</u>	<u>15</u>
Total Actuarially Determined Employer Contribution	\$641	\$583	\$276	\$267
Change in Actuarially Determined Employer Contribution		\$(58)		\$(9)

Note: 2022 Valuation set the contribution rates for FYE2024.
 2023 Valuation will be used to set the contribution rates for FYE2025.

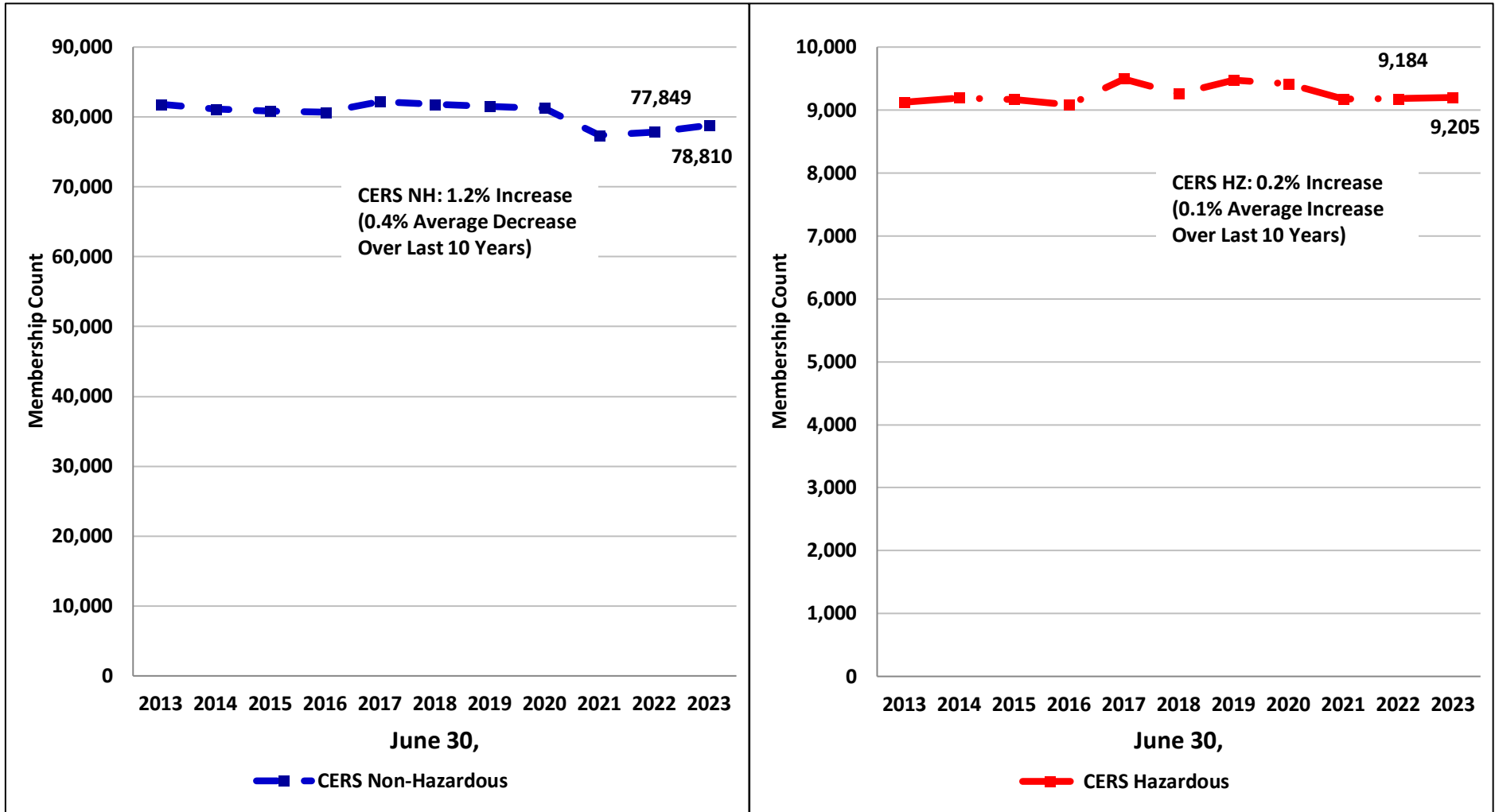


Unfunded Actuarial Accrued Liability – Actuarial Value of Asset Basis (\$ in Billions)

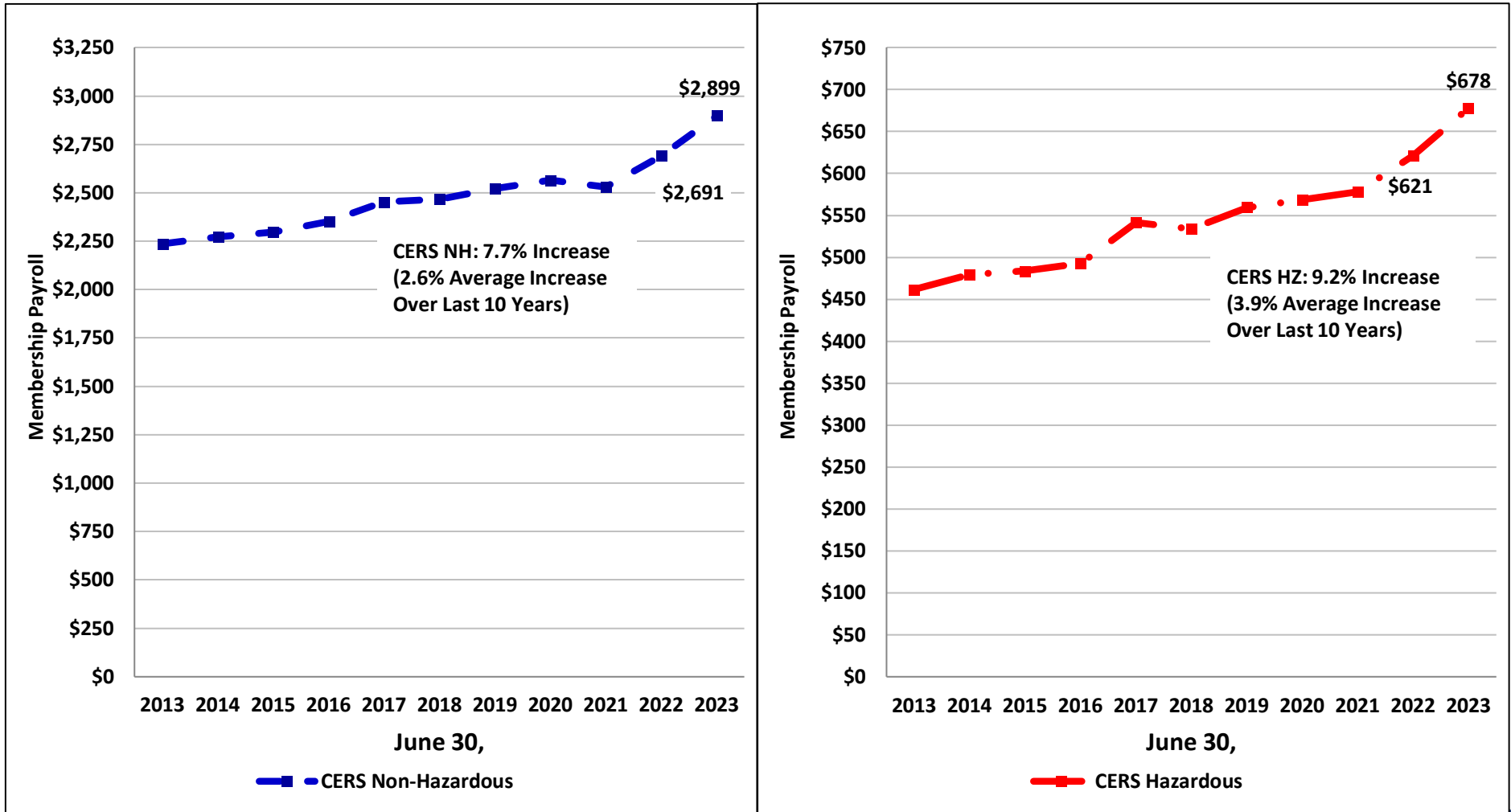
	CERS Non-Hazardous		CERS Hazardous	
	2022 Val	2023 Val	2022 Val	2023 Val
(1)	(2)	(3)	(4)	(5)
Pension Fund	\$7.53	\$6.71	\$3.07	\$2.84
Insurance Fund	<u>(0.77)</u>	<u>(0.81)</u>	<u>(0.02)</u>	<u>(0.01)</u>
Total Unfunded Actuarial Accrued Liability	\$6.76	\$5.91	\$3.06	\$2.83
Change in Unfunded Actuarial Accrued Liability		\$(0.85)		\$(0.23)



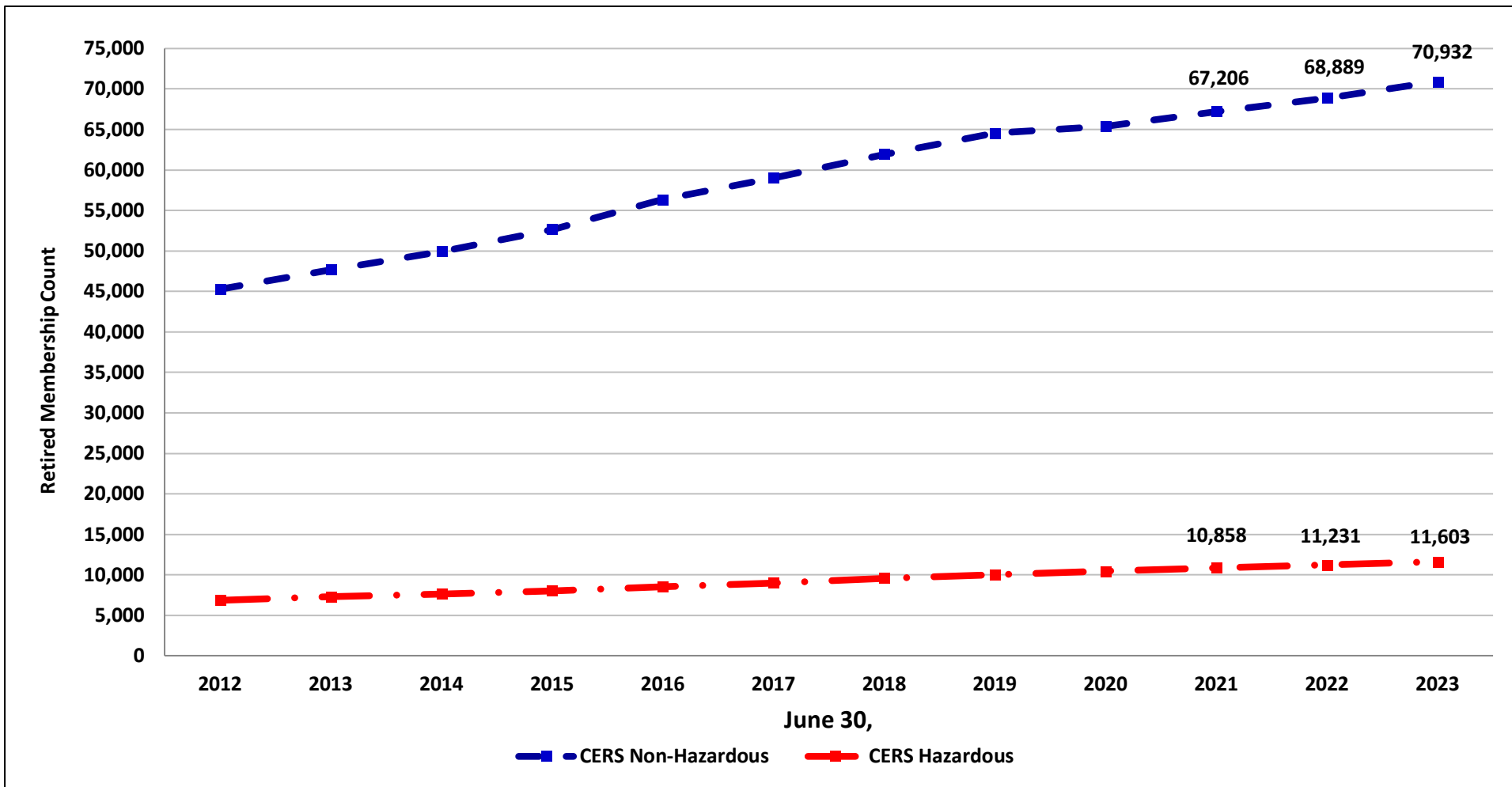
Active Membership Count



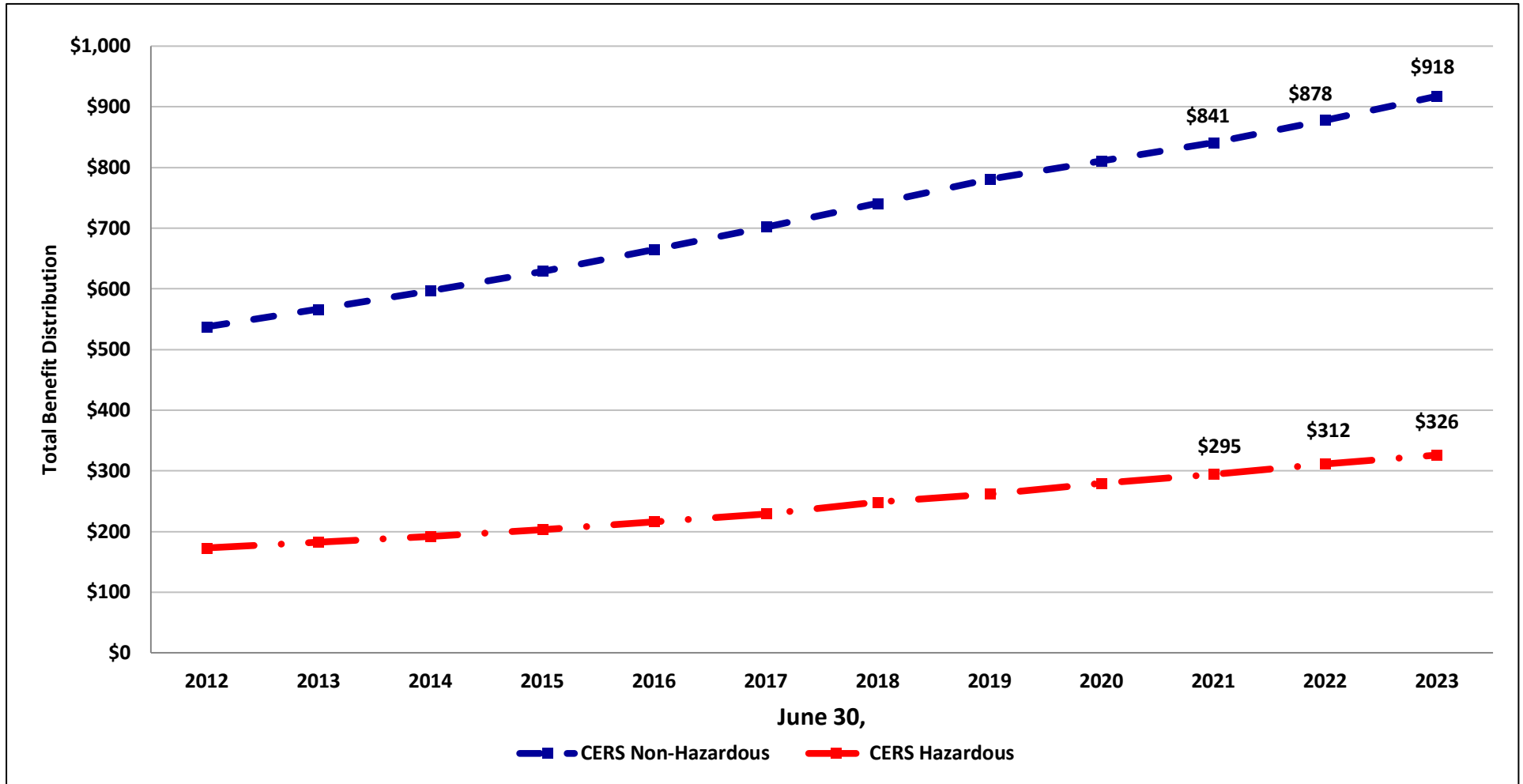
Membership Payroll (\$ in Millions)



Retired Membership Count



Pension Benefit Distributions (\$ in Millions)



Funding Results – CERS (\$ in millions)

Item	Non-Hazardous System				Hazardous System			
	Pension		Insurance		Pension		Insurance	
	2022	2023	2022	2023	2022	2023	2022	2023
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Total Normal Cost Rate	10.22%	9.46%	2.69%	2.35%	18.02%	17.46%	4.50%	3.77%
Member Rate	<u>(5.00)%</u>	<u>(5.00)%</u>	<u>(0.59)%</u>	<u>(0.63)%</u>	<u>(8.00)%</u>	<u>(8.00)%</u>	<u>(0.59)%</u>	<u>(0.64)%</u>
Employer Normal Cost Rate	5.22%	4.46%	2.10%	1.72%	10.02%	9.46%	3.91%	3.13%
Administrative Expenses	0.84%	0.83%	0.04%	0.03%	0.32%	0.31%	0.08%	0.08%
Amortization Cost	<u>17.28%</u>	<u>14.42%</u>	<u>(3.01)%</u>	<u>(2.86)%</u>	<u>30.77%</u>	<u>26.72%</u>	<u>(1.41)%</u>	<u>(1.09)%</u>
Total Actuarially Determined Rate	23.34%	19.71%	0.00%	0.00%	41.11%	36.49%	2.58%	2.12%
Actuarial Accrued Liability (AAL)	\$15,674	\$15,296	\$2,392	\$2,560	\$5,862	\$5,850	\$1,538	\$1,604
Actuarial Value of Assets	<u>\$8,149</u>	<u>\$8,585</u>	<u>\$3,160</u>	<u>\$3,366</u>	<u>\$2,789</u>	<u>\$3,008</u>	<u>\$1,554</u>	<u>\$1,615</u>
Unfunded AAL	\$7,525	\$6,711	\$(768)	\$(806)	\$3,073	\$2,842	\$(16)	\$(11)
Funded Ratio	52.0%	56.1%	132.1%	131.5%	47.6%	51.4%	101.0%	100.7%



PROJECTION INFORMATION PENSION AND INSURANCE



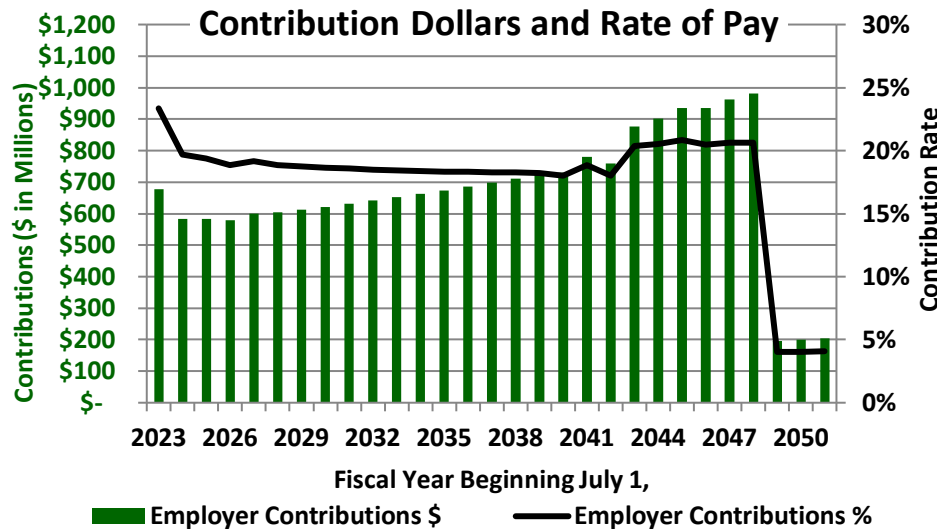
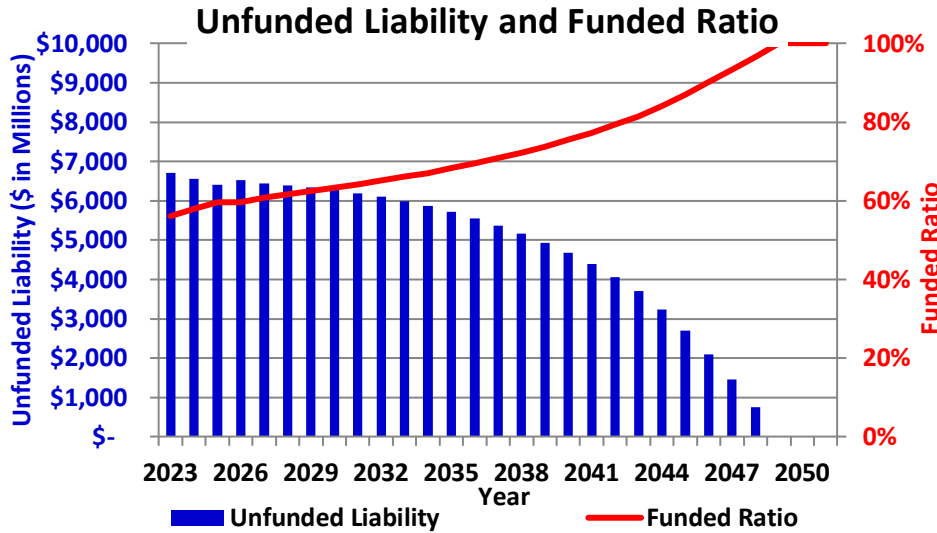
Projection Assumptions

- Assumes that all actuarial assumptions are realized, including the assumed annual asset return of 6.50%
- Full actuarially determined contribution paid each year
- Membership payroll assumed to increase by 2% each year
 - Total active population assumed to remain level

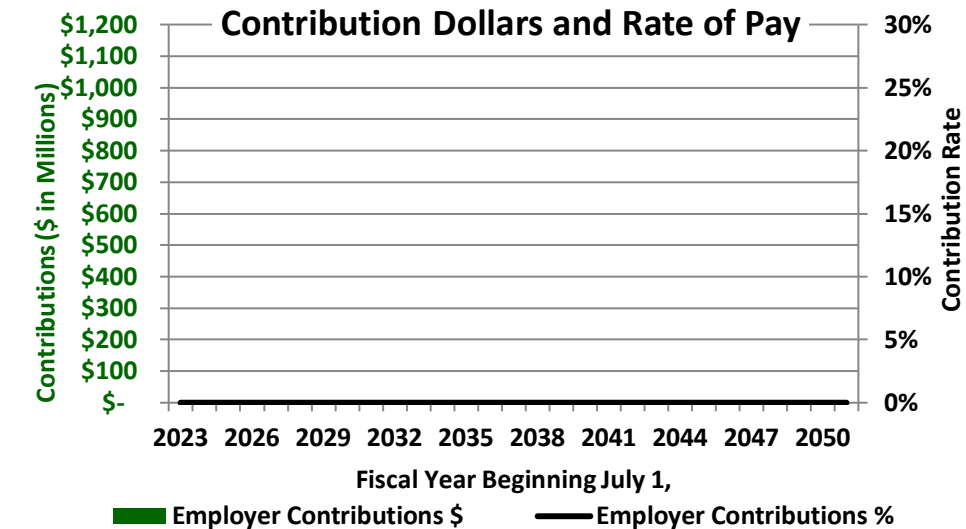
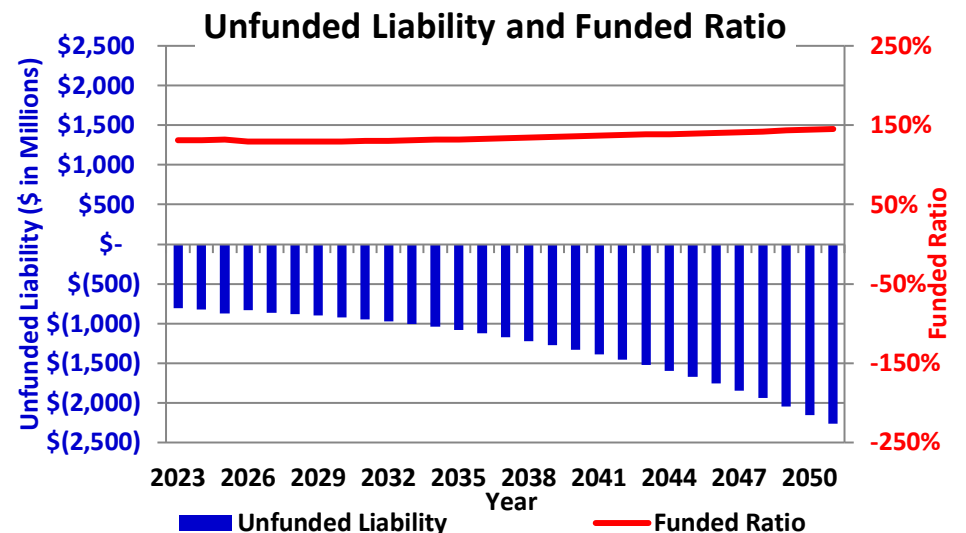


CERS Non-Hazardous Projection

Pension

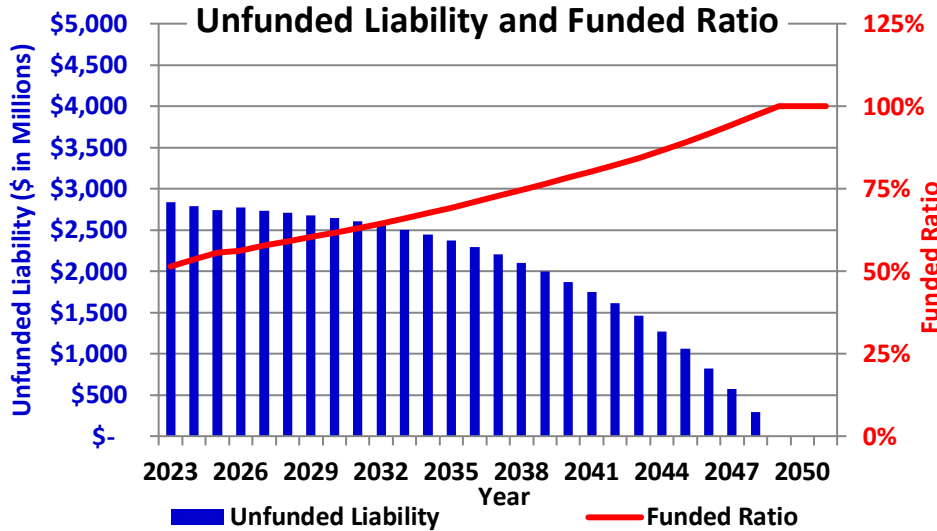


Insurance

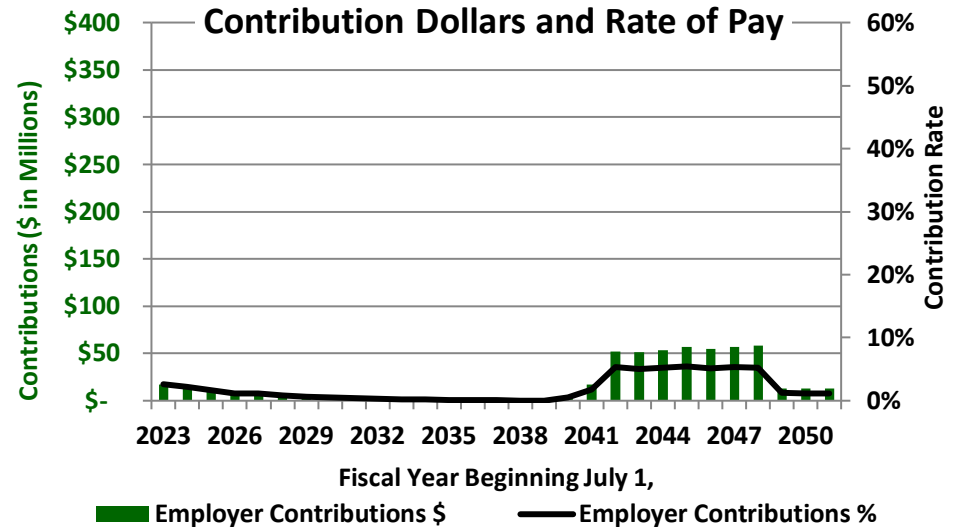
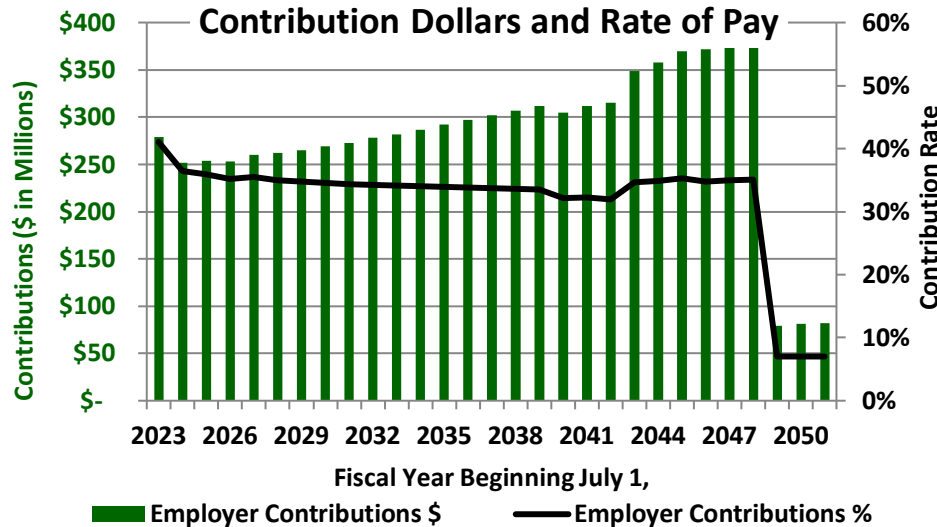
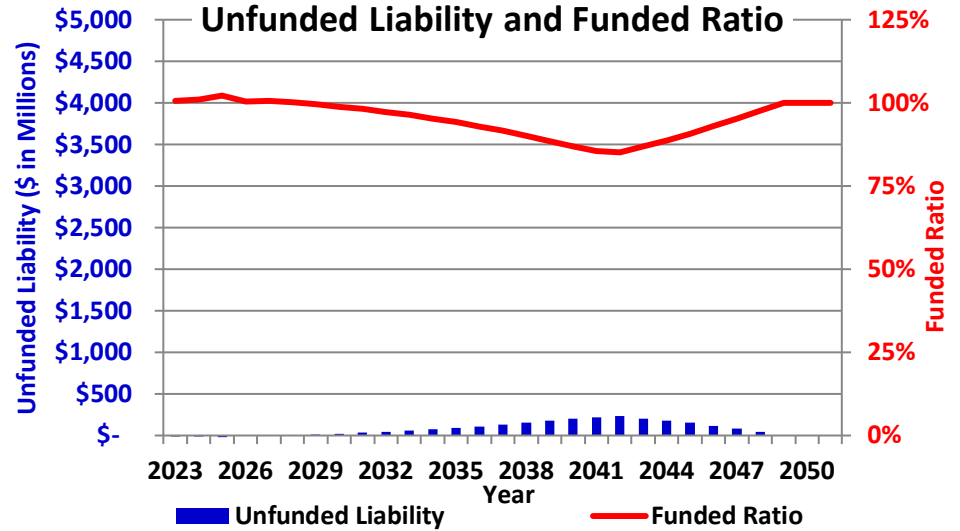


CERS Hazardous Projection

Pension



Insurance



Closing Comments on 2023 Valuation Results

- It is imperative the participating employers continue contributing the actuarially determined contributions in each future year to improve the System's financial security
- Last year's increase in active membership and payroll is a positive signal for the System and its participating employers



Disclaimers

- This presentation is intended to be used in conjunction with the actuarial valuation as of June 30, 2023. 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.





November 13, 2023

Board of Trustees
 County Employees Retirement System
 Perimeter Park West
 1260 Louisville Road
 Frankfort, KY 40601

Re: Sensitivity Analysis Based on Results of the June 30, 2023 Actuarial Valuation – CERS

Dear Members of the Board:

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

Background

Investment Assumption

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

Inflation Assumption

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

Board of Trustees
November 13, 2023
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Payroll Growth Assumption

Participating employers of CERS make contributions to the system as a percentage of covered payroll. Therefore, as payroll changes over time these amortization payments will also change. If actual covered payroll increases at a rate that is less than assumed, then the retirement system receives fewer contribution dollars than expected to finance the unfunded liability, which means the contribution rates in future years will be required to increase in order to finance the unfunded liability over the same time period. The current payroll growth assumption is 2.00% for all the CERS retirement and insurance funds. The analysis shows the impact of a 1.00% increase and a 1.00% decrease in the payroll growth assumption.

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

Certification

The information provided in this letter compliments the information provided in the June 30, 2023 actuarial valuation report. Please refer to the June 30, 2023 actuarial valuation report for additional discussion of the actuarial valuation, including the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

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

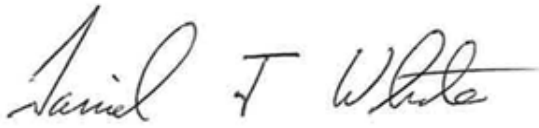


Board of Trustees
November 13, 2023
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To the best of our knowledge, this report is complete and accurate and is in accordance with generally recognized actuarial practices and methods. Mr. White and Ms. Shaw are Enrolled Actuaries. All three of the undersigned are members of the American Academy of Actuaries and meet all of the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. In addition, all three are independent of KPPA and are experienced in performing valuations for large public retirement systems. This communication shall not be construed to provide tax advice, legal advice or investment advice.

Sincerely,

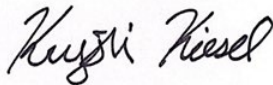
Gabriel, Roeder, Smith & Company



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



Janie Shaw, ASA, EA, MAAA
Consultant



Krysti Kiesel, ASA, MAAA
Senior Analyst and Actuary

DRAFT



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

(1)	Decrease Discount Rate (2)	Valuation Results (3)	Increase Discount Rate (4)
Payroll Growth Rate	2.00%	2.00%	2.00%
Inflation Rate	2.50%	2.50%	2.50%
Discount Rate - Retirement	5.50%	6.50%	7.50%
Discount Rate - Insurance	5.50%	6.50%	7.50%
Retirement			
Actuarial Accrued Liability	\$ 17,022,120	\$ 15,296,429	\$ 13,861,471
Actuarial Value of Assets	8,585,073	8,585,073	8,585,073
Unfunded Actuarial Accrued Liability	8,437,047	6,711,356	5,276,398
Funded Ratio	50.4%	56.1%	61.9%
Actuarially Determined Contribution Rate	24.82%	19.71%	15.36%
Insurance			
Actuarial Accrued Liability	\$ 2,864,445	\$ 2,560,387	\$ 2,306,018
Actuarial Value of Assets	3,366,332	3,366,332	3,366,332
Unfunded Actuarial Accrued Liability	(501,887)	(805,945)	(1,060,314)
Funded Ratio	117.5%	131.5%	146.0%
Actuarially Determined Contribution Rate	0.54%	0.00%	0.00%
Combined			
Actuarial Accrued Liability	\$ 19,886,565	\$ 17,856,816	\$ 16,167,489
Actuarial Value of Assets	11,951,405	11,951,405	11,951,405
Unfunded Actuarial Accrued Liability	7,935,160	5,905,411	4,216,084
Funded Ratio	60.1%	66.9%	73.9%
Actuarially Determined Contribution Rate	25.36%	19.71%	15.36%



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

(1)	Decrease Inflation Rate (2)	Valuation Results (3)	Increase Inflation Rate (4)
Payroll Growth Rate	1.75%	2.00%	2.25%
Inflation Rate	2.25%	2.50%	2.75%
Discount Rate - Retirement	6.25%	6.50%	6.75%
Discount Rate - Insurance	6.25%	6.50%	6.75%
Retirement			
Actuarial Accrued Liability	\$ 15,659,842	\$ 15,296,429	\$ 14,950,069
Actuarial Value of Assets	8,585,073	8,585,073	8,585,073
Unfunded Actuarial Accrued Liability	7,074,769	6,711,356	6,364,996
Funded Ratio	54.8%	56.1%	57.4%
Actuarially Determined Contribution Rate	21.04%	19.71%	18.45%
Insurance			
Actuarial Accrued Liability	\$ 2,599,603	\$ 2,560,387	\$ 2,523,466
Actuarial Value of Assets	3,366,332	3,366,332	3,366,332
Unfunded Actuarial Accrued Liability	(766,729)	(805,945)	(842,866)
Funded Ratio	129.5%	131.5%	133.4%
Actuarially Determined Contribution Rate	0.00%	0.00%	0.00%
Combined			
Actuarial Accrued Liability	\$ 18,259,445	\$ 17,856,816	\$ 17,473,535
Actuarial Value of Assets	11,951,405	11,951,405	11,951,405
Unfunded Actuarial Accrued Liability	6,308,040	5,905,411	5,522,130
Funded Ratio	65.5%	66.9%	68.4%
Actuarially Determined Contribution Rate	21.04%	19.71%	18.45%



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

(1)	Decrease Payroll Growth (2)	Valuation Results (3)	Increase Payroll Growth (4)
Payroll Growth Rate	1.00%	2.00%	3.00%
Inflation Rate	2.50%	2.50%	2.50%
Discount Rate - Retirement	6.50%	6.50%	6.50%
Discount Rate - Insurance	6.50%	6.50%	6.50%
Retirement			
Actuarial Accrued Liability	\$ 15,296,429	\$ 15,296,429	\$ 15,296,429
Actuarial Value of Assets	8,585,073	8,585,073	8,585,073
Unfunded Actuarial Accrued Liability	6,711,356	6,711,356	6,711,356
Funded Ratio	56.1%	56.1%	56.1%
Actuarially Determined Contribution Rate	21.34%	19.71%	18.19%
Insurance			
Actuarial Accrued Liability	\$ 2,560,387	\$ 2,560,387	\$ 2,560,387
Actuarial Value of Assets	3,366,332	3,366,332	3,366,332
Unfunded Actuarial Accrued Liability	(805,945)	(805,945)	(805,945)
Funded Ratio	131.5%	131.5%	131.5%
Actuarially Determined Contribution Rate	0.00%	0.00%	0.00%
Combined			
Actuarial Accrued Liability	\$ 17,856,816	\$ 17,856,816	\$ 17,856,816
Actuarial Value of Assets	11,951,405	11,951,405	11,951,405
Unfunded Actuarial Accrued Liability	5,905,411	5,905,411	5,905,411
Funded Ratio	66.9%	66.9%	66.9%
Actuarially Determined Contribution Rate	21.34%	19.71%	18.19%



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

(1)	Decrease Discount Rate (2)	Valuation Results (3)	Increase Discount Rate (4)
Payroll Growth Rate	2.00%	2.00%	2.00%
Inflation Rate	2.50%	2.50%	2.50%
Discount Rate - Retirement	5.50%	6.50%	7.50%
Discount Rate - Insurance	5.50%	6.50%	7.50%
Retirement			
Actuarial Accrued Liability	\$ 6,579,689	\$ 5,849,995	\$ 5,253,303
Actuarial Value of Assets	3,008,147	3,008,147	3,008,147
Unfunded Actuarial Accrued Liability	3,571,542	2,841,848	2,245,156
Funded Ratio	45.7%	51.4%	57.3%
Actuarially Determined Contribution Rate	46.10%	36.49%	28.49%
Insurance			
Actuarial Accrued Liability	\$ 1,774,031	\$ 1,604,146	\$ 1,461,452
Actuarial Value of Assets	1,615,349	1,615,349	1,615,349
Unfunded Actuarial Accrued Liability	158,682	(11,203)	(153,897)
Funded Ratio	91.1%	100.7%	110.5%
Actuarially Determined Contribution Rate	5.11%	2.12%	0.00%
Combined			
Actuarial Accrued Liability	\$ 8,353,720	\$ 7,454,141	\$ 6,714,755
Actuarial Value of Assets	4,623,496	4,623,496	4,623,496
Unfunded Actuarial Accrued Liability	3,730,224	2,830,645	2,091,259
Funded Ratio	55.3%	62.0%	68.9%
Actuarially Determined Contribution Rate	51.21%	38.61%	28.49%



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

(1)	Decrease Inflation Rate (2)	Valuation Results (3)	Increase Inflation Rate (4)
Payroll Growth Rate	1.75%	2.00%	2.25%
Inflation Rate	2.25%	2.50%	2.75%
Discount Rate - Retirement	6.25%	6.50%	6.75%
Discount Rate - Insurance	6.25%	6.50%	6.75%
Retirement			
Actuarial Accrued Liability	\$ 6,002,944	\$ 5,849,995	\$ 5,704,087
Actuarial Value of Assets	3,008,147	3,008,147	3,008,147
Unfunded Actuarial Accrued Liability	2,994,797	2,841,848	2,695,940
Funded Ratio	50.1%	51.4%	52.7%
Actuarially Determined Contribution Rate	38.92%	36.49%	34.19%
Insurance			
Actuarial Accrued Liability	\$ 1,619,882	\$ 1,604,146	\$ 1,589,305
Actuarial Value of Assets	1,615,349	1,615,349	1,615,349
Unfunded Actuarial Accrued Liability	4,533	(11,203)	(26,044)
Funded Ratio	99.7%	100.7%	101.6%
Actuarially Determined Contribution Rate	2.49%	2.12%	1.78%
Combined			
Actuarial Accrued Liability	\$ 7,622,826	\$ 7,454,141	\$ 7,293,392
Actuarial Value of Assets	4,623,496	4,623,496	4,623,496
Unfunded Actuarial Accrued Liability	2,999,330	2,830,645	2,669,896
Funded Ratio	60.7%	62.0%	63.4%
Actuarially Determined Contribution Rate	41.41%	38.61%	35.97%



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

(1)	Decrease Payroll Growth (2)	Valuation Results (3)	Increase Payroll Growth (4)
Payroll Growth Rate	1.00%	2.00%	3.00%
Inflation Rate	2.50%	2.50%	2.50%
Discount Rate - Retirement	6.50%	6.50%	6.50%
Discount Rate - Insurance	6.50%	6.50%	6.50%
Retirement			
Actuarial Accrued Liability	\$ 5,849,995	\$ 5,849,995	\$ 5,849,995
Actuarial Value of Assets	3,008,147	3,008,147	3,008,147
Unfunded Actuarial Accrued Liability	2,841,848	2,841,848	2,841,848
Funded Ratio	51.4%	51.4%	51.4%
Actuarially Determined Contribution Rate	39.44%	36.49%	33.75%
Insurance			
Actuarial Accrued Liability	\$ 1,604,146	\$ 1,604,146	\$ 1,604,146
Actuarial Value of Assets	1,615,349	1,615,349	1,615,349
Unfunded Actuarial Accrued Liability	(11,203)	(11,203)	(11,203)
Funded Ratio	100.7%	100.7%	100.7%
Actuarially Determined Contribution Rate	2.14%	2.12%	2.11%
Combined			
Actuarial Accrued Liability	\$ 7,454,141	\$ 7,454,141	\$ 7,454,141
Actuarial Value of Assets	4,623,496	4,623,496	4,623,496
Unfunded Actuarial Accrued Liability	2,830,645	2,830,645	2,830,645
Funded Ratio	62.0%	62.0%	62.0%
Actuarially Determined Contribution Rate	41.58%	38.61%	35.86%





M E M O R A N D U M

DATE: November 27, 2023
TO: CERS Board of Trustees
FROM: Betty Pendergrass, Chair
SUBJECT: Annuity Conversion Rates

There were two issues raised during our November 8 discussion that warranted further research.

- 1) Comparison of state and local plans
 CERS and KERS are not identical plans. There are distinct differences in average salaries, average benefits, service rates, funding strategies, and funded status. CERS employers have no choice for payment of contributions based on the Board’s determination of rates using the annual actuarial valuations. Yes, on 3 occasions, substantial increases have been phased in over time, but ultimately, CERS employers reached the actuarial contribution rate. At no time have the CERS employers simply not paid contributions like the \$2 billion missing from KERS coffers. CERS funded status and asset allocation supports higher interest earnings on the CERS portfolio and members should be allowed to benefit from those earnings. The following table compares the normal cost and reflects the differences among the plans.

Fund	KERS NH	KERS HZ	SPRS	CERS NH	CERS HZ
Employer Normal Cost					
Pension	6.99%	7.71%	19.41%	5.29%	9.77%
Insurance	<u>1.45%</u>	<u>2.08%</u>	<u>4.93%</u>	<u>1.75%</u>	<u>3.21%</u>
Total	8.44%	9.79%	24.34%	7.04%	12.98%

2) Investment earnings

Several Trustees have expressed concerns about whether CERS can sustain the 6.5% earnings projection used for the actuarial discount. The following table outlines CERS earnings from 2014 to 2023 for both the one-year returns and the “since inception” returns. “Since Inception” generally provides cumulative returns from 1984 for public equities while other asset classes include shorter periods.

Highlights include:

- 2014 results included the Great Recession of 2007—2008 and still reflects 9.6% earnings for the long-term “since inception” rate.
- Five annual returns were lower than the 6.5% threshold, but the long-term rate has remained stable at levels near 9%.
- Positive one-year returns are all higher than the negative returns in 2022 and 2016.
- In 2017, the asset allocation was revised to lower investments in public equities which accounts for most of the decline in the long-term yields since 2017.

**COMPARISON OF INVESTMENT RETURNS
CERS, KERS, AND SPRS
2014 - 2023**
Source: Summary Annual Financial Reports

Year	ONE-YEAR RETURNS					SINCE INCEPTION RETURNS				
	CERS		KERS		SPRS	CERS		KERS		SPRS
	NonHaz	Haz	NonHaz	Haz		NonHaz	Haz	NonHaz	Haz	
2023 *	10.24	10.33	6.96	9.46	7.58	8.85	8.85	8.69	8.82	8.68
2022	(5.90)	(6.10)	(5.20)	(6.00)	(4.60)	8.80	8.80	8.70	8.80	8.70
2021	25.70	25.60	22.60	25.20	21.70	9.20	9.20	9.10	9.20	9.10
2020	0.84	0.71	2.36	0.95	2.21	8.82	8.82	8.79	8.82	8.76
2019	5.78	5.80	5.73	5.68	5.71	9.05	9.06	8.98	9.05	8.96
2018	8.75	8.77	7.50	8.68	7.65	9.15	9.15	9.07	9.15	9.05
2017	13.81	13.73	12.09	13.44	12.50	9.16	9.17	9.12	9.14	9.09
2016	(0.53)	(0.38)	(0.68)	(0.53)	(1.49)	9.02	9.03	9.03	9.02	8.99
2015	1.92	1.96	2.38	1.87	1.87	9.34	9.34	9.36	9.34	9.35
2014	15.56	15.50	1,549.00	15.65	15.64	9.62	9.61	9.61	9.62	9.62

* June Monthly Investment Report

Kentucky Public Pensions Authority
Estimated Financial Cost of Proposed Administrative Factor Assumptions
Fiscal Cost Reflects an Update to the Interest Rate and Mortality Assumption
Exhibit 1: Discount Rate for Administrative Factors = 5.25%
 (\$ in Thousands)

	KERS Non-Hazardous		KERS Hazardous		SPRS		CERS Non-Hazardous		CERS Hazardous	
	Current Plan June 30, 2023 Valuation	Proposed Administrative Factors	Current Plan June 30, 2023 Valuation	Proposed Administrative Factors	Current Plan June 30, 2023 Valuation	Proposed Administrative Factors	Current Plan June 30, 2023 Valuation	Proposed Administrative Factors	Current Plan June 30, 2023 Valuation	Proposed Administrative Factors
1. Covered Payroll	\$ 1,615,868	\$ 1,615,868	\$ 211,602	\$ 211,602	\$ 65,913	\$ 65,913	\$ 2,956,789	\$ 2,956,789	\$ 691,547	\$ 691,547
Liability and Assets - Pension Only										
2. Actuarial Accrued Liability	\$ 16,304,278	\$ 16,308,384	\$ 1,363,036	\$ 1,363,138	\$ 1,091,795	\$ 1,091,930	\$ 15,296,429	\$ 15,298,647	\$ 5,849,995	\$ 5,850,092
3. Actuarial Value of Assets	3,552,471	3,552,471	891,460	891,460	589,848	589,848	8,585,073	8,585,073	3,008,147	3,008,147
4. Unfunded Liability	\$ 12,751,807	\$ 12,755,913	\$ 471,576	\$ 471,678	\$ 501,947	\$ 502,082	\$ 6,711,356	\$ 6,713,574	\$ 2,841,848	\$ 2,841,945
5. Increase in Unfunded Liability		\$ 4,106		\$ 102		\$ 135		\$ 2,218		\$ 97
6. Funded Ratio	21.8%	21.8%	65.4%	65.4%	54.0%	54.0%	56.1%	56.1%	51.4%	51.4%
Actuarially Determined Employer Contribution¹										
7. Normal Cost Rate	6.99%	7.04%	7.71%	7.72%	19.41%	19.46%	5.29%	5.31%	9.77%	9.77%
8. Amortization Cost	N/A	N/A	16.03%	16.04%	46.38%	46.41%	14.42%	14.43%	26.72%	26.72%
9. Pension Employer Contribution Rate	6.99%	7.04%	23.74%	23.76%	65.79%	65.87%	19.71%	19.74%	36.49%	36.49%
10. Insurance Employer Contribution Rate	1.45%	1.45%	0.00%	0.00%	2.31%	2.31%	0.00%	0.00%	2.12%	2.12%
11. Total Employer Contribution Rate	8.44%	8.49%	23.74%	23.76%	68.10%	68.18%	19.71%	19.74%	38.61%	38.61%
12. Increase in Contribution Rate		0.05%		0.02%		0.08%		0.03%		0.00%
13. Amortization Cost	\$ 856,561	\$ 856,917	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14. Increase in Amortization Cost		\$ 356								
15. Estimated Contributions	\$ 992,940	\$ 994,104	\$ 50,234	\$ 50,277	\$ 44,887	\$ 44,939	\$ 582,783	\$ 583,670	\$ 267,006	\$ 267,006
16. Increase in Contributions		\$ 1,164		\$ 43		\$ 52		\$ 887		\$ -

¹ Note, contribution rates reflect the actuarially determined rates calculated in the June 30, 2023 valuation.
 The June 30, 2023 valuation sets the contribution requirements for the KERS and SPRS funds for FYE 2025 and FYE 2026.
 The June 30, 2023 valuation sets the contribution requirements for the CERS funds for FYE 2025.

Notes and Comments:

- Except where noted, analysis based on the results of the June 30, 2023 Actuarial Valuation.
- Please see the June 30, 2023 Actuarial Valuation report for a summary of the assumptions, methods, plan provisions and data used for this analysis.
- Projected payroll based on the June 30, 2023 valuation, assuming no increase in covered payroll for the KERS and SPRS funds, and a 2% annual increase in covered payroll for CERS funds.



Kentucky Public Pensions Authority
Estimated Financial Cost of Proposed Administrative Factor Assumptions
Fiscal Cost Reflects an Update to the Interest Rate and Mortality Assumption
Exhibit 2: Discount Rate for Administrative Factors = 5.875%
 (\$ in Thousands)

	KERS Non-Hazardous		KERS Hazardous		SPRS		CERS Non-Hazardous		CERS Hazardous	
	Current Plan June 30, 2023 Valuation	Proposed Administrative Factors	Current Plan June 30, 2023 Valuation	Proposed Administrative Factors	Current Plan June 30, 2023 Valuation	Proposed Administrative Factors	Current Plan June 30, 2023 Valuation	Proposed Administrative Factors	Current Plan June 30, 2023 Valuation	Proposed Administrative Factors
1. Covered Payroll	\$ 1,615,868	\$ 1,615,868	\$ 211,602	\$ 211,602	\$ 65,913	\$ 65,913	\$ 2,956,789	\$ 2,956,789	\$ 691,547	\$ 691,547
Liability and Assets - Pension Only										
2. Actuarial Accrued Liability	\$ 16,304,278	\$ 16,319,226	\$ 1,363,036	\$ 1,364,796	\$ 1,091,795	\$ 1,093,252	\$ 15,296,429	\$ 15,307,489	\$ 5,849,995	\$ 5,851,216
3. Actuarial Value of Assets	3,552,471	3,552,471	891,460	891,460	589,848	589,848	8,585,073	8,585,073	3,008,147	3,008,147
4. Unfunded Liability	\$ 12,751,807	\$ 12,766,755	\$ 471,576	\$ 473,336	\$ 501,947	\$ 503,404	\$ 6,711,356	\$ 6,722,416	\$ 2,841,848	\$ 2,843,069
5. Increase in Unfunded Liability		\$ 14,948		\$ 1,760		\$ 1,457		\$ 11,060		\$ 1,221
6. Funded Ratio	21.8%	21.8%	65.4%	65.3%	54.0%	54.0%	56.1%	56.1%	51.4%	51.4%
Actuarially Determined Employer Contribution¹										
7. Normal Cost Rate	6.99%	7.16%	7.71%	7.86%	19.41%	20.00%	5.29%	5.37%	9.77%	9.81%
8. Amortization Cost	N/A	N/A	16.03%	16.12%	46.38%	46.63%	14.42%	14.46%	26.72%	26.74%
9. Pension Employer Contribution Rate	6.99%	7.16%	23.74%	23.98%	65.79%	66.63%	19.71%	19.83%	36.49%	36.55%
10. Insurance Employer Contribution Rate	1.45%	1.45%	0.00%	0.00%	2.31%	2.31%	0.00%	0.00%	2.12%	2.12%
11. Total Employer Contribution Rate	8.44%	8.61%	23.74%	23.98%	68.10%	68.94%	19.71%	19.83%	38.61%	38.67%
12. Increase in Contribution Rate		0.17%		0.24%		0.84%		0.12%		0.06%
13. Amortization Cost	\$ 856,561	\$ 857,856	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14. Increase in Amortization Cost		\$ 1,295								
15. Estimated Contributions	\$ 992,940	\$ 996,982	\$ 50,234	\$ 50,742	\$ 44,887	\$ 45,440	\$ 582,783	\$ 586,331	\$ 267,006	\$ 267,421
16. Increase in Contributions		\$ 4,042		\$ 508		\$ 553		\$ 3,548		\$ 415

¹ Note, contribution rates reflect the actuarially determined rates calculated in the June 30, 2023 valuation.
 The June 30, 2023 valuation sets the contribution requirements for the KERS and SPRS funds for FYE 2025 and FYE 2026.
 The June 30, 2023 valuation sets the contribution requirements for the CERS funds for FYE 2025.

Notes and Comments:

- Except where noted, analysis based on the results of the June 30, 2023 Actuarial Valuation.
- Please see the June 30, 2023 Actuarial Valuation report for a summary of the assumptions, methods, plan provisions and data used for this analysis.
- Projected payroll based on the June 30, 2023 valuation, assuming no increase in covered payroll for the KERS and SPRS funds, and a 2% annual increase in covered payroll for CERS funds.



Kentucky Public Pensions Authority
Estimated Financial Cost of Proposed Administrative Factor Assumptions
Fiscal Cost Reflects an Update to the Interest Rate and Mortality Assumption
Exhibit 3: Discount Rate for Administrative Factors = 6.50%
 (\$ in Thousands)

	KERS Non-Hazardous		KERS Hazardous		SPRS		CERS Non-Hazardous		CERS Hazardous	
	Current Plan June 30, 2023 Valuation	Proposed Administrative Factors	Current Plan June 30, 2023 Valuation	Proposed Administrative Factors	Current Plan June 30, 2023 Valuation	Proposed Administrative Factors	Current Plan June 30, 2023 Valuation	Proposed Administrative Factors	Current Plan June 30, 2023 Valuation	Proposed Administrative Factors
1. Covered Payroll	\$ 1,615,868	\$ 1,615,868	\$ 211,602	\$ 211,602	\$ 65,913	\$ 65,913	\$ 2,956,789	\$ 2,956,789	\$ 691,547	\$ 691,547
Liability and Assets - Pension Only										
2. Actuarial Accrued Liability	\$ 16,304,278	\$ 16,330,514	\$ 1,363,036	\$ 1,368,624	\$ 1,091,795	\$ 1,094,599	\$ 15,296,429	\$ 15,324,338	\$ 5,849,995	\$ 5,860,757
3. Actuarial Value of Assets	3,552,471	3,552,471	891,460	891,460	589,848	589,848	8,585,073	8,585,073	3,008,147	3,008,147
4. Unfunded Liability	\$ 12,751,807	\$ 12,778,043	\$ 471,576	\$ 477,164	\$ 501,947	\$ 504,751	\$ 6,711,356	\$ 6,739,265	\$ 2,841,848	\$ 2,852,610
5. Increase in Unfunded Liability		\$ 26,236		\$ 5,588		\$ 2,804		\$ 27,909		\$ 10,762
6. Funded Ratio	21.8%	21.8%	65.4%	65.1%	54.0%	53.9%	56.1%	56.0%	51.4%	51.3%
Actuarially Determined Employer Contribution¹										
7. Normal Cost Rate	6.99%	7.29%	7.71%	8.18%	19.41%	20.56%	5.29%	5.48%	9.77%	10.08%
8. Amortization Cost	N/A	N/A	16.03%	16.32%	46.38%	46.85%	14.42%	14.52%	26.72%	26.87%
9. Pension Employer Contribution Rate	6.99%	7.29%	23.74%	24.50%	65.79%	67.41%	19.71%	20.00%	36.49%	36.95%
10. Insurance Employer Contribution Rate	1.45%	1.45%	0.00%	0.00%	2.31%	2.31%	0.00%	0.00%	2.12%	2.12%
11. Total Employer Contribution Rate	8.44%	8.74%	23.74%	24.50%	68.10%	69.72%	19.71%	20.00%	38.61%	39.07%
12. Increase in Contribution Rate		0.30%		0.76%		1.62%		0.29%		0.46%
13. Amortization Cost	\$ 856,561	\$ 858,834	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14. Increase in Amortization Cost		\$ 2,273								
15. Estimated Contributions	\$ 992,940	\$ 1,000,061	\$ 50,234	\$ 51,842	\$ 44,887	\$ 45,955	\$ 582,783	\$ 591,358	\$ 267,006	\$ 270,187
16. Increase in Contributions		\$ 7,121		\$ 1,608		\$ 1,068		\$ 8,575		\$ 3,181

¹ Note, contribution rates reflect the actuarially determined rates calculated in the June 30, 2023 valuation.
 The June 30, 2023 valuation sets the contribution requirements for the KERS and SPRS funds for FYE 2025 and FYE 2026.
 The June 30, 2023 valuation sets the contribution requirements for the CERS funds for FYE 2025.

Notes and Comments:

- Except where noted, analysis based on the results of the June 30, 2023 Actuarial Valuation.
- Please see the June 30, 2023 Actuarial Valuation report for a summary of the assumptions, methods, plan provisions and data used for this analysis.
- Projected payroll based on the June 30, 2023 valuation, assuming no increase in covered payroll for the KERS and SPRS funds, and a 2% annual increase in covered payroll for CERS funds.





MEMORANDUM

TO: County Employees Retirement System Board of Trustees

From: William O'Mara, Chair
Finance Committee

Date: December 4, 2023

Subject: Summary of Finance Committee Quarterly Meeting

The County Employees Retirement System held a regularly scheduled quarterly meeting on November 16, 2023.

1. **The following items were approved by the Finance Committee and are being forwarded to the County Employees Retirement System Board of Trustees for ratification***
 - a. **Hazardous Duty Requests** – The Finance Committee considered a total of forty-four (44) requests for Hazardous Duty designation for positions in member organizations. After hearing the presentation from KPPA staff indicating staff had reviewed each request and determined that they meet the statutory guidelines for Hazardous coverage, the Finance Committee voted unanimously to approve each request.
 - b. **New Agency Participation in CERS Non-HAZ** – The Finance Committee entertained a presentation from KPPA staff that the **Hyden Leslie County Water District and the Springfield Washington County 911 Dispatch** both sought to participate in CERS Non-Hazardous coverage. After hearing the presentation from KPPA staff regarding both Hyden Leslie County Water District and the Springfield Washington County 911 Dispatch, the Finance Committee voted unanimously to approve both requests.

RECOMMENDATION: The Finance Committee requests the County Employees Retirement System Board of Trustees ratify the actions taken by the Finance Committee.

2. The following items were also discussed during the Finance Committee meeting:

- a. KPPA staff presented quarterly financial reports consisting of:
 - a. YTD Financial Spreadsheet
 - b. Administration Expense to Budget
 - c. Investment Expense to Budget
 - d. Contribution Report
 - e. Outstanding Invoice Report
 - f. Penalty Waiver Report
- b. The CFO made several pertinent observations concerning the financial position of the CERS funds. It should be noted that the year-to-date review encompasses only the first quarter of fiscal year 2024. The fiduciary net position for the pension funds stood at approximately \$11.6 billion which was up over 11% from the first quarter of fiscal year 2023. Both member and employer contributions were up year over year in the Non-Hazardous pension plan.

The fiduciary net position for the insurance funds stood at approximately \$4.8 billion which was up over 11% from the first quarter of fiscal year 2023. The employer contribution was significantly down in both the Non-Hazardous and Hazardous funds as both are over 100% funded.

The fiduciary net position for pensions was down from last quarter approximately \$206 million, which represents a smaller decline than the funds saw in the first quarter of fiscal year 2023 where the loss was approximately \$345 million. The administrative expense was up from the first quarter of last year.

The fiduciary net position for insurance was down from last quarter approximately \$92 million which also represents a smaller decline from the first quarter of fiscal year 2023 which showed the net position down by approximately \$155 million.

- c. The Committee inquired about the lack of movement on the Outstanding Invoice Report. To date, there is approximately \$3.1 million in outstanding invoices. Staff indicated that the top 5 on the list were all the subject of litigation and that they would continue to monitor the report.
- d. The CFO indicated he continued to refine the Chase bank accounts where all system inflows are housed before they are sent to the custodial bank, BNY Mellon. The system currently has 12 Chase accounts, down from a high of 19, and they are all interest-bearing accounts. The CFO indicated that he still had more work to do on those accounts to get them finalized.

***Board of Trustees Action Required**



KENTUCKY PUBLIC PENSIONS AUTHORITY

David L. Eager, Executive Director

1260 Louisville Road • Frankfort, Kentucky 40601
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Kentucky Public
Pensions Authority

To: CERS Finance Committee

From: D’Juan Surratt
 Director of Employer Reporting, Compliance and Education

Date: November 16, 2023

Subject: Hazardous Position Classification

AGENCIES ARE REQUESTING HAZARDOUS DUTY COVERAGE FOR THE FOLLOWING POSITIONS:

<u>Agency</u>	<u>Position</u>	<u>Effective Date</u>
City of Harrodsburg	Police Chief	1/1/2024
City of Harrodsburg	Assistant Police Chief	1/1/2024
City of Harrodsburg	Police Lieutenant	10/1/2023
City of Harrodsburg	Police Sergeant	10/1/2023
City of Harrodsburg	Police Detective	10/1/2023
City of Harrodsburg	Police Corporal	10/1/2023
City of Harrodsburg	Police Officer	10/1/2023
City of Harrodsburg	Police Recruit	10/1/2023
City of Harrodsburg	School Resource Officer	1/1/2024
City of Harrodsburg	Fire Chief	10/1/2023
City of Harrodsburg	Asst Fire Chief/ Safety Coordinator Supervisor	1/1/2024
City of Harrodsburg	Fire Captain	10/1/2023
City of Harrodsburg	Fire Lieutenant	10/1/2023
City of Harrodsburg	Sergeant	1/1/2024
City of Harrodsburg	Firefighter	10/1/2023
City of Harrodsburg	Safety Coordinator/Firefighter/EMT	1/1/2024
City of Winchester	Assistant Chief of EMS	1/1/2024
Saint Matthews Fire Protection District	Suppression Training Officer	10/1/2023
Central Campbell County Fire District	Paramedic Only	1/1/2024
City of Lyndon	Police Officer	8/1/2022
City of Lyndon	Police Sergeant	8/1/2022
City of Lyndon	Police Major	8/1/2022
City of Lyndon	Police Detective	8/1/2022
City of Lyndon	Deputy Chief of Police	8/1/2022
City of Lyndon	Chief of Police	8/1/2022
Madison County EMS	Director/Paramedic	8/1/2023
Madison County EMS	Assistant Director/Paramedic	2/1/2022
Madison County EMS	QA/Training Officer-Paramedic	3/1/2021
Campbell County Fiscal Court	Police Captain	9/1/2023

City of Paris	Fire Chief	1/1/2024
City of Paris	Fire Battalion Chief	1/1/2024
City of Paris	Firefighter Lieutenant EMT	1/1/2024
City of Paris	Firefighter Lieutenant Paramedic	1/1/2024
City of Paris	EMS Major	1/1/2024
City of Paris	Firefighter EMT	1/1/2024
City of Paris	Firefighter Paramedic	1/1/2024
City of Paris	Paramedic	1/1/2024
City of Paris	EMT	1/1/2024
City of Paris	Police Chief	1/1/2024
City of Paris	Assistant Police Chief	1/1/2024
City of Paris	Police Captain	1/1/2024
City of Paris	Police Lieutenant	1/1/2024
City of Paris	Detective	1/1/2024
City of Paris	Police Officer	1/1/2024

Kentucky Public Pensions Authority has reviewed the above requests and determined that they meet the statutory guidelines for Hazardous coverage. Position Questionnaires and Job Descriptions are attached.



KENTUCKY PUBLIC PENSIONS AUTHORITY

David L. Eager, Executive Director

1260 Louisville Road • Frankfort, Kentucky 40601
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To: CERS Finance Committee

From: D’Juan Surratt
Director of Employer Reporting, Compliance and Education

Date: November 16, 2023

Subject: Participation of CERS Agencies

PARTICIPATION-NEW CERS AGENCIES

There are two (2) new agencies electing to participate with the County Employees Retirement System under non-hazardous coverage. Copies of minutes, resolution to participate and agency budgets have been submitted. Contracts for Health Insurance have been received for the agencies electing to participate in CERS.

RECOMMENDATION: Kentucky Public Pensions Authority recommends approval of Hyden Leslie County Water District and Springfield Washington County 911 Dispatch, having they satisfactorily completed their trial participation period.



Combining Statement of Fiduciary Net Position - Pension Funds

As of September 30, 2023, with Comparative Totals as of September 30, 2022 (\$ in Thousands) (Unaudited)

ASSETS	CERS		TOTAL		Percentage of Change	Note
	Nonhazardous	Hazardous	FY 2024	FY 2023		
CASH AND SHORT-TERM INVESTMENTS						
Cash Deposits	\$1,766	\$513	\$2,280	\$271	740.48%	1
Short-term Investments	300,399	150,395	450,793	271,743	65.89%	2
Total Cash and Short-term Investments	302,165	150,908	453,073	272,014	66.56%	
RECEIVABLES						
Accounts Receivable	68,950	27,303	96,253	152,881	(37.04)%	3
Accounts Receivable - Investments	77,132	26,353	103,485	83,224	24.35%	4
Total Receivables	146,082	53,656	199,738	236,105	(15.40)%	
INVESTMENTS, AT FAIR VALUE						
Core Fixed Income	871,658	302,359	1,174,017	1,204,258	(2.51)%	
Public Equities	4,131,029	1,446,301	5,577,331	4,640,762	20.18%	5
Private Equities	700,524	233,962	934,486	947,830	(1.41)%	
Specialty Credit	1,741,316	599,250	2,340,566	2,271,897	3.02%	
Derivatives	(128)	(41)	(168)	(5,017)	96.64%	6
Real Return	285,153	95,701	380,855	324,390	17.41%	7
Real Estate	532,146	169,352	701,498	664,215	5.61%	
Total Investments, at Fair Value	8,261,698	2,846,885	11,108,583	10,048,335	10.55%	
Securities Lending Collateral Invested	193,059	67,379	260,438	403,560	(35.46)%	8
CAPITAL/INTANGIBLE ASSETS						
Capital Assets	1,701	153	1,854	1,854	0.00%	
Intangible Assets	9,961	827	10,788	10,788	0.00%	
Accumulated Depreciation	(1,701)	(153)	(1,854)	(1,854)	0.00%	
Accumulated Amortization	(9,961)	(827)	(10,788)	(10,664)	1.16%	
Total Capital Assets	-	-	-	124	(100.00)%	
Total Assets	8,903,004	3,118,828	12,021,832	10,960,138	9.69%	
LIABILITIES						
Accounts Payable	5,643	1,149	6,792	5,093	33.35%	9
Investment Accounts Payable	91,629	31,948	123,578	97,583	26.64%	10
Securities Lending Collateral	193,059	67,379	260,438	403,560	(35.46)%	11
Total Liabilities	290,331	100,477	390,808	506,236	(22.80)%	
Total Fiduciary Net Position Restricted for Pension Benefits	\$8,612,673	\$3,018,351	\$11,631,024	\$10,453,901	11.26%	

NOTE - Variance Explanation **Differences due to rounding**

- 1) The variance is a result of continuous fluctuation of deposits and transactions that flow through the cash account. As a result of an Internal Audit finding, we continue to evaluate the optimum cash balances at JP Morgan Chase.
- 2) Short term investments are primarily comprised of cash on hand at the custodial bank, the variance in the balance is a result of the cash flows of each plan.
- 3) The decrease in Accounts Receivable is primarily due to the 06/30/2022 CERS and CERH pension/insurance split correction that was carried as a receivable into FY 2023.
- 4) The variance in Investment Accounts Receivable is due to pending trades.
- 5) The increase in Public Equities is the result of additional contributions to the public equity asset class.
- 6) The variance in Derivatives is a result of hedging and arbitration of risk within the portfolios.
- 7) The increase in Real Return is a result of favorable market conditions as well as additional funding.
- 8) The variance is a result of the demand of the Securities Lending Program.
- 9) The variance in Accounts Payable is due to an Increase in the payroll and leave liability accrual as well as an increase in outstanding employer credit invoices.
- 10) The variance in Investment Accounts Payable is due to pending trades.
- 11) 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, 2023, with Comparative Totals for the three month period ending September 30, 2022 (\$ in Thousands) (Unaudited)

	CERS		Total		Percentage of Change	Note
	Nonhazardous	Hazardous	FY 2024	FY 2023		
ADDITIONS						
Member Contributions	\$34,438	\$14,595	\$49,033	\$47,762	2.66%	
Employer Pay Credit	\$12,991	\$5,782	\$18,772	\$16,530	13.57%	1
Employer Contributions	151,100	70,696	221,796	218,379	1.56%	
Actuarially Accrued Liability Contributions (AALC)	-	-	-	-		
Pension Spiking Contributions	7	17	23	40	(41.40)%	2
Health Insurance Contributions (HB1)	(13)	(16)	(30)	(5)	482.16%	3
Employer Cessation Contributions	-	-	-	-		
Total Contributions	198,522	91,073	289,595	282,705	2.44%	
INVESTMENT INCOME						
From Investing Activities						
Net Appreciation (Depreciation) in FV of Investments						
Investments	(169,357)	(59,801)	(229,158)	(371,785)	38.36%	4
Interest/Dividends	68,170	23,797	91,967	74,141	24.04%	5
Total Investing Activities Income	(101,187)	(36,004)	(137,191)	(297,644)		
Less: Investment Expense	15,084	5,000	20,083	15,532	29.30%	6
Less: Performance Fees	7,054	2,454	9,509	1,382	587.84%	7
Net Income from Investing Activities	(123,325)	(43,458)	(166,783)	(314,558)		
From Securities Lending Activities						
Securities Lending Income	2,702	955	3,657	2,008		
Less: Securities Lending Borrower Rebates (Income)/Expense	2,371	838	3,209	1,634		
Less: Securities Lending Agent Fees	50	17	67	56		
Net Income from Securities Lending	281	99	380	318	19.38%	8
Net Investment Income	(123,044)	(43,359)	(166,403)	(314,240)	47.05%	
Total Additions	75,478	47,714	123,192	(31,535)	(490.65)%	
DEDUCTIONS						
Benefit Payments	230,444	82,808	313,252	299,319	4.66%	
Refunds	7,678	1,813	9,490	8,304	14.29%	9
Administrative Expenses	6,123	538	6,662	6,215	7.19%	
Total Deductions	244,245	85,159	329,404	313,837	4.96%	
Net Increase (Decrease) in Fiduciary Net Position Restricted for Pension Benefits						
	(168,767)	(37,446)	(206,212)	(345,372)		
Total Fiduciary Net Position Restricted for Pension Benefits						
Beginning of Period	8,781,440	3,055,797	11,837,237	10,799,273	9.61%	
End of Period	\$8,612,673	\$3,018,351	\$11,631,024	\$10,453,901	11.26%	

NOTE - Variance Explanation Differences due to rounding

- 1) The Employer Pay Credit will continue to increase as Tier 3 members increase.
- 2) Pension Spiking contributions decreased due to an decrease in CERS and CERS Hazardous pension spiking contributions billed to employers.
- 3) 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.
- 4) The increase in Net Appreciation in Fair Value of Investments is the result of less losses in Public Equity and gains from Private Equity and Specialty Credit.
- 5) The increase in Interest/Divident Income is primarily the result of increased partnership income from Specialty Credit.
- 6) The increase in Investment Expense is primarily the result of increased management fees and partnership expenses for Specialty Credit.
- 7) The increase in performance fees is the result of increased fees fro Private Equity and Specialty Credit.
- 8) The variance is a result of the demand of the Securities Lending Program.
- 9) Refunds to active members who have terminated employment increased in CERS and CERH.

Pension Funds Contribution Report

For the three month period ending September 30, 2023, with Comparative Totals for the three month period ending September 30, 2022 (\$ in Millions)



County Employees Retirement System

	Nonhazardous		Hazardous	
	FY24	FY23	FY24	FY23
Member Contributions	\$34.4	\$32.9	\$14.6	\$14.9
Employer Pay Credit	\$13.0	\$11.4	\$5.8	\$5.2
Employer Contributions	151.1	145.5	70.7	72.9
Net Investment Income	46.3	42.5	16.4	15.0
Total Inflows	244.8	232.3	107.5	108.0
Benefit Payments/Refunds	238.1	227.3	84.6	80.4
Administrative Expenses	6.1	5.7	0.5	0.5
Total Outflows	244.2	233.0	85.1	80.9
NET Contributions	0.6	(0.7)	22.4	27.1
Realized Gain/(Loss)	7.5	0.9	2.8	-
Unrealized Gain/(Loss)	(176.8)	(277.0)	(62.6)	(95.7)
Change in Net Position	(168.7)	(276.8)	(37.4)	(68.6)
Beginning of Period	8,781.4	8,062.3	3,055.8	2,736.9
End of Period	\$8,612.7	\$7,785.5	\$3,018.4	\$2,668.3

Differences due to rounding.

Net Contributions*	(\$45.7)	(\$43.2)	\$6.0	\$12.1
Cash Flow as % of Assets	(0.53)%	(0.55)%	0.20%	0.45%
Net Investment Income	\$46.3	\$42.5	\$16.4	\$15.0
Yield as % of Assets	0.54%	0.55%	0.54%	0.56%

**Net Contributions are less Net Investment Income.*



Combining Statement of Fiduciary Net Position - Insurance Funds

As of September 30, 2023, with Comparative Totals as of September 30, 2022 (\$ in Thousands) (Unaudited)

ASSETS	CERS		TOTAL		Percentage of Change	Note
	Nonhazardous	Hazardous	FY 2024	FY 2023		
CASH AND SHORT-TERM INVESTMENTS						
Cash Deposits	\$929	\$39	\$967	\$147	557.04%	1
Short-term Investments	140,891	38,344	179,235	131,637	36.16%	2
Total Cash and Short-term Investments	141,820	38,383	180,203	131,784	36.74%	
RECEIVABLES						
Accounts Receivable	4,173	2,160	6,333	15,940	(60.27)%	3
Investment Accounts Receivable	30,157	13,749	43,907	34,032	29.01%	4
Total Receivables	34,331	15,909	50,239	49,973	0.53%	
INVESTMENTS, AT FAIR VALUE						
Core Fixed Income	329,802	147,298	477,100	503,086	(5.17)%	
Public Equities	1,560,026	764,230	2,324,257	1,964,400	18.32%	5
Private Equities	272,726	153,092	425,817	430,389	(1.06)%	
Specialty Credit	652,257	323,471	975,728	961,427	1.49%	
Derivatives	(60)	(34)	(94)	(2,079)	95.48%	6
Real Return	87,819	45,941	133,760	112,643	18.75%	7
Real Estate	192,132	105,415	297,548	269,955	10.22%	8
Total Investments, at Fair Value	3,094,702	1,539,413	4,634,116	4,239,821	9.30%	
Securities Lending Collateral Invested	52,397	25,629	78,027	126,794	(38.46)%	9
Total Assets	3,323,250	1,619,334	4,942,585	4,548,372	8.67%	
LIABILITIES						
Accounts Payable	219	22	241	57,340	(99.58)%	10
Investment Accounts Payable	37,138	16,734	53,872	34,037	58.28%	11
Securities Lending Collateral	52,397	25,629	78,027	126,794	(38.46)%	12
Total Liabilities	89,754	42,386	132,140	218,170	(39.43)%	
Total Fiduciary Net Position Restricted for OPEB	\$3,233,497	\$1,576,948	\$4,810,445	\$4,330,202	11.09%	

NOTE - Variance Explanation *Differences due to rounding*

- 1) The variance is a result of continuous fluctuation of deposits and transactions that flow through the cash account. As a result of an Internal Audit finding, we continue to evaluate the optimum cash balances at JP Morgan Chase.
- 2) Short term investments are primarily comprised of cash on hand at the custodial bank, the variance in the balance is a result of the cash flows of each plan.
- 3) The decrease in Accounts Receivable is due to a decrease in the member/employer month-end accrual due to the decreased insurance transfer rate.
- 4) The variance in Investment Accounts Receivable is the result of pending trades.
- 5) The increase in Public Equities is the result of additional contributions to the public equity asset class.
- 6) The variance in Derivatives is a result of hedging and arbitration of risk within the portfolios.
- 7) The increase in Real Return is a result of favorable market conditions as well as additional funding.
- 8) The increase in Real Estate is the result of a movement of the Mesa West Accounts from Specialty Credit asset class to the Real Estate Asset Class
- 9) The variance is a result of the demands of the Securities Lending Program.
- 10) The decrease in Accounts Payable is primarily due to the 06/30/2022 CERS and CERH pension/insurance split correction that was carried as a payable into FY 2023.
- 11) The variance in Investment Accounts Payable is due to pending trades.
- 12) The 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, 2023, with Comparative Totals for the three month period ending September 30, 2022 (\$ In Thousands) (Unaudited)

	CERS		TOTAL		Percentage of Change	Note
	Nonhazardous	Hazardous	FY 2024	FY 2023		
ADDITIONS						
Employer Contributions	\$1,122	\$5,018	\$6,140	\$35,556	(82.73)%	1
Actuarially Accrued Liability Contributions (AALC)	-	-	-	-		
Medicare Drug Reimbursement	-	-	-	-		
Insurance Premiums	102	(17)	85	120	(29.31)%	2
Humana Gain Share Payment	10,445	1,637	12,082	-	100.00%	3
Retired Re-employed Healthcare	1,780	400	2,180	1,619	34.65%	4
Health Insurance Contributions (HB1)	4,323	1,165	5,487	4,907	11.82%	5
Employer Cessation Contributions	-	-	-	-		
Total Contributions	17,771	8,203	25,974	42,202	(38.45)%	
INVESTMENT INCOME						
From Investing Activities						
Net Appreciation (Depreciation) in FV of Investments	(62,335)	(28,697)	(91,033)	(163,554)	44.34%	6
Interest/Dividends	25,103	12,051	37,154	32,491	14.35%	7
Total Investing Activities Income	(37,233)	(16,646)	(53,878)	(131,063)		
Less: Investment Expense	5,367	2,838	8,205	6,668	23.05%	8
Less: Performance Fees	2,957	1,656	4,613	(777)	(694.04)%	9
Net Income from Investing Activities	(45,556)	(21,140)	(66,696)	(136,954)		
From Securities Lending Activities						
Securities Lending Income	760	363	1,123	748		
Less: Securities Lending Borrower Rebates (Income)/Expense	646	309	955	599		
Less: Securities Lending Agent Fees	17	8	25	22		
Net Income from Securities Lending	97	46	143	127	12.82%	10
Net Investment Income	(45,460)	(21,094)	(66,553)	(136,828)	51.36%	
Total Additions	(27,689)	(12,891)	(40,580)	(94,625)	57.12%	
DEDUCTIONS						
Healthcare Premiums Subsidies	27,172	23,536	50,708	59,129	(14.24)%	11
Administrative Expenses	236	131	367	402	(8.75)%	
Self-Funded Healthcare Costs	933	81	1,014	844	20.19%	12
Excise Tax Insurance	6	-	6	-	(100.00)%	13
Total Deductions	28,347	23,748	52,095	60,375	(13.71)%	
Net Increase (Decrease) in Fiduciary Net Position Restricted for OPEB	(56,036)	(36,639)	(92,675)	(155,000)		
Total Fiduciary Net Position Restricted for OPEB						
Beginning of Period	3,289,532	1,613,587	4,903,119	4,485,201	9.32%	
End of Period	\$3,233,497	\$1,576,948	\$4,810,445	\$4,330,201	11.09%	

NOTE - Variance Explanation **Differences due to rounding**

- 1) Employer Contributions decreased due to a decrease in the employer insurance rate.
- 2) Health Insurance Premiums decreased due to refunds processed to hazardous retirees for premiums paid for dependents that should have been covered by KPPA.
- 3) The Humana Gain Share payment will fluctuate year to year based on claims paid.
- 4) Retired Reemployed contributions increased due to an increase in retired reemployed members.
- 5) Health Insurance Contributions will continue to rise as Tier 2 and Tier 3 members increase.
- 6) The increase in Net Appreciation in Fair Value of Investments is the result of less losses in Public Equity and gains from Private Equity and Speciality Credit.
- 7) The increase in Interest/Dividend Income is primarily the result of increased partnership income from Speciality Credit.
- 8) The increase in Investment Expense is primarily the result of increased management fees and partnership expenses for Speciality Credit.
- 9) The increase in performance fees is the result of increased fees for Private Equity and Speciality Credit.
- 10) The variance is a result of the demand of the Securities Lending Program.
- 11) Healthcare Subsidies decreased due to a decrease in healthcare premiums paid for CERS retirees.
- 12) Self-Funded Healthcare costs increased due to an increase in actual healthcare cost reimbursement for CERS and CERS hazardous retirees.

Insurance Fund Contribution Report

For the three month period ending September 30, 2023, with Comparative Totals for the three month period ending September 30, 2022 (\$ in Millions)

**County Employees Retirement System**

	Nonhazardous		Hazardous	
	FY24	FY23	FY24	FY23
Employer Contributions	\$1.1	\$22.9	\$5.0	\$12.6
Insurance Premiums	0.1	0.1	-	-
Humana Gain Share	10.4	-	1.6	-
Retired Reemployed Healthcare	1.8	1.2	0.4	0.4
Health Insurance Contributions	4.3	3.9	1.2	1.1
Net Investment Income	16.9	17.8	7.6	8.9
Total Inflows	34.6	45.9	15.8	23.0
Healthcare Premiums	28.1	36.7	23.6	23.3
Administrative Expenses	0.2	0.2	0.1	0.1
Total Outflows	28.3	36.9	23.7	23.4
NET Contributions	6.3	9.0	(7.9)	(0.4)
Realized Gain/(Loss)	2.0	(1.5)	2.0	(0.4)
Unrealized Gain/(Loss)	(64.3)	(107.7)	(30.7)	(54.0)
Change in Net Position	(56.0)	(100.2)	(36.6)	(54.8)
Beginning of Period	3,289.5	2,981.2	1,613.6	1,504.0
End of Period	\$3,233.5	\$2,881.0	\$1,577.0	\$1,449.2

Differences due to rounding.

Net Contributions*	\$(10.6)	\$(8.8)	\$(15.5)	\$(9.3)
Cash Flow as % of Assets	(0.33)%	(0.30)%	(0.98)%	(0.64)%
Net Investment Income	\$16.9	\$17.8	\$7.6	\$8.9
Yield as % of Assets	0.52%	0.62%	0.48%	0.62%

**Net Contributions are less Net Investment Income.*



CERS Outstanding Invoices by Type and Employer

Invoice Type	9/30/2023	6/30/2023	Change H/(L)
Averaging Refund to Employer	\$(322,861)	\$(414,622)	-22%
Employer Free Military and Decompression Service		36,332	(100)%
Member Pension Spiking Refund	(23,880)	(16,709)	43%
Monthly Reporting Invoice	95,798	110,943	(14)%
Penalty – Monthly Reporting	216,100	214,270	1%
Reinstatement	175,292	171,358	2%
Other Invoices**	3,862	3,922	-2%
Total	144,311	105,494	
Health Insurance Reimbursement	331,913	393,861	(16)%
Omitted Employer	1,210,838	1,256,329	(4)%
Employer Pension Spiking*	1,308,495	1,319,450	(1)%
Standard Sick Leave	138,757	184,080	(25)%
Total	2,990,002	3,153,719	(5)%
Grand Total	\$3,134,314	\$3,259,213	(4)%

*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.

**Other Invoices include Expense Allowance; Expired Post Pending; IPS Employer Refund; Penalty EOY Reporting; Personnel Adjustment; and, Refunded Member Contributions Due.

Employer Name (Top Ten)	9/30/2023	6/30/2023	Change H/(L)
Kentucky River Regional Jail***	\$893,893	\$893,893	0%
City of Covington***	405,820	401,760	1%
Kenton County Airport Board***	388,496	381,979	2%
City of Fort Thomas***	260,457	255,655	2%
Livingston County Fiscal Court***	228,567	228,567	0%
TARC Transit Authority of River City	196,330	161,139	22%
City of Taylor Mill	143,227	143,227	0%
City of Jeffersontown	101,529	99,395	2%
Bullitt County Fiscal Court	101,393	101,195	0%
City of Winchester	\$50,916	\$63,309	100%

***Indicates invoices in litigation

	Total Unpaid Balance	Invoice Count
CERS	\$1,773,111	1,541
CERH	1,361,203	164
Grand Total:	\$3,134,314	1,705

CERS Board Meeting - Finance Committee Report



**County Employees Retirement System
Penalty Invoices Report
From: 7/1/2023 To: 9/30/2023**

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	\$-	\$-	8/25/2023	3/15/2023	CANC	Cities	No full time employees, 0 contribution
1,000	-	-	8/18/2023	5/5/2023	CANC	Special Districts & Boards	No full time employees, 0 contribution
1,000	-	-	8/23/2023	8/9/2023	CANC	Fiscal Courts	Employer in good standing with KPPA
1,000	-	-	8/18/2023	8/10/2023	CANC	Housing Authorities	New Employer Reporting Official
1,000	-	-	8/25/2023	8/30/2023	CANC	Cities	No full time employees, 0 contribution
1,000	-	-	8/25/2023	8/30/2023	CANC	Cities	No full time employees, 0 contribution
1,000	-	-	8/25/2023	8/30/2023	CANC	Cities	No full time employees, 0 contribution
1,000	-	-	8/25/2023	8/30/2023	CANC	Cities	No full time employees, 0 contribution
1,000	-	-	8/25/2023	8/30/2023	CANC	Cities	No full time employees, 0 contribution
1,000	-	-	8/25/2023	8/30/2023	CANC	Cities	No full time employees, 0 contribution
1,000	-	-	8/25/2023	8/30/2023	CANC	Cities	No full time employees, 0 contribution
1,000	-	-	8/25/2023	8/30/2023	CANC	Cities	No full time employees, 0 contribution
1,000	-	-	8/25/2023	8/30/2023	CANC	Cities	No full time employees, 0 contribution
1,000	-	-	8/25/2023	8/30/2023	CANC	Cities	No full time employees, 0 contribution
1,000	-	-	8/25/2023	9/1/2023	CANC	Cities	No full time employees, 0 contribution
1,000	-	-	8/18/2023	9/10/2023	CANC	Housing Authorities	New Employer Reporting Official
1,000	-	-	8/24/2023	9/20/2023	CANC	Boards of Education	New Employer Reporting Official
Total	\$17,000	\$-	\$-				
\$1,000	\$1,000	\$-	7/3/2023	8/2/2023	CRTD	Tourist Commissions	
1,000	1,000	-	7/31/2023	8/30/2023	CRTD	Utility Boards	
1,000	1,000	-	8/2/2023	9/1/2023	CRTD	Fiscal Courts	
1,000	1,000	-	8/3/2023	9/2/2023	CRTD	Special Districts & Boards	
1,000	1,000	-	8/4/2023	9/3/2023	CRTD	Cities	
1,000	1,000	-	8/15/2023	9/14/2023	CRTD	Fiscal Courts	
1,000	1,000	-	8/16/2023	9/15/2023	CRTD	Cities	
1,000	1,000	-	8/16/2023	9/15/2023	CRTD	Cities	
1,000	1,000	-	8/16/2023	9/15/2023	CRTD	Cities	
1,000	-	-	8/16/2023	9/15/2023	CRTD	Fiscal Courts	
1,000	1,000	-	8/17/2023	9/16/2023	CRTD	Cities	
1,000	1,000	-	8/18/2023	9/17/2023	CRTD	Fiscal Courts	
1,000	1,000	-	8/29/2023	9/28/2023	CRTD	Cities	
1,000	1,000	-	8/29/2023	9/28/2023	CRTD	Housing Authorities	
1,000	1,000	-	9/8/2023	10/8/2023	CRTD	Utility Boards	
1,000	1,000	-	9/8/2023	10/8/2023	CRTD	Utility Boards	
1,000	1,000	-	9/11/2023	10/11/2023	CRTD	Cities	
1,000	1,000	-	9/13/2023	10/13/2023	CRTD	Utility Boards	
1,000	1,000	-	9/13/2023	10/13/2023	CRTD	Utility Boards	

CERS Board Meeting - Finance Committee Report



County Employees Retirement System
Penalty Invoices Report
From: 7/1/2023 To: 9/30/2023

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	1,000	-	9/13/2023	10/13/2023	CRTD	Utility Boards	
1,000	1,000	-	9/13/2023	10/13/2023	CRTD	Utility Boards	
1,000	1,000	-	9/13/2023	10/13/2023	CRTD	Utility Boards	
1,000	1,000	-	9/13/2023	10/13/2023	CRTD	Utility Boards	
1,000	1,000	-	9/13/2023	10/13/2023	CRTD	Utility Boards	
1,000	1,000	-	9/13/2023	10/13/2023	CRTD	Utility Boards	
1,000	1,000	-	9/15/2023	10/15/2023	CRTD	Cities	
1,000	1,000	-	9/19/2023	10/19/2023	CRTD	Area Development Districts	
1,000	1,000	-	9/19/2023	10/19/2023	CRTD	Sanitation Districts	
1,000	1,000	-	9/20/2023	10/20/2023	CRTD	Fiscal Courts	
1,000	1,000	-	9/21/2023	10/21/2023	CRTD	Fiscal Courts	
9,413	-	-	9/25/2023	10/25/2023	CRTD	Boards of Education	
1,000	-	-	9/26/2023	10/26/2023	CRTD	Fiscal Courts	
1,000	1,000	-	9/28/2023	10/28/2023	CRTD	Fiscal Courts	
Total	\$41,413	\$30,000	\$-				
\$1,000	\$-	\$-	9/21/2023	3/29/2017	PAID	Riverport Authorities	
1,000	-	-	9/21/2023	7/19/2017	PAID	Riverport Authorities	
1,000	-	-	9/21/2023	9/14/2017	PAID	Riverport Authorities	
1,000	-	-	8/2/2023	5/18/2022	PAID	Cities	
1,691	-	-	8/14/2023	6/18/2022	PAID	Cities	
1,842	-	-	8/14/2023	6/19/2022	PAID	Cities	
1,809	-	-	8/14/2023	6/19/2022	PAID	Cities	
2,699	-	-	8/14/2023	7/1/2022	PAID	Cities	
3,129	-	-	8/14/2023	12/2/2022	PAID	Cities	
73,401	-	-	7/6/2023	6/30/2023	PAID	Urban Government Agencies	
1,000	-	-	8/14/2023	7/22/2023	PAID	Cities	
1,000	-	-	8/10/2023	7/27/2023	PAID	Fiscal Courts	
1,000	-	-	7/10/2023	8/5/2023	PAID	Parks and Recreation	
1,000	-	-	7/11/2023	8/5/2023	PAID	Cities	
77,382	-	-	8/4/2023	8/5/2023	PAID	Urban Government Agencies	
1,000	-	-	8/15/2023	8/11/2023	PAID	Cities	
1,000	-	-	9/11/2023	8/18/2023	PAID	Cities	
1,000	-	-	8/7/2023	8/18/2023	PAID	County Attorneys	
4,553	-	-	8/31/2023	8/19/2023	PAID	Boards of Education	
1,000	-	-	9/19/2023	8/23/2023	PAID	Special Districts & Boards	
1,000	-	-	8/14/2023	8/31/2023	PAID	Cities	
74,992	-	-	8/16/2023	9/3/2023	PAID	Urban Government Agencies	



County Employees Retirement System
 Penalty Invoices Report
 From: 7/1/2023 To: 9/30/2023
 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	-	-	9/8/2023	9/6/2023	PAID	County Attorneys	
1,000	-	-	8/10/2023	9/6/2023	PAID	Fiscal Courts	
1,000	-	-	9/8/2023	9/15/2023	PAID	Utility Boards	
79,151	-	-	8/22/2023	9/16/2023	PAID	Urban Government Agencies	
1,000	-	-	9/12/2023	9/16/2023	PAID	Utility Boards	
1,000	-	-	9/21/2023	9/16/2023	PAID	Fiscal Courts	
1,000	-	-	9/5/2023	9/16/2023	PAID	Fiscal Courts	
112,154	-	-	8/24/2023	9/21/2023	PAID	Urban Government Agencies	
67,525	-	-	9/7/2023	9/24/2023	PAID	Urban Government Agencies	
Total	\$519,327	\$-					

Notes:
Invoice Status:
 CANC - Cancelled
 PAID - Paid

KPPA ADMINISTRATIVE BUDGET FY 2023-2024 BUDGET-TO-ACTUAL SUMMARY ANALYSIS FOR THE THREE MONTHS ENDING SEPTEMBER 30, 2023, WITH COMPARATIVE TOTALS FOR THE THREE MONTHS ENDING SEPTEMBER 30, 2022						
CATEGORY	BUDGETED	FY 2024 EXPENSE	REMAINING	PERCENT REMAINING	FY 2023 EXPENSE	PERCENT DIFFERENCE
PERSONNEL	\$34,520,287	\$8,475,220	\$26,045,067	75.45%	\$8,083,783	4.84%
LEGAL CONTRACTS	1,210,000	169,555	1,040,445	85.99%	136,530	24.19%
AUDITING	300,000	-	300,000	100.00%	6,578	(100.00)%
ACTUARIAL SERVICES	500,000	-	500,000	100.00%	79,953	(100.00)%
MEDICAL REVIEWERS	1,800,000	339,790	1,460,210	81.12%	181,080	87.65%
OTHER PERSONNEL	500,000	83,044	416,956	83.39%	22,991	261.20%
PERSONNEL TOTAL	\$38,830,287	\$9,067,609	\$29,762,678	76.65%	\$8,510,915	6.54%
RENTALS - BUILDING & EQUIPMENT	1,166,500	263,349	903,151	77.42%	254,217	3.59%
INFORMATION TECHNOLOGY	4,190,000	624,533	3,565,467	85.09%	517,574	20.67%
OTHER OPERATIONAL	1,371,200	215,067	1,156,133	84.32%	185,286	16.07%
OPERATIONAL TOTAL	\$6,727,700	\$1,102,949	\$5,624,751	83.61%	\$957,077	15.24%
RESERVE	4,882,813	-	4,882,813	100.00%	-	
ADMINISTRATIVE BUDGETED AMOUNT	\$50,440,800	\$10,170,558	\$40,270,242	79.84%	\$9,467,992	7.42%

KPPA ADMINISTRATIVE BUDGET FY 2023-2024
BUDGET-TO-ACTUAL ANALYSIS
 FOR THE FISCAL THE THREE MONTHS ENDING SEPTEMBER 30, 2023, WITH COMPARATIVE TOTALS FOR THE THREE MONTHS ENDING SEPTEMBER 30, 2022

Account Name	Budgeted	FY 2024 Expense	Remaining	Percent Remaining	FY 2023 Expense	Percent Difference
PERSONNEL						
Staff						
Salaries/Wages	\$17,900,000	\$4,444,515	\$13,455,485	75.17%	\$4,064,915	9.34%
Wages (Overtime)	285,000	62,121	222,879	78.20%	42,947	44.65%
Emp Paid FICA	1,294,772	322,894	971,878	75.06%	300,677	7.39%
Emp Paid Retirement	12,033,015	2,955,059	9,077,956	75.44%	3,068,863	(3.71)%
Emp Paid Health Ins	2,687,500	635,718	2,051,782	76.35%	563,024	12.91%
Emp Paid Sick Leave	250,000	40,221	209,779	83.91%	28,831	39.51%
Adoption Assistance Benefit	10,000	-	10,000	100.00%	-	0.00%
Workers Compensation	12,000	11,116	884	7.36%	11,116	0.00%
Unemployment	10,000	-	10,000	100.00%	-	0.00%
Emp Paid Life Ins	3,000	744	2,256	75.20%	730	1.92%
Employee Training	25,000	2,830	22,170	88.68%	2,680	5.60%
Tuition Assistance	10,000	-	10,000	100.00%	-	0.00%
Bonds	-	-	-	100.00%	-	0.00%
Staff Subtotal	34,520,287	8,475,220	26,045,069	75.44%	8,083,783	4.84%
LEGAL & AUDITING SERVICES						
Legal Hearing Officers	150,000	48,450	101,550	67.70%	36,941	31.16%
Legal (Stoll, Keenon)	250,000	1,210	248,791	99.52%	16,461	(92.65)%
Frost Brown	300,000	26,868	273,132	91.04%	10,902	146.45%
Reinhart	50,000	-	50,000	100.00%	-	0.00%
Ice Miller	300,000	84,540	215,461	71.82%	21,270	297.46%
Johnson, Bowman, Branco LLC	100,000	8,488	91,513	91.51%	28,683	(70.41)%
Dentons Bingham & Greenebaum	50,000	-	150,000	100.00%	22,274	(100.00)%
Legal Expense	10,000	-	10,000	100.00%	-	0.00%
Auditing	300,000	-	300,000	100.00%	6,578	(100.00)%
Total Legal & Auditing Services	1,510,000	169,555	1,440,446	95.39%	143,108	18.48%
CONSULTING SERVICES						
Medical Reviewers	1,800,000	339,790	1,460,210	81.12%	181,080	87.65%
Escrow for Actuary Fees	-	-	-	0.00%	-	0.00%
Total Consulting Services	1,800,000	339,790	1,460,210	81.12%	181,080	87.65%
CONTRACTUAL SERVICES						
Miscellaneous Contracts	390,000	73,888	316,112	81.05%	9,886	647.40%
Human Resources Consulting	10,000	-	10,000	100.00%	-	0.00%
Actuarial Services	500,000	-	500,000	100.00%	79,953	(100.00)%
Facility Security Charges	100,000	9,156	90,844	90.84%	13,105	(30.13)%
Contractual Subtotal	1,000,000	83,044	916,956	91.70%	102,944	(19.33)%
PERSONNEL SUBTOTAL	\$38,830,287	\$9,067,608	\$29,862,679	76.91%	\$8,482,049	6.90%
OPERATIONAL						
Natural Gas	42,000	1,566	40,434	96.27%	1,446	8.30%
Electric	133,000	31,232	101,768	76.52%	32,045	(2.54)%
Rent-Non State Building	56,000	-	56,000	100.00%	12,661	(100.00)%
Building Rental - PPW	1,000,000	240,493	759,507	75.95%	240,492	0.00%
Copier Rental	105,000	21,708	83,292	79.33%	-	100.00%
Rental Carpool	5,500	1,147	4,353	79.14%	1,065	7.70%
Vehicle/Equip. Maint.	1,000	-	1,000	100.00%	-	0.00%
Postage	420,000	77,249	342,751	81.61%	41,377	86.70%
Freight	200	-	200	100.00%	-	0.00%
Printing (State)	15,000	-	15,000	100.00%	100	(100.00)%
Printing (non-state)	85,000	-	85,000	100.00%	2,977	(100.00)%
Insurance	10,000	5,066	4,934	49.34%	5,572	(9.08)%
Garbage Collection	6,500	1,745	4,755	73.16%	1,810	(3.59)%
Conference Expense	45,000	8,180	36,820	81.82%	2,878	184.23%
Conference Exp. Investment	2,000	-	2,000	0.00%	-	0.00%
Conference Exp. Audit	3,000	-	3,000	100.00%	-	0.00%
MARS Usage	50,000	6,775	43,225	86.45%	6,775	0.00%

KPPA ADMINISTRATIVE BUDGET 2023-24						
BUDGET-TO-ACTUAL ANALYSIS						
FOR THE THREE MONTHS ENDING SEPTEMBER 30, 2023, WITH COMPARATIVE TOTALS FOR THE THREE MONTHS ENDING SEPTEMBER 30, 2022						
Account Name	Budgeted	FY 2024 Expense	Remaining	Percent Remaining	FY 2023 Expense	Percent Difference
COVID-19 Expenses	-	-	-	#DIV/0!	-	0.00%
Office Supplies	100,000	9,914	90,086	90.09%	21,490	(53.87)%
Furniture & Office Equipment	12,000	-	12,000	100.00%	-	0.00%
Travel (In-State)	15,000	5,250	9,750	65.00%	3,577	46.77%
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)	79,000	8,555	70,445	89.17%	11,244	(23.91)%
Travel (Out of State) Investment	135,000	9,286	125,714	93.12%	4,448	108.77%
Travel (Out of State) Audit	1,000	-	1,000	100.00%	-	0.00%
Dues & Subscriptions	69,000	13,582	55,418	80.32%	13,742	(1.16)%
Dues & Subscriptions Invest	15,000	4,470	10,530	70.20%	3,990	12.03%
Dues & Subscriptions Audit	1,000	175	825	82.51%	-	100.00%
Miscellaneous	55,000	15,075	39,925	72.59%	14,670	2.76%
Miscellaneous Investment	-	-	-	0.00%	-	0.00%
Miscellaneous Audit	-	-	-	0.00%	-	0.00%
COT Charges	40,000	3,049	36,951	92.38%	3,609	(15.52)%
Telephone - Wireless	8,500	2,151	6,349	74.70%	1,428	50.63%
Telephone - Other	105,500	19,154	86,346	81.84%	24,517	(21.87)%
Telephone - Video Conference	11,000	2,417	8,583	78.02%	-	100.00%
Computer Equip./Software	4,080,000	614,709	3,465,291	84.93%	507,190	21.20%
Comp. Equip./Software Invest	-	-	-	0.00%	-	0.00%
Comp. Equip./Software Audit	20,000	-	20,000	100.00%	-	0.00%
OPERATIONAL SUBTOTAL	\$6,727,700	\$1,102,949	\$5,624,751	83.61%	\$957,077	15.24%
SUB-TOTAL	\$45,557,987	\$10,170,557	\$35,487,430	77.90%	\$9,439,126	7.75%
Reserve	4,882,813	-	4,882,813	100.00%	-	0.00%
TOTAL	\$50,440,800	\$10,170,557	\$40,370,243	80.03%	\$9,439,126	7.75%

Differences due to rounding

Plan	Budgeted	FY 2024 Expense	% of Total KPPA FY 2024 Expense
CERS Nonhazardous	\$29,825,645	\$6,013,850	59.13%
CERS Hazardous	2,627,966	529,886	5.21%
KERS Nonhazardous	15,855,561	3,197,013	31.434%
KERS Hazardous	1,774,003	357,698	3.517%
SPRS	357,625	72,109	0.709%
TOTAL	\$50,440,800	\$10,170,557	

**JP MORGAN CHASE CREDIT EARNINGS AND FEES
FOR THE FISCAL YEAR ENDING JUNE 30, 2024**

	Earnings	Fees	Net Earnings
July-23	\$3,297	\$(7,049)	\$(3,751)
August-23	4,612	(7,230)	\$(2,618)
September-23	26,588	(8,157)	\$18,432
Total	\$34,498	\$(22,436)	\$12,063

**JP MORGAN CHASE HARD INTEREST EARNED
FOR THE FISCAL YEAR ENDING JUNE 30, 2024**

	Clearing Account	CERS	KERS	Total
July-23	\$36,566	\$6,578	\$5,007	\$48,151
August-23	36,787	9,041	6,066	51,894
September-23	44,123	10,919	7,794	62,836
	-	-	-	-
	-	-	-	-
Total	\$117,477	\$26,539	\$18,866	\$162,882



Annual Comprehensive **Financial Report**

FOR THE FISCAL YEAR ENDED JUNE 30

2023

Prepared through the joint efforts of KPPA's team members.
Available online at kyret.ky.gov ☒

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 For The Fiscal Year Ended
 June 30, 2023**

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Management’s Responsibility for Financial Reporting

Management has prepared the combining financial statements of Kentucky Public Pensions Authority (KPPA) and is responsible for the integrity and fairness of the information presented.

December 6, 2023: Management has prepared the combining financial statements of KPPA and is responsible for the integrity and fairness of the information presented. Some amounts included in the combining financial statements may be based upon estimates and judgments. These estimates and judgments were made utilizing the best business practices available. The accounting policies followed in the preparation of these combining financial statements conform to U.S. Generally Accepted Accounting Principles (GAAP). Financial information presented throughout the annual report is consistent with the combining financial statements.

Responsibility: Ultimate responsibility for the combining financial statements and Annual Comprehensive Financial Report (ACFR) rests with the KPPA Board (Board). The Executive Director and KPPA staff assist the Board in its responsibilities.

Systems of internal control and supporting procedures are maintained to provide assurance that transactions are authorized, assets safeguarded, and proper records maintained. These controls include standards in hiring and training employees, the establishment of an organizational structure, and the communications of policies and guidelines throughout the organization. The cost of a control should not exceed the benefits to be derived; the objective is to provide reasonable, rather than absolute, assurance that the combining financial statements are free of any material misstatements. These internal controls are reviewed by internal audit programs. All internal audit reports are submitted to the KPPA Audit Committee, KPPA, CERS and KRS Boards.

The Auditor of Public Accounts (APA) has conducted an independent audit of the combining financial statements in accordance with U.S. Generally Accepted Government Auditing Standards. This audit is described in their Independent Auditors’ Report on pages 16 through 19 in the Financial Section. Management has provided the external auditors with full and unrestricted access to KPPA’s staff to discuss their audit and related findings as to the integrity of the plan’s financial reporting and the adequacy of internal controls for the preparation of combining financial statements.



Handwritten signature of David L. Eager in black ink.

David L. Eager
Executive Director

Handwritten signature of Michael B. Lamb in black ink.

Michael B. Lamb, CPA
Chief Financial Officer

Handwritten signature of Rebecca H. Adkins in black ink.

Rebecca H. Adkins
Deputy Executive Director

Handwritten signature of Connie Davis in black ink.

Connie Davis, CIA, CGAP, CRMA
Director of Accounting

EXECUTIVE DIRECTOR'S MESSAGE



David Eager

David L. Eager
Executive Director

December 6, 2023

To the Trustees & Membership

On behalf of the Kentucky Public Pensions Authority and the Boards of the County Employees Retirement System (CERS) and the Kentucky Retirement Systems (KRS), it is my honor to present the Annual Comprehensive Financial Report for the Fiscal Year (FY) ended June 30, 2023. This report, and the Summary Annual Financial Report, are provided as a resource for understanding the KPPA structure and the financial status of the systems KPPA operates.

Total assets in the systems administered by the Kentucky Public Pensions Authority (KPPA) increased to a record \$24.9 billion in Fiscal Year (FY) 2023, buoyed by strong investment returns, General Fund appropriations authorized by the legislature, and employer contributions. The blended FY return for all of the CERS and KRS hazardous and nonhazardous pension funds was 9.54%, while the blended return for the CERS and KRS hazardous and nonhazardous insurance trust fund was 10.15%.

Investment performance by system can be found on page 129. More information can be found in the Investments section of the KPPA website.

Those strong investment returns exceeded the median peer pension fund return of 7.64%, the target returns for those portfolios, and the actuarially assumed rates of return, which were 5.25% for the Kentucky Employees Retirement System (KERS) Nonhazardous and State Police Retirement System (SPRS) pension funds and 6.25% for all other pension and insurance funds.

Funding Improves

Thanks to strong investment returns for FY 2023 and funding approved by the General Assembly over and above the actuarially determined contribution (ADC) for KERS Nonhazardous and SPRS, as well as changes in some actuarial assumptions for CERS, the funded ratio of all three pension systems improved from FY 2022.

	2018	2019	2020	2021	2022	2023
CERS NH	52.7%	49.1%	49.4%	51.8%	52.0%	56.1%
CERS H	48.4%	45.3%	45.1%	46.7%	47.6%	51.4%
KERS NH	12.9%	13.4%	14.2%	16.8%	18.5%	21.8%
KERS H	55.5%	54.8%	55.3%	60.4%	63.2%	65.4%
SPRS	27.1%	27.0%	28.1%	30.7%	52.5%	54.0%

Insurance Funded Ratio

	2018	2019	2020	2021	2022	2023
CERS NH	76.7%	70.7%	78.5%	85.4%	132.1%	131.5%
CERS H	74.6%	75.8%	78.2%	84.3%	101.0%	100.7%
KERS NH	36.4%	36.3%	42.7%	50.2%	79.1%	81.7%
KERS H	130.0%	123.1%	126.0%	135.5%	172.2%	170.4%
SPRS	71.6%	71.3%	75.0%	82.0%	100.6%	100.5%

Commitments by the General Assembly and the Governor to fully fund contributions, and provide additional allocations, combined with prudent management by the Office of Investments and other staff, have all five pension funds on track to be fully funded by 2049.

To read the full actuarial reports, visit the Actuarial Valuations page on our website, under the Publications & Forms tab.

Ratings Boosts

Both S&P Global Ratings and Fitch Ratings raised their credit ratings for the Commonwealth in FY 2023. Governor Andy Beshear said on June 29, "We're showing everyone that our economy is booming, our pension systems are strong and our fiscal house is in order due to strong management."

For Fiscal Year 2023, the General Assembly allocated the full actuarially recommended contribution. Additionally, legislation passed in the 2022 General Assembly made additional appropriations to the KERS Nonhazardous plan of \$240 million for FY 2023 and FY 2024, and to the State Police Retirement System (SPRS) of \$215 million.

Strategic Plan

In March 2023 Provaliant Retirement, LLC of Scottsdale, Arizona, was selected through an RFP process to assist KPPA in developing the agency's first strategic plan since 2009. Provaliant is tasked with helping KPPA identify ways to improve efficiency, productivity, the quality of service delivery, governance practices, retaining and motivating employees, and promoting the best interest of members and stakeholders.

KPPA will collaborate with the CEOs and Trustees of CERS and KRS to develop strategic plans that are specific to each entity but that also complement one another. This months-long process is expected to yield plans with actions that will be implemented over time, in some cases years.

EXECUTIVE DIRECTOR'S MESSAGE

Financial Management

KPPA hired its first Chief Financial Officer, Michael Lamb, who is responsible for oversight of the accounting, budgeting, cash management, risk management, and procurement for KPPA, and for developing and maintaining accounting controls, conducting financial operations, and producing financial reporting for all of the systems operated by KPPA. Previously Mr. Lamb was General Manager, Enterprise Risk Management and Audit at Toyota Tusho America (TAI) Inc., in Georgetown, KY.

Cybersecurity

KPPA continues to make the security of our members' information our highest priority. Nation-wide news reports of cyberattacks and data breaches at large companies and government agencies are unfortunately all too frequent. Our Enterprise and Technology Services staff monitor an ever-changing cyberthreat landscape and take a variety of proactive measures to protect both member information and KPPA resources. All KPPA staff are routinely trained in cybersecurity issues to ensure they recognize suspicious activity and work to keep KPPA data secure, and security topics are covered in KPPA member newsletters to increase member security awareness. KPPA also has ongoing agency-wide planning and readiness efforts in disaster recovery, business continuity, and incident response.

Report from CERS CEO Ed Owens III

This fiscal year has been an exciting one for the CERS Board of Trustees and its membership. Our FY 2023 Actuarial Valuation shows we had an estimated annual return on net assets of over 10% for both the pension and insurance plans. Those returns ranked in the top five for public pension systems nationwide.

The Board increased the assumed rate of return from 6.25% to 6.50% for all four plans. This has the effect of lowering the employer contribution rate and decreasing our unfunded liability. Our pension plans are now approximately 56% funded while our insurance plans are over 100% funded.

Although employer contributions were lowered, the pension plans received approximately the same dollar amount of contributions as in the prior fiscal year due to strong growth in active membership and covered payroll.

The CERS Investment Committee and the Board are now focused on reviewing the system's asset allocation and making changes where appropriate. The goal will be to target the same level of investment return while reducing the amount of risk in the portfolio.

The Board of Trustees and I remain focused on protecting the assets of the CERS Trust while we ensure excellent service to the CERS members.

Report from KRS CEO John Chilton

As a part of the FY 2023 and 2024 budgets, the General Assembly provided full funding for the actuarially determined pension and health insurance contributions, plus additional amounts totaling \$695 million over fiscal years 2022 through 2024. The progress toward fully funding the actuarial liabilities will continue.

The KRS trustees continue to follow the evolving world of Environmental, Social, and Governance (ESG) issues as they relate to investments. In response to legislation passed in the 2023 Regular Session, KRS' corporate proxy voting history will be posted quarterly on the KPPA website. (Many ESG issues are addressed in corporate governance proposals by the corporations in which we invest.) Additionally, and importantly, the KRS Board monitors ongoing litigation in anticipation of favorably resolving longstanding cases.

This year, the Investment Committee worked with the KPPA Office of Investments to monitor KRS investments with a view to maximizing investment returns while minimizing investment risks. In fiscal year 2023, KPPA, CERS, and KRS have worked to further upgrade the Office of Investments team by adding investment professionals. Further staff additions are planned for FY 2024.

A Personal Update

In 2023, I signed a one-year contract that will end with my retirement. KPPA has formed a search committee comprising members of the KRS and CERS boards, which is in the process of identifying candidates to be the next KPPA Executive Director.

It has been my great honor to have served as KPPA's Executive Director these past eight years. During that time, KPPA has worked hard to improve member servicing. We enhanced our relationships with key stakeholders including members of the State Legislature and the Executive Branch, as well as retiree groups, members of the media, and the general public. And, we successfully strengthened employee morale, with 94% of our employees agreeing that they feel part of the KPPA team. KPPA is like a family, and I have been fortunate to have been a part of that family. No matter who sits in the Executive Director's office, KPPA's commitment to our Six Mandates will not waver, nor will our commitment to serving the retirees of state and local government and the State Police. KPPA will never stop working for our Members.

Acknowledgments

The preparation of this report has been a collaborative effort of KPPA Executive Management and the Accounting Division, Communications Division, Office of Investments, and the CERS and KRS CEOs. The contents have been reviewed by the Internal Audit Division. KPPA is responsible for all the information in the report and confidently presents it as a basis for understanding the stewardship of the systems operated by KPPA.

AGENCY STRUCTURE

As of December 6, 2023

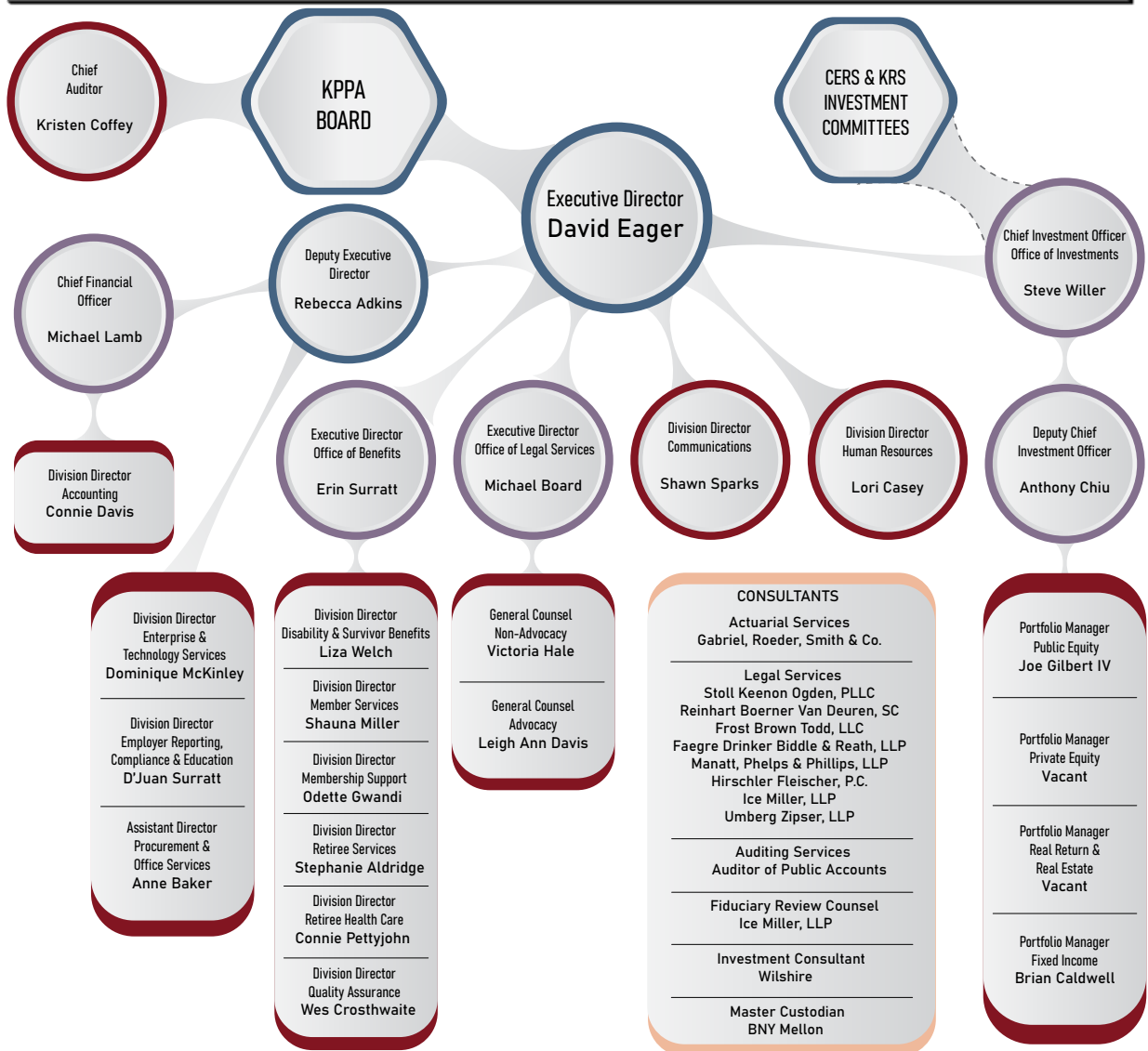
The Kentucky Public Pensions Authority oversees the operations of CERS, KERS, and SPRS by providing administrative support, investment management, and conducting daily activities on behalf of the CERS, KRS, and KPPA Boards. The 8-member KPPA Board is made up of elected and appointed representatives from the CERS and KRS Boards. KPPA is led by an Executive Director who is appointed by the KPPA Board to work with the CERS and KRS Chief Executive Officers to carry out the statutory provisions of the Systems.



KPPA BOARD
Four (4) CERS and Four (4) KRS Board Representatives

*Elected to position by KPPA Board

Keith Peercy KPPA Chair* Selected by KRS Chair	Betty Pendergrass CERS Board Chair	Dr. Merl Hackbart CERS Investment Committee Chair	William O'Mara CERS Trustee Selected by CERS Chair
Jerry W. Powell KPPA Vice Chair* Selected by CERS Chair	Lynn Hampton KRS Board Chair	C. Prewitt Lane KRS Investment Committee Chair	William Summers V KRS Trustee Selected by KRS Chair



Refer to the Investments Section for additional information regarding Investment Advisors (pages 137-142) and Schedules of Fees and Expenses (pages 143-144).

GOVERNANCE

As of December 6, 2023

The systems operated by KPPA are governed by two 9-member boards of trustees, each consisting of three elected members and six gubernatorial appointees serving four-year terms. The CERS Board of Trustees is responsible for governance of the CERS funds. The governance of the KERS funds and the SPRS funds are the responsibility of the KRS Board of Trustees. CERS and KRS each have a Chief Executive Officer who serves as a legislative and executive advisor to the respective boards and a General Counsel who provides legal services.

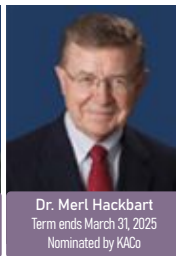
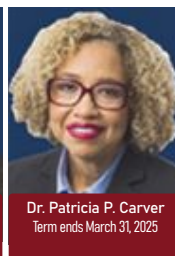
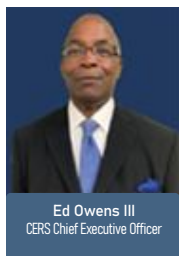
ELECTED BY MEMBERSHIP

APPOINTED BY GOVERNOR:
The Governor selects appointees from lists of candidates provided by the Kentucky Association of Counties (KACo), the Kentucky League of Cities (KLC), and the Kentucky School Boards Association (KSBA).

CERS BOARD OF TRUSTEES

Betty Pendergrass, Chair
George Cheatham, Vice Chair

General Counsel: Johnson Bowman Branco, LLP
Three (3) Elected Trustees
Six (6) Appointed by Governor



*Trustee continues to serve until the Governor makes an appointment to fill the trustee position.

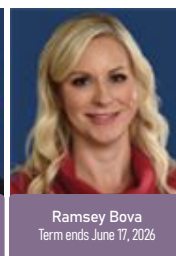
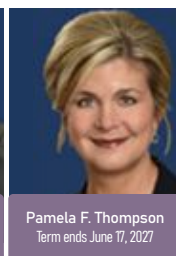
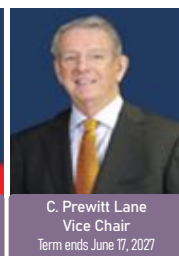
ELECTED BY MEMBERSHIP

APPOINTED BY GOVERNOR

KRS BOARD OF TRUSTEES

Lynn Hampton, Chair
C. Prewitt Lane, Vice Chair

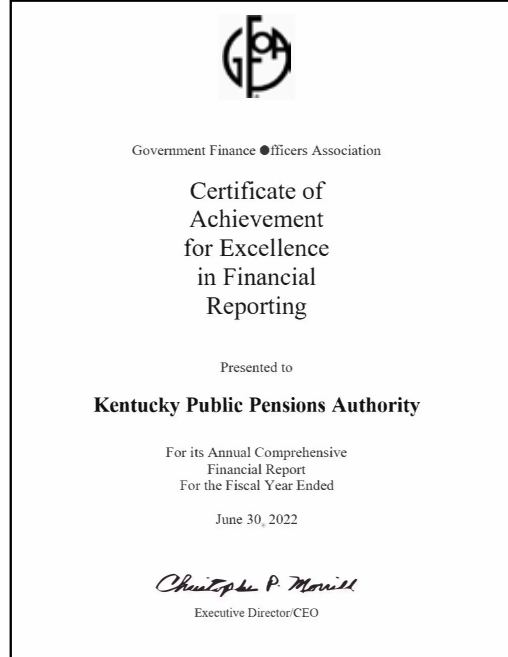
General Counsel: Dentons Bingham Greenebaum
Three (3) Elected Trustees
Six (6) Appointed by Governor



Professional Awards

CERTIFICATE OF ACHIEVEMENT FOR EXCELLENCE IN FINANCIAL REPORTING

The Government Finance Officers Association (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Kentucky Public Pensions Authority for its Annual Comprehensive Financial Report for the Fiscal Year ended June 30, 2022. The Certificate of Achievement is a prestigious national award recognizing excellence in the preparation of state and local government financial reports and is valid for a period of one year. This is the 24th award earned by Kentucky Public Pensions Authority (formerly the Kentucky Retirement Systems). In order to be awarded a Certificate of Achievement, a government unit must publish an easily readable and efficiently organized document. The report must satisfy both generally accepted accounting principles and applicable legal requirements. We believe our 2023 report will continue to meet the Certificate of Achievement Program's requirements, and we will be submitting it to the GFOA for their consideration.



PUBLIC PENSIONS STANDARDS AWARD FOR FUNDING AND ADMINISTRATION

The Public Pension Coordinating Council awarded the Public Pensions Standards Award for Funding and Administration to the Kentucky Public Pensions Authority (KPPA) for 2023. This is the second award earned by KPPA.

The Public Pension Coordinating Council established the Public Pension Standards to reflect minimum expectations for public retirement system management, administration, and funding. The Standards serve as a benchmark to measure public defined benefit plans. The Award for Funding and Administration is a distinguished national award recognizing pension programs meeting professional standards for plan design and administration as set forth in the Public Pension Standards. This award is valid for a period of one year. We believe KPPA will continue to meet these standards, and we will be applying for the award next year.



2023 Total Fiscal Year KPPA Pension Benefits Paid by County (in whole \$)								
County	Payees*	Total	County	Payees*	Total	County	Payees*	Total
Adair	546	\$9,450,928	Grant	663	\$12,632,492	McLean	328	\$4,697,725
Allen	453	6,195,939	Graves	970	15,499,440	Meade	515	7,651,712
Anderson	1,453	36,414,367	Grayson	860	13,876,998	Menifee	229	3,427,101
Ballard	264	3,853,581	Green	349	5,063,164	Mercer	826	14,965,991
Barren	1,176	17,713,891	Greenup	716	10,407,642	Metcalfe	328	4,381,967
Bath	423	6,687,345	Hancock	233	3,276,736	Monroe	301	3,655,016
Bell	708	11,491,733	Hardin	2,445	41,805,463	Montgomery	710	12,011,878
Boone	2,082	44,361,813	Harlan	660	10,033,044	Morgan	675	11,712,383
Bourbon	566	9,387,391	Harrison	502	8,199,335	Muhlenberg	840	11,257,321
Boyd	1,093	18,279,869	Hart	375	5,674,876	Nelson	1,194	21,582,376
Boyle	901	16,000,603	Henderson	1,180	20,061,538	Nicholas	223	3,215,898
Bracken	243	3,455,552	Henry	950	21,528,225	Ohio	681	7,987,304
Breathitt	528	8,309,077	Hickman	99	1,760,173	Oldham	1,438	30,825,732
Breckinridge	528	8,071,368	Hopkins	1,338	21,150,807	Owen	528	12,294,709
Bullitt	1,786	33,646,001	Jackson	354	4,683,606	Owsley	225	3,308,145
Butler	339	4,843,433	Jefferson	16,615	369,906,868	Pendleton	398	6,918,332
Caldwell	551	8,797,076	Jessamine	1,186	21,082,368	Perry	822	11,864,046
Calloway	1,148	16,849,921	Johnson	650	9,838,165	Pike	1,333	20,148,508
Campbell	1,633	32,119,113	Kenton	2,443	52,812,566	Powell	372	5,228,395
Carlisle	123	1,869,046	Knott	469	7,261,918	Pulaski	2,416	40,797,909
Carroll	336	5,602,948	Knox	650	10,158,452	Robertson	75	1,240,583
Carter	853	11,619,504	LaRue	409	6,665,674	Rockcastle	426	6,154,513
Casey	391	5,108,884	Laurel	1,367	22,660,418	Rowan	928	16,039,774
Christian	1,581	28,502,771	Lawrence	355	4,371,418	Russell	599	9,240,811
Clark	900	15,988,698	Lee	245	3,588,983	Scott	1,405	29,426,953
Clay	621	9,093,539	Leslie	278	4,182,851	Shelby	1,712	43,232,674
Clinton	319	4,220,477	Letcher	643	8,994,282	Simpson	321	4,046,578
Crittenden	233	3,368,253	Lewis	350	4,833,582	Spencer	581	13,361,441
Cumberland	202	2,968,583	Lincoln	730	9,573,329	Taylor	701	10,512,823
Daviess	2,889	52,148,288	Livingston	277	4,700,986	Todd	277	3,827,202
Edmonson	251	3,469,987	Logan	694	9,884,710	Trigg	566	9,423,519
Elliott	191	2,967,958	Lyon	363	7,412,991	Trimble	294	4,896,589
Estill	443	6,410,920	Madison	2,596	43,759,733	Union	392	4,650,980
Fayette	5,737	123,989,056	Magoffin	393	5,498,842	Warren	3,077	54,675,517
Fleming	507	8,412,462	Marion	587	8,611,210	Washington	369	5,922,484
Floyd	937	14,940,218	Marshall	965	14,691,500	Wayne	593	8,496,787
Franklin	6,277	194,303,907	Martin	278	3,274,633	Webster	382	5,098,924
Fulton	188	2,369,118	Mason	432	7,243,868	Whitley	1,219	17,591,520
Gallatin	129	2,255,537	McCracken	1,650	30,244,225	Wolfe	351	5,883,586
Garrard	474	\$7,007,182	McCreary	426	\$4,485,575	Woodford	1,125	\$28,324,791

Pension Benefits paid to retirees and beneficiaries of Kentucky Public Pensions Authority have a wide ranging impact on the state's economic health. In fiscal year 2023, KPPA paid over \$2 billion to its recipients. The majority, 92.79%, of these payments are issued to Kentucky residents. Each county in the Commonwealth receives at least \$1 million annually from KPPA, providing a stabilizing element for all local economies.

Total Retirement Payments For the Period ending June 30, 2023 (in Whole \$)			
	Payees	%	Payments
Retirement Eligible/Actuarial Refund **	636		\$9,453,983
Kentucky	116,523	92.79%	2,193,919,524
Out of State	9,843	7.21%	170,466,194
Grand Total	126,366	100.00%	\$2,364,385,718

*This table represents all payees receiving a monthly payment, retirement eligible refund, or actuarial refund during the fiscal year.

** Included in Kentucky and Out of State Payees and Payments, therefore, are not included in Grand Total Amount and percentage.

Benefit Tiers

KPPA administers three different benefit tiers. Each plan provides pension and insurance benefits based on the member's participation date:

- Tier 1: Members with a participation date prior to September 1, 2008.
- Tier 2: Members with a participation date of September 1, 2008 through December 31, 2013.
- Tier 3: Members with a participation date on or after January 1, 2014.

Membership as of June 30, 2023 (in Whole \$)							
Item	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS	KPPA Total 2023	
Members	255,055	22,316	126,830	14,556	2,852	421,609	
Active Membership	81,217	9,181	30,854	3,875	868	125,995	
Tier 1	22,824	2,798	12,091	865	325	38,903	
Tier 2	10,859	1,709	4,709	564	180	18,021	
Tier 3	47,534	4,674	14,054	2,446	363	69,071	
Average Annual Salary	\$36,782	\$73,654	\$51,489	\$54,452	\$75,937	-	
Average Age	47.3	38.1	45.7	39.7	36.9	-	
Retired Membership	66,935	9,448	44,975	3,459	1,552	126,369	
Tier 1	65,221	9,407	44,447	3,390	1,550	124,015	
Tier 2	1,553	32	473	60	1	2,119	
Tier 3	161	9	55	9	1	235	
Average Annual Benefit	\$12,284	\$29,602	\$21,206	\$16,123	\$39,738	-	
Average Age	71.3	62.9	70.8	66.0	64.4	-	
Inactive Members	106,903	3,687	51,001	7,222	432	169,245	
Tier 1	47,781	1,371	29,859	1,767	167	80,945	
Tier 2	17,893	605	8,565	1,255	69	28,387	
Tier 3	41,229	1,711	12,577	4,200	196	59,913	

CERS was established on July 1, 1958 by the State Legislature.

CERS Nonhazardous - Fiduciary Net Position* (\$ in Thousands)			
Year	Pension	Insurance	Total
2014	\$6,528,146	\$1,878,711	\$8,406,857
2015	6,440,800	1,920,946	8,361,746
2016	6,141,396	1,908,550	8,049,946
2017	6,739,142	2,160,553	8,899,695
2018	7,086,322	2,346,767	9,433,089
2019	7,242,975	2,486,458	9,729,433
2020	7,110,889	2,498,051	9,608,940
2021	8,670,667	3,141,786	11,812,453
2022	8,062,346	2,981,224	11,043,570
2023	\$8,781,440	\$3,289,533	\$12,070,973

CERS Hazardous - Fiduciary Net Position* (\$ in Thousands)			
Year	Pension	Insurance	Total
2014	\$2,087,002	\$1,030,303	\$3,117,305
2015	2,078,202	1,056,480	3,134,682
2016	2,010,177	1,056,097	3,066,274
2017	2,227,679	1,179,313	3,406,992
2018	2,361,047	1,268,272	3,629,319
2019	2,429,613	1,324,809	3,754,422
2020	2,395,688	1,305,132	3,700,820
2021	2,934,421	1,607,811	4,542,232
2022	2,736,928	1,503,977	4,240,905
2023	\$3,055,797	1,613,586	\$4,669,383

KERS was established on July 1, 1956 by the State Legislature.

KERS Nonhazardous - Fiduciary Net Position* (\$ in Thousands)			
Year	Pension	Insurance	Total
2014	\$2,578,290	\$646,905	\$3,225,195
2015	2,327,782	665,639	2,993,421
2016	1,980,292	668,318	2,648,610
2017	2,092,781	781,406	2,874,187
2018	2,048,890	846,762	2,895,652
2019	2,286,625	942,136	3,228,761
2020	2,362,231	1,006,498	3,368,729
2021	3,085,014	1,353,123	4,438,137
2022	3,076,743	1,301,522	4,378,265
2023	\$3,607,206	\$1,465,489	\$5,072,695

KERS Hazardous - Fiduciary Net Position* (\$ in Thousands)			
Year	Pension	Insurance	Total
2014	\$561,484	\$433,525	\$995,009
2015	552,468	439,113	991,581
2016	527,880	437,397	965,277
2017	605,921	484,442	1,090,363
2018	651,173	513,384	1,164,557
2019	687,877	527,108	1,214,985
2020	697,366	514,740	1,212,106
2021	874,928	624,889	1,499,817
2022	819,237	579,902	1,399,139
2023	\$902,567	\$616,322	\$1,518,889

SPRS was established on July 1, 1958 by the State Legislature.

SPRS - Fiduciary Net Position* (\$ in Thousands)				
Year	Pension	Insurance	Total	
2014		\$260,974	\$164,958	\$425,932
2015		247,229	164,714	411,943
2016		218,013	160,949	378,962
2017		256,383	178,191	434,574
2018		268,425	189,994	458,419
2019		287,242	200,128	487,370
2020		295,044	200,245	495,289
2021		357,660	246,004	603,664
2022		552,926	230,015	782,941
2023		\$592,826	\$246,797	\$839,623

KPPA Total Fiduciary Net Position

Fiduciary Net Position (\$ in Thousands)			
Year	Pension	Insurance	Total
2014	\$12,015,897	\$4,154,401	\$16,170,298
2015	11,646,481	4,246,892	15,893,373
2016	10,877,758	4,231,311	15,109,069
2017	11,921,906	4,783,905	16,705,811
2018	12,415,856	5,165,179	17,581,035
2019	12,934,332	5,480,639	18,414,971
2020	12,861,218	5,524,666	18,385,884
2021	15,922,690	6,973,613	22,896,303
2022	15,248,180	6,596,640	21,844,820
2023	\$16,939,836	\$7,231,727	\$24,171,563

** The Fiduciary Net Positions are the resources accumulated and held in trust to pay benefits.*

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MIKE HARMON
AUDITOR OF PUBLIC ACCOUNTS

Independent Auditor's Report

To the Members
Kentucky Public Pensions Authority

Report on the Audit of the Financial Statements

Opinion

We have audited the accompanying financial statements of **Kentucky Public Pensions Authority (KPPA)**, a (discretely presented) component unit of the Commonwealth of Kentucky, **as of and for the year ended June 30, 2023**, 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, 2023**, and the changes in its 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 (GAAS) 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.

Emphasis-of-Matter - Reporting Entity

As discussed in Note A, the financial statements present only the KPPA, and are not intended to present fairly the financial position of the Commonwealth of Kentucky, or the results of its operations in conformity with accounting principles generally accepted in the United States of America. Our opinion is not modified with respect to this matter.

Responsibilities of Management for the Financial Statements

KPPA's 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 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 GAAS 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 judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS, we

- Exercise professional judgment 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 judgment, 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.

Other Matter - Summarized Comparative Information

The financial statements of KPPA for the year ended June 30, 2022, were audited by another auditor, who expressed an unmodified opinion on those statements on December 7, 2022. In our opinion, the summarized comparative information presented herein as of and for the year ended June 30, 2022 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 XXXX through XXXX and the defined benefit pension plan and other post-employment benefit supplemental schedules on pages XXXX through XXXX, be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a 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.

Supplementary Information

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

Other Information

Management is responsible for the other information included in the annual comprehensive annual report. The other information comprises the introductory, investment, actuarial and statistical sections but does not include the financial statements and our auditor's report thereon. Our opinions on the financial statements do not cover the other information, and we do not express an opinion or any form of assurance thereon. In connection with our audit of the financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the financial statements, or the other information otherwise appears to be materially misstated. If, based on

the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated November 27, 2023 on our consideration of KPPA's internal control over financial reporting and on our test 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 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.

Respectfully Submitted,

Farah Petter, CPA
Assistant Auditor of Public Accounts
Frankfort, Ky

November 27, 2023

DRAFT

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, 2023. 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.

KPPA 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 \$15.2 billion at the beginning of the fiscal year and increased by 11.18% to \$16.9 billion as of June 30, 2023. The \$1.7 billion increase is primarily attributable to the appreciation in the fair value of investments.

CONTRIBUTIONS

Total contributions reported for fiscal year 2023 were \$2,723.8 million compared to \$2,653.1 million in fiscal year 2022. The increase is the result of a General Fund appropriation to KERS Nonhazardous in the amount of \$240.0 million; the increase in employer contribution rates for CERS Nonhazardous and CERS Hazardous; as well as an increase in covered payroll for all funds. These increases were offset by a General Fund appropriation to SPRS of \$215.0 million as well as Employer Cessation contributions of \$63.1 million in 2022.

INVESTMENTS

The investment portfolio for the Pension Funds reported a net return of 9.54% for fiscal year 2023 compared to a net negative return of 5.73% for fiscal year 2022.

The net appreciation in the fair value of investments for fiscal year 2023 was \$1,073.5 million compared to net depreciation of \$1,175.9 million for the previous fiscal year.

Interest, dividends, and net securities lending income for fiscal year 2023 was \$471.2 million compared to \$431.2 million in fiscal year 2022. All investment returns are reported net of fees and investment expenses, including carried interests. Investment expenses totaled \$171.6 million for fiscal year 2022 compared to \$108.9 million in the current fiscal year. The decrease in fees is the result of less than favorable market conditions causing returns to drop, impacting those fees directly related to performance most notably Private Equity, Real Estate and Specialty Credit. in fiscal year 2023.

DEDUCTIONS

Pension benefits paid to retirees and beneficiaries for fiscal year 2023 totaled \$2,380.1 million compared to \$2,328.6 million in fiscal year 2022, a 2.21% increase. The increase was due to a 1.63% increase in the number of retirees to 126,369. Refunded contributions paid to former members upon termination of employment for fiscal year 2023 totaled \$45.9 million compared to \$42.9 million in fiscal year 2022, a 6.99% increase, as more members elected a refund at employment termination.

Management's Discussion & Analysis (Unaudited)

KPPA's fiscal year 2023 Pension administrative expense totaled \$41.9 million compared to \$39.7 million in the prior year. The increase was mainly due to the state pay increase in salaries and employee retirement benefits.

INSURANCE FUND

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

The combined fiduciary net position of the Insurance Fund increased by \$635.1 million during fiscal year 2023. Total combined net position for the fiscal year was \$7,231.7 million. Total contributions and net investment income of \$997.8 million offset deductions of \$362.7 million which resulted in the net position increase.

CONTRIBUTIONS

Employer contributions of \$282.5 million were received in fiscal year 2023 compared to \$319.0 million in fiscal year 2022. Total contributions changed (11.44)% primarily due to a decrease in Employer Contribution Rates, Humana Gain Share Payment, and Employer Cessation Contributions.

The reimbursement of retired/reemployed health insurance for fiscal year 2023 totaled \$13.9 million compared to \$12.7 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 2023 was \$200.5 million compared to \$193.5 million in fiscal year 2022. 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 return of 10.15% for the fiscal year, which was higher than fiscal year 2022's net negative return of 5.34%. The investment return was above the 6.25% assumed rate of return used for actuarial calculations.

The net appreciation in the fair value of investments for fiscal year 2023 was \$508.6 million compared to net depreciation of \$(482.5) million for the previous fiscal year. This \$991 million increase in fiscal year 2023 was due to favorable market returns compared to fiscal year 2022.

Investment expenses totaled \$51.9 million for fiscal year 2023 compared to \$84.0 million in the prior fiscal year. The decrease in fees is the result of less than favorable market conditions causing returns to drop, impacting those fees directly related to performance most notably Private Equity, Real Estate and Specialty Credit in fiscal year 2023.

DEDUCTIONS

Total insurance premiums, plus self-funded reimbursements were \$360.2 million for fiscal year 2023. The fiscal year 2023 insurance premiums were \$22.0 million less compared to fiscal year 2022, the number of covered lives only increased approximately 1% year-over-year.

Insurance administrative expenses for retirees under age 65, decreased from \$2.45 million in fiscal year 2022 to \$2.43 million in fiscal year 2023.

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 [29](#) and the Combining Statement of Fiduciary Net Position for the Insurance Fund on page [31](#) provide a snapshot of the financial position of each of the three systems as of fiscal year end 2023. The Combining Statement of Changes in Fiduciary Net Position for the Pension Funds on page [30](#), and the Combining Statement of Changes in Fiduciary Net Position for the Insurance Fund on page [31](#), summarize the additions and deductions that occurred for each of the ten funds during fiscal year 2023.

The economic assumptions for the Pension Funds and Insurance Fund for fiscal year 2023 are on page [75](#), the Schedules of Changes in Employers' Total Pension Liability on pages [95-99](#), the Schedules of the Employer Net Pension Liability on pages [93-94](#); the Schedule of Changes in Employers' Total Other Post-Employment Benefits (OPEB) Liability are on pages [106-110](#); and, the Schedule of the Employers' Net OPEB Liabilities are on pages [104-105](#). 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 [101-103](#), and the Schedules of the Employers' Contributions – OPEB are on pages [113-115](#). 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 \$2,327 million in fiscal year 2023, compared to the fiduciary net position for the previous fiscal year. The increase in fiduciary net position for the fiscal year 2023 is primarily attributable to positive 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		
	2023	2022	2021	2023	2022	2021	2023	2022	2021
Cash & Invest.	\$17,097,461	\$15,418,077	\$16,391,137	\$7,338,673	\$6,766,874	\$7,184,408	\$24,436,134	\$22,184,951	\$23,575,545
Receivables	361,735	337,832	361,429	87,154	77,410	122,132	448,889	415,242	483,561
Capital Assets	-	323	677	-	-	-	-	323	677
Total Assets	17,459,196	15,756,232	16,753,243	7,425,827	6,844,284	7,306,540	24,885,023	22,600,516	24,059,783
Total Liabilities	(519,360)	(508,052)	(830,553)	(194,100)	(247,644)	(332,927)	(713,460)	(755,696)	(1,163,480)
Fiduciary Net Position	\$16,939,836	\$15,248,180	\$15,922,690	\$7,231,727	\$6,596,640	\$6,973,613	\$24,171,563	\$21,844,820	\$22,896,303

Capital Assets include capital assets, intangible assets, depreciation and amortization.

Pension Plan Activities

Member contributions increased by \$46.6 million. This is primarily due to an increase in covered payroll across all funds. 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 \$62.0 million for fiscal year 2023. The increase in contributions was the result of the increase in covered payroll for all funds, and an increase in the employer contribution rates for CERS Nonhazardous and CERS Hazardous.

Total Pension Plans deductions increased by \$56.6 million. The 2.35% increase was primarily driven by the normal increase in retirements across all plans.

Net investment income increased by \$2,352.0 million. This is illustrated in the Investment Income Pension table on the next page. The increase in fair value of investments during fiscal year 2023 was the driving force of the increase in net investment income when compared to fiscal year 2022.

Overall, KPPA reported a net positive return of 9.54% for the fiscal year. This outperformed both the IPS policy benchmark return of 8.88% and 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		
	2023	2022	2021	2023	2022	2021	2023	2022	2021
Additions:									
Member Cont.	\$312,045	\$290,471	\$274,533	\$-	\$-	\$-	\$312,045	\$290,471	\$274,533
Employer Cont.	1,167,276	1,091,160	1,724,309	194,788	217,318	346,026	1,362,064	1,308,478	2,070,335
Employer Pay Credit	105,738	80,710	68,447	-	-	-	105,738	80,710	68,447
Heath Ins. Cont.	(77)	(208)	(4)	32,378	27,791	24,409	32,301	27,583	24,405
Humana Gain Share	-	-	-	12,308	18,382	42,897	12,308	18,382	42,897
Pension Spiking Cont.	277	122	222	-	-	-	277	122	222
General Fund Appro.	240,000	215,000	384	-	-	-	240,000	215,000	384
Employer Cessation Cont.	-	63,113	175,600	-	2,405	28,400	-	65,518	204,000
Premiums Rec'd	-	-	-	(479)	364	563	(479)	364	563
Retired Reemp Ins.	-	-	-	13,870	12,667	12,535	13,870	12,667	12,535
Medicare Subsidy	-	-	-	4	2	3	4	2	3
AAL Contributions	898,545	912,705	-	87,674	101,637	-	986,219	1,014,342	-
Invest. Inc. (net)	1,435,702	(916,320)	3,150,288	657,211	(372,900)	1,377,531	2,092,913	(1,289,220)	4,527,819
Total Additions	4,159,506	1,736,753	5,393,779	997,754	7,666	1,832,364	5,157,260	1,744,419	7,226,143
Deductions:									
Benefit payments	2,380,090	2,328,594	2,263,388	-	-	-	2,380,090	2,328,594	2,263,388
Refunds	45,885	42,927	32,130	-	-	-	45,885	42,927	32,130
Admin. Exp.	41,875	39,742	36,789	2,427	2,454	2,354	44,302	42,196	39,143
Healthcare Costs	-	-	-	360,240	382,167	381,063	360,240	382,167	381,063
Excise Tax	-	-	-	-	18	-	-	18	-
Total Deductions	2,467,850	2,411,263	2,332,307	362,667	384,639	383,417	2,830,517	2,795,902	2,715,724
Increase (Decrease) in Fiduciary Net Position	1,691,656	(674,510)	3,061,472	635,087	(376,973)	1,448,947	2,326,743	(1,051,483)	4,510,419
Beginning 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
End of Period	\$16,939,836	\$15,248,180	\$15,922,690	\$7,231,727	\$6,596,640	\$6,973,613	\$24,171,563	\$21,844,820	\$22,896,303

Management's Discussion & Analysis (Unaudited)

CERS			
As of June 30 (\$ in Thousands)			
CERS Nonhazardous Investment Income - Pension	2023	2022	2021
Increase (decrease) in fair value of investments	\$633,997	\$(1,011,822)	\$1,331,722
Investment income net of investment expense	178,004	136,769	135,711
Gain on sale of investments	3,416	374,057	316,798
Total Investment Income(loss) from Investing Activity	\$815,417	\$(500,996)	\$1,784,231
CERS Hazardous Investment Income - Pension	2023	2022	2021
Increase (decrease) in fair value of investments	\$220,000	\$(350,070)	\$447,895
Investment income net of investment expense	62,725	48,654	45,850
Gain on sale of investments	(760)	125,985	106,985
Total Investment Income (loss) from Investing Activity	\$281,965	\$(175,431)	\$600,730
KERS			
As of June 30 (\$ in Thousands)			
KERS Nonhazardous Investment Income - Pension	2023	2022	2021
Increase (decrease) in fair value of investments	\$153,469	\$(310,014)	\$380,850
Investment income net of investment expense	85,482	52,680	50,630
Gain on sale of investments	(18,693)	91,430	96,959
Total Investment Income (loss) from Investing Activity	\$220,258	\$(165,904)	\$528,439
KERS Hazardous Investment Income - Pension	2023	2022	2021
Increase (decrease) in fair value of investments	\$58,019	\$(102,300)	\$129,806
Investment income net of investment expense	20,658	15,111	13,943
Gain on sale of investments	(1,416)	35,348	31,173
Total Investment Income (loss) from Investing Activity	\$77,261	\$(51,841)	\$174,922
SPRS			
As of June 30 (\$ in Thousands)			
Investment Income - Pension	2023	2022	2021
Increase (decrease) in fair value of investments	\$29,536	\$(39,791)	\$45,055
Investment income net of investment expense	15,380	6,347	5,885
Gain on sale of investments	(4,115)	11,296	11,026
Total Investment Income (loss) from Investing Activity	\$40,801	\$(22,148)	\$61,966

Insurance Plan Activities

Employer contributions paid into the Insurance Plans decreased by \$36.5 million in fiscal year 2023 over the prior fiscal year. The decrease in employer contributions is directly related to a decrease in the employer contribution rate for the Insurance Plans.

Income from investment activities increased by \$1,030.1 million in fiscal year 2023 compared to fiscal year 2022. Overall, KPPA reported a net positive return of 10.15% for the fiscal year. This outperformed both the IPS policy benchmark of 9.27% 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	2023	2022	2021
Increase (decrease) in fair value of investments	\$239,418	\$(360,292)	\$469,201
Investment income net of investment expense	65,959	51,633	41,009
Gain on sale of investments	626	137,960	109,383
Total Investment Income (loss) from Investing Activities	\$306,003	\$(170,699)	\$619,593
CERS Hazardous Investment Income - Insurance	2023	2022	2021
Increase (decrease) in fair value of investments	\$114,496	\$(177,397)	\$245,549
Investment income net of investment expense	32,131	24,818	20,284
Gain on sale of investments	2,112	74,126	56,984
Total Investment Income (loss) from Investing Activities	\$148,739	\$(78,453)	\$322,817
KERS			
KERS Nonhazardous Investment Income - Insurance	2023	2022	2021
Increase (decrease) in fair value of investments	\$103,144	\$(146,482)	\$195,110
Investment income net of investment expense	32,069	20,023	18,478
Gain on sale of investments	(7,161)	40,904	45,007
Total Investment Income (loss) from Investing Activities	\$128,052	\$(85,555)	\$258,595
KERS Hazardous Investment Income - Insurance	2023	2022	2021
Increase (decrease) in fair value of investments	\$39,760	\$(63,789)	\$96,312
Investment income net of investment expense	13,089	9,471	8,372
Gain on sale of investments	142	26,912	21,791
Total Investment Income (loss) from Investing Activities	\$52,991	\$(27,406)	\$126,475
SPRS			
Investment Income - Insurance	2023	2022	2021
Increase (decrease) in fair value of investments	\$16,156	\$(25,758)	\$38,253
Investment income net of investment expense	5,328	3,632	3,060
Gain on sale of investments	(58)	11,339	8,738
Total Investment Income (loss) from Investing Activities	\$21,426	\$(10,787)	\$50,051

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 [93-94](#) and Net OPEB Liability on pages [104-105](#). The asset values stated in the Schedules of Changes in Employers' Total Pension Liability (TPL) on pages [95-99](#) and Total OPEB Liability on pages [106-110](#) 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, 2023, actuarial valuation in the Pension Plans decreased by \$1,823.0 million for a total unfunded amount of \$23,278.5 million in fiscal year 2023, compared to an unfunded amount of \$25,101.5 million in fiscal year 2022. The overall decrease in the unfunded actuarial accrued liability is the result of an increase in the fair value of the assets due to favorable market conditions, an increase in employee salaries, and General Fund Appropriations during fiscal year 2023.

The Insurance Plan's unfunded actuarial accrued liability from the June 30, 2023, actuarial valuation for fiscal year 2023, was negative \$730.1 million compared to negative \$663.0 million for fiscal year 2022. This is a decrease in the unfunded actuarial accrued liability of \$67.1 million. The decrease in the unfunded actuarial accrued liability is the result of an increase in the fair value of the assets due to favorable market conditions and an increase in employee salaries during fiscal year 2023. 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 [101-103](#), and in the Schedules of Contributions - OPEB on pages [113-115](#). 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 Nonhazardous				CERS Hazardous			
	Pension		Insurance		Pension		Insurance	
	2023	2022	2023	2022	2023	2022	2023	2022
Actuarial Accrued Liability (AAL)	\$15,296	\$15,674	\$2,560	\$2,392	\$5,850	\$5,862	\$1,604	\$1,538
Actuarial Value of Assets	8,585	8,149	3,366	3,160	3,008	2,789	1,615	1,554
Unfunded AAL	\$6,711	\$7,525	\$(806)	\$(768)	\$2,842	\$3,073	\$(11)	\$(16)
Funded Ratio	56.12%	51.99%	131.48%	132.11%	51.42%	47.58%	100.70%	101.02%

Schedule of Unfunded Actuarial Accrued Liability KRS

As of June 30 (\$ in Millions)

Item	KERS Nonhazardous				KERS Hazardous				SPRS			
	Pension		Insurance		Pension		Insurance		Pension		Insurance	
	2023	2022	2023	2022	2023	2022	2023	2022	2023	2022	2023	2022
Actuarial Accrued Liability (AAL)	\$16,304	\$16,576	\$1,877	\$1,782	\$1,363	\$1,316	\$364	\$347	\$1,092	\$1,067	\$244	\$233
Actuarial Value of Assets	3,552	3,065	1,533	1,409	891	832	620	598	590	560	245	234
Unfunded AAL	\$12,752	\$13,511	\$344	\$373	\$472	\$484	\$(256)	\$(251)	\$502	\$507	\$(1)	\$(1)
Funded Ratio	21.79%	18.49%	81.66%	79.08%	65.40%	63.22%	170.43%	172.23%	54.03%	52.46%	100.46%	100.62%

Combining Statement of Fiduciary Net Position - Pension

As of June 30, 2023, with Comparative Totals as of June 30, 2022 (\$ in Thousands)

ASSETS	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS	Pension Total 2023	Pension Total 2022
CASH AND SHORT-TERM INVESTMENTS							
Cash Deposits	\$662	\$262	\$375	\$141	\$35	\$1,475	\$367
Short-term Investments	303,178	134,692	648,780	89,143	133,780	1,309,573	1,116,933
Total Cash and Short-term Investments	303,840	134,954	649,155	89,284	133,815	1,311,048	1,117,300
RECEIVABLES							
Accounts Receivable	92,043	50,052	87,362	4,216	5,340	239,013	255,799
Accounts Receivable - Investments	58,587	20,435	31,172	6,728	5,800	122,722	82,033
Total Receivables	150,630	70,487	118,534	10,944	11,140	361,735	337,832
INVESTMENTS, AT FAIR VALUE							
Core Fixed Income	862,405	299,149	708,383	106,016	118,419	2,094,372	2,030,334
Public Equities	4,327,129	1,494,663	1,169,731	389,000	190,147	7,570,670	6,193,221
Private Equities	689,017	229,764	159,836	63,179	16,596	1,158,392	1,289,931
Specialty Credit	1,717,669	591,592	604,758	179,012	99,764	3,192,795	3,097,829
Derivatives	(2,478)	(862)	(2,045)	(306)	(342)	(6,033)	(2,864)
Real Return	268,971	89,758	72,726	24,325	10,693	466,473	417,816
Real Estate	545,935	173,707	179,034	50,564	21,466	970,706	882,759
Total Investments, at Fair Value	8,408,648	2,877,771	2,892,423	811,790	456,743	15,447,375	13,909,026
Securities Lending Collateral Invested	176,126	60,803	71,804	18,277	12,028	339,038	391,751
CAPITAL/INTANGIBLE ASSETS							
Capital Assets	1,701	153	929	91	11	2,885	2,885
Intangible Assets	9,961	827	5,920	494	100	17,302	17,300
Accumulated Depreciation	(1,701)	(153)	(929)	(91)	(11)	(2,885)	(2,885)
Accumulated Amortization	(9,961)	(827)	(5,920)	(494)	(100)	(17,302)	(16,977)
Total Capital Assets	-	-	-	-	-	-	323
Total Assets	9,039,244	3,144,015	3,731,916	930,295	613,726	17,459,196	15,756,232
LIABILITIES							
Accounts Payable	5,091	815	2,566	599	56	9,127	7,048
Investment Accounts Payable	76,587	26,600	50,340	8,852	8,816	171,195	109,253
Securities Lending Collateral	176,126	60,803	71,804	18,277	12,028	339,038	391,751
Total Liabilities	257,804	88,218	124,710	27,728	20,900	519,360	508,052
Total Fiduciary Net Position Restricted for Pension Benefits	\$8,781,440	\$3,055,797	\$3,607,206	\$902,567	\$592,826	\$16,939,836	\$15,248,180

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.

Combining Statement of Changes In Fiduciary Net Position - Pension

For the fiscal year ending June 30, 2023, with Comparative Totals as of June 30, 2022 (\$ in Thousands)

	CERS	CERS	KERS	KERS	SPRS	Pension Total	Pension Total
	Nonhazardous	Hazardous	Nonhazardous	Hazardous		2023	2022
ADDITIONS							
Member Contributions	\$147,769	\$56,988	\$84,579	\$17,459	\$5,250	\$312,045	\$290,471
Employer Contributions	645,940	286,353	114,427	64,020	56,536	1,167,276	1,091,160
Employer Pay Credit	51,694	21,683	22,018	8,758	1,585	105,738	80,710
Actuarially Accrued Liability Contributions	-	-	898,545	-	-	898,545	912,705
General Fund Appropriations	-	-	240,000	-	-	240,000	215,000
Pension Spiking Contributions	46	186	16	29	-	277	122
Health Insurance Contributions (HB1)	(30)	(20)	(12)	(7)	(8)	(77)	(208)
Employer Cessation Contributions	-	-	-	-	-	-	63,113
Total Contributions	845,419	365,190	1,359,573	90,259	63,363	2,723,804	2,653,073
INVESTMENT INCOME							
From Investing Activities							
Net Appreciation (Depreciation) in FV of Investments							
Interest/Dividends	637,413	219,240	134,776	56,603	25,421	1,073,453	(1,175,881)
Total Investing Activities Income (loss)	877,122	302,475	236,996	82,991	43,310	1,542,894	(746,505)
Less: Investment Expense	52,170	17,541	15,206	4,915	2,227	92,059	75,187
Less: Performance Fees	10,465	3,295	1,866	910	336	16,872	96,462
Net Income (loss) from Investing Activities	814,487	281,639	219,924	77,166	40,747	1,433,963	(918,154)
From Securities Lending Activities							
Securities Lending Income	8,998	3,143	2,918	867	489	16,415	1,652
Less: Securities Lending Borrower Rebates (Income)/ Expense	7,904	2,760	2,525	755	426	14,370	(505)
Less: Securities Lending Agent Fees	164	57	59	17	9	306	323
Net Income from Securities Lending	930	326	334	95	54	1,739	1,834
Net Investment Income (loss)	815,417	281,965	220,258	77,261	40,801	1,435,702	(916,320)
Total Additions	1,660,836	647,155	1,579,831	167,520	104,164	4,159,506	1,736,753
DEDUCTIONS							
Benefit Payments	894,351	319,594	1,023,704	78,636	63,805	2,380,090	2,328,594
Refunds	23,263	6,568	11,847	4,041	166	45,885	42,927
Administrative Expenses	24,128	2,124	13,817	1,513	293	41,875	39,742
Total Deductions	941,742	328,286	1,049,368	84,190	64,264	2,467,850	2,411,263
Net Increase (Decrease) in Fiduciary Net Position Restricted for Pension Benefits	719,094	318,869	530,463	83,330	39,900	1,691,656	(674,510)
Total Fiduciary Net Position Restricted for Pension Benefits							
Beginning of Period	8,062,346	2,736,928	3,076,743	819,237	552,926	15,248,180	15,922,690
End of Period	\$8,781,440	\$3,055,797	\$3,607,206	\$902,567	\$592,826	\$16,939,836	\$15,248,180

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

Combining Statement of Fiduciary Net Position - Insurance

As of June 30, 2023, with Comparative Totals as of June 30, 2022 (\$ in Thousands)

ASSETS	CERS	CERS	KERS	KERS	SPRS	Insurance	Insurance
	Nonhazardous	Hazardous	Nonhazardous	Hazardous		Total 2023	Total 2022
CASH AND SHORT-TERM INVESTMENTS							
Cash Deposits	\$259	\$8	\$105	\$9	\$8	\$389	\$255
Short-term Investments	132,269	31,789	170,091	29,906	10,868	374,923	431,687
Total Cash and Short-term Investments	132,528	31,797	170,196	29,915	10,876	375,312	431,942
RECEIVABLES							
Accounts Receivable	14,558	7,560	13,244	334	956	36,652	39,915
Investment Accounts Receivable	22,443	10,253	11,749	4,294	1,763	50,502	37,495
Total Receivables	37,001	17,813	24,993	4,628	2,719	87,154	77,410
INVESTMENTS, AT FAIR VALUE							
Core Fixed Income	327,065	148,991	171,536	72,740	27,887	748,219	753,513
Public Equities	1,633,030	807,897	637,103	268,599	108,362	3,454,991	2,871,633
Specialty Credit	641,632	318,176	289,421	129,503	51,505	1,430,237	1,401,886
Private Equities	268,195	150,750	94,390	53,885	23,922	591,142	625,455
Derivatives	(908)	(412)	(478)	(200)	(78)	(2,076)	(934)
Real Return	82,403	43,561	31,681	17,472	6,563	181,680	164,241
Real Estate	196,683	107,912	60,926	45,368	17,319	428,208	372,994
Total Investments, at Fair Value	3,148,100	1,576,875	1,284,579	587,367	235,480	6,832,401	6,188,788
Securities Lending Cash Collateral Invested	59,513	29,266	26,420	11,270	4,491	130,960	146,144
Total Assets	3,377,142	1,655,751	1,506,188	633,180	253,566	7,425,827	6,844,284
LIABILITIES							
Accounts Payable	223	22	118	-	1	364	57,501
Investment Accounts Payable	27,873	12,877	14,161	5,588	2,277	62,776	43,999
Securities Lending Cash Collateral	59,513	29,266	26,420	11,270	4,491	130,960	146,144
Total Liabilities	87,609	42,165	40,699	16,858	6,769	194,100	247,644
Total Fiduciary Net Position Restricted for OPEB	\$3,289,533	\$1,613,586	\$1,465,489	\$616,322	\$246,797	\$7,231,727	\$6,596,640

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.

Combining Statement of Changes In Fiduciary Net Position - Insurance

For the fiscal year ending June 30, 2023, with Comparative Totals as of June 30, 2022 (\$ in Thousands)

	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS	Insurance Total 2023	Insurance Total 2022
ADDITIONS							
Employer Contributions	\$101,121	\$48,792	\$35,549	\$37	\$9,289	\$194,788	\$217,318
Actuarially Accrued Liability Contributions	-	-	87,674	-	-	87,674	101,637
Medicare Drug Reimbursement	-	-	4	-	-	4	2
Insurance Premiums	294	(546)	(27)	(69)	(131)	(479)	364
Humana Gain Share Payment	5,951	914	4,851	368	224	12,308	18,382
Retired Reemployed Healthcare	4,922	1,611	5,885	1,452	-	13,870	12,667
Health Insurance Contributions (HB1)	17,782	4,278	8,370	1,592	356	32,378	27,791
Employer Cessation Contributions	-	-	-	-	-	-	2,405
Total Contributions	130,070	55,049	142,306	3,380	9,738	340,543	380,566
INVESTMENT INCOME							
From Investing Activities							
Net Appreciation (Depreciation) in FV of Investments	240,044	116,608	95,983	39,902	16,098	508,635	(482,477)
Interest/Dividends	88,629	43,939	42,258	17,802	7,164	199,792	192,803
Total Investing Activities Income (loss)	328,673	160,547	138,241	57,704	23,262	708,427	(289,674)
Less: Investment Expense	19,478	10,174	7,451	3,946	1,559	42,608	34,478
Less: Performance Fees	3,499	1,782	2,870	819	299	9,269	49,494
Net Income (loss) from Investing Activities	305,696	148,591	127,920	52,939	21,404	656,550	(373,646)
From Securities Lending Activities							
Securities Lending Income	2,775	1,336	1,124	460	195	5,890	679
Less: Securities Lending Borrower Rebates (Income)/ Expense	2,414	1,162	969	399	169	5,113	(199)
Less: Securities Lending Agent Fees	54	26	23	9	4	116	132
Net Income (loss) from Securities Lending	307	148	132	52	22	661	746
Net Investment Income (loss)	306,003	148,739	128,052	52,991	21,426	657,211	(372,900)
Total Additions	436,073	203,788	270,358	56,371	31,164	997,754	7,666
DEDUCTIONS							
Healthcare Premiums Subsidies	123,587	93,485	103,952	19,748	14,290	355,062	377,014
Administrative Expenses	937	522	771	123	74	2,427	2,454
Self-Funded Healthcare Costs	3,240	172	1,668	80	18	5,178	5,153
Excise Tax Insurance	-	-	-	-	-	-	18
Total Deductions	127,764	94,179	106,391	19,951	14,382	362,667	384,639
Net Increase (Decrease) in Fiduciary Net Position Restricted for OPEB	308,309	109,609	163,967	36,420	16,782	635,087	(376,973)
Total Fiduciary Net Position Restricted for OPEB							
Beginning of Period	2,981,224	1,503,977	1,301,522	579,902	230,015	6,596,640	6,973,613
End of Period	\$3,289,533	\$1,613,586	\$1,465,489	\$616,322	\$246,797	\$7,231,727	\$6,596,640

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

Combining Statement of Fiduciary Net Position				
As of June 30, 2023 with Comparative Totals as of June 30, 2022 (\$ in Thousands)				
ASSETS	Pension	Insurance	KPPA Total 2023	KPPA Total 2022
CASH AND SHORT-TERM INVESTMENTS				
Cash Deposits	\$1,475	\$389	\$1,864	\$622
Short-term Investments	1,309,573	374,923	1,684,496	1,548,620
Total Cash and Short-term Investments	1,311,048	375,312	1,686,360	1,549,242
RECEIVABLES				
Accounts Receivable	239,013	36,652	275,665	295,714
Accounts Receivable - Investments	122,722	50,502	173,224	119,528
Total Receivables	361,735	87,154	448,889	415,242
INVESTMENTS, AT FAIR VALUE				
Core Fixed Income	2,094,372	748,219	2,842,591	2,783,847
Public Equities	7,570,670	3,454,991	11,025,661	9,064,854
Private Equities	1,158,392	591,142	1,749,534	1,915,386
Specialty Credit	3,192,795	1,430,237	4,623,032	4,499,715
Derivatives	(6,033)	(2,076)	(8,109)	(3,798)
Real Return	466,473	181,680	648,153	582,057
Real Estate	970,706	428,208	1,398,914	1,255,753
Total Investments, at Fair Value	15,447,375	6,832,401	22,279,776	20,097,814
Securities Lending Cash Collateral Invested	339,038	130,960	469,998	537,895
CAPITAL/INTANGIBLE ASSETS				
Capital Assets	2,885	-	2,885	2,885
Intangible Assets	17,302	-	17,302	17,300
Accumulated Depreciation	(2,885)	-	(2,885)	(2,885)
Accumulated Amortization	(17,302)	-	(17,302)	(16,977)
Total Capital Assets	-	-	-	323
Total Assets	17,459,196	7,425,827	24,885,023	22,600,516
LIABILITIES				
Accounts Payable	9,127	364	9,491	64,549
Investment Accounts Payable	171,195	62,776	233,971	153,252
Securities Lending Cash Collateral	339,038	130,960	469,998	537,895
Total Liabilities	519,360	194,100	713,460	755,696
Total Fiduciary Net Position Restricted for Benefits	\$16,939,836	\$7,231,727	\$24,171,563	\$21,844,820

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.

Combining Statement of Changes In Fiduciary Net Position

For the fiscal year ending June 30, 2023, with Comparative Totals as of June 30, 2022 (\$ in Thousands)

	Pension	Insurance	KPPA Total 2023	KPPA Total 2022
ADDITIONS				
Member Contributions	\$312,045	\$-	\$312,045	\$290,471
Employer Contributions	1,167,276	194,788	1,362,064	1,308,478
Employer Pay Credit	105,738	-	105,738	80,710
Actuarially Accrued Liability Contributions	898,545	87,674	986,219	1,014,342
Medicare Drug Reimbursement	-	4	4	2
Insurance Premiums	-	(479)	(479)	364
Humana Gain Share	-	12,308	12,308	18,382
General Fund Appropriations	240,000	-	240,000	215,000
Pension Spiking Contributions	277	-	277	122
Retired Reemployed Healthcare	-	13,870	13,870	12,667
Health Insurance Contributions (HB1)	(77)	32,378	32,301	27,583
Employer Cessation Contributions	-	-	-	65,518
Total Contributions	2,723,804	340,543	3,064,347	3,033,639
INVESTMENT INCOME				
From Investing Activities				
Net Appreciation (Depreciation) in FV of Investments	1,073,453	508,635	1,582,088	(1,658,358)
Interest/Dividends	469,441	199,792	669,233	622,179
Total Investing Activities Income (loss)	1,542,894	708,427	2,251,321	(1,036,179)
Less: Investment Expense	92,059	42,608	134,667	109,665
Less: Performance Fees	16,872	9,269	26,141	145,956
Net Income (loss) from Investing Activities	1,433,963	656,550	2,090,513	(1,291,800)
Securities Lending Income	16,415	5,890	22,305	2,331
Less: Securities Lending Borrower Rebates (Income)/Expense	14,370	5,113	19,483	(704)
Less: Securities Lending Agent Fees	306	116	422	455
Net Income from Securities Lending	1,739	661	2,400	2,580
Net Investment Income/Loss	1,435,702	657,211	2,092,913	(1,289,220)
Total Additions	4,159,506	997,754	5,157,260	1,744,419
DEDUCTIONS				
Benefit Payments	2,380,090	-	2,380,090	2,328,594
Refunds	45,885	-	45,885	42,927
Healthcare Premiums Subsidies	-	355,062	355,062	377,014
Self Funded Healthcare Costs	-	5,178	5,178	5,153
Administrative Expenses	41,875	2,427	44,302	42,196
Excise Tax Insurance	-	-	-	18
Total Deductions	2,467,850	362,667	2,830,517	2,795,902
Net Increase (Decrease) in Fiduciary Net Position Restricted for Benefits	1,691,656	635,087	2,326,743	(1,051,483)
Total Fiduciary Net Position Restricted for Benefits				
Beginning of Period	15,248,180	6,596,640	21,844,820	22,896,303
End of Period	\$16,939,836	\$7,231,727	\$24,171,563	\$21,844,820

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 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 Kentucky Revised Statutes 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 fair 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 2023 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 2023 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 Statutes 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 Statutes 61.515. SPRS was created by the Kentucky General Assembly on July 1, 1958, pursuant to Kentucky Revised Statutes 16.510. The KRS Insurance Trust Fund was created by the Kentucky General Assembly pursuant to Kentucky Revised Statutes 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 determined that the KPPA SBITAs lease agreements are not material to the overall financial statements. Therefore, KPPA did not report the SBITAs leases according to *Statement Number 96 SBITAs*.

GASB Statement Number 100, Accounting Changes and Error Corrections - an amendment of *GASB Statement No. 62*. The requirements of this Statement will take effect for financial statements starting with the fiscal year that ends June 30, 2024. KPPA is evaluating the impact of the Statement to the financial report.

GASB Statement Number 101, Compensated Absences. The requirements of the Statement will take effect for financial statements starting with the fiscal year that ends December 31, 2024. KPPA is evaluating the impact of the Statement to the financial report.

Note B. Descriptions & Contribution Information

CERS Membership Combined As of June 30

Members	2023		Total
	Nonhazardous	Hazardous	
Retirees and Beneficiaries Receiving Benefits	66,935	9,448	76,383
Inactive Memberships	106,903	3,687	110,590
Active Members	81,217	9,181	90,398
Total	255,055	22,316	277,371
Number of Participating Employers			1,120

KERS Membership Combined As of June 30

Members	2023		Total
	Nonhazardous	Hazardous	
Retirees and Beneficiaries Receiving Benefits	44,975	3,459	48,434
Inactive Memberships	51,001	7,222	58,223
Active Members	30,854	3,875	34,729
Total	126,830	14,556	141,386
Number of Participating Employers			333

SPRS Membership As of June 30

Members	2023		Total
	Nonhazardous	Hazardous	
Retirees and Beneficiaries Receiving Benefits	-	1,552	1,552
Inactive Memberships	-	432	432
Active Members	-	868	868
Total	-	2,852	2,852
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 Nonhazardous, then KERS Nonhazardous.

Retiree Medical Insurance Coverage As of June 30, 2023

	Single	Couple/ Family	Parent	Medicare Without Prescription	Medicare With Prescription
CERS Nonhazardous	8,721	524	234	1,921	29,542
CERS Hazardous	1,893	3,047	491	138	4,455
CERS Total	10,614	3,571	725	2,059	33,997
KERS Nonhazardous	6,693	553	433	957	22,976
KERS Hazardous	653	470	118	72	1,796
KERS Total	7,346	1,023	551	1,029	24,772
SPRS	230	434	92	17	1,022
Total	18,190	5,028	1,368	3,105	59,791

The total number of Participating Employers is 1,454.

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 Statutes 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 Statutes 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 Statutes 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 Statutes 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 Statutes 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 Statutes 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 Statutes 78.635. The CERS Board of Trustees establishes the employer contribution rate based on Kentucky Revised Statutes 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 rates from July 1, 2022, through June 30, 2023, were set within HB 1, passed in the 2022 Regular Legislative Session, for KERS Nonhazardous, KERS Hazardous and SPRS 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 Statutes 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 Statutes 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, 2023, 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. 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, 2023

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**	23.40%	23.40%	3.39%	3.39%	26.79%	26.79%
CERS Hazardous**	42.81%	42.81%	6.78%	6.78%	49.59%	49.59%
KERS Nonhazardous *	7.82%	7.82%	2.15%	2.15%	9.97%	9.97%
KERS Hazardous	31.82%	31.82%	0.00%	0.00%	31.82%	31.82%
SPRS ***	85.32%	126.40%	14.11%	14.11%	99.43%	140.51%

* 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.

*** House Bill 1 passed during the 2022 legislative session included \$215 million in FY 2021-2022 for SPRS pension fund to be applied to the unfunded liability, which immediately lowered the SPRS contribution rate from the Fiscal Year 2022 146.06% rate to 99.43% for Fiscal Year 2023.

As of June 30, 2023, 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, 2022, and credited to each member's account on June 30, 2023.

(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	6.52%	4.00%	2.52%	1.89%	5.89%	\$25,233
CERS Hazardous	6.68%	4.00%	2.68%	2.01%	6.01%	\$8,761
KERS Nonhazardous	5.61%	4.00%	1.61%	1.21%	5.21%	\$9,667
KERS Hazardous	6.40%	4.00%	2.40%	1.80%	5.80%	\$3,186
SPRS	6.09%	4.00%	2.09%	1.57%	5.57%	\$513

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, 2023, insurance premiums withheld from benefit payments for KPPA's members were \$23.7 million and \$4.0 million for CERS Nonhazardous and Hazardous, respectively; \$19.5 million and \$1.4 million for KERS Nonhazardous and Hazardous, respectively; and, \$0.4 million 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, 2023	
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 2023 For Member participation date on or after July 1, 2003	
	(in Whole \$)
CERS Nonhazardous	\$14.20
CERS Hazardous	\$21.30
KERS Nonhazardous	\$14.20
KERS Hazardous	\$21.30
SPRS	\$21.30

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, 2023 (\$ in Thousands)

CERS		
	Pension	Insurance
CERS Nonhazardous		
Cash	\$662	\$259
Short-Term Investments	303,178	132,269
Securities Lending Collateral Invested	176,126	59,513
Total	\$479,966	\$192,041
CERS Hazardous		
Cash	\$262	\$8
Short-Term Investments	134,692	31,789
Securities Lending Collateral Invested	60,803	29,266
Total	\$195,757	\$61,063
KERS		
	Pension	Insurance
KERS Nonhazardous		
Cash	\$375	\$105
Short-Term Investments	648,780	170,091
Securities Lending Collateral Invested	71,804	26,420
Total	\$720,959	\$196,616
KERS Hazardous		
Cash	\$141	\$9
Short-Term Investments	89,143	29,906
Securities Lending Collateral Invested	18,277	11,270
Total	\$107,561	\$41,185
SPRS		
	Pension	Insurance
Cash	\$35	\$8
Short-Term Investments	133,780	10,868
Securities Lending Collateral Invested	12,028	4,491
Total	\$145,843	\$15,367

Note D. Investments

Kentucky Revised Statutes 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 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 statutes. 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 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 statutes, 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, 2023. 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, 2023 (\$ in Thousands)**

Derivatives (by Type)	Net Appreciation (Depreciation) in Fair Value	Classification	Fair Value	Notional
CERS Nonhazardous - Pension				
FX Spots and Forwards	\$(855)	Investment	\$(21)	-
Futures	(528)	Investment	(2,457)	252,519
Commits and Options	(1)	Investment	-	-
Swaps	-	Investment	-	-
CERS Nonhazardous - Insurance				
FX Spots and Forwards	\$(263)	Investment	\$(5)	-
Futures	(253)	Investment	(902)	91,565
Commits and Options	(1)	Investment	-	-
Swaps	-	Investment	-	-
CERS Hazardous - Pension				
FX Spots and Forwards	\$(287)	Investment	\$(9)	-
Futures	(200)	Investment	(853)	87,554
Commits and Options	(1)	Investment	-	-
Swaps	-	Investment	-	-
CERS Hazardous - Insurance				
FX Spots and Forwards	\$(143)	Investment	\$(2)	-
Futures	(84)	Investment	(410)	41,897
Commits and Options	-	Investment	-	-
Swaps	-	Investment	-	-

KERS Pension and Insurance Derivative Instruments - GASB 53**As of June 30, 2023 (\$ in Thousands)**

Derivatives (by Type)	Net Appreciation (Depreciation) in Fair Value	Classification	Fair Value	Notional
KERS Nonhazardous - Pension				
FX Spots and Forwards	\$(152)	Investment	\$(3)	-
Futures	(816)	Investment	(2,042)	202,061
Commits and Options	-	Investment	-	-
Swaps	-	Investment	-	-
KERS Nonhazardous - Insurance				
FX Spots and Forwards	\$(95)	Investment	\$(2)	-
Futures	(181)	Investment	(476)	47,464
Commits and Options	-	Investment	-	-
Swaps	-	Investment	-	-
KERS Hazardous - Pension				
FX Spots and Forwards	\$(75)	Investment	\$(2)	-
Futures	(89)	Investment	(304)	30,667
Commits and Options	-	Investment	-	-
Swaps	-	Investment	-	-
KERS Hazardous - Insurance				
FX Spots and Forwards	\$(3)	Investment	\$1	-
Futures	(70)	Investment	(202)	20,138
Commits and Options	-	Investment	-	-
Swaps	-	Investment	-	-

SPRS Pension and Insurance Derivative Instruments - GASB 53**As of June 30, 2023 (\$ in Thousands)**

Derivatives (by Type)	Net Appreciation (Depreciation) in Fair Value	Classification	Fair Value	Notional
SPRS Pension				
FX Spots and Forwards	\$(32)	Investment	\$(1)	-
Futures	(127)	Investment	(341)	33,776
Commits and Options	-	Investment	-	-
Swaps	-	Investment	-	-
SPRS Insurance				
FX Spots and Forwards	\$(22)	Investment	\$(1)	-
Futures	(26)	Investment	(77)	7,732
Commits and Options	-	Investment	-	-
Swaps	-	Investment	-	-

Derivative Instruments Subject to Counterparty Credit Risk - GASB 53
As of June 30, 2023

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-	0.40%	0.15%	0.08%	0.04%	0.02%
The Bank of New York Mellon Corp	A	1.98%	0.69%	0.55%	0.19%	0.10%
Barclays PLC	BBB+	4.86%	1.90%	1.02%	0.50%	0.21%
Brown Brothers Harriman & Co	NR	0.45%	0.15%	0.12%	0.04%	0.02%
Canadian Imperial Bank of Commerce	A+	4.68%	1.83%	0.99%	0.48%	0.20%
Citigroup Inc	BBB+	9.64%	3.76%	2.03%	0.99%	0.42%
The Goldman Sachs Group Inc	BBB+	5.12%	2.00%	1.08%	0.53%	0.22%
HSBS Holding PLC	A-	6.30%	2.37%	1.46%	0.63%	0.28%
JPMorgan Chase & Co	A-	9.29%	3.54%	2.08%	0.94%	0.41%
Morgan Stanley	A-	4.94%	1.93%	1.04%	0.51%	0.21%
Royal Bank of Canada	AA-	2.63%	1.03%	0.55%	0.27%	0.11%
State Street Corp	A	2.97%	1.16%	0.62%	0.31%	0.13%
The Toronto-Dominion Bank	AA-	0.04%	0.01%	0.01%	0.00%	0.00%
UBS Group AG	A-	3.88%	1.52%	0.82%	0.40%	0.17%
TOTAL		57.18%	22.04%	12.45%	5.83%	2.50%

Derivative Instruments Subject to Counterparty Credit Risk - GASB 53
As of June 30, 2023

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-	0.37%	0.15%	0.08%	0.04%	0.02%
The Bank of New York Mellon Corp	A	2.97%	1.03%	0.82%	0.28%	0.15%
Barclays PLC	BBB+	4.68%	1.83%	0.98%	0.48%	0.20%
Brown Brothers Harriman & Co	NR	0.57%	0.20%	0.16%	0.05%	0.03%
Canadian Imperial Bank of Commerce	A+	4.42%	1.72%	0.93%	0.46%	0.19%
Citigroup Inc	BBB+	9.10%	3.55%	1.91%	0.94%	0.39%
The Goldman Sachs Group Inc	BBB+	4.85%	1.90%	1.02%	0.50%	0.21%
HSBS Holding PLC	A-	6.71%	2.50%	1.59%	0.66%	0.31%
JPMorgan Chase & Co	A-	9.71%	3.67%	2.21%	0.97%	0.43%
Morgan Stanley	A-	4.68%	1.83%	0.98%	0.48%	0.20%
Royal Bank of Canada	AA-	2.51%	0.98%	0.53%	0.26%	0.11%
State Street Corp	A	2.80%	1.09%	0.59%	0.29%	0.12%
The Toronto-Dominion Bank	AA-	0.04%	0.01%	0.01%	0.00%	0.00%
UBS Group AG	A-	3.75%	1.46%	0.79%	0.39%	0.16%
TOTAL		57.16%	21.92%	12.60%	5.80%	2.52%

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, 2023 (\$ in Thousands)	
CERS Nonhazardous Pension	\$1,282
CERS Hazardous Pension	238
KERS Nonhazardous Pension	739
KERS Hazardous Pension	120
SPRS Pension	41
CERS Nonhazardous Insurance	267
CERS Hazardous Insurance	9
KERS Nonhazardous Insurance	122
KERS Hazardous Insurance	9
SPRS Insurance	15
Clearing	420
Excess Benefit	\$-
<i>Note: All the above balances are held at JPM Chase</i>	

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, 2023, 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, 2023 (\$ in Thousands)	
CERS	
CERS Nonhazardous Pension Fund Foreign Currency	\$1,139,262
CERS Hazardous Pension Fund Foreign Currency	394,304
CERS Nonhazardous Insurance Fund Foreign Currency	422,566
CERS Hazardous Insurance Fund Foreign Currency	208,415
KERS	
KERS Nonhazardous Pension Fund Foreign Currency	309,136
KERS Hazardous Pension Fund Foreign Currency	106,312
KERS Nonhazardous Insurance Fund Foreign Currency	181,188
KERS Hazardous Insurance Fund Foreign Currency	73,852
SPRS	
SPRS Pension Fund Foreign Currency	54,518
SPRS Insurance Fund Foreign Currency	31,668

Pension Plans Securities

CERS Pension Investment Summary - GASB 40

As of June 30, 2023 (\$ in Thousands)

Type	Fair Value	
	Nonhazardous	Hazardous
Core Fixed Income	\$862,405	\$299,149
Public Equities	4,327,129	1,494,663
Private Equities	689,017	229,764
Specialty Credit	1,717,669	591,592
Derivatives	(2,478)	(862)
Real Return	268,971	89,758
Real Estate	545,935	173,707
Short-Term Investments	303,178	134,692
Accounts Receivable (Payable), Net	(18,000)	(6,165)
Total	\$8,693,826	\$3,006,298

KERS Pension Investment Summary - GASB 40

As of June 30, 2023 (\$ in Thousands)

Type	Fair Value	
	Nonhazardous	Hazardous
Core Fixed Income	\$708,383	\$106,016
Public Equities	1,169,731	389,000
Private Equities	159,836	63,179
Specialty Credit	604,758	179,012
Derivatives	(2,045)	(306)
Real Return	72,726	24,325
Real Estate	179,034	50,564
Short-Term Investments	648,780	89,143
Accounts Receivable (Payable), Net	(19,168)	(2,124)
Total	\$3,522,035	\$898,809

SPRS Pension Investment Summary - GASB 40

As of June 30, 2023 (\$ in Thousands)

Type	Fair Value	
	Nonhazardous	Hazardous
Core Fixed Income		\$118,419
Public Equities		190,147
Private Equities		16,596
Specialty Credit		99,764
Derivatives		(342)
Real Return		10,693
Real Estate		21,466
Short-Term Investments		133,780
Accounts Receivable (Payable), Net		(3,016)
Total		\$587,507

Insurance Plans Securities

CERS Insurance Investment Summary - GASB 40

As of June 30, 2023 (\$ in Thousands)

Type	Fair Value	
	Nonhazardous	Hazardous
Core Fixed Income	\$327,065	\$148,991
Public Equities	1,633,030	807,897
Private Equities	268,195	150,750
Specialty Credit	641,632	318,176
Derivatives	(908)	(412)
Real Return	82,403	43,561
Real Estate	196,683	107,912
Short-Term Investments	132,269	31,789
Accounts Receivable (Payable), Net	(5,430)	(2,624)
Total	\$3,274,939	\$1,606,040

KERS Insurance Investment Summary - GASB 40

As of June 30, 2023 (\$ in Thousands)

Type	Fair Value	
	Nonhazardous	Hazardous
Core Fixed Income	\$171,536	\$72,740
Public Equities	637,103	268,599
Private Equities	94,390	53,885
Specialty Credit	289,421	129,503
Derivatives	(478)	(200)
Real Return	31,681	17,472
Real Estate	60,926	45,368
Short-Term Investments	170,091	29,906
Accounts Receivable (Payable), Net	(2,412)	(1,294)
Total	\$1,452,258	\$615,979

SPRS Insurance Investment Summary - GASB 40

As of June 30, 2023 (\$ in Thousands)

Type	Fair Value	
	Nonhazardous	Hazardous
Core Fixed Income		\$27,887
Public Equities		108,362
Private Equities		23,922
Specialty Credit		51,505
Derivatives		(78)
Real Return		6,563
Real Estate		17,319
Short-Term Investments		10,868
Accounts Receivable (Payable), Net		(514)
Total		\$245,834

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 fair value of CERS' and KRS' assets.
- No public Fixed Income manager shall invest more than 5% of the fair 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, 2023, the Pension portfolio had \$831.5 million in debt securities rated below BBB- which does not include not rated (NR) or withdrawn (WD) securities.

Pension Debt Securities - GASB 40					
As of June 30, 2023 (\$ in Thousands)					
Rating	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
AAA	\$207,873	\$72,715	\$162,203	\$25,275	\$27,227
AA+	8,740	3,126	5,859	1,031	997
AA	13,162	4,691	9,055	1,561	1,537
AA-	11,015	3,886	8,130	1,324	1,371
A+	15,385	5,343	12,412	1,892	2,083
A	26,441	9,236	20,812	3,221	3,491
A-	70,663	24,589	56,839	8,654	9,522
BBB+	88,622	30,861	71,103	10,839	11,908
BBB	81,093	28,561	60,285	9,801	10,186
BBB-	129,030	45,808	87,168	15,908	15,253
BB+	73,558	27,385	39,259	9,653	7,738
BB	59,932	22,588	30,788	8,588	6,646
BB-	64,488	24,051	34,781	9,481	7,526
B+	56,325	20,793	27,879	8,339	6,266
B	60,175	22,163	29,712	8,999	6,743
B-	46,043	16,790	21,348	7,039	5,069
CCC+	20,780	7,738	11,903	3,175	2,600
CCC	5,823	2,252	3,991	943	857
CCC-	416	163	310	68	65
D	183	62	34	28	13
NR	1,284,348	427,196	436,582	118,631	60,178
WD	1,012	384	207	115	50
Total Credit Risk Debt Securities	2,325,107	800,381	1,130,660	254,565	187,326
Government Agencies	9,824	3,540	6,204	1,147	1,061
Government Mortgage-Backed Securities	89,076	31,107	70,230	10,854	11,779
Government Issued Commercial Mortgage Backed	4,051	1,405	3,328	498	556
Government Collateralized Mortgage Obligations	12,474	4,510	7,678	1,449	1,317
Government Bonds	139,542	49,798	95,041	16,515	16,144
Total	\$2,580,074	\$890,741	\$1,313,141	\$285,028	\$218,183

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.

Differences due to rounding.

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.

The NR reported indicate a rating has not been assigned.

As of June 30, 2023, the Insurance portfolio had \$363.8 million in debt securities rated below BBB- which does not include not rated (NR) or withdrawn (WD) securities.

Insurance Debt Securities - GASB 40					
As of June 30, 2023 (\$ in Thousands)					
Rating	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
AAA	\$54,971	\$24,966	\$28,440	\$11,503	\$4,717
AA+	1,695	759	821	252	150
AA	5,165	2,333	2,605	957	448
AA-	3,564	1,619	1,845	748	306
A+	5,911	2,686	3,117	1,300	504
A	9,236	4,197	4,791	1,955	792
A-	27,333	12,433	14,283	5,944	2,335
BBB+	32,388	14,733	16,921	7,045	2,767
BBB	30,076	13,615	15,500	6,035	2,589
BBB-	48,037	21,299	25,788	9,282	4,081
BB+	28,444	11,759	15,716	4,402	2,318
BB	25,065	9,815	15,003	4,060	1,928
BB-	26,617	10,328	16,604	4,684	2,011
B+	24,389	9,432	15,810	4,387	1,839
B	25,002	9,618	16,552	4,583	1,873
B-	19,162	7,233	13,410	3,642	1,408
CCC+	8,805	3,372	5,658	1,652	651
CCC	2,659	995	1,607	494	190
CCC-	203	76	118	37	15
D	86	32	75	18	6
NR	495,136	263,007	198,103	111,031	40,267
WD	316	132	169	22	28
Total Credit Risk Debt Securities	874,260	424,439	412,936	184,033	71,223
Government Agencies	4,076	1,833	2,017	683	357
Government Mortgage-Backed Securities	35,946	16,344	18,693	7,700	3,077
Government Issued Commercial Mortgage Backed	1,708	778	896	380	146
Government Collateralized Mortgage Obligations	4,646	2,088	2,290	762	407
Government Bonds	48,061	21,685	24,125	8,685	4,182
Total	\$968,697	\$467,167	\$460,957	\$202,243	\$79,392

Differences due to rounding.

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.

The NR reported indicate a rating has not been assigned.

The WD reported are ratings which have been withdrawn.

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 fair 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 fair values and modified durations for the combined fixed income securities.

Interest Rate Risk - Modified Duration - GASB 40				
As of June 30, 2023 (\$ in Thousands)				
CERS Pension				
TYPE	Weighted Avg		Weighted Avg	
	Fair Value	Modified Duration	Fair Value	Modified Duration
	Nonhazardous		Hazardous	
Asset Backed Securities	\$171,506	1.25	\$59,618	1.26
Financial Institutions	262,165	2.13	91,755	2.16
Collateralized Mortgage Obligations	26,945	1.70	9,655	1.68
Commercial Mortgage Backed Securities	72,219	2.41	25,294	2.42
Corporate Bonds - Industrial	463,720	3.28	170,564	3.36
Corporate Bonds - Utilities	61,802	3.24	21,870	3.26
Agencies	9,824	3.10	3,541	3.13
Government Bonds - Sovereign Debt	2,286	7.82	876	7.70
Mortgage Back Securities Pass-through - Not CMO's	89,885	6.25	31,412	6.24
Local Authorities - Municipal Bonds	11,852	8.92	4,470	9.04
Supranational - Multi-National Bonds	3,297	3.02	1,287	3.02
Treasuries	139,542	5.39	49,798	5.40
Unclassified	1,261,557	0.05	419,345	0.06
Other	3,474	3.38	1,256	3.46
Total	\$2,580,074	1.66	\$890,741	1.74

Interest Rate Risk - Modified Duration - GASB 40				
As of June 30, 2023 (\$ in Thousands)				
KERS Pension				
TYPE	Weighted Avg		Weighted Avg	
	Fair Value	Modified Duration	Fair Value	Modified Duration
	Nonhazardous		Hazardous	
Asset Backed Securities	\$136,084	1.22	\$21,123	1.23
Financial Institutions	181,697	2.21	33,993	2.11
Collateralized Mortgage Obligations	17,802	1.85	3,171	1.73
Commercial Mortgage Backed Securities	55,900	2.36	8,766	2.40
Corporate Bonds - Industrial	276,560	3.28	63,518	3.26
Corporate Bonds - Utilities	47,629	3.21	7,744	3.28
Agencies	6,204	2.83	1,147	3.05
Government Bonds - Sovereign Debt	719	9.83	243	8.01
Mortgage Back Securities Pass-through - Not CMO's	70,551	6.30	10,942	6.26
Local Authorities - Municipal Bonds	4,697	7.30	1,292	8.73
Supranational - Multi-National Bonds	693	3.02	340	3.02
Treasuries	95,041	5.29	16,515	5.37
Unclassified	417,566	0.03	115,805	0.08
Other	1,998	3.24	429	3.26
Total	\$1,313,141	2.15	\$285,028	1.90

Interest Rate Risk - Modified Duration - GASB 40**As of June 30, 2023 (\$ in Thousands)****SPRS Pension**

TYPE	Fair Value	Weighted Avg
		Modified Duration
Asset Backed Securities	\$22,936	1.22
Financial Institutions	32,687	2.18
Collateralized Mortgage Obligations	3,032	1.84
Commercial Mortgage Backed Securities	9,389	2.37
Corporate Bonds - Industrial	54,513	3.27
Corporate Bonds - Utilities	8,182	3.25
Agencies	1,061	2.86
Government Bonds - Sovereign Debt	135	9.47
Mortgage Back Securities Pass-through - Not CMO's	11,837	6.30
Local Authorities - Municipal Bonds	851	7.54
Supranational - Multi-National Bonds	142	3.02
Treasuries	16,144	5.30
Unclassified	56,909	0.07
Other	365	3.19
Total	\$218,183	2.33

Interest Rate Risk - Modified Duration - GASB 40**As of June 30, 2023 (\$ in Thousands)****CERS Insurance**

TYPE	Weighted Avg		Weighted Avg	
	Fair Value	Modified Duration	Fair Value	Modified Duration
Asset Backed Securities	\$61,877	1.28	\$28,032	1.28
Financial Institutions	102,479	2.17	44,549	2.17
Collateralized Mortgage Obligations	9,684	1.64	4,363	1.65
Commercial Mortgage Backed Securities	28,368	2.34	12,888	2.34
Corporate Bonds - Industrial	185,723	3.32	75,902	3.31
Corporate Bonds - Utilities	24,215	3.28	10,779	3.25
Agencies	4,076	3.31	1,834	3.30
Government Bonds - Sovereign Debt	775	8.78	341	8.83
Mortgage Back Securities Pass-through - Not CMO's	36,242	6.23	16,475	6.23
Local Authorities - Municipal Bonds	4,125	8.68	1,825	8.62
Supranational - Multi-National Bonds	1,098	2.93	477	2.93
Treasuries	48,061	5.58	21,685	5.58
Unclassified	460,740	0.05	247,482	0.04
Other	1,234	3.34	535	3.35
Total	\$968,697	1.72	\$467,167	1.54

Interest Rate Risk - Modified Duration - GASB 40**As of June 30, 2023 (\$ in Thousands)****KERS Insurance**

TYPE	Weighted Avg		Weighted Avg	
	Fair Value	Modified Duration	Fair Value	Modified Duration
	Nonhazardous		Hazardous	
Asset Backed Securities	\$32,848	1.25	\$13,486	1.22
Financial Institutions	59,642	2.06	21,686	2.08
Collateralized Mortgage Obligations	4,829	1.67	1,691	1.78
Commercial Mortgage Backed Securities	14,699	2.33	5,977	2.29
Corporate Bonds - Industrial	108,115	3.12	33,008	3.02
Corporate Bonds - Utilities	12,733	3.29	5,012	3.23
Agencies	2,017	3.27	683	3.09
Government Bonds - Sovereign Debt	343	9.05	55	11.96
Mortgage Back Securities Pass-through - Not CMO's	18,826	6.24	7,723	6.28
Local Authorities - Municipal Bonds	1,880	8.39	392	6.13
Supranational - Multi-National Bonds	455	2.93	20	2.93
Treasuries	24,125	5.57	8,686	5.53
Unclassified	179,784	0.10	103,623	0.03
Other	661	3.06	201	2.81
Total	\$460,957	1.92	\$202,243	1.48

Interest Rate Risk - Modified Duration - GASB 40**As of June 30, 2023 (\$ in Thousands)****SPRS Insurance**

TYPE	Weighted Avg	
	Fair Value	Modified Duration
Asset Backed Securities	\$5,269	1.29
Financial Institutions	8,450	2.18
Collateralized Mortgage Obligations	845	1.63
Commercial Mortgage Backed Securities	2,433	2.35
Corporate Bonds - Industrial	14,707	3.34
Corporate Bonds - Utilities	2,037	3.26
Agencies	357	3.33
Government Bonds - Sovereign Debt	71	8.68
Mortgage Back Securities Pass-through - Not CMO's	3,104	6.23
Local Authorities - Municipal Bonds	374	8.79
Supranational - Multi-National Bonds	103	2.93
Treasuries	4,182	5.59
Unclassified	37,355	0.05
Other	105	3.40
Total	\$79,392	1.74

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, 2023 (\$ in Thousands)					
	CERS		KERS		SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
Australian Dollar	\$29,149	\$10,121	\$8,031	\$2,722	\$1,423
Brazilian Real	20,506	7,154	5,598	1,922	996
Canadian Dollar	50,291	17,464	13,855	4,696	2,454
Chinese Yuan Renminbi	198	77	41	20	8
Colombian Peso	-	-	-	-	-
Czech Koruna	55	19	15	5	3
Danish Krone	47,598	16,512	13,137	4,441	2,325
Egyptian Pound	515	179	142	48	25
Euro	361,146	123,415	95,825	33,496	16,631
Hong Kong Dollar	92,125	31,959	25,426	8,596	4,501
Hungarian Forint	5,200	1,804	1,435	485	254
Indian Rupee	35,782	12,447	9,824	3,346	1,744
Indonesian Rupiah	24,579	8,754	6,439	2,344	1,171
Israeli Shekel	4,070	1,412	1,123	380	199
Japanese Yen	126,906	44,207	34,748	11,882	6,176
Malaysian Ringgit	3,041	1,159	682	307	135
Mexican Peso	7,577	2,701	1,981	723	361
New Taiwan Dollar	43,250	15,004	11,937	4,036	2,113
New Zealand Dollar	(112)	(44)	(24)	(12)	(5)
Norwegian Krone	6,436	2,357	1,588	628	298
Philippine Peso	1,809	706	380	186	78
Pound Sterling	119,679	41,516	33,033	11,167	5,847
Singapore Dollar	7,167	2,435	2,056	657	357
South African Rand	5,762	1,999	1,590	538	281
South Korean Won	33,021	11,570	8,940	3,107	1,598
Swedish Krona	23,430	8,128	6,468	2,186	1,144
Swiss Franc	72,398	25,115	19,985	6,756	3,537
Thai Baht	15,169	5,262	4,187	1,415	741
Turkish Lira	649	225	179	61	32
UAE Dirham	1,866	647	515	174	91
Total Foreign Investment Securities	1,139,262	394,304	309,136	106,312	54,518
U.S. Dollar	7,554,564	2,611,994	3,212,899	792,497	532,989
Total Investment Securities	\$8,693,826	\$3,006,298	\$3,522,035	\$898,809	\$587,507

Foreign Currency Risk for the Insurance Funds- GASB 40
As of June 30, 2023 (\$ in Thousands)

	CERS		KERS		SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
Australian Dollar	\$10,814	\$5,295	\$4,868	\$1,896	\$800
Brazilian Real	7,409	3,616	3,327	1,265	553
Canadian Dollar	19,578	9,586	8,813	3,432	1,449
Chinese Yuan Renminbi	67	29	27	1	6
Czech Koruna	24	12	11	4	2
Danish Krone	17,696	8,671	7,970	3,120	1,308
Egyptian Pound	144	71	65	25	11
Euro	134,745	67,764	51,812	24,195	10,259
Hong Kong Dollar	33,352	16,342	15,021	5,880	2,465
Hungarian Forint	1,881	922	847	332	139
Indian Rupee	12,901	6,309	5,802	2,238	958
Indonesian Rupiah	8,717	4,181	3,867	1,279	677
Israeli Shekel	1,534	752	691	270	113
Japanese Yen	47,660	23,280	21,416	8,193	3,549
Malaysian Ringgit	963	431	407	55	86
Mexican Peso	2,660	1,274	1,179	386	207
New Taiwan Dollar	15,611	7,649	7,031	2,752	1,154
New Zealand Dollar	(34)	(15)	(14)	(1)	(3)
Norwegian Krone	2,207	1,031	961	247	181
Philippine Peso	610	265	253	11	57
Pound Sterling	45,183	22,140	20,349	7,966	3,339
Singapore Dollar	2,631	1,310	1,198	523	187
South African Rand	2,076	1,017	935	366	153
South Korean Won	12,345	6,004	5,530	2,047	929
Swedish Krona	8,715	4,270	3,925	1,537	644
Swiss Franc	26,515	12,993	11,942	4,675	1,960
Thai Baht	5,596	2,742	2,520	987	414
Turkish Lira	235	115	106	42	17
UAE Dirham	731	359	329	129	54
Total Foreign Investment Securities	422,566	208,415	181,188	73,852	31,668
U.S. Dollar	2,852,373	1,397,625	1,271,070	542,127	214,166
Total Investment Securities	\$3,274,939	\$1,606,040	\$1,452,258	\$615,979	\$245,834

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, 2023 (\$ 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	\$175,403	\$-	\$-	\$175,403	\$60,848	\$-	\$-	\$60,848
US Equity	2,611,245	-	-	2,611,245	897,812	-	-	897,812
Non-US Equity	1,043,031	-	502,197	1,545,228	361,831	-	175,812	537,643
Total Public Equity	3,829,679	-	502,197	4,331,876	1,320,491	-	175,812	1,496,303
Fixed Income								
Agencies	187	1,579	-	1,766	65	548	-	613
Asset-Backed	-	173,835	-	173,835	-	60,393	-	60,393
Bank & Finance	-	162,772	131,959	294,731	-	57,000	45,375	102,375
Cash & Cash Equivalent	14,956	12,892	-	27,848	5,188	4,470	-	9,658
Corporate	1,638	536,483	3,192	541,313	639	197,216	1,119	198,974
Healthcare	-	28,351	-	28,351	-	10,216	-	10,216
Insurance	-	5,231	-	5,231	-	1,873	-	1,873
Municipals	-	56,023	-	56,023	-	19,885	-	19,885
Sovereign Debt	-	35,889	-	35,889	-	13,983	-	13,983
US Government	114,528	98,071	-	212,599	40,012	34,229	-	74,241
Total Fixed Income	131,309	1,111,126	135,151	1,377,586	45,904	399,813	46,494	492,211
Derivatives								
Futures	(2,457)	-	-	(2,457)	(853)	-	-	(853)
Total Derivatives	(2,457)	-	-	(2,457)	(853)	-	-	(853)
Options	-	-	-	-	-	-	-	-
Real Return								
Real Return	101,240	-	296	101,536	34,864	-	94	34,958
Total Real Return	101,240	-	296	101,536	34,864	-	94	34,958
Total Investments at Fair Value	4,059,771	1,111,126	637,644	5,808,541	1,400,406	399,813	222,400	2,022,619
Investments Measured at NAV								
Specialty Credit	-	-	-	1,255,568	-	-	-	417,587
Private Equity	-	-	-	694,388	-	-	-	232,064
Real Estate	-	-	-	545,935	-	-	-	173,707
Real Return	-	-	-	167,200	-	-	-	54,268
Fixed Income	-	-	-	24,552	-	-	-	8,517
Non US Equity	-	-	-	20,497	-	-	-	7,110
Emerging Markets	-	-	-	4,748	-	-	-	1,647
US Equity	-	-	-	25,435	-	-	-	8,723
Total Investments Measured at NAV	-	-	-	2,738,323	-	-	-	903,623
Cash and Accruals	-	-	-	146,962	-	-	-	80,056
Total Investments	\$4,059,771	\$1,111,126	\$637,644	\$8,693,826	\$1,400,406	\$399,813	\$222,400	\$3,006,298

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, 2023 (\$ in Thousands)

Asset Type	KERS Nonhazardous			Total	KERS Hazardous			Total	SPRS			Total
	Level				Level				Level			
	1	2	3	Fair Value	1	2	3	Fair Value	1	2	3	Fair Value
Public Equity												
Emerging Markets	\$48,410	\$-	\$-	\$48,410	\$16,366	\$-	\$-	\$16,366	\$8,569	\$-	\$-	\$8,569
US Equity	719,671	-	-	719,671	235,016	-	-	235,016	114,894	-	-	114,894
Non-US Equity	287,869	-	115,076	402,945	97,322	-	40,727	138,049	50,956	-	15,947	66,903
Total Public Equity	1,055,950	-	115,076	1,171,026	348,704	-	40,727	389,431	174,419	-	15,947	190,366
Fixed Income												
Agencies	154	1,297	-	1,451	23	194	-	217	26	217	-	243
Asset-Backed	-	137,491	-	137,491	-	21,374	-	21,374	-	23,246	-	23,246
Bank & Finance	-	130,260	41,264	171,524	-	20,209	18,949	39,158	-	22,045	10,885	32,930
Cash & Cash Equivalent	12,285	10,610	-	22,895	1,839	1,585	-	3,424	2,054	1,773	-	3,827
Corporate	344	355,946	2,248	358,538	169	71,641	394	72,204	71	66,574	389	67,034
Healthcare	-	19,261	-	19,261	-	3,524	-	3,524	-	3,392	-	3,392
Insurance	-	3,678	-	3,678	-	639	-	639	-	634	-	634
Sovereign Debt	-	7,935	-	7,935	-	3,708	-	3,708	-	1,608	-	1,608
US Government	90,080	77,606	-	167,686	13,949	11,960	-	25,909	15,111	13,012	-	28,123
Utilities	-	39,634	-	39,634	-	6,726	-	6,726	-	6,741	-	6,741
Total Fixed Income	102,863	783,718	43,512	930,093	15,980	141,560	19,343	176,883	17,262	139,242	11,274	167,778
Derivatives												
Futures	(2,042)	-	-	(2,042)	(304)	-	-	(304)	(341)	-	-	(341)
Total Derivatives	(2,042)	-	-	(2,042)	(304)	-	-	(304)	(341)	-	-	(341)
Real Return												
Real Return	40,264	-	95	40,359	10,085	-	25	10,110	4,027	-	10	4,037
Total Real Return	40,264	-	95	40,359	10,085	-	25	10,110	4,027	-	10	4,037
Total Investments at Fair Value	1,197,035	783,718	158,683	2,139,436	374,465	141,560	60,095	576,120	195,367	139,242	27,231	361,840
Investments Measured at NAV												
Specialty Credit	-	-	-	420,006	-	-	-	115,042	-	-	-	57,080
Private Equity	-	-	-	162,337	-	-	-	63,245	-	-	-	17,235
Real Estate	-	-	-	179,034	-	-	-	50,564	-	-	-	21,466
Real Return	-	-	-	31,917	-	-	-	14,661	-	-	-	6,222
Fixed Income	-	-	-	20,167	-	-	-	3,018	-	-	-	3,371
Non US Equity	-	-	-	5,657	-	-	-	1,913	-	-	-	1,001
Emerging Markets	-	-	-	1,310	-	-	-	443	-	-	-	232
US Equity	-	-	-	6,196	-	-	-	2,133	-	-	-	1,018
Total Investments Measured at NAV	-	-	-	826,624	-	-	-	251,019	-	-	-	107,625
Cash and Accruals	-	-	-	555,975	-	-	-	71,670	-	-	-	118,042
Total Investments	\$1,197,035	\$783,718	\$158,683	\$3,522,035	\$374,465	\$141,560	\$60,095	\$898,809	\$195,367	\$139,242	\$27,231	\$587,507

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, 2023 (\$ 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⁾	\$1,255,568	\$150,428	Daily - Quarterly	90 Days	\$417,587	\$50,178	Daily - Quarterly	90 Days	
Real Estate ⁽²⁾	545,935	132,577			173,707	41,887			
Real Return ⁽³⁾	167,200	69,118	Daily	30 - 60 Days	54,268	26,345	Daily	30 - 60 Days	
Private Equity ⁽⁴⁾	694,388	192,519			232,064	62,173			
Fixed Income ⁽⁵⁾	24,552	-	Daily		8,517	-	Daily		
Non US Equity ⁽⁵⁾	20,497	-	Daily		7,110	-	Daily		
US Equity ⁽⁵⁾	25,435	-	Daily		8,723	-	Daily		
Emerging Markets ⁽⁵⁾	4,748	-	Daily		1,647	-	Daily		
Total Investments Measured at NAV	\$2,738,323	\$544,642			\$903,623	\$180,583			

⁽¹⁾ This type includes 13 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 12 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 11 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 35 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 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, 2023 (\$ 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⁾	\$420,006	\$42,235	Daily - Quarterly	90 Days	\$115,042	\$14,009	Daily - Quarterly	90 Days	\$57,080	\$4,514	Daily - Quarterly	90 Days	
Real Estate ⁽²⁾	179,034	38,325			50,564	11,991			21,466	4,956			
Real Return ⁽³⁾	31,917	22,648	Daily	30 - 60 Days	14,661	3,212	Daily	30 - 60 Days	6,222	5,897	Daily	30 - 60 Days	
Private Equity ⁽⁴⁾	162,337	37,797			63,245	16,422			17,235	4,884			
Fixed Income ⁽⁵⁾	20,167	-	Daily		3,018	-	Daily		3,371	-	Daily		
Non US Equity ⁽⁵⁾	5,657	-	Daily		1,913	-	Daily		1,001	-	Daily		
Emerging Markets ⁽⁵⁾	1,310	-	Daily		443	-	Daily		232	-	Daily		
US Equity ⁽⁵⁾	6,196	-	Daily		2,133	-	Daily		1,018	-	Daily		
Total Investments Measured at NAV	\$826,624	\$141,005			\$251,019	\$45,634			\$107,625	\$20,251			

⁽¹⁾ This type includes 13 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 12 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 11 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 35 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 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, 2023 (\$ 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	\$63,601	\$-	\$-	\$63,601	\$31,165	\$-	\$-	\$31,165
US Equity	977,621	-	-	977,621	485,287	-	-	485,287
Non-US Equity	387,713	-	-	387,713	189,980	-	-	189,980
Total Public Equity	1,428,935	-	-	1,428,935	706,432	-	-	706,432
Fixed Income								
Agencies	197	628	-	825	90	286	-	376
Asset-Backed	-	62,606	-	62,606	-	28,399	-	28,399
Bank & Finance	-	63,438	50,686	114,124	-	28,579	19,772	48,351
Cash & Cash Equivalent	4,936	5,726	-	10,662	2,249	2,606	-	4,855
Corporate	552	215,180	1,158	216,890	240	90,053	515	90,808
Healthcare	-	10,450	-	10,450	-	4,575	-	4,575
Insurance	-	1,793	-	1,793	-	797	-	797
Mortgage-backed securities	-	-	-	-	-	-	-	-
Municipals	-	21,754	-	21,754	-	9,820	-	9,820
Sovereign Debt	-	11,274	-	11,274	-	4,904	-	4,904
US Government	40,447	39,550	-	79,997	18,383	17,986	-	36,369
Total Fixed Income	46,132	432,399	51,844	530,375	20,962	188,005	20,287	229,254
Derivatives								
Futures	(902)	-	-	(902)	(410)	-	-	(410)
Total Derivatives	(902)	-	-	(902)	(410)	-	-	(410)
Real Return								
Real Return	26,908	-	-	26,908	13,867	-	-	13,867
Total Real Return	26,908	-	-	26,908	13,867	-	-	13,867
Total Investments at Fair Value	1,501,073	432,399	51,844	1,985,316	740,851	188,005	20,287	949,143
Investments Measured at NAV								
Specialty Credit	-	-	-	459,238	-	-	-	246,881
Private Equity	-	-	-	273,481	-	-	-	153,655
Real Estate	-	-	-	196,683	-	-	-	107,911
Real Return	-	-	-	51,674	-	-	-	27,545
Fixed Income	-	-	-	7,551	-	-	-	3,440
Non US Equity	-	-	-	213,696	-	-	-	106,177
Emerging Markets	-	-	-	1,865	-	-	-	914
US Equity	-	-	-	9,664	-	-	-	4,884
Total Investments Measured at NAV	-	-	-	1,213,852	-	-	-	651,407
Cash and Accruals	-	-	-	75,771	-	-	-	5,490
Total Investments	\$1,501,073	\$432,399	\$51,844	\$3,274,939	\$740,851	\$188,005	\$20,287	\$1,606,040

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, 2023 (\$ 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	\$28,644	\$-	\$-	\$28,644	\$11,214	\$-	\$-	\$11,214	\$4,700	\$-	\$-	\$4,700
US Equity	385,831	-	-	385,831	161,396	-	-	161,396	65,614	-	-	65,614
Non-US Equity	174,614	-	-	174,614	68,358	-	-	68,358	28,654	-	-	28,654
Total Public Equity	589,089	-	-	589,089	240,968	-	-	240,968	98,968	-	-	98,968
Fixed Income												
Agencies	104	329	-	433	44	140	-	184	17	54	-	71
Asset-Backed	-	33,205	-	33,205	-	13,684	-	13,684	-	5,324	-	5,324
Bank & Finance	-	33,301	39,480	72,781	-	13,665	10,181	23,846	-	5,372	3,889	9,261
Cash & Cash Equivalent	2,589	2,994	-	5,583	1,098	1,257	-	2,355	421	489	-	910
Corporate	229	118,023	633	118,885	10	38,859	232	39,101	52	17,350	98	17,500
Healthcare	-	5,462	-	5,462	-	1,904	-	1,904	-	881	-	881
Insurance	-	922	-	922	-	340	-	340	-	153	-	153
Mortgage-backed securities	-	-	-	-	-	-	-	-	-	-	-	-
Municipals	-	11,144	-	11,144	-	4,200	-	4,200	-	1,878	-	1,878
Sovereign Debt	-	4,708	-	4,708	-	277	-	277	-	1,055	-	1,055
US Government	20,994	20,583	-	41,577	8,589	8,500	-	17,089	3,466	3,385	-	6,851
Total Fixed Income	23,916	230,671	40,113	294,700	9,741	82,826	10,413	102,980	3,956	35,941	3,987	43,884
Derivatives												
Futures	(476)	-	-	(476)	(202)	-	-	(202)	(77)	-	-	(77)
Total Derivatives	(476)	-	-	(476)	(202)	-	-	(202)	(77)	-	-	(77)
Real Return												
Real Return	11,905	-	-	11,905	5,444	-	-	5,444	2,125	-	-	2,125
Total Real Return	11,905	-	-	11,905	5,444	-	-	5,444	2,125	-	-	2,125
Total Investments at Fair Value	624,434	230,671	40,113	895,218	255,951	82,826	10,413	349,190	104,972	35,941	3,987	144,900
Investments Measured at NAV												
Specialty Credit	-	-	-	177,828	-	-	-	103,315	-	-	-	37,223
Private Equity	-	-	-	96,192	-	-	-	55,107	-	-	-	24,386
Real Estate	-	-	-	60,926	-	-	-	45,368	-	-	-	17,319
Real Return	-	-	-	18,622	-	-	-	11,104	-	-	-	4,091
Fixed Income	-	-	-	3,960	-	-	-	1,679	-	-	-	644
Non US Equity	-	-	-	52,287	-	-	-	29,313	-	-	-	10,097
Emerging Markets	-	-	-	840	-	-	-	329	-	-	-	137
US Equity	-	-	-	3,598	-	-	-	1,543	-	-	-	625
Total Investments Measured at NAV	-	-	-	414,253	-	-	-	247,758	-	-	-	94,522
Cash and Accruals	-	-	-	142,787	-	-	-	19,031	-	-	-	6,412
Total Investments	\$624,434	\$230,671	\$40,113	\$1,452,258	\$255,951	\$82,826	\$10,413	\$615,979	\$104,972	\$35,941	\$3,987	\$245,834

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, 2023 (\$ 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⁾	\$459,238	\$51,167	Daily - Quarterly	90 Days	\$246,881	\$27,542	Daily - Quarterly	90 Days
Real Estate ⁽²⁾	196,683	48,780			107,911	26,717		
Real Return ⁽³⁾	51,674	34,994	Daily	30 - 60 Days	27,545	12,901	Daily	30 - 60 Days
Private Equity ⁽⁴⁾	273,481	89,782			153,655	48,867		
Fixed Income ⁽⁵⁾	7,551	-	Daily		3,440	-	Daily	
Non US Equity ⁽⁵⁾	213,696	-	Daily		106,177	-	Daily	
Emerging Markets ⁽⁵⁾	1,865	-	Daily		914	-	Daily	
US Equity ⁽⁵⁾	9,664	-	Daily		4,884	-	Daily	
Total Investments Measured at NAV	\$1,213,852	\$224,723			\$651,407	\$116,027		

⁽¹⁾ This type includes 13 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 12 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 11 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 35 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 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, 2023 (\$ 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⁾	\$177,828	\$19,647	Daily - Quarterly	90 Days	\$103,315	\$11,313	Daily - Quarterly	90 Days	\$37,223	\$4,186	Daily - Quarterly	90 Days	
Real Estate ⁽²⁾	60,926	15,082			45,368	11,274			17,319	4,299			
Real Return ⁽³⁾	18,622	15,410	Daily	30 - 60 Days	11,104	2,621	Daily	30 - 60 Days	4,091	1,359	Daily	30 - 60 Days	
Private Equity ⁽⁴⁾	96,192	18,026			55,107	16,208			24,386	7,407			
Fixed Income ⁽⁵⁾	3,960	-	Daily		1,679	-	Daily		644	-	Daily		
Non US Equity ⁽⁵⁾	52,287	-	Daily		29,313	-	Daily		10,097	-	Daily		
Emerging Markets ⁽⁵⁾	840	-	Daily		329	-	Daily		137	-	Daily		
US Equity ⁽⁵⁾	3,598	-	Daily		1,543	-	Daily		625	-	Daily		
Total Investments Measured at NAV	\$414,253	\$68,165			\$247,758	\$41,416			\$94,522	\$17,251			

⁽¹⁾ This type includes 13 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 12 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.

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⁽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, 2023. 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
2023	10.25%	10.35%	7.07%	9.46%	7.53%

Money-Weighted Rates of Return As of June 30 - Insurance					
	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
2023	10.32%	10.06%	9.89%	9.26%	9.44%

Note E. Securities Lending Transactions

Kentucky Revised Statutes 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 \$1.7 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, 2023, 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, 2023, 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, 2023, the cash collateral received for the securities on loan for the Pension and Insurance Trust Funds was \$339.0 million and \$131.0 million, respectively. The securities non-cash collateral received a total of \$142.8 million and \$64.6 million, respectively. The collateral volume of the total underlying securities was \$481.8 million for Pension and \$195.6 million for the Insurance Trust Funds, respectively.

Securities Lending Cash Collateral						
As of June 30, 2023						
	CERS	CERS	KERS	KERS	SPRS	Pension Total
	Nonhazardous	Hazardous	Nonhazardous	Hazardous		2023
Pension	\$176,126	\$60,803	\$71,804	\$18,277	\$12,028	\$339,038
Insurance	\$59,513	\$29,266	\$26,420	\$11,270	\$4,491	\$130,960

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, 2023. Tier 2 and Tier 3 Fund members contributed 6% of creditable compensation for the fiscal year ended June 30, 2023.

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

Payroll and Contributions as of June 30, 2023 (\$ in Thousands)	
Covered Payroll	\$15,947
Required Employer Contributions	\$1,590
Employer Percentage Contributed	100.00%
<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 2023 for the Executive Branch to be 68.03% for the actuarially determined unfunded liability and 9.97% 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, 2023 (\$ in Thousands)	
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 2023 (\$ in Thousands)	
Software, cost	\$17,302
Less Accumulated Amortization	(17,302)
Intangible Assets, net	\$0

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, 2023. The last experience study was conducted with experience through June 30, 2022, adopted by the Board of Trustees on June 5, 2023 for first use in this actuarial valuation.

Economic Assumptions - Pension as of June 30

	CERS				KERS				SPRS	
	Nonhazardous		Hazardous		Nonhazardous		Hazardous		2023	2022
	2023	2022	2023	2022	2023	2022	2023	2022		
Assumed Investment Return	6.50%	6.25%	6.50%	6.25%	5.25%	5.25%	6.25%	6.25%	5.25%	5.25%
Inflation Factor	2.50%	2.30%	2.50%	2.30%	2.50%	2.30%	2.50%	2.30%	2.50%	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				KERS				SPRS	
	Nonhazardous		Hazardous		Nonhazardous		Hazardous		2023	2022
	2023	2022	2023	2022	2023	2022	2023	2022		
Assumed Investment Return	6.50%	6.25%	6.50%	6.25%	6.50%	6.25%	6.50%	6.25%	6.50%	6.25%
Inflation Factor	2.50%	2.30%	2.50%	2.30%	2.50%	2.30%	2.50%	2.30%	2.50%	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 (GASB 67) Pension

Plans and (GASB 74) Postemployment Benefit Plans

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 [93-110](#) are based on June 30, 2022, actuarial valuations, rolled forward to June 30, 2023. 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, 2023, 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, 2022. The TPL was rolled forward from the valuation date to the Plans' fiscal year ended June 30, 2023, 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

The CERS and KRS Board of Trustees adopted new actuarial assumptions on May 9, 2023 and June 5, 2023, respectively. Based on the June 30, 2021, 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 506 passed during the 2023 legislative session and reinstated the Partial Lump-Sum Optional Form of payment for members who retire on and after January 1, 2024, with the lump-sum payment options expanded to include 48 or 60 times the member's monthly retirement allowance.

Since this optional form of payment results in a reduced, actuarial equivalent, monthly retirement allowance for members who elect a partial lump-sum option, this provision does not have a fiscal impact to the total pension liability of any of the plans.

House Bill 506 also adjusted the minimum required separation period before a retiree may become reemployed and continue to receive their retirement allowance to one month for all circumstances for each plan. This is a minimal change for members in the KERS hazardous, CERS hazardous, and SPRS plans, as the minimum separation period is currently one month for members who become reemployed on a full-time basis in a hazardous position. The requirement was previously three months only for members who become reemployed on a part-time basis or in any non-hazardous position. We believe this provision of House Bill 506 will have an insignificant impact on the retirement pattern of hazardous members and therefore have reflected no fiscal impact to the total pension liability of the KERS hazardous, CERS hazardous, or SPRS plans.

Similarly, this is a relatively small change for future retirees in the KERS and CERS non-hazardous plans. But as the minimum separation period was previously three months in almost every circumstance, we have assumed that

there would be a 1.0% increase in the rate of retirement for each of the first two years a non-hazardous member becomes retirement eligible under the age of 65, in order to reflect a shift in the retirement pattern. The total pension liability as of June 30, 2023 for the KERS non-hazardous and CERS non-hazardous plans 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, 2022. 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 Rate

A single discount rate of 5.25% was used for the KERS Nonhazardous pension plan and SPRS pension plan, a single discount rate of 6.25% was used for the KERS Hazardous pension plan, and a single discount rate of 6.50% was used for the CERS Nonhazardous pension plan and CERS Hazardous pension plan to measure the total pension liability for the fiscal year ending June 30, 2023. The single discount rate for CERS Nonhazardous and CERS Hazardous increased by 0.25% from 6.25% in fiscal year 2022 to 6.50% in fiscal year 2023. 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

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, 2022" for each system and the reports titled "2022 Actuarial Experience Study for the Period Ending June 30, 2022" 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, 2023.

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, 2023. 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, 2022. The total OPEB liability was rolled forward from the valuation date to the plan's fiscal year ended June 30, 2023, 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 2023 that are documented in the schedules were calculated as of June 30, 2021. Based on the June 30, 2021, 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 16.05% 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 6.30% on January 1, 2023, and gradually decreasing to an ultimate trend rate of 4.05% over a period of 13 years. The 2022 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 2022 premiums were known at the time of the valuation and were incorporated into the liability measurement.

Plan Provisions

House Bill 506 passed during the 2023 legislative session and adjusted the minimum required separation period before a retiree may become reemployed to be one month for all circumstances for each plan. This is a minimal change for members in the KERS hazardous, CERS hazardous, and SPRS plans, as the minimum separation period is currently one month for members who become reemployed on a full-time basis in a hazardous position. The requirement was previously three months only for members who become reemployed on a part-time basis or in any non-hazardous position. We believe this provision of House Bill 506 will have an insignificant impact on the retirement pattern of hazardous members and therefore have reflected no fiscal impact to the total OPEB liability of the KERS hazardous, CERS hazardous, or SPRS plans. Similarly, this is a relatively small change for future retirees in the KERS and CERS non-hazardous plans. But as the minimum separation period was previously three months in almost every circumstance, we have assumed that there would be a 1.0% increase in the rate of retirement for each of the first two years a nonhazardous member becomes retirement eligible under the age of 65, in order to reflect a shift in the retirement pattern. The total OPEB liability as of June 30, 2023 for the KERS non-hazardous and CERS nonhazardous plans is determined using these updated benefit provisions. There were no other plan provision changes that would materially impact the total OPEB liability since June 30, 2022. It is our opinion that these procedures for determining the information contained in these reports 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, 2023.

PLAN	FISCAL YEAR 2023	FISCAL YEAR 2022	CHANGE IN RATE
CERS Nonhazardous	5.93%	5.70%	0.23%
CERS Hazardous	5.97%	5.61%	0.36%
KERS Nonhazardous	5.94%	5.72%	0.22%
KERS Hazardous	5.94%	5.59%	0.35%
SPRS	6.02%	5.69%	0.33%

The single discount rates are based on the expected rate of return on OPEB plan investments of 6.50% and a municipal bond rate of 3.86%, as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 30, 2023. 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, 2022" for each system and the report titled "2022 Actuarial Experience Study for the Period Ending June 30, 2022" 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, 2023.

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 on the following page.

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, 2023

Allocations apply to CERS Pension and Insurance Funds

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Equity		
Public Equity	50.00%	5.90%
Private Equity	10.00%	11.73%
Fixed Income		
Core Fixed Income	10.00%	2.45%
Specialty Credit	10.00%	3.65%
Cash	0.00%	1.39%
Inflation Protected		
Real Estate	7.00%	4.99%
Real Return	13.00%	5.15%

Target Asset Allocation - Pension As of June 30, 2023

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%	5.90%
Private Equity	7.00%	11.73%
Fixed Income		
Core Fixed Income	20.50%	2.45%
Specialty Credit	15.00%	3.65%
Cash	5.00%	1.39%
Inflation Protected		
Real Estate	10.00%	4.99%
Real Return	10.00%	5.15%

Target Asset Allocation - Pension and Insurance As of June 30, 2023

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%	5.90%
Private Equity	10.00%	11.73%
Fixed Income		
Core Fixed Income	10.00%	2.45%
Specialty Credit	15.00%	3.65%
Cash	1.50%	1.39%
Inflation Protected		
Real Estate	10.00%	4.99%
Real Return	10.00%	5.15%

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 2 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 (March 2023) for each asset class.

Sensitivity of the NPL to Changes in the Discount Rate Fiscal Year 2023
As of June 30, 2023 (\$ in Thousands)

	CERS		KERS		SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
	Current 6.50%	Current 6.50%	Current 5.25%	Current 6.25%	Current 5.25%
1% Decrease	\$8,101,230	\$3,404,287	\$14,159,095	\$580,511	\$577,298
Current Discount Rate	6,416,509	2,695,956	12,318,726	422,988	448,299
1% Increase	\$5,016,442	\$2,117,409	\$10,793,619	\$295,371	\$342,465

Sensitivity of the Net OPEB Liability to Changes in the Discount Rate and Healthcare Trend Rate
As of June 30, 2023 (\$ in Thousands)

	CERS		KERS		SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
	Single 5.93%	Single 5.97%	Single 5.94%	Single 5.94%	Single 6.02%
Sensitivity of the Net OPEB Liability to Changes in the Discount Rate					
1% Decrease	\$259,098	\$346,027	\$1,055,209	\$(155,851)	\$45,363
Single Discount Rate	(138,067)	136,823	784,592	(207,995)	15,341
1% Increase	\$(470,644)	\$(37,500)	\$557,024	\$(251,094)	\$(9,776)
Sensitivity of the Net OPEB Liability to Changes in the Current Healthcare Cost Trend Rate					
1% Decrease	\$(442,528)	\$1,559	\$575,159	\$(239,711)	\$(5,320)
Current Healthcare Cost Trend Rate	\$(138,067)	136,823	784,592	(207,995)	15,341
1% Increase	\$235,935	\$300,182	\$1,038,116	\$(169,294)	\$40,029

Development of Single Discount Rate for OPEB
As of June 30, 2023

	CERS		KERS		SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
2023					
Single Discount Rate	5.93%	5.97%	5.94%	5.94%	6.02%
Long-Term Expected Rate of Return	6.50%	6.50%	6.50%	6.50%	6.50%
Long-Term Municipal Bond Rate ⁽¹⁾	3.86%	3.86%	3.86%	3.86%	3.86%

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, 2023.

Schedule of Employers' NPL - CERS Nonhazardous**As of June 30, 2023 (\$ in Thousands)**

Total Pension Liability (TPL)	\$15,089,106
Plan Fiduciary Net Position	8,672,597
Net Pension Liability	\$6,416,509
Ratio of Plan Fiduciary Net Position to TPL	57.48%
Covered Payroll ⁽¹⁾	\$2,966,567
Net Pension Liability as a Percentage of Covered Payroll	216.29%

Schedule of Employers' NPL - CERS Hazardous**As of June 30, 2023 (\$ in Thousands)**

Total Pension Liability (TPL)	\$5,731,148
Plan Fiduciary Net Position	3,035,192
Net Pension Liability	\$2,695,956
Ratio of Plan Fiduciary Net Position to TPL	52.96%
Covered Payroll ⁽¹⁾	\$714,837
Net Pension Liability as a Percentage of Covered Payroll	377.14%

Schedule of Employers' NPL - KERS Nonhazardous**As of June 30, 2023 (\$ in Thousands)**

Total Pension Liability (TPL)	\$15,858,669
Plan Fiduciary Net Position	3,539,943
Net Pension Liability	\$12,318,726
Ratio of Plan Fiduciary Net Position to TPL	22.32%
Covered Payroll ⁽¹⁾	\$1,648,318
Net Pension Liability as a Percentage of Covered Payroll	747.35%

Schedule of Employers' NPL - KERS Hazardous**As of June 30, 2023 (\$ in Thousands)**

Total Pension Liability (TPL)	\$1,316,521
Plan Fiduciary Net Position	893,533
Net Pension Liability	\$422,988
Ratio of Plan Fiduciary Net Position to TPL	67.87%
Covered Payroll ⁽¹⁾	\$223,922
Net Pension Liability as a Percentage of Covered Payroll	188.90%

Schedule of Employer's NPL - SPRS**As of June 30, 2023 (\$ in Thousands)**

Total Pension Liability (TPL)	\$1,039,813
Plan Fiduciary Net Position	591,514
Net Pension Liability	\$448,299
Ratio of Plan Fiduciary Net Position to TPL	56.89%
Covered Payroll ⁽¹⁾	\$65,693
Net Pension Liability as a Percentage of Covered Payroll	682.42%

⁽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, 2023 (\$ 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
2023	\$3,260,308	\$3,398,375	\$(138,067)	104.23%	\$2,982,960	(4.63)%

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

**Schedule of the Employers' Net OPEB Liability - CERS Hazardous
As of June 30, 2023 (\$ 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
2023	\$1,771,015	\$1,634,192	\$136,823	92.27%	\$719,666	19.01%

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

**Schedule of the Employers' Net OPEB Liability - KERS Nonhazardous
As of June 30, 2023 (\$ 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
2023	\$2,317,344	\$1,532,752	\$784,592	66.14%	\$1,653,492	47.45%

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

**Schedule of the Employers' Net OPEB Liability - KERS Hazardous
As of June 30, 2023 (\$ 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
2023	\$417,361	\$625,356	\$(207,995)	149.84%	\$223,922	(92.89)%

⁽¹⁾ Based on derived compensation using the provided employer contribution information. For 2021, 2022, and 2023, derived compensation based on pension contribution information, as there were no required employer contributions for the insurance fund for FYE 2021, FYE 2022, and FYE 2023.

**Schedule of the Employer's Net OPEB Liability-SPRS Plan
As of June 30, 2023 (\$ 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
2023	\$263,450	\$248,109	\$15,341	94.18%	\$65,830	23.30%

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

Note N. Pension Legislation

2023 Regular Session

The 2023 Regular Session of the Kentucky General Assembly adjourned on Thursday, March 30, 2023. Highlights of the 2023 Session include:

BILLS OF DIRECT INTEREST TO OUR MEMBERS AND RETIREES

House Bill 444: Pay Raise for Government Workers; Allocation to Conduct a Full Salary Classification Study for State Government

House Bill 444 provides a 6% raise for workers in all three branches of government, effective July 1, 2023. The bill also authorizes an additional \$2,000 pay raise for all employees and elected officials in the Judicial Branch and allocates \$500,000 to provide additional contractual resources for the Personnel Cabinet to complete a full salary classification study by November 1, 2023.

The General Assembly originally requested a full salary classification study from the executive branch in July 2021. However, the resulting study presented to the Interim Joint Committee on Appropriations and Revenue in July 2022 did not contain the level of detail that legislators said they needed to make informed decisions. Therefore, the General Assembly allocated money to hire an outside vendor with the industry experience and appropriate resources needed to perform such a complex study.

House Bill 506: Establish a Partial Lump Sum Option (PLSO) for retirees and reduce required break for employment after retirement

House Bill 506 establishes a Partial Lump Sum Option (PLSO), with and without survivor rights, as a payment option for retiring members of the County Employees Retirement System (CERS), Kentucky Employees Retirement System (KERS), or State Police Retirement System (SPRS).

State law previously offered a PLSO to members who retired on or before January 1, 2009. For retirement dates effective January 1, 2024 and after, members will again be allowed to choose a retirement payment option that offers a lump-sum payment equal to 12, 24, 36, 48 or 60 months of payments of the Basic/Annuity or Survivorship 100% payment options and a lifetime monthly benefit that is actuarially reduced to reflect the lump-sum payment.

The bill also changes the required break in service before a retiree may return to work with a participating employer and continue to receive their retirement allowance. Currently, in almost all reemployment situations, a three (3) calendar month break in service from the retired member's retirement date is required before returning to employment with a participating employer or their retirement benefit will be voided.

Under House Bill 506, the break in service is reduced to only one (1) month for retirees in most all reemployment situations. Prearranged agreements to return to employment with a participating employer made prior to a member's retirement date continue to be prohibited by law for all members. Additionally, all required forms must be completed if a retired member reemploys with a participating employer within twelve (12) months of their effective retirement date.

These changes take effect for retirement dates January 1, 2024 and after.

ADMINISTRATIVE BILLS FOR KPPA

House Bill 551: Legalize Sports Wagering in Kentucky and Create Wagering Administration Fund: Portion of Remaining Funds to go to KY Permanent Pension Fund

House Bill 551 legalizes sports wagering in Kentucky and creates the Wagering Administration Fund to pay for the administrative expenses involved with overseeing sports wagering activities. After administrative costs have been paid, a portion of any remaining funds in the Wagering Administration Fund will be deposited in the Kentucky Permanent Pension Fund established in Kentucky Revised Statutes 42.205. This fund was created in 2016 to address the Commonwealth's unfunded pension liabilities. Each system operated by KPPA is potentially eligible to receive funding from this account, if authorized by the General Assembly in an enacted biennial budget bill.

House Bill 587: Internal audit functions at KPPA

House Bill 587 requires the Kentucky Public Pensions Authority (KPPA) to appoint or contract for the services of an Internal Auditor who will report directly to the KPPA board. The Internal Auditor will be exempt from the hiring and employment provisions of Kentucky Revised Statutes Chapter 18A, Chapter 45A, and 64.640, and is authorized by the Authority to appoint employees under his or her direct supervision. The Internal Auditor will also have an annual performance review conducted by the Authority.

The Legislative Research Commission (LRC) did not request an Actuarial Analysis from KPPA for this bill; however, the Internal Auditor position has been in place at KPPA (the agency was then known as “Kentucky Retirement Systems”) since 2003 so there are no significant administrative cost increases expected.

House Bill 236: Fiduciary duties owed to the state-administered retirement systems

House Bill 236 amends Kentucky Revised Statutes 61.650 and 78.790 to stipulate that fiduciaries shall consider the sole interest of the systems’ members and beneficiaries using only factors with “... a direct and material connection to the financial risk or financial return of an investment.” In particular, the bill prohibits the consideration of environmental, social, and governance (ESG) interests in making investment decisions.

The bill also requires the CERS and KRS Boards to adopt proxy guidelines and ensure that all proxy votes are executed by either the Board or the Board’s designee in accordance with the Board’s proxy voting policy; or a proxy voting service that has acknowledged a fiduciary duty in writing and who commits to following the Board’s policy. Finally, House Bill 236 requires a report of proxy votes to be provided to the Boards at least once a quarter.

Because our systems are, and have always been, fiduciaries who are required to invest solely in the interest of our members and retirees, KPPA and the other state-administered retirement systems submitted Actuarial Analysis letters to the General Assembly that said there is no expected actuarial impact from this bill. However, the letters from each of the systems covered by this bill say there is an expected increase in administrative costs for each plan to cover the cost of compiling and reporting proxy votes on a quarterly basis.

State Senate Confirms Gubernatorial Appointments to KRS Board

State law requires that gubernatorial appointments to the KRS Board of Trustees receive Senate approval. On March 30, three (3) Senate Resolutions confirming Governor Andy Beshear’s recent appointments to the KRS board were unanimously adopted by a vote of 37-0:

1. **Senate Resolution 152**, sponsored by Senator Julie Raque Adams, confirmed the reappointment of E. Lynn Hampton to the Kentucky Retirement Systems Board of Trustees for a term expiring June 17, 2026;
2. **Senate Resolution 226**, sponsored by Senator Jimmy Higdon, confirmed the appointment of Ramsey Bova to the Kentucky Retirement Systems Board of Trustees for a term expiring June 17, 2026; and
3. **Senate Resolution 251**, sponsored by Senator Julie Raque Adams, confirmed the reappointment of William E. Summers V to the Kentucky Retirement Systems Board of Trustees for a term expiring June 17, 2026.

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. KERS 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.

The United States District Court refused to hear the appeals stating that the Bankruptcy Court's order was not final and appealable. That left KERS in a position where no relief was possible; the Bankruptcy Court would not enter an order requiring payment, and the District Court would not hear an appeal. This forced KERS to once again appeal the United States Court of Appeals for the Sixth Circuit. The matter is now fully briefed before that court and parties are awaiting oral arguments.

Mayberry

In December 2017, certain members and beneficiaries of the Kentucky Retirement Systems filed litigation (Mayberry et al v. KKR et al) against certain Hedge Fund Sellers, Investment, Actuarial and Fiduciary Advisors, Annual Report Certifiers, and certain (past and present) Kentucky Retirement Systems' Trustees and Officers in Franklin Circuit Court. The litigation alleges (in summary) that actuarial assumptions, fees, statements and disclosures harmed the financial status of the Retirement Systems. While Kentucky Retirement Systems is designated a "Defendant," that designation is a technical formality in so much as Kentucky Retirement Systems is a "nominal defendant." On

April 20, 2018, the Kentucky Retirement Systems and the plaintiffs filed a joint notice with the Court advising that Kentucky Retirement Systems does not intend to challenge its status as a “nominal defendant.” Since then, the Franklin Circuit Court ruled on various Defendants’ Motions to Dismiss, denying nearly all of them. On January 10, 2019, KKR, Henry Kravis and George Roberts (collectively, “KKR Parties”) amended their Answer to assert cross claims against Kentucky Retirement Systems. 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 Kentucky Supreme Court. The hedge fund defendants filed a Petition for Writ of Prohibition in the Court of Appeals, arguing the Plaintiffs lacked standing to bring the action. That Petition was granted on April 23, 2019. 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 (Tier 3 members of the Retirement Systems) and claims that would purportedly correct the standing defect identified by the Supreme Court of Kentucky. Furthermore, the Attorney General of the Commonwealth of Kentucky sought leave to intervene in this action through a motion filed July 20, 2020, and an Intervening Complaint on July 22, 2020. The Defendants filed motions seeking to have the case dismissed. On December 28, 2020, Franklin Circuit Court issued an Order dismissing the Complaint filed by the Plaintiffs, denied Plaintiffs’ Motion to file a Second Amended Complaint, and granted the Office of the Attorney General’s Motion to Intervene. A variety of additional motions and pleadings were filed, including an original action by the Tier 3 Group. This original action is still in the initial stages and is pending with Franklin Circuit Court. (Tia Taylor, et al. v KKR & Co. L.P., et al.) On January 12, 2021, Franklin Circuit Court issued a scheduling Order granting the Attorney General until February 1, 2021 to file an Amended Intervening Complaint, granting the Tier 3 Group until February 11, 2021 to file a Motion to Intervene in this action. Additional extension orders were granted for the Attorney General intervention. The Attorney General filed an Amended Complaint on May 24, 2021. On June 14, 2021, the Tier 3 Group’s Motion to Intervene in the Attorney General action was denied. In the spring of 2022, Franklin Circuit Judge Phillip Shepherd recused and this matter was assigned to Judge Thomas Wingate.

Following the Attorney General’s intervention, the Defendant’s challenged the intervention as beyond the scope of the remand from the Supreme Court in July of 2020. Franklin Circuit Court denied that motion and the matter was on appeal when this case was assigned to Judge Thomas Wingate. Judge Wingate placed the matter in abeyance pending a decision on whether the Attorney General’s intervention was proper. The Court of Appeals held that the Attorney General should not have been allowed to intervene and the Attorney General is currently seeking Discretionary Review by the Supreme Court.

Simultaneously with his intervention, the Attorney General filed a separate, stand-alone case with an identical complaint to protect against the possibility that his intervention would be deemed improper. That matter is now proceeding.

A number of related cases have also developed based on issues raised in the above referenced 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 legal fees. Kentucky Retirement Systems has also filed an action against Hallmark Specialty Insurance seeking a declaratory judgement that Hallmark has a duty to defend and indemnify Kentucky Retirement Systems in the Mayberry action. Two of the hedge fund Defendants in the Mayberry action have also filed an action in the United States District Court for the Eastern District of Kentucky naming individual members of the former KRS Board of Trustees as Defendants. This action is seeking a judgment declaring that the Trustees violated Plaintiffs’ right to due process as well as an award of costs and attorneys’ fees. Three actions have also been filed in Delaware regarding the Mayberry action. One filed by Prisma Capital Partners and one filed by Blackstone Alternative Asset Management allege breaches of warranties, representations and more relating to the Subscription Agreements signed by the Kentucky Retirement Systems. The third was filed by Prisma Capital Partners against the Daniel Boone Fund, LLC. Additionally, an action has been filed by PAAMCO against Kentucky Retirement Systems in California also alleging breaches of warranties, representations and more relating to the Subscription Agreements signed by the Kentucky Retirement Systems. Finally, on August 2, 2021, Blackstone Alternative Asset Management, L.P. (BAAM) filed an action against the Kentucky Public Pensions Authority, the Board of Trustees of the Kentucky Retirement Systems, the Board of Trustees of the County Employees Retirement System, the Kentucky Retirement Systems Insurance Fund, and the Kentucky Retirement Systems Pension Fund (collectively “Defendants”) for breach of contract. The Defendants filed a Motion to Dismiss on September 8, 2021. The last of these additional actions, the suit filed by BAAM, was dismissed by Franklin Circuit Court. The Court of Appeals upheld the dismissal, and BAAM is seeking Discretionary Review by the Supreme Court. The rest of these cases remain active in various stages of litigation.

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 Bayhills 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 (MSPA) 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. In addition to the MSPA issue, the two new suits allege that requiring Medicare eligible members to pay for Medicare Part B violates their right to “free” health insurance under their inviolable contract.

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, 2023, the reimbursement totaled \$13.9 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, 2023, members paid into the Insurance Fund \$32.4 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 Reemployed Healthcare Contributions As of June 30, 2023 (\$ in Thousands)	CERS		KERS		SPRS	KPPA Total
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous		
Amount	\$4,922	\$1,611	\$5,885	\$1,452	\$-	\$13,870

Retired Reemployed Employer Contributions As of June 30, 2023 (\$ in Thousands)	CERS		KERS		SPRS	KPPA Total
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous		
Amount	\$20,057	\$8,001	\$5,797	\$2,940	\$-	\$36,795

Note R. General Fund Appropriations

During the 2022 Regular Session of the Kentucky General Assembly, HB1 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 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.

General Fund Appropriations (\$ in Thousands)			
Fiscal Year	KERS Nonhazardous	SPRS	KPPA Total
2021-2022	\$-	\$215,000	\$215,000
2022-2023	\$240,000	\$-	\$240,000
2023-2024	\$240,000	\$-	\$240,000
Total	\$480,000	\$215,000	\$695,000

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, 2023, is \$97.7 million for the Pension Plans and \$40.6 million for the Insurance Plan. This is based on the May 31, 2023, report because Absolute Return managers are reported on a one month lag.

Note T. Subsequent Events

Management has evaluated the period June 30, 2023 to December 6, 2023 (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.

Note V. Related Party

Perimeter Park West, Incorporated (PPW) was established in 1998 as a 501(c) (25) corporation located at 1260 and 1270 Louisville Road, Frankfort, Kentucky. As such, PPW can only acquire and hold title to real property. The only source of revenue for the Corporation is rent paid from lessees, and interest on account balances. Currently, KPPA is the only lessee. When cash in excess of \$500,000 is on hand at PPW, the money is paid back to the PPW shareholders in the form of dividends. PPW's expenses are for the maintenance of the property. Title to the property is held in the name of PPW and there is no mortgage on the property. KPPA does not have title to the property, however, CERS and KRS maintains PPW as an investment on the financial statements and the Pension plans are the sole shareholders. PPW's market value was \$7.3 million as of June 30, 2023. PPW is audited annually and submits IRS Form 990 as required for this entity. The purposes of PPW are as an investment for the Pension plans; and to protect the Pension and Insurance Trusts of CERS, KERS, and SPRS should someone become injured on the property. If this occurred and a lawsuit was filed against the property, the suit would be filed against PPW instead of the KPPA, CERS or KRS.

The current lease between PPW and KPPA was entered into on December 5, 2019, and continued thereafter until altered by a new agreement or termination of the lease. The premises, consisting of 85,357 square feet, are rented for the fiscal year period of July 1 to June 30. The contractual lease payments through June 30, 2027, are:

FY 2023 - \$961,968

FY 2024 - \$961,968

FY 2025 - \$961,968

FY 2026 - \$961,968

FY 2027 - \$961,968

REQUIRED SUPPLEMENTARY INFORMATION INCLUDING GASB 67 AND 74

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**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
2023	\$15,089,106	\$8,672,597	\$6,416,509	57.48%	\$2,966,567	216.29%
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.

**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
2023	\$5,731,148	\$3,035,192	\$2,695,956	52.96%	\$714,837	377.14%
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.

Schedule of Employers' NPL - KERS 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
2023	\$15,858,669	\$3,539,943	\$12,318,726	22.32%	\$1,648,318	747.35%
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.

Schedule of Employers' NPL - KERS 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
2023	\$1,316,521	\$893,533	\$422,988	67.87%	\$223,922	188.90%
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.

Schedule of Employer's NPL - SPRS 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
2023	\$1,039,813	\$591,514	\$448,299	56.89%	\$65,693	682.42%
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.

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

Total Pension Liability (TPL)	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Service Cost	\$283,633	\$272,250	\$280,165	\$280,092	\$254,643	\$254,169	\$193,082	\$209,101	\$207,400	\$192,482
Interest	\$920,862	906,401	892,309	861,720	794,935	760,622	803,555	780,587	733,002	710,526
Benefit Changes	\$3,862	-	4,106	-	-	15,708	-	-	-	-
Difference between Expected and Actual Experience	\$511,721	(49,439)	(91,776)	173,345	87,377	279,401	(208,015)	-	49,966	-
Changes of Assumptions	\$(905,957)	-	-	-	727,351	-	1,388,800	-	606,293	-
Benefit Payments	\$(917,614)	(878,050)	(840,611)	(810,879)	(780,608)	(741,177)	(701,891)	(665,000)	(628,858)	(597,136)
Net Change in TPL	(103,493)	251,162	244,193	504,278	1,083,698	568,723	1,475,532	324,687	967,803	305,872
TPL – Beginning	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	9,466,650
TPL – Ending (a)	\$15,089,106	\$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	\$697,681	\$606,807	\$472,228	\$475,416	\$393,453	\$358,017	\$333,554	\$284,105	\$298,565	\$324,231
Contributions – Member ⁽²⁾	147,769	186,648	165,698	168,994	159,064	160,370	150,715	141,674	140,311	128,568
Refunds of Contributions	(23,263)	(19,789)	(13,862)	(14,918)	(14,387)	(14,608)	(14,430)	(13,753)	(13,523)	(14,286)
Retirement Benefit	(894,351)	(858,261)	(826,749)	(795,960)	(766,221)	(726,569)	(687,461)	(651,246)	(615,335)	(582,850)
Net Investment Income ⁽²⁾	805,303	(494,801)	1,762,739	56,178	390,664	573,829	825,900	(40,800)	110,568	895,530
Administrative Expense	(24,128)	(22,670)	(21,729)	(22,304)	(21,659)	(19,592)	(19,609)	(19,385)	(18,212)	(18,615)
Other	-	-	-	-	44 ⁽⁵⁾	361 ⁽⁶⁾	(42,827) ⁽⁴⁾	-	10,280	-
Net Change in Plan Fiduciary Net Position	709,011	(602,066)	1,538,325	(132,594)	140,958	331,808	545,843	(299,405)	(87,346)	732,578
Plan Fiduciary Net Position - Beginning	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	5,795,568
Prior Year Adjustment	-	-	-	-	-	(82)	-	-	-	-
Plan Fiduciary Net Position – Ending (b)	8,672,597	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)	\$6,416,509	\$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	57.48%	52.42%	57.33%	47.81%	50.45%	53.54%	53.32%	55.50%	59.97%	66.80%
Covered Payroll ⁽³⁾	\$2,966,567	\$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	216.29%	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 \$108,843,000 as of June 30, 2023.

⁽²⁾ Does not include 401(h) contributions or associated investment income for fiscal years 2017 and later. For fiscal year 2023, 401(h) contributions equaled \$(30,000); and associated investment return equaled \$10,113,000.

⁽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.

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

Total Pension Liability (TPL)	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Service Cost	\$115,389	\$109,683	\$109,350	\$109,887	\$77,426	\$81,103	\$58,343	\$66,249	\$71,934	\$66,761
Interest	350,413	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	97,750	56,197	38,850	73,696	27,364	205,882	92,588	-	41,935	-
Changes of Assumptions	(275,934)	-	-	-	276,541	-	536,667	-	166,849	-
Benefit Payments	(326,161)	(311,555)	(294,661)	(279,616)	(261,863)	(248,332)	(229,299)	(216,327)	(203,244)	(192,299)
Net Change in TPL	(38,543)	193,124	181,835	218,729	409,209	311,519	729,159	112,807	324,482	113,127
TPL – Beginning	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	3,175,699
TPL – Ending (a)	\$5,731,148	\$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	\$308,223	\$222,028	\$172,205	\$168,443	\$138,053	\$127,660	\$115,947	\$105,713	\$108,071	\$115,240
Contributions – Member ⁽²⁾	56,987	69,565	62,367	63,236	58,661	61,089	60,101	52,972	47,692	43,722
Refunds of Contributions	(6,568)	(5,766)	(4,662)	(3,814)	(2,854)	(4,214)	(2,315)	(2,879)	(3,111)	(2,664)
Retirement Benefit	(319,593)	(305,789)	(289,999)	(275,802)	(259,009)	(244,118)	(226,984)	(213,448)	(200,134)	(189,635)
Net Investment Income ⁽²⁾	280,033	(174,217)	596,641	15,914	132,232	191,324	270,473	(9,020)	37,104	288,490
Administrative Expense	(2,124)	(1,995)	(1,848)	(1,981)	(1,726)	(1,504)	(1,421)	(1,366)	(1,288)	(1,721)
Other	-	-	-	-	14 ⁽⁵⁾	111 ⁽⁵⁾	(7,979) ⁽⁴⁾	-	2,865	-
Net Change in Plan Fiduciary Net Position	316,958	(196,174)	534,704	(34,004)	65,371	130,348	207,822	(68,028)	(8,801)	253,432
Plan Fiduciary Net Position – Beginning	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	1,833,570
Prior Year Adjustment	-	-	-	-	-	(7)	-	-	-	-
Plan Fiduciary Net Position – Ending (b)	3,035,192	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)	\$2,695,956	\$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 Covered Payroll ⁽³⁾	52.96%	47.11%	52.26%	44.11%	46.63%	49.26%	49.78%	53.95%	57.52%	63.46%
Covered Payroll ⁽³⁾	\$714,837	\$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	377.14%	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 \$20,605,000 as of June 30, 2023.

⁽²⁾ Does not include 401(h) contributions or associated investment income for fiscal years 2017 and later. For fiscal year 2023, 401(h) contributions equaled \$(20,000); and associated investment return equaled \$1,931,000.

⁽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.

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

Total Pension Liability (TPL)	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Service Cost	\$163,563	\$165,616	\$171,472	\$179,702	\$184,988	\$195,681	\$143,858	\$139,631	\$143,847	\$133,361
Interest	827,579	830,440	838,084	832,178	793,163	785,123	870,725	891,897	859,509	853,653
Benefit Changes	2,024	-	2,091	-	-	9,624	-	-	-	-
Difference between Expected and Actual Experience	310,954	(15,034)	(130,268)	115,515	70,529	153,565	(134,379)	-	30,958	-
Changes of Assumptions	(691,088)	-	-	-	700,464	-	2,145,530	923,999	694,592	-
Benefit Payments	(1,035,551)	(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	(422,519)	(54,469)	(137,076)	116,059	748,453	163,015	2,065,425	1,020,108	809,563	83,450
TPL – Beginning	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	11,466,660
TPL – Ending (a)	\$15,858,669	\$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⁾	\$1,275,007	\$1,116,869	\$1,134,232	\$948,592	\$1,035,462	\$689,143	\$757,121	\$513,084	\$521,691	\$296,836
Contributions – Member ⁽²⁾	84,579	89,607	90,202	96,594	93,759	104,972	100,543	106,494	104,606	97,487
Refunds of Contributions	(11,847)	(12,116)	(8,953)	(11,523)	(12,342)	(13,603)	(11,819)	(12,130)	(13,552)	(13,627)
Retirement Benefit	(1,023,704)	(1,023,375)	(1,009,502)	(999,813)	(988,349)	(967,375)	(948,490)	(923,288)	(905,791)	(889,937)
Net Investment Income ⁽²⁾	215,880	(162,461)	516,223	52,499	112,371	144,881	220,985	(20,663)	44,570	337,923
Administrative Expense	(13,817)	(13,339)	(11,622)	(11,941)	(11,712)	(10,692)	(10,957)	(10,989)	(10,474)	(11,145)
Other	-	-	-	0	37 ⁽⁵⁾	301 ⁽⁵⁾	(30,805) ⁽⁴⁾	-	8,442	-
Net Change in Fiduciary Net Position	526,098	(4,815)	710,580	74,408	229,226	(52,373)	76,578	(347,491)	(250,508)	(182,463)
Plan Fiduciary Net Position – Beginning	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	2,760,754
Prior Year Adjustment	-	-	-	-	-	(51)	-	-	-	-
Plan Fiduciary Net Position – Ending (b)	3,539,943	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)	\$12,318,726	\$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	22.32%	18.51%	18.48%	14.01%	13.66%	12.84%	13.32%	14.80%	18.83%	22.32%
Covered Payroll ⁽³⁾	\$1,648,318	\$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	747.35%	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 \$67,263,000 as of June 30, 2023.

⁽²⁾ Does not include 401(h) contributions or associated investment income for fiscal year 2017 and later. For fiscal year 2023 401(h) contributions equaled \$(12,000); and associated investment return equaled \$4,378,000.

⁽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

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

Total Pension Liability (TPL)	2023	2022	2021	2020	2019	2018	2017	2016	2015
Service Cost	\$26,852	\$26,885	\$28,450	\$25,568	\$27,117	\$28,641	\$21,081	\$20,751	\$18,729
Interest	79,822	79,422	75,743	74,357	69,657	66,536	66,589	64,851	61,005
Benefit Changes	-	-	26	-	-	705	-	-	-
Difference between Expected and Actual Experience	(1,773)	(17,557)	34,789	(1,095)	1,395	24,215	26,902	-	6,067
Changes of Assumptions	(24,197)	-	-	-	50,658	-	127,878	-	52,165
Benefit Payments	(82,677)	(82,023)	(78,268)	(75,029)	(72,211)	(68,117)	(63,338)	(61,518)	(59,383)
Net Change in TPL	(1,973)	6,727	60,740	23,801	76,616	51,980	179,112	24,084	78,583
TPL – Beginning	1,318,494	1,311,767	1,251,027	1,227,226	1,150,610	1,098,630	919,517	895,433	816,850
TPL – Ending (a)	\$1,316,521	\$1,318,494	\$1,311,767	\$1,251,027	\$1,227,226	\$1,150,610	\$1,098,630	\$919,517	\$895,433
Plan Fiduciary Net Position ⁽¹⁾									
Contributions – Employer	\$72,807	\$59,055	\$62,200	\$59,115	\$55,259	\$43,661	\$52,974	\$23,759	\$28,536
Contributions - Member ⁽²⁾	17,459	20,588	19,961	19,769	17,118	17,891	17,524	15,739	13,207
Refunds of Contributions	(4,041)	(4,976)	(4,380)	(3,168)	(2,684)	(2,501)	(2,106)	(2,211)	(2,610)
Retirement Benefit	(78,636)	(77,047)	(73,888)	(71,861)	(69,527)	(65,616)	(61,231)	(59,306)	(56,773)
Net Investment Income ⁽²⁾	76,479	(51,317)	173,152	6,739	36,380	51,467	70,994	(1,653)	8,701
Administrative Expense	(1,513)	(1,465)	(1,255)	(1,176)	(1,103)	(975)	(919)	(916)	(844)
Other	-	-	-	-	4 ⁽⁵⁾	33 ⁽⁵⁾	(3,586) ⁽⁴⁾	-	767
Net Change in Plan Fiduciary Net Position	82,555	(55,162)	175,790	9,418	35,447	43,960	73,650	(24,588)	(9,016)
Plan Fiduciary Net Position – Beginning	810,978	866,140	690,350	680,932	645,485	601,529	527,879	552,468	561,484
Prior Year Adjustment	-	-	-	-	-	(4)	-	-	-
Fiduciary Net Position – Ending (b)	893,533	810,978	866,140	690,350	680,932	645,485	601,529	527,879	552,468
Net Pension Liability – Ending (a) – (b)	\$422,988	\$507,516	\$445,627	\$560,677	\$546,294	\$505,125	\$497,101	\$391,638	\$342,965
Plan Fiduciary Net Position as a Percentage	67.87%	61.51%	66.03%	55.18%	55.49%	56.10%	54.75%	57.41%	61.70%
Covered Payroll ⁽³⁾	\$223,922	\$188,648	\$172,725	\$171,840	\$160,600	\$152,936	\$178,511	\$158,828	\$128,680
Net Pension Liability as a Percentage of Covered Payroll	188.90%	269.03%	258.00%	326.28%	340.16%	330.29%	278.47%	246.58%	266.53%

⁽¹⁾ Does not include 401(h) assets for fiscal years 2017 and later. Assets totaled \$9,034,000 as of June 30, 2023.

⁽²⁾ Does not include 401(h) contributions or associated investment income for fiscal years 2017 and later. For fiscal years 2023, 401(h) contributions equaled \$(7,000); and associated investment return equaled \$781,000.

⁽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.

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

Total Pension Liability (TPL)	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Service Cost	\$13,229	\$12,158	\$12,530	\$13,192	\$11,726	\$11,890	\$8,297	\$8,402	\$7,695	\$7,142
Interest	53,853	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	10,204	(2,700)	4,127	10,859	20,952	25,126	8,143	-	9,331	-
Changes of Assumptions	(31,255)	-	-	0	44,510	-	136,602	56,191	40,201	-
Benefit Payments	(63,970)	(64,400)	(63,522)	(62,511)	(61,111)	(58,827)	(56,960)	(56,279)	(54,850)	(53,239)
Net Change in TPL	(17,939)	1,928	6,587	14,237	65,378	26,351	147,850	61,265	53,038	4,294
TPL - Beginning	1,057,752	1,055,824	1,049,237	1,035,000	969,622	943,271	795,421	734,156	681,118	676,824
TPL - Ending (a)	\$1,039,813	\$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	\$58,120	\$277,341	\$59,650	\$59,453	\$60,048	\$46,877	\$63,239	\$25,822	\$31,990	\$20,279
Contributions - Member ⁽²⁾	5,250	4,773	4,752	4,767	5,062	5,522	5,348	5,263	5,244	5,075
Refunds of Contributions	(166)	(280)	(273)	(88)	(162)	(22)	(26)	(11)	(85)	(213)
Retirement Benefit	(63,804)	(64,120)	(63,249)	(62,423)	(60,949)	(58,805)	(56,934)	(56,268)	(54,765)	(53,026)
Net Investment Income ⁽²⁾	40,708	(22,088)	61,729	6,341	14,816	18,437	26,795	(3,843)	3,426	40,374
Administrative Expense	(293)	(273)	(212)	(266)	(225)	(194)	(181)	(178)	(201)	(215)
Other	-	-	-	-	3 ⁽⁵⁾	21 ⁽⁵⁾	(517) ⁽⁴⁾	-	645	-
Net Change in Plan Fiduciary Net Position	39,815	195,353	62,397	7,784	18,593	11,836	37,724	(29,215)	(13,746)	12,274
Plan Fiduciary Net Position – Beginning	551,699	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)	591,514	551,699	356,346	293,949	286,165	267,572	255,737	218,012	247,228	260,974
Net Pension Liability – Ending (a) – (b)	\$448,299	\$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	56.89%	52.16%	33.75%	28.02%	27.65%	27.60%	27.11%	27.41%	33.68%	38.32%
Covered Payroll ⁽³⁾	\$65,693	\$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	682.42%	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 \$1,312,000 as of June 30, 2023.

⁽²⁾ Does not include 401(h) contributions or associated investment income for fiscal years 2017 and later. For fiscal year 2023, 401(h) contributions equaled (\$8,000); and associated investment return equaled \$93,000.

⁽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.

The actuarially determined contributions effective for fiscal year ending 2023 that are documented in the schedules on the following pages, were calculated as of June 30, 2021. Based on the June 30, 2021, actuarial valuation report, the actuarial methods and assumptions used to calculate these contribution rates are below:

Notes to Schedule of Employers' Contribution					
Item	CERS		KERS		SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
Determined by the Actuarial Valuation as of:	June 30, 2021	June 30, 2021	June 30, 2021	June 30, 2021	June 30, 2021
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
2023	\$697,634	\$697,681	\$(47)	\$2,966,567	23.52%
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%

⁽¹⁾ Actuarially determined contribution for fiscal year ending 2023 is based on the contribution rate calculated with the June 30, 2021, 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
2023	\$308,037	\$308,223	\$(186)	\$714,837	43.12%
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%

⁽¹⁾ Actuarially determined contribution for fiscal year ending 2023 is based on the contribution rate calculated with the June 30, 2021, 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
2023	\$1,034,918	\$1,275,007	\$(240,089)	\$1,648,318	77.35%
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%

⁽¹⁾ Actuarially determined contribution for fiscal year ending 2023 is based on the contribution rate calculated with the June 30, 2021, actuarial valuation.

⁽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
2023	\$72,778	\$72,807	\$(29)	\$223,922	32.51%
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%

⁽¹⁾ Actuarially determined contribution for fiscal year ending 2023 is based on the contribution rate calculated with the June 30, 2021, 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
2023	\$58,120	\$58,120	\$-	\$65,693	88.47%
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%

⁽¹⁾ Actuarially determined contribution for fiscal year ending 2023 is based on the contribution rate calculated with the June 30, 2021, 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
2023	\$3,260,308	\$3,398,375	\$(138,067)	104.23%	\$2,982,960	(4.63)%
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
2023	\$1,771,015	\$1,634,192	\$136,823	92.27%	\$719,666	19.01%
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
2023	\$2,317,344	\$1,532,752	\$784,592	66.14%	\$1,653,492	47.45%
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
2023	\$417,361	\$625,356	\$(207,995)	149.84%	\$223,922	(92.89)%
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, 2022, and 2023 derived compensation based on pension contribution information, as there were no required employer contributions for the insurance fund for FYE 2021, FYE 2022, and FYE 2023. 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
2023	\$263,450	\$248,109	\$15,341	94.18%	\$65,830	23.30%
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)**

	2023	2022	2021	2020	2019	2018	2017
Total OPEB Liability							
Service Cost	\$98,045	\$138,225	\$132,407	\$131,289	\$119,011	\$122,244	\$85,468
Interest on Total OPEB liability	283,330	263,390	262,128	236,126	240,352	242,048	240,854
Benefit Changes	5,153	74,108	3,359	-	-	4,306	-
Difference between Expected and Actual Experience	(2,134,260)	(68,111)	(340,831)	505,843	(404,301)	(240,568)	(6,641)
Assumption Changes	120,132	(323,247)	282,975	60,225	268,842	(4,876)	520,286
Benefit Payments ^{(1) (2)}	(165,590)	(192,118)	(175,096)	(188,640)	(162,044)	(156,426)	(140,120)
Net Change in Total OPEB Liability	(1,793,190)	(107,753)	164,942	744,843	61,860	(33,272)	699,847
Total OPEB Liability - Beginning	5,053,498	5,161,251	4,996,309	4,251,466	4,189,606	4,222,878	3,523,031
Total OPEB Liability - Ending (a)	\$3,260,308	\$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⁾	\$151,052	\$187,204	\$186,509	\$179,521	\$168,905	\$145,809	\$133,326
Contributions – Member	17,751	15,925	13,613	12,964	11,801	10,825	9,158
Benefit Payments ^{(1) (2)}	(165,590)	(192,118)	(175,096)	(188,640)	(162,044)	(156,426)	(140,120)
OPEB Plan Net Investment Income	316,115	(176,895)	641,084	9,160	137,591	202,068	264,782
OPEB Plan Administrative Expense	(937)	(933)	(922)	(903)	(877)	(761)	(789)
Other ⁽⁴⁾	-	-	-	-	9	75	-
Net Change in Plan Fiduciary Net Position	318,391	(166,817)	665,188	12,102	155,385	201,590	266,357
Plan Fiduciary Net Position – Beginning	3,079,984	3,246,801	2,581,613	2,569,511	2,414,126	2,212,536	1,946,179
Plan Fiduciary Net Position – Ending (b)	3,398,375	3,079,984	3,246,801	2,581,613	2,569,511	2,414,126	2,212,536
Net OPEB Liability – Ending (a) – (b)	\$(138,067)	\$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	104.23%	60.95%	62.91%	51.67%	60.44%	57.62%	52.39%
Covered Payroll ⁽³⁾	\$2,982,960	\$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	(4.63)%	69.41%	73.08%	92.14%	65.26%	69.08%	81.06%

⁽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 \$45,007,734 for fiscal year 2023.

⁽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)**

	2023	2022	2021	2020	2019	2018	2017
Total OPEB Liability							
Service Cost	\$36,330	\$52,265	\$48,413	\$47,443	\$32,623	\$33,948	\$20,493
Interest on Total OPEB liability	130,614	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	(646,006)	(7,814)	(47,937)	38,156	(103,317)	(100,348)	(2,470)
Assumption Changes	(31,947)	(176,969)	159,106	46,925	116,618	(2,500)	391,061
Benefit Payments ⁽¹⁾⁽²⁾	(92,433)	(94,957)	(86,277)	(83,874)	(76,059)	(71,325)	(63,656)
Net Change in Total OPEB Liability	(603,442)	(61,926)	191,161	164,648	86,633	(21,732)	458,594
Total OPEB Liability - Beginning	2,374,457	2,436,383	2,245,222	2,080,574	1,993,941	2,015,673	1,557,079
Total OPEB Liability - Ending (a)	\$1,771,015	\$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⁾	\$49,547	\$66,320	\$63,509	\$59,662	\$60,445	\$51,615	\$44,325
Contributions – Member	4,258	3,654	3,098	2,762	2,458	2,173	1,708
Benefit Payments ⁽¹⁾⁽²⁾	(92,433)	(94,957)	(86,277)	(83,874)	(76,059)	(71,325)	(63,656)
OPEB Plan Net Investment Income	150,671	(79,668)	326,905	2,315	73,317	109,854	143,892
OPEB Plan Administrative Expense	(522)	(502)	(528)	(462)	(434)	(376)	(381)
Other ⁽⁴⁾	-	-	-	-	5	40	-
Net Change in Plan Fiduciary Net Position	111,521	(105,153)	306,707	(19,597)	59,732	91,981	125,888
Plan Fiduciary Net Position – Beginning	1,522,671	1,627,824	1,321,117	1,340,714	1,280,982	1,189,001	1,063,113
Plan Fiduciary Net Position – Ending (b)	1,634,192	1,522,671	1,627,824	1,321,117	1,340,714	1,280,982	1,189,001
Net OPEB Liability – Ending (a) – (b)	\$136,823	\$851,786	\$808,559	\$924,105	\$739,860	\$712,959	\$826,672
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	92.27%	64.13%	66.81%	58.84%	64.44%	64.24%	58.99%
Covered Payroll ⁽³⁾	\$719,666	\$668,667	\$613,985	\$596,001	\$583,632	\$588,526	\$542,710
Net OPEB Liability as a Percentage of Covered Payroll	19.01%	127.39%	131.69%	155.05%	126.77%	121.14%	152.32%

⁽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 include expected benefits due to the implicit subsidy for members under age 65, equal to (\$856,422) for fiscal year 2023.

⁽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)**

	2023	2022	2021	2020	2019	2018	2017
Total OPEB Liability							
Service Cost	\$43,199	\$62,548	\$58,831	\$59,600	\$61,345	\$66,360	\$46,992
Interest	200,910	190,531	191,624	179,811	186,820	191,178	192,911
Benefit Changes	3,209	21,884	1,382	-	-	1,865	-
Difference between Expected and Actual Experience	(1,440,201)	(37,249)	(231,631)	288,235	(302,189)	(191,147)	(3,921)
Changes of Assumptions	61,925	(206,907)	220,184	13,767	158,004	(11,235)	414,835
Benefit Payments ⁽¹⁾⁽²⁾	(128,228)	(153,081)	(141,143)	(159,841)	(148,112)	(148,236)	(139,601)
Net Change in Total OPEB Liability	(1,259,186)	(122,274)	99,247	381,572	(44,132)	(91,215)	511,216
Total OPEB Liability - Beginning	3,576,530	3,698,804	3,599,557	3,217,985	3,262,117	3,353,332	2,842,116
Total OPEB Liability - Ending (a)	\$2,317,344	\$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⁾	\$156,543	\$181,294	\$223,661	\$208,300	\$201,155	\$152,985	\$162,636
Contributions – Member	8,358	6,547	6,318	6,128	5,963	5,786	5,156
Benefit Payments ⁽¹⁾⁽²⁾	(128,228)	(153,081)	(141,143)	(159,841)	(148,112)	(148,236)	(139,601)
OPEB Plan Net Investment Income	132,431	(88,998)	270,811	11,820	45,749	64,028	94,239
OPEB Plan Administrative Expense	(771)	(820)	(819)	(847)	(875)	(760)	(861)
Other ⁽⁴⁾	-	-	-	-	4	32	-
Net Change in Plan Fiduciary Net Position	168,333	(55,058)	358,828	65,560	103,884	73,835	121,569
Plan Fiduciary Net Position – Beginning	1,364,419	1,419,477	1,060,649	995,089	891,205	817,370	695,801
Plan Fiduciary Net Position – Ending (b)	1,532,752	1,364,419	1,419,477	1,060,649	995,089	891,205	817,370
Net OPEB Liability – Ending (a) – (b)	\$784,592	\$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	66.14%	38.15%	38.38%	29.47%	30.92%	27.32%	24.37%
Covered Payroll ⁽³⁾	\$1,653,492	\$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	47.45%	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 \$27,435,836 for fiscal year 2023.							
⁽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)

	2023	2022	2021	2020	2019	2018	2017
Total OPEB Liability							
Service Cost	\$9,435	\$14,474	\$13,633	\$11,548	\$12,337	\$12,893	\$8,002
Interest on Total OPEB liability	32,737	30,599	29,254	28,101	27,990	28,500	27,591
Benefit Changes	-	10,289	48	-	-	167	-
Difference between Expected and Actual Experience	(198,459)	(12,515)	(6,402)	27,668	(30,947)	(31,240)	(1,029)
Assumption Changes	(1,820)	(46,406)	42,022	11,428	31,687	(581)	89,401
Benefit Payments ⁽¹⁾⁽²⁾	(20,321)	(22,804)	(20,927)	(21,425)	(19,767)	(18,704)	(16,618)
Net Change in Total OPEB Liability	(178,428)	(26,363)	57,628	57,320	21,300	(8,965)	107,347
Total OPEB Liability - Beginning	595,789	622,152	564,524	507,204	485,904	494,869	387,522
Total OPEB Liability - Ending (a)	\$417,361	\$595,789	\$622,152	\$564,524	\$507,204	\$485,904	\$494,869
Plan Fiduciary Net Position							
Contributions – Employer ⁽²⁾	\$2,282	\$4,116	\$3,556	\$7,441	\$5,556	\$5,165	\$4,579
Contributions – Member	1,584	1,227	1,167	1,105	934	909	811
Benefit Payments ⁽¹⁾⁽²⁾	(20,321)	(22,804)	(20,927)	(21,425)	(19,767)	(18,704)	(16,618)
OPEB Plan Net Investment Income	53,772	(27,929)	128,244	704	28,373	42,950	59,614
OPEB Plan Administrative Expense	(123)	(125)	(118)	(123)	(117)	(104)	(105)
Other ⁽⁴⁾	-	-	-	-	2	18	-
Net Change in Plan Fiduciary Net Position	37,194	(45,515)	111,922	(12,298)	14,981	30,234	48,281
Plan Fiduciary Net Position – Beginning	588,162	633,677	521,755	534,053	519,072	488,838	440,557
Plan Fiduciary Net Position – Ending (b)	625,356	588,162	633,677	521,755	534,053	519,072	488,838
Net OPEB Liability – Ending (a) – (b)	\$(207,995)	\$7,627	\$(11,525)	\$42,769	\$(26,849)	\$(33,168)	\$6,031
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	149.84%	98.72%	101.85%	92.42%	105.29%	106.83%	98.78%
Covered Payroll ⁽³⁾	\$223,922	\$188,648	\$172,725	\$182,209	\$151,448	\$190,317	\$171,087
Net OPEB Liability as a Percentage of Covered Employee Payroll	(92.89)%	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 \$792,418 for fiscal year 2023.

⁽³⁾ Based on derived compensation using the provided employer contribution information. For 2021, 2022, and 2023, derived compensation based on pension contribution information, as there were no required employer contributions for the insurance fund for FYE 2021, FYE 2022, and FYE 2023.

⁽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)**

	2023	2022	2021	2020	2019	2018	2017
Total OBEF Liability							
Service Cost	\$4,092	\$5,605	\$5,218	\$5,389	\$4,816	\$6,087	\$4,147
Interest on Total OPEB liability	19,608	18,592	17,984	17,600	17,724	18,432	17,993
Benefit Changes	-	4,975	101	-	-	34	-
Difference between Expected and Actual Experience	(98,425)	(5,952)	(6,318)	13,810	(14,295)	(23,320)	(573)
Assumption Changes	404	(21,937)	21,784	4,578	16,483	(358)	57,312
Benefit Payments ⁽¹⁾⁽²⁾	(13,682)	(14,729)	(13,812)	(13,988)	(13,187)	(13,097)	(12,123)
Net Change in Total OPEB Liability	(88,003)	(13,446)	24,957	27,389	11,541	(12,222)	66,756
Total OPEB Liability - Beginning	351,453	364,899	339,942	312,553	301,012	313,234	246,478
Total OPEB Liability - Ending (a)	\$263,450	\$351,453	\$364,899	\$339,942	\$312,553	\$301,012	\$313,234
Plan Fiduciary Net Position							
Contributions – Employer ⁽²⁾	\$8,755	\$9,343	\$9,381	\$12,873	\$12,623	\$8,535	\$7,862
Contributions – Member	348	230	209	196	176	155	131
Benefit Payments ⁽¹⁾⁽²⁾	(13,682)	(14,729)	(13,812)	(13,988)	(13,187)	(13,097)	(12,123)
OPEB Plan Net Investment Income	21,520	(10,847)	50,289	1,124	10,815	16,470	21,627
OPEB Plan Administrative Expense	(74)	(73)	(89)	(71)	(69)	(62)	(66)
Other ⁽⁴⁾	-	-	-	-	1	8	-
Net Change in Plan Fiduciary Net Position	16,867	(16,076)	45,978	134	10,359	12,009	17,431
Plan Fiduciary Net Position – Beginning	231,242	247,318	201,340	201,206	190,847	178,838	161,407
Plan Fiduciary Net Position – Ending (b)	248,109	231,242	247,318	201,340	201,206	190,847	178,838
Net OPEB Liability – Ending (a) – (b)	\$15,341	\$120,211	\$117,581	\$138,602	\$111,347	\$110,165	\$134,396
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	94.18%	65.80%	67.78%	59.23%	64.38%	63.40%	57.09%
Covered Payroll ⁽³⁾	\$65,830	\$48,600	\$47,155	\$48,231	\$48,780	\$50,064	\$48,873
Net OPEB Liability as a Percentage of Covered Payroll	23.30%	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 (\$533,552) for fiscal year 2023.

⁽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 2023 that is documented in the following schedule was calculated as of June 30, 2021. 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, 2021, 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, 2021	June 30, 2021	June 30, 2021	June 30, 2021	June 30, 2021
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 16.05%, 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.

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 6.30% at January 1, 2023 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 13 years. The 2022 premiums were known at the time of the valuation and were incorporated into the liability measurement.	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 2022 premiums were known at the time of the valuation and were incorporated into the liability measurement.	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 2022 premiums were known at the time of the valuation and were incorporated into the liability measurement.	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 2022 premiums were known at the time of the valuation and were incorporated into the liability measurement.	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 2022 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 2022 premiums were known at the time of the valuation and were incorporated into the liability measurement.	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 2022 premiums were known at the time of the valuation and were incorporated into the liability measurement.	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 2022 premiums were known at the time of the valuation and were incorporated into the liability measurement.	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 2022 premiums were known at the time of the valuation and were incorporated into the liability measurement.	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 2022 premiums were known at the time of the valuation and were incorporated into the liability measurement.

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
2023	\$101,122	\$106,044	\$(4,922)	\$2,982,960	3.55%
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%

⁽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 2023 is based on the contribution rate calculated with the June 30, 2021, actuarial valuation.

⁽³⁾ Employer contributions do not include the expected implicit subsidy included in the Schedule of Changes in Employer's Net OPEB Liability - CERS Nonhazardous.

⁽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
2023	\$48,793	\$50,404	\$(1,611)	\$719,666	7.00%
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%

⁽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 2023 is based on the contribution rate calculated with the June 30, 2021, actuarial valuation.

⁽³⁾ Employer contributions do not include the expected implicit subsidy included in the Schedule of Changes in Employer's Net OPEB Liability - CERS Hazardous.

⁽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
2023	\$123,952	\$129,108	\$(5,156)	\$1,653,492	7.81%
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%

⁽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 2023 is based on the contribution rate calculated with the June 30, 2021, actuarial valuation.

⁽³⁾ Employer contributions do not include the expected implicit subsidy included in the Schedule of Changes in Employer's Net OPEB Liability - KERS Nonhazardous.

⁽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
2023	\$-	\$1,489	\$(1,489)	\$223,922	0.66%
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%

⁽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 2023 is based on the contribution rate calculated with the June 30, 2021, actuarial valuation.

⁽³⁾ Employer contributions do not include the expected implicit subsidy included in the Schedule of Changes in Employer's Net OPEB Liability - KERS Hazardous.

⁽⁴⁾ Based on derived compensation using the provided employer contribution information. For 2021, 2022, and 2023, derived compensation based on pension contribution information as there were no required employer contributions for the insurance fund for FYE 2021, FYE 2022 and FYE 2023.

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
2023	\$9,289	\$9,289	\$-	\$65,830	14.11%
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%

⁽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 2023 is based on the contribution rate calculated with the June 30, 2021, actuarial valuation.

⁽³⁾ Employer contributions do not include the expected implicit subsidy included in the Schedule of Changes in Employer's Net OPEB Liability - SPRS.

⁽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, 2023, 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						
2023	10.25%	10.35%	7.07%	9.46%	7.53%	
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		
2023	10.32%	10.06%	9.89%	9.26%	9.44%	
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%	

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

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)**

	2023	2022
Personnel		
Salaries and Per Diem	\$16,432	\$15,803
Pension, Insurance Related Benefits	16,534	16,165
Unemployment Compensation	9	-
Employee Training	11	10
Total Personnel	32,986	31,978
Contractual		
Actuarial Services	491	474
Audit Services	110	142
Human Resource Consulting	-	6
Legal Counsel	1,007	1,126
Medical Review Services	1,413	1,593
Miscellaneous	131	124
Total Contractual	3,152	3,465
Communication		
Printing	68	77
Telephone	113	123
Postage	352	377
Travel	84	32
Total Communication	617	609
Internal Audit		
Travel/Conferences	\$2	2
Dues/Subscriptions	1	1
Miscellaneous	24	-
Total Internal Audit	27	3
Investments-Pension Funds		
Travel/Conferences	22	7
Dues/Subscriptions	13	13
Total Investments	35	15
Rentals		
Office Space	1,000	1,013
Equipment	90	92
Total Rentals	1,090	1,103
Information Technology		
Software	2,725	2,972
Total Information Technology	2,725	2,972
Miscellaneous		
Utilities	153	142
Supplies	71	83
Insurance	6	5
Dues & Subscriptions	61	52
Maintenance	1	-
Other	56	34
COVID Expenses	5	13
Total Miscellaneous	353	336
Depreciation/Amortization/Accruals	890	(739)
Total Pension Fund Administrative Expense	41,875	39,742
Healthcare Fees	2,427	2,454
Total Insurance Fund Administrative Expense	2,427	2,454
Total Contractual Services	\$44,302	\$42,196

Pension Fund Schedule of Direct Investment Expenses
As of June 30, 2023 (\$ in Thousands)

	CERS		KERS		SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
Security Lending Fees					
Borrower (Income) Rebates	\$7,904	\$2,760	\$2,525	\$755	\$426
Lending Agent Fees	164	57	59	17	9
Total Security Lending	8,068	2,817	2,584	772	435
Contractual Services					
Investment Management	51,121	17,180	14,788	4,806	2,155
Security Custody	743	256	298	77	51
Investment Consultant	306	105	120	32	21
Performance Fees	10,465	3,295	1,866	910	336
Total Contractual Services	\$62,635	\$20,836	\$17,072	\$5,825	\$2,563

Insurance Fund Schedule of Direct Investment Expenses
As of June 30, 2023 (\$ in Thousands)

	CERS		KERS		SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
Security Lending Fees					
Borrower (Income) Rebates	\$2,414	\$1,162	\$969	\$399	\$169
Lending Agent Fees	54	26	23	9	4
Total Security Lending	2,468	1,188	992	408	173
Contractual Services					
Investment Management	18,972	9,925	7,229	3,850	1,521
Security Custody	390	192	172	74	29
Investment Consultant	116	57	50	22	9
Performance Fees	3,499	1,782	2,870	819	299
Total Contractual Services	\$22,977	\$11,956	\$10,321	\$4,765	\$1,858

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

	2023	2022
Actuarial Services	\$491	\$474
Medical Review Services	1,413	1,593
Audit Services	110	142
Legal Counsel	1,007	1,126
Human Resource Consulting	-	6
Miscellaneous	131	124
Total	\$3,152	\$3,465



MIKE HARMON
AUDITOR OF PUBLIC ACCOUNTS

Report 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*

Independent Auditor's Report

To the Members
Kentucky Public Pensions Authority

We have audited, 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, the financial statements of the Kentucky Public Pensions Authority (KPPA), as of and for the year ended June 30, 2023, and the related notes to the financial statements, which collectively comprise KPPA's basic financial statements, and have issued our report thereon dated November 27, 2023.

Report on Internal Control Over Financial Reporting

In planning and performing our audit of the financial statements, we considered KPPA'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 opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of KPPA's internal control. Accordingly, we do not express an opinion on the effectiveness of KPPA'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 over financial reporting was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over financial reporting 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 may exist that have not been identified.

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Report 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 KPPA'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 entity'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 entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Respectfully Submitted,

Farrah Petter, CPA
Assistant Auditor of Public Accounts
Frankfort, Ky

November 27, 2023

INVESTMENTS

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Investment Overview

This section of the report was compiled by KPPA investment staff using information provided by Wilshire Associates and the Bank of New York Mellon. Except otherwise noted, investment returns are based on investment asset fair value and calculated using time-weighted return calculation methodologies.

Investment returns play an important role at KPPA in terms of funding status of the plans and continued funding of operations. The Investment Committees of each Board of Trustees is committed to maximizing the long-term total rate of return on investments, given the appropriate level of risk, for the sole benefit of the members in the plans. The overall investment performance goal is to achieve an annualized rate of return which, when combined with employee and employer contributions, will meet or exceed the benefits and administrative funding requirements (see Investment Objectives later in this section).

Investments are managed by professional investment management firms and the KPPA Investment Staff based upon statutory investment authority, the investment policies adopted by the KRS Board of Trustees and the CERS Board of Trustees. The investment staff coordinates and monitors the investments of the trust assets and assists the Investment Committees in the formulation and implementation of investment policies and long-term investment strategy.

Asset Allocation and Diversification

The Trustees recognize that asset allocation is the primary driver of long-term investment performance and therefore review asset allocation on a regular basis. Asset allocation is a process designed to construct an optimal long-term asset mix that achieves a specific set of investment objectives. The Investment Policy Statement establishes the plans' asset allocation policy as designed to meet those objectives.

The asset allocation policies are adopted to provide for diversification of assets in an effort to maximize the long-term returns on investments consistent with prudent levels of market and economic risks. Of all the components of investment strategy formulation, the determination of asset allocation targets is the most important decision.

Risk is further diversified through active and passive management using multiple investment management firms and KPPA Investment Staff with a variety of investment styles. The total investment performance is not dependent upon the outcome of just one particular investment style or manager.

KPPA develops specific contractual investment guidelines for each external manager and each internally managed account that control the risk of high concentrations in a particular sector, industry, or security.

Diversification of the assets among various asset classes, investment management styles, and individual securities mitigates risk and enhances the potential of the investment portfolios to achieve their respective long-term objectives.

The following tables show each Plans' asset allocation targets as specified in their respective Investment Policy Statement and the actual asset allocation of the Plans as of June 30, 2023.

**Board Policies vs. Actual Asset Allocation
As of June 30, 2023**

Pension	Public Equity	Private Equity	Core Fixed Income	Specialty Credit	Cash	Real Estate	Real Return	Total Plan
CERS Nonhazardous Policy Target Asset Allocation	50.00%	10.00%	10.00%	10.00%	0.00%	7.00%	13.00%	100.00%
CERS Nonhazardous Actual Asset Allocation	50.46%	7.93%	10.22%	19.98%	1.97%	6.28%	3.16%	100.00%
CERS Hazardous Policy Target Asset Allocation	50.00%	10.00%	10.00%	10.00%	0.00%	7.00%	13.00%	100.00%
CERS Hazardous Actual Asset Allocation	50.41%	7.64%	10.25%	19.92%	2.95%	5.78%	3.05%	100.00%
KERS Nonhazardous Policy Target Asset Allocation	32.50%	7.00%	20.50%	15.00%	5.00%	10.00%	10.00%	100.00%
KERS Nonhazardous Actual Asset Allocation	33.66%	4.54%	20.72%	17.42%	16.45%	5.08%	2.13%	100.00%
KERS Hazardous Policy Target Asset Allocation	43.50%	10.00%	10.00%	15.00%	1.50%	10.00%	10.00%	100.00%
KERS Hazardous Actual Asset Allocation	43.88%	7.03%	12.15%	20.23%	8.31%	5.63%	2.77%	100.00%
SPRS Policy Target Asset Allocation	32.50%	7.00%	20.50%	15.00%	5.00%	10.00%	10.00%	100.00%
SPRS Actual Asset Allocation	32.83%	2.83%	20.76%	17.32%	20.75%	3.65%	1.86%	100.00%

NOTE: The actual asset allocations are calculated by taking the fair value of each asset class as a percentage of total portfolio for the plans combined.

Board Policies vs. Actual Asset Allocation As of June 30, 2023

Insurance	Public Equity	Private Equity	Core Fixed Income	Specialty Credit	Cash	Real Estate	Real Return	Total Plan
CERS Nonhazardous Policy Target Asset Allocation	50.00%	10.00%	10.00%	10.00%	0.00%	7.00%	13.00%	100.00%
CERS Nonhazardous Actual Asset Allocation	50.55%	8.19%	10.24%	19.86%	2.58%	6.01%	2.57%	100.00%
CERS Hazardous Policy Target Asset Allocation	50.00%	10.00%	10.00%	10.00%	0.00%	7.00%	13.00%	100.00%
CERS Hazardous Actual Asset Allocation	50.99%	9.39%	9.52%	20.02%	0.59%	6.72%	2.77%	100.00%
KERS Nonhazardous Policy Target Asset Allocation	43.50%	10.00%	10.00%	15.00%	1.50%	10.00%	10.00%	100.00%
KERS Nonhazardous Actual Asset Allocation	44.51%	6.50%	12.11%	20.32%	10.13%	4.20%	2.23%	100.00%
KERS Hazardous Policy Target Asset Allocation	43.50%	10.00%	10.00%	15.00%	1.50%	10.00%	10.00%	100.00%
KERS Hazardous Actual Asset Allocation	44.22%	8.75%	12.11%	21.26%	3.40%	7.37%	2.89%	100.00%
SPRS Policy Target Asset Allocation	43.50%	10.00%	10.00%	15.00%	1.50%	10.00%	10.00%	100.00%
SPRS Actual Asset Allocation	44.71%	9.73%	11.63%	21.22%	2.93%	7.05%	2.73%	100.00%

NOTE: The actual asset allocations are calculated by taking the fair value of each asset class as a percentage of total portfolio for the plans combined.

Investment Strategies

Diversification

The Pension and Insurance portfolios are diversified on several levels, primarily through the use of the aforementioned asset class allocations. Asset allocations are evaluated on a periodic basis and represent an efficient allocation to maximize returns and minimize risks at a level appropriate for each system. The individual asset classes are diversified through the use of multiple portfolios that are managed by both the Office of Investments Staff and external Investment Managers. Finally, portfolios within each of the asset classes are diversified through both investment styles and the selection of individual securities. Each portfolio advisor is afforded discretion to diversify its portfolio(s) within the parameters established by the Boards.

Rebalancing

Proper implementation of the investment policy requires that a periodic adjustment, or rebalancing, of assets be made to ensure conformance with the IPS target levels. Such rebalancing is necessary to reflect sizable cash flows and performance imbalances among asset classes and investment advisors. The rebalancing policies call for a rebalancing to within its allocation ranges if an asset class exceeds or falls outside its allowable range as defined in the IPS.

Performance Review

At least once each quarter, the Investment Committees, on behalf of the Boards, review the performance of the portfolio to determine compliance with the IPS. The Investment Committees also review a report created and presented by the KPPA Compliance Officer. The Compliance Officer performs tests daily, monthly, and quarterly to assure compliance with the restrictions imposed by the IPS.

Investment Consulting

The Boards employ qualified independent industry leading external consultants to assist in asset allocation studies, asset allocation recommendations, manager searches and other investment related consulting functions. Consultants also provide performance reports covering both the internally managed and externally managed assets.

Investment Objectives

The Trustees recognize that as long-term investors, the primary aim is that the portfolios meet their performance objectives in the long-term while understanding that this may not necessarily occur in the short term. The overall investment performance goal is to achieve an annualized rate of return which, when combined with employee and employer contributions, will meet or exceed the benefits and administrative funding requirements. The following descriptions represent general standards of measurement that will be used as guidelines for the various classes of investments and managers of the Plans.

Public Asset Class Allocations

Short-term: For periods less than five years or a full market cycle, the Asset Class Allocation should exceed the returns of the appropriate Index.

Intermediate & Long-term: For periods greater than five years or a full market cycle, the Asset Class Allocation should exceed the appropriate Index, compare favorably on a risk-adjusted basis, and generate returns that rank above the median return of a relevant peer group. Volatility, as measured by the standard deviation of monthly returns, should be comparable to the Index.

Individual Public Security Portfolios

Short-term: For periods less than five years or a full market cycle, individual portfolios should exceed the returns of their market goal or benchmark.

Intermediate & Long-term: For periods greater than five years or a full market cycle, individual portfolios should exceed the return of their market goal or benchmark, compare favorably on a risk-adjusted basis, and generate returns that rank above the median return of a relevant peer group. Volatility, as measured by the standard deviation of monthly returns, should be comparable to the benchmark.

Alternative Assets

Private Equity

The Private Equity portfolio should seek to achieve both short-term and intermediate/long term Net Internal Rate of Returns that provide yields in excess of core equity investments.

Short-term: Alternative investments should earn a Net Internal Rate of Return (IRR) that place the investment above the median Net IRR of other similar funds, of the same vintage year.

Intermediate & Long-term: The private equity portfolio should earn a return that meets or exceeds the Systems Private Equity Index. Individual private equity investments should earn a Net IRR above the median Net IRR of other similar funds, of the same vintage year.

Real Estate

Relative Return: The Real Estate portfolio is expected to generate returns, net of all fees and expenses, in excess of the National Council of Real Estate Investment Fiduciaries Open End Diversified Core Equity Index lagged 1 calendar quarter.

Absolute Return: The long-term real return objective for the Real Estate portfolio is five percent over the Barclays Capital U.S. 7-10 Year Treasury Bond Index, net of investment management fees.

Real Return

Short-term: For periods less than five years or a full market cycle, the allocation should achieve an annual rate of return that exceeds the appropriate benchmark (the weighted average return of the underlying investment benchmarks) annually over a complete market cycle, net of all investment management fees.

Strategic objective: For periods greater than five years or a full market cycle, the allocation should not only outperform the short-term benchmark, but also achieve a rate of return that exceeds CPI + 300 basis points.

Investment Results

For the purposes of this report, total return information has been reported net of investment manager fees and investment expenses with audited data since July 2011. At the manager or individual account level, returns have been reported net of fees since July 2011 and gross of fees are used for prior historical data. All rates of return are calculated using time-weighted rates of return.

Fiscal Year 2023 Results

Please see the tables below for the net returns reported for the fiscal year ended June 30, 2023.

Net Returns As of June 30, 2023 (\$ in Thousands)

Pension Funds	Fair Value	% of Total	1 Year		3 Years		5 Years			10 Years		Inception	
			Plan	Index	Plan	Index	Plan	Index	GANIR	Plan	Index	Plan	Index
CERS	\$8,693,826	52.03%	10.24%	9.54%	9.26%	8.83%	6.82%	6.55%	6.52%	7.27%	6.92%	8.85%	8.86%
CERS Hazardous	3,006,298	17.99%	10.33%	9.54%	9.18%	8.83%	6.76%	6.55%	6.68%	7.24%	6.92%	8.85%	8.86%
KERS	3,522,035	21.08%	6.96%	7.02%	7.52%	7.11%	6.11%	5.70%	5.61%	6.65%	6.44%	8.69%	8.74%
KERS Hazardous	898,809	5.38%	9.46%	8.70%	8.83%	9.01%	6.58%	6.66%	6.40%	7.14%	6.97%	8.82%	8.88%
SPRS	587,507	3.52%	7.58%	7.02%	7.68%	7.11%	6.17%	5.70%	6.09%	6.61%	6.41%	8.68%	8.73%
Total	\$16,708,475	100.00%	9.54%	8.88%	8.88%	8.46%	6.68%	6.41%		7.16%	6.90%	8.82%	8.86%

Net Returns As of June 30, 2023 (\$ in Thousands)

Insurance Funds	Fair Value	% of Total	1 Year		3 Years		5 Years		10 Years		Inception	
			Plan	Index	Plan	Index	Plan	Index	Plan	Index	Plan	Index
CERS	\$3,274,939	45.52%	10.33%	9.54%	9.20%	8.62%	6.68%	6.28%	7.24%	6.90%	7.37%	7.56%
CERS Hazardous	1,606,040	22.32%	10.11%	9.54%	9.35%	8.62%	6.76%	6.28%	7.30%	6.90%	7.39%	7.56%
KERS	1,452,258	20.18%	9.87%	8.70%	8.88%	8.75%	6.46%	6.49%	6.85%	6.97%	7.26%	7.58%
KERS Hazardous	615,979	8.56%	9.29%	8.70%	9.25%	8.87%	6.65%	6.43%	7.17%	6.96%	7.35%	7.58%
SPRS	245,834	3.42%	9.46%	8.70%	9.43%	8.87%	6.88%	6.43%	7.35%	6.98%	7.40%	7.58%
Total	\$7,195,050	100.00%	10.15%	9.27%	9.22%	8.81%	6.70%	6.39%	7.21%	7.03%	7.36%	7.60%

Benchmarks

The benchmarks are weighted averages that are composites of the various asset class indices that exist within each of the investment portfolios. The Modified Dietz Method, as its basis for calculations, is used to determine the performance of an investment portfolio based on a time weighted cash flow. The various asset class benchmarks are shown below:

Benchmarks and Allocation Guidelines As of June 30, 2023

Index	Asset Class	Asset Allocation by Plan		
		ALL CERS	KERS Nonhazardous/SPRS Pension	KERS Hazardous Pension/KERS Nonhazardous, and SPRS Insurance
Equity				
MSCI ACWI	Public Equity	50.00%	32.50%	43.50%
Russell 3000 Quarter Lagged + 300 bps	Private Equity	10.00%	7.00%	10.00%
Fixed Income				
Bloomberg US Aggregate	Core Fixed Income	10.00%	20.50%	10.00%
50% Bloomberg US High Yield/50% Morningstar LSTA Leveraged Loan	Specialty Credit	10.00%	15.00%	15.00%
FTSE 3-Month US Treasury Bill	Cash	0.00%	5.00%	1.50%
Inflation Protected				
NCREIF ODCE	Real Estate	7.00%	10.00%	10.00%
US CPI + 3%	Real Return	13.00%	10.00%	10.00%

Note: These benchmarks are intended to be objective, measurable, investable/replicable, and representative of the investment mandates. The benchmarks are developed from publicly available information and accepted by the investment advisor and KPPA as the neutral position consistent with the investment mandate and status. KPPA Investment Staff and our Consultant recommend the indices and benchmarks, which are reviewed and approved by the Investment Committee and ratified by the KRS and CERS Boards. It is anticipated that as KRS and CERS funds continue to diversify through other markets and asset classes, both the Pension Funds' and Insurance Funds' total benchmarks will evolve to reflect these exposures.

Long-Term Results

The chart below displays the growth of \$1,000 over the course of 10 years given the performance of the portfolios compared to the benchmark and the actuarial assumed rate of return. As of June 30, 2023, the actuarial rate of return for KERS Nonhazardous and SPRS pension was 5.25% and 6.25% for all other funds.

Since June 30, 2014, returns ranged from a minimum of (5.73)% in 2022 to a maximum of 25.00% in 2021. For fiscal year 2023, the annualized total net returns of each Plan exceeded their respective actuarially assumed rates of return. Translating these returns into dollars, a beginning balance of \$1,000 in fiscal year 2014 would have a balance of \$1,996 in fiscal year 2023. The annualized benchmark would have a balance of \$1,961.

Pension Trust Growth											
As of June 30 (in Whole \$)											
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Total Pension Return	15.55%	2.01%	(0.52)%	13.47%	8.57%	5.83%	1.15%	25.00%	(5.73)%	9.54%	
Performance BM	14.91%	3.13%	(0.19)%	13.28%	7.91%	6.00%	0.50%	24.07%	(5.76)%	8.88%	
Actuarial Assumed ROR CERS Nonhazardous, CERS Hazardous and KERS Hazardous	7.75%	7.75%	7.50%	7.50%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	
Actuarial Assumed ROR KERS Nonhazardous and SPRS	7.75%	7.75%	7.50%	6.75%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	
Pension	\$1,000	\$1,156	\$1,179	\$1,173	\$1,331	\$1,445	\$1,529	\$1,546	\$1,933	\$1,822	\$1,996
Performance Benchmark	1,000	1,149	1,185	1,183	1,340	1,446	1,533	1,540	1,911	1,801	1,961
Actuarial Assumed ROR CERS Nonhazardous, CERS Hazardous and KERS Hazardous	1,000	1,078	1,161	1,248	1,342	1,426	1,515	1,609	1,710	1,817	1,930
Actuarial Assumed ROR KERS Nonhazardous and SPRS	\$1,000	\$1,078	\$1,161	\$1,248	\$1,332	\$1,402	\$1,476	\$1,553	\$1,635	\$1,721	\$1,811

The chart below shows theoretical annual returns for the Insurance portfolio since June 30, 2014, where returns range from a minimum of (5.34%) in 2022 to a maximum of 24.95% in 2021. As of June 30, 2023, the Insurance portfolio earned 10.15% versus the annualized benchmark return of 9.27%. The chart below indicates that with a beginning balance of \$1,000 in fiscal year 2014, the Insurance portfolio would have a balance of \$2,006 compared to the actuarially assumed rate of return balance of \$1,930 and the annualized benchmark return would have a balance of \$2,001 at the end of the 10-year period.

Insurance Trust											
As of June 30 (in Whole \$)											
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Total Return	14.89%	1.86%	(0.09)%	13.72%	9.05%	5.67%	0.48%	24.95%	(5.34)%	10.15%	
Performance BM	15.03%	3.79%	0.03%	13.55%	8.48%	5.89%	0.13%	23.84%	(5.21)%	9.27%	
Actuarial Assumed ROR	7.75%	7.75%	7.50%	7.50%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	
Insurance	\$1,000	\$1,149	\$1,170	\$1,169	\$1,330	\$1,450	\$1,532	\$1,540	\$1,924	\$1,821	\$2,006
Performance Benchmark	1,000	1,150	1,194	1,194	1,356	1,471	1,558	1,560	1,932	1,831	2,001
Actuarial Assumed ROR	\$1,000	\$1,078	\$1,161	\$1,248	\$1,342	\$1,426	\$1,515	\$1,609	\$1,710	\$1,817	\$1,930

Public Equity

For the fiscal year, the KPPA Pension Public Equity portfolio outperformed the benchmark by 121 basis points (bps), 17.74% versus the benchmark return of 16.53% (KPPA Insurance Public Equity: 17.60%). Relative outperformance was primarily driven by stock selection, most notably, broad outperformance across the international portion of the portfolio.

During the 12-months ending June 30, 2023, the KPPA Pension U.S. equity portion of the portfolio underperformed the R3000, 18.54% versus 18.95%; while the aggregate KPPA Insurance U.S. equity mandates returned 18.44%. Stock selection was solid across most strategies, especially within the mid, small, and microcap strategies. The only significant source of relative weakness came from the internal factor-based portfolio (11.31% vs 19.59%); however, this was less about stock selection and more about allocation tilts. The strategy's tilts, smaller in terms of market cap and towards value, weighed on relative performance (growth outpaced value by over 15%). Since inception, the Pension U.S. equity mandates have returned 11.30%, underperforming the benchmark by 9bps, while the Insurance U.S. equity mandates earned 9.92% annualized, outpacing the portfolio's benchmark by 2bps.

For the fiscal year, the KPPA Pension Non-U.S. equity mandates combined to outperform the MSCI ACWI Ex-US by 396bps, returning 16.43% versus 12.47%; while the aggregate KPPA Insurance international mandates returned 16.28%. Relative outperformance can best be attributed to broad based outperformance of the individual strategies. Most notably within the developed large cap and emerging market mandates (especially the dedicated value piece). Since inception, the Pension Non-U.S. equity mandates have returned 3.46%, underperforming the benchmark by 4bps, while the Insurance Non-U.S. equity mandates earned 3.44% annualized, outpacing the portfolio's benchmark by 60bps.

Return on Public Equity As of June 30, 2023

	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Public equity						
Pension	4/1/1984	17.74%	10.87%	7.55%	8.57%	10.21%
Performance Benchmark		16.53%	10.83%	7.52%	8.46%	10.05%
Insurance	7/1/1992	17.60%	10.88%	7.53%	8.62%	8.57%
Performance Benchmark		16.53%	10.81%	7.49%	8.47%	8.37%

Note: Current Pension and Insurance benchmarks are Global Equity: MSCI ACWI; US Equity: Russell 3000; Non-US Equity: MSCI ACWI Ex-US

Pension Top 10 Public Equity Holdings As of June 30, 2023 (\$ in Thousands)

Company	Shares	Fair Value
APPLE INC	1,188,746	\$230,581
ISHARES CORE S&P MIDCAP ETF	840,865	219,869
MICROSOFT CORP	597,830	203,585
LAZARD EMERG MKT EQY-INST	6,625,310	109,318
AMAZON.COM INC	717,712	93,561
NVIDIA CORP	198,845	84,115
ALPHABET INC	477,670	57,177
TESLA INC	216,610	56,702
META PLATFORMS INC	177,862	51,043
ALPHABET INC	410,886	49,705
Total	11,452,336	\$1,155,656

Insurance Top 10 Public Equity Holdings As of June 30, 2023 (\$ in Thousands)

Company	Shares	Fair Value
APPLE INC	530,743	\$102,948
ISHARES CORE S&P MIDCAP ETF	381,139	99,660
MICROSOFT CORP	266,915	90,895
LAZARD EMERG MKT EQY- INST	3,059,536	50,483
AMAZON.COM INC	320,439	41,773
NVIDIA CORP	88,779	37,555
ALPHABET INC	213,267	25,528
TESLA INC	96,711	25,316
META PLATFORMS INC	79,411	22,789
ALPHABET INC	183,450	22,192
Total	5,220,390	\$519,139

A complete list of holdings is located at <https://kyret.ky.gov/Investments/Investments-Library/Pages/Investments-Holdings.aspx>.

Core Fixed Income

For the fiscal year ended June 30, 2023, the Pension Core Fixed Income portfolio outperformed the benchmark by 2.21%, with a return of 1.27% compared to the Bloomberg U.S. Aggregate which returned (0.94)%. The Insurance Core Fixed Income portfolio posted a 1.14% rate of return, which outperformed the Bloomberg U.S. Aggregate Bond Index by 2.08%. Relative outperformance was driven by the shorter duration profile and tactical allocation to front end investment grade credit as rates rose and credit spreads tightened. Since inception, the Pension Core Fixed Income portfolio has outperformed the benchmark by 0.87%; while the Insurance Core Fixed Income portfolio has outperformed by 0.59% annually.

Return on Core Fixed Income As of June 30, 2023

Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	7/1/2013	1.27%	(0.35)%	2.23%	2.39%	2.39%
Performance Benchmark	7/1/2013	(0.94)%	(3.96)%	77.00%	1.52%	1.52%
Insurance	7/1/2013	1.14%	(0.48)%	2.06%	2.11%	2.11%
Performance Benchmark	7/1/2013	(0.94)%	(3.96)%	77.00%	1.52%	1.52%

Note: Pension and Insurance benchmark is Bloomberg US Aggregate.

Pension 2022 Top 10 Core Fixed Income Holdings As of June 30, 2023 (\$ in Thousands)

Issuer	Shares	Fair Value
U S TREASURY BILL	37,100,000	\$36,151
U S TREASURY NOTE	15,221,000	14,883
U S TREASURY NOTE	14,935,000	14,604
CHARTER COMM OPERATING 10/19	10,597,562	10,585
U S TREASURY NOTE	9,905,000	9,779
CITIGROUP INC	10,053,000	9,596
SANTANDER DRIVE AUTO RECEI 6 B	9,365,000	9,160
US TREAS-CPI INFLAT	9,510,942	9,115
U S TREASURY NOTE	9,296,000	8,960
U S TREASURY NOTE	9,207,000	8,875
Total	135,190,504	\$131,708

Insurance Top 10 Core Fixed Income Holdings As of June 30, 2023 (\$ in Thousands)

Issuer	Shares	Fair Value
U S TREASURY BILL	11,535,000	\$11,240
U S TREASURY NOTE	5,933,000	5,801
CHARTER COMM OPERATING 10/19	3,607,468	3,603
US TREAS-CPI INFLAT	3,506,255	3,360
CITIGROUP INC	3,391,000	3,237
SANTANDER DRIVE AUTO RECEI 6 B	3,300,000	3,228
U S TREASURY NOTE	3,139,000	3,026
US TREAS-CPI INFLAT	3,006,550	2,932
U S TREASURY NOTE	2,995,000	2,929
MICROCHIP TECHNOLOGY INC	2,907,000	2,895
Total	43,320,273	\$42,251

Note: A complete list of holdings is located at <https://kyret.ky.gov/Investments/Investments-Library/Pages/Investments-Holdings.aspx>.

Specialty Credit

For the fiscal year ended June 30, 2023, the Pension Specialty Credit portfolio returned 7.16%, underperforming the benchmark by 2.78% which returned 9.94% for the year. The Insurance Specialty Credit portfolio posted a 7.37% rate of return, underperforming the benchmark by 2.57%. Since inception, the Pension and Insurance Specialty Credit portfolios have outperformed their respective benchmarks by 1.97% and 1.84%, respectively.

Return on Specialty Credit As of June 30, 2023

Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	7/1/2017	7.16%	7.72%	5.66%	N/A	5.70%
Performance Benchmark	7/1/2017	9.94%	4.76%	3.78%	N/A	3.73%
Insurance	7/1/2017	7.37%	7.78%	5.61%	N/A	5.57%
Performance Benchmark	7/1/2017	9.94%	4.76%	3.78%	N/A	3.73%

Note: Pension and Insurance benchmark is 50% Bloomberg US High Yield/50% Morningstar LSTA Leveraged Loan.

Pension Top 10 Specialty Credit Holdings As of June 30, 2023 (\$ in Thousands)

Issuer	Fair Value
TRANSDIGM INC 144A	\$3,688
INDONESIA TREASURY BOND	3,428
AMERICAN AIRLINES INC/AAD 144A	3,263
U S TREASURY NOTE	3,116
HUBBAY MINERALS INC 144A	2,975
U S TREASURY NOTE	2,973
MEDLINE BORROWER LP 144A	2,940
MEXICAN BONOS	2,771
UBER TECHNOLOGIES INC 144A	2,692
NFP CORP 144A	2,675
Total	\$30,519

Insurance Top 10 Specialty Credit Holdings As of June 30, 2023 (\$ in Thousands)

Issuer	Fair Value
TRANSDIGM INC 144A	\$1,637
AMERICAN AIRLINES INC/AAD 144A	1,316
MEDLINE BORROWER LP 144A	1,269
HUBBAY MINERALS INC 144A	1,224
U S TREASURY NOTE	1,177
INDONESIA TREASURY BOND	1,158
NFP CORP 144A	1,152
UBER TECHNOLOGIES INC 144A	1,111
TABEO LLC	1,105
UNITED AIRLINES INC 144A	1,067
Total	\$12,216

Note: A complete list of holdings is located at <https://kyret.ky.gov/Investments/Investments-Library/Pages/Investments-Holdings.aspx>.

Private Equity

For the fiscal year ended June 30, 2023, the Pension Private Equity portfolio posted a return of (1.55%), while the Insurance Private Equity portfolio returned 1.99%. The Investment Committee acknowledges the difficulty in assessing short term performance for Private Equity. Performance is typically based on quarterly estimates of each underlying business's value, and managers are often slow to mark valuations up or down. This can distort relative performance against a public market benchmark during periods when that index moves dramatically, such as fiscal year 2023. A better indication of program performance would be the mid- to longer-term time periods because more underlying company holdings have likely transacted at a specific (rather than estimated) valuation.

For the five years ended June 30, 2023, the Pension and Insurance Private Equity portfolios returned 13.91% and 13.25%, respectively. Over the past 10 years, the Pension portfolio trailed its benchmark by 1.57% but still produced a 13.39% return. The Insurance portfolio return of 14.42% was below its benchmark of 14.96%. Since inception in 2002, the Pension and Insurance portfolio's have reported a 11.82% return and a 10.96% return, respectively.

Return on Private Equity As of June 30, 2023

Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	7/1/2002	(1.55)%	19.70%	13.91%	13.39%	11.82%
Performance Benchmark		(5.58)%	21.56%	13.51%	14.96%	11.83%
Insurance	7/1/2002	1.99%	21.29%	13.25%	14.42%	10.96%
Performance Benchmark		(5.58)%	21.56%	13.51%	14.96%	11.39%

Note: Pension and Insurance Benchmark 5 years and beyond is the Russell 3000 Lagged + 300bps. For shorter term periods, the benchmark matches actual performance experienced.

Real Estate

For the fiscal year ended June 30, 2023, the Pension Real Estate portfolio saw returns of (2.69)%, exceeding its benchmark return of (3.91)%. The Insurance Real Estate portfolio also surpassed the benchmark, returning (3.06)% compared to (3.91)%. For the five years ending June 30, 2023, both the Pension and Insurance portfolios outperformed the benchmarks return by 3.82% and 3.73%, respectively.

Return on Real Estate As of June 30, 2023

Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	7/1/1984	(2.69)%	11.12%	10.38%	9.81%	6.64%
Performance Benchmark		(3.91)%	7.46%	6.56%	8.47%	6.47%
Insurance	5/1/2009	(3.06)%	10.84%	10.29%	9.76%	9.60%
Performance Benchmark		(3.91)%	7.46%	6.56%	8.47%	6.18%

Note: Pension and Insurance benchmark is NCREIF ODCE

Real Return

For the fiscal year ended June 30, 2023, the Pension Real Return portfolio returned 12.77%, outperforming its benchmark of 7.05%. The Insurance Real Return portfolio posted a return of 11.12%, also outperforming its benchmark return of 7.05% for the period. These returns were driven by strong returns from the portfolio's midstream energy assets. Since inception, the Pension and Insurance Real Return portfolios have outperformed their respective benchmarks by 0.70% and 0.42% respectively.

Return on Real Return As of June 30, 2023

Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	7/1/2011	12.77%	12.72%	6.42%	4.71%	4.83%
Performance Benchmark		7.05%	12.76%	6.45%	4.06%	4.13%
Insurance	7/1/2011	11.12%	11.64%	6.28%	4.54%	4.60%
Performance Benchmark		7.05%	11.94%	6.45%	4.11%	4.18%

Note: Pension and Insurance benchmark is Real Return Custom BM

Cash

For the fiscal year ended June 30, 2023, the Pension Cash portfolio returned 3.38%, underperforming its benchmark, the FTSE 3-Month US Treasury Bill by 0.37%. The Insurance Cash portfolio also underperformed the index, posting a return of 3.36% during the same 12-month period.

As the accompanying table indicates, longer-term Cash portfolios have performed well compared to their benchmark. For the ten years ending June 30, 2023, the Pension portfolio has outperformed its benchmark by 0.23% on an annualized basis. Since its inception, the Pension portfolio has exceeded its benchmark by 0.39%. The Insurance portfolio has also outperformed its benchmark return over the ten-year and since inception periods by 0.05% and 0.10%, respectively.

Return on Cash As of June 30, 2023

Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	1/1/1988	3.38%	1.24%	1.59%	1.21%	3.31%
Performance Benchmark		3.75%	1.33%	1.57%	0.98%	2.92%
Insurance	7/1/1992	3.36%	1.22%	1.48%	1.03%	2.45%
Performance Benchmark		3.75%	1.33%	1.57%	0.98%	2.35%

Note: Pension and Insurance benchmark is FTSE Treasury Bill-3 Month

Additional Schedules

The following schedules contain information on the assets under management for each firm KPPA employs and assets managed by KPPA Investment Staff, external investment-related expenses, commissions paid, and portfolio summaries for each of the five Pension and Insurance plans for the fiscal year ended June 30, 2023.

Investment Managers & Assets Under Management	
Active Mandate- Alphabetical by Manager	
As of June 30, 2023 (\$ in Thousands)	
Advisor	Assets Under Management
Internally Managed by KPPA	\$6,450,344
Adams Street	398,733
American Century Investments	630,265
Arctos Sports	15,932
Arrowmark	791,520
Axiom	134,745
Barings Real Estate	73,237
Blue Torch	202,971
BlackRock ACWI Ex-US	1,244,103
Benefit Street Partners	190,165
CapitalSpring	109,111
Cerberus	264,646
Columbia Threadneedle Investments	651,672
Franklin Templeton	516,336
Harrison Street	379,873
IFM	100,191
JP Morgan Emerging Markets	208,991
Lazard Asset Management	733,778
Loomis, Sayles & Company	565,896
Lord Abbett & Co	1,949,208
LSV Asset Management	742,141
Manulife Investment Management	411,250
Marathon Asset Management	678,947
Mesa West	80,232
Middle Ground	237,081
New State	5,713
Next Century	209,484
NISA Investment Advisors	409,182
Northern Trust Global Investments	448,010
Prologis	446,942
Pzena Emerging Markets	250,520
River Road Asset Management	422,233
Shenkman Capital Management	368,954
Stockbridge	167,132
Strategic Value Partners	134,147
Tortoise	262,496
Waterfall Asset Management	417,598
Westfield Capital	501,881
White Oak Global Advisors	197,334
Assets Under Management	\$22,002,994

**Investment Managers & Assets Under Management
Managers With Terminated or Runoff Status - Alphabetical by Manager
As of June 30, 2023 (\$ in Thousands)**

Advisor	Assets Under Management
AMERRA	\$88,701
Ares	28,047
Bay Hills	275,503
Black Diamond	105,788
Blackstone	34,598
BTG Pactual	37,653
Crestview	82,202
CVC	33,082
DAG Ventures	25,200
Fundamental	87,507
Leonard Green	127,529
Harvest Partners	66,848
H.I.G	32,732
Horsley Bridge	102,505
Kayne Anderson	52,281
Keyhaven	35,609
Levine Leichtman	123,208
Lubert-Adler	41,709
Patron	67,981
Prisma	138,330
Rubenstein	12,898
Triton	19,408
Vista Equity	101,914
Walton Street	29,707
Other	149,591
Assets Under Management	1,900,531
Total	\$23,903,525

Note: Totals reflect external manager assets under management, therefore totals will differ from Total Fair Values.

Note: The managers have been separated by actively managed and terminated/runoff. Managers who are actively managed are either fully funded or are in the investment phase of the strategy. Managers who are in a terminated or runoff status are in the process of liquidation or are in the final investment phase awaiting payout. Managers who are in runoff or have been liquidated with a de minimis balance are reported as "Other".

Investment Managers & Assets Under Management by Fund and Asset Class

Pension Funds

As of June 30, 2023 (\$ in Thousands)

Advisor/Asset Class	CERS	CERS	KERS	KERS	SPRS	KPPA
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous		Total
Core Fixed Income	\$1,060,135	\$396,945	\$1,309,194	\$183,950	\$243,898	\$3,194,122
Lord Abbett & Co.	595,920	206,712	489,491	73,257	81,828	1,447,208
Loomis, Sayles & Company Core	172,930	59,986	142,045	21,258	23,746	419,965
NISA Investment Advisors	119,377	41,409	98,057	14,675	16,392	289,910
Internally Managed by KPPA	171,908	88,838	579,601	74,760	121,932	1,037,039
Private Equity	\$642,586	\$215,566	\$140,853	\$59,178	\$14,991	\$1,073,174
Ares	12,576	4,292	-	1,138	359	18,365
Bay Hills	105,534	33,832	61,042	10,671	4,948	216,027
Black Diamond	42,958	14,662	-	3,887	1,225	62,732
Blackstone	13,217	6,382	45	1,142	3	20,789
Crestview	34,851	11,528	10,233	3,342	1,319	61,273
CVC	14,822	5,059	-	1,341	423	21,645
DAG Ventures	9,817	3,060	8,198	1,039	540	22,654
Leonard Green	44,536	17,609	501	3,831	33	66,510
Harvest Partners	25,138	7,701	-	2,111	45	34,995
H.I.G.	12,962	5,111	978	1,170	256	20,477
Horsley Bridge	39,945	12,435	33,444	4,229	2,201	92,254
Kayne Anderson	18,717	5,829	-	1,595	-	26,141
Keyhaven	14,264	4,729	3,904	1,362	531	24,790
Levine Leichtman	46,289	14,735	-	4,000	304	65,328
Middle Ground	101,195	32,636	13,647	9,005	1,570	158,053
New State	2,184	740	767	220	88	3,999
Strategic Value Partners	58,823	18,932	7,420	5,206	854	91,235
Triton	8,703	2,970	-	787	248	12,708
Vista	36,055	13,324	674	3,102	44	53,199
Public Equity	\$4,387,288	\$1,515,428	\$1,185,535	\$394,373	\$192,859	\$7,675,483
American Century Investments	245,257	85,081	67,689	22,884	11,982	432,893
Axiom	51,666	17,923	14,259	4,821	2,524	91,193
BlackRock ACWI Ex-US	502,146	175,794	115,064	40,723	15,946	849,673
Franklin Templeton	200,399	69,519	55,309	18,699	9,790	353,716
Lazard Asset Management	284,436	98,672	78,502	26,540	13,896	502,046
LSV Asset Management	287,533	99,746	79,357	26,829	14,047	507,512
Next Century	85,215	29,196	19,790	6,962	3,292	144,455
Northern Trust	182,037	62,369	42,276	14,871	7,032	308,585
River Road Asset Management	167,570	57,413	38,916	13,690	6,473	284,062
Westfield Capital	199,424	68,326	46,314	16,292	7,704	338,060
JP Morgan Emerging Markets	81,921	28,419	22,610	7,644	4,002	144,596
Pzena Emerging Markets	97,499	33,823	26,909	9,097	4,763	172,091
Internally Managed by KPPA	2,002,185	689,147	578,540	185,321	91,408	3,546,601
Real Estate	\$543,796	\$173,041	\$179,035	\$50,381	\$21,400	\$967,653
Barings Real Estate	28,842	9,120	9,577	2,620	1,107	51,266
Fundamental Partners	34,462	10,897	11,442	3,130	1,323	61,254
Harrison Street	145,075	45,377	51,993	12,884	6,147	261,476
Lubert-Adler	18,945	5,931	1,910	1,649	626	29,061
Patron	10,293	3,255	3,418	935	395	18,296
Mesa West	45,110	14,228	8,435	4,044	1,300	73,117
Prologis	180,184	56,976	59,826	16,366	6,918	320,270
Rubenstein	6,264	1,952	-	535	192	8,943

CERS Board Meeting - KPPA Audit Committee Report

Stockbridge	59,533	18,984	26,196	5,215	2,527	112,455
Walton Street	13,406	4,489	4,358	1,462	500	24,215
Internally Managed by KPPA	1,682	1,832	1,880	1,541	365	7,300
Real Return	\$265,891	\$88,872	\$74,244	\$24,136	\$10,772	\$463,915
AMERRA	41,141	12,990	-	3,688	1,866	59,685
Arctos	5,353	2,294	2,485	64	637	10,833
BTG Pactual	17,959	5,755	-	1,550	717	25,981
IFM	39,745	13,687	11,701	3,604	1,397	70,134
Prisma	55,623	17,619	17,874	4,664	1,935	97,715
Tortoise	105,999	36,503	42,156	10,559	4,217	199,434
Internally Managed by KPPA	71	24	28	7	3	133
Specialty Credit	\$1,736,704	\$598,727	\$613,464	\$181,854	\$101,769	\$3,232,518
Adams Street	154,908	52,233	50,636	15,058	6,279	279,114
Arrowmark	299,730	99,086	87,645	27,173	10,826	524,460
Blue Torch	78,813	26,611	25,734	7,732	3,190	142,080
Benefit Street Partners	75,343	24,954	18,961	6,811	1,760	127,829
CapitalSpring	45,017	14,910	11,329	4,069	1,052	76,377
Cerberus	109,189	36,164	27,479	9,870	2,551	185,253
Columbia Threadneedle Investments	185,302	72,714	138,034	30,216	28,950	455,216
Manulife Investment Management	174,059	67,951	36,585	17,923	7,506	304,024
Marathon Asset Management	243,559	80,026	128,494	21,709	11,601	485,389
Shenkman Capital Management	134,546	45,350	24,819	20,533	9,549	234,797
Waterfall Asset Management	157,150	52,534	43,844	13,611	16,657	283,796
White Oak Global Advisors	79,088	26,194	19,904	7,149	1,848	134,183
Other	\$57,426	\$17,719	\$19,710	\$4,937	\$1,818	\$101,610
Total Assets Under Management	\$8,693,826	\$3,006,298	\$3,522,035	\$898,809	\$587,507	\$16,708,475

Investment Managers & Assets Under Management by Fund and Asset Class

Insurance Funds

As of June 30, 2023 (\$ in Thousands)

Advisor/Asset Class	CERS Non- Hazardous	CERS Hazardous	KERS Non- Hazardous	KERS Hazardous	SPRS	KPPA Total
Core Fixed Income	\$420,096	\$162,357	\$323,022	\$95,556	\$35,795	\$1,036,826
Lord Abbett & Co.	219,437	99,962	115,088	48,803	18,710	502,000
Loomis, Sayles & Company Core	63,790	29,059	33,456	14,187	5,439	145,931
NISA Investment Advisors	52,137	23,750	27,344	11,596	4,445	119,272
Internally Managed by KPPA	84,732	9,586	147,134	20,970	7,201	269,623
Private Equity	\$248,225	\$140,024	\$89,824	\$49,794	\$22,354	\$550,221
Ares	5,517	2,984	-	728	453	9,682
Bay Hills	30,767	16,599	4,228	5,079	2,803	59,476
Black Diamond	24,533	13,270	-	3,238	2,015	43,056
Blackstone	7,563	4,526	7	1,161	552	13,809
Crestview	11,402	6,160	709	1,675	983	20,929
CVC	6,517	3,525	-	860	535	11,437
DAG Ventures	1,031	553	568	273	121	2,546
Leonard Green	29,259	17,577	5,681	5,967	2,535	61,019
Harvest Partners	13,525	8,090	5,402	3,458	1,378	31,853
H.I.G.	6,785	3,883	68	991	528	12,255
Horsley Bridge	4,130	2,211	2,316	1,103	491	10,251
Kayne Anderson	10,822	6,535	4,757	2,902	1,124	26,140
Keyhaven	5,965	3,224	270	852	508	10,819
Levine Leichtman	25,228	14,943	9,055	6,134	2,520	57,880
Middle Ground	22,551	11,726	37,230	5,391	2,130	79,028
New State	772	397	329	155	61	1,714
Strategic Value Partners	15,694	8,315	13,291	4,356	1,256	42,912
Triton	3,817	2,065	-	504	314	6,700
Vista	22,347	13,441	5,913	4,967	2,047	48,715
Public Equity	\$1,655,332	\$818,974	\$646,377	\$272,367	\$109,920	\$3,502,970
American Century Investments	90,100	44,149	40,578	15,886	6,659	197,372
Axiom	19,882	9,742	8,954	3,505	1,469	43,552
BlackRock	205,868	102,342	48,766	27,934	9,520	394,430
Franklin Templeton	74,236	36,376	33,433	13,089	5,486	162,620
Lazard Asset Management	105,785	51,835	47,643	18,651	7,818	231,732
LSV Asset Management	107,108	52,483	48,238	18,884	7,916	234,629
Next Century	31,045	15,788	11,318	4,896	1,982	65,029
Northern Trust	66,562	33,850	24,267	10,497	4,249	139,425
River Road Asset Management	65,963	33,546	24,048	10,403	4,211	138,171
Westfield Capital	78,209	39,773	28,512	12,334	4,993	163,821
JP Morgan Emerging Markets	29,396	14,404	13,239	5,183	2,173	64,395
Pzena Emerging Markets	35,803	17,543	16,125	6,312	2,646	78,429
Internally Managed by KPPA	745,375	367,143	301,256	124,793	50,798	1,589,365
Real Estate	\$196,063	\$107,577	\$60,735	\$45,225	\$17,265	\$426,865
Barings Real Estate	10,089	5,537	3,120	2,333	892	21,971
Fundamental Partners	12,055	6,616	3,728	2,788	1,066	26,253
Harrison Street	54,328	29,716	17,161	12,431	4,761	118,397
Lubert-Adler	5,826	3,177	1,794	1,343	508	12,648
Mesa West	23,106	12,755	6,404	5,394	2,026	49,685
Patron	3,267	1,793	1,010	756	289	7,115
Prologis	58,168	31,921	17,987	13,453	5,143	126,672
Rubenstein	1,825	992	560	420	158	3,955
Stockbridge	24,923	13,730	8,111	5,721	2,192	54,677

CERS Board Meeting - KPPA Audit Committee Report

Walton Street	2,476	1,340	860	586	230	5,492
Real Return	\$81,721	\$43,148	\$31,164	\$17,269	\$6,502	\$179,804
AMERRA	13,437	7,418	3,857	3,128	1,176	29,016
Arctos	2,613	892	1,466	64	64	5,099
BTG Pactual	5,284	2,903	1,801	1,221	463	11,672
IFM	13,917	7,171	5,119	2,880	970	30,057
Prisma	18,179	10,185	6,404	4,252	1,595	40,615
Tortoise	28,165	14,514	12,461	5,698	2,224	63,062
Internally Managed by KPPA	126	65	56	26	10	283
Specialty Credit	\$650,513	\$321,591	\$295,123	\$130,980	\$52,176	\$1,450,383
Adams Street	54,239	28,654	21,037	11,317	4,372	119,619
Arrowmark	121,025	65,933	43,270	26,899	9,933	267,060
Blue Torch	27,573	14,493	10,886	5,722	2,217	60,891
Benefit Street Partners	27,857	15,193	10,590	6,394	2,302	62,336
CapitalSpring	14,628	7,978	5,561	3,358	1,209	32,734
Cerberus	35,480	19,350	13,487	8,144	2,932	79,393
Columbia Threadneedle Investments	88,956	33,320	51,530	16,306	6,344	196,456
Manulife Investment Management	54,709	23,758	22,649	976	5,134	107,226
Marathon Asset Management	85,275	46,613	34,167	20,444	7,059	193,558
Shenkman Capital Management	52,978	19,629	46,499	11,164	3,887	134,157
Waterfall Asset Management	59,572	31,278	24,719	13,778	4,455	133,802
White Oak Global Advisors	28,221	15,392	10,728	6,478	2,332	63,151
Other	\$22,989	\$12,369	\$6,013	\$4,788	\$1,822	\$47,981
Total Assets Under Management	\$3,274,939	\$1,606,040	\$1,452,258	\$615,979	\$245,834	\$7,195,050

External Investment Expenses - Pension Asset Class/Type Breakdown

For the fiscal year ending June 30, 2023 (\$ in Thousands)

	Public Equity	Private Equity	Fixed Income	Specialty Credit	Cash	Real Return	Real Estate	Total
Fee for Long Balance	\$7	\$-	\$-	\$-	\$-	\$-	\$-	\$7
Securities Lending Fee Rebate	10,181	-	1,475	2,060	-	654	-	\$14,370
Investment Advisory Fees	13,222	6,858	2,759	18,968	-	3,643	7,666	\$53,116
Performance/Incentive Fees	-	(206)	-	18,303	-	1,788	(3,013)	\$16,872
Securities Lending Fees	144	-	42	56	-	64	-	\$306
Taxes and Insurance	-	609	-	-	-	-	-	\$609
Administration	180	-	-	-	1,904	-	-	\$2,084
Miscellaneous	28	3,429	-	28,288	-	1,007	1,424	\$34,176
Commission on Future Contracts	3	-	52	3	-	-	-	\$58
Consultant Fees	-	-	-	-	584	-	-	\$584
Custodial Fees	-	-	-	-	1,425	-	-	\$1,425
	\$23,765	\$10,690	\$4,328	\$67,678	\$3,913	\$7,156	\$6,077	\$123,607

External Investment Expenses - Insurance Asset Class/Type Breakdown

For the fiscal year ending June 30, 2023 (\$ in Thousands)

	Public Equity	Private Equity	Fixed Income	Specialty Credit	Cash	Real Return	Real Estate	Total
Fee for Long Balance	\$4	\$-	\$-	\$-	\$-	\$-	\$-	\$4
Securities Lending Fee Rebate	3,449	-	627	831	-	206	-	\$5,113
Investment Advisory Fees	6,115	4,438	1,028	8,251	-	1,646	3,468	\$24,946
Performance/Incentive Fees	-	960	-	8,673	-	809	(1,173)	\$9,269
Securities Lending Fees	59	-	14	23	-	20	-	\$116
Taxes and Insurance	-	306	-	-	-	-	-	\$306
Administration	81	-	-	-	827	-	-	\$908
Miscellaneous	12	1,608	-	12,578	-	504	611	\$15,313
Commission on Future Contracts	1	-	18	1	-	-	-	\$20
Consultant Fees	-	-	-	-	254	-	-	\$254
Custodial Fees	-	-	-	-	857	-	-	\$857
	\$9,721	\$7,312	\$1,687	\$30,357	\$1,938	\$3,185	\$2,906	\$57,106

The Governmental Accounting Standards Board recognizes that it may not be possible or cost-beneficial to separate certain investment expenses from either the related investment income or the general administrative expenses of the plan. KPPA has displayed all investment related fees and expenses identifiable and captured by our custodial bank, BNY Mellon and KPPA staff.

External Expenses

For the fiscal year ending June 30, 2023 (\$ in Thousands)

Expense	Fees Paid	Share of Total
Portfolio Management		
Pension Funds	\$106,922	59.17%
Insurance Fund	50,766	28.09%
Securities Lending		
Pension Funds	14,676	8.12%
Insurance Fund	5,229	2.90%
Custody		
Pension Funds	1,425	0.79%
Insurance Fund	857	0.47%
Consultant		
Pension Funds	584	0.32%
Insurance Fund	254	0.14%
Total Pension Funds		
	123,607	68.40%
Total Insurance Fund		
	57,106	31.60%
Total Expenses		
	\$180,713	100.00%

Schedule of Commissions Paid (in whole \$)

For the fiscal year ending June 30, 2023

Assets	Total Shares	Commissions Paid	Price per Share
U.S. Equities	44,926,514	\$829,621	0.0185
Non U.S. Equities	261,291,961	\$1,256,670	0.0048
Total	306,218,475	\$2,086,291	0.01

Fair Values (FV) - Pension Funds

As of June 30, 2023 (\$ in Thousands)

	CERS Nonhazardous		CERS Hazardous		KERS Nonhazardous		KERS Hazardous	
	Fair Value	% of Total FV	Fair Value	% of Total FV	Fair Value	% of Total FV	Fair Value	% of Total FV
Assets								
Equity								
Public Equity	\$4,387,287	50.46%	\$1,515,428	50.41%	\$1,185,535	33.66%	\$394,373	43.88%
Private Equity	689,035	7.93%	229,769	7.64%	159,851	4.54%	63,181	7.03%
Fixed Income								
Core Fixed Income	888,421	10.22%	308,173	10.25%	729,672	20.72%	109,211	12.15%
Specialty Credit	1,736,726	19.98%	598,736	19.92%	613,468	17.42%	181,856	20.23%
Cash	171,714	1.97%	88,772	2.95%	579,522	16.45%	74,740	8.31%
Inflation Protected								
Real Return	274,708	3.16%	91,713	3.05%	74,952	2.13%	24,885	2.77%
Real Estate	545,935	6.28%	173,707	5.78%	179,035	5.08%	50,563	5.63%
TOTAL PORTFOLIO	\$8,693,826		\$3,006,298		\$3,522,035		\$898,809	

Fair Values (FV) - Insurance Funds

As of June 30, 2023 (\$ in Thousands)

	CERS Nonhazardous		CERS Hazardous		KERS Nonhazardous		KERS Hazardous	
	Fair Value	% of Total FV	Fair Value	% of Total FV	Fair Value	% of Total FV	Fair Value	% of Total FV
Assets								
Equity								
Public Equity	\$1,655,332	50.55%	\$818,974	50.99%	\$646,377	44.51%	\$272,367	44.22%
Private Equity	268,197	8.19%	150,751	9.39%	94,391	6.50%	53,886	8.75%
Fixed Income								
Core Fixed Income	335,463	10.24%	152,820	9.52%	175,932	12.11%	74,605	12.11%
Specialty Credit	650,533	19.86%	321,600	20.02%	295,131	20.32%	130,980	21.26%
Cash	84,633	2.58%	9,538	0.59%	147,091	10.13%	20,951	3.40%
Inflation Protected								
Real Return	84,098	2.57%	44,445	2.77%	32,410	2.23%	17,822	2.89%
Real Estate	196,683	6.01%	107,912	6.72%	60,926	4.20%	45,368	7.37%
TOTAL PORTFOLIO	\$3,274,939		\$1,606,040		\$1,452,258		\$615,979	

Fair Values (FV) - Pension Funds

As of June 30, 2023 (\$ in Thousands)

	SPRS		Total	
	Fair Value	% of Total FV	Fair Value	% of Total FV
Assets				
Equity				
Public Equity	\$192,859	32.83%	\$7,675,482	45.94%
Private Equity	16,598	2.83%	1,158,434	6.93%
Fixed Income				
Core Fixed Income	121,978	20.76%	2,157,455	12.91%
Specialty Credit	101,770	17.32%	3,232,556	19.35%
Cash	121,919	20.75%	1,036,667	6.20%
Inflation Protected				
Real Return	10,917	1.86%	477,175	2.86%
Real Estate	21,466	3.65%	970,706	5.81%
TOTAL PORTFOLIO	\$587,507		\$16,708,475	

Fair Values (FV) - Insurance Funds

As of June 30, 2023 (\$ in Thousands)

	SPRS		Total	
	Fair Value	% of Total FV	Fair Value	% of Total FV
Assets				
Equity				
Public Equity	\$109,920	44.71%	\$3,502,970	48.68%
Private Equity	23,923	9.73%	591,148	8.22%
Fixed Income				
Core Fixed Income	28,602	11.63%	767,422	10.67%
Specialty Credit	52,177	21.22%	1,450,421	20.16%
Cash	7,194	2.93%	269,407	3.74%
Inflation Protected				
Real Return	6,699	2.73%	185,474	2.58%
Real Estate	17,319	7.05%	428,208	5.95%
TOTAL PORTFOLIO	\$245,834		\$7,195,050	

ACTUARIAL

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Certification of Actuarial Results

Re: Certification for the Actuarial Results as of June 30, 2023.

Dear Boards of Trustees:

Actuarial valuations are prepared annually as of June 30, for the County Employees Retirement System (CERS), the Kentucky Employees Retirement System (KERS), and the State Police Retirement System (SPRS). These reports describe the current actuarial condition of the Systems and document the calculated employer contribution requirements as well as the changes in the financial condition since the prior actuarial valuation.

Under Kentucky Statute, the Board of Trustees of the Kentucky Retirement System (KRS) must recommend the employer contribution requirement for KERS and SPRS for the fiscal years beginning July 1, 2024 and ending June 30, 2026. The Board of Trustees of the County Employees Retirement System must certify the employer contribution rates for CERS for the fiscal year beginning July 1, 2024 and ending June 30, 2025. The contribution requirements determined by June 30, 2023 actuarial valuations are intended to become effective twelve months after the valuation date and, as such, are intended to be used by the Board for recommending these required contributions effective July 1, 2024.

These contributions are calculated based on the membership data and plan assets as of June 30, 2023. These calculations are also based on the benefit provisions in effect as of June 30, 2023.

FINANCING OBJECTIVES AND FUNDING POLICY

The Kentucky Public Pensions Authority (KPPA) administers pension and health insurance funds to provide for monthly retirement income and retiree health insurance benefits. The total employer contribution requirement is comprised of a contribution to each respective fund.

The employer contribution is determined in accordance with Section 61.565 of Kentucky Statute. As specified by the Statute, the employer contribution is comprised of a normal cost contribution and an actuarial accrued liability contribution. The actuarial accrued liability contribution is calculated by amortizing the unfunded accrued liability as of June 30, 2019 over a closed 30-year amortization period (26 years remaining as of June 30, 2023). Gains and losses incurring in years after June 30, 2019 are amortized as separate, closed 20-year amortization bases.

If the contributions made are equal to the Actuarially Determined Contribution (ADC), and if all actuarial assumptions are met, there will not be an unfunded accrued liability at the end of the 26-year period remaining from the original closed 30-year amortization base. Accordingly, the ADC under the funding policy can be considered a "Reasonable Actuarially Determined Contribution" as required by the Actuarial Standards of Practice.

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

HB 1 and HB 604 were enacted in the 2022 legislative session and provided an additional \$135 million and \$105 million in appropriations to finance the unfunded actuarial accrued liability in the KERS non-hazardous retirement fund in FY 2023 and FY 2024. The previous year's valuation reflected the appropriations for FY 2023 in the calculated contribution requirement, and the appropriations for FY 2024 have been reflected in the contribution requirement in this year's valuation.



PROGRESS TOWARD REALIZATION OF FINANCING OBJECTIVES

The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) is a standard measure of a plan's funded status. In the absence of benefit improvements, assumption changes, or actuarial losses, it should increase over time, until it reaches at least 100%. As of June 30, 2023, the funded ratios for the pension and health insurance funds are as follows:

Funding Level As of June 30										
System	2023		2022		2021		2020		2019	
	Pension	Insurance	Pension	Insurance	Pension	Insurance	Pension	Insurance	Pension	Insurance
CERS										
Nonhazardous	56.1%	131.5%	52.0%	132.1%	51.8%	85.4%	49.4%	78.5%	49.1%	70.7%
CERS Hazardous	51.4%	100.7%	47.6%	101.0%	46.7%	84.3%	45.1%	78.2%	45.3%	75.8%
KERS										
Nonhazardous	21.8%	81.7%	18.5%	79.1%	16.8%	50.2%	14.2%	42.7%	13.4%	36.3%
KERS Hazardous	65.4%	170.4%	63.2%	172.2%	60.4%	135.5%	55.3%	126.0%	54.8%	123.1%
SPRS	54.0%	100.5%	52.5%	100.6%	30.7%	82.0%	28.1%	75.0%	27.0%	71.3%

ASSUMPTIONS AND METHODS

The Boards of Trustees, in consultation with the actuary, set the actuarial assumptions and methods used in the actuarial valuation. An experience study was conducted after the June 30, 2022 actuarial valuation and the Board adopted updated assumptions for use in this actuarial valuation.

The updated assumptions include:

Demographic Assumptions:

- Post-retirement mortality rates were updated based on KPPA experience.
- Mortality improvement assumption was updated to the ultimate rates of the MP-2020 mortality improvement scale.
- Rates of termination prior to retirement were increased.
- Rates of disability incidence for the KERS non-hazardous fund and CERS funds were decreased.
- The percentage of members assumed to cover spouses in the retiree health insurance plan at retirement was increased for the SPRS fund.



Economic Assumptions:

- The rate of inflation was increased from 2.30% to 2.50%.
- The salary productivity assumption was reduced by 0.20%, resulting in no change in the salary increase assumption for long-service employees of 3.30% in the non-hazardous funds and 3.55% in the hazardous funds.
- The individual rates of salary increases were increased during the select period for the CERS funds.
- The investment return assumption for the CERS pension funds and all insurances funds was increased from 6.25% to 6.50%.
- The Tier 3 cash balance interest crediting rate assumption was increased to 5.90% for the KERS non-hazardous and SPRS pension funds and to 6.75% for the KERS hazardous and CERS pension funds.

In our opinion, all the assumptions and methods adopted by the Boards Trustees satisfy the requirements in the Actuarial Standards of Practice that are applicable for actuarial valuations of public retirement systems.

It is our opinion that the actuarial assumptions used to perform these valuations are internally consistent and reasonably reflect the anticipated future experience of the Systems. The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can, and almost certainly will, differ as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution requirements, and funding periods. The actuarial calculations are intended to provide information for rational decision making.

ADDITIONAL DISCLOSURES

The benefit structure is outlined in this section of the annual report. GRS prepared the following schedules in the actuarial section: *Summary of Actuarial Valuation Results, Recommended Employer Contribution Rates, Summary of Actuarial Unfunded Liabilities, the Solvency Test, the Summary of Active Member Valuation Data, the Summary of Retired Member Valuation Data, Summary of the Assumptions and Methods, and the Summary of the Benefit Provisions.*

In addition, GRS prepared the following schedules in the financial section in accordance with GASB Statement No. 67: *Net Pension Liability Schedule, Discount Rate Sensitivity Analysis, Schedule of Changes in the Employers' Net Pension Liability, Schedule of Employers' Net Pension Liability, and the Schedule of Employers' Contributions.*

DATA

Member data for retired, active and inactive members was supplied as of June 30, 2023, by KPPA staff. The staff also supplied asset information as of June 30, 2023. We did not audit this data, but we did apply a number of tests to the data, and we concluded that it was reasonable and consistent with the prior year's data. GRS is not responsible for the accuracy or completeness of the information provided to us by KPPA.



CERTIFICATION

We certify that the information presented herein is accurate and fairly portrays the actuarial position of the Retirement Systems as of June 30, 2023. All of our work conforms with generally accepted actuarial principles and practices, and in conformity with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of Kentucky Code of Laws and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board.

To the best of our knowledge, this report is complete and accurate and is in accordance with generally recognized actuarial practices and methods. Mr. White and Ms. Shaw are Enrolled Actuaries. All three of the undersigned are members of the American Academy of Actuaries and meet all of the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. In addition, all three are independent of KPPA and are experienced in performing valuations for large public retirement systems. This communication shall not be construed to provide tax advice, legal advice or investment advice.

Sincerely,

Gabriel, Roeder, Smith & Co.

A handwritten signature in cursive script, appearing to read "Daniel J. White".

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

A handwritten signature in cursive script, appearing to read "Janie Shaw".

Janie Shaw, ASA, MAAA
Consultant

A handwritten signature in cursive script, appearing to read "Krysti Kiesel".

Krysti Kiesel, ASA, MAAA
Senior Analyst and Actuary

Summary of Actuarial Assumptions

The results of the actuarial valuation are based upon the assumptions and funding policies adopted by the Boards and statutory funding requirements. Assumptions and funding policies are reviewed against actual plan experience at least once every five years through the completion of the Actuarial Experience Study. In general, the assumptions and methods used in the June 30, 2023 valuation are based on the most recent actuarial experience study performed as of June 30, 2022, submitted, and adopted by the Boards in May and June 2023.

1. Actuarial Cost Method: The actuarial valuation was prepared using the entry age normal cost (EANC) method as required by state statute. Under this method, the present value of future benefits is determined for each member and allocated equitably as a level percentage of payroll from the member's entry age into the plan to the assumed age of exit from the plan. The portion of the present value of future benefits allocated to the current valuation year is called the normal cost. The portion of the present value of future benefits allocated to prior years of service is called the actuarial accrued liability. The unfunded actuarial accrued liability represents the difference between the actuarial accrued liability and the actuarial value of assets as of the valuation date. Relative to the pension fund and the insurance fund, an employer contribution has been established to pay for both the normal cost and the amount needed to amortize the unfunded actuarial accrued liability (UAAL).

2. UAAL Amortization Method: Effective for the June 30, 2019 valuation, the actuarial accrued liability contribution is calculated by amortizing the unfunded accrued liability as of June 30, 2019 over a closed 30-year amortization period. Gains and losses incurring in future years are amortized as separated closed 20-year amortization bases. This amortization cost is calculated using a 0.00% payroll growth assumption for the KERS and SPRS Funds and a 2.00% payroll growth assumption for the CERS Funds. Effective for fiscal years ending June 30, 2022 and later, the amortization cost for the KERS Nonhazardous funds is allocated amongst employers as a dollar amount based on the employers' actuarial accrued liability as of June 30, 2019. The amortization cost for the remaining funds is divided by covered payroll and included in the contribution rate, payable by employers as a percentage of pay.

3. Asset Valuation Method: The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected market value of assets, based on the investment return assumption. The amount recognized each year is 20% of the difference between market value and expected market value.

4. Retiree Insurance Funding Policy: Effective for the June 30, 2019 valuation, the actuarial accrued liability contribution is calculated by amortizing the unfunded accrued liability as of June 30, 2019, over a closed 30-year amortization period. Gains and losses incurring in future years are amortized as separated closed 20-year amortization bases. This amortization cost is calculated using a 0.00% payroll growth assumption for the KERS and SPRS Funds and a 2.00% payroll growth assumption for the CERS Funds. Effective for fiscal years ending June 30, 2022 and later, the amortization cost for the KERS Nonhazardous funds is allocated amongst employers as a dollar amount based on the employers' actuarial accrued liability as of June 30, 2019. The amortization cost for the remaining funds is divided by covered payroll and included in the contribution rate, payable by employers as a percentage of pay.

5. Investment Return Assumption: The future investment earnings of plan assets are assumed to accumulate at a rate of 6.50% per annum for the CERS Nonhazardous Retirement System, the CERS Hazardous Retirement System, and all Insurance Systems. This rate consists of a 2.50% price inflation component and a 4.00% real rate of return component. The assumed rate of return for the KERS Hazardous pension fund is 6.25% and consists of a 2.50% inflationary component and a 3.75% real rate of return component. The assumed rate of return for the KERS Nonhazardous pension fund and the SPRS pension fund is 5.25% and consist of a 2.50% inflationary component and a 2.75% real rate of return component. This assumption was adopted in 2023.

6. Salary Increase Assumptions: Active member salaries are assumed to increase at the rates provided in Table 1. The rates include a price inflation and productivity component, and an additional increase due to promotion based upon plan experience. The price inflation component is 2.50% for all plans and the productivity component is 0.80% for the nonhazardous systems and 1.05% for the hazardous systems. This assumption was adopted in 2023.

Table 1. Salary Increase Assumptions

Service	CERS		KERS		SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
0	10.30%	19.05%	15.30%	20.05%	16.05%
1	7.30%	9.05%	6.80%	7.55%	8.55%
2	6.30%	7.05%	6.05%	6.55%	7.55%
3	5.30%	6.05%	5.80%	6.55%	5.55%
4	5.05%	5.80%	5.30%	5.55%	5.55%
5	4.80%	5.55%	4.80%	5.05%	5.55%
6	4.55%	5.55%	4.55%	4.55%	5.55%
7	4.30%	5.05%	4.30%	4.05%	4.55%
8	4.05%	5.05%	4.05%	4.05%	4.55%
9	4.05%	4.55%	3.80%	3.55%	3.55%
10	3.80%	4.55%	3.80%	3.55%	3.55%
11	3.80%	4.05%	3.30%	3.55%	3.55%
12	3.55%	4.05%	3.30%	3.55%	3.55%
13	3.55%	4.05%	3.30%	3.55%	3.55%
14	3.55%	3.80%	3.30%	3.55%	3.55%
15+	3.30%	3.80%	3.30%	3.55%	3.55%
16+	3.30%	3.55%	3.30%	3.55%	3.55%

7. Health Care Cost Trend Rate:

The costs for retiree medical premiums are assumed to increase according to the assumptions provided in Table 2.

Table 2: Health Care Cost Trend Rate (See footnotes 1-2)

Year	Non-Medicare Plans ⁽¹⁾	Medicare Plans ⁽¹⁾	Dollar Contribution ⁽²⁾
2025	6.80%	8.50%	1.50%
2026	6.55%	8.00%	1.50%
2027	6.30%	8.00%	1.50%
2028	6.05%	8.00%	1.50%
2029	5.80%	7.50%	1.50%
2030	5.55%	7.00%	1.50%
2031	5.30%	6.50%	1.50%
2032	5.05%	6.00%	1.50%
2033	4.90%	5.50%	1.50%
2034	4.75%	5.00%	1.50%
2035	4.60%	4.50%	1.50%
2036	4.45%	4.05%	1.50%
2037	4.30%	4.05%	1.50%
2038+	4.05%	4.05%	1.50%

⁽¹⁾ All increases are assumed to occur on January 1. The 2024 premiums were known at the time of the June 30, 2023, valuation and were incorporated into the liability measurement.

⁽²⁾ Applies to members participating on or after July 1, 2003. All increases are assumed to occur on July 1.

8. Payroll Growth Assumption: For purposes of determining the amortization cost to finance the unfunded actuarial accrued liability, the active member payroll (or amortization payments for the KERS Nonhazardous fund) is assumed to increase at a rate of 0.00% per year for KERS (Nonhazardous and Hazardous) and SPRS and the active member payroll in CERS (Nonhazardous and Hazardous) is assumed to increase at the rate of 2.00% per annum. This assumption was adopted in 2017.

9. Retiree Cost of Living Adjustments (COLA): SB2 only allows the Cost of Living Adjustments (COLAs) to be awarded on a biennial basis if the State Legislature so authorizes and either (i) the system is over 100% funded or (ii) the Legislature appropriates sufficient funds to pay the increased liability for the COLA.

10. Retirement Rate Assumptions: The probability, or the likelihood, that a member will retire at a specified age or level of service is provided in Table 3. These assumptions were adopted in 2023.

Table 3a: Retirement Rate Assumptions CERS (See footnotes 1 - 3)

Age	Nonhazardous				Service	Hazardous		
	CERS Normal Retirement		CERS Early Retirement ⁽¹⁾			CERS Members Participating before 9/1/2008 ⁽²⁾	CERS Members Participating between 9/1/2008 and 1/1/2014 ⁽³⁾	CERS Members Participating after 1/1/2014 ⁽³⁾
	Male	Female	Male	Female				
Under 45	35.00%	27.00%			5	17.00%		
45	35.00%	27.00%			6	17.00%		
46	35.00%	27.00%			7	17.00%		
47	35.00%	27.00%			8	17.00%		
48	35.00%	27.00%			9	17.00%		
49	35.00%	27.00%			10	17.00%		
50	30.00%	27.00%			11	17.00%		
51	30.00%	27.00%			12	17.00%		
52	30.00%	27.00%			13	17.00%		
53	30.00%	27.00%			14	17.00%		
54	30.00%	27.00%			15	17.00%		
55	30.00%	27.00%	4.00%	5.00%	16	17.00%		
56	30.00%	27.00%	4.00%	5.00%	17	17.00%		
57	30.00%	27.00%	4.00%	5.00%	18	17.00%		
58	30.00%	27.00%	4.00%	5.00%	19	17.00%		
59	30.00%	27.00%	4.00%	5.00%	20	30.00%		
60	30.00%	27.00%	4.00%	8.00%	21	22.50%		
61	30.00%	27.00%	4.00%	9.00%	22	18.00%		
62	30.00%	40.00%	15.00%	20.00%	23	21.00%		
63	30.00%	35.00%	15.00%	18.00%	24	24.00%		
64	30.00%	30.00%	15.00%	16.00%	25	27.00%	21.60%	16.00%
65	30.00%	30.00%			26	30.00%	24.00%	16.00%
66	30.00%	27.00%			27	33.00%	26.40%	16.00%
67	30.00%	27.00%			28	36.00%	28.80%	16.00%
68	30.00%	27.00%			29	39.00%	31.20%	16.00%
69	30.00%	27.00%			30+	39.00%	31.20%	100.00%
70	30.00%	27.00%						
71	30.00%	27.00%						
72	30.00%	27.00%						
73	30.00%	27.00%						
74	30.00%	27.00%						
75	100.00%	100.00%						

(1) The annual rate of retirement is 11% for male members and 12% for female members with 25-26 years of service.

(2) The annual rate of retirement is 100% at age 62.

(3) The annual rate of retirement is 100% at age 60.

Nonhazardous System: There is a 1% increase in the first two years a member becomes eligible under the age if 65. For members hired after 7/1/2003, the rates shown above are multiplied by 80% if the member is under age 65 to reflect the different retiree health insurance benefit.

Hazardous System: For members hired after 7/1/2003 and prior to 9/1/2008, the rates shown above are multiplied by 80% if the member is under age 62 to reflect the different retiree health insurance benefit.

Table 3b: Retirement Rate Assumptions KERS (See footnotes 1 - 3)

Age	Non-Hazardous				Service	Hazardous			
	KERS Normal Retirement		KERS Early Retirement ⁽¹⁾			KERS Members participating before 9/1/2008 ⁽²⁾		KERS Members participating between 9/1/2008 and 1/1/2014 ⁽³⁾	KERS Members participating after 1/1/2014 ⁽³⁾
	Male	Female	Male	Female		Age 55-61	Age 62+		
Under 45	20.00%	33.00%			5	10.00%	35.00%		
45	21.00%	33.00%			6	10.00%	35.00%		
46	22.00%	33.00%			7	10.00%	35.00%		
47	23.00%	33.00%			8	10.00%	35.00%		
48	24.00%	33.00%			9	10.00%	35.00%		
49	25.00%	33.00%			10	10.00%	35.00%		
50	26.00%	33.00%			11	10.00%	35.00%		
51	27.00%	33.00%			12	10.00%	35.00%		
52	28.00%	33.00%			13	10.00%	35.00%		
53	29.00%	33.00%			14	10.00%	35.00%		
54	30.00%	33.00%			15	10.00%	35.00%		
55	30.00%	33.00%	5.00%	5.00%	16	10.00%	35.00%		
56	30.00%	33.00%	5.00%	5.00%	17	10.00%	35.00%		
57	30.00%	33.00%	5.00%	5.00%	18	10.00%	35.00%		
58	30.00%	33.00%	5.00%	5.00%	19	10.00%	35.00%		
59	30.00%	33.00%	5.00%	5.00%	20	50.00%	50.00%		
60	30.00%	33.00%	5.00%	8.00%	21	32.00%	32.00%		
61	30.00%	33.00%	8.00%	9.00%	22	32.00%	32.00%		
62	35.00%	35.00%	15.00%	20.00%	23	32.00%	32.00%		
63	30.00%	33.00%	15.00%	18.00%	24	32.00%	32.00%		
64	30.00%	33.00%	15.00%	16.00%	25	32.00%	32.00%	25.60%	16.00%
65	30.00%	33.00%			26	32.00%	32.00%	25.60%	16.00%
66	30.00%	33.00%			27	32.00%	32.00%	25.60%	16.00%
67	30.00%	33.00%			28	32.00%	32.00%	25.60%	16.00%
68	30.00%	33.00%			29	32.00%	32.00%	25.60%	16.00%
69	30.00%	33.00%			30+	32.00%	32.00%	25.60%	100.00%
70	30.00%	33.00%							
71	30.00%	33.00%							
72	30.00%	33.00%							
73	30.00%	33.00%							
74	30.00%	33.00%							
75	100.00%	100.00%							

(1) The annual rate of retirement is 12% for male members and 14% for female members with 25-26 years of service.

(2) The annual rate of retirement is 100% at age 65.

(3) The annual rate of retirement is 100% at age 60.

Nonhazardous System: There is a 1% increase in the first two years a member becomes eligible under the age of 65. For members hired after 7/1/2003, the rates shown above are multiplied by 80% if the member is under age 65 to reflect the different retiree health insurance benefit.

Hazardous System: For members hired after 7/1/2003 and prior to 9/1/2008, the rates shown above are multiplied by 80% if the member is under age 65 to reflect the different retiree health insurance benefit.

Table 3c: Retirement Rate Assumptions SPRS (See footnotes 1 - 2)

Service	Hazardous		
	SPRS Members Participating before 9/1/2008 ⁽¹⁾	SPRS Members participating between 9/1/2008 and 1/1/2014 ⁽²⁾	SPRS Members participating after 1/1/2014 ⁽²⁾
20	22.00%		
21	22.00%		
22	22.00%		
23	28.00%		
24	28.00%		
25	28.00%	17.60%	16.00%
26	28.00%	17.60%	16.00%
27	28.00%	17.60%	16.00%
28	44.00%	22.40%	16.00%
29	44.00%	22.40%	16.00%
30	44.00%	22.40%	100.00%
31	58.00%	22.40%	
32	58.00%	22.40%	
33	58.00%	35.20%	
34	58.00%	35.20%	
35	58.00%	35.20%	
36	58.00%	46.40%	
37	58.00%	46.40%	
38	58.00%	46.40%	
39	58.00%	46.40%	
40+	58.00%	46.40%	

(1) The annual rate of service retirement is 100% at age 55.

(2) The annual rate of service retirement is 100% at age 60.

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

11. Mortality Assumptions: Pre-retirement mortality: PUB-2010 General Mortality table, for the Nonhazardous Systems, and the PUB-2010 Public Safety Mortality table for the Hazardous Systems, projected with the ultimate rates from the MP-2020 mortality improvement scale using a base year of 2010.

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

Table 4a provides the life expectancy for a non-disabled retiree in future years based on the assumption with full generational projection:

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

These mortality assumptions were adopted in 2023. Table 4b provides sample annual rates of mortality in the base year of each table (2023 for the retired member mortality rates and 2010 for the active member and disabled member mortality rates).

Table 4a: Life Expectancy for an Age 65 Retiree in Years					
Gender	Year of Retirement				
	2025	2030	2035	2040	2045
Male	19.8	20.2	20.6	21.0	21.3
Female	22.4	22.7	23.1	23.4	23.7

Table 4b: Sample Annual Rate of Mortality								
Age	Active Member Mortality		Active Member Mortality		Retired Member Mortality		Disabled Member Mortality	
	Nonhazardous		Hazardous					
	Males	Females	Males	Females	Males	Females	Males	Females
20	0.04%	0.01%	0.04%	0.02%	0.03%	0.01%	0.62%	0.35%
22	0.03%	0.01%	0.04%	0.02%	0.03%	0.01%	0.53%	0.29%
32	0.04%	0.02%	0.04%	0.03%	0.04%	0.02%	0.59%	0.46%
42	0.08%	0.04%	0.07%	0.06%	0.07%	0.04%	1.14%	1.13%
52	0.18%	0.10%	0.14%	0.10%	0.32%	0.21%	2.73%	2.38%
62	0.37%	0.22%	0.32%	0.19%	0.94%	0.55%	4.02%	3.08%
72	0.84%	0.60%	0.98%	0.60%	2.38%	1.48%	6.52%	4.86%

12. Withdrawal Rates: The probability, or likelihood, of active members terminating employment prior to retirement is provided in Table 5. The rates below include the pre-retirement mortality rates described in item #11. These assumptions were adopted in 2023.

Table 5: Selected Rates of Termination Prior to Retirement							
CERS Nonhazardous		CERS Hazardous	KERS Nonhazardous		KERS Hazardous	SPRS	
Years of Service			Years of Service			Years of Service	
1	20.00%	20.00%	1	22.00%	32.50%	1	15.00%
2	17.92%	10.48%	2	18.10%	25.58%	2	5.30%
3	14.35%	8.33%	3	14.73%	19.66%	3	4.14%
4	12.26%	7.06%	4	12.77%	16.19%	4	3.47%
5	10.78%	6.18%	5	11.37%	13.73%	5	2.98%
6	9.63%	5.47%	6	10.29%	11.82%	6	2.61%
7	8.69%	4.91%	7	9.41%	10.26%	7	2.30%
8	7.90%	4.43%	8	8.66%	8.93%	8	2.05%
9	7.21%	4.01%	9	8.01%	7.79%	9	1.83%
10	6.60%	3.66%	10	7.44%	6.79%	10	1.63%
11	6.06%	3.32%	11	6.93%	5.89%	11	1.45%
12	5.57%	3.02%	12	6.47%	5.07%	12	1.29%
13	5.12%	2.76%	13	6.04%	4.33%	13	1.14%
14	4.70%	2.51%	14	5.65%	3.64%	14	1.01%
15	4.32%	2.28%	15	5.29%	3.00%	15	0.88%
16	3.97%	2.07%	16	4.95%	2.42%	16	0.77%
17	3.63%	1.86%	17	4.64%	1.86%	17	0.66%
18	3.32%	1.68%	18	4.36%	1.34%	18	0.56%
19	3.04%	1.50%	19	4.07%	0.86%	19	0.46%
20	2.75%	1.33%	20	3.82%	0.39%	20	0.37%
21	2.48%	0.00%	21	3.56%	0.00%	21	0.00%
22	2.23%	0.00%	22	3.32%	0.00%	22	0.00%
23	2.00%	0.00%	23	3.10%	0.00%	23	0.00%
24	1.77%	0.00%	24	2.88%	0.00%	24	0.00%
25	1.55%	0.00%	25	2.67%	0.00%	25	0.00%
26+	0.00%	0.00%	26+	0.00%	0.00%	26+	0.00%

13. Rates of Disablement: CERS/KERS/SPRS provides disability benefits for those individuals meeting specific qualifications established by state law. This assumption provides the probability, or likelihood, that a member will become disabled during the course of employment for various age levels. These assumptions were adopted in 2023.

Table 6: Sample Rates of Disablement					
Nearest Age	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
	Probability	Probability	Probability	Probability	Probability
20	0.04%	0.06%	0.03%	0.05%	0.05%
30	0.06%	0.11%	0.05%	0.08%	0.09%
40	0.13%	0.24%	0.11%	0.18%	0.20%
50	0.37%	0.67%	0.31%	0.50%	0.56%
60	0.97%	1.75%	0.80%	1.32%	1.46%

14. Assumption Changes Since Prior Valuation: Demographic and Economic assumptions were updated based on the 2022 experience study. A 1% increase in the rate of retirement for each of the first two years a nonhazardous member becomes retirement eligible under the age of 65 is assumed to reflect the shift in retirement pattern due to House Bill 506. Additionally, in conjunction with the review of the healthcare per capita claims cost, the assumed increase in the future healthcare costs, or trend assumption, is reviewed on an annual basis. The trend assumption for the non-Medicare Plans was increased during the select period as a result of this review.

Summary of Actuarial Valuation Results					
Recommended Contribution Rate (FY 2025)⁽¹⁾	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
Pension Fund Contribution	19.71%	36.49%	6.99%	23.74%	65.79%
Insurance Fund Contribution	0.00%	2.12%	1.45%	0.00%	2.31%
Actuarially Determined Employer Contributions Rate ⁽²⁾ , payable as a percentage of payroll	19.71%	38.61%	8.44%	23.74%	68.10%
Amortization Cost to be Allocated, if applicable	N/A	N/A	\$856,561,041	N/A	N/A
Funded Status as of Valuation Date As of June 30, 2023 (in Whole \$)					
Pension Fund					
Actuarial Liability	\$15,296,428,191	\$5,849,996,034	\$16,304,277,475	\$1,363,036,563	\$1,091,794,728
Actuarial Value of Assets	8,585,072,563	3,008,146,724	3,552,471,492	891,460,165	589,848,255
Unfunded Liability on Actuarial Value of Assets	6,711,355,628	2,841,849,310	12,751,805,983	471,576,398	501,946,473
Funding Ratio on Actuarial Value of Assets	56.12%	51.42%	21.79%	65.40%	54.03%
Market Value of Assets	8,672,597,255	3,035,192,206	3,539,942,510	893,533,383	591,514,353
Unfunded Liability on Market Value of Assets	\$6,623,830,936	\$2,814,803,828	\$12,764,334,965	\$469,503,180	\$500,280,375
Funding Ratio on Market Value of Assets	56.70%	51.88%	21.71%	65.55%	54.18%
Insurance Fund					
Actuarial Liability	\$2,560,387,062	\$1,604,146,747	\$1,877,108,617	\$363,512,398	\$244,058,286
Actuarial Value of Assets	3,366,332,261	1,615,348,695	1,532,894,678	619,518,838	245,171,996
Unfunded Liability on Actuarial Value of Assets	(805,945,199)	(11,201,948)	344,213,939	(256,006,440)	(1,113,710)
Funding Ratio on Actuarial Value of Assets	131.48%	100.70%	81.66%	170.43%	100.46%
Market Value of Assets	3,398,374,988	1,634,191,785	1,532,752,170	625,356,052	248,109,091
Unfunded Liability on Market Value of Assets	\$(837,987,926)	\$(30,045,038)	\$344,356,447	\$(261,843,654)	\$(4,050,805)
Funding Ratio on Market Value of Assets	132.73%	101.87%	81.65%	172.03%	101.66%
Member Data (See Footnotes)					
Number of Active Members	78,810	9,205	31,383	3,886	868
Total Annual Payroll (Active Members) ⁽³⁾	\$2,898,812,630	\$677,987,564	\$1,615,867,787	\$211,601,653	\$65,912,885
Average Annual Pay (Active Members)	\$36,782	\$73,654	\$51,489	\$54,452	\$75,937
Number of Retired Members & Beneficiaries	70,932	11,603	48,409	4,887	1,697
Average Annual Retirement Allowance	\$12,056	\$27,366	\$20,333	\$15,320	\$37,298
Number of Vested Inactive Members	50,491	1,835	31,085	2,326	324
Number of Inactive Members Due a Refund	60,595	2,452	24,895	6,251	390
⁽¹⁾ Rates do reflect the CERS phase-in provisions, which limit the increases to the employer contribution rates to 12% over the prior fiscal year through June 30, 2028. However, the actuarially determined employer contribution rates are below this threshold for FYE2025, and therefore, the rates shown above are equal to the actuarially determined rates.					
⁽²⁾ For the KERS Nonhazardous fund, contribution rate includes the normal cost portion of the contribution requirement only. Amortization cost will be allocated to employers as a dollar amount.					
⁽³⁾ Annual payroll included in the Summary of Actuarial Valuation Results is based upon the annualized monthly payroll for active members as of the valuation date. The annual payroll recorded in the financial section is based upon the sum of the monthly payroll for active members recorded for each month of fiscal year ending June 30, 2023.					

CERS Funds

The Insurance Fund contribution rates and the employer contribution rates for CERS Nonhazardous and CERS Hazardous shown in the tables below are the full funding rates presented by the actuary in the 2014 through 2023 annual valuations.

House Bill 362 was enacted during the 2018 legislative session that limits the annual increase in the CERS employer contribution over the prior fiscal year to 12% per year for the period of July 1, 2018 to June 30, 2028, or until the full actuarial required contribution is met.

**Recommended Employer Contribution Rates
As of June 30**

CERS (Nonhazardous Employers)						
Valuation Date	Applicable Fiscal Year	Pension Fund Normal Cost	Pension Fund: Payment on Unfunded Liability	Pension Fund Contribution	Insurance Fund Contribution	Recommended Employer Contribution
2014	2015-2016	4.23%	8.19%	12.42%	4.88%	17.30%
2015	2016-2017	3.80%	10.15%	13.95%	4.93%	18.88%
2016	2017-2018	3.70%	10.78%	14.48%	4.70%	19.18%
2017	2018-2019	5.85%	15.99%	21.84%	6.21%	28.05%
2018	2019-2020	5.80%	16.72%	22.52%	4.76%	27.28%
2019	2020-2021	6.63%	17.18%	23.81%	5.43%	29.24%
2020	2021-2022	6.46%	17.42%	23.88%	4.17%	28.05%
2021	2022-2023	6.30%	17.10%	23.40%	3.39%	26.79%
2022	2023-2024	6.06%	17.28%	23.34%	0.00%	23.34%
2023	2024-2025	5.29%	14.42%	19.71%	0.00%	19.71%

CERS (Hazardous Employers)

Valuation Date	Applicable Fiscal Year	Pension Fund Normal Cost	Pension Fund: Payment on Unfunded Liability	Pension Fund Contribution	Insurance Fund Contribution	Recommended Employer Contribution
2014	2015-2016	6.21%	14.05%	20.26%	13.42%	33.68%
2015	2016-2017	4.52%	17.19%	21.71%	9.79%	31.50%
2016	2017-2018	4.40%	17.80%	22.20%	9.35%	31.55%
2017	2018-2019	6.78%	28.91%	35.69%	12.17%	47.86%
2018	2019-2020	6.35%	30.63%	36.98%	9.52%	46.50%
2019	2020-2021	11.36%	30.66%	42.02%	9.86%	51.88%
2020	2021-2022	11.00%	32.23%	43.23%	8.73%	51.96%
2021	2022-2023	10.71%	32.10%	42.81%	6.78%	49.59%
2022	2023-2024	10.34%	30.77%	41.11%	2.58%	43.69%
2023	2024-2025	9.77%	26.72%	36.49%	2.12%	38.61%

The insurance fund contribution rates and the employer contribution rates for CERS Nonhazardous and CERS Hazardous shown in the above tables are the full funding rates presented by the actuary in the 2014 through 2023 annual valuations. However, in the case of CERS Nonhazardous and CERS Hazardous, in 2006 the actuary recommended a five-year phase-in of the rate which requires the payment of the insurance benefit normal cost with a five-year phase-in of the unfunded accrued liability (UAL) associated with the insurance funds. In 2008 this recommendation was changed to a ten-year phase-in from the initial starting date. This phase-in was complete and the full actuarial rates were paid in FYE 2018. HB 362 (passed during the 2018 legislative session) limited the employer contribution rate increases to 12% per year over the prior fiscal year for the period of July 1, 2018 to June 30, 2028. SB 249 (passed during the 2020 legislative session) froze the contribution rates for one year so that the rates for FYE 2021 were equal to FYE 2020. As of FYE 2023, the CERS contributions rates were fully phased-in and the actual employer contribution rates equaled the actuarially determined rates shown above.

KERS Funds

The contribution rates for KERS Nonhazardous and KERS Hazardous shown in the tables below are the full funding rates presented by the actuary for 2014 through 2023 annual valuations. However, actual employer contributions were less than the recommended rates for years 2009 through 2014. SB 2 (2013 Legislative Regular Session) required full funding starting in fiscal year 2015. HB 265 from the 2018 legislative session reduced the employer contribution rate for KERS quasi-governmental agencies to the fiscal year 2018 rate for fiscal year 2019, which was 49.47%. The 2019 Special Legislative Session HB 1 sets the employer contribution rate at 49.47%, retroactive to July 1, 2019, for fiscal year 2020 for KERS quasi-governmental agencies. House Bill 8 passed during the 2021 legislative session and changed how employer contributions are allocated and collected from the participating employers in the KERS Nonhazardous Fund. Each employer will pay a normal cost contribution on the payroll of their covered employees and contribute to the fund an allocated share of the cost required to amortize the unfunded liability.

Recommended Employer Contribution Rates As of June 30						
KERS (Nonhazardous Employers)						
Valuation Date	Applicable Fiscal Year	Pension Fund Normal Cost	Pension Fund: Payment on Unfunded Liability	Pension Fund Contribution	Insurance Fund Contribution	Recommended Employer Contribution
2014	2015-2016	4.10%	29.47%	33.57%	7.74%	41.31%
2015	2016-2017	3.60%	35.33%	38.93%	8.35%	47.28%
2016	2017-2018	4.93%	37.05%	41.98%	8.41%	50.39%
2017	2018-2019	8.17%	62.86%	71.03%	12.40%	83.43%
2018	2019-2020	7.98%	66.56%	74.54%	10.65%	85.19%
2019	2020-2021	7.99%	65.29%	73.28%	11.15%	84.43%
Valuation Date	Applicable Fiscal Year	Pension Fund Normal Cost	Insurance Fund: Normal Cost	Normal Cost Contribution	Amortization Cost to be Allocated	
2020	2021-2022	7.90%	2.20%	10.10%	\$1,039,849,248	
2021	2022-2023	7.82%	2.15%	9.97%	\$994,421,476	
2022	2023-2024	7.74%	1.86%	9.60%	\$905,892,818	
2023	2024-2025	6.99%	1.45%	8.44%	\$856,561,041	

KERS (Hazardous Employers)						
Valuation Date	Applicable Fiscal Year	Pension Fund Normal Cost	Pension Fund: Payment on Unfunded Liability	Pension Fund Contribution	Insurance Fund Contribution	Recommended Employer Contribution
2014	2015-2016	5.69%	11.40%	17.09%	7.12%	24.21%
2015	2016-2017	6.93%	14.15%	21.08%	2.74%	23.82%
2016	2017-2018	6.44%	14.04%	20.48%	1.34%	21.82%
2017	2018-2019	9.67%	24.72%	34.39%	2.46%	36.85%
2018	2019-2020	9.24%	25.18%	34.42%	0.00%	34.42%
2019	2020-2021	9.21%	26.79%	36.00%	0.00%	36.00%
2020	2021-2022	8.84%	24.59%	33.43%	0.00%	33.43%
2021	2022-2023	8.78%	23.04%	31.82%	0.00%	31.82%
2022	2023-2024	8.60%	21.52%	30.12%	0.00%	30.12%
2023	2024-2025	7.71%	16.03%	23.74%	0.00%	23.74%

The contribution rates for KERS Nonhazardous and KERS Hazardous shown in the above tables are the full funding rates presented by the actuary in the 2014 through 2023 annual valuations. HB 265 (passed during the 2018 legislative session), HB 1 (passed during the 2019 special legislative session), and HB 352 (passed during the 2020 legislative session) reduced the FYE 2019-2021 employer contribution rate to 49.47% for Regional Mental Health/Mental Retardation Boards, Local and District Health Departments, State Universities, Community Colleges and any other agencies eligible to voluntarily cease participating in the KERS Nonhazardous fund. HB 8 (passed during the 2021 legislative session) changed how employer contributions are allocated and collected amongst employers in the KERS Nonhazardous fund effective for FYE2022. The normal cost is collected as a percentage of covered payroll and the amortization cost is allocated to employers as a dollar amount based on their accrued liability as of June 30, 2019. Amortization cost shown above reflects the amortization required as of the valuation date and does not reflect any adjustment for the cessation of any employers after the valuation date.

SPRS Funds

The contribution rates for SPRS shown in the below tables are the full funding rates presented by the actuary in the 2014 through 2023 annual valuations. However, the actual employer contribution rates have been less than those shown below. As a result of HB1 passed in 2008 the statute called for an employer contribution rate at an increasing percentage of the full funding rates. SB2 (2013 Regular Legislative Session) eliminated this phase-in beginning with the June 30, 2013, actuarial valuation.

Recommended Employer Contribution Rates

As of June 30

SPRS Employers

Valuation Date	Applicable Fiscal Year	Pension Fund Normal Cost	Pension Fund: Payment on Unfunded Liability	Pension Fund Contribution	Insurance Fund Contribution	Recommended Employer Contribution
2014	2015-2016	8.39%	50.05%	58.44%	19.17%	77.61%
2015	2016-2017	8.77%	57.70%	66.47%	18.87%	85.34%
2016	2017-2018	11.16%	60.41%	71.57%	18.10%	89.67%
2017	2018-2019	16.21%	102.84%	119.05%	27.23%	146.28%
2018	2019-2020	15.81%	104.73%	120.54%	19.50%	140.04%
2019	2020-2021	19.39%	104.40%	123.79%	19.69%	143.48%
2020	2021-2022	19.04%	108.95%	127.99%	18.07%	146.06%
2021	2022-2023	18.60%	66.72%	85.32%	14.11%	99.43%
2022	2023-2024	19.49%	65.90%	85.39%	3.68%	89.07%
2023	2024-2025	19.41%	46.38%	65.79%	2.31%	68.10%

The contribution rates for SPRS shown in the above tables are the full funding rates presented by the actuary in the 2014 through 2023 annual valuations.

Summary of Actuarial Unfunded Liabilities

As of June 30 (\$ in Thousands)

CERS (Nonhazardous Pension Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liability		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2014	\$9,772,523	\$6,117,134	\$6,507,300	\$3,655,389	\$3,265,222	62.60%	66.59%
2015	10,740,325	6,474,849	6,416,854	4,265,477	4,323,472	60.29%	59.75%
2016	11,076,457	6,535,372	6,106,187	4,541,084	4,970,270	59.00%	55.13%
2017	12,803,509	6,764,873	6,687,237	6,038,636	6,116,272	52.84%	52.23%
2018	13,191,505	6,950,225	7,018,963	6,241,280	6,172,542	52.69%	53.21%
2019	14,356,114	7,049,527	7,159,921	7,306,587	7,196,192	49.10%	49.87%
2020	14,610,867	7,220,607	7,027,327	7,390,260	7,583,540	49.42%	48.10%
2021	14,894,907	7,715,884	8,565,652	7,179,023	6,329,254	51.80%	57.51%
2022	15,674,220	8,148,912	7,963,586	7,525,308	7,710,634	51.99%	50.81%
2023	\$15,296,428	\$8,585,072	\$8,672,597	\$6,711,356	\$6,623,831	56.12%	56.70%

CERS (Nonhazardous Insurance Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liability		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2014	\$2,616,915	\$1,831,199	\$1,899,557	\$785,715	\$717,357	69.98%	72.59%
2015	2,907,827	1,997,456	1,948,454	910,371	959,373	68.69%	67.01%
2016	2,988,121	2,079,811	1,943,757	908,310	1,044,364	69.60%	65.05%
2017	3,355,151	2,227,401	2,212,536	1,127,750	1,142,616	66.39%	65.94%
2018	3,092,623	2,371,430	2,414,126	721,193	678,497	76.68%	78.06%
2019	3,567,947	2,523,249	2,569,511	1,044,698	998,435	70.72%	72.02%
2020	3,392,086	2,661,351	2,581,613	730,735	810,473	78.46%	76.11%
2021	3,450,485	2,947,312	3,246,801	503,172	203,683	85.42%	94.10%
2022	2,391,990	3,160,084	3,079,984	(768,094)	(687,994)	132.11%	128.76%
2023	\$2,560,387	\$3,366,332	\$3,398,375	\$(805,945)	\$(837,988)	131.48%	132.73%

CERS (Hazardous Pension Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liability		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2014	\$3,288,826	\$1,967,640	\$2,082,998	\$1,321,186	\$1,205,827	59.83%	63.34%
2015	3,613,308	2,096,783	2,073,397	1,516,525	1,539,911	58.03%	57.38%
2016	3,704,456	2,139,119	2,003,669	1,565,337	1,700,787	57.74%	54.09%
2017	4,649,047	2,238,320	2,217,996	2,410,726	2,431,051	48.15%	47.71%
2018	4,792,548	2,321,721	2,348,337	2,470,827	2,444,211	48.44%	49.00%
2019	5,245,365	2,375,106	2,413,708	2,870,258	2,831,657	45.28%	46.02%
2020	5,431,298	2,447,885	2,379,704	2,983,413	3,051,595	45.07%	43.81%
2021	5,629,458	2,628,621	2,914,408	3,000,837	2,715,050	46.69%	51.77%
2022	5,861,691	2,788,714	2,718,234	3,072,977	3,143,457	47.58%	46.37%
2023	\$5,849,996	\$3,008,147	\$3,035,192	\$2,841,849	\$2,814,804	51.42%	51.88%

CERS (Hazardous Insurance Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liability		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2014	\$1,493,864	\$997,733	\$1,034,308	\$496,131	\$459,557	66.79%	69.24%
2015	1,504,015	1,087,707	1,061,561	416,308	442,454	72.32%	70.58%
2016	1,558,818	1,135,784	1,062,602	423,034	496,216	72.86%	68.17%
2017	1,788,433	1,196,780	1,189,001	591,653	599,431	66.92%	66.48%
2018	1,684,028	1,256,306	1,280,982	427,722	403,046	74.60%	76.07%
2019	1,732,879	1,313,659	1,340,714	419,221	392,165	75.81%	77.37%
2020	1,740,971	1,362,028	1,321,117	378,943	419,854	78.23%	75.88%
2021	1,751,203	1,475,635	1,627,824	275,568	123,379	84.26%	92.95%
2022	1,538,131	1,553,761	1,522,671	(15,630)	15,460	101.02%	98.99%
2023	\$1,604,147	\$1,615,349	\$1,634,192	\$(11,202)	\$(30,045)	100.70%	101.87%

Summary of Actuarial Unfunded Liabilities

As of June 30 (\$ in Thousands)

KERS (Nonhazardous Pension Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liabilities		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2014	\$11,550,110	\$2,423,957	\$2,560,420	\$9,126,154	\$8,989,691	20.99%	22.17%
2015	12,359,673	2,350,990	2,307,858	10,008,683	10,051,815	19.02%	18.67%
2016	13,224,698	2,112,287	1,953,422	11,112,412	11,271,276	15.97%	14.77%
2017	15,591,641	2,123,623	2,056,870	13,468,018	13,534,771	13.62%	13.19%
2018	15,675,232	2,019,278	2,004,446	13,655,954	13,670,786	12.88%	12.79%
2019	16,466,427	2,206,280	2,233,672	14,260,147	14,232,755	13.40%	13.57%
2020	16,348,962	2,323,298	2,308,080	14,025,663	14,040,882	14.21%	14.12%
2021	16,321,373	2,735,876	3,018,660	13,585,497	13,302,713	16.76%	18.50%
2022	16,576,631	3,065,263	3,013,845	13,511,368	13,562,786	18.49%	18.18%
2023	\$16,304,277	\$3,552,471	\$3,539,942	\$12,751,806	\$12,764,335	21.79%	21.71%

KERS (Nonhazardous Insurance Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liabilities		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2014	\$2,226,760	\$621,237	\$664,776	\$1,605,523	\$1,561,984	27.90%	29.85%
2015	2,413,705	695,018	687,684	1,718,687	1,726,021	28.79%	28.49%
2016	2,456,678	743,270	695,189	1,713,408	1,761,489	30.26%	28.30%
2017	2,683,496	823,918	817,370	1,859,578	1,866,126	30.70%	30.46%
2018	2,435,506	887,121	891,205	1,548,385	1,544,301	36.42%	36.59%
2019	2,733,065	991,427	995,089	1,741,639	1,737,977	36.28%	36.41%
2020	2,564,788	1,095,959	1,060,649	1,468,829	1,504,139	42.73%	41.35%
2021	2,574,112	1,291,472	1,419,477	1,282,640	1,154,634	50.17%	55.14%
2022	1,782,386	1,409,553	1,364,419	372,833	417,967	79.08%	76.55%
2023	\$1,877,109	\$1,532,895	\$1,532,752	\$344,214	\$344,357	81.66%	81.65%

KERS (Hazardous Pension Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liabilities		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2014	\$816,850	\$527,897	\$559,504	\$288,953	\$257,346	64.63%	68.50%
2015	895,433	556,688	550,120	338,746	345,313	62.17%	61.44%
2016	936,706	559,487	524,679	377,219	412,027	59.73%	56.01%
2017	1,121,420	607,159	601,529	514,261	519,891	54.14%	53.64%
2018	1,151,923	639,262	645,485	512,661	506,438	55.50%	56.04%
2019	1,226,195	671,647	680,932	554,548	545,262	54.77%	55.53%
2020	1,283,770	709,587	690,350	574,183	593,420	55.27%	53.78%
2021	1,295,243	782,496	866,141	512,747	429,102	60.41%	66.87%
2022	1,316,825	832,436	810,978	484,389	505,847	63.22%	61.59%
2023	\$1,363,037	\$891,460	\$893,534	\$471,577	\$469,503	65.40%	65.55%

KERS (Hazardous Insurance Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liabilities		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2014	\$396,987	\$419,396	\$435,504	(22,409)	(38,517)	105.64%	109.70%
2015	374,904	451,514	441,626	(76,610)	(66,722)	120.43%	117.80%
2016	377,745	473,160	440,596	(95,415)	(62,851)	125.26%	116.64%
2017	419,440	493,458	488,838	(74,019)	(69,399)	117.65%	116.55%
2018	393,481	511,441	519,072	(117,961)	(125,592)	129.98%	131.92%
2019	426,705	525,315	534,053	(98,610)	(107,348)	123.11%	125.16%
2020	427,977	539,251	521,755	(111,275)	(93,778)	126.00%	121.91%
2021	424,456	575,025	633,677	(150,569)	(209,221)	135.47%	149.29%
2022	347,044	597,701	588,162	(250,657)	(241,118)	172.23%	169.48%
2023	\$363,512	\$619,519	\$625,356	\$(256,007)	\$(261,844)	170.43%	172.03%

Summary of Actuarial Unfunded Liabilities As of June 30 (\$ in Thousands)

SPRS (Pension)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liability		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2014	\$681,118	\$242,742	\$260,763	\$438,377	\$420,355	35.64%	38.28%
2015	734,156	248,388	246,968	485,769	487,188	33.83%	33.64%
2016	775,160	234,568	217,594	540,593	557,566	30.26%	28.07%
2017	967,145	261,320	255,737	705,824	711,408	27.02%	26.44%
2018	989,528	268,259	267,572	721,269	721,956	27.11%	27.04%
2019	1,045,318	282,162	286,165	763,156	759,153	26.99%	27.38%
2020	1,053,157	296,126	293,949	757,031	759,208	28.12%	27.91%
2021	1,053,260	323,250	356,346	730,009	696,914	30.69%	33.83%
2022	1,067,447	559,973	551,699	507,474	515,748	52.46%	51.68%
2023	\$1,091,795	\$589,848	\$591,514	\$501,947	\$500,281	54.03%	54.18%

SPRS (Insurance)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liability		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2014	\$234,271	\$155,595	\$165,168	\$78,676	\$69,103	66.42%	70.50%
2015	254,839	167,775	165,018	87,064	89,821	65.84%	64.75%
2016	257,197	172,704	161,366	84,494	95,831	67.15%	62.74%
2017	276,641	180,464	178,838	96,178	97,803	65.23%	64.65%
2018	262,088	187,535	190,847	74,553	71,242	71.55%	72.82%
2019	276,809	197,395	201,206	79,415	75,604	71.31%	72.69%
2020	276,143	207,018	201,340	69,126	74,803	74.97%	72.91%
2021	272,406	223,251	247,318	49,154	25,088	81.96%	90.79%
2022	232,798	234,239	231,242	(1,441)	1,556	100.62%	99.33%
2023	\$244,058	\$245,172	\$248,109	\$(1,114)	\$(4,051)	100.46%	101.66%

Solvency Test**As of June 30 (\$ in Thousands)****CERS (Nonhazardous Pension Fund)**

Actuarial Liabilities								
Valuation Date	(1)	(2)	(3)	Actuarial Value of Assets	% of Actuarial Liabilities Covered by Actuarial Assets			
	Active Member Contributions	Retired Members & Beneficiaries	Active Members (Employer Portion)		(1)	(2)	(3)	
2014	\$1,204,383	\$5,873,279	\$2,694,860	\$6,117,134	100.00%	83.60%	0.00%	
2015	1,216,585	6,489,863	3,033,878	6,474,849	100.00%	81.00%	0.00%	
2016	1,231,027	6,785,530	3,059,900	6,535,372	100.00%	78.20%	0.00%	
2017	1,277,432	7,731,682	3,794,396	6,764,873	100.00%	71.00%	0.00%	
2018	1,269,287	8,196,719	3,725,500	6,950,225	100.00%	69.30%	0.00%	
2019	1,280,679	8,905,545	4,169,890	7,049,527	100.00%	64.80%	0.00%	
2020	1,312,554	9,088,237	4,210,077	7,220,607	100.00%	65.00%	0.00%	
2021	1,324,826	9,397,968	4,172,112	7,715,883	100.00%	68.00%	0.00%	
2022	1,335,758	10,021,345	4,317,117	8,148,912	100.00%	68.00%	0.00%	
2023	\$1,341,594	\$9,791,605	\$4,163,230	\$8,585,073	100.00%	74.00%	0.00%	

CERS (Nonhazardous Insurance Fund)

Actuarial Liabilities								
Valuation Date	(1)	(2)	(3)	Actuarial Value of Assets	% of Actuarial Liabilities Covered by Actuarial Assets			
	Active Member Contributions	Retired Members & Beneficiaries	Active Members (Employer Portion)		(1)	(2)	(3)	
2014	\$-	\$1,318,183	\$1,298,732	\$1,831,199	100.00%	100.00%	39.50%	
2015	-	1,372,597	1,535,231	1,997,456	100.00%	100.00%	40.70%	
2016	-	1,484,937	1,503,184	2,079,811	100.00%	100.00%	39.60%	
2017	-	1,603,438	1,751,713	2,227,401	100.00%	100.00%	35.60%	
2018	-	1,525,322	1,567,301	2,371,430	100.00%	100.00%	54.00%	
2019	-	1,830,692	1,737,255	2,523,249	100.00%	100.00%	39.90%	
2020	-	1,746,160	1,645,926	2,661,351	100.00%	100.00%	55.60%	
2021	-	1,835,734	1,614,751	2,947,312	100.00%	100.00%	68.80%	
2022	-	1,055,375	1,336,615	3,160,084	100.00%	100.00%	100.00%	
2023	\$-	\$1,256,529	\$1,303,858	\$3,366,332	100.00%	100.00%	100.00%	

CERS (Hazardous Pension Fund)

Actuarial Liabilities								
Valuation Date	(1)	(2)	(3)	Actuarial Value of Assets	% of Actuarial Liabilities Covered by Actuarial Assets			
	Active Member Contributions	Retired Members & Beneficiaries	Active Members (Employer Portion)		(1)	(2)	(3)	
2014	\$415,070	\$2,077,517	\$796,239	\$1,967,640	100.00%	74.70%	0.00%	
2015	422,359	2,297,703	893,246	2,096,783	100.00%	72.90%	0.00%	
2016	428,713	2,388,712	887,031	2,139,119	100.00%	71.60%	0.00%	
2017	458,808	2,910,601	1,279,638	2,238,320	100.00%	61.10%	0.00%	
2018	442,637	3,151,057	1,198,853	2,321,721	100.00%	59.60%	0.00%	
2019	458,559	3,399,954	1,386,852	2,375,106	100.00%	56.40%	0.00%	
2020	454,801	3,606,091	1,370,407	2,447,885	100.00%	55.30%	0.00%	
2021	457,391	3,777,313	1,394,754	2,628,621	100.00%	57.50%	0.00%	
2022	468,325	3,915,964	1,477,402	2,788,714	100.00%	59.30%	0.00%	
2023	\$476,005	\$3,905,983	\$1,468,008	\$3,008,147	100.00%	64.80%	0.00%	

CERS (Hazardous Insurance Fund)

Actuarial Liabilities								
Valuation Date	(1)	(2)	(3)	Actuarial Value of Assets	% of Actuarial Liabilities Covered by Actuarial Assets			
	Active Member Contributions	Retired Members & Beneficiaries	Active Members (Employer Portion)		(1)	(2)	(3)	
2014	\$-	\$700,312	\$793,553	\$997,733	100.00%	100.00%	37.50%	
2015	-	790,714	713,301	1,087,707	100.00%	100.00%	41.60%	
2016	-	879,360	679,458	1,135,784	100.00%	100.00%	37.70%	
2017	-	994,764	793,669	1,196,780	100.00%	100.00%	25.50%	
2018	-	1,001,717	682,311	1,256,306	100.00%	100.00%	37.30%	
2019	-	1,072,861	660,018	1,313,659	100.00%	100.00%	36.50%	
2020	-	1,154,389	586,582	1,362,028	100.00%	100.00%	35.40%	
2021	-	1,217,527	533,676	1,475,635	100.00%	100.00%	48.40%	
2022	-	1,045,022	493,109	1,553,761	100.00%	100.00%	100.00%	
2023	\$-	\$1,163,315	\$440,832	\$1,615,349	100.00%	100.00%	100.00%	

Solvency Test**As of June 30 (\$ in Thousands)****KERS (Nonhazardous Pension Fund)**

Actuarial Liabilities								
Valuation Date	(1) Active Member Contributions	(2) Retired Members & Beneficiaries	(3) Active Members (Employer Portion)	Actuarial Value of Assets	% of Actuarial Liabilities Covered by Actuarial Assets			
					(1)	(2)	(3)	
2014	\$928,558	\$8,870,693	\$1,750,860	\$2,423,957	100.00%	16.90%	0.00%	
2015	925,934	9,437,468	1,996,271	2,350,990	100.00%	15.10%	0.00%	
2016	920,120	10,010,168	2,294,410	2,112,286	100.00%	11.90%	0.00%	
2017	934,559	11,608,346	3,048,736	2,123,623	100.00%	10.20%	0.00%	
2018	892,033	11,929,018	2,854,180	2,019,278	100.00%	9.40%	0.00%	
2019	881,020	12,513,230	3,072,176	2,206,280	100.00%	10.60%	0.00%	
2020	869,196	12,467,523	3,012,243	2,323,298	100.00%	11.70%	0.00%	
2021	877,142	12,425,951	3,018,279	2,735,876	100.00%	15.00%	0.00%	
2022	859,591	12,700,595	3,016,445	3,065,263	100.00%	17.40%	0.00%	
2023	\$889,146	\$12,013,685	\$3,401,447	\$3,552,471	100.00%	22.20%	0.00%	

KERS (Nonhazardous Insurance Fund)

Actuarial Liabilities								
Valuation Date	(1) Active Member Contributions	(2) Retired Members & Beneficiaries	(3) Active Members (Employer Portion)	Actuarial Value of Assets	% of Actuarial Liabilities Covered by Actuarial Assets			
					(1)	(2)	(3)	
2014	\$-	\$1,425,605	\$801,155	\$621,237	100.00%	43.60%	0.00%	
2015	-	1,428,350	985,355	695,018	100.00%	48.70%	0.00%	
2016	-	1,483,636	973,042	743,270	100.00%	50.10%	0.00%	
2017	-	1,575,294	1,108,202	823,918	100.00%	52.30%	0.00%	
2018	-	1,475,954	959,552	887,121	100.00%	60.10%	0.00%	
2019	-	1,686,605	1,046,461	991,427	100.00%	58.80%	0.00%	
2020	-	1,589,742	975,045	1,095,959	100.00%	68.90%	0.00%	
2021	-	1,609,775	964,337	1,291,472	100.00%	80.20%	0.00%	
2022	-	967,051	815,335	1,409,553	100.00%	100.00%	54.30%	
2023	\$-	\$1,040,344	\$836,765	\$1,532,895	100.00%	100.00%	58.90%	

KERS (Hazardous Pension Fund)

Actuarial Liabilities								
Valuation Date	(1)	(2)	(3)	Actuarial Value of Assets	% of Actuarial Liabilities Covered by Actuarial Assets			
	Active Member Contributions	Retired Members & Beneficiaries	Active Members (Employer Portion)		(1)	(2)	(3)	
2014	\$83,664	\$581,231	\$151,955	\$527,897	100.00%	76.40%	0.00%	
2015	83,606	633,189	178,638	556,688	100.00%	74.70%	0.00%	
2016	86,705	648,482	201,519	559,487	100.00%	72.90%	0.00%	
2017	93,350	746,350	281,720	607,159	100.00%	68.80%	0.00%	
2018	89,106	810,311	252,506	639,262	100.00%	67.90%	0.00%	
2019	86,663	879,818	259,713	671,647	100.00%	66.50%	0.00%	
2020	95,528	898,128	290,114	709,587	100.00%	68.40%	0.00%	
2021	97,559	916,431	281,254	782,496	100.00%	74.70%	0.00%	
2022	94,538	946,328	275,959	832,436	100.00%	78.00%	0.00%	
2023	\$103,310	\$929,321	\$330,406	\$891,460	100.00%	84.80%	0.00%	

KERS (Hazardous Insurance Fund)

Actuarial Liabilities								
Valuation Date	(1)	(2)	(3)	Actuarial Value of Assets	% of Actuarial Liabilities Covered by Actuarial Assets			
	Active Member Contributions	Retired Members & Beneficiaries	Active Members (Employer Portion)		(1)	(2)	(3)	
2014	\$-	\$206,477	\$190,509	\$419,396	100.00%	100.00%	100.00%	
2015	-	221,115	153,789	451,514	100.00%	100.00%	100.00%	
2016	-	228,361	149,384	473,160	100.00%	100.00%	100.00%	
2017	-	243,816	175,623	493,458	100.00%	100.00%	100.00%	
2018	-	248,775	144,706	511,441	100.00%	100.00%	100.00%	
2019	-	282,070	144,635	525,315	100.00%	100.00%	100.00%	
2020	-	281,924	146,053	539,251	100.00%	100.00%	100.00%	
2021	-	288,015	136,441	575,025	100.00%	100.00%	100.00%	
2022	-	232,585	114,459	597,701	100.00%	100.00%	100.00%	
2023	\$-	\$250,189	\$113,323	\$619,519	100.00%	100.00%	100.00%	

Solvency Test
As of June 30 (\$ in Thousands)
SPRS (Pension Fund)

Actuarial Liabilities								
Valuation Date	(1)	(2)	(3)	Actuarial Value of Assets	% of Actuarial Liabilities Covered by Actuarial Assets			
	Active Member Contributions	Retired Members & Beneficiaries	Active Members (Employer Portion)		(1)	(2)	(3)	
2014	\$41,831	\$563,011	\$76,276	\$242,742	100.00%	35.70%	0.00%	
2015	41,567	605,855	86,734	248,388	100.00%	34.10%	0.00%	
2016	41,871	636,499	96,791	234,568	100.00%	30.30%	0.00%	
2017	44,798	773,982	148,365	261,320	100.00%	28.00%	0.00%	
2018	43,835	800,788	144,905	268,259	100.00%	28.00%	0.00%	
2019	41,948	848,396	154,974	282,162	100.00%	28.30%	0.00%	
2020	40,831	863,579	148,747	296,126	100.00%	29.60%	0.00%	
2021	42,035	860,801	150,423	323,250	100.00%	32.70%	0.00%	
2022	42,027	870,200	155,220	559,973	100.00%	59.50%	0.00%	
2023	\$47,394	\$825,683	\$218,717	\$589,848	100.00%	65.70%	0.00%	

SPRS (Insurance Fund)

Actuarial Liabilities								
Valuation Date	(1)	(2)	(3)	Actuarial Value of Assets	% of Actuarial Liabilities Covered by Actuarial Assets			
	Active Member Contributions	Retired Members & Beneficiaries	Active Members (Employer Portion)		(1)	(2)	(3)	
2014	\$-	\$143,402	\$90,869	\$155,595	100.00%	100.00%	13.40%	
2015	-	170,447	84,392	167,775	100.00%	98.40%	0.00%	
2016	-	177,094	80,103	172,704	100.00%	97.50%	0.00%	
2017	-	186,390	90,251	180,464	100.00%	96.80%	0.00%	
2018	-	183,151	78,937	187,535	100.00%	100.00%	5.60%	
2019	-	199,959	76,850	197,395	100.00%	98.70%	0.00%	
2020	-	207,638	68,506	207,018	100.00%	99.70%	0.00%	
2021	-	206,707	65,699	223,251	100.00%	100.00%	25.20%	
2022	-	172,664	60,134	234,239	100.00%	100.00%	100.00%	
2023	\$-	\$176,587	\$67,471	\$245,172	100.00%	100.00%	100.00%	

Active Member Valuation

Summary of Active Member Valuation Data As of June 30 (\$ in Thousands)

CERS Nonhazardous Schedule of Active Member Valuation Data

Valuation Date	Number of Employers	Total Active Members	Annual Covered Payroll ⁽¹⁾	Annual Average Pay	% Increase In Average Pay	Average Age	Average Years of Service Credit
2014	1,101	81,115	\$2,272,270	\$28	2.50%	48.1	9.6
2015	1,092	80,852	2,296,716	28	1.40%	48.0	9.5
2016	1,095	80,664	2,352,762	29	2.70%	47.9	9.4
2017	1,096	82,198	2,452,407	30	2.29%	47.9	9.4
2018	1,092	81,818	2,466,801	30	1.06%	47.7	9.2
2019	1,094	81,506	2,521,860	31	2.62%	47.7	9.1
2020	1,087	81,250	2,565,391	32	2.05%	47.8	9.1
2021	1,084	77,367	2,528,735	33	3.52%	48.0	9.4
2022	1,084	77,849	2,691,171	35	5.76%	47.6	9.1
2023	1,086	78,810	\$2,898,813	\$37	6.40%	47.3	8.8

CERS Hazardous Schedule of Active Member Valuation Data

Valuation Date	Number of Employers	Total Active Members	Annual Covered Payroll ⁽¹⁾	Annual Average Pay	% Increase In Average Pay	Average Age	Average Years of Service Credit
2014	254	9,194	479,164	52	3.00%	39.2	10.6
2015	246	9,172	483,641	53	1.20%	39.1	10.6
2016	246	9,084	492,851	54	2.90%	39.1	10.6
2017	250	9,495	541,633	57	5.14%	39.2	10.5
2018	247	9,263	533,618	58	0.99%	38.5	10.2
2019	243	9,474	559,353	59	2.49%	38.6	10.1
2020	243	9,419	568,558	60	2.24%	38.4	10.0
2021	241	9,173	578,355	63	4.45%	38.4	10.0
2022	240	9,184	620,934	68	7.23%	38.3	10.0
2023	239	9,205	677,988	74	8.94%	38.1	9.8

⁽¹⁾ Annual payroll included in the Schedule of Active Member Valuation Data is based upon the annualized monthly payroll for active members as of the valuation date. The annual payroll recorded in the financial section is based upon the sum of the monthly payroll for active members recorded for each month of fiscal year ending June 30, 2023.

Member data in actuarial section will differ from reported data in other ACFR sections. For this section, the data is reported by account instead of by person (ex: a member could have vested service in KERS, but is currently active in CERS and is reported in two membership categories).

KERS Nonhazardous Schedule of Active Member Valuation Data

Valuation Date	Number of Employers	Total Active Members	Annual Covered Payroll ⁽¹⁾	Annual Average Pay	% Increase In Average Pay	Average Age	Average Years of Service Credit
2014	353	40,365	\$1,577,496	\$39	0.40%	44.8	10.5
2015	348	39,056	1,544,234	40	1.20%	45.0	10.6
2016	349	37,779	1,529,249	40	2.40%	45.1	10.7
2017	342	37,234	1,531,535	41	1.62%	45.4	10.9
2018	338	35,139	1,471,477	42	1.81%	45.2	10.8
2019	331	33,696	1,437,647	43	1.88%	45.4	11.0
2020	313	31,703	1,387,761	44	2.60%	45.7	11.2
2021	321	30,186	1,349,330	45	2.12%	46.0	11.6
2022	319	29,551	1,355,267	46	2.60%	46.0	11.4
2023	320	31,383	\$1,615,868	\$51	12.27%	45.7	10.9

KERS Hazardous Schedule of Active Member Valuation Data

Valuation Date	Number of Employers	Total Active Members	Annual Covered Payroll ⁽¹⁾	Annual Average Pay	% Increase In Average Pay	Average Age	Average Years of Service Credit
2014	18	4,024	\$129,076	\$32	0.30%	40.6	7.4
2015	17	3,886	128,680	33	3.20%	40.7	7.5
2016	17	3,959	147,563	37	12.60%	40.4	7.5
2017	18	4,047	162,418	40	7.67%	40.3	7.6
2018	18	3,929	158,213	40	0.34%	39.8	7.3
2019	18	3,705	150,446	41	0.84%	39.8	7.3
2020	19	4,094	170,826	42	2.76%	39.8	7.3
2021	19	3,827	162,836	43	1.97%	40.1	7.7
2022	19	3,617	165,637	46	7.63%	40.0	7.6
2023	19	3,886	\$211,602	\$54	18.91%	39.7	7.2

SPRS Schedule of Active Member Valuation Data

Valuation Date	Number of Employers	Total Active Members	Annual Covered Payroll ⁽¹⁾	Annual Average Pay	% Increase In Average Pay	Average Age	Average Years of Service Credit
2014	1	855	\$44,616	\$52	4.00%	37.8	10.9
2015	1	937	45,765	49	(6.40)%	36.8	9.8
2016	1	908	45,551	50	2.71%	37.0	10.0
2017	1	903	48,598	54	7.28%	37.5	10.6
2018	1	886	48,808	55	2.36%	37.3	10.5
2019	1	883	47,752	54	(1.83)%	36.7	10.0
2020	1	798	46,145	58	6.93%	37.5	10.7
2021	1	775	45,338	59	1.17%	37.7	11.1
2022	1	844	47,885	57	(3.02)%	36.5	10.1
2023	1	868	\$65,913	\$76	33.84%	36.9	10.5

⁽¹⁾ Annual payroll included in the Schedule of Active Member Valuation Data is based upon the annualized monthly payroll for active members as of the valuation date. The annual payroll recorded in the financial section is based upon the sum of the monthly payroll for active members recorded for each month of fiscal year ending June 30, 2023.

Member data in actuarial section will differ from reported data in other Annual Report sections. For this section, the data is reported by account instead of by person (ex: a member could have vested service in KERS, but is currently active in CERS and is reported in two membership categories).

Summary of Retired Member Valuation Data As of June 30 (\$ in Thousands)

CERS (Nonhazardous)

Valuation Date	Number Added	Number Removed	Total Retirees & Beneficiaries	Annualized Retirement Allowances Added	Annualized Retirement Allowances Removed	Annualized Retirement Allowances ⁽¹⁾	% Increase In Allowances	Average Annual Allowance
2014	3,480	1,221	49,935	\$33,975	\$8,996	\$582,958	4.48%	\$12
2015	4,020	1,304	52,651	44,962	10,369	617,551	5.93%	12
2016	4,409	721	56,339	49,487	5,822	661,217	7.07%	12
2017	4,141	1,467	59,013	47,074	40,823	667,468	0.95%	11
2018	4,650	1,725	61,938	57,343	14,436	710,374	6.43%	11
2019	4,472	1,871	64,539	53,392	16,649	747,117	5.17%	12
2020	3,550	2,675	65,414	40,409	24,066	763,459	2.19%	12
2021	4,350	2,558	67,206	51,859	23,756	791,562	3.68%	12
2022	4,693	3,010	68,889	58,456	29,341	820,678	3.68%	12
2023	4,753	2,710	70,932	\$62,416	\$27,922	\$855,173	4.20%	\$12

CERS (Hazardous)

Valuation Date	Number Added	Number Removed	Total Retirees & Beneficiaries	Annualized Retirement Allowances Added	Annualized Retirement Allowances Removed	Annualized Retirement Allowances ⁽¹⁾	% Increase In Allowances	Average Annual Allowance
2014	469	116	7,646	\$9,940	\$1,567	\$191,008	4.58%	\$25
2015	526	138	8,034	13,430	2,284	202,153	5.84%	25
2016	604	75	8,563	14,642	1,494	215,302	6.50%	25
2017	576	141	8,998	15,102	3,724	226,680	5.28%	25
2018	779	190	9,587	22,292	3,297	245,675	8.38%	26
2019	608	172	10,023	16,096	2,957	258,813	5.35%	26
2020	621	192	10,452	19,621	3,643	274,791	6.17%	26
2021	651	245	10,858	18,939	4,855	288,876	5.13%	27
2022	674	301	11,231	19,629	6,539	301,966	4.53%	27
2023	672	300	11,603	\$21,528	\$5,964	\$317,529	5.15%	\$27

⁽¹⁾ The Annualized Retirement Allowance is the annualized value of the monthly retirement allowance for retired members and beneficiaries as of the valuation date. Consequently, the values will not match the fiscal year total benefit payments recorded in the financial section. Headcounts and hazardous benefits for members receiving benefits in both the nonhazardous and hazardous fund have been included in the hazardous funds' summaries above. Additional \$25,156,000 in KERS Nonhazardous annual benefits and \$29,929,000 in CERS Nonhazardous benefits not included in June 30, 2023 summary above.

Member data in actuarial section will differ from reported data in other Annual Report sections. For this section, the data is reported by account instead of by person (ex: a member could have vested service in KERS, but is currently active in CERS and is reported in two membership categories).

KERS (Nonhazardous)

Valuation Date	Number Added	Number Removed	Total Retirees & Beneficiaries	Annualized Retirement Allowances Added	Annualized Retirement Allowances Removed	Annualized Retirement Allowances ⁽¹⁾	% Increase In Allowances	Average Annual Allowance
2014	2,067	1,038	41,223	\$31,433	\$15,143	\$866,047	(0.70)%	\$21
2015	2,140	1,094	42,269	32,433	14,902	833,578	2.02%	21
2016	2,441	706	44,004	61,294	9,942	934,930	5.81%	21
2017	2,181	1,269	44,916	35,150	48,778	921,302	(1.46)%	21
2018	2,853	1,243	46,526	50,360	18,711	952,951	3.44%	20
2019	2,226	1,342	47,410	36,115	20,359	968,706	1.65%	20
2020	1,806	1,883	47,333	29,576	30,319	967,963	(0.08)%	20
2021	2,026	1,659	47,700	32,264	27,794	972,434	0.46%	20
2022	2,471	1,976	48,195	42,661	33,726	981,369	0.92%	20
2023	2,115	1,901	48,409	\$35,508	\$32,596	\$984,280	0.30%	\$20

KERS (Hazardous)

Valuation Date	Number Added	Number Removed	Total Retirees & Beneficiaries	Annualized Retirement Allowances Added	Annualized Retirement Allowances Removed	Annualized Retirement Allowances ⁽¹⁾	% Increase In Allowances	Average Annual Allowance
2014	256	66	3,620	\$3,762	\$612	\$54,272	6.16%	\$15
2015	203	65	3,758	3,144	985	56,431	3.98%	15
2016	237	29	3,966	3,028	458	59,001	4.55%	15
2017	206	79	4,093	2,771	2,609	59,162	0.27%	14
2018	321	44	4,370	5,394	507	64,050	8.26%	15
2019	227	60	4,537	4,242	769	67,523	5.42%	15
2020	214	123	4,628	3,102	1,543	69,081	2.31%	15
2021	263	165	4,726	3,681	1,959	70,803	2.49%	15
2022	300	176	4,850	4,978	2,093	73,689	4.08%	15
2023	210	173	4,887	\$3,101	\$1,924	\$74,867	1.60%	\$15

SPRS State Police Retirement System

Valuation Date	Number Added	Number Removed	Total Retirees & Beneficiaries	Annualized Retirement Allowances Added	Annualized Retirement Allowances Removed	Annualized Retirement Allowances ⁽¹⁾	% Increase In Allowances	Average Annual Allowance
2014	95	28	1,413	\$3,360	\$833	\$53,432	4.96%	\$38
2015	62	15	1,460	1,947	449	54,930	2.80%	38
2016	65	10	1,515	2,004	285	56,650	3.13%	37
2017	30	9	1,536	1,046	443	57,253	1.06%	37
2018	81	17	1,600	2,837	464	59,626	4.14%	37
2019	74	27	1,647	2,735	957	61,404	2.98%	37
2020	61	39	1,669	2,411	1,382	62,432	1.68%	37
2021	55	51	1,673	1,967	1,699	62,700	0.43%	37
2022	76	47	1,702	2,948	1,868	63,780	1.72%	37
2023	43	48	1,697	\$1,308	\$1,793	\$63,294	(0.76)%	\$37

⁽¹⁾ The Annualized Retirement Allowance is the annualized value of the monthly retirement allowance for retired members and beneficiaries as of the valuation date. Consequently, the values will not match the fiscal year total benefit payments recorded in the financial section. Headcounts and hazardous benefits for members receiving benefits in both the nonhazardous and hazardous fund have been included in the hazardous funds' summaries above. Additional \$25,156,000 in KERS Nonhazardous annual benefits and \$29,929,000 in CERS Nonhazardous benefits not included in June 30, 2023 summary above.

Member data in actuarial section will differ from reported data in other Annual Report sections. For this section, the data is reported by account instead of by person (ex: a member could have vested service in KERS, but is currently active in CERS and is reported in two membership categories).

Summary of Benefit Provisions CERS, KERS, and SPRS Plans

Plan Funding

State statute requires active members to contribute 5% of creditable compensation for nonhazardous members and 8% of creditable compensation for hazardous members. For members participating on or after September 1, 2008, an additional 1% of creditable compensation is required. This amount is credited to the Insurance Fund and is non-refundable to the member. Employers contribute at the rate determined by the Boards to be necessary for the actuarial soundness of the systems, as required by KRS 78.635 and KRS 61.565. KERS rates are subject to state budget approval.

Membership Eligibility

For all regular full-time non-school board employees to be eligible for membership, they must average 100 or more hours of work per month over a fiscal or calendar year. For all regular full-time school board employees to be eligible for membership, they must average 80 hours of work per month over the actual days worked during the school year.

Retirement Eligibility for Nonhazardous Employees

Age	Years of Service	Allowance Reduction
Tier 1 Members Whose Participation Began Before 9/1/2008		
65	1 month	None
Any	27	None
55	5	6.5% per year for first five years, and 4.5% for next five years before age 65 or 27 years of service.
Any	25	6.5% per year for first five years, and 4.5% for next five years before age 65 or 27 years of service.
Tier 2 Members Whose Participation Began On or After 9/1/2008 but before 1/1/2014		
65	5	None
57	Rule of 87	None
60	10	6.5% per year for first five years, and 4.5% for next five years before age 65 or Rule of 87 (age plus years of service)
Tier 3 Members Whose Participation Began On or After 1/1/2014		
65	5	None
57	Rule of 87	None
Retirement Eligibility for Hazardous		
Age	Years of Service	Allowance Reduction
Tier 1 Members Whose Participation Began Before 9/1/2008		
55	1 month	None
Any	20	None
50	15	6.5% per year for first five years, and 4.5% for next five years before age 55 or 20 years of service.
Tier 2 Members Whose Participation Began On or After 9/1/2008 but before 1/1/2014		
60	5	None
Any	25	None
50	15	6.5% per year for first five years, and 4.5% for next five years before age 60 or 25 years of service.
Tier 3 Members Whose Participation Began On or After 1/1/2014		
60	5	None
Any	25	None

**Benefit Formula for Nonhazardous
Tier 1: Members whose participation began before 9/1/2008**

Final Compensation	Benefit Factor	Years of Service
Average of the five highest years of compensation	CERS 2.20% if:	Member begins participating prior to 8/1/2004.
	CERS 2.00% if:	Member begins participating on or after 8/1/2004 but before 9/1/2008.
	KERS 1.97% if:	Member does not have 13 months of service credit for 1/1/1998-1/1/1999.
	KERS 2.00% if:	Member has 13 months of service credit from 1/1/1998-1/1/1999.
	KERS 2.20% if:	Member has 20 or more years of service, including 13 months from 1/1/1998-1/1/1999 and retires by 1/1/2009.

Includes earned service, purchased service, prior service, and sick leave service (if the member's employer participates in an approved sick leave program).

If a member retires with less than four years of service credit, the member's benefit is equal to the actuarially equivalent of two times their member contribution balance with interest.

**Benefit Formula Nonhazardous
Tier 2: Members whose participation began on or after 9/1/2008 but before 1/1/2014**

Final Compensation	Benefit Factor	Years of Service	
Average of the last five years of compensation	CERS & KERS increasing percent based on service at retirement up to 30 years* plus 2.00% for each year of service over 30 years	Member begins participating on or after 9/1/2008 but before 1/1/2014.	
	*Service		Multiplier
	10 years or less		1.10%
	10-20 years		1.30%
	20-26 years		1.50%
	26-30 years	1.75%	

Includes earned service, purchased service, prior service, and sick leave service (if the member's employer participates in an approved sick leave program).

Benefit Formula for Hazardous for Tier 1: Members whose participation began before 9/1/2008		
Final Compensation	Benefit Factor	Years of Service
Average of the three highest years of compensation	CERS 2.50% if:	Member begins participating before 9/1/2008.
	KERS 2.49% if:	
	SPRS 2.50% if:	
Includes earned service, purchased service, prior service, and sick leave service (if the member's employer participates in an approved sick leave program).		
If a member retires with less than four years of service, the member's benefit is equal to the actuarially equivalent of two times their member contribution balance with interest.		

Benefit Formula for Hazardous for Tier 2: Members whose participation began on or after 9/1/2008 but before 1/1/2014		
Final Compensation	Benefit Factor	Years of Service
Average of the three highest complete years of compensation	CERS, KERS, & SPRS increasing percent based on service at retirement*	
	*Service	Multiplier
	10 years or less	1.30%
	10-20 years	1.50%
	20-25 years	2.25%
	25+ years	2.50%
Member begins participating on or after 9/1/2008 but before 1/1/2014.		
Includes earned service, purchased service, prior service, and sick leave service (if the member's employer participates in an approved sick leave program).		

Benefit Formula for Hazardous for Tier 3: Members whose participation began on or after 1/1/2014

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

Benefit Formula					
Tier 3: Members whose participation began on or after 1/1/2014					
Accumulated Account Balance / Actuarial Factor = Monthly Life Annuity					
Accumulated Account Balance					
	Member Contributions	Employer Contributions	Base Annual Interest	Upside Sharing Interest (FY 2023)	Actuarial Factor
CERS Nonhazardous	5.00%	4.00%	4.00%	5.89%	See www.kyret.ky.gov for most recent Actuarial Factors
CERS Hazardous	8.00%	7.50%	4.00%	6.01%	
KERS Nonhazardous	5.00%	4.00%	4.00%	5.21%	
KERS Hazardous	8.00%	7.50%	4.00%	5.80%	
SPRS	8.00%	7.50%	4.00%	5.57%	
<p>Note: Accumulated Account Balance is comprised of member contributions, employer contributions, annual interest and annual upside sharing interest. For additional information on the calculation of the annual interest for Tier 3 see Upside Sharing Interest in Note B.</p> <p>Note: Please see Plan Provisions for additional details.</p>					

Summary of Benefit Provisions CERS, KERS SPRS Plans

Post-Retirement Death Benefits

If the member is receiving a monthly benefit based on at least four (4) years of creditable service, the retirement system will pay a \$5,000 death benefit payment to the beneficiary named by the member specifically for this benefit. If a member has more than one account with the systems administered by KPPA, only one death benefit shall be paid. A death benefit is subject to taxation.

Disability Benefits

Members participating before 8/1/2004 may qualify for disability retirement provided the member has at least 60 months of service credit* and is not eligible for an unreduced benefit. Additional service credit may be added for computation of benefits under the benefit formula.

Members participating on or after 8/1/2004 but before 1/1/2014 may qualify for disability retirement provided the member has at least 60 months of service credit*. Benefits are computed as 20% for Nonhazardous and 25% for Hazardous of member's monthly final rate of pay or the amount calculated under the Benefit Formula based upon actual service, whichever is higher.

Members participating on or after 1/1/2014 may qualify for disability retirement provided the member has at least 60 months of service credit. The account which includes member contributions, employer pay credits and interest credits can be withdrawn from the System as a lump sum or an annuity equal to the greater Benefits are computed as 20% for Nonhazardous and 25% for Hazardous of the member's monthly final rate of pay or the annuity computed as if eligible for unreduced retirement benefit, whichever is greater.

Members disabled in the line of duty, or due to a duty-related injury, may be eligible for special benefits.

*Service requirements may be waived if line of duty or duty related.

Pre-Retirement Death Benefits

The beneficiary, which shall be the spouse unless another person was named beneficiary after the marriage date, of a deceased active member is eligible for a monthly benefit if the member died while in the line of duty; or due to a duty-related injury, with a minimum of one (1) month of service credit. If the member's death did not occur in the line of duty or as a result of a duty-related injury, the beneficiary is eligible for a monthly benefit under the following conditions: 1. The member was eligible to retire at the time of death. 2. The member was under the age of 65 (for nonhazardous members) or under the age of 55 (for hazardous members) with a minimum of 60 months of service credit and was employed by a participating agency at the time of death. 3. The member was no longer employed by a participating agency at the time of death but had accumulated a minimum of 144 months of service credit. If the deceased member does not meet one of the eligibility requirements the beneficiary will receive a lump-sum payment from the member's accumulated account balance..

Cost of Living Adjustment (COLA)

Senate Bill 2 passed during the 2013 legislative session, eliminated all future COLAs unless the State Legislature so authorizes on a biennial basis and either (i) the system is over 100% funded or (ii) the Legislature appropriates sufficient funds to pay the increased liability for the COLA.

Health Insurance Benefits

For members participating prior to July 1, 2003, CERS, KERS, and SPRS pay a percentage of the monthly premium for single coverage based upon the service credit accrued at retirement. Members participating on or after July 1, 2003, and before September 1, 2008, are required to earn a minimum of 10 years (120 months) of service credit to qualify for health insurance benefits upon retirement. Members participating on or after September 1, 2008, are required to earn a minimum of 15 years (180 months) of service credit to qualify for health insurance benefits upon retirement. The monthly health insurance contribution will be \$10 for each year of nonhazardous and \$15 for each year of hazardous earned service increased by 1.5% annually.

Refunds

Upon termination of employment, a refund of the member's accumulated account balance is available to the member.

Interest on Accounts

For employees participating prior to September 1, 2008, the interest paid is set by the Boards of Trustees and will not be less than 2.0%. For employees participating on or after September 1, 2008, but before January 1, 2014, interest will be credited at a rate of 2.5%. For employees participating on or after January 1, 2014, interest will be credited at a minimum rate of 4.0% (see Note B for additional details on the annual interest calculation).

Benefit Changes since the Prior Valuation

House Bill 506 passed during the 2023 legislative session reinstated the Partial Lump Sum Options (PLSO) form of payment for members retiring on or after January 1, 2024. The bill introduced an expansion of the lump-sum payment options, allowing for payouts equal to 48 or 60 times the member's Basic, or Survivorship 100% monthly retirement allowance. The lifetime monthly retirement allowance is adjusted actuarially to account for the selected lump sum payment option.

House Bill 506 additionally modified the minimum separation period required for a retiree to reemploy with a participating employer of the Systems administered by the KPPA while still receiving their retirement allowance. This adjustment standardized the separation period to one month for all scenarios within each plan for retirement dates effective January 1, 2024 and after.

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Plan Statistics

Definitions

Active members are those members who are currently employed by a participating agency and contributing to KPPA as a condition of employment.

Inactive members are those members who are no longer employed with a participating agency but have not yet retired or taken a refund of contributions.

Retired members include both members and beneficiaries who are receiving a monthly benefit from KPPA.

A single member may have multiple accounts, which contribute to one pension. 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 Nonhazardous, then KERS Nonhazardous. These tables do not include individuals receiving payments under dependent child accounts, Qualified Domestic Relations Orders, or multiple beneficiary accounts.

CERS Nonhazardous Membership As of June 30

Fiscal Year	Active	Inactive	Retired	Total
2014	82,494	70,231	46,112	198,837
2015	82,969	72,965	48,515	204,449
2016	83,346	75,904	51,673	210,923
2017	84,401	78,940	54,018	217,359
2018	84,435	81,608	56,629	222,672
2019	84,632	85,300	58,933	228,865
2020	83,458	90,673	60,877	235,008
2021	80,378	95,682	63,566	239,626
2022	80,263	101,508	65,266	247,037
2023	81,217	106,903	66,935	255,055

CERS Hazardous Membership As of June 30

Fiscal Year	Active	Inactive	Retired	Total
2014	9,189	2,038	6,066	17,293
2015	9,188	2,142	6,389	17,719
2016	9,139	2,309	6,834	18,282
2017	9,321	2,442	7,186	18,949
2018	9,285	2,581	7,647	19,513
2019	9,402	2,702	8,000	20,104
2020	9,350	2,924	8,431	20,705
2021	9,138	3,243	8,814	21,195
2022	9,149	3,481	9,121	21,751
2023	9,181	3,687	9,448	22,316

KERS Nonhazardous Membership As of June 30

Fiscal Year	Active	Inactive	Retired	Total
2014	40,500	41,213	38,022	119,735
2015	39,289	42,479	38,827	120,595
2016	38,121	43,926	40,099	122,146
2017	36,725	44,848	40,813	122,386
2018	34,845	45,768	42,175	122,788
2019	33,432	46,721	42,874	123,027
2020	31,190	48,583	43,592	123,365
2021	29,709	49,679	44,469	123,857
2022	29,069	50,529	44,952	124,550
2023	30,854	51,001	44,975	126,830

KERS Hazardous Membership As of June 30

Fiscal Year	Active	Inactive	Retired	Total
2014	4,094	3,318	2,467	9,879
2015	3,932	3,761	2,575	10,268
2016	3,987	4,067	2,739	10,793
2017	4,061	4,363	2,823	11,247
2018	3,963	4,716	3,010	11,689
2019	3,779	5,094	3,146	12,019
2020	4,112	5,838	3,242	13,192
2021	3,809	6,513	3,339	13,661
2022	3,607	6,889	3,440	13,936
2023	3,875	7,222	3,459	14,556

SPRS Membership As of June 30

Fiscal Year	Active	Inactive	Retired	Total
2014	861	239	1,279	2,379
2015	940	257	1,324	2,521
2016	924	262	1,379	2,565
2017	910	278	1,393	2,581
2018	891	290	1,445	2,626
2019	899	313	1,484	2,696
2020	798	349	1,523	2,670
2021	775	389	1,540	2,704
2022	844	402	1,562	2,808
2023	868	432	1,552	2,852

Kentucky Public Pensions Authority Membership Totals As of June 30

Fiscal Year	Active	Inactive	Retired	Total
2014	137,138	117,039	93,946	348,123
2015	136,318	121,604	97,630	355,552
2016	135,517	126,468	102,724	364,709
2017	135,418	130,871	106,233	372,522
2018	133,419	134,963	110,906	379,288
2019	132,144	140,130	114,437	386,711
2020	128,908	148,367	117,665	394,940
2021	123,809	155,506	121,728	401,043
2022	122,932	162,809	124,341	410,082
2023	125,995	169,245	126,369	421,609

Principal Participating Employers in CERS As of June 30, 2023

Participating Employer	Rank	Covered Employees	% of Total System
JEFFERSON COUNTY BOARD OF EDUCATION	1	5,029	5.54%
LOUISVILLE JEFFERSON COUNTY METRO GOVERNMENT	2	4,495	4.96%
FAYETTE COUNTY BOARD OF EDUCATION	3	2,009	2.22%
LEXINGTON FAYETTE URBAN COUNTY GOVERNMENT	4	1,635	1.80%
JUDICIAL DEPARTMENT ADMINISTRATIVE OFFICE OF THE COURTS	5	1,442	1.59%
BOONE COUNTY BOARD OF EDUCATION	6	1,143	1.26%
HARDIN COUNTY BOARD OF EDUCATION	7	1,053	1.16%
BULLITT COUNTY BOARD OF EDUCATION	8	1,040	1.15%
SCOTT COUNTY BOARD OF EDUCATION	9	874	0.96%
WARREN COUNTY BOARD OF EDUCATION	10	872	0.96%
ALL OTHERS		71,093	78.40%
Total		90,685	100.00%

Schedule of Participating Employers in CERS As of June 30, 2023

Agency Classification	Number of Agencies	Covered Employees
Airport Boards	5	538
Ambulance Services	18	413
Area Development Districts	14	686
Boards of Education	171	45,868
Cities	222	10,381
Community Action Agencies	21	2,820
Conservation Districts	49	63
County Attorneys	75	543
County Clerks	16	580
Development Authorities	6	8
Fire Departments	29	1,140
Fiscal Courts	118	10,946
Hospitals & Clinics (incl. Dental)	1	298
Housing Authorities	39	410
Jailers	2	69
Libraries	86	1,298
Other Retirement Systems	2	3
P1 State Agencies	4	1,443
Parks and Recreation	6	63
Planning Commissions	16	204
Police Departments	2	13
Riverport Authorities	5	71
Sanitation Districts	8	320
Sheriff Departments	12	700
Special Districts & Boards	47	1,401
Tourist Commissions	25	199
Urban Government Agencies	2	6,130
Utility Boards	119	4,077
Total	1,120	90,685
Total Employees By Tier Levels		
Tier 1		25,830
Tier 2		12,575
Tier 3		52,280

Principal Participating Employers in KERS As of June 30, 2023

Participating Employer	Rank	Covered Employees	% of Total System
DEPARTMENT FOR COMMUNITY BASED SERVICES	1	4,341	12.29%
DEPARTMENT OF HIGHWAYS	2	3,560	10.08%
DEPARTMENT OF CORRECTIONS	3	3,351	9.49%
JUDICIAL DEPARTMENT ADMINISTRATIVE OFFICE OF THE COURTS	4	1,443	4.09%
DEPARTMENT OF JUVENILE JUSTICE	5	1,036	2.93%
UNIFIED PROSECUTORIAL SYSTEM	6	899	2.55%
KENTUCKY STATE POLICE	7	867	2.46%
DEPARTMENT OF REVENUE	8	686	1.94%
DEPARTMENT OF PARKS	9	622	1.76%
ENVIRONMENTAL PROTECTION	10	618	1.75%
ALL OTHERS		17,887	50.66%
Total		35,310	100.00%

Schedule of Participating Employers in KERS As of June 30, 2023

Agency Classification	Number of Agencies	Covered Employees
County Attorneys	58	268
Health Departments	60	2,158
Master Commissioner	31	54
Non-P1 State Agencies	33	597
Other Retirement Systems	1	20
P1 State Agencies	133	28,272
Regional Mental Health Units	10	2,433
Universities	7	1,508
Total	333	35,310

Total Employees By Tier Levels

Tier 1	13,252
Tier 2	5,354
Tier 3	16,704

Schedule of Participating Employers in SPRS As of June 30, 2023

Agency Classification	Number of Agencies	Covered Employees
Kentucky State Police - Uniformed Police Officers	1	868

Total Employees By Tier Levels

Tier 1	325
Tier 2	180
Tier 3	363

Average Monthly Benefit by Length of Service in CERS As of June 30, 2023 (in Whole \$)

Service Credit Range	CERS Nonhazardous		CERS Hazardous	
	Number of Accounts	Average Monthly Benefit	Number of Accounts	Average Monthly Benefit
Under 5 years	11,156	\$169	1,303	\$437
5 or more but less than 10	11,855	349	1,173	724
10 or more but less than 15	12,158	549	1,164	1,291
15 or more but less than 20	10,312	836	1,299	1,898
20 or more but less than 25	13,128	1,038	4,804	2,708
25 or more but less than 30	14,618	1,958	1,629	3,714
30 or more but less than 35	3,233	2,719	429	4,443
35 or more	881	3,819	85	5,529
Total	77,341	\$979	11,886	\$2,257

Average Monthly Benefit by Length of Service in KERS As of June 30, 2023 (in Whole \$)

Service Credit Range	KERS Nonhazardous		KERS Hazardous	
	Number of Accounts	Average Monthly Benefit	Number of Accounts	Average Monthly Benefit
Under 5 years	6,933	\$178	970	\$206
5 or more but less than 10	6,240	442	892	576
10 or more but less than 15	5,901	739	830	1,042
15 or more but less than 20	5,052	1,089	754	1,571
20 or more but less than 25	5,523	1,438	1,319	2,057
25 or more but less than 30	13,704	2,301	215	2,929
30 or more but less than 35	6,681	3,239	62	3,746
35 or more	2,490	4,600	6	4,231
Total	52,524	\$1,645	5,048	\$1,261

Average Monthly Benefit by Length of Service in SPRS As of June 30, 2023 (in Whole \$)

Service Credit Range	Number of Accounts	Average Monthly Benefit
Under 5 years	151	\$562
5 or more but less than 10	58	951
10 or more but less than 15	73	1,452
15 or more but less than 20	126	2,142
20 or more but less than 25	561	2,752
25 or more but less than 30	499	3,803
30 or more but less than 35	221	4,782
35 or more	60	6,169
Total	1,749	\$3,079

Note: These tables reflect the Average Monthly Pension Benefit. A single member may have multiple accounts, which contribute to one pension. These tables do not reflect dependent child accounts, Qualified Domestic Relations Order (QDRO) accounts or multiple beneficiary accounts.

Fiduciary Net Position - CERS

As of June 30 (\$ in Thousands)

Fiscal Year	Nonhazardous			Hazardous		
	Pension	Insurance	Total	Pension	Insurance	Total
2014	\$6,528,147	\$1,878,711	\$8,406,858	\$2,087,002	\$1,030,303	\$3,117,305
2015	6,440,800	1,920,946	8,361,746	2,078,202	1,056,480	3,134,682
2016	6,141,396	1,908,550	8,049,946	2,010,177	1,056,097	3,066,274
2017	6,739,142	2,160,553	8,899,695	2,227,679	1,179,313	3,406,992
2018	7,086,322	2,346,767	9,433,089	2,361,047	1,268,272	3,629,319
2019	7,242,975	2,486,458	9,729,433	2,429,613	1,324,809	3,754,422
2020	7,110,889	2,498,051	9,608,940	2,395,688	1,305,132	3,700,820
2021	8,670,667	3,141,786	11,812,453	2,934,421	1,607,811	4,542,232
2022	8,062,346	2,981,224	11,043,570	2,736,928	1,503,977	4,240,905
2023	\$8,781,440	\$3,289,533	\$12,070,973	\$3,055,797	\$1,613,586	\$4,669,383

Fiduciary Net Position - KERS

As of June 30 (\$ in Thousands)

Fiscal Year	Nonhazardous			Hazardous		
	Pension	Insurance	Total	Pension	Insurance	Total
2014	\$2,578,290	\$646,905	\$3,225,195	\$561,484	\$433,525	\$995,009
2015	2,327,782	665,639	2,993,421	552,468	439,113	991,581
2016	1,980,292	668,318	2,648,610	527,880	437,397	965,277
2017	2,092,781	781,406	2,874,187	605,921	484,442	1,090,363
2018	2,048,890	846,762	2,895,652	651,173	513,384	1,164,557
2019	2,286,625	942,136	3,228,761	687,877	527,108	1,214,985
2020	2,362,231	1,006,498	3,368,729	697,366	514,740	1,212,106
2021	3,085,014	1,353,123	4,438,137	874,928	624,889	1,499,817
2022	3,076,743	1,301,522	4,378,265	819,237	579,902	1,399,139
2023	\$3,607,206	\$1,465,489	\$5,072,695	\$902,567	\$616,322	\$1,518,889

Fiduciary Net Position - SPRS

As of June 30 (\$ in Thousands)

Fiscal Year	Pension	Insurance	Total
2014	\$260,974	\$164,958	\$425,932
2015	247,229	164,714	411,943
2016	218,013	160,949	378,962
2017	256,383	178,191	434,574
2018	268,425	189,994	458,419
2019	287,242	200,128	487,370
2020	295,044	200,245	495,289
2021	357,660	246,004	603,664
2022	552,926	230,015	782,941
2023	\$592,826	\$246,797	\$839,623

Fiduciary Net Position - KPPA

As of June 30 (\$ in Thousands)

Fiscal Year	Pension	Insurance	Total
2014	\$12,015,897	\$4,154,402	\$16,170,299
2015	11,646,481	4,246,892	15,893,373
2016	10,877,757	4,231,311	15,109,068
2017	11,921,906	4,783,905	16,705,811
2018	12,415,856	5,165,179	17,581,035
2019	12,934,332	5,480,639	18,414,971
2020	12,861,218	5,524,666	18,385,884
2021	15,922,690	6,973,613	22,896,303
2022	15,248,180	6,596,640	21,844,820
2023	\$16,939,836	\$7,231,727	\$24,171,563

Note: For additional historical data for all charts presented, please visit our website for previous annual reports at <https://kyret.ky.gov/Publications/Pages/Annual-Reports.aspx>

Changes in Fiduciary Net Position - CERS Nonhazardous Pension Fund

As of June 30 (\$ in Thousands)

Additions	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Members' Contributions	\$122,459	\$133,637	\$133,987	\$150,714	\$160,370	\$159,064	\$168,994	\$165,698	\$186,648	\$147,769
Employers' Contributions	324,231	297,714	282,767	331,493	355,473	393,302	475,311	472,196	606,772	645,940
Health Insurance Contributions (HB1)	6,109	6,674	7,687	9,158	10,826	11,801	5	(1)	(60)	(30)
Net Investment Income (Loss)	895,531	110,569	(40,799)	825,901	578,377	394,558	56,682	1,784,231	(500,996)	815,417
Bank of America Settlement	-	10,280	-	-	-	-	-	-	-	-
Northern Trust Settlement	-	-	-	-	361	44	-	-	-	-
Employer Pay Credit										51,694
Pension Spiking	-	850	1,339	2,061	2,544	151	105	32	35	46
Total Additions	1,348,330	559,724	384,981	1,319,327	1,107,951	958,920	701,097	2,422,156	292,399	1,660,836
Deductions										
Benefit Payments	582,850	615,335	651,247	687,460	726,568	766,221	795,960	826,749	858,260	894,351
Refunds	14,286	13,524	13,754	14,430	14,608	14,387	14,918	13,862	19,789	23,263
Administrative Expenses	18,615	18,212	19,078	19,614	19,592	21,659	22,304	21,767	22,670	24,128
Capital Project Expenses	-	-	307	77	-	-	-	-	-	-
Total Deductions	615,751	647,071	684,385	721,581	760,768	802,267	833,182	862,378	900,719	941,742
Net Increase (Decrease) in Fiduciary Net Position	\$732,579	(\$87,347)	(\$299,404)	\$597,746	\$347,183	\$156,653	(\$132,085)	\$1,559,778	(\$608,321)	\$719,094

CERS Nonhazardous Insurance Fund

As of June 30 (\$ in Thousands)

Additions	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Employers' Contributions	\$121,161	\$115,836	\$108,269	\$117,310	\$120,798	\$135,570	\$124,740	\$124,697	\$118,550	\$101,121
Net Investment Income (Loss)	232,330	36,731	(1,422)	259,586	197,520	133,697	8,656	619,593	(170,699)	306,003
Retired Re-employed (HB1)	2,117	3,608	3,567	3,402	3,821	4,085	4,528	5,206	4,816	4,922
Member Drug Reimbursement	6	-	-	1	11	6	4	3	1	-
Premiums Received from Retirees	1,450	582	629	707	637	616	596	555	534	294
Humana Gain Share	-	-	-	-	-	3,574	-	20,676	8,912	5,951
Northern Trust Settlement	-	-	-	-	75	9	-	-	-	-
Health Insurance Contributions (HB1)	-	-	-	-	-	-	12,959	13,614	15,985	17,782
Total Additions	357,064	156,757	111,043	381,006	322,862	277,557	151,483	784,344	(21,901)	436,073
Deductions										
Health Insurance Premiums	96,804	113,734	122,713	124,573	131,631	133,005	135,094	136,263	134,428	123,587
Administrative Expenses	508	782	726	789	761	877	903	884	933	937
Self-Funded Healthcare Costs	-	-	-	3,635	4,248	3,979	3,887	3,462	3,288	3,240
Excise Tax Insurance	-	6	-	6	6	6	6	-	12	-
Total Deductions	97,312	114,522	123,439	129,003	136,646	137,867	139,890	140,609	138,661	127,764
Net Increase (Decrease) in Fiduciary Net Position	\$259,751	\$42,235	(\$12,396)	\$252,003	\$186,216	\$139,690	\$11,593	\$643,735	(\$160,562)	\$308,309

Changes in Fiduciary Net Position - CERS Hazardous Pension Fund

As of June 30 (\$ in Thousands)

Additions	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Members' Contributions	\$42,631	\$46,609	\$51,554	\$60,102	\$61,089	\$58,661	\$63,236	\$62,367	\$69,565	\$56,988
Employers' Contributions	115,240	107,515	104,952	114,315	124,953	137,664	168,201	172,089	221,968	286,353
Employer Pay Credit										21,683
Health Insurance Contributions (HB1)	1,091	1,084	1,418	1,708	2,173	2,458	1	2	(104)	(20)
Net Investment Income (Loss)	288,490	37,104	(9,021)	270,473	192,174	132,970	15,992	600,730	(175,431)	281,965
Bank of America Settlement	-	2,865	-	-	-	-	-	-	-	-
Northern Trust Settlement	-	-	-	-	111	14	-	-	-	-
Pension Spiking	-	557	762	1,632	2,707	387	242	116	60	186
Total Additions	447,452	195,734	149,665	448,230	383,207	332,154	247,672	835,304	116,058	647,155
Deductions										
Benefit Payments	189,635	200,134	213,448	226,985	244,119	259,008	275,802	290,000	305,790	319,594
Refunds	2,664	3,111	2,879	2,315	4,214	2,854	3,814	4,662	5,766	6,568
Administrative Expenses	1,721	1,289	1,337	1,421	1,504	1,726	1,981	1,910	1,995	2,124
Capital Project Expenses	-	-	26	7	-	-	-	-	-	-
Total Deductions	194,020	204,534	217,690	230,728	249,837	263,588	281,597	296,572	313,551	328,286
Net Increase (Decrease) in Fiduciary Net Position	\$253,431	\$(8,800)	\$(68,025)	\$217,502	\$133,370	\$68,566	\$(33,925)	\$538,732	\$(197,493)	\$318,869

CERS Hazardous Insurance Fund

As of June 30 (\$ in Thousands)

Additions	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Employers' Contributions	\$74,265	\$71,008	\$66,757	\$50,743	\$55,027	\$61,106	\$56,739	\$58,451	\$58,374	\$48,792
Net Investment Income (Loss)	125,278	20,283	1,102	142,929	109,004	72,580	2,237	322,817	(78,453)	148,739
Retired Re-employed (HB1)	526	770	862	794	975	1,166	1,158	1,348	1,530	1,611
Member Drug Reimbursement	-	-	-	-	-	-	-	-	-	-
Premiums Received from Retirees	32	10	(106)	(301)	(265)	(53)	(32)	(149)	(271)	(546)
Humana Gain Share	-	-	-	-	-	506	-	2,990	1,259	914
Northern Trust Settlement	-	-	-	-	40	5	-	-	-	-
Health Insurance Contributions (HB1)	-	-	-	-	-	-	2,760	3,096	3,758	4,278
Total Additions	200,101	92,071	68,615	194,165	164,781	135,310	62,862	388,553	(13,803)	203,788
Deductions										
Health Insurance Premiums	60,843	65,553	68,518	70,407	74,844	78,190	81,849	85,151	89,319	93,485
Administrative Expenses	275	339	480	381	376	434	462	466	502	522
Self-Funded Healthcare Costs	-	-	-	160	603	149	228	257	210	172
Total Deductions	61,117	65,894	68,998	70,948	75,823	78,773	82,539	85,874	90,031	94,179
Net Increase (Decrease) in Fiduciary Net Position	\$138,983	\$26,177	\$(383)	\$123,216	\$88,958	\$56,537	\$(19,677)	\$302,679	\$(103,834)	\$109,609

Changes in Fiduciary Net Position - KERS Nonhazardous Pension Fund

As of June 30 (\$ in Thousands)

Additions	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Members' Contributions	\$92,941	\$100,424	\$101,677	\$100,544	\$104,972	\$93,759	\$96,594	\$90,202	\$89,607	\$84,579
Employers' Contributions	296,836	520,948	512,670	644,803	619,988	948,866	948,578	1,134,180	141,027	114,427
Employer Pay Credit										22,018
General Fund Appropriations	-	-	-	58,193	67,574	75,858	-	-	912,705	240,000
Health Insurance Contributions (HB1)	4,546	4,181	4,817	5,156	5,786	5,963	1	(8)	(13)	(12)
Actuarially Accrued Liability Contributions										898,545
Employer Cessation	-	-	-	53,215	17	10,643	20	-	63,113	-
Net Investment Income (Loss)	337,923	44,570	(20,662)	220,985	147,577	114,918	53,696	528,439	(165,904)	220,258
Bank of America Settlement	-	8,442	-	-	-	-	-	-	-	-
Northern Trust Settlement	-	-	-	-	301	37	-	-	-	-
Pension Spiking	-	743	414	909	1,564	95	(6)	52	24	16
Total Additions	732,246	679,308	598,916	1,083,805	947,779	1,250,139	1,098,883	1,752,865	1,040,559	1,579,831
Deductions										
Benefit Payments	889,937	905,790	923,288	948,489	967,374	988,349	999,813	1,009,501	1,023,375	1,023,704
Refunds	13,627	13,552	12,130	11,819	13,603	12,342	11,523	8,953	12,116	11,847
Administrative Expenses	11,145	10,474	10,807	10,974	10,692	11,712	11,941	11,627	13,339	13,817
Capital Project Expenses	-	-	181	34	-	-	-	-	-	-
Total Deductions	914,709	929,816	946,406	971,316	991,669	1,012,403	1,023,277	1,030,081	1,048,830	1,049,368
Net Increase (Decrease) in Fiduciary Net Position	\$(182,463)	\$(250,508)	\$(347,490)	\$112,489	\$(43,890)	\$237,736	\$75,606	\$722,784	\$(8,271)	\$530,463

KERS Nonhazardous Insurance Fund

As of June 30 (\$ in Thousands)

Additions	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Employers' Contributions	\$164,176	\$132,208	\$131,935	\$133,024	\$132,364	\$173,576	\$170,479	\$153,571	\$31,611	\$35,549
Actuarially Accrued Liability Contributions	-	-	-	-	-	-	-	-	101,637	87,674
Net Investment Income (Loss)	96,738	8,690	(3,904)	90,915	61,331	43,202	10,624	258,595	(85,555)	128,052
Retired Re-employed (HB1)	2,433	3,732	3,880	3,765	4,055	3,996	4,502	4,705	5,041	5,885
Member Drug Reimbursement	8	-	-	1	5	3	2	-	-	4
Premiums Received from Retirees	918	272	240	248	216	184	183	182	182	(27)
Humana Gain Share Payment	-	-	-	-	-	3,079	-	17,167	7,321	4,851
Employer Cessations	-	-	-	15,567	-	1,391	25	28,400	2,405	-
Northern Trust Settlement	-	-	-	-	32	4	-	-	-	-
Health Insurance Contribution (HB1)	-	-	-	-	-	-	6,127	6,326	6,560	8,370
Total Additions	264,273	144,902	132,151	243,520	198,003	225,435	191,942	468,946	69,202	270,358
Deductions										
Health Insurance Premiums	112,671	123,127	126,550	127,648	130,069	127,221	125,006	119,897	118,451	103,952
Administrative Expenses	736	893	818	861	760	875	847	815	821	771
Self-Funded Healthcare Costs	-	2,145	2,095	1,920	1,819	1,962	1,724	1,609	1,525	1,668
Excise Tax Insurance	-	3	6	3	3	3	3	-	6	-
Total Deductions	113,407	126,168	129,469	130,432	132,651	130,061	127,580	122,321	120,803	106,391
Net Increase (Decrease) in Fiduciary Net Position	\$150,866	\$18,734	\$2,679	\$113,088	\$65,352	\$95,374	\$64,362	\$346,625	\$(51,601)	\$163,967

Changes in Fiduciary Net Position - KERS Hazardous Pension Fund

As of June 30 (\$ in Thousands)

Additions	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Members' Contributions	\$11,995	\$12,670	\$15,055	\$17,523	\$17,891	\$17,118	\$19,769	\$19,961	\$20,588	\$17,459
Employers' Contributions	11,670	28,374	23,690	37,630	32,790	55,229	59,096	62,182	59,052	64,020
Employer Pay Credit										8,758
General Fund Appropriations	-	-	-	15,000	10,000	-	-	-	-	-
Health Insurance Contributions (HB1)	551	537	684	811	909	934	4	3	(5)	(7)
Net Investment Income (Loss)	80,724	8,701	(1,652)	70,993	51,848	36,704	6,805	174,922	(51,841)	77,261
Bank of America Settlement	-	767	-	-	-	-	-	-	-	-
Northern Trust Settlement	-	-	-	-	33	4	-	-	-	-
Pension Spiking	-	162	70	344	871	29	19	18	3	29
Total Additions	104,941	51,211	37,847	142,301	114,342	110,018	85,693	257,086	27,797	167,520
Deductions										
Benefit Payments	54,320	56,774	59,306	61,231	65,616	69,527	71,861	73,889	77,047	78,636
Refunds	2,830	2,609	2,211	2,106	2,501	2,684	3,168	4,380	4,976	4,041
Administrative Expenses	897	844	903	919	975	1,103	1,176	1,255	1,465	1,513
Capital Project Expenses	-	-	15	4	-	-	-	-	-	-
Total Deductions	58,048	60,227	62,435	64,260	69,092	73,314	76,205	79,524	83,488	84,190
Net Increase (Decrease) in Fiduciary Net Position	\$46,892	\$(9,016)	\$(24,588)	\$78,041	\$45,250	\$36,704	\$9,488	\$177,562	\$(55,691)	\$83,330

KERS Hazardous Insurance Fund

As of June 30 (\$ in Thousands)

Additions	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Employers' Contributions	\$23,336	\$14,173	\$15,929	\$4,688	\$4,302	\$3,725	\$4,482	\$23	\$1	\$37
Net Investment Income (Loss)	52,214	7,793	(882)	59,188	42,567	28,049	638	126,475	(27,406)	52,991
Retired Re-employed (HB1)	538	709	837	932	986	1,245	1,294	1,276	1,280	1,452
Member Drug Reimbursement	-	-	-	-	-	-	1	-	1	-
Premiums Received from Retirees	37	14	(13)	(51)	(50)	(19)	(5)	(11)	(54)	(69)
Humana Gain Share	-	-	-	-	-	213	-	1,253	548	368
Northern Trust Settlement	-	-	-	-	18	2	-	-	-	-
Health Insurance Contributions (HB1)	-	-	-	-	-	-	1,100	1,164	1,232	1,592
Total Additions	76,126	22,689	15,871	64,757	47,823	33,215	7,510	130,180	(24,398)	56,371
Deductions										
Health Insurance Premiums	15,405	17,000	17,490	17,562	18,697	19,280	19,630	19,800	20,355	19,748
Administrative Expenses	78	101	97	105	104	117	123	118	125	123
Self-Funded Healthcare Costs	-	-	-	45	79	94	125	112	109	80
Excise Tax Insurance	-	-	-	-	-	-	-	-	-	-
Total Deductions	15,482	17,101	17,587	17,712	18,880	19,491	19,878	20,030	20,589	19,951
Net Increase (Decrease) in Fiduciary Net Position	\$60,642	\$5,588	\$(1,716)	\$47,045	\$28,943	\$13,724	\$(12,368)	\$110,150	\$(44,987)	\$36,420

Changes in Fiduciary Net Position - SPRS Pension Fund

As of June 30 (\$ in Thousands)

Additions	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Members' Contributions	\$5,005	\$5,150	\$5,149	\$5,349	\$5,522	\$5,062	\$4,767	\$4,752	\$4,773	\$5,250
Employers' Contributions	20,279	31,444	25,723	38,028	36,486	58,947	58,358	59,262	62,341	56,536
Employer Pay Credit										1,585
General Fund Appropriations	-	-	-	25,000	10,000	1,086	1,086	384	215,000	-
Health Insurance Contributions (HB1)	70	94	113	131	155	176	-	-	(26)	(8)
Net Investment Income (Loss)	40,374	3,427	(3,841)	26,795	18,487	14,863	6,359	61,966	(22,148)	40,801
Bank of America Settlement	-	646	-	-	-	-	-	-	-	-
Northern Trust Settlement	-	-	-	-	21	3	-	-	-	-
Pension Spiking	-	546	99	210	392	15	9	4	-	-
Total Additions	65,729	41,307	27,243	95,513	71,063	80,152	70,579	126,368	259,940	104,164
Deductions										
Benefit Payments	53,026	54,766	56,268	56,935	58,805	60,948	62,423	63,249	64,121	63,805
Refunds	214	85	11	26	22	162	88	273	280	166
Administrative Expenses	215	201	176	181	194	225	266	230	273	293
Capital Project Expenses	-	-	4	1	-	-	-	-	-	-
Total Deductions	53,454	55,052	56,459	57,143	59,021	61,335	62,777	63,752	64,674	64,264
Net Increase (Decrease) in Fiduciary Net Position	\$12,276	\$(13,745)	\$(29,216)	\$38,370	\$12,042	\$18,817	\$7,802	\$62,616	\$195,266	\$39,900

SPRS Insurance Fund

As of June 30 (\$ in Thousands)

Additions	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Employers' Contributions	\$14,498	\$10,379	\$10,228	\$9,222	\$9,397	\$13,282	\$13,133	\$9,284	\$8,782	\$9,289
Net Investment Income (Loss)	20,508	2,921	(48)	21,570	16,420	10,766	1,108	50,051	(10,787)	21,426
Retired Re-employed (HB1)	(5)	3	9	-	-	6	-	-	-	-
Member Drug Reimbursement	-	-	-	-	-	-	-	-	-	-
Premiums Received from Retirees	11	1	(29)	(55)	(41)	(13)	(12)	(14)	(27)	(131)
Humana Gain Share	-	-	-	-	-	144	-	811	342	224
Northern Trust Settlement	-	-	-	-	8	1	-	-	-	-
Health Insurance contributions (HB1)	-	-	-	-	-	-	196	209	256	356
Total Additions	35,012	13,304	10,160	30,737	25,784	24,186	14,425	60,341	(1,434)	31,164
Deductions										
Health Insurance Premiums	12,688	13,483	13,836	13,405	13,881	13,942	14,215	14,487	14,461	14,290
Administrative Expenses	58	65	89	66	62	69	71	71	73	74
Self-Funded Healthcare Costs	-	-	-	24	38	40	22	25	21	18
Excise Tax Insurance	-	-	-	-	-	-	-	-	-	-
Total Deductions	12,745	13,548	13,925	13,495	13,981	14,051	14,308	14,583	14,555	14,382
Net Increase (Decrease) in Fiduciary Net Position	\$22,267	\$(244)	\$(3,765)	\$17,242	\$11,803	\$10,135	\$117	\$45,758	\$(15,989)	\$16,782

The following tables include individuals receiving a monthly benefit as of June 30 in the indicated fiscal year. A single member may have multiple accounts which contribute to one pension. This table represents all individuals receiving a benefit including dependent children, Qualified Domestic Relations Order (QDRO) accounts and multiple beneficiary accounts. If a member has died or a disability decision is pending, the monthly benefit amount is reflected as zero until the account status changes.

Schedule of Benefit Expenses CERS Nonhazardous

As of June 30 (in Whole \$)

	Normal Retirement	Early Retirement	Disability Retirement	Beneficiary Payments
Fiscal Year 2014				
Average Benefit	\$596	\$1,042	\$856	\$613
Number of Accounts	11,885	34,911	4,729	1,110
Total Monthly Benefits	\$7,081,048	\$36,375,607	\$4,047,035	\$680,784
% of Total Monthly Benefits	14.70%	75.49%	8.40%	1.41%
Fiscal Year 2015				
Average Benefit	\$612	\$1,044	\$862	\$616
Number of Accounts	12,749	36,746	4,854	1,161
Total Monthly Benefits	\$7,801,662	\$38,375,001	\$4,186,130	\$715,032
% of Total Monthly Benefits	15.27%	75.13%	8.20%	1.40%
Fiscal Year 2016				
Average Benefit	\$623	\$1,045	\$874	\$626
Number of Accounts	14,014	39,066	5,118	1,268
Total Monthly Benefits	\$8,724,563	\$40,823,334	\$4,472,723	\$793,726
% of Total Monthly Benefits	15.92%	74.48%	8.16%	1.45%
Fiscal Year 2017				
Average Benefit	\$634	\$1,050	\$883	\$616
Number of Accounts	14,792	40,873	5,280	1,318
Total Monthly Benefits	\$9,374,583	\$42,912,604	\$4,661,375	\$811,542
% of Total Monthly Benefits	16.23%	74.29%	8.07%	1.41%
Fiscal Year 2018				
Average Benefit	\$647	\$1,062	\$892	\$645
Number of Accounts	15,713	42,918	5,425	1,359
Total Monthly Benefits	\$10,169,605	\$45,560,863	\$4,838,284	\$875,980
% of Total Monthly Benefits	16.55%	74.15%	7.87%	1.43%
Fiscal Year 2019				
Average Benefit	\$668	\$1,067	\$901	\$657
Number of Accounts	16,710	44,594	5,479	1,363
Total Monthly Benefits	\$11,167,300	\$47,580,052	\$4,934,518	\$895,303
% of Total Monthly Benefits	17.29%	73.68%	7.64%	1.39%
Fiscal Year 2020				
Average Benefit	\$673	\$1,070	\$904	\$667
Number of Accounts	17,378	45,973	5,405	1,370
Total Monthly Benefits	\$11,693,581	\$49,186,433	\$4,888,554	\$913,574
% of Total Monthly Benefits	17.54%	73.76%	7.33%	1.37%
Fiscal Year 2021				
Average Benefit	\$684	\$1,074	\$909	\$688
Number of Accounts	18,581	47,970	5,518	1,432
Total Monthly Benefits	\$12,717,667	\$51,532,707	\$5,016,308	\$984,964
% of Total Monthly Benefits	18.10%	73.35%	7.14%	1.40%
Fiscal Year 2022				
Average Benefit	\$701	\$1,082	\$914	\$723
Number of Accounts	19,172	49,431	5,444	1,470
Total Monthly Benefits	\$13,435,298	\$53,468,946	\$4,977,131	\$1,062,739
% of Total Monthly Benefits	18.42%	73.30%	6.82%	1.46%
Fiscal Year 2023				
Average Benefit	\$717	\$1,095	\$920	\$753
Number of Accounts	19,864	50,658	5,303	1,516
Total Monthly Benefits	\$14,247,555	\$55,453,257	\$4,876,441	\$1,141,532
% of Total Monthly Benefits	18.82%	73.23%	6.44%	1.51%

Schedule of Benefit Expenses - CERS Hazardous

As of June 30 (in Whole \$)

	Normal Retirement	Early Retirement	Disability Retirement	Beneficiary Payments
Fiscal Year 2014				
Average Benefit	\$1,467	\$2,437	\$1,125	\$1,008
Number of Accounts	1,974	4,873	695	119
Total Monthly Benefits	\$2,895,353	\$11,876,578	\$781,685	\$119,935
% of Total Monthly Benefits	18.47%	75.77%	4.99%	0.77%
Fiscal Year 2015				
Average Benefit	\$1,480	\$2,448	\$1,145	\$954
Number of Accounts	2,097	5,139	688	127
Total Monthly Benefits	\$3,103,613	\$12,581,191	\$787,549	\$121,103
% of Total Monthly Benefits	18.70%	75.82%	4.75%	0.73%
Fiscal Year 2016				
Average Benefit	\$1,494	\$2,453	\$1,137	\$975
Number of Accounts	2,269	5,485	742	143
Total Monthly Benefits	\$3,388,890	\$13,452,235	\$843,463	\$139,353
% of Total Monthly Benefits	19.01%	75.47%	4.73%	0.78%
Fiscal Year 2017				
Average Benefit	\$1,509	\$2,473	\$1,138	\$997
Number of Accounts	2,394	5,764	794	149
Total Monthly Benefits	\$3,612,099	\$14,255,349	\$903,238	\$148,515
% of Total Monthly Benefits	19.09%	75.35%	4.77%	0.78%
Fiscal Year 2018				
Average Benefit	\$1,542	\$2,505	\$1,141	\$1,110
Number of Accounts	2,540	6,189	811	158
Total Monthly Benefits	\$3,917,668	\$15,503,185	\$925,221	\$175,316
% of Total Monthly Benefits	19.09%	75.55%	4.51%	0.85%
Fiscal Year 2019				
Average Benefit	\$1,546	\$2,522	\$1,163	\$1,166
Number of Accounts	2,655	6,488	822	168
Total Monthly Benefits	\$4,104,061	\$16,365,945	\$956,017	\$195,932
% of Total Monthly Benefits	18.98%	75.69%	4.42%	0.91%
Fiscal Year 2020				
Average Benefit	\$1,590	\$2,554	\$1,174	\$1,205
Number of Accounts	2,771	6,864	814	169
Total Monthly Benefits	\$4,406,958	\$17,527,561	\$955,266	\$203,646
% of Total Monthly Benefits	19.08%	75.90%	4.14%	0.88%
Fiscal Year 2021				
Average Benefit	\$1,615	\$2,569	\$1,169	\$1,253
Number of Accounts	2,908	7,211	846	173
Total Monthly Benefits	\$4,698,033	\$18,522,964	\$988,745	\$216,818
% of Total Monthly Benefits	19.23%	75.83%	4.05%	0.89%
Fiscal Year 2022				
Average Benefit	\$1,649	\$2,586	\$1,173	\$1,329
Number of Accounts	2,979	7,494	858	182
Total Monthly Benefits	\$4,910,951	\$19,377,298	\$1,006,030	\$241,826
% of Total Monthly Benefits	19.23%	75.88%	3.94%	0.95%
Fiscal Year 2023				
Average Benefit	\$1,690	\$2,616	\$1,196	\$1,437
Number of Accounts	3,061	7,784	853	188
Total Monthly Benefits	\$5,171,930	\$20,360,195	\$1,020,135	\$270,089
% of Total Monthly Benefits	19.28%	75.91%	3.80%	1.01%

Schedule of Benefit Expenses - KERS Nonhazardous

As of June 30 (in Whole \$)

	Normal Retirement	Early Retirement	Disability Retirement	Beneficiary Payments
Fiscal Year 2014				
Average Benefit	\$992	\$1,911	\$987	\$886
Number of Accounts	6,678	33,106	2,706	954
Total Monthly Benefits	\$6,624,472	\$63,255,779	\$2,671,749	\$845,468
% of Total Monthly Benefits	9.03%	86.18%	3.64%	1.15%
Fiscal Year 2015				
Average Benefit	\$992	\$1,901	\$996	\$909
Number of Accounts	6,896	33,940	2,696	983
Total Monthly Benefits	\$6,843,193	\$64,503,048	\$2,684,720	\$893,407
% of Total Monthly Benefits	9.13%	86.09%	3.58%	1.19%
Fiscal Year 2016				
Average Benefit	\$989	\$1,886	\$1,005	\$902
Number of Accounts	7,390	35,192	2,770	1,014
Total Monthly Benefits	\$7,312,293	\$66,383,638	\$2,784,928	\$914,804
% of Total Monthly Benefits	9.45%	85.77%	3.60%	1.18%
Fiscal Year 2017				
Average Benefit	\$992	\$1,883	\$1,013	\$924
Number of Accounts	7,628	35,890	2,772	1,028
Total Monthly Benefits	\$7,565,780	\$67,591,003	\$2,807,938	\$950,318
% of Total Monthly Benefits	9.59%	85.65%	3.56%	1.20%
Fiscal Year 2018				
Average Benefit	\$998	\$1,879	\$1,019	\$940
Number of Accounts	8,070	37,141	2,767	1,007
Total Monthly Benefits	\$8,049,794	\$69,780,011	\$2,818,593	\$946,466
% of Total Monthly Benefits	9.87%	85.52%	3.45%	1.16%
Fiscal Year 2019				
Average Benefit	\$993	\$1,876	\$1,029	\$933
Number of Accounts	8,387	37,751	2,751	997
Total Monthly Benefits	\$8,328,706	\$70,826,696	\$2,831,527	\$930,110
% of Total Monthly Benefits	10.04%	85.42%	3.41%	1.12%
Fiscal Year 2020				
Average Benefit	\$984	\$1,872	\$1,031	\$937
Number of Accounts	8,622	38,233	2,676	987
Total Monthly Benefits	\$8,483,484	\$71,585,386	\$2,759,983	\$924,459
% of Total Monthly Benefits	10.13%	85.47%	3.30%	1.10%
Fiscal Year 2021				
Average Benefit	\$984	\$1,864	\$1,036	\$949
Number of Accounts	9,046	39,020	2,698	1,019
Total Monthly Benefits	\$8,897,420	\$72,724,923	\$2,796,355	\$966,951
% of Total Monthly Benefits	10.42%	85.17%	3.27%	1.13%
Fiscal Year 2022				
Average Benefit	\$987	\$1,860	\$1,031	\$966
Number of Accounts	9,279	39,508	2,609	1,033
Total Monthly Benefits	\$9,155,941	\$73,489,369	\$2,690,544	\$997,608
% of Total Monthly Benefits	10.61%	85.12%	3.12%	1.16%
Fiscal Year 2023				
Average Benefit	\$982	\$1,861	\$1,034	\$956
Number of Accounts	9,464	39,505	2,531	1,024
Total Monthly Benefits	\$9,291,103	\$73,531,803	\$2,615,997	\$979,166
% of Total Monthly Benefits	10.75%	85.09%	3.03%	1.13%

Schedule of Benefit Expenses - KERS Hazardous

As of June 30 (in Whole \$)

	Normal Retirement	Early Retirement	Disability Retirement	Beneficiary Payments
Fiscal Year 2014				
Average Benefit	\$971	\$1,560	\$649	\$749
Number of Accounts	1,851	1,497	191	89
Total Monthly Benefits	\$1,797,900	\$2,335,190	\$123,867	\$66,679
% of Total Monthly Benefits	41.58%	54.01%	2.86%	1.54%
Fiscal Year 2015				
Average Benefit	\$986	\$1,556	\$661	\$714
Number of Accounts	1,912	1,566	193	90
Total Monthly Benefits	\$1,884,477	\$2,436,923	\$127,477	\$64,250
% of Total Monthly Benefits	41.76%	54.00%	2.82%	1.42%
Fiscal Year 2016				
Average Benefit	\$984	\$1,542	\$663	\$730
Number of Accounts	2,046	1,658	194	94
Total Monthly Benefits	\$2,011,530	\$2,557,114	\$128,663	\$68,605
% of Total Monthly Benefits	42.21%	53.65%	2.70%	1.44%
Fiscal Year 2017				
Average Benefit	\$993	\$1,541	\$662	\$721
Number of Accounts	2,101	1,719	205	96
Total Monthly Benefits	\$2,086,732	\$2,648,685	\$135,625	\$69,255
% of Total Monthly Benefits	42.24%	53.61%	2.75%	1.40%
Fiscal Year 2018				
Average Benefit	\$1,002	\$1,551	\$684	\$737
Number of Accounts	2,215	1,877	205	100
Total Monthly Benefits	\$2,218,520	\$2,911,409	\$140,174	\$73,704
% of Total Monthly Benefits	41.52%	54.48%	2.62%	1.38%
Fiscal Year 2019				
Average Benefit	\$1,020	\$1,561	\$708	\$744
Number of Accounts	2,269	1,987	208	99
Total Monthly Benefits	\$2,315,435	\$3,101,783	\$147,342	\$73,702
% of Total Monthly Benefits	41.07%	55.01%	2.61%	1.31%
Fiscal Year 2020				
Average Benefit	\$1,017	\$1,561	\$701	\$739
Number of Accounts	2,334	2,061	207	94
Total Monthly Benefits	\$2,374,412	\$3,216,376	\$145,112	\$69,433
% of Total Monthly Benefits	40.90%	55.40%	2.50%	1.20%
Fiscal Year 2021				
Average Benefit	\$1,021	\$1,551	\$701	\$751
Number of Accounts	2,414	2,164	215	97
Total Monthly Benefits	\$2,464,831	\$3,355,473	\$150,742	\$72,837
% of Total Monthly Benefits	40.78%	55.52%	2.49%	1.21%
Fiscal Year 2022				
Average Benefit	\$1,032	\$1,560	\$711	\$786
Number of Accounts	2,434	2,267	216	96
Total Monthly Benefits	\$2,512,089	\$3,536,881	\$153,476	\$75,437
% of Total Monthly Benefits	40.01%	56.34%	2.44%	1.20%
Fiscal Year 2023				
Average Benefit	\$1,040	\$1,565	\$703	\$843
Number of Accounts	2,441	2,296	213	98
Total Monthly Benefits	\$2,538,237	\$3,592,494	\$149,801	\$82,626
% of Total Monthly Benefits	39.89%	56.46%	2.35%	1.30%

Schedule of Benefit Expenses - SPRS

As of June 30 (in Whole \$)

	Normal Retirement	Early Retirement	Disability Retirement	Beneficiary Payments
Fiscal Year 2014				
Average Benefit	\$3,621	\$3,197	\$1,346	\$2,196
Number of Accounts	146	1,172	75	23
Total Monthly Benefits	\$528,611	\$3,747,012	\$100,974	\$49,197
% of Total Monthly Benefits	11.94%	84.66%	2.28%	1.11%
Fiscal Year 2015				
Average Benefit	\$3,578	\$3,189	\$1,347	\$2,153
Number of Accounts	150	1,213	75	23
Total Monthly Benefits	\$536,649	\$3,867,971	\$101,018	\$49,524
% of Total Monthly Benefits	11.78%	84.91%	2.22%	1.09%
Fiscal Year 2016				
Average Benefit	\$3,579	\$3,135	\$1,269	\$2,008
Number of Accounts	155	1,277	82	25
Total Monthly Benefits	\$554,743	\$4,002,993	\$104,056	\$50,196
% of Total Monthly Benefits	11.77%	84.95%	2.21%	1.07%
Fiscal Year 2017				
Average Benefit	\$3,611	\$3,135	\$1,278	\$2,008
Number of Accounts	149	1,303	82	25
Total Monthly Benefits	\$538,032	\$4,084,771	\$104,788	\$50,196
% of Total Monthly Benefits	11.26%	85.50%	2.19%	1.05%
Fiscal Year 2018				
Average Benefit	\$3,642	\$3,128	\$1,289	\$2,082
Number of Accounts	153	1,361	83	26
Total Monthly Benefits	\$557,249	\$4,257,579	\$107,019	\$54,127
% of Total Monthly Benefits	11.20%	85.56%	2.15%	1.09%
Fiscal Year 2019				
Average Benefit	\$3,607	\$3,138	\$1,298	\$2,082
Number of Accounts	156	1,401	83	26
Total Monthly Benefits	\$562,630	\$4,395,857	\$107,737	\$54,127
% of Total Monthly Benefits	10.99%	85.85%	2.10%	1.06%
Fiscal Year 2020				
Average Benefit	\$3,628	\$3,154	\$1,339	\$2,137
Number of Accounts	152	1,440	80	26
Total Monthly Benefits	\$551,470	\$4,541,490	\$107,148	\$55,558
% of Total Monthly Benefits	10.49%	86.41%	2.04%	1.06%
Fiscal Year 2021				
Average Benefit	\$3,542	\$3,160	\$1,287	\$2,137
Number of Accounts	156	1,468	84	26
Total Monthly Benefits	\$552,551	\$4,638,826	\$108,101	\$55,558
% of Total Monthly Benefits	10.32%	86.63%	2.02%	1.04%
Fiscal Year 2022				
Average Benefit	\$3,565	\$3,163	\$1,275	\$2,077
Number of Accounts	159	1,481	83	25
Total Monthly Benefits	\$566,764	\$4,683,959	\$105,787	\$51,931
% of Total Monthly Benefits	10.48%	86.60%	1.96%	0.96%
Fiscal Year 2023				
Average Benefit	\$3,550	\$3,146	\$1,294	\$2,077
Number of Accounts	155	1,486	83	25
Total Monthly Benefits	\$550,304	\$4,674,802	\$107,386	\$51,931
% of Total Monthly Benefits	10.22%	86.82%	1.99%	0.97%

Active Refunds Report For the Period ended June 30, 2023 (in Whole \$)							
System	Tier	Active Termination Refunds		Active Death Refunds		Totals	
		Number of Refunds	Amount of Refunds	Number of Refunds	Amount of Refunds	Number of Refunds	Amount of Refunds
CERS Nonhazardous	1	276	\$3,642,939	169	\$338,656	445	\$3,981,595
	2	457	6,452,888	51	156,026	508	6,608,914
	3	1,849	12,368,533	92	282,340	1,941	12,650,873
	Total	2,582	22,464,360	312	777,022	2,894	23,241,382
CERS Hazardous	1	21	620,357	1	616	22	620,973
	2	40	2,277,137	-	-	40	2,277,137
	3	174	3,316,045	-	-	174	3,316,045
	Total	235	6,213,539	1	616	236	6,214,155
KERS Nonhazardous	1	168	2,334,981	98	184,293	266	2,519,274
	2	203	3,488,346	16	79,384	219	3,567,730
	3	626	5,285,615	22	59,301	648	5,344,916
	Total	997	11,108,942	136	322,978	1,133	11,431,920
KERS Hazardous	1	8	184,704	5	12,303	13	197,007
	2	38	933,351	2	7,316	40	940,667
	3	205	2,771,039	3	24,561	208	2,795,600
	Total	251	3,889,094	10	44,180	261	3,933,274
SPRS	1	2	46,983	-	-	2	46,983
	2	2	103,622	-	-	2	103,622
	3	3	618	-	-	3	618
	Total	7	151,223	-	-	7	151,223
TOTALS		4,072	\$43,827,158	459	\$1,144,796	4,531	\$44,971,954

Analysis of Initial Retirees As of June 30 (in Whole \$)					
	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
Fiscal Year 2014					
Number of Accounts	3,529	430	2,037	245	77
Average Service Credit (months)	182	194	202	165	260
Average Final Compensation	\$33,816	\$57,718	\$46,480	\$46,595	\$70,009
Average Monthly Benefit	\$879	\$2,021	\$1,278	\$1,296	\$3,322
Average System Payment for Health Insurance	\$486	\$1,279	\$534	\$937	\$1,378
Fiscal Year 2015					
Number of Accounts	4,084	496	2,078	191	55
Average Service Credit (months)	188	204	204	164	251
Average Final Compensation	\$34,561	\$59,589	\$47,187	\$47,148	\$67,862
Average Monthly Benefit	\$913	\$2,178	\$1,308	\$1,280	\$3,009
Average System Payment for Health Insurance	\$489	\$1,254	\$549	\$906	\$1,376
Fiscal Year 2016					
Number of Accounts	4,151	522	2,043	205	57
Average Service Credit (months)	190	212	207	160	234
Average Final Compensation	\$34,632	\$58,977	\$47,429	\$44,494	\$65,535
Average Monthly Benefit	\$932	\$2,303	\$1,351	\$1,225	\$2,953
Average System Payment for Health Insurance	\$501	\$1,277	\$558	\$870	\$1,425
Fiscal Year 2017					
Number of Accounts	4,151	544	2,094	191	30
Average Service Credit (months)	191	203	208	146	241
Average Final Compensation	\$34,779	\$58,384	\$46,753	\$47,604	\$68,401
Average Monthly Benefit	\$940	\$2,236	\$1,339	\$1,150	\$2,935
Average System Payment for Health Insurance	\$510	\$1,247	\$558	\$872	\$1,192
Fiscal Year 2018					
Number of Accounts	4,570	696	2,682	328	68
Average Service Credit (months)	195	211	223	167	241
Average Final Compensation	\$37,683	\$65,407	\$48,552	\$51,219	\$71,132
Average Monthly Benefit	\$1,027	\$2,528	\$1,481	\$1,392	\$3,035
Average System Payment for Health Insurance	\$531	\$1,300	\$578	\$1,033	\$1,365
Fiscal Year 2019					
Number of Accounts	4,283	541	1,993	234	63
Average Service Credit (months)	193	198	204	174	254
Average Final Compensation	\$37,412	\$64,646	\$47,824	\$51,901	\$73,795
Average Monthly Benefit	\$997	\$2,366	\$1,355	\$1,532	\$3,341
Average System Payment for Health Insurance	\$513	\$1,231	\$569	\$1,015	\$1,391
Fiscal Year 2020					
Number of Accounts	3,584	580	1,755	195	54
Average Service Credit (months)	189	221	211	150	245
Average Final Compensation	\$36,968	\$67,994	\$47,069	\$51,021	\$78,468
Average Monthly Benefit	\$935	\$2,715	\$1,352	\$1,242	\$3,313
Average System Payment for Health Insurance	\$539	\$1,361	\$579	\$1,013	\$1,404
Fiscal Year 2021					
Number of Accounts	3,967	531	1,644	201	32
Average Service Credit (months)	194	209	201	143	217
Average Final Compensation	\$38,245	\$68,216	\$46,600	\$49,664	\$72,942
Average Monthly Benefit	\$987	\$2,589	\$1,276	\$1,248	\$2,872
Average System Payment for Health Insurance	\$543	\$1,326	\$560	\$1,019	\$1,347

Analysis of Initial Retirees As of June 30 (in Whole \$) Continued

	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
Fiscal Year 2022					
Number of Accounts	3,975	496	1,910	221	46
Average Service Credit (months)	198	205	213	165	245
Average Final Compensation	\$39,244	\$70,218	\$48,028	\$52,575	\$76,377
Average Monthly Benefit	\$1,048	\$2,691	\$1,389	\$1,515	\$3,287
Average System Payment for Health Insurance	\$576	\$1,336	\$599	\$1,020	\$1,345
Fiscal Year 2023					
Number of Accounts	4,003	498	1,479	136	13
Average Service Credit (months)	194	216	190	146	186
Average Final Compensation	\$41,262	\$77,761	\$50,304	\$52,473	\$73,081
Average Monthly Benefit	\$1,101	\$3,029	\$1,332	\$1,315	\$2,737
Average System Payment for Health Insurance	\$625	\$1,503	\$640	\$1,151	\$1,208

Note: This table represents all individuals who had an initial retirement date within the fiscal year.

Payment Options Selected by Retired Members As of June 30, 2023 (in Whole \$)

	Basic	Other	Period Certain	Pop Up	Social Security Adjustment	Survivorship	Annuity
CERS Nonhazardous							
Number of Accounts	33,185	26	11,314	12,064	2,289	18,398	65
Monthly Benefits	\$27,776,553	\$46,638	\$10,388,401	\$15,144,926	\$3,131,754	\$19,222,394	\$8,119
CERS Hazardous							
Number of Accounts	1,976	36	1,112	4,658	600	3,504	-
Monthly Benefits	\$3,911,427	\$60,706	\$2,321,508	\$11,979,911	\$1,020,349	\$7,528,447	\$-
KERS Nonhazardous							
Number of Accounts	19,393	23	6,715	10,163	3,243	12,971	16
Monthly Benefits	\$28,657,458	\$45,511	\$10,289,411	\$20,547,866	\$5,618,055	\$21,255,419	\$4,349
KERS Hazardous							
Number of Accounts	1,414	6	553	1,402	318	1,350	5
Monthly Benefits	\$1,573,156	\$5,498	\$695,779	\$2,105,151	\$352,552	\$1,629,635	\$1,387
SPRS							
Number of Accounts	189	1	132	754	182	491	-
Monthly Benefits	\$545,008	\$3,084	\$383,635	\$2,588,617	\$364,615	\$1,499,465	\$-
KPPA Total							
Number of Accounts	56,157	92	19,826	29,041	6,632	36,714	86
Monthly Benefits	\$62,463,602	\$161,437	\$24,078,734	\$52,366,471	\$10,487,325	\$51,135,360	\$13,855

The information in this table represents accounts administered by KPPA. A single member may have multiple accounts, which contribute to one pension.

Employer Contribution Rates

In CERS, KERS, and SPRS, both the employee and the employer contribute a percentage of creditable compensation to KPPA.

The employee contribution rate is set by state statute. Nonhazardous employees contribute 5% while Hazardous duty members contribute 8%. Employees hired on or after September 1, 2008, contribute an additional 1% to health insurance.

CERS employer contribution rates are set by the CERS Board under Kentucky Revised Statutes 78.635 based on an annual actuarial valuation, unless altered by legislation enacted by the Kentucky General Assembly. The CERS employer contribution rates for fiscal year 2008 through 2009 were reduced from the actuarially recommended rate as a result of the passage of House Bill (HB) 1 during the 2008 Extraordinary Session of the Kentucky General Assembly. Also, during its 2009 Regular Session, the Kentucky General Assembly enacted HB 117, which mandated an extension of the phase-in of insurance contribution rates that had been previously approved by the KPPA Board in 2006 from five years to 10 years to further mitigate the impact of the application of GASB Statements 43 and 45 on CERS employer contribution rates for health insurance. During the 2018 Regular Session of the Kentucky General Assembly, HB 362 capped CERS employer contribution rate increases to no more than 12% per year over the prior fiscal year for the period of July 1, 2018 to June 30, 2028, or until the actuarial recommended contribution was met. Fiscal year 2022 was the last year for the 12% cap for CERS. The actual pension and insurance employer contribution rates that were paid are shown below.

Under Kentucky Revised Statutes 61.565, KERS and SPRS employer contribution rates are set by the KRS Board based on an annual actuarial valuation. However, KERS and SPRS employer rates are subject to approval by the Kentucky General Assembly through the adoption of the biennial Executive Branch Budget. For fiscal years 2003 through 2014, the Kentucky General Assembly suspended Kentucky Revised Statutes 61.565 in the budget in order to provide an employer contribution rate that is less than the amount recommended by the Board's consulting actuary. For fiscal years 2018 thru 2021, the legislature amended the KERS Nonhazardous rate for quasi-government agencies to 49.47%. The table in the Actuarial Section shows the KERS and SPRS employer contribution rates that were actuarial recommended rates in the annual valuation without any adjustments. House Bill 8 passed during the 2021 legislative session changed how employer contributions are allocated and collected from the participating employers in the KERS Nonhazardous Fund. Each employer will pay a normal cost contribution on the payroll of their covered employees and contribute to the fund an allocated share of the cost required to amortize the unfunded liability.

Employer Contribution Rates (%) As of June 30										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
CERS Nonhazardous										
Actual Rate	18.89%	17.67%	17.06%	18.68%	19.18%	21.48%	24.06%	24.06%	26.95%	26.79%
CERS Hazardous										
Actual Rate	35.70%	34.31%	32.95%	31.06%	31.55%	35.34%	39.58%	39.58%	44.33%	49.59%
KERS Nonhazardous*										
Actual Rate	26.79%	38.77%	38.77%	48.59%	49.47%	83.43%	83.43%	84.43%	10.10%	9.97%
KERS Hazardous										
Actual Rate	32.21%	26.34%	26.34%	23.82%	23.70%	36.85%	36.85%	36.00%	33.43%	31.82%
SPRS										
Actual Rate	71.15%	75.76%	75.76%	89.21%	91.24%	146.28%	146.28%	143.48%	146.06%	99.43%
*2021 House Bill 8 changed the manner in which KERS Nonhazardous pays employer contributions. Beginning in FY22, each employer pays the normal cost, which is the rate stated above, along with an actuarial accrued liability payment that is calculated and provided by the actuary.										

Insurance Contracts

KPPA provides medical insurance and other managed care coverage for eligible retired members.

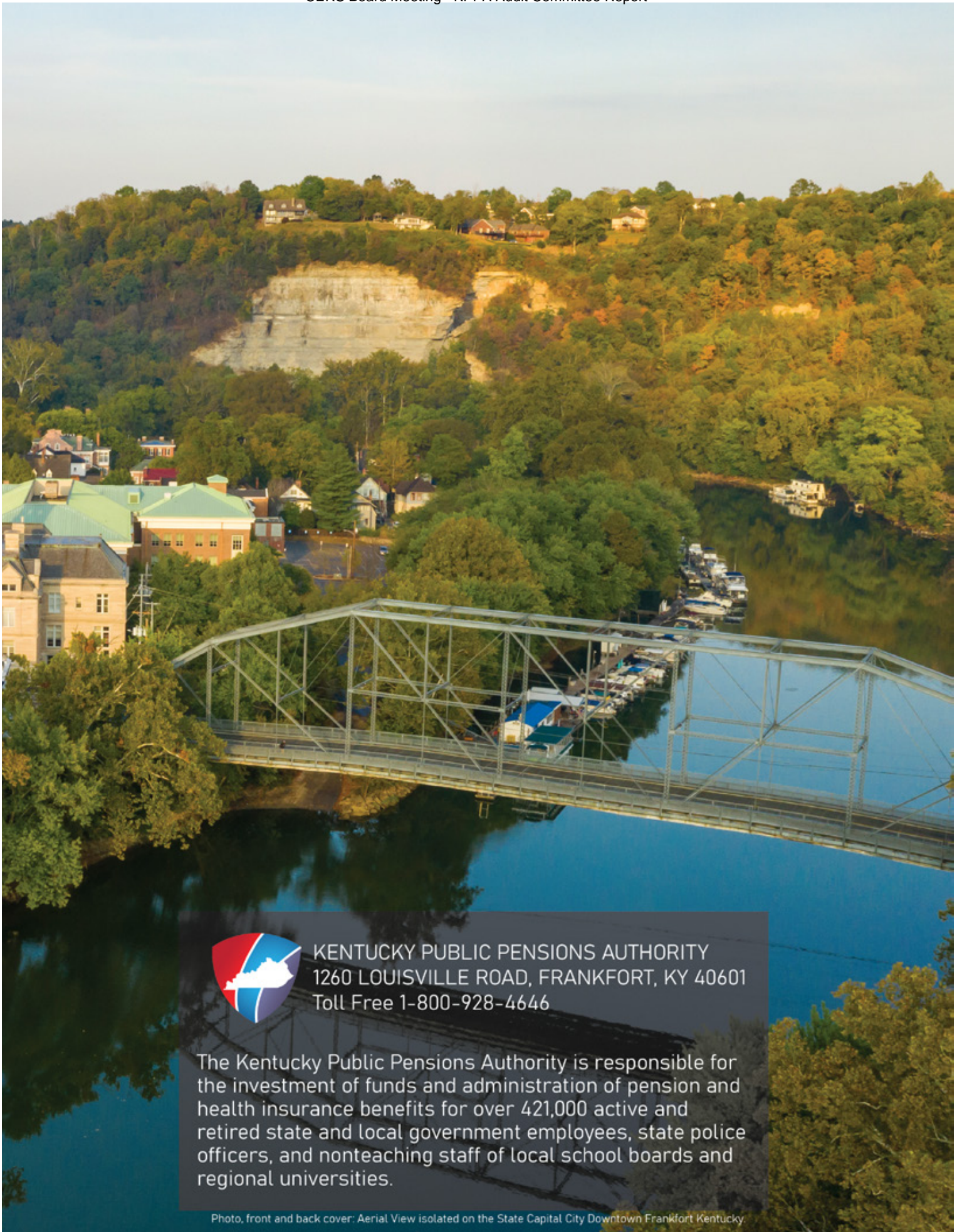
Participation in the insurance program is optional and requires the completion of the proper forms at the time of retirement in order to obtain the insurance coverage. KPPA provides access to health insurance coverage through the Kentucky Employees' Health Plan (KEHP) for recipients until they reach age 65 and/or become Medicare eligible. After a retired member becomes eligible for Medicare, coverage is available through a Medicare eligible plan offered by KPPA. A retired member's spouse and/or dependents may also be covered on health insurance through KPPA.

Insurance Benefits Paid to Retirees & Beneficiaries					
Participating in a KPPA Health Insurance Plan As of June 30, 2023 (in Whole \$)					
	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
Number	40,942	10,024	31,612	3,109	1,795
Average Service Credit (Months)	267	277	312	264	320
Average Monthly System Payment for Health Insurance	\$349	\$1,051	\$370	\$732	\$956
Average Monthly Member Payment for Health Insurance	\$55	\$42	\$55	\$45	\$25
Total Monthly Payment for Health Insurance	\$15,657,298	\$8,954,858	\$12,613,727	\$1,985,695	\$1,357,854

Insurance Contracts by Type As of June 30										
CERS Nonhazardous										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
KEHP Parent Plus	278	242	235	222	231	214	210	218	225	234
KEHP Couple/Family	546	473	465	462	510	530	519	508	543	524
KEHP Single	7,843	8,098	8,164	8,313	8,802	8,912	8,751	8,685	8,692	8,721
Medicare without Prescription	2,583	2,531	2,499	2,462	2,389	2,278	2,183	2,081	1,958	1,921
Medicare with Prescription	20,200	21,520	23,007	24,247	25,476	26,848	27,786	28,472	29,001	29,542
CERS Hazardous										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
KEHP Parent Plus	432	456	378	395	422	430	425	473	468	491
KEHP Couple/Family	2,184	2,255	2,321	2,387	2,571	2,648	2,816	2,894	2,961	3,047
KEHP Single	1,447	1,500	1,595	1,645	1,712	1,746	1,731	1,768	1,810	1,893
Medicare without Prescription	89	107	114	125	119	121	116	120	134	138
Medicare with Prescription	2,510	2,697	2,969	3,205	3,388	3,658	3,911	4,103	4,284	4,455
KERS Nonhazardous										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
KEHP Parent Plus	506	452	441	411	460	441	433	428	434	433
KEHP Couple/Family	797	714	656	663	696	700	666	633	612	553
KEHP Single	9,491	9,251	8,876	8,627	8,638	8,304	7,942	7,415	7,141	6,693
Medicare without Prescription	1,370	1,303	1,286	1,229	1,179	1,141	1,089	1,026	989	957
Medicare with Prescription	17,738	18,577	19,447	20,215	21,117	21,713	22,271	22,648	22,903	22,976
KERS Hazardous										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
KEHP Parent Plus	110	110	97	88	96	103	112	104	116	118
KEHP Couple/Family	448	448	439	432	478	493	491	491	477	470
KEHP Single	647	656	663	667	686	699	677	667	686	653
Medicare without Prescription	56	62	66	72	73	83	82	82	84	72
Medicare with Prescription	1,104	1,177	1,302	1,401	1,495	1,584	1,662	1,693	1,746	1,796
SPRS										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
KEHP Parent Plus	78	81	77	79	74	77	85	89	90	92
KEHP Couple/Family	444	441	447	420	426	454	459	448	454	434
KEHP Single	263	265	246	251	253	224	226	221	217	230
Medicare without Prescription	20	16	18	17	21	16	16	13	14	17
Medicare with Prescription	712	777	850	897	941	975	998	1,003	1,016	1,022
KPPA Total										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
KEHP Parent Plus	1,404	1,341	1,228	1,195	1,283	1,265	1,265	1,312	1,333	1,368
KEHP Couple/Family	4,419	4,331	4,328	4,364	4,681	4,825	4,951	4,974	5,047	5,028
KEHP Single	19,691	19,770	19,544	19,503	20,091	19,885	19,327	18,756	18,546	18,190
Medicare without Prescription	4,118	4,019	3,983	3,905	3,781	3,639	3,486	3,322	3,179	3,105
Medicare with Prescription	42,264	44,748	47,575	49,965	52,417	54,778	56,628	57,919	58,950	59,791

Acronym Glossary for Kentucky Retirement Systems As of December 6, 2023

Phrase	Acronym
Actuarially Determined Contribution	ADC
Annual Required Contribution	ARC
Annual Comprehensive Financial Report	ACFR
Board of Trustees	Board
Collateralized Mortgage Obligations	CMO
Commonwealth of Kentucky	Commonwealth
Consumer Price Index	CPI
Department of Employee Insurance	DEI
Emerging Market Debt	EMD
Executive Order	EO
Exchange Traded Funds	ETFs
Fiscal Year	FY
Generally Accepted Accounting Principles	GAAP
Governmental Accounting Standards Board	GASB
Gabriel, Roeder, Smith & Co.	GRS
House Bill	HB
Investment Management Agreement	IMA
Investment Policy Statement	IPS
Internal Revenue Service	IRS
Information Technology	IT
Kentucky Administrative Regulations	KAR
Kentucky Employees' Health Plan	KEHP
Kentucky Public Pensions Authority	KPPA
Kohlberg, Kravis, Roberts	KKR
Kentucky Retirement Systems	KRS
Net Asset Value	NAV
Net OPEB Liability	NOL
Net Pension Liability	NPL
Not Rated	NR
Other post-employment benefits	OPEB
Pacific Alternative Asset Management Company	PAAMCO
Perimeter Park West Incorporated	PPW
Qualified Domestic Relations Order	QDRO
Required Supplementary Information	RSI
Senate Bill	SB
Senate Resolution	SR
Strategic Technology Advancements for the Retirement of Tomorrow	START
Short Term Investment Funds	STIFs
Total Pension Liability	TPL
Teachers' Retirement System	TRS
Unfunded Actuarial Accrued Liability	UAAL
Unfunded Accrued Liability	UAL
Unrelated Business Income	UBI



KENTUCKY PUBLIC PENSIONS AUTHORITY
1260 LOUISVILLE ROAD, FRANKFORT, KY 40601
Toll Free 1-800-928-4646

The Kentucky Public Pensions Authority is responsible for the investment of funds and administration of pension and health insurance benefits for over 421,000 active and retired state and local government employees, state police officers, and nonteaching staff of local school boards and regional universities.

Photo, front and back cover: Aerial View isolated on the State Capital City Downtown Frankfort Kentucky



MIKE HARMON
AUDITOR OF PUBLIC ACCOUNTS

Keith Percy, Chairperson
Board of Trustees
Kentucky Public Pension Authority
1260 Louisville Road
Frankfort, KY 40601

We have audited the financial statements of the Kentucky Public Pension Authority (KPPA) as of and for the year ended June 30, 2023 and have issued our report thereon dated November 27, 2023.

Statement on Auditing Standards AU-C 260, *The Auditor's Communication with Those Charged with Governance*, requires us to communicate certain matters to keep those charged with governance adequately informed about matters related to the financial statement audit that are, in our professional judgment, significant and relevant to the responsibilities of those charged with governance in overseeing the financial reporting process. This report summarizes certain matters required by professional standards to be communicated to you in your oversight responsibility over the KPPA financial reporting process.

This information is intended solely for the information and use of the KPPA management, Audit Committee, and the Board of Trustees and is not intended to be and should not be used by anyone other than these specified parties.

Respectfully Submitted,

Farrah Petter, CPA
Assistant Auditor of Public Accounts

November 27, 2023

c: David Eager, Executive Director
Rebecca Adkins, Deputy Executive Director

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Required Communications

Statement on Auditing Standards AU-C 260 requires the auditor to provide those charged with governance with additional information regarding the scope and results of the audit that may assist them in overseeing management's financial reporting and disclosure process. For purposes of this statement "those charged with governance" means the person(s) with responsibility for overseeing the strategic direction of the entity and the obligations related to the accountability of the entity, which includes overseeing the financial reporting process. We have identified the Kentucky Public Pension Authority Board of Trustees members as individuals charged with governance. As permitted by auditing standards, we are providing communications to a representative of this group of individuals, which we have determined to be the Board Chair, and are also providing copies of the letter to the KPPA's management.

Our Responsibility in Relation to the Financial Statement Audit

As communicated in our engagement letter dated April 11, 2023, our responsibility, as described by professional standards, is to form and express an opinion(s) about whether the financial statements that have been prepared by management with your oversight are presented fairly, in all material respects, in accordance with accounting principles generally accepted in the United States of America. Our audit of the financial statements does not relieve you or management of your respective responsibilities.

Our responsibility, as prescribed by professional standards, is to plan and perform our audit to obtain reasonable, rather than absolute, assurance about whether the financial statements are free of material misstatement. An audit of financial statements includes consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control over financial reporting. Accordingly, as part of our audit, we considered the internal control of KPPA solely for the purpose of determining our audit procedures and not to provide any assurance concerning such internal control.

We are also responsible for communicating significant matters related to the audit that are, in our professional judgment, relevant to your responsibilities in overseeing the financial reporting process. However, we are not required to design procedures for the purpose of identifying other matters to communicate to you.

We have provided our findings, if any, regarding significant control deficiencies over financial reporting, material weaknesses, material noncompliance, and other matters noted during our audit in a separate letter to you dated November 27, 2023. Additional findings were also communicated in a separate letter to management dated November 27, 2023, which did not rise to level necessary to be disclosed in the audit report but still warranted attention by KPPA.

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Kentucky Public Pension Authority
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Our responsibility also includes communicating to you any information which we believe is a material misstatement of fact. Nothing came to our attention that caused us to believe that such information, or its manner of presentation, is materially inconsistent with the information, or manner of its presentation, appearing in the financial statements.

Planned Scope and Timing of the Audit

We conducted our audit consistent with the planned scope and timing we previously communicated to you.

Compliance with All Ethics Requirements Regarding Independence

The engagement team, others in our firm, as appropriate, our firm, and our network firms have complied with all relevant ethical requirements regarding independence.

Significant Risks Identified

We have identified the following significant risks:

- Management's override of controls is a mandatory risk in accordance with auditing standards.
- Improper revenue recognition is a presumed risk of material misstatement in auditing standards.
- Ineffective reconciliations among multiple computer programs is a risk.

Qualitative Aspects of the Entity's Significant Accounting Practices²

Significant Accounting Policies

Management has the responsibility to select and use appropriate accounting policies. A summary of the significant accounting policies adopted by KPPA is included in Note A to the financial statements. There have been no initial selection of accounting policies and no changes in significant accounting policies or their application during fiscal year 2023. No matters have come to our attention that would require us, under professional standards, to inform you about (1) the methods used to account for significant unusual transactions and (2) the effect of significant accounting policies in controversial or emerging areas for which there is a lack of authoritative guidance or consensus.

Significant Accounting Estimates

Accounting estimates are an integral part of the financial statements prepared by management and are based on management's current judgments. Those judgments are normally based on knowledge and experience about past and current events and assumptions about future events. Certain accounting estimates are particularly sensitive

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Kentucky Public Pension Authority
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because of their significance to the financial statements and because of the possibility that future events affecting them may differ markedly from management's current judgments.

The most sensitive accounting estimates affecting the financial statements are:

- Management's estimates related to the fair value of its investments on the Net Asset Value (NAV) of units of the investee. Management's estimate of the NAV is based on the investment manager's NAV since it is a practical resource based on the underlying fair value of investments held by the investee less any liabilities.
- Management's disclosure of the net pension liability in Note M to the financial statements. Management's estimate of the net pension liability is based on KPPA's actuarial valuations and the methods and assumptions used in determining the amounts are disclosed in the notes.
- Management's disclosure of the net OPEB liability of KPPA in Note M of the financial statements. Management's estimate of the OPEB liability is based on KPPA's actuarial valuations and the methods and assumptions used in determining the amounts are disclosed in the notes.

We evaluated the key factors and assumptions used to develop the NAV, net pension liability, and OPEB liability and determined that it is reasonable in relation to the basic financial statements taken as a whole and in relation to the applicable opinion units.

Financial Statement Disclosures

Certain financial statement disclosures involve significant judgment and are particularly sensitive because of their significance to financial statement users. We believe the financial statement disclosures affecting KPPA's financial statements are sufficient, consistent, and generally acceptable.

Significant Unusual Transactions

For purposes of this communication, professional standards require us to communicate to you significant unusual transactions identified during our audit. No significant unusual transactions were identified as a result of our audit procedures.

Identified or Suspected Fraud

We did not identify or obtain any information that indicates fraud may have occurred or be suspected.

Significant Difficulties Encountered during the Audit

We are required to inform those charged with governance of any significant difficulties encountered during the audit, including significant delays in obtaining information, extensive unexpected effort required to obtain sufficient appropriate audit evidence, the unavailability of expected information, and other matters.

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Kentucky Public Pension Authority
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We encountered no significant difficulties in dealing with management relating to the performance of the audit. The employees and management of KPPA provided the auditors with appropriate, timely documentation, and made time available to assist auditors in the performance of audit procedures. The auditors appreciate all of the time and assistance provided to them during the conduct of the audit.

Uncorrected and Corrected Misstatements

For purposes of this communication, professional standards also require us to accumulate all known and likely misstatements identified during the audit, other than those that we believe are trivial, and communicate them to the appropriate level of management. Further, professional standards require us to also communicate the effect of uncorrected misstatements related to prior periods on the relevant classes of transactions, account balances or disclosures, and the financial statements as a whole and each applicable opinion unit. Based on our audit, no misstatements were presented to management for consideration. Uncorrected misstatements or matters underlying those uncorrected misstatements could potentially cause future-period financial statements to be materially misstated, even though the uncorrected misstatements are immaterial to the financial statements currently under audit.

In addition, professional standards require us to communicate to you all material, corrected misstatements that were brought to the attention of management as a result of our audit procedures. There were no material misstatements identified during the audit.

Disagreements with Management

For purposes of this letter, professional standards define a disagreement with management as a matter, whether or not resolved to our satisfaction, concerning a financial accounting, reporting, or auditing matter, which could be significant to KPPA's financial statements or the auditor's report. No such disagreements arose during the course of the audit.

Circumstances that Affect the Form and Content of the Auditor's Report

For purposes of this letter, professional standards require that we communicate any circumstances that affect the form and content of our auditor's report. There were no circumstances identified that affect the form and content of the auditor's report.

Representations Requested from Management

We have requested certain written representations from management, which are included in the attached letter dated November 27, 2023.

Management's Consultations with Other Accountants

Board of Trustees
Kentucky Public Pension Authority
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In some cases, management may decide to consult with other accountants about auditing and accounting matters. Management informed us that, and to our knowledge, there were no consultations with other accountants regarding auditing and accounting matters.

Other Significant Matters, Findings, or Issues

In the normal course of our professional association with KPPA, we generally discuss a variety of matters, including the application of accounting principles and auditing standards, significant events or transactions that occurred during the year, operating and regulatory conditions affecting the entity, and operational plans and strategies that may affect the risks of material misstatement. None of the matters discussed resulted in a condition to our retention as KPPA's auditors.

Other Information Included in Annual Reports

Pursuant to professional standards, our responsibility as auditors for other information, whether financial or nonfinancial, included in KPPA's annual reports, does not extend beyond the information identified in the audit report, and we are not required to perform any procedures to corroborate such other information. However, in accordance with such standards, we have read the information and considered whether such information, or the manner of its presentation, was materially inconsistent with its presentation in the financial statements.

Our responsibility also includes communicating to you any information which we believe is a material misstatement of fact. Nothing came to our attention that caused us to believe that such information, or its manner of presentation, is materially inconsistent with the information, or manner of its presentation, appearing in the financial statements.

This report is intended solely for the information and use of the management, board of trustees, and others within KPPA and is not intended to be and should not be used by anyone other than these specified parties.

F-14 (Revised 6/2021)

Record of Control Weakness or Noncompliance

For APA Use Only:

Agency	Kentucky Public Pensions Authority
Audit Section	Investments
Test Workpaper Reference	102a
Finding Reference #	2023-KPPA-001
Known Questioned Costs	0
Likely Questioned Costs	0

Condition and Context (Nature of the Weakness or Noncompliance)

The Kentucky Public Pensions Authority (KPPA) investment accounting branch performs reconciliations of investment activity recorded between their custodian, Bank of New York Mellon (BNYM), and their accounting system, Great Plains (GP). While the reconciliations occurred, the reconciliation documentation only had the typed names of the preparer and reviewer and there were no indicators of when the reconciliation occurred. Beginning in July 2023, KPPA updated their internal control process to address this issue.

Cause

KPPA did not design the internal controls to ensure investment reconciliations appropriately documented the time of the reconciliation and to prevent the rollforward of the preparer and reviewer names.

Effect

Properly documented approvals are effective internal controls to prevent and to detect and correct potential misstatements with regards to investment reconciliations. Misstatements in the reconciliation process may occur when approvals are rolled forward on a document and the time of the reconciliation is not documented.

Criteria

Sound internal controls over the investment reconciliation process ensure the investment balances recorded in the accounting system contain complete and accurate information for financial reporting. A complete and accurate reconciliation of investment activity is necessary in order to ensure financial statement reporting requirements are met in accordance with Generally Accepted Accounting Principles (GAAP) and Governmental Accounting Standards Board (GASB) pronouncements.

Recommendation

As noted above, KPPA updated their investment reconciliation processes for FY 2024. We recommend KPPA review those processes to ensure sufficient evidence of proper approvals were documented in the investment reconciliation process.

F-14 (Revised 6/2021)

Record of Control Weakness or Noncompliance

NOTE TO RESPONDENT:

Please provide management's response and planned corrective action with all the required elements using the format below.

Corrective Action Plans

2 CFR 200, Subpart F, § 511(c) (Uniform Guidance) requires the auditee to prepare a Corrective Action Plan (CAP).

Based on the Uniform Guidance:

- §200.26 defines corrective action as “action taken by the auditee that: (a) Corrects identified deficiencies; (b) Produces recommended improvements; or (c) Demonstrates that audit findings are either invalid or do not warrant auditee action.”
- The CAP should address both federal audit findings and all findings related to the financial statements which are required to be reported in accordance with *Government Auditing Standards* included in the current year auditor's report.
- The CAP must provide the name(s) of the contact person(s) responsible for corrective action, the corrective action planned, and the anticipated completion date.
- If the auditee does not agree with the audit findings or believes corrective action is not required, then the corrective action plan must include an explanation and specific reasons.

Other Requirements

KRS 43.090 requires your agency to notify the Legislative Research Commission and the Auditor of Public Accounts of the audit recommendations that have been implemented and of the audit recommendations that have not been implemented within 60 days of the completion of the final audit report. For any recommendations that have not been implemented, a reason for failure to implement audit recommendations must also be provided.

**Management’s Response and Planned Corrective Action
Finding Reference # 2023-KPPA-001**

To be completed by the responding agency:

Response prepared by:	Connie Davis
<i>Note: The APA is requesting the official response of the agency’s management. It is the responsibility of the preparer to ensure all internal approvals of the response have been obtained.</i>	
Person responsible for corrective action:	Connie Davis
Date response prepared:	November 14, 2023
Estimated corrective action completion date:	Completed

Management’s Response and Planned Corrective Action:

We concur with the finding and have updated procedures to ensure the proper oversight is documented.

F-14 (Revised 6/2021)

Record of Control Weakness or Noncompliance

For APA Use Only:

Agency	Kentucky Public Pensions Authority
Audit Section	Expenditures
Test Workpaper Reference	D05.02a
Finding Reference #	2023-KPPA-002
Known Questioned Costs	\$0
Likely Questioned Costs	\$0

Condition and Context (Nature of the Weakness or Noncompliance)

The Kentucky Public Pensions Authority (KPPA) manages multiple pension and health plans, including the County Employees Retirement System (CERS) hazardous and nonhazardous and the Kentucky Employees Retirement System (KERS) hazardous and nonhazardous plans. KPPA pays a monthly healthcare premium subsidy to Humana and the Department of Employee Insurance (DEI) for retired members. KPPA cash management branch sets up and requests wire transfers from the custodian bank accounts to the trust fund cash clearing accounts to cover the monthly insurance premium obligations for Humana and DEI. The healthcare premium subsidy and wire amounts appear on KPPA reports. The wire transfer requests and reports were reviewed and the following discrepancies noted:

- During May 2023, the KERS nonhazardous insurance account transferred \$2,419,507 and the CERS nonhazardous insurance account transferred \$1,924,760, as requested; however, the accounts were inadvertently switched on the request. Thus, the funds were transferred to the incorrect accounts resulting in KERS nonhazardous insurance being overcharged and CERS nonhazardous insurance being undercharged by \$494,747.
- During April 2023, the calculation of the subsidy amount used in the calculation of the insurance amount to be transferred totaled \$398. This amount was switched between the KERS nonhazardous and KERS hazardous, resulting in KERS nonhazardous being overcharged and KERS hazardous being undercharged by \$398.
- During October 2022, the KERS nonhazardous insurance account transferred \$5,033,988 but should have transferred \$5,033,958, an overcharge of \$30. The KERS nonhazardous pension account was undercharged \$30 having transferred \$1,636,185 when it should have been \$1,636,215.

In addition to the errors identified above, the same employee creating the breakout of the different wire amounts was also responsible for approving the wires once they were set up in the custodial bank's system.

Cause

KPPA's internal controls over the wire transfers did not identify errors and did not prevent a segregation of duties issue between the preparation and review process.

Effect

Incorrect amounts were requested from the custodial bank for one pension plan and several of the insurance plan accounts. The net difference for pension funds indicate an understatement of \$30 and the net difference for insurance funds indicate an overstatement of \$30 on the financial statements in the benefit payments and healthcare premium subsidy expenditures, respectively. The difference by fund are as follows:

- KERS nonhazardous insurance-overcharged \$495,175.

F-14 (Revised 6/2021)

Record of Control Weakness or Noncompliance

- KERS hazardous insurance-undercharged \$398.
- CERS nonhazardous insurance-undercharged \$494,747.
- KERS nonhazardous pension-undercharged \$30.

Failure to segregate duties could lead to undetected errors in the healthcare premium subsidy wire amounts as well as incorrect financial reports.

Criteria

Effective internal controls over wire transfers ensure healthcare premium subsidy transactions contain accurate information for financial reporting and appropriate information for making management decisions.

The objective of segregation of duties is to ensure that assigned duties are separated such that no one employee is in a position both to commit and conceal errors in the normal course of performing their assigned duties. In general, the principal incompatible duties to be segregated are:

- Authorization of transactions,
- Custody of assets,
- Recording or reporting of transactions, and
- Performing reconciliations.

Adequate segregation of duties reduces the likelihood that errors, either intentional or unintentional, will remain undetected. This is carried out by providing for separate processing by different individuals at various stages of a transaction and for independent reviews of the work performed.

Recommendation

We recommend KPPA review the procedures over wire transfers to ensure effective review of wire transactions and adequate segregation of duties.

F-14 (Revised 6/2021)

Record of Control Weakness or Noncompliance

NOTE TO RESPONDENT:

Please provide management's response and planned corrective action with all the required elements using the format below.

Corrective Action Plans

2 CFR 200, Subpart F, § 511(c) (Uniform Guidance) requires the auditee to prepare a Corrective Action Plan (CAP).

Based on the Uniform Guidance:

- §200.26 defines corrective action as “action taken by the auditee that: (a) Corrects identified deficiencies; (b) Produces recommended improvements; or (c) Demonstrates that audit findings are either invalid or do not warrant auditee action.”
- The CAP should address both federal audit findings and all findings related to the financial statements which are required to be reported in accordance with *Government Auditing Standards* included in the current year auditor's report.
- The CAP must provide the name(s) of the contact person(s) responsible for corrective action, the corrective action planned, and the anticipated completion date.
- If the auditee does not agree with the audit findings or believes corrective action is not required, then the corrective action plan must include an explanation and specific reasons.

Other Requirements

KRS 43.090 requires your agency to notify the Legislative Research Commission and the Auditor of Public Accounts of the audit recommendations that have been implemented and of the audit recommendations that have not been implemented within 60 days of the completion of the final audit report. For any recommendations that have not been implemented, a reason for failure to implement audit recommendations must also be provided.

**Management's Response and Planned Corrective Action
Finding Reference # 2023-KPPA-002**

To be completed by the responding agency:

Response prepared by:	Connie Davis
<i>Note: The APA is requesting the official response of the agency's management. It is the responsibility of the preparer to ensure all internal approvals of the response have been obtained.</i>	
Person responsible for corrective action:	Connie Davis
Date response prepared:	November 14, 2023
Estimated corrective action completion date:	Completed

Management's Response and Planned Corrective Action:

We concur with the finding and have corrected the errors noted above. Procedures have been updated to include a review/approval of all wire transactions before instructions are sent for processing.

County Employees Retirement System

GASB No. 67 Accounting Valuation Report
As of June 30, 2023

DRAFT





November 9, 2023

Board of Trustees
County Employees Retirement System
Perimeter Park West
1260 Louisville Road
Frankfort, KY 40601

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

Dear Members of the Board:

This report provided herein contains certain information for the **County Employees Retirement System (CERS)** in connection with the Governmental Accounting Standards Board (GASB) Statement No. 67, “Financial Reporting for Pension Plans” for the fiscal year ending June 30, 2023. 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 County Employees Retirement System 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, 2022. The total pension liability was rolled-forward from the valuation date to the plan’s fiscal year ending June 30, 2023 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. Information disclosed for years prior to June 30, 2017 were prepared by the prior actuary.

Actuarial Assumptions

The Board of Trustees adopted new actuarial assumptions on May 9, 2023. These assumptions are documented in the report titled “2022 Actuarial Experience Study for the Period Ending June 30, 2022”, and include a change in the investment return assumption from 6.25% to 6.50%. The Total Pension Liability as of June 30, 2023 is determined using these updated assumptions.

Plan Provisions

House Bill 506 passed during the 2023 legislative session and reinstated the Partial Lump-Sum Optional Form of payment for members who retire on and after January 1, 2024, with the lump-sum payment options expanded to include to 48 or 60 times the member’s monthly retirement allowance.

Board of Trustees
November 9, 2023
Page 2

Since this optional form of payment results in a reduced, actuarial equivalent, monthly retirement allowance for members who elect a partial lump-sum option, this provision does not have a fiscal impact to the total pension liability.

House Bill 506 also adjusted the minimum required separation period before a retiree may become reemployed and continue to receive their retirement allowance to one month for all circumstances for each plan. This is a minimal change for members in the hazardous plan, as the minimum separation period is currently one month for members who become reemployed on a full-time basis in a hazardous position. The requirement was previously three months only for members who become reemployed on a part-time basis or in any non-hazardous position. We believe this provision in House Bill 506 will have an insignificant impact on the retirement pattern of hazardous members and therefore have reflected no fiscal impact to the total pension liability of the hazardous plan.

Similarly, this is a relatively small change for future retirees in the non-hazardous plan. But as the minimum separation period was previously three months in almost every circumstance, we have assumed that there would be a 1.0% increase in the rate of retirement for each of the first two years a non-hazardous member becomes retirement eligible under the age of 65, in order to reflect a shift in the retirement pattern. The total pension liability as of June 30, 2023 for the non-hazardous plan 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, 2022. 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.

Single Discount Rate

A single discount rate of 6.50% for the non-hazardous and hazardous plans was used to measure the total pension liability for the fiscal year ending June 30, 2023. 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. 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 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.



Board of Trustees
November 9, 2023
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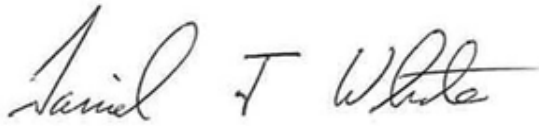
Additional Disclosures

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, 2022" and the "2022 Actuarial Experience Study for the Period Ending June 30, 2022" 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, 2023.

To the best of our knowledge, this report is complete and accurate and is in accordance with generally recognized actuarial practices and methods. Mr. White and Ms. Shaw are Enrolled Actuaries. All three of the undersigned are members of the American Academy of Actuaries and meet all of the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. In addition, all three are independent of KPPA and are experienced in performing valuations for large public retirement systems. This communication shall not be construed to provide tax advice, legal advice or investment advice.

Sincerely,

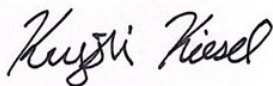
Gabriel Roeder Smith & Co.



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



Janie Shaw, ASA, EA, MAAA
Consultant and Actuary



Krysti Kiesel, ASA, MAAA
Consultant and Actuary



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SECTION 1

DRAFT

EXHIBIT 1a

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

Fiscal Year Ending June 30, (1)	Total Pension Liability (2)	Plan Fiduciary Net Position (3)	Employers' Net Pension Liability (Asset) (4) = (2) - (3)	Plan Fiduciary Net Position as a Percentage of the Total Pension Liability (5) = (3) / (2)	Covered Employee Payroll ¹ (6)	Net Pension Liability as a Percentage of Covered Employee Payroll (7) = (4) / (6)
2023	\$ 15,089,106	\$ 8,672,597	\$ 6,416,509	57.48%	\$ 2,966,567	216.29%
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%

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 – CERS 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)
2023	\$ 5,731,148	\$ 3,035,192	\$ 2,695,956	52.96%	\$ 714,837	377.14%
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%

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 – CERS Non-Hazardous Plan (\$ in thousands)

Change in the Net Pension Liability	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability										
Service Cost	\$ 283,633	\$ 272,250	\$ 280,165	\$ 280,092	\$ 254,643	\$ 254,169	\$ 193,082	\$ 209,101	\$ 207,400	\$ 192,482
Interest	920,862	906,401	892,309	861,720	794,935	760,622	803,555	780,587	733,002	710,526
Benefit Changes	3,862	0	4,106	0	0	15,708	0	0	0	0
Difference between actual and expected experience	511,721	(49,439)	(91,776)	173,345	87,377	279,401	(208,015)	0	49,966	0
Assumption Changes (905,957)	(905,957)	0	0	0	727,351	0	1,388,800	0	606,293	0
Benefit Payments	(917,614)	(878,050)	(840,611)	(810,879)	(780,608)	(741,177)	(701,891)	(665,000)	(628,858)	(597,136)
Net Change in Total Pension Liability	\$ (103,493)	\$ 251,162	\$ 244,193	\$ 504,278	\$ 1,083,698	\$ 568,723	\$ 1,475,532	\$ 324,687	\$ 967,803	\$ 305,872
Total Pension Liability - Beginning	\$ 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	\$ 9,466,650
Total Pension Liability - Ending (a)	\$ 15,089,106	\$ 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 Position¹										
Contributions - Employer	\$ 697,681	\$ 606,807	\$ 472,228	\$ 475,416	\$ 393,453	\$ 358,017	\$ 333,554	\$ 284,105	\$ 298,565	\$ 324,231
Contributions - Member ²	147,769	186,648	165,698	168,994	159,064	160,370	150,715	141,674	140,311	128,568
Refunds of contributions to members	(23,263)	(19,789)	(13,862)	(14,918)	(14,387)	(14,608)	(14,430)	(13,753)	(13,523)	(14,286)
Retirement benefits	(894,351)	(858,261)	(826,749)	(795,960)	(766,221)	(726,569)	(687,461)	(651,246)	(615,335)	(582,850)
Net Investment Income ²	805,303	(494,801)	1,762,739	56,178	390,664	573,829	825,900	(40,800)	110,568	895,530
Administrative Expense	(24,128)	(22,670)	(21,729)	(22,304)	(21,659)	(19,592)	(19,609)	(19,385)	(18,212)	(18,615)
Other	0	0	0	0	44 ⁵	361 ⁵	(42,827) ⁴	0	10,280	0
Net Change in Plan Fiduciary Net Position	\$ 709,011	\$ (602,066)	\$ 1,538,325	\$ (132,594)	\$ 140,958	\$ 331,808	\$ 545,843	\$ (299,405)	\$ (87,346)	\$ 732,578
Plan Fiduciary Net Position - Beginning	\$ 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	\$ 5,795,568
Prior Year Adjustment	0	0	0	0	0	(82)	0	0	0	0
Plan Fiduciary Net Position - Ending (b)	\$ 8,672,597	\$ 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)	\$ 6,416,509	\$ 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 of the Total Pension Liability	57.48%	52.42%	57.33%	47.81%	50.45%	53.54%	53.32%	55.50%	59.97%	66.80%
Covered Employee Payroll³	\$ 2,966,567	\$ 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 Employee Payroll	216.29%	254.98%	260.60%	311.44%	290.05%	248.08%	246.32%	203.69%	187.20%	142.78%

Notes:

¹ Does not include 401(h) assets for fiscal years 2017 and later. 401(h) assets totaled \$108,843,000 as of June 30, 2023

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

For fiscal year 2023, 401(h) contributions equaled -\$30,000; and associated investment return equaled \$10,113,000

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 2b

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

Change in the Net Pension Liability	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability										
Service Cost	\$ 115,389	\$ 109,683	\$ 109,350	\$ 109,887	\$ 77,426	\$ 81,103	\$ 58,343	\$ 66,249	\$ 71,934	\$ 66,761
Interest	350,413	338,799	327,963	314,762	289,741	270,694	270,860	262,886	247,008	238,665
Benefit Changes	0	0	333	0	0	2,172	0	0	0	0
Difference between actual and expected experience	97,750	56,197	38,850	73,696	27,364	205,882	92,588	0	41,935	0
Assumption Changes	(275,934)	0	0	0	276,541	0	536,667	0	166,849	0
Benefit Payments	(326,161)	(311,555)	(294,661)	(279,616)	(261,863)	(248,332)	(229,299)	(216,327)	(203,244)	(192,299)
Net Change in Total Pension Liability	\$ (38,543)	\$ 193,124	\$ 181,835	\$ 218,729	\$ 409,209	\$ 311,519	\$ 729,159	\$ 112,807	\$ 324,482	\$ 113,127
Total Pension Liability - Beginning	\$ 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	\$ 3,175,699
Total Pension Liability - Ending (a)	\$ 5,731,148	\$ 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 Position¹										
Contributions - Employer	\$ 308,223	\$ 222,028	\$ 172,205	\$ 168,443	\$ 138,053	\$ 127,660	\$ 115,947	\$ 105,713	\$ 108,071	\$ 115,240
Contributions - Member ²	56,987	69,565	62,367	63,236	58,661	61,089	60,101	52,972	47,692	43,722
Refunds of contributions to members	(6,568)	(5,766)	(4,662)	(3,814)	(2,854)	(4,214)	(2,315)	(2,879)	(3,111)	(2,664)
Retirement benefits	(319,593)	(305,789)	(289,999)	(275,802)	(259,009)	(244,118)	(226,984)	(213,448)	(200,134)	(189,635)
Net Investment Income ²	280,033	(174,217)	596,641	15,914	132,232	191,324	270,473	(9,020)	37,104	288,490
Administrative Expense	(2,124)	(1,995)	(1,848)	(1,981)	(1,726)	(1,504)	(1,421)	(1,366)	(1,288)	(1,721)
Other	0	0	0	0	14 ⁵	111 ⁵	(7,979) ⁴	0	2,865	0
Net Change in Plan Fiduciary Net Position	\$ 316,958	\$ (196,174)	\$ 534,704	\$ (34,004)	\$ 65,371	\$ 130,348	\$ 207,822	\$ (68,028)	\$ (8,801)	\$ 253,432
Plan Fiduciary Net Position - Beginning	\$ 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	\$ 1,833,570
Prior Year Adjustment	0	0	0	0	0	(7)	0	0	0	0
Plan Fiduciary Net Position - Ending (b)	\$ 3,035,192	\$ 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)	\$ 2,695,956	\$ 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 of the Total Pension Liability	52.96%	47.11%	52.26%	44.11%	46.63%	49.26%	49.78%	53.95%	57.52%	63.46%
Covered Employee Payroll³	\$ 714,837	\$ 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 Employee Payroll	377.14%	457.94%	465.02%	538.83%	499.02%	429.68%	424.89%	326.02%	317.41%	250.82%

Notes:

- ¹ Does not include 401(h) assets for fiscal years 2017 and later. 401(h) assets totaled \$20,605,000 as of June 30, 2023
- ² Does not include 401(h) contributions or associated investment income for fiscal years 2017 and later
For fiscal year 2023, 401(h) contributions equaled -\$20,000; and associated investment return equaled \$1,931,000
- 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 – CERS Non-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
2023	\$ 697,634	\$ 697,681	\$ (47)	\$ 2,966,567	23.52%
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	0	2,272,270	14.27%

Notes:

¹ Actuarially determined contribution for fiscal year ending 2023 is based on the contribution rate calculated with the June 30, 2021 actuarial valuation.

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



EXHIBIT 3b

Schedule of Employers' Contributions – CERS 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
2023	\$ 308,037	\$ 308,223	\$ (186)	\$ 714,837	43.12%
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	0	479,164	24.05%

Notes:

¹ Actuarially determined contribution for fiscal year ending 2023 is based on the contribution rate calculated with the June 30, 2021 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 2023

The actuarially determined contributions effective for fiscal year ending 2023 that are documented in the schedules on the previous pages were calculated as of June 30, 2021. Based on the June 30, 2021 actuarial valuation report, the actuarial methods and assumptions used to calculate these contribution rates are below:

Item	CERS Non-Hazardous Plan	CERS Hazardous Plan
Determined by the Actuarial Valuation as of:	June 30, 2021	June 30, 2021
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	2.00%	2.00%
Investment Return:	6.25%	6.25%
Inflation:	2.30%	2.30%
Salary Increases:	3.30% to 10.30%, varies by service	3.55% to 19.05%, 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
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



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 CERS (Non-Hazardous)

1.00% Decrease (5.50%)	Current Discount Rate (6.50%)	1.00% Increase (7.50%)
\$ 8,101,230	\$ 6,416,509	\$ 5,016,442

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

1.00% Decrease (5.50%)	Current Discount Rate (6.50%)	1.00% Increase (7.50%)
\$ 3,404,287	\$ 2,695,956	\$ 2,117,409

County Employees Retirement System

GASB No. 74 Accounting Valuation Report
As of June 30, 2023

DRAFT





November 9, 2023

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

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

Dear Members of the Board:

This report provided herein contains certain information for the **County Employees Retirement System (CERS)** 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, 2023. 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 County Employees 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, 2022. The total OPEB liability was rolled-forward from the valuation date to the plan’s fiscal year ending June 30, 2023, 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 Board of Trustees adopted new actuarial assumptions on May 9, 2023. These assumptions are documented in the report titled “2022 Actuarial Experience Study for the Period Ending June 30, 2022”. Additionally, the discount rate used to calculate the total OPEB liability increased from 5.70% to 5.93% for the non-hazardous plan and from 5.61% to 5.97% for the hazardous plan (see further discussion on the calculation of the single discount rate later in this letter). The Total OPEB Liability as of June 30, 2023 is determined using these updated assumptions.

Board of Trustees
November 9, 2023
Page 2

Plan Provisions

House Bill 506 passed during the 2023 legislative session and adjusted the minimum required separation period before a retiree may become reemployed to be one month for all circumstances for each System maintained by KPPA. This is a minimal change for members in the hazardous plan, as the minimum separation period is currently one month for members who become reemployed on a full-time basis in a hazardous position. The requirement was previously three months only for members who become reemployed on a part-time basis or in any non-hazardous position. We believe House Bill 506 will have an insignificant impact on the retirement pattern of hazardous members and therefore have reflected no fiscal impact to the total OPEB liability of the hazardous plan.

Similarly, this is a relatively small change for future retirees in the non-hazardous plan. But as the minimum separation period was previously three months in almost every circumstance, we have assumed that there would be a 1.0% increase in the rate of retirement for each of the first two years a non-hazardous member becomes retirement eligible under the age of 65, in order to reflect a shift in the retirement pattern. The total OPEB liability as of June 30, 2023 for the non-hazardous plan is determined using these updated benefit provisions.

There were no other plan provision changes that would materially impact the total OPEB liability since June 30, 2022. It is our opinion that these procedures for determining the information contained in these reports 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 5.93% for the non-hazardous plan and 5.97% for the hazardous plan were used to measure the total OPEB liability for the fiscal year ending June 30, 2023. They are based on the expected rate of return on OPEB plan investments of 6.50% and a municipal bond rate of 3.86%, as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 30, 2023.

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.



Board of Trustees
November 9, 2023
Page 3

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.

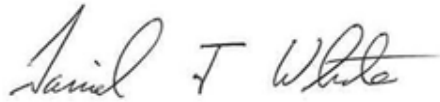
Additional Disclosures

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, 2022" and the "2022 Actuarial Experience Study for the Period Ending June 30, 2022" 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, 2023.

To the best of our knowledge, this report is complete and accurate and is in accordance with generally recognized actuarial practices and methods. Mr. White and Ms. Shaw are Enrolled Actuaries. All of the undersigned are members of the American Academy of Actuaries and meet all of the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. In addition, all three are independent of KPPA and are experienced in performing valuations for large public retirement systems. This communication shall not be construed to provide tax advice, legal advice or investment advice.

Sincerely,

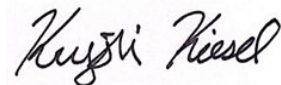
Gabriel Roeder Smith & Company



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



Janie Shaw, ASA, EA, MAAA
Consultant and Actuary



Krysti Kiesel, ASA, MAAA
Consultant and Actuary



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SECTION 1

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EXHIBIT 1a

Schedule of the Employers' Net OPEB Liability – CERS 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)
2023	\$ 3,260,308	\$ 3,398,375	\$ (138,067)	104.23%	\$ 2,982,960	-4.63%
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%

Note:

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



EXHIBIT 1b

Schedule of the Employers' Net OPEB Liability – CERS 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)
2023	\$ 1,771,015	\$ 1,634,192	\$ 136,823	92.27%	\$ 719,666	19.01%
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%

Note:

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



EXHIBIT 2

Development of Single Discount Rate

	<u>CERS Non-Hazardous</u>	<u>CERS Hazardous</u>
Single Discount Rate	5.93%	5.97%
Long-Term Expected Rate of Return	6.50%	6.50%
Long-Term Municipal Bond Rate ¹	3.86%	3.86%

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, 2023.



EXHIBIT 3a

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

Change in the Net OPEB Liability	2023	2022	2021	2020	2019	2018	2017
Total OPEB liability							
Service Cost	\$ 98,045	\$ 138,225	\$ 132,407	\$ 131,289	\$ 119,011	\$ 122,244	\$ 85,468
Interest on the total OPEB liability	283,330	263,390	262,128	236,126	240,352	242,048	240,854
Benefit Changes	5,153	74,108	3,359	0	0	4,306	0
Difference between actual and expected experience	(2,134,260)	(68,111)	(340,831)	505,843	(404,301)	(240,568)	(6,641)
Assumption Changes	120,132	(323,247)	282,975	60,225	268,842	(4,876)	520,286
Benefit Payments ^{1,2}	(165,590)	(192,118)	(175,096)	(188,640)	(162,044)	(156,426)	(140,120)
Net Change in Total OPEB Liability	(1,793,190)	(107,753)	164,942	744,843	61,860	(33,272)	699,847
Total OPEB Liability - Beginning	\$ 5,053,498	\$ 5,161,251	\$ 4,996,309	\$ 4,251,466	\$ 4,189,606	\$ 4,222,878	\$ 3,523,031
Total OPEB Liability - Ending (a)	\$ 3,260,308	\$ 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	\$ 151,052	\$ 187,204	\$ 186,509	\$ 179,521	\$ 168,905	\$ 145,809	\$ 133,326
Contributions - Member	17,751	15,925	13,613	12,964	11,801	10,825	9,158
Benefit Payments ^{1,2}	(165,590)	(192,118)	(175,096)	(188,640)	(162,044)	(156,426)	(140,120)
OPEB Plan Net Investment Income	316,115	(176,895)	641,084	9,160	137,591	202,068	264,782
OPEB Plan Administrative Expense	(937)	(933)	(922)	(903)	(877)	(761)	(789)
Other	0	0	0	0	9 ⁴	75 ⁴	0
Net Change in Plan Fiduciary Net Position	318,391	(166,817)	665,188	12,102	155,385	201,590	266,357
Plan Fiduciary Net Position - Beginning	\$ 3,079,984	\$ 3,246,801	\$ 2,581,613	\$ 2,569,511	\$ 2,414,126	\$ 2,212,536	\$ 1,946,179
Plan Fiduciary Net Position - Ending (b)	\$ 3,398,375	\$ 3,079,984	\$ 3,246,801	\$ 2,581,613	\$ 2,569,511	\$ 2,414,126	\$ 2,212,536
Net OPEB Liability - Ending (a) - (b)	(138,067)	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	104.23%	60.95%	62.91%	51.67%	60.44%	57.62%	52.39%
Covered Employee Payroll³	\$ 2,982,960	\$ 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 Employee Payroll	-4.63%	69.41%	73.08%	92.14%	65.26%	69.08%	81.06%

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 \$45,007,734 for fiscal year 2023.

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

⁴ Northern Trust Settlement



EXHIBIT 3b

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

Change in the Net OPEB Liability	2023	2022	2021	2020	2019	2018	2017
Total OPEB liability							
Service Cost	\$ 36,330	\$ 52,265	\$ 48,413	\$ 47,443	\$ 32,623	\$ 33,948	\$ 20,493
Interest on the total OPEB liability	130,614	120,640	116,710	115,998	116,768	118,009	113,166
Benefit Changes	0	44,909	1,146	0	0	484	0
Difference between actual and expected experience	(646,006)	(7,814)	(47,937)	38,156	(103,317)	(100,348)	(2,470)
Assumption Changes	(31,947)	(176,969)	159,106	46,925	116,618	(2,500)	391,061
Benefit Payments ^{1,2}	(92,433)	(94,957)	(86,277)	(83,874)	(76,059)	(71,325)	(63,656)
Net Change in Total OPEB Liability	(603,442)	(61,926)	191,161	164,648	86,633	(21,732)	458,594
Total OPEB Liability - Beginning	\$ 2,374,457	\$ 2,436,383	\$ 2,245,222	\$ 2,080,574	\$ 1,993,941	\$ 2,015,673	\$ 1,557,079
Total OPEB Liability - Ending (a)	\$ 1,771,015	\$ 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	\$ 49,547	\$ 66,320	\$ 63,509	\$ 59,662	\$ 60,445	\$ 51,615	\$ 44,325
Contributions - Member	4,258	3,654	3,098	2,762	2,458	2,173	1,708
Benefit Payments ^{1,2}	(92,433)	(94,957)	(86,277)	(83,874)	(76,059)	(71,325)	(63,656)
OPEB Plan Net Investment Income	150,671	(79,668)	326,905	2,315	73,317	109,854	143,892
OPEB Plan Administrative Expense	(522)	(502)	(528)	(462)	(434)	(376)	(381)
Other	0	0	0	0	5 ⁴	40 ⁴	0
Net Change in Plan Fiduciary Net Position	111,521	(105,153)	306,707	(19,597)	59,732	91,981	125,888
Plan Fiduciary Net Position - Beginning	\$ 1,522,671	\$ 1,627,824	\$ 1,321,117	\$ 1,340,714	\$ 1,280,982	\$ 1,189,001	\$ 1,063,113
Plan Fiduciary Net Position - Ending (b)	\$ 1,634,192	\$ 1,522,671	\$ 1,627,824	\$ 1,321,117	\$ 1,340,714	\$ 1,280,982	\$ 1,189,001
Net OPEB Liability - Ending (a) - (b)	136,823	851,786	808,559	924,105	739,860	712,959	826,672
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	92.27%	64.13%	66.81%	58.84%	64.44%	64.24%	58.99%
Covered Employee Payroll³	\$ 719,666	\$ 668,667	\$ 613,985	\$ 596,001	\$ 583,632	\$ 588,526	\$ 542,710
Net OPEB Liability as a Percentage of Covered Employee Payroll	19.01%	127.39%	131.69%	155.05%	126.77%	121.14%	152.32%

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 -\$856,422 for fiscal year 2023.

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

⁴ Northern Trust Settlement



EXHIBIT 4a

Schedule of Employers' Contributions – CERS 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
2023	\$ 101,122	\$ 106,044	\$ (4,922)	\$ 2,982,960	3.55%
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	129,268	(4,528)	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%

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 2023 is based on the contribution rate calculated with the June 30, 2021 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.



EXHIBIT 4b

Schedule of Employers' Contributions – CERS 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
2023	\$ 48,793	\$ 50,404	\$ (1,611)	\$ 719,666	7.00%
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%

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 2023 is based on the contribution rate calculated with the June 30, 2021 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 2023

The actuarially determined contributions effective for fiscal year ending 2023 that are documented in the schedule on the previous pages were calculated as of June 30, 2021. Based on the June 30, 2021 actuarial valuation report, the actuarial methods and assumptions used to calculate these contributions are below:

Item	CERS Non-Hazardous	CERS Hazardous
Determine by the Actuarial Valuation as of:	June 30, 2021	June 30, 2021
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:	2.00%	2.00%
Investment Return:	6.25%	6.25%
Inflation:	2.30%	2.30%
Salary Increases:	3.30% to 10.30%, varies by service	3.55% to 19.05%, 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 6.30% at January 1, 2023, gradually decreasing to an ultimate trend rate of 4.05% over a period of 13 years. The 2022 premiums were known at the time of the valuation and were incorporated into the liability measurement.	Initial trend starting at 6.30% at January 1, 2023, gradually decreasing to an ultimate trend rate of 4.05% over a period of 13 years. The 2022 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 2022 premiums were known at the time of the valuation and were incorporated into the liability measurement.	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 2022 premiums were known at the time of the valuation and were incorporated into the liability measurement.



EXHIBIT 5a

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

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

1.00% Decrease, 4.93%	Current Discount Rate, 5.93%	1.00% Increase, 6.93%
\$ 259,098	\$ (138,067)	\$ (470,644)

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
\$ (442,528)	\$ (138,067)	\$ 235,935



EXHIBIT 5b

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

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

1.00% Decrease, 4.97%	Current Discount Rate, 5.97%	1.00% Increase, 6.97%
\$ 346,027	\$ 136,823	\$ (37,500)

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
\$ 1,559	\$ 136,823	\$ 300,182



APPENDIX 1

DRAFT

Appendix 1

Development of Baseline Claims Cost

For non-Medicare retirees, the initial per capita costs were developed using retiree claims experience for calendar years 2020 through 2022. 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, 2023, 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 (as of January 1, 2023)		
AGE	MALE	FEMALE
40	\$373.36	\$606.68
50	605.22	745.56
60	1,028.58	1,012.80
64	1,250.79	1,180.40

FOR THOSE ELIGIBLE FOR MEDICARE (as of January 1, 2023)		
AGE	MALE	FEMALE
65	\$78.14	\$73.71
75	91.43	89.21
85	96.68	97.82

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



Blake Orth, FSA, EA, MAAA





MEMORANDUM

TO: County Employees Retirement System Board of Trustees

From: Dr. Merl Hackbart, Chair
Investment Committee

Date: December 4, 2023

Subject: Summary of Investment Committee Regular Meeting

The County Employees Retirement System Investment Committee held its regular meeting on November 28, 2023.

1. **No items were approved by the Investment Committee that would require ratification by the County Employees Retirement System Board of Trustees.**
 - a. **The Investment Committee meeting was "Information Only" and yielded no items that require ratification by the Board of Trustees.**

2. **During the regular meeting on November 28, 2023, the Committee also heard the following reports.**
 - a. Steve Willer presented the first quarter results for fiscal year 2024. He indicated the first quarter was difficult for the portfolio with public equity and high yield bonds taking the largest hits. Steve indicated that core fixed income also had a difficult first quarter. He noted that October (second quarter) was like the first quarter but there had been a strong rebound in the preliminary November numbers. He indicated that the entire portfolio was up approximately 4.5% to 5% for the month of November.

Steve also indicated the Investment Office had begun to rebalance the core fixed income portfolio. There were several questions from the committee concerning the effects of the rebalance. Steve noted that more core fixed income assets were moving in-house to be managed by staff. The committee had several capacity and governance questions surrounding bringing additional assets in house. The Chair suggested that Steve and his team dedicate the next Investment Committee meeting to a discussion of the component

parts of core fixed income and specialty credit particularly since the asset liability study recommendation was to at least double the specialty credit allocation.

- b. The bulk of the meeting was reserved for the presentation of the asset liability work that has been performed by Wilshire, our investment consultant. The committee had robust discussions around the two primary options presented by Wilshire and the Investment Office for a new asset allocation.

Wilshire indicated a full asset liability study should be performed every 3-5 years. Their model provides a 10-year forward looking return scenario. The last one performed for KRS was in November of 2020. They indicated that the landscape for investing had significantly changed since then. In both options presented to the committee public equity was reduced from 50% to 45% and 40% respectively. In both options the specialty credit allocation at least doubled from the current 10% allocation. In one option the core fixed income allocation remained at 10% while the other option raised the allocation to 15.5%.

In the first option, the portfolio would still be built to return 6.96% which is higher than the assumed rate of return of 6.50%. If the committee were to recommend this option, the portfolio would remove over 100 basis points of risk thereby significantly increasing our risk adjusted return.

In the second option, the portfolio would be built to return 6.87% which is also higher than the assumed rate of return of 6.50%. If the committee were to recommend this option, the portfolio would remove approximately 194 basis points of risk.

The Chairman indicated the committee did not want to act immediately after hearing the presentation but wanted to take time to reflect upon the significance of the decision and to receive input from a committee member who was unable to attend the meeting.

The Chairman recommended reconvening the discussion in early January.

County Employees Retirement System

Investment Office Quarterly Update

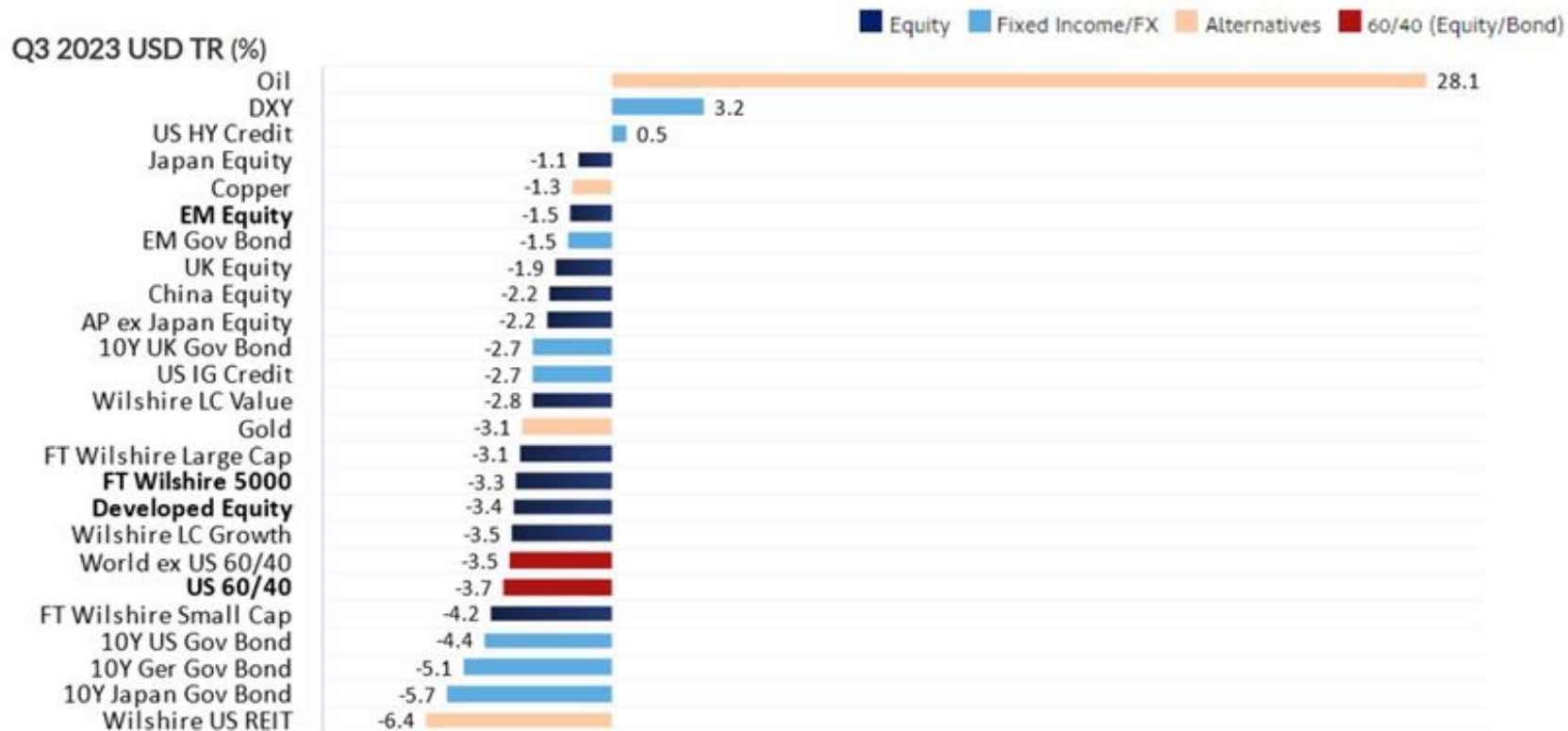
Quarter Ending: September 30, 2023

County Employees Retirement System

Economic and Market Update

Quarter Ending: September 30, 2023

Asset Class Performance



Data Sources: Bloomberg

Asset Class Performance

Asset Class Returns - Best to Worst

Annualized
5-Year
as of 9/23

2018	2019	2020	2021	2022	2023 YTD	Annualized 5-Year as of 9/23
T-Bills 1.9%	U.S. Equity 31.0%	U.S. Equity 20.8%	REITs 46.2%	Commodities 16.1%	U.S. Equity 12.5%	U.S. Equity 9.4%
Core Bond 0.0%	REITs 25.8%	Emrg Mrkts 18.7%	Commodities 27.1%	T-Bills 1.3%	Developed 7.6%	Commodities 6.1%
U.S. TIPS -1.3%	Developed 22.7%	U.S. TIPS 11.0%	U.S. Equity 26.7%	High Yield -11.2%	High Yield 5.9%	Developed 3.7%
High Yield -2.1%	Emrg Mrkts 18.9%	Developed 8.3%	Developed 11.8%	U.S. TIPS -11.8%	T-Bills 3.6%	High Yield 3.0%
REITs -4.8%	High Yield 14.3%	Core Bond 7.5%	U.S. TIPS 6.0%	Core Bond -13.0%	Emrg Mrkts 2.2%	REITs 2.9%
U.S. Equity -5.3%	Core Bond 8.7%	High Yield 7.1%	High Yield 5.3%	Developed -14.0%	REITs -0.2%	U.S. TIPS 2.1%
Commodities -11.2%	U.S. TIPS 8.4%	T-Bills 0.7%	T-Bills 0.0%	U.S. Equity -19.0%	U.S. TIPS -0.8%	T-Bills 1.7%
Developed -13.4%	Commodities 7.7%	Commodities -3.1%	Core Bond -1.5%	Emrg Mrkts -19.7%	Core Bond -1.2%	Emrg Mrkts 0.9%
Emrg Mrkts -14.2%	T-Bills 2.3%	REITs -7.9%	Emrg Mrkts -2.2%	REITs -26.8%	Commodities -3.4%	Core Bond 0.1%

Data Sources: Bloomberg

Note: Developed asset class is developed equity markets ex-U.S., ex-Canada

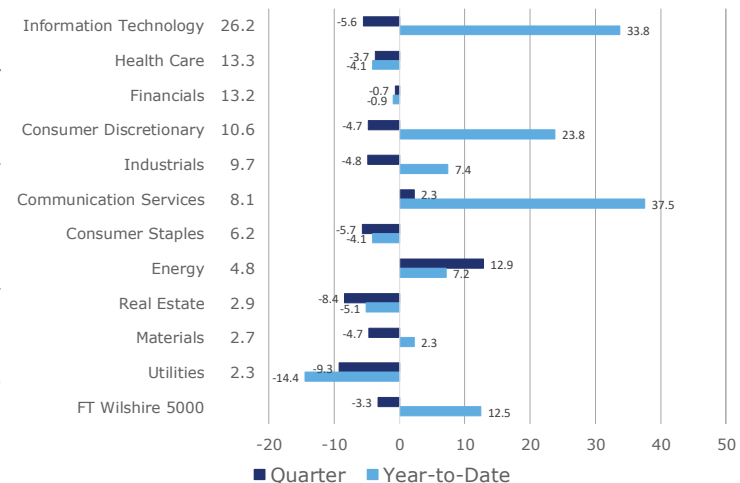
September 2023 Asset Class Assumptions

	EQUITY						FIXED INCOME / CREDIT						REAL ASSETS						
	US Stock	Dev ex-US Stock	Emg Stock	Global ex-US Stock	Global Stock	Private Equity	Cash	Core Bond	LT Core Bond	TIPS	High Yield	Private Credit	Dev ex-US Bond (Hdg)	Real Estate US RES	Global RES	Private RE	Comdty	Real Assets	US CPI
Compound Return (%)	6.00	7.00	7.25	7.35	6.65	9.65	4.25	5.60	5.55	4.85	6.85	8.95	3.50	6.20	6.35	6.20	6.60	7.05	2.35
Arithmetic Return (%)	7.30	8.45	10.20	9.00	8.00	13.35	4.25	5.70	6.00	5.00	7.30	9.70	3.60	7.60	7.60	7.10	7.75	7.75	2.35
Risk (%)	17.00	18.00	26.00	19.05	17.10	29.65	0.75	4.70	9.85	6.00	10.00	12.75	4.00	17.50	16.45	13.90	16.00	12.35	1.75
Cash Yield (%)	1.60	3.15	2.60	3.00	2.15	0.00	4.25	5.90	5.95	5.15	10.15	5.20	4.45	4.45	4.45	2.30	4.25	3.50	0.00
Growth Factor Exposure	8.00	8.00	8.00	8.00	8.00	14.00	0.00	-0.95	-2.40	-3.00	4.00	5.10	-1.00	6.00	6.00	3.50	0.00	2.70	0.00
Inflation Factor Exposure	-3.00	0.00	5.00	1.45	-1.30	-3.75	0.00	-2.50	-6.80	2.50	-1.00	-1.50	-3.00	1.00	1.80	1.00	12.00	5.25	1.00
CORRELATIONS																			
US Stock	1.00																		
Dev ex-US Stock (USD)	0.81	1.00																	
Emerging Mkt Stock	0.74	0.74	1.00																
Global ex-US Stock	0.84	0.95	0.89	1.00															
Global Stock	0.95	0.91	0.84	0.94	1.00														
Private Equity	0.72	0.63	0.61	0.67	0.73	1.00													
Cash Equivalents	-0.05	-0.09	-0.05	-0.08	-0.06	0.00	1.00												
Core Bond	0.28	0.13	0.00	0.08	0.20	0.30	0.18	1.00											
LT Core Bond	0.31	0.15	0.01	0.11	0.24	0.31	0.11	0.94	1.00										
TIPS	-0.05	0.00	0.15	0.06	-0.01	-0.03	0.20	0.60	0.48	1.00									
High Yield Bond	0.54	0.39	0.49	0.46	0.53	0.31	-0.10	0.24	0.32	0.05	1.00								
Private Credit	0.68	0.55	0.58	0.60	0.68	0.44	0.00	0.24	0.30	0.00	0.76	1.00							
Dev ex-US Bond (Hdg)	0.16	0.25	-0.01	0.16	0.17	0.26	0.10	0.68	0.66	0.39	0.26	0.22	1.00						
US RE Securities	0.58	0.47	0.44	0.49	0.57	0.49	-0.05	0.17	0.22	0.10	0.56	0.62	0.05	1.00					
Global RE Securities	0.64	0.57	0.54	0.60	0.65	0.55	-0.05	0.17	0.21	0.11	0.61	0.68	0.04	0.96	1.00				
Private Real Estate	0.55	0.45	0.45	0.49	0.54	0.50	-0.05	0.19	0.25	0.09	0.58	0.63	0.05	0.79	0.78	1.00			
Commodities	0.25	0.34	0.39	0.38	0.32	0.28	0.00	-0.03	-0.03	0.25	0.29	0.29	-0.10	0.25	0.28	0.25	1.00		
Real Assets	0.62	0.63	0.65	0.69	0.67	0.57	-0.03	0.22	0.24	0.30	0.64	0.69	0.04	0.78	0.84	0.76	0.64	1.00	
Inflation (CPI)	-0.10	-0.15	-0.13	-0.15	-0.13	-0.10	0.10	-0.12	-0.12	0.15	-0.08	0.00	-0.08	0.05	0.04	0.05	0.44	0.22	1.00

U.S. Equity Market

As of 9/30/2023	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
FT Wilshire 5000	-3.3	12.5	20.5	9.7	9.4	11.5
Wilshire U.S. Large Cap	-3.2	13.3	21.3	9.8	10.0	11.9
Wilshire U.S. Small Cap	-4.9	3.5	11.7	9.5	3.6	7.4
Wilshire U.S. Large Growth	-3.4	27.6	28.6	9.3	12.1	14.1
Wilshire U.S. Large Value	-2.9	-0.3	13.4	10.1	7.5	9.6
Wilshire U.S. Small Growth	-5.0	7.8	15.4	5.8	4.0	7.6
Wilshire U.S. Small Value	-4.7	-0.4	8.3	13.5	3.2	7.1
Wilshire REIT Index	-6.4	-0.2	3.9	5.7	2.9	6.0
MSCI USA Min. Vol. Index	-2.0	1.9	11.8	6.2	7.0	10.4
FTSE RAFI U.S. 1000 Index	-2.2	4.4	17.4	14.3	8.7	10.4

U.S. Sector Weight and Return (%)



Large Cap vs Small Cap



Large Growth vs Large Value

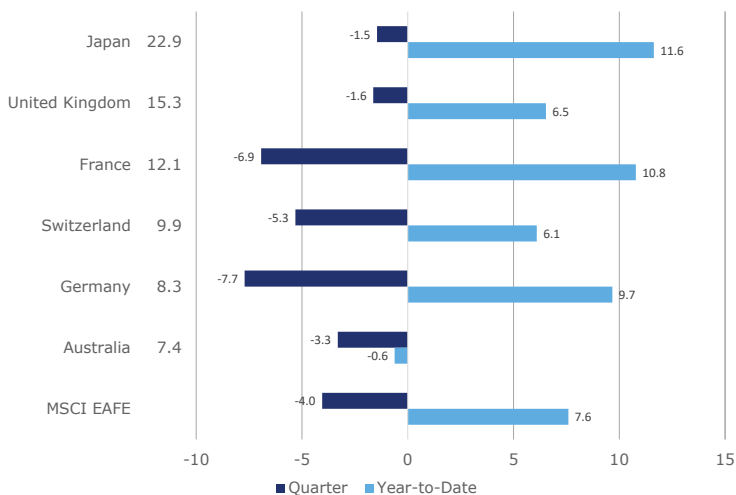


Data Sources: Bloomberg, Wilshire Atlas

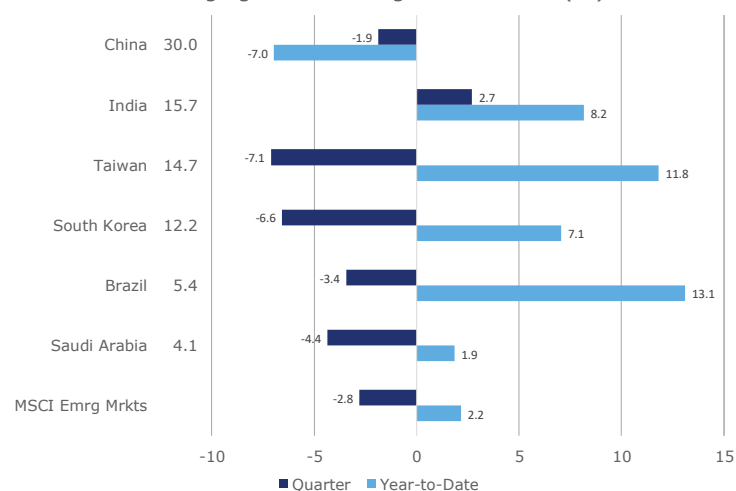
Non-U.S. Equity Market

As of 9/30/2023	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
MSCI ACWI ex-US (\$G)	-3.7	5.8	21.0	4.2	3.1	3.8
MSCI EAFE (\$G)	-4.0	7.6	26.3	6.3	3.7	4.3
MSCI Emerging Markets (\$G)	-2.8	2.2	12.2	-1.3	0.9	2.5
MSCI Frontier Markets (\$G)	-0.2	4.6	14.2	1.8	-0.7	0.3
MSCI ACWI ex-US Growth (\$G)	-7.3	2.9	16.2	-1.6	2.9	4.3
MSCI ACWI ex-US Value (\$G)	0.1	8.6	25.7	10.1	3.0	3.4
MSCI ACWI ex-US Small (\$G)	-1.6	5.5	19.6	4.5	3.0	4.8
MSCI ACWI Minimum Volatility	-2.3	1.7	10.4	3.8	4.3	7.2
MSCI EAFE Minimum Volatility	-2.7	4.8	17.9	1.3	1.1	4.2
FTSE RAFI Developed ex-US	-1.6	8.7	28.6	11.4	3.9	4.2
MSCI EAFE LC (G)	-1.2	11.2	21.0	11.4	6.2	7.3
MSCI Emerging Markets LC (G)	-1.3	4.4	11.3	1.0	3.1	5.3

Developed Markets Weight and Return (%)



Emerging Markets Weight and Return (%)

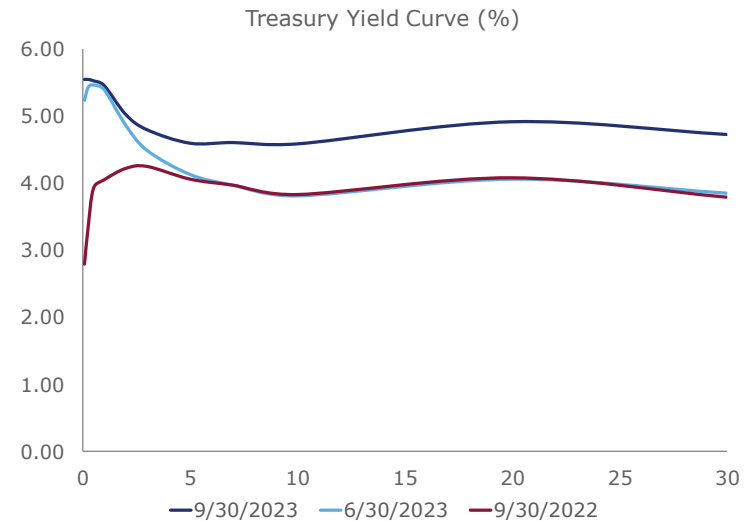
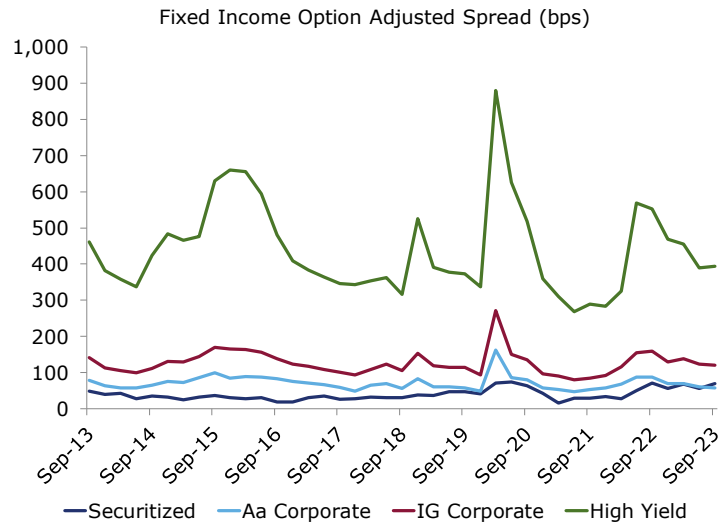


Data Sources: Bloomberg

U.S. Fixed Income

As of 9/30/2023	YTW	DUR.	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Bloomberg Aggregate	5.4	6.1	-3.2	-1.2	0.6	-5.2	0.1	1.1
Bloomberg Treasury	4.9	5.9	-3.1	-1.5	-0.8	-5.8	-0.1	0.6
Bloomberg Gov't-Rel.	5.4	5.1	-2.0	0.4	2.2	-3.8	0.6	1.4
Bloomberg Securitized	5.6	6.2	-3.8	-2.1	0.0	-4.9	-0.6	0.7
Bloomberg Corporate	6.0	6.8	-3.1	0.0	3.6	-4.9	0.9	2.2
Bloomberg LT Gov't/Credit	5.5	13.7	-9.4	-5.4	-2.9	-11.9	-1.2	1.9
Bloomberg LT Treasury	4.9	15.3	-11.8	-8.6	-9.1	-15.7	-2.8	0.8
Bloomberg LT Gov't-Rel.	6.0	11.3	-7.2	-2.1	2.0	-8.5	-0.6	2.4
Bloomberg LT Corporate	6.1	12.5	-7.2	-2.7	2.6	-9.1	-0.2	2.7
Bloomberg U.S. TIPS *	4.6	7.4	-2.6	-0.8	1.2	-2.0	2.1	1.7
Bloomberg High Yield	8.9	3.5	0.5	5.9	10.3	1.8	3.0	4.2
S&P/LSTA Leveraged Loan	9.5	0.3	3.5	10.2	13.1	6.1	4.5	4.3
Treasury Bills	5.5	0.3	1.3	3.6	4.6	1.7	1.7	1.1

* Yield and Duration statistics are for a proxy index based on similar maturity, the Bloomberg Barclays U.S. Treasury 7-10 Year Index

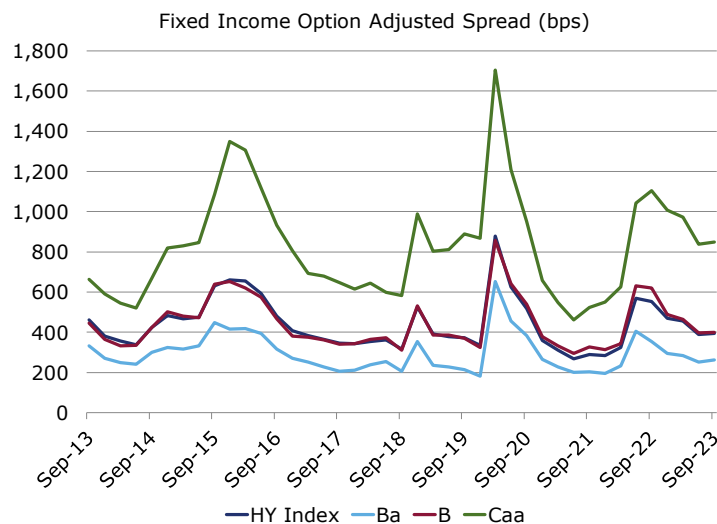


Data Sources: Bloomberg

High Yield Bond Market

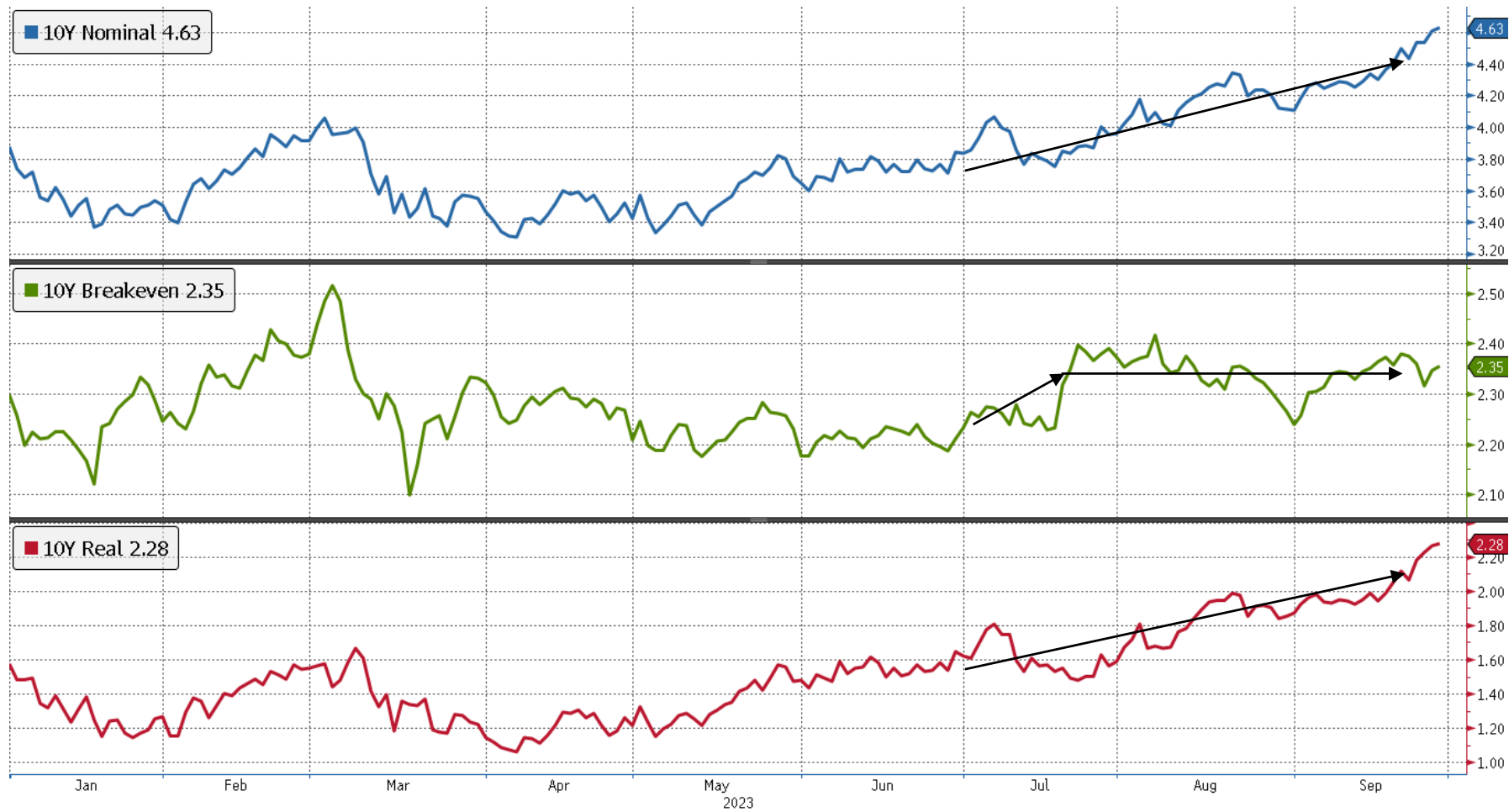
As of 9/30/2023

		YTW	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Bloomberg High Yield		8.9	0.5	5.9	10.3	1.8	3.0	4.2
S&P LSTA Leveraged Loan		9.5	3.1	9.7	13.8	5.2	4.2	3.9
High Yield Quality Distribution	Weight							
Ba U.S. High Yield	47.8%	7.6	-0.4	3.9	8.4	0.8	3.7	4.6
B U.S. High Yield	40.0%	9.0	0.8	6.3	11.6	1.9	2.8	3.9
Caa U.S. High Yield	11.4%	13.3	2.5	12.1	12.7	3.8	0.7	3.7
Ca to D U.S. High Yield	0.9%	15.6	3.0	10.8	26.1	14.4	-2.8	-3.6



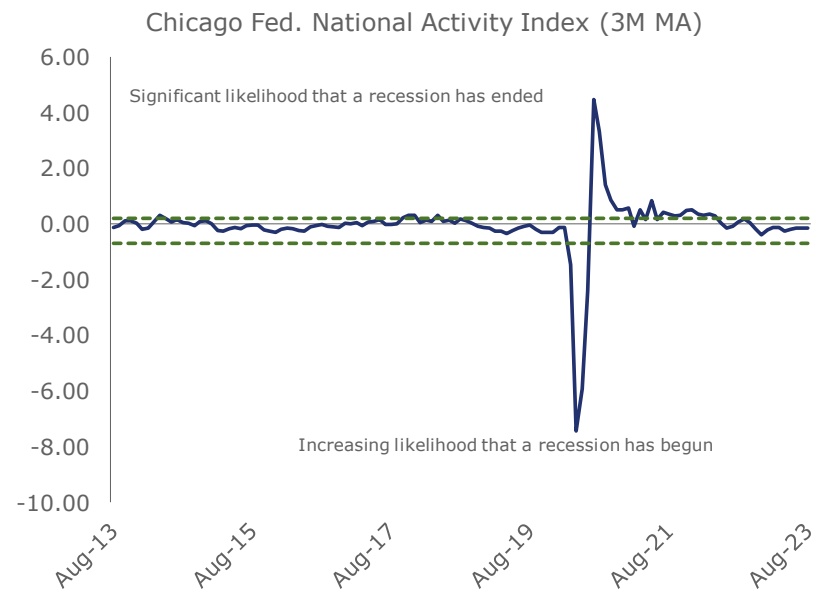
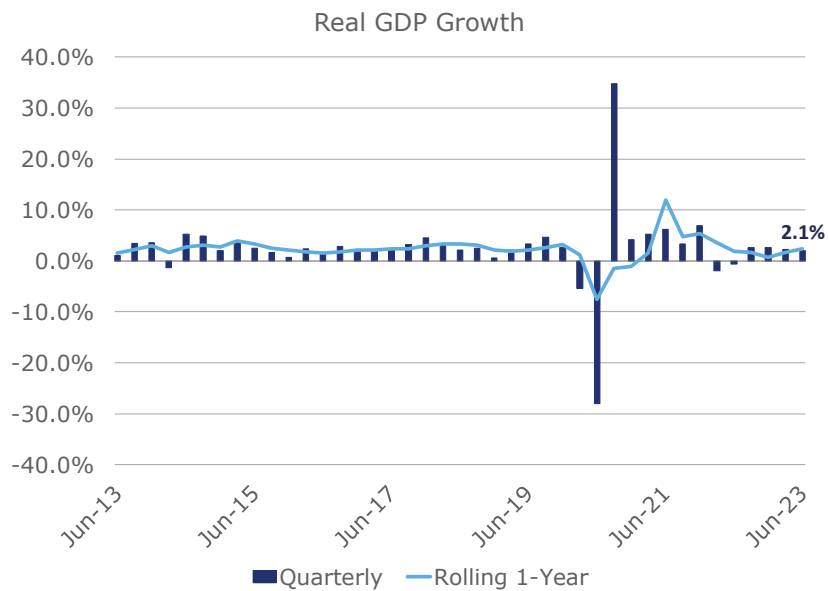
Data Sources: Bloomberg

2023 Rate Environment



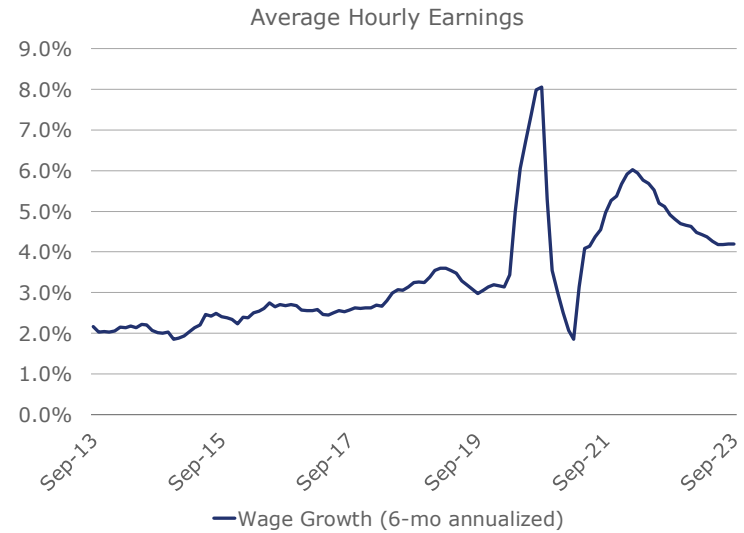
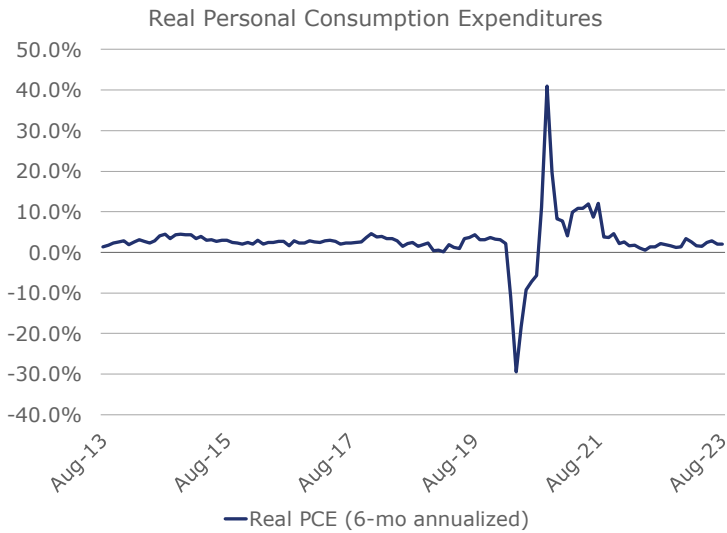
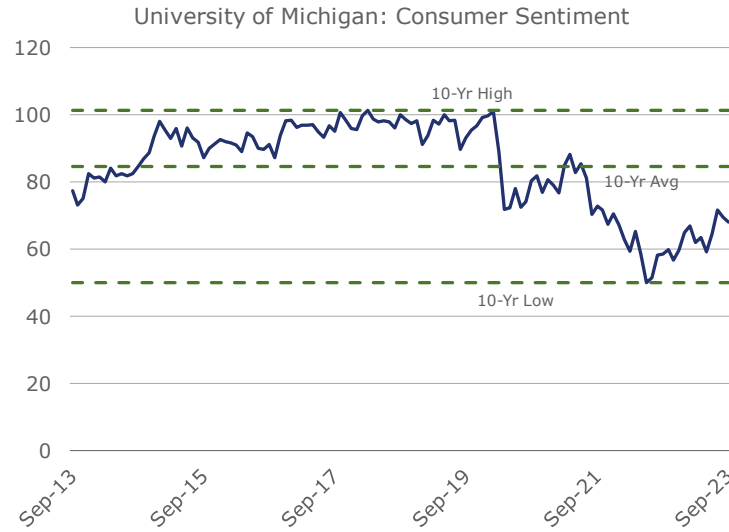
Data Sources: Wilshire, Bloomberg

Economic Growth



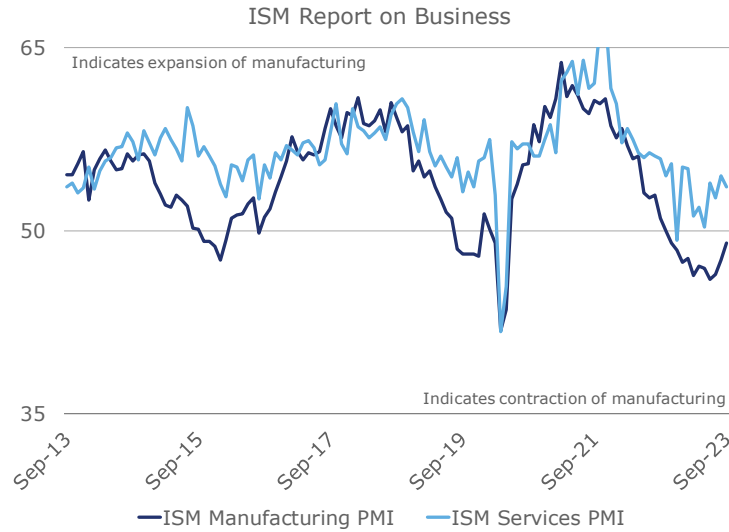
Data Sources: Bloomberg

Consumer Activity



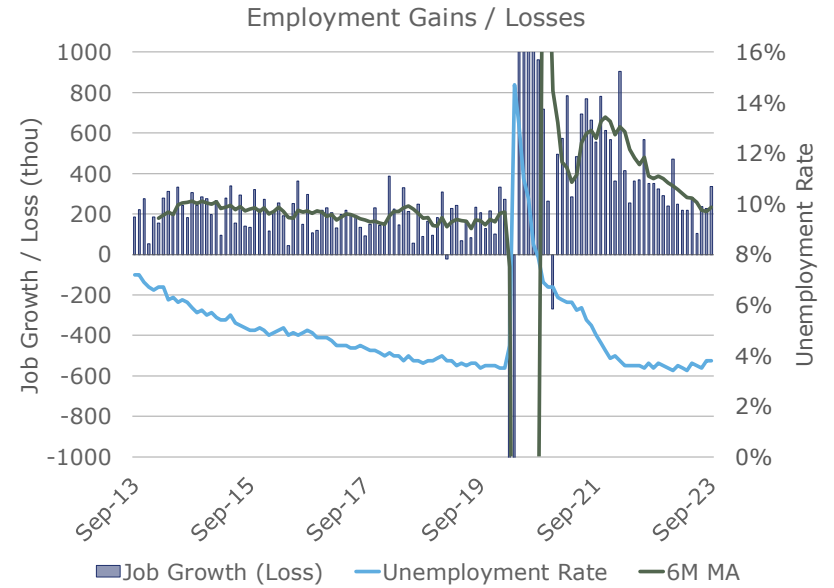
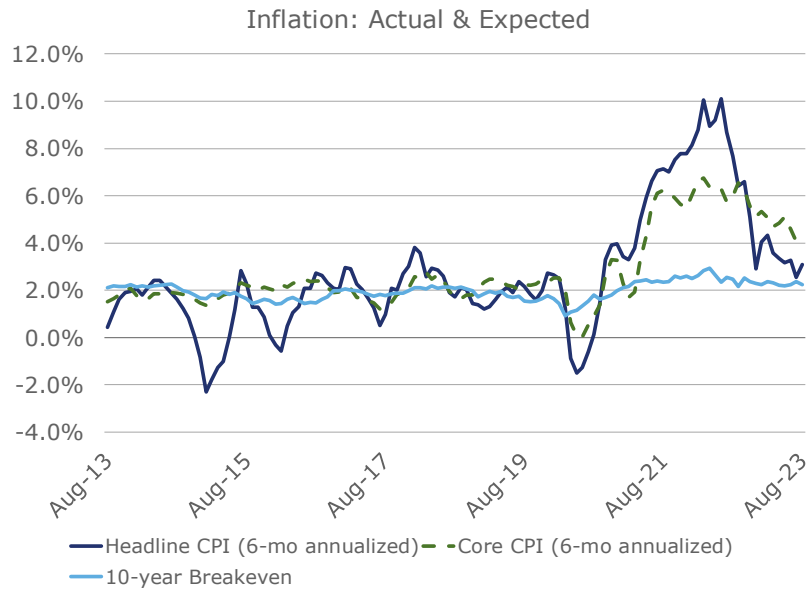
Data Sources: Bloomberg

Business Activity



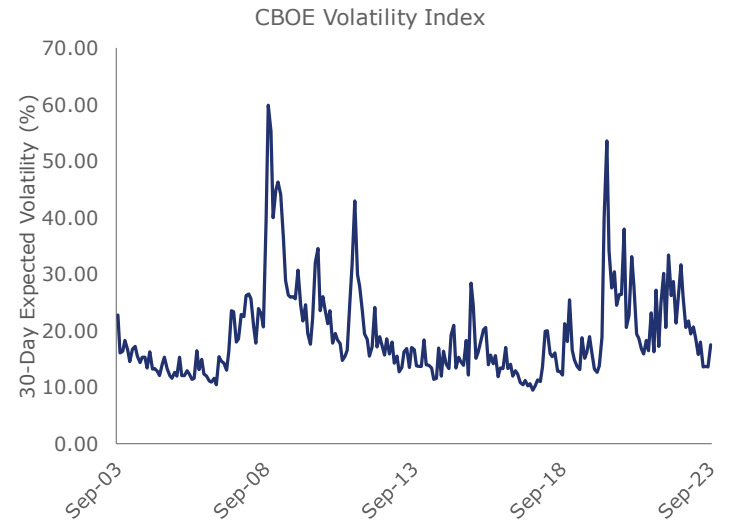
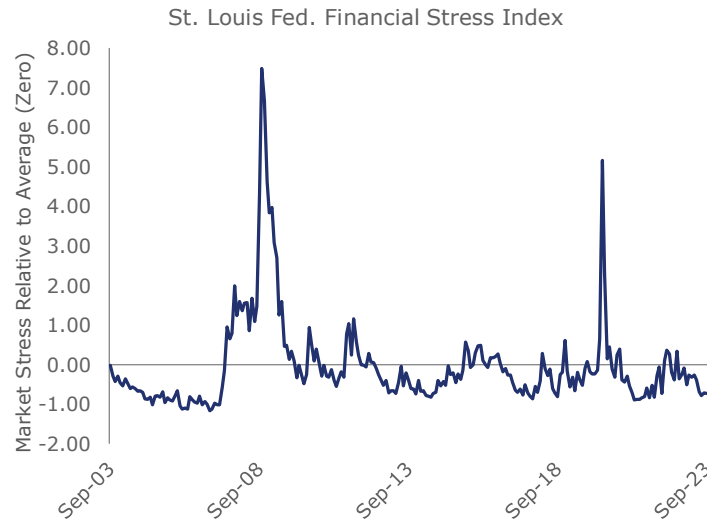
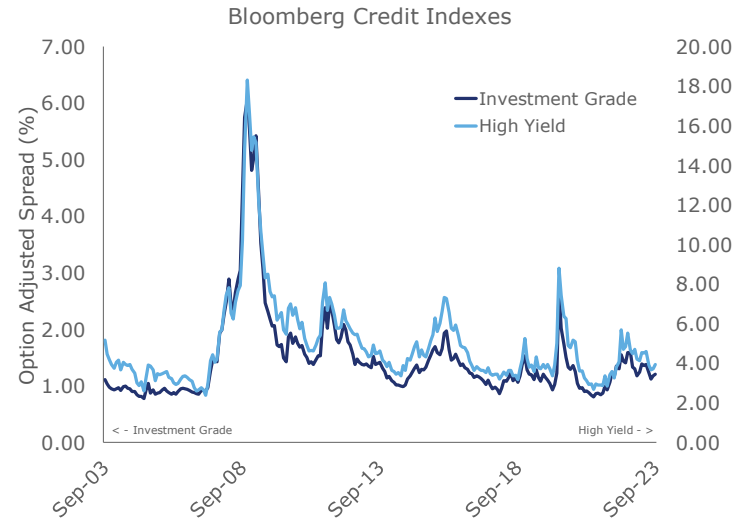
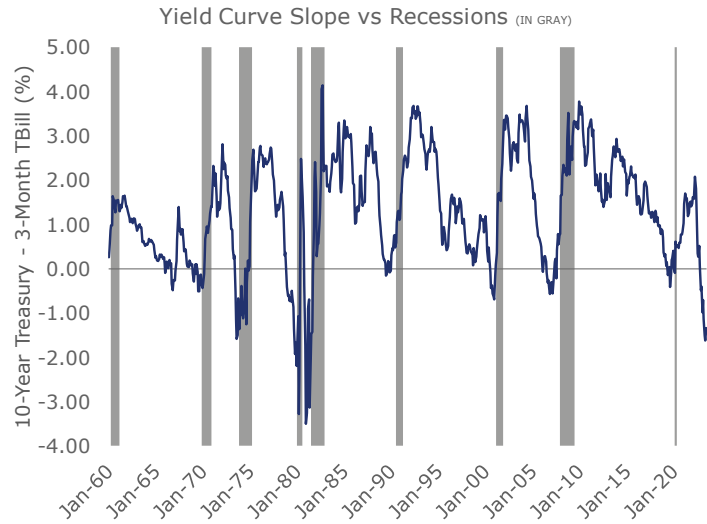
Data Sources: Bloomberg

Inflation And Employment



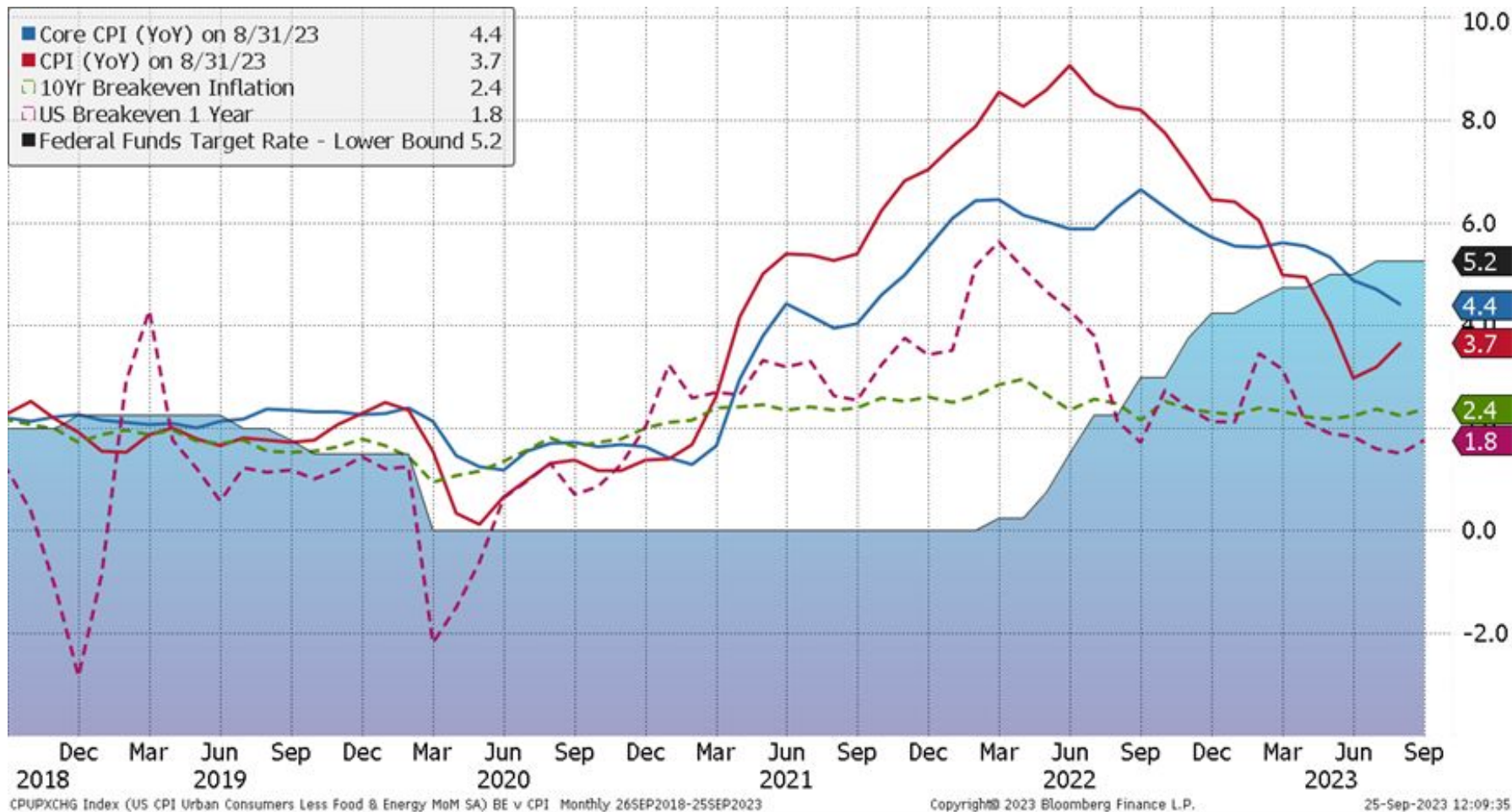
Data Sources: Bloomberg

Risk Monitor



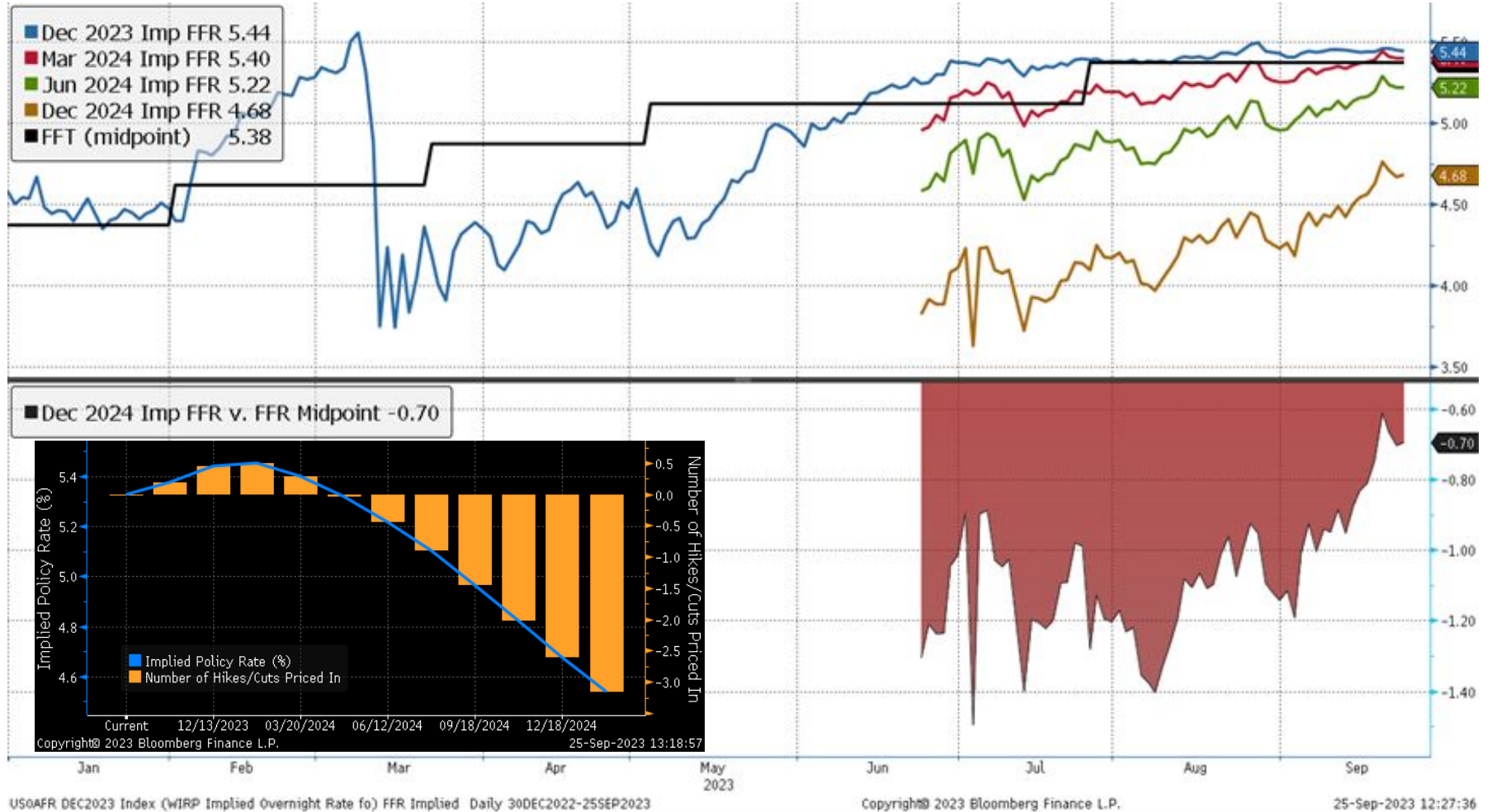
Data Sources: Bloomberg

Inflation Update v. Fed Policy: At/Near the Neutral Rate?



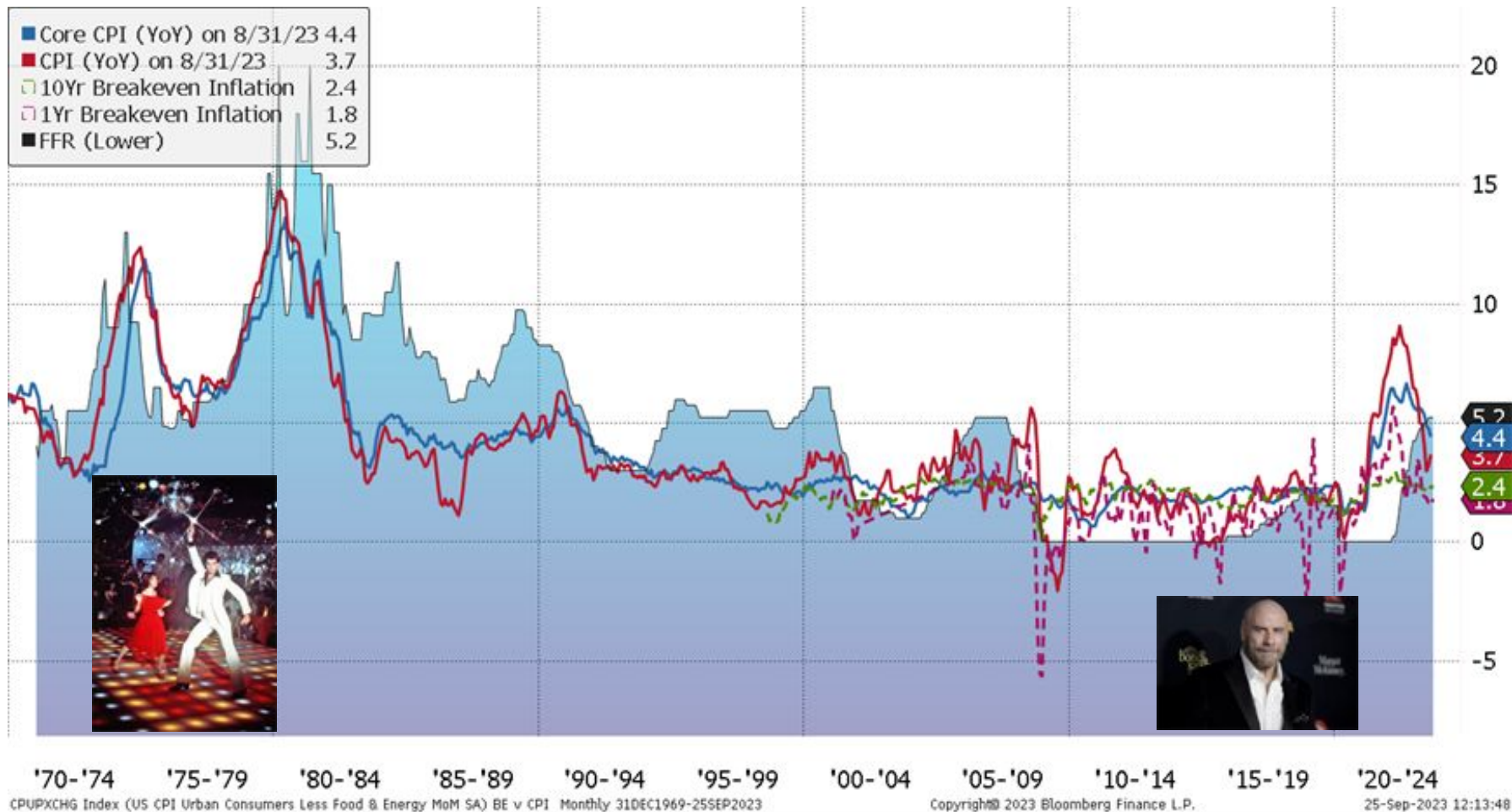
Data Sources: Bloomberg

At/Near Neutral Rate?: The Market Thinks So (and that we'll be Lower Next Year)...



Data Sources: Bloomberg

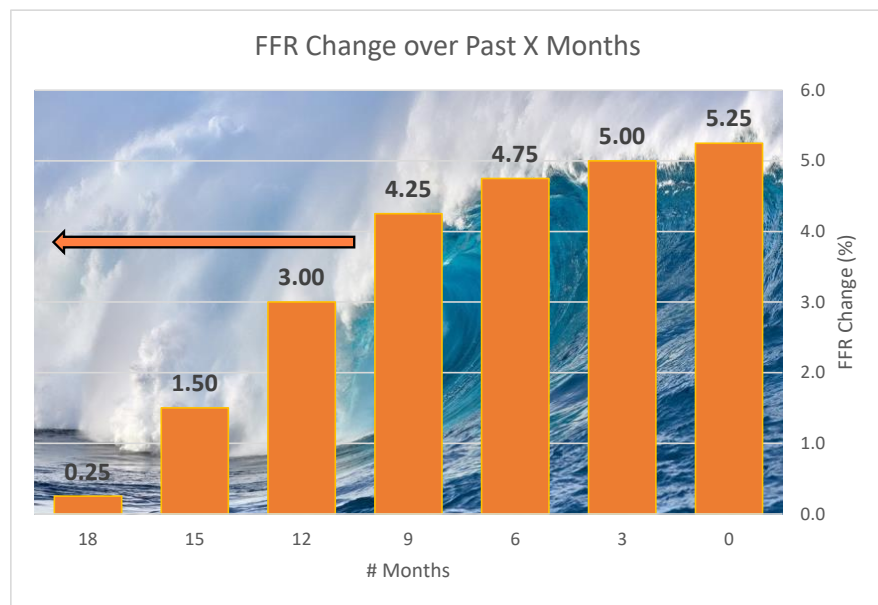
Inflation: I Know, It's Not the 70s, But the Path Back to Target Might Be Bumpy....



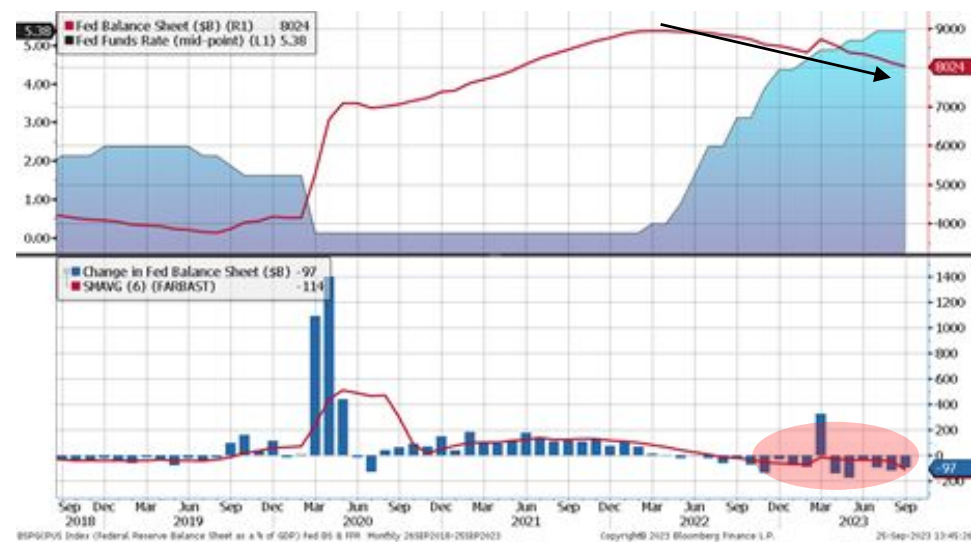
Data Sources: Bloomberg

Tightening Continues, Even If the FFR Target Rate Remains Unchanged

Impact of Fed tightening known to have long & variable lag



Fed BS run-off (~\$1T/year)



Data Sources: Bloomberg

County Employees Retirement System

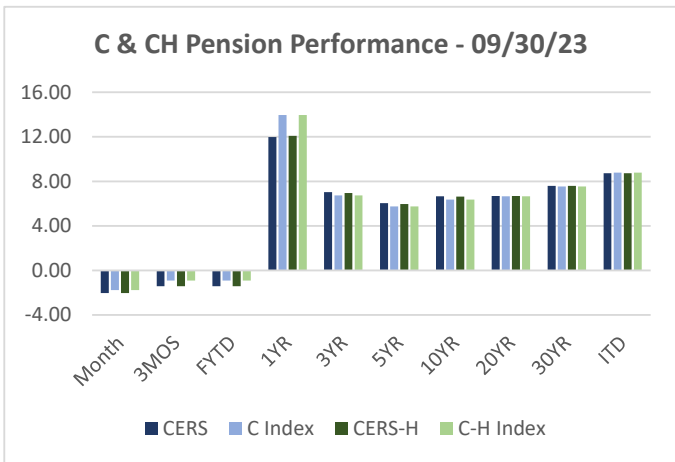
Performance and Asset Allocations

Quarter Ending: September 30, 2023

September 2023

KPPA MONTHLY PERFORMANCE UPDATE

CERS/CERS-H

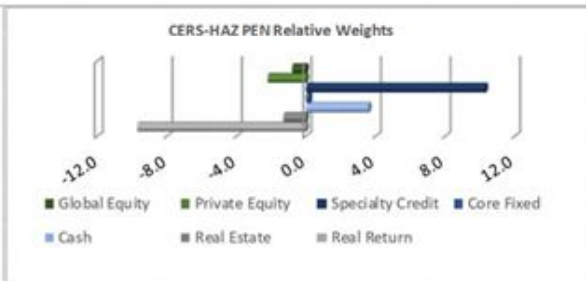


CERS & CERS-HAZ - PENSION FUND PLAN NET RETURNS - 09/30/23

Plan	Market Value	Month	3 Months	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	ITD
CERS	8,545,416,917.22	-2.02	-1.42	-1.42	11.99	7.02	6.04	6.66	6.69	7.59	8.75
KY Ret. CKERS Plan IPS Index		-1.75	-0.89	-0.89	13.96	6.73	5.76	6.37	6.65	7.53	8.78
CERS- H	2,991,683,835.41	-2.03	-1.42	-1.42	12.10	6.95	5.97	6.64	6.68	7.58	8.75
KY Ret. CERS Haz Plan IPS Index		-1.75	-0.89	-0.89	13.96	6.73	5.76	6.37	6.65	7.53	8.78

KPPA PENSION FUND UNIT - NET RETURNS - 09/30/23 - PROXY PLAN ASSET PERFORMANCE

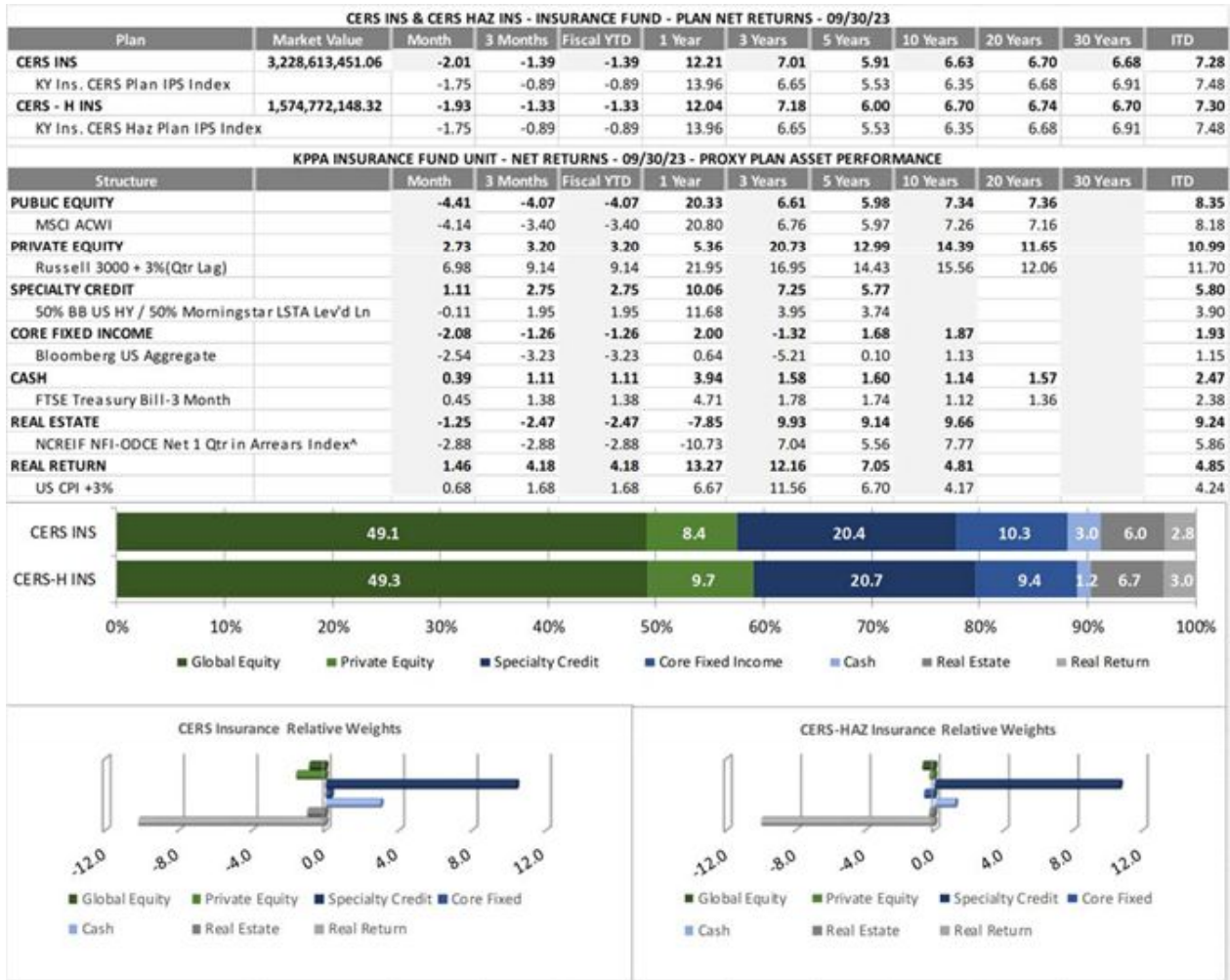
Structure	Month	3 Months	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	ITD
PUBLIC EQUITY	-4.39	-4.04	-4.04	20.48	6.63	6.01	7.27	7.39	8.36	10.02
MSCI ACWI	-4.14	-3.40	-3.40	20.80	6.78	5.99	7.25	7.37	8.18	9.88
PRIVATE EQUITY	2.40	2.71	2.71	3.07	17.97	13.31	13.41	11.87		11.81
Russell 3000 + 3%(Qtr Lag)	6.98	9.14	9.14	21.95	16.95	14.43	15.56	12.30		12.14
SPECIALTY CREDIT	1.07	2.64	2.64	9.63	7.15	5.78				5.91
50% BB US HY / 50% Morningstar LSTA Lev'd Ln	-0.11	1.95	1.95	11.68	3.95	3.74				3.90
CORE FIXED INCOME	-2.02	-1.14	-1.14	2.13	-1.15	1.87	2.18			2.22
Bloomberg US Aggregate	-2.54	-3.23	-3.23	0.64	-5.21	0.10	1.13			1.15
CASH	0.39	1.12	1.12	3.96	1.60	1.72	1.28	1.73	2.71	3.32
FTSE Treasury Bill-3 Month	0.45	1.38	1.38	4.71	1.78	1.74	1.12	1.36	2.35	2.94
REAL ESTATE	-1.28	-2.63	-2.63	-7.75	10.24	9.19	9.33	7.97	6.52	6.53
NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^	-2.88	-2.88	-2.88	-10.73	7.04	5.56	7.77	6.86	7.53	6.35
REAL RETURN	1.40	4.71	4.71	14.98	13.61	7.27	5.04			5.12
US CPI +3%	0.68	1.68	1.68	6.67	12.54	6.67	4.11			4.19



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Overview

Markets continued to struggle for direction in the first quarter of Fiscal 2024 as all major global equity markets produced negative performance during the quarter and finished on the back foot with September marking the largest monthly decline of 2023. Realized rates and expectations for the future path of rates weighed heavily on markets as the US 10Y bond yield spiked to its highest level since 2007 during the quarter and the Treasury curve inverted to a level not seen in decades as markets reassessed the higher for longer narrative and the potential impacts on growth and markets.

After a strong first quarter of 2023, real GDP moderated to a 2.1% during the second quarter before surprisingly rebounding to 4.9% in the third quarter, the best quarterly growth rate in nearly two years

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fueled by consumer spending on goods and services, inventory investments and government spending. While this acceleration and the strength of recent data suggest a recession may not be imminent, expectations remain for a sharp slowdown in growth over the coming quarters as global central banks are intensifying their monetary policy tightening, with money, credit, and liquidity all decisively retreating. Over the past year and a half, the Fed, European Central Bank, Bank of Japan, and Bank of England have withdrawn a total of \$4.7trn from circulation, a significant drain but less than half of the amount added during the post-pandemic quantitative easing programs. Although equities have derated in absolute terms over the past three months, valuations remain relatively expensive relative to safe haven assets with the equity risk premium still quite low from an asset allocation perspective. Although the Q3 reporting season is delivering a relatively high proportion of EPS beats, it has not driven further upward EPS revisions and EPS revisions ratio has fallen sharply as earnings momentum appears to be stalling. Given the numerous headwinds, risk markets are likely to trade range bound with a mild bias toward the downside.

The CERS and CERS-H Pension portfolios both produced a return of -1.42% during the quarter while the CERS Insurance portfolio returned -1.39% and the CERS-H Insurance portfolio produced a return of -1.33% compared to their benchmark performance of -0.89%. Across portfolios, underperformance in the Public Equity and Private Equity portfolios were the primary drivers of relative performance during the quarter. While the Public Equity portfolio suffered from stock selection and style bias, the relative underperformance of the Private Equity portfolio is primarily due to the misalignment and timing of the benchmark. The current specified benchmark of Russell 3000 + 3% based on a quarter lag benefitted from the strong performance of the Public Equity markets during the quarter that ended June 2023 and was not reflective of the actual performance of Private Equity markets for the quarter ending September 2023. The underweight to Real Return was also a modest drag on performance as it was on of the few assets classes that in aggregate posted positive performance for the quarter. The overweight in the Specialty Credit portfolio was a positive contributor to performance as it outperformed on a relative basis and was one of the best performing asset classes during the quarter. The portfolios also continued to benefit from strong relative performance in the Core Fixed Income portfolio as Staff maintained an overall short duration profile which outperformed as rates rose. Since the end of the quarter, staff has been rebalancing the Core portfolio to lengthen duration as all in yields have become more compelling and rates may be nearing their cycle peaks.

Public Equity

Global equity markets were notably weaker during the quarter, falling -3.40% per the MSCI ACWI. This brought the asset class return to 20.80% for the one-year period. US markets held up slightly better than

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international markets during the period (-3.25% versus -3.49%), contributing to them edging out their counterparts for the twelve-month period (20.46% versus 20.19%).

After a good start to the quarter, US markets turned lower in July as thoughts of a potential soft landing began to slide and concerns about extended policy rates and their impact took hold. Interest rates spiked with the 10-year Treasury gaining 100bps to reach new 15-year highs. As yields pushed higher, risk assets sensitive to higher borrowing costs re-priced to the downside (smaller caps and those perceived to be lower quality in particular). With the policy rate now firmly above neutral it follows that slowing economic activity is likely, as businesses and consumers start to feel the costs. The narrow market storyline continued as mega-cap tech dominated, while the average stock lost ground during the quarter (the S&P 500 has returned approximately 13% YTD, while the “magnificent 7” have returned an average 83%), the market now at historically high concentration. Despite value holding up slightly better than growth during the quarter (-3.15% versus -3.34%), market winners this year have been large cap, growth, and quality. Large cap growth has returned 24.98% YTD, while small cap growth has returned 5.24%. On the other hand, large cap value has returned less than 2%, while small cap value has fallen roughly 50bps.

Most Non-US developed markets were weaker during the quarter. This was primarily caused by slowing economic growth and persistently high inflation in the face of continued rate hikes. Underpinning the slower growth is the financial tightening that has caused a deceleration in consumption (increasing but at a slower rate), inventory destocking, and weaker manufacturing. Despite the growth deceleration, company earnings have come in ahead of expectations as they had assumed a hard landing recession. Supply chains appear to have normalized, which has led to reduced input costs which has helped to bolster earnings.

The KPPA global equity returned -4.11% during the quarter versus its benchmark return of -3.40%. Relative underperformance is primarily the result of allocation within the US equity portion of the portfolio, and weaker stock selection within the NonUS mandates, particularly those with a growth style bias.

Within the US equity allocation, the portfolio trailed its index by 24bps (-3.49% vs -3.25%). This was primarily due to allocation. The portfolio tilts towards value and smaller in market cap. The value tilt in the portfolio was slightly beneficial; however, the smaller size bent hampered relative performance. Small caps underperformed their large cap counterparts by just under 2%.

The international equity allocation underperformed during the quarter, falling -5.05% versus a benchmark return of -3.49%. Weakness was most pronounced in the growth portion of the portfolio as any strategy whether developed or emerging market with a growth bias struggled. This was partially

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offset by the value portion of the portfolio which held up better, with two of the three mandates providing positive absolute performance.

For the trailing 12 months, the KPPA global equity portfolio returned 20.39%, trailing its benchmark by 41bps. The US equity portion of the portfolio returned 19.46% versus 20.46%. Underperformance can be attributed to the factor tilts in the portfolio (value and smaller) as stock selection among most mandates was positive. The NonUS equity portion of the portfolio returned 21.62% versus 20.19%. While stock selection was mixed, relative outperformance was driven by strong performance in the value biased mandates.

Core Fixed Income

Rates across the U.S. Treasury curve finished the quarter higher, with the long end rising the most. The yield on the 2-year Treasury, which is highly sensitive to expectations for the Fed Funds rate, started the quarter at 4.90% and closed September at 5.04%. The 10-year Treasury, which is often used as a benchmark for pricing home mortgages, began the quarter trading at 3.84% closing at 4.57%. Lastly, the yield on the 30-year bond, which tends to be highly sensitive to changes in long-term economic expectations, increased from 3.86% to 4.70%.

The Bloomberg U.S. Aggregate Bond Index returned -2.54% for September resulting in a quarterly loss of 3.23% as U.S. Treasury yields rose across the curve and credit spreads rose. Corporate bonds were the best performing spread sector for the quarter, generating 84 basis points of excess returns. Commercial mortgage-backed securities (CMBS) were next, outperforming similar duration Treasuries by 35 basis points. Asset-backed securities (ABS) rounded out the top three closing the quarter generating 29 basis points of excess returns.

The Core Fixed Income portfolio posted a loss of 2.02% for the month and a loss of 1.14% for the quarter, outperforming the benchmark by 0.52% for the month and 2.09% for the quarter. The relative outperformance is directly attributable to the underweight overall duration as rates rose and allocations to the Corporate and ABS sectors within our mandates.

Specialty Credit - Private Equity – Real Return – Real Estate

The Bloomberg US High Yield Index returned -1.18% in September and 0.46% over the quarter. Lower rated issues outperformed for the sixth consecutive month. BB, B and CCC-rated issues returned -1.46%, -1.03% and -0.81%, respectively in September. BB, B and CCC-rated issues returned -0.43%, 0.83% and 2.39% during the quarter, respectively. This continued the year-to-date trend of risk outperforming

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quality, as CCC-rated issues have outperformed BB-rated issues by 8.33% year-to-date. U.S. high yield bonds saw their worst monthly total return since February as resilient economic data and hawkish Federal Reserve commentary drove interest rates sharply higher. Overall spreads ended the month 23 basis points wider and 4 basis points wider over the quarter.

Leveraged loans outperformed high yield bonds for the fifth time in six months as rising rates and steady CLO issuance provided a tailwind for the asset class. The Morningstar LSTA US Leveraged Loan Index returned 0.96% in September, ending the quarter with a gain of 3.46%. Primary issuance jumped 40% versus the prior month to the highest issuance since November 2021. Despite persistent concerns about maturity walls in the leveraged finance market, just 10% of leveraged loans mature before 2026, down from 20% at the start of the year.

Default and distressed exchange activity moderated in September with one default and one distressed exchange completed. The quarter saw five defaults and four distressed exchanges. There have been seventeen defaults thus far year-to-date, surpassing the seven defaults during all of 2022. However, as of September, bond and leveraged loan default rates ended the quarter at 1.32% and 1.90%, respectively, both below historical averages.

The Specialty Credit portfolio returned 1.07% for the month ending September and 2.64% for the quarter outperforming the custom benchmark for both time periods by 1.18% and 0.69%, respectively. However, the portfolio has performed better over longer time periods as represented by the 3-Year and 5-Year returns outperforming the benchmark by 3.20% and 2.04%, respectively.

Markdowns in Real Estate continued during the quarter, with the portfolio still seemingly affected more by higher cap rates than declining property-level performance. The portfolio's exposures to industrial, self-storage, student housing, medical office, and senior living continued to experience positive rent growth and pricing. From a valuation perspective, a look at the secondaries market suggests that there still may be more room to fall, with real estate funds pricing at significantly wider discounts than other strategies like private equity, credit, and infrastructure. Public markets sent a similarly bearish signal, with the US REIT index RMZ falling 7% during the quarter. That pushed the benchmark to a -2% YTD return and extends the 25% drop it had in 2022. While starting to pick up, real estate deal volume and price discovery remain muted, with new deals remaining concentrated in the industrial and multifamily sectors. However, even those sectors have seen new construction starts drop to 10-year lows because of higher financing and construction costs. The Real Estate portfolio returned -2.63% for the quarter and -7.75% for the trailing twelve months, outperforming the custom benchmark for both time periods by 0.25% and 2.98%, respectively.

Commodities were mixed during the quarter. Oil prices rose driven by supply cuts from the world's largest producers along with data showing US oil inventories fell to their lowest level in over 12 months.

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Natural gas prices moved higher for the second straight quarter after six months of significant declines. Prices were up 4.7% for the third quarter but are still down a massive -56.7% for the past twelve months. Gold declined for the second straight quarter and other precious metals slumped as the DXY dollar index rose and prices were down across the agricultural complex. The Real Return portfolio returned 4.71% for the quarter and 14.98% for the trailing twelve months, outperforming the custom benchmark for both time periods by 3.03% and 8.31%, respectively. MLP exposure has been the main driver of performance in the Real Return portfolio, returning nearly 30% over the last year. Strong cash flows, disciplined capex, and consolidation have contributed to the industry's 40% annualized returns for the past 3 years since its crash during the early months of COVID.

Liquidity

Federal Reserve officials left interest rates unchanged at the September meeting following a 25 basis point hike in July, continuing the alternate-meeting pace of hikes they have followed since May. The surprise came in the dot plot, where the median projection indicated one more hike in 2023 and just two cuts in 2024 (down from four 2024 cuts in the June projection). The Federal Reserve is sticking to the higher-for-longer message they have been signaling for the last several months, despite downside risks to growth from labor strikes and rising oil prices. Short rate markets are pricing roughly 50% odds of one more rate hike this year.

As of September, the benchmark 3-month T-Bill returned 0.45% for the month and finished the quarter returning 1.38%. The cash portfolio returned 0.39% and 1.12% for the month and quarter, respectively. The underperformance is attributable to lower rates offered by overnight repurchase agreements which is tied to the Fed Funds rate relative to market yields of the 3-month T-Bill. Since the Federal Reserve has begun to slow interest rate hikes, the difference in deposit rates compared to market rates will continue to compress going forward.

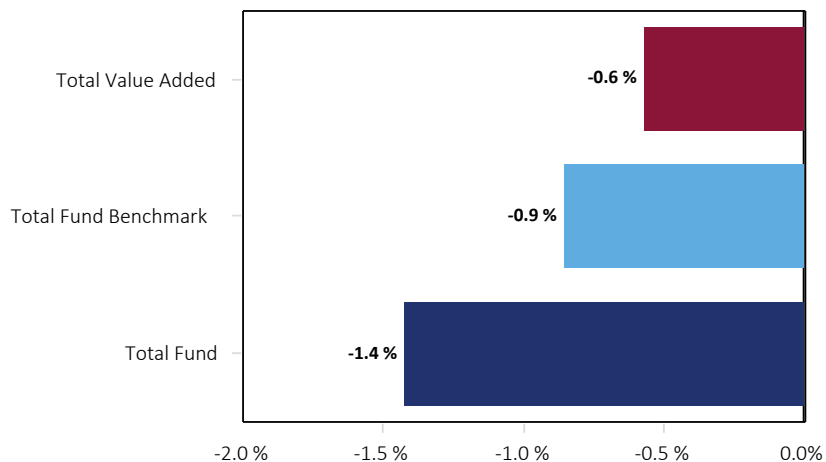
End of September key cash market interest rates: Fed Funds Effective 5.33%, 1M T-Bill 5.34% and 3M T-Bill 5.45%.

Total Fund Attribution

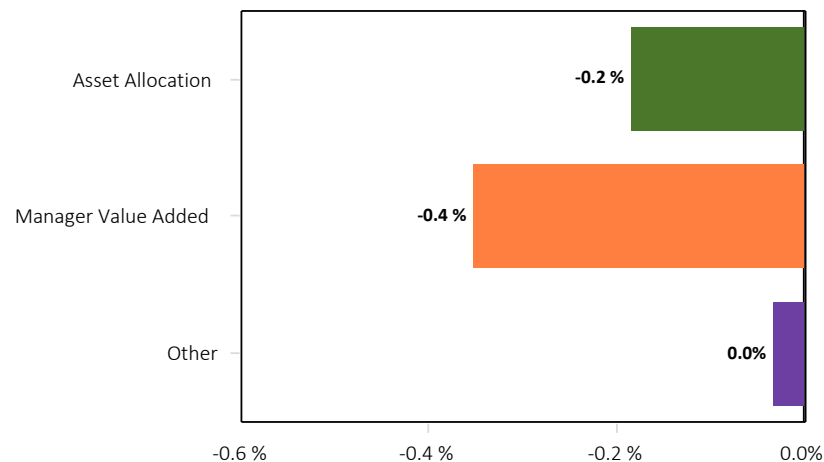
CERS Pension Plan

Periods Ended 1 Quarter Ending September 30, 2023

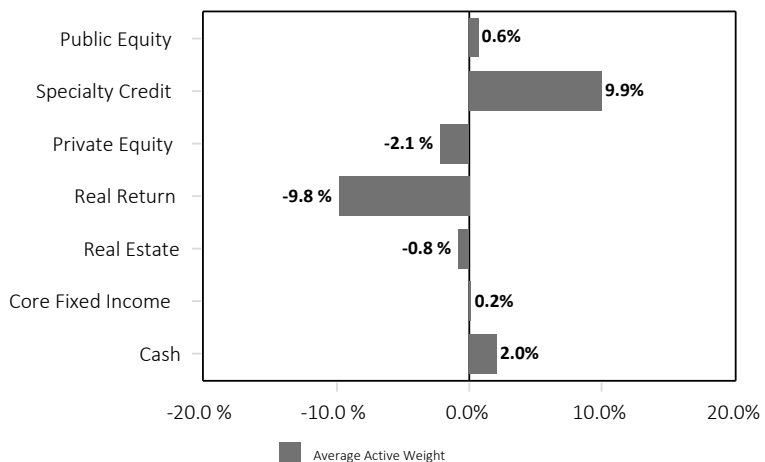
Total Fund Performance



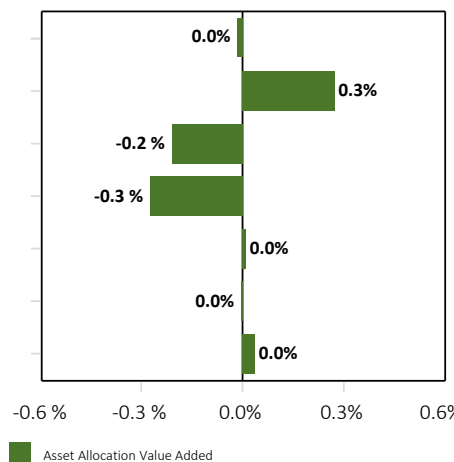
Total Value Added:-0.6 %



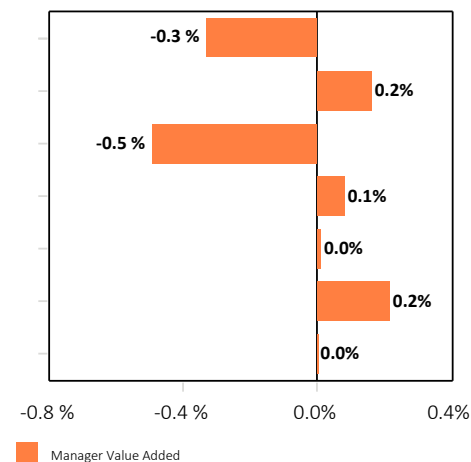
Total Asset Allocation:-0.2 %



Asset Allocation Value Added:-0.2 %



Total Manager Value Added:-0.4 %

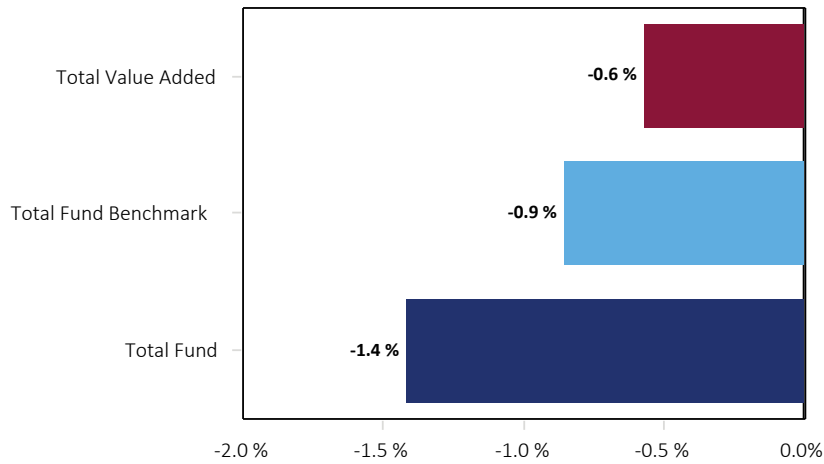


Total Fund Attribution

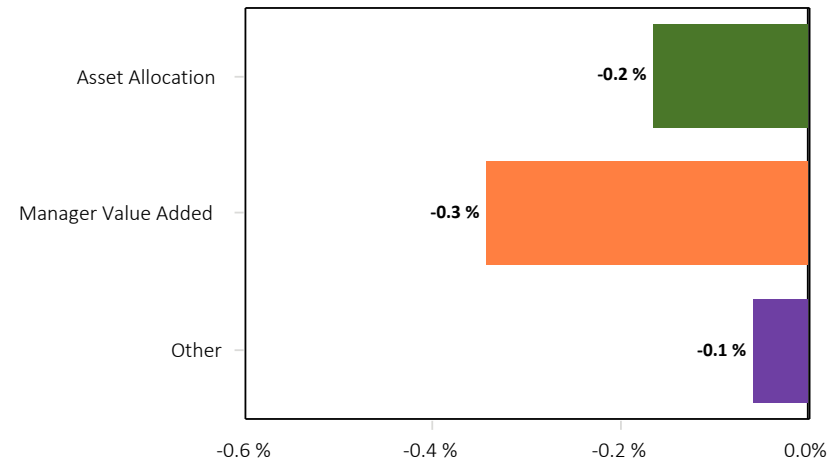
CERS (H) Pension Plan

Periods Ended 1 Quarter Ending September 30, 2023

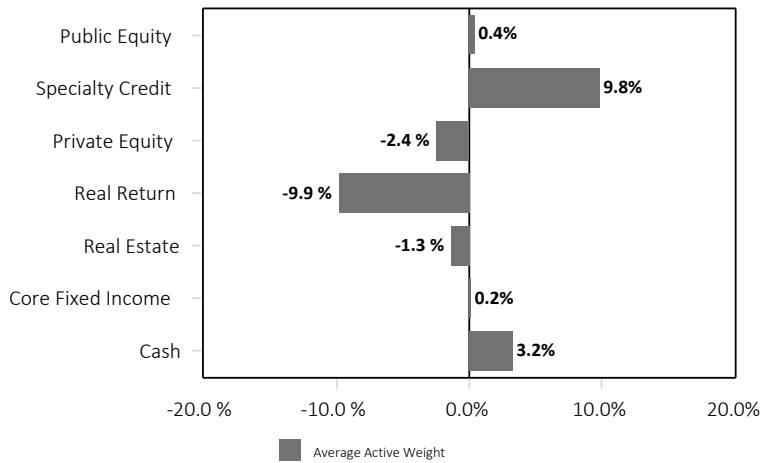
Total Fund Performance



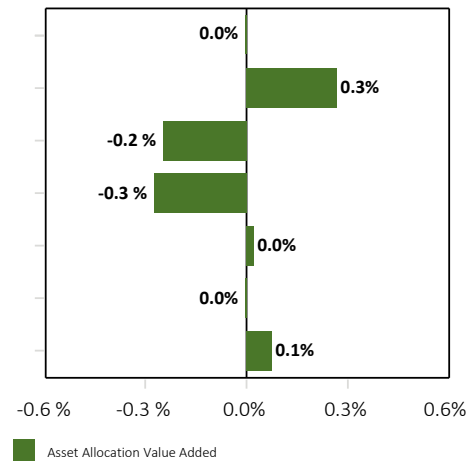
Total Value Added:-0.6 %



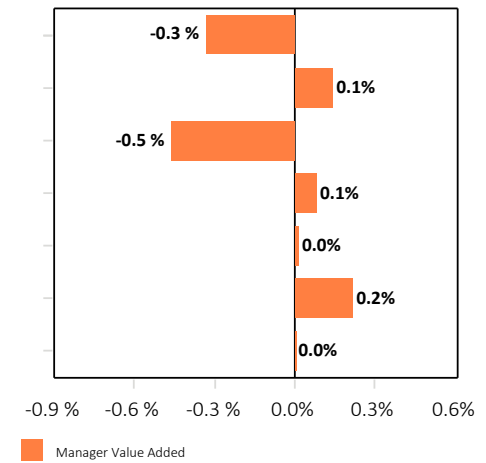
Total Asset Allocation:-0.2 %



Asset Allocation Value Added:-0.2 %



Total Manager Value Added:-0.3 %

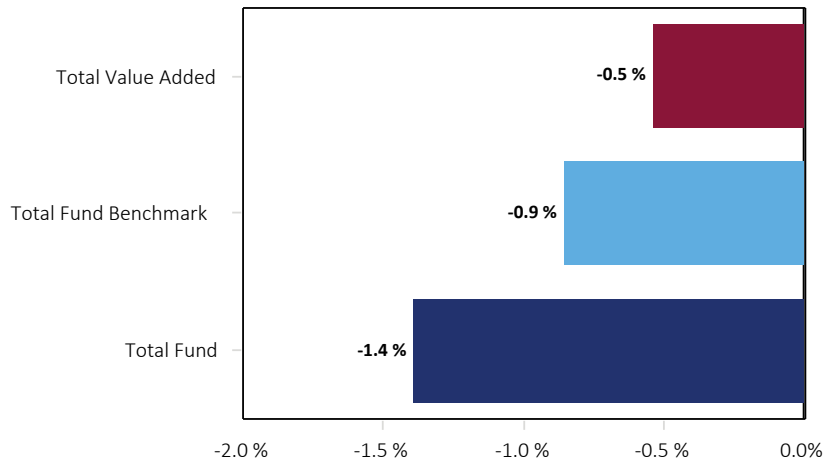


Total Fund Attribution

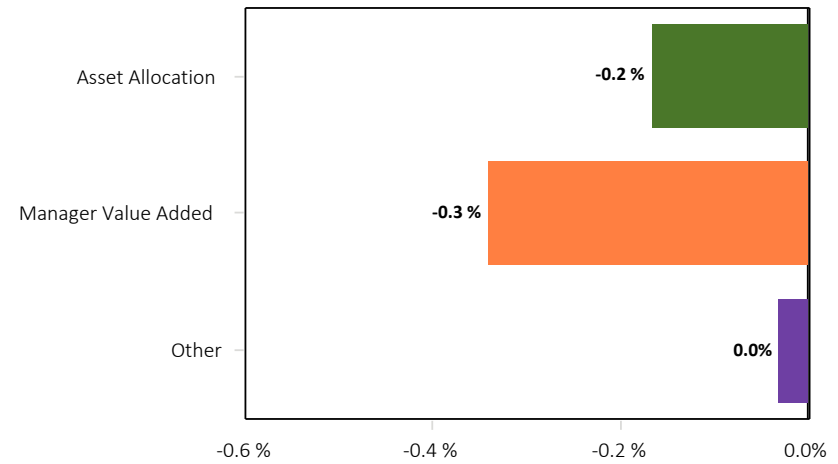
CERS Insurance Plan

Periods Ended 1 Quarter Ending September 30, 2023

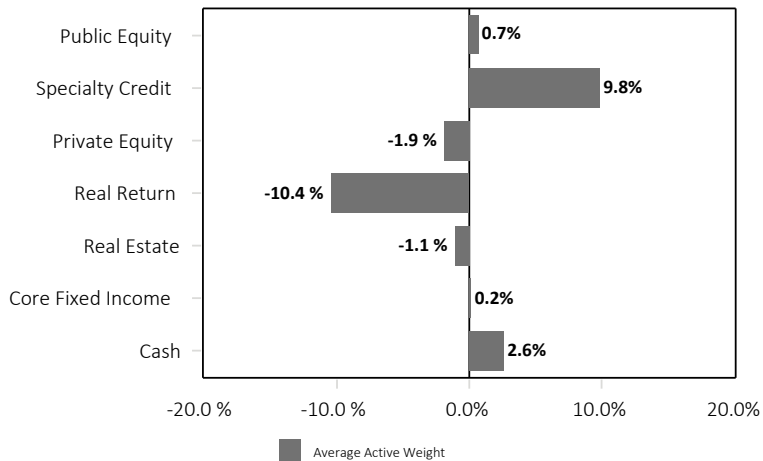
Total Fund Performance



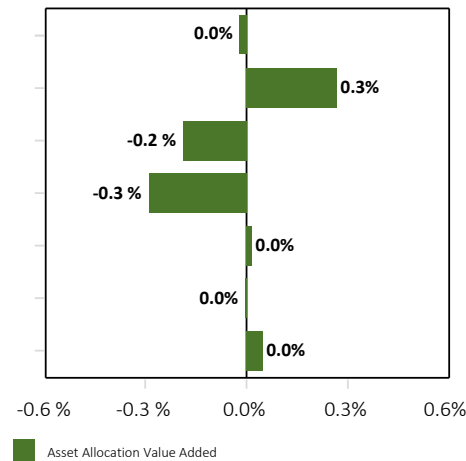
Total Value Added:-0.5 %



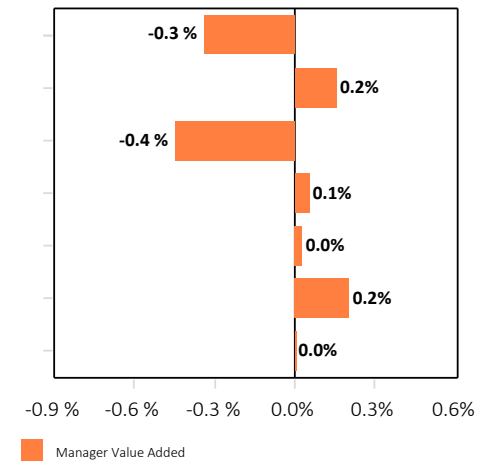
Total Asset Allocation:-0.2 %



Asset Allocation Value Added:-0.2 %



Total Manager Value Added:-0.3 %

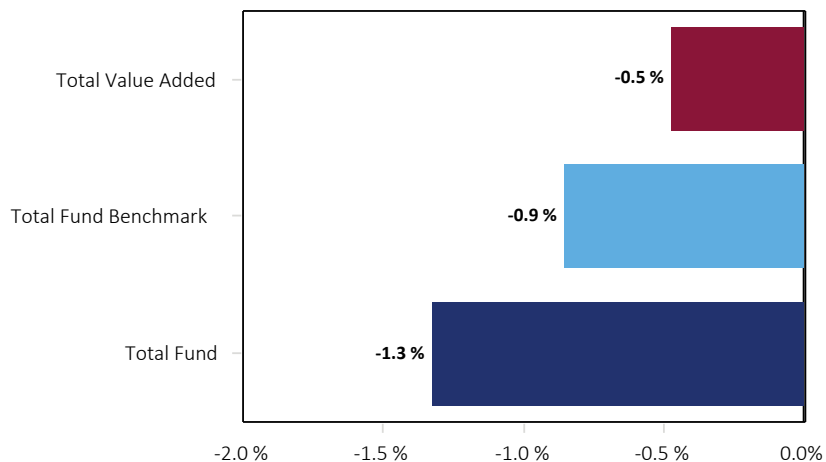


Total Fund Attribution

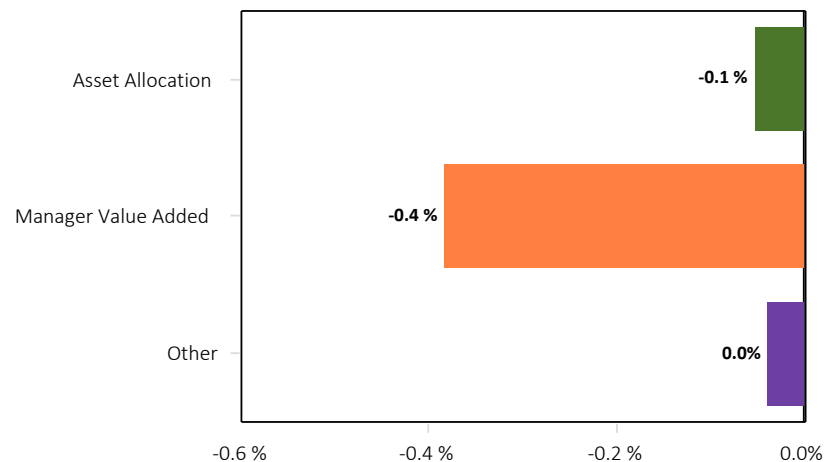
CERS (H) Insurance Plan

Periods Ended 1 Quarter Ending September 30, 2023

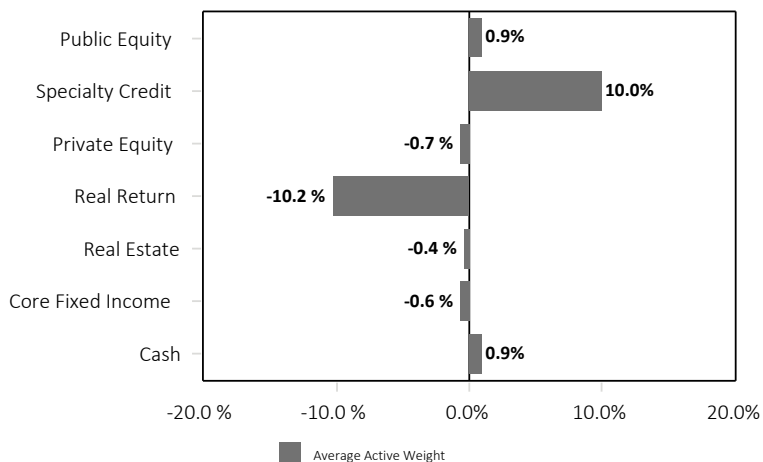
Total Fund Performance



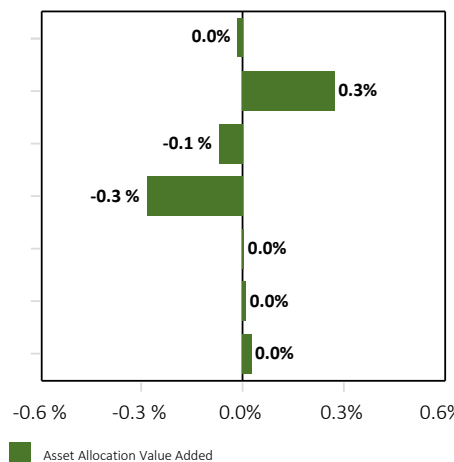
Total Value Added:-0.5 %



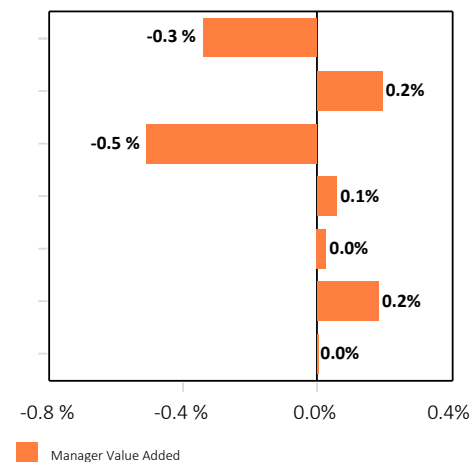
Total Asset Allocation:-0.1 %



Asset Allocation Value Added:-0.1 %



Total Manager Value Added:-0.4 %

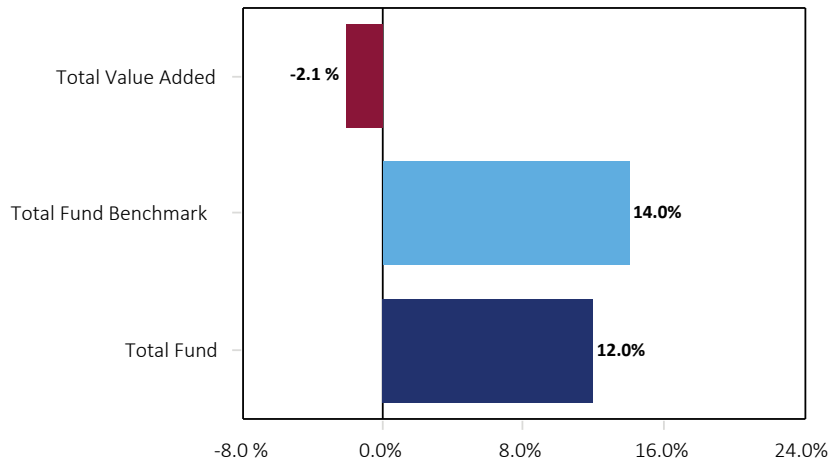


Total Fund Attribution

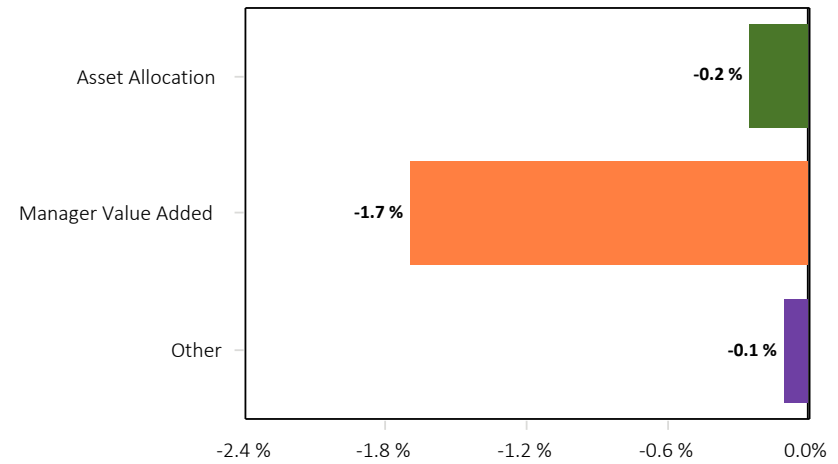
CERS Pension Plan

Periods Ended 1 Year Ending September 30, 2023

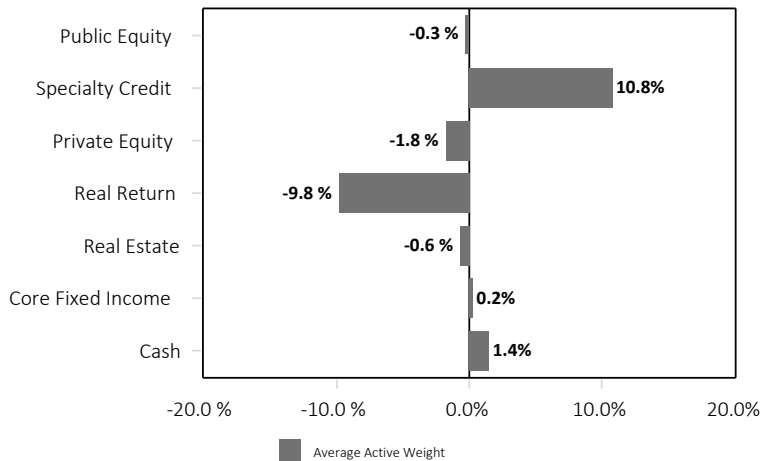
Total Fund Performance



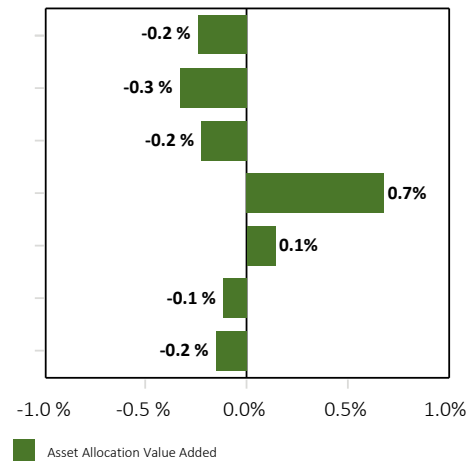
Total Value Added:-2.1 %



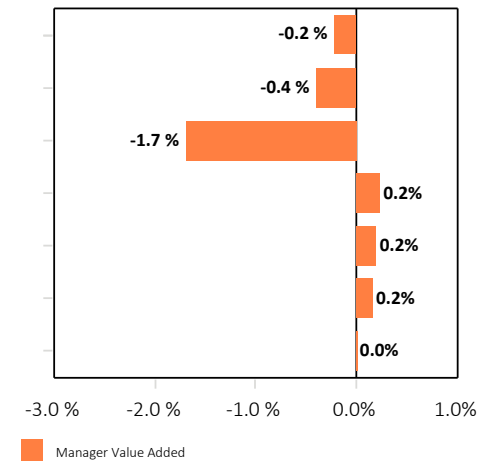
Total Asset Allocation:-0.2 %



Asset Allocation Value Added:-0.2 %



Total Manager Value Added:-1.7 %

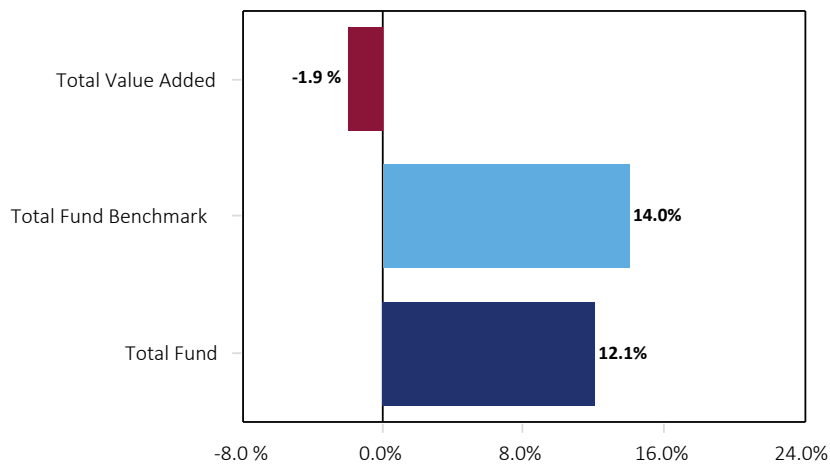


Total Fund Attribution

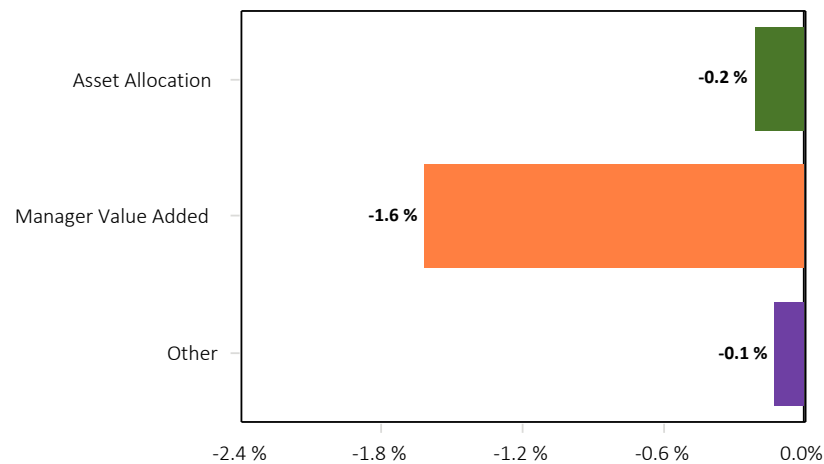
CERS (H) Pension Plan

Periods Ended 1 Year Ending September 30, 2023

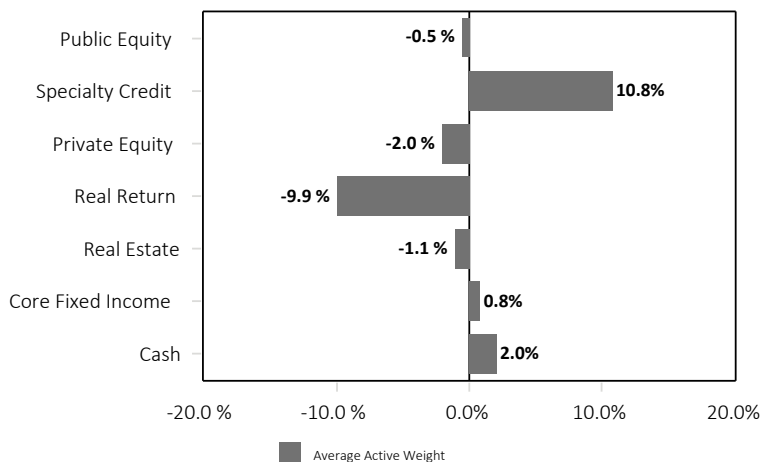
Total Fund Performance



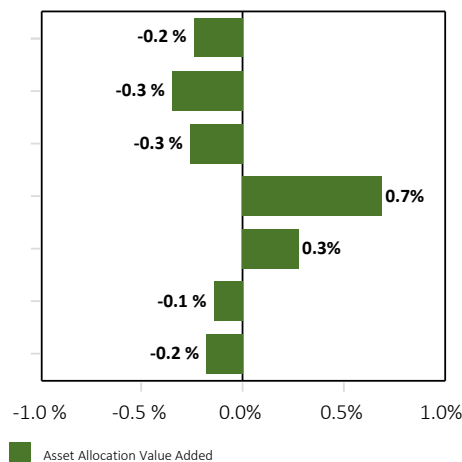
Total Value Added:-1.9 %



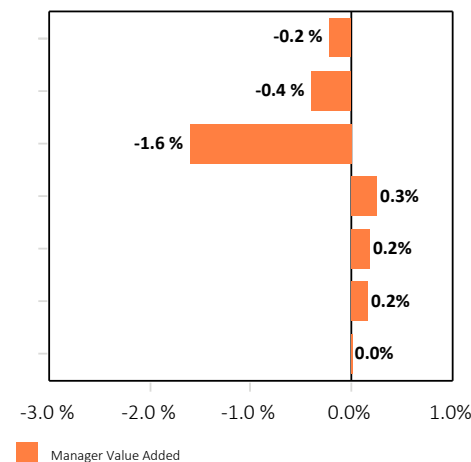
Total Asset Allocation:-0.2 %



Asset Allocation Value Added:-0.2 %



Total Manager Value Added:-1.6 %

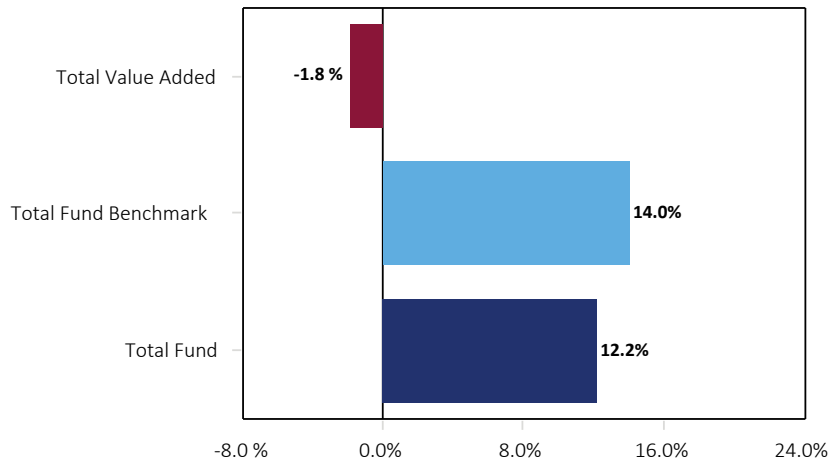


Total Fund Attribution

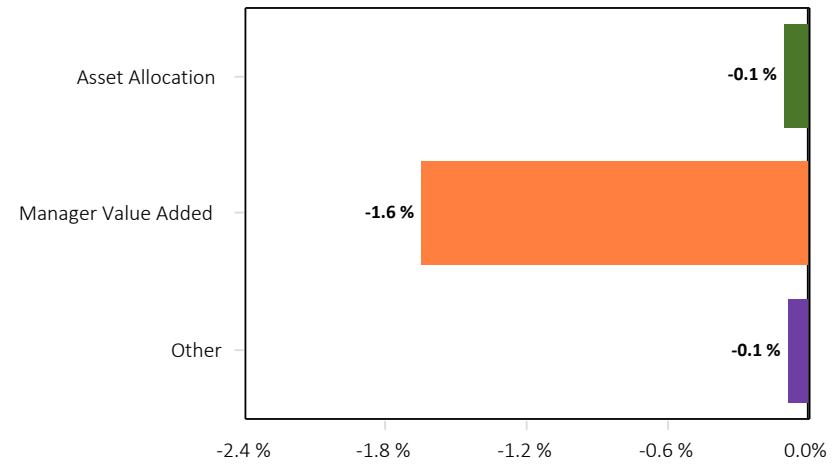
CERS Insurance Plan

Periods Ended 1 Year Ending September 30, 2023

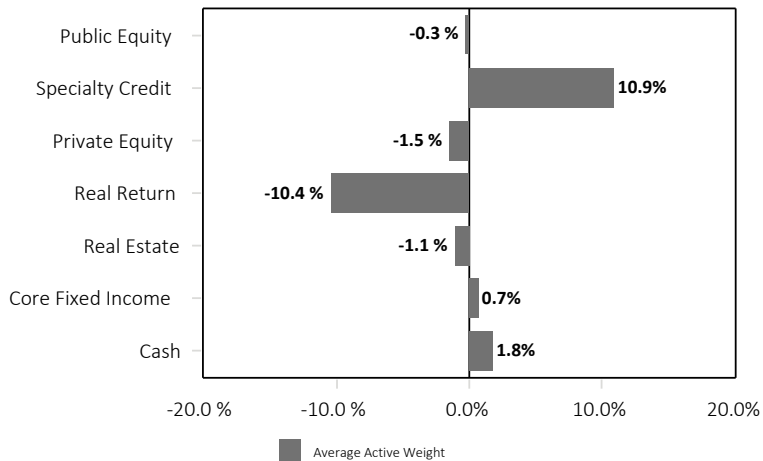
Total Fund Performance



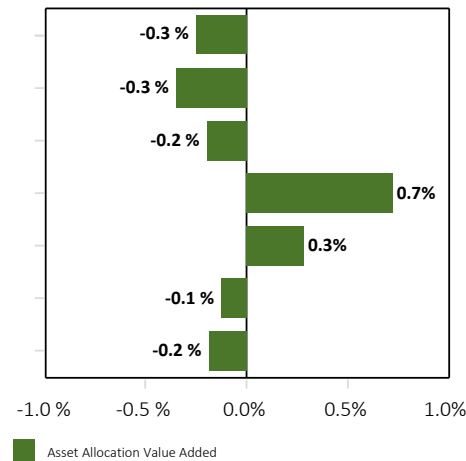
Total Value Added:-1.8 %



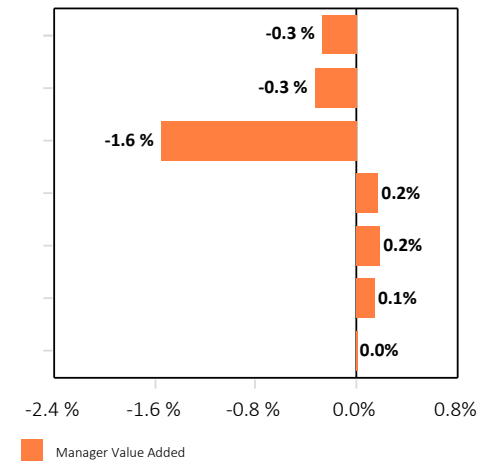
Total Asset Allocation:-0.1 %



Asset Allocation Value Added:-0.1 %



Total Manager Value Added:-1.6 %

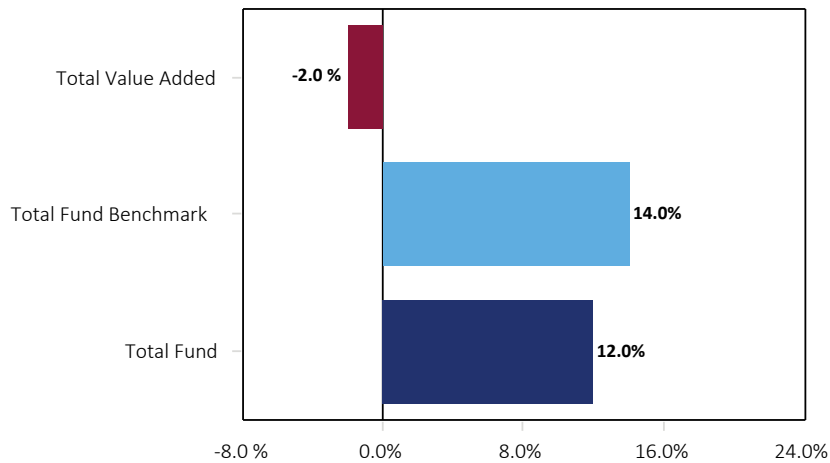


Total Fund Attribution

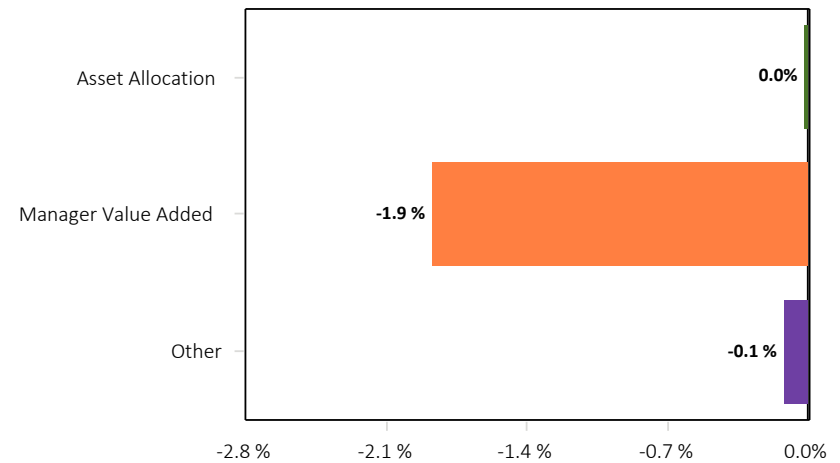
CERS (H) Insurance Plan

Periods Ended 1 Year Ending September 30, 2023

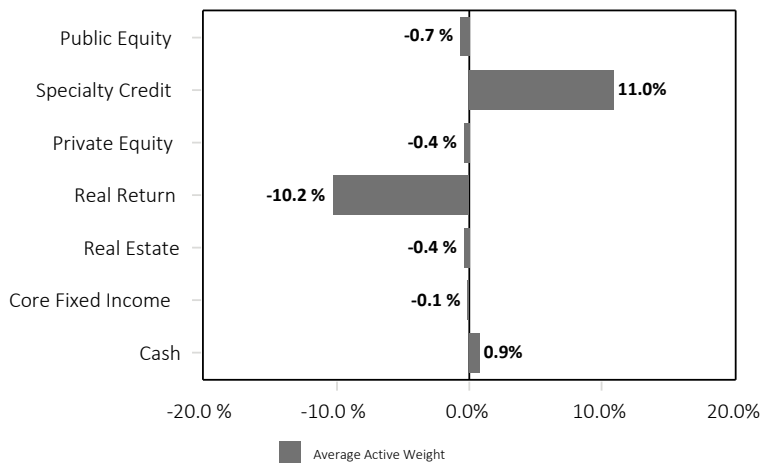
Total Fund Performance



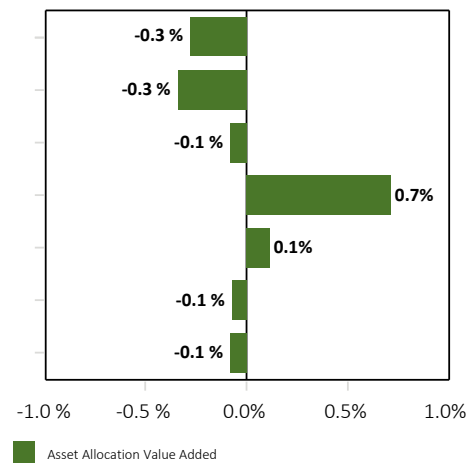
Total Value Added:-2.0 %



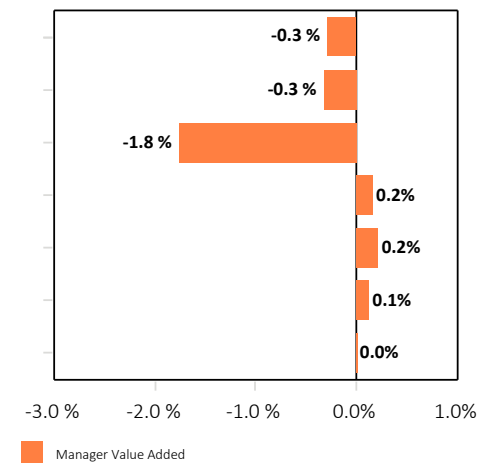
Total Asset Allocation:0.0%



Asset Allocation Value Added:0.0%



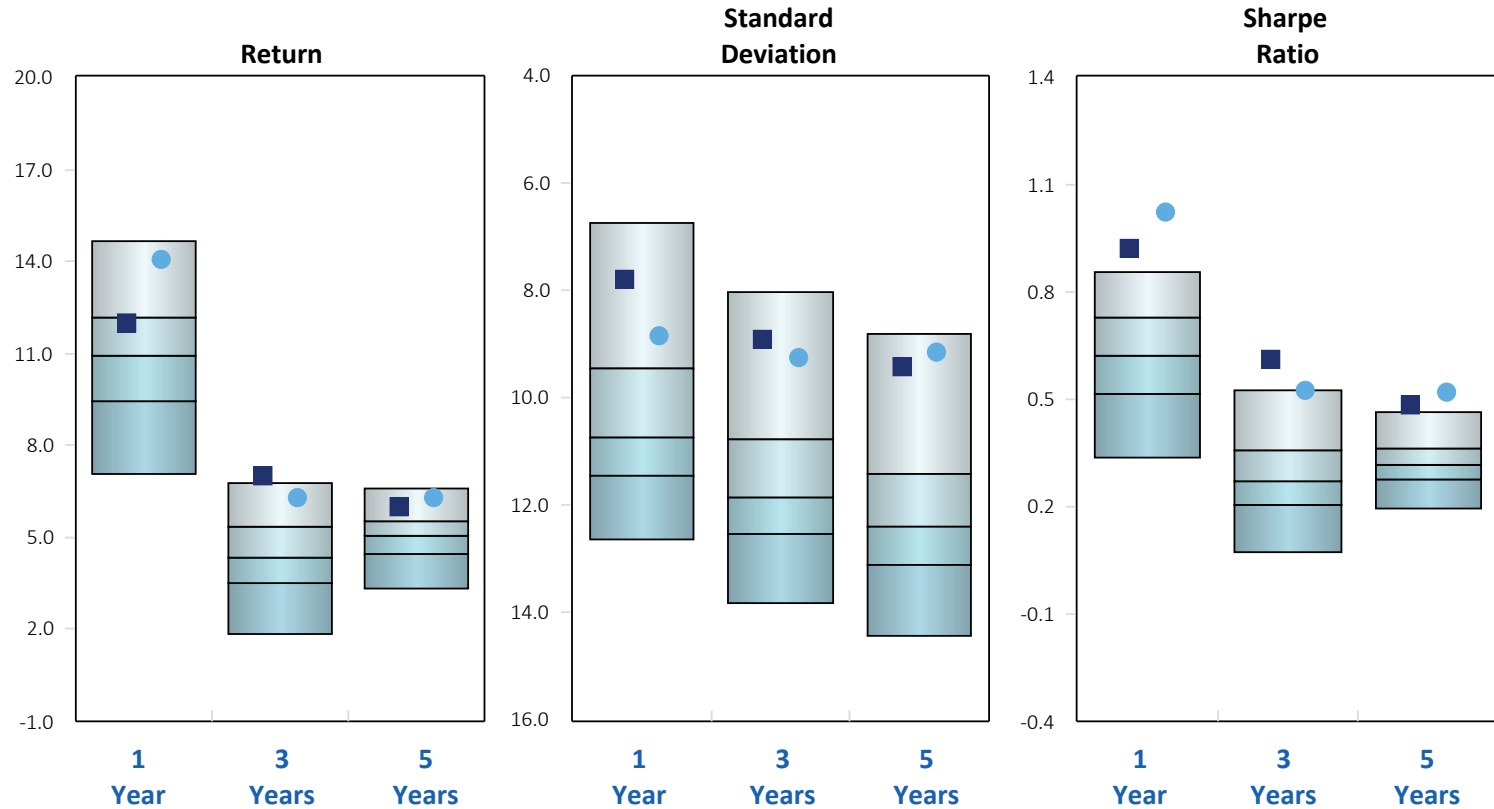
Total Manager Value Added:-1.9%



Plan Sponsor Peer Group Analysis - Multi Statistics

CERS Pension Plan vs All Public Plans-Total Fund

Periods Ended September 30, 2023



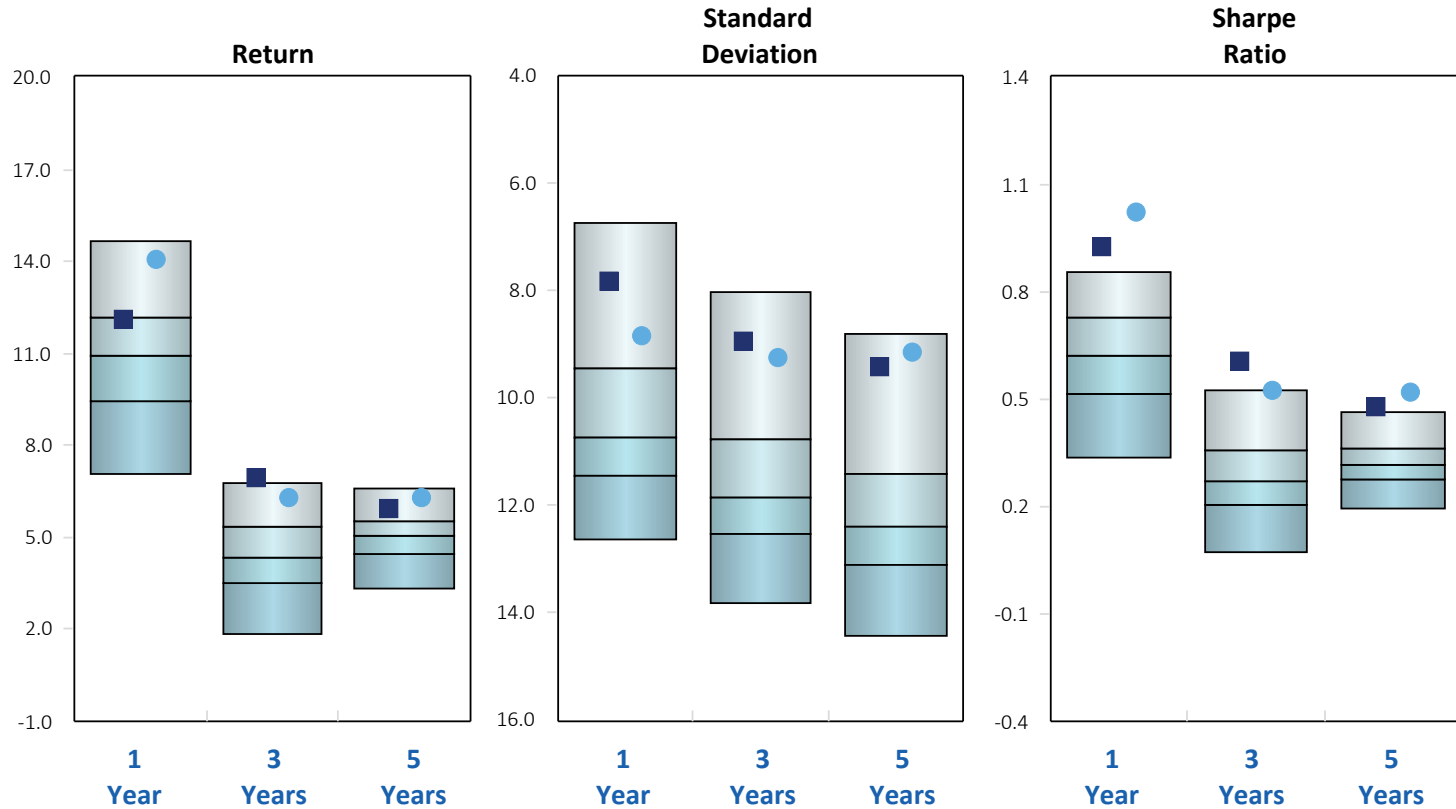
	1 Year	3 Years	5 Years	1 Year	3 Years	5 Years	1 Year	3 Years	5 Years
■ CERS Pension Plan	11.99 (30)	7.01 (4)	6.03 (11)	7.81 (9)	8.93 (7)	9.42 (6)	0.92 (3)	0.61 (3)	0.48 (4)
● CERS Pension IPS Index	14.04 (9)	6.32 (9)	6.29 (8)	8.85 (18)	9.26 (10)	9.16 (5)	1.03 (2)	0.53 (6)	0.52 (3)
5th Percentile	14.64	6.78	6.61	6.74	8.02	8.81	0.86	0.53	0.46
1st Quartile	12.19	5.37	5.53	9.45	10.79	11.41	0.73	0.36	0.36
Median	10.90	4.33	5.06	10.73	11.85	12.39	0.62	0.27	0.32
3rd Quartile	9.43	3.49	4.47	11.47	12.53	13.10	0.52	0.21	0.28
95th Percentile	7.05	1.86	3.36	12.63	13.84	14.44	0.34	0.08	0.19

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis - Multi Statistics

CERS (H) Pension Plan vs All Public Plans-Total Fund

Periods Ended September 30, 2023



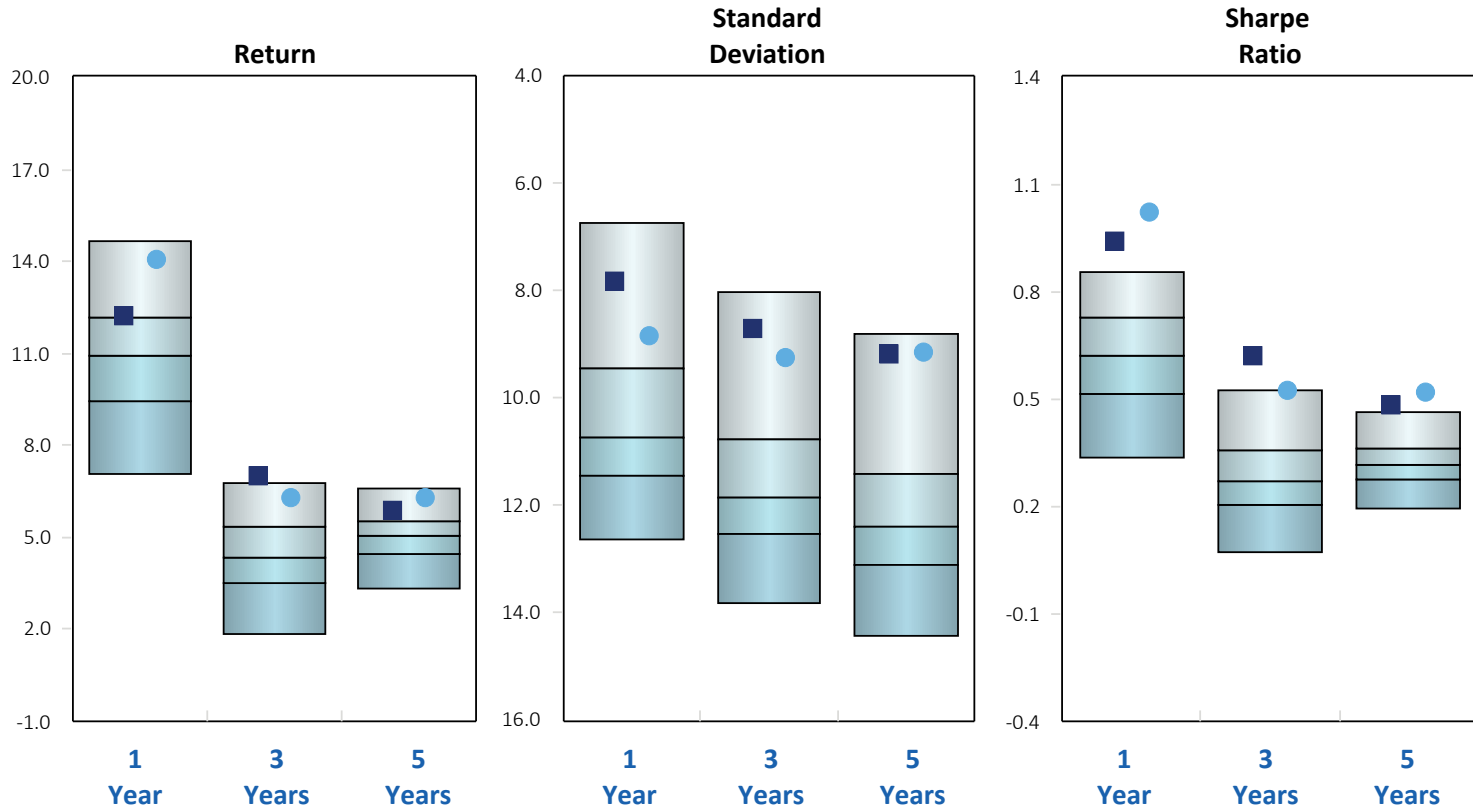
	1 Year	3 Years	5 Years	1 Year	3 Years	5 Years	1 Year	3 Years	5 Years
■ CERS (H) Pension Plan	12.10 (27)	6.94 (5)	5.97 (12)	7.84 (9)	8.95 (7)	9.42 (6)	0.93 (3)	0.60 (3)	0.48 (5)
● CERS (H) Pension IPS Index	14.04 (9)	6.32 (9)	6.29 (8)	8.85 (18)	9.26 (10)	9.16 (5)	1.03 (2)	0.53 (6)	0.52 (3)
5th Percentile	14.64	6.78	6.61	6.74	8.02	8.81	0.86	0.53	0.46
1st Quartile	12.19	5.37	5.53	9.45	10.79	11.41	0.73	0.36	0.36
Median	10.90	4.33	5.06	10.73	11.85	12.39	0.62	0.27	0.32
3rd Quartile	9.43	3.49	4.47	11.47	12.53	13.10	0.52	0.21	0.28
95th Percentile	7.05	1.86	3.36	12.63	13.84	14.44	0.34	0.08	0.19

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis - Multi Statistics

CERS Insurance Plan vs All Public Plans-Total Fund

Periods Ended September 30, 2023



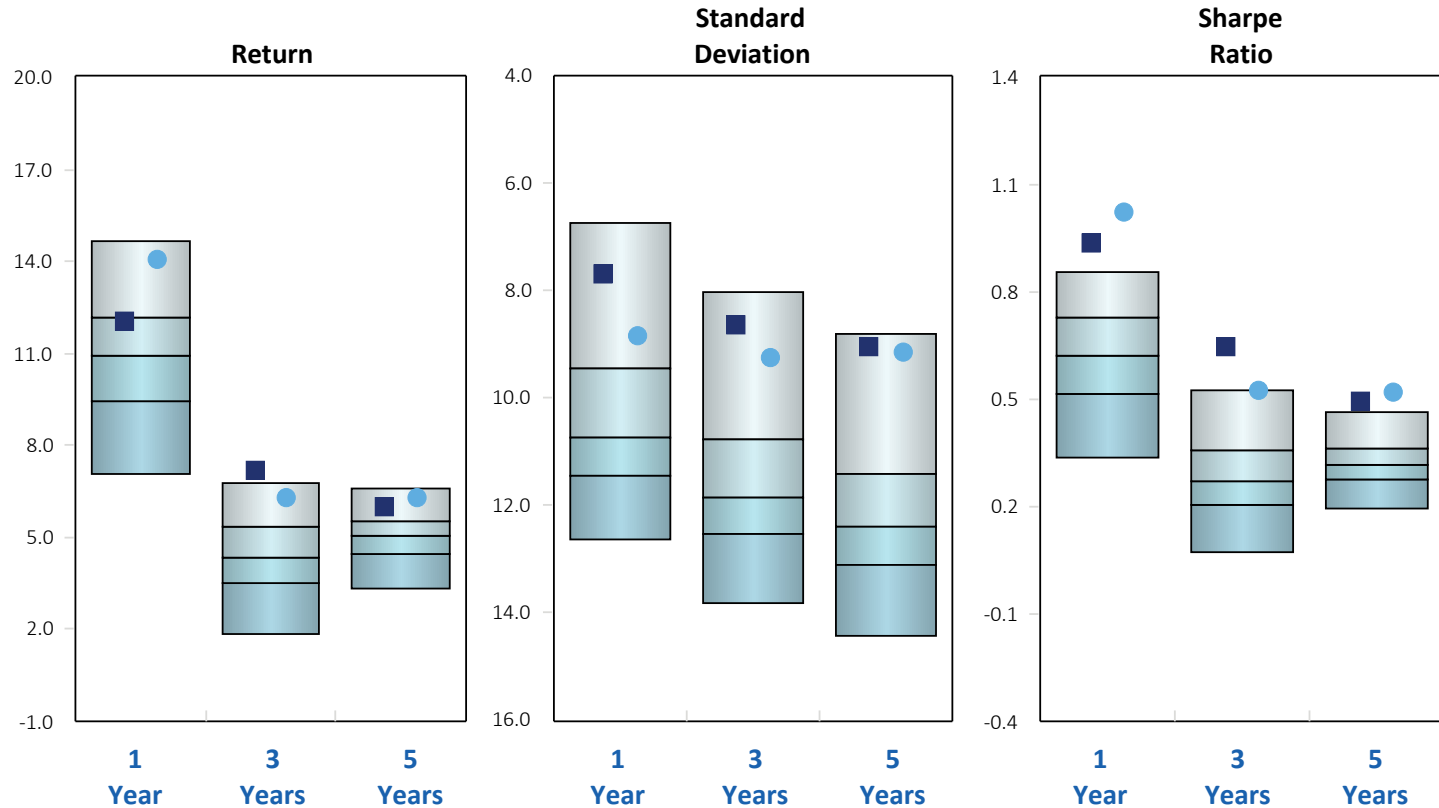
	1 Year	3 Years	5 Years	1 Year	3 Years	5 Years	1 Year	3 Years	5 Years
■ CERS Insurance Plan	12.21 (25)	7.01 (4)	5.91 (14)	7.83 (9)	8.73 (6)	9.18 (5)	0.94 (3)	0.62 (3)	0.48 (4)
● CERS Insurance IPS Index	14.04 (9)	6.32 (9)	6.29 (8)	8.85 (18)	9.26 (10)	9.16 (5)	1.03 (2)	0.53 (6)	0.52 (3)
5th Percentile	14.64	6.78	6.61	6.74	8.02	8.81	0.86	0.53	0.46
1st Quartile	12.19	5.37	5.53	9.45	10.79	11.41	0.73	0.36	0.36
Median	10.90	4.33	5.06	10.73	11.85	12.39	0.62	0.27	0.32
3rd Quartile	9.43	3.49	4.47	11.47	12.53	13.10	0.52	0.21	0.28
95th Percentile	7.05	1.86	3.36	12.63	13.84	14.44	0.34	0.08	0.19

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis - Multi Statistics

CERS (H) Insurance Plan vs All Public Plans-Total Fund

Periods Ended September 30, 2023



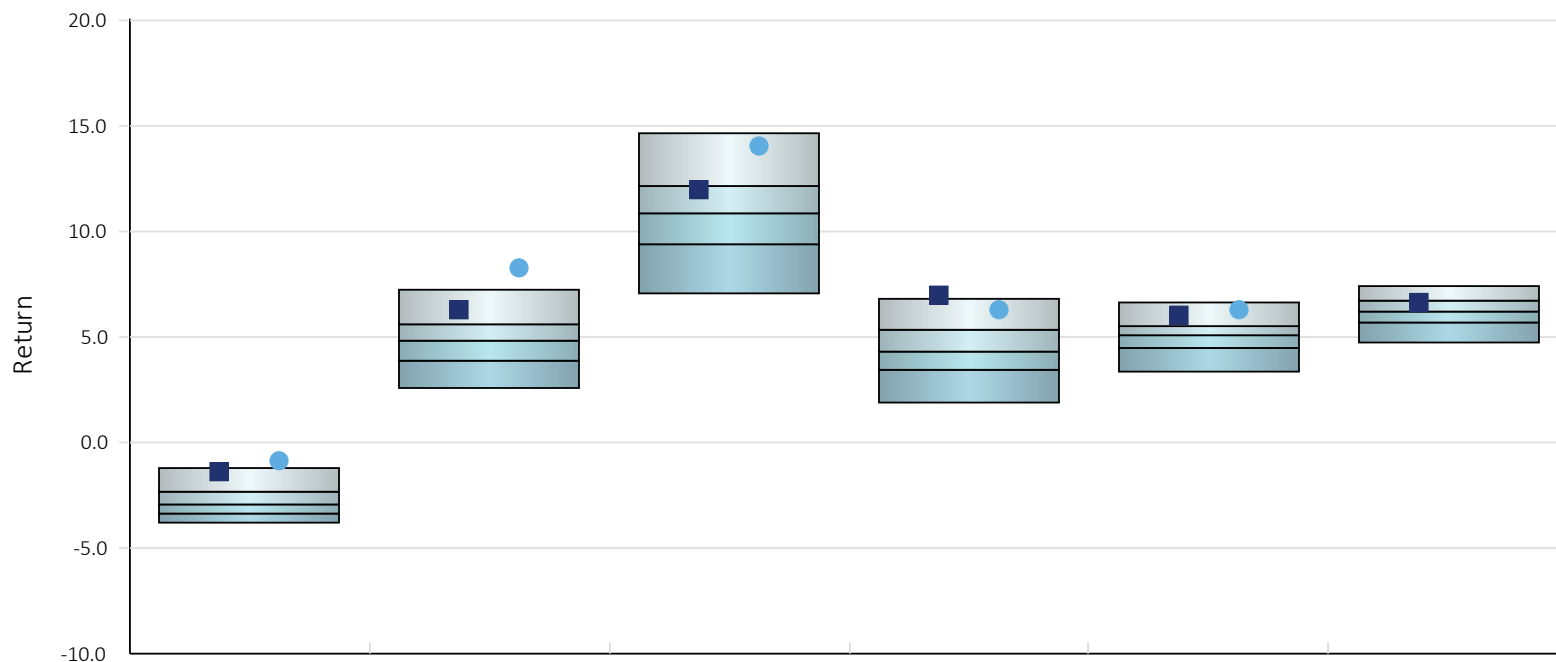
	1 Year	3 Years	5 Years	1 Year	3 Years	5 Years	1 Year	3 Years	5 Years
■ CERS (H) Insurance Plan	12.04 (29)	7.18 (3)	5.99 (12)	7.69 (8)	8.64 (6)	9.06 (5)	0.94 (3)	0.65 (3)	0.50 (4)
● CERS (H) Insurance IPS Index	14.04 (9)	6.32 (9)	6.29 (8)	8.85 (18)	9.26 (10)	9.16 (5)	1.03 (2)	0.53 (6)	0.52 (3)
5th Percentile	14.64	6.78	6.61	6.74	8.02	8.81	0.86	0.53	0.46
1st Quartile	12.19	5.37	5.53	9.45	10.79	11.41	0.73	0.36	0.36
Median	10.90	4.33	5.06	10.73	11.85	12.39	0.62	0.27	0.32
3rd Quartile	9.43	3.49	4.47	11.47	12.53	13.10	0.52	0.21	0.28
95th Percentile	7.05	1.86	3.36	12.63	13.84	14.44	0.34	0.08	0.19

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis

CERS Pension Plan vs All Public Plans-Total Fund

Periods Ended September 30, 2023



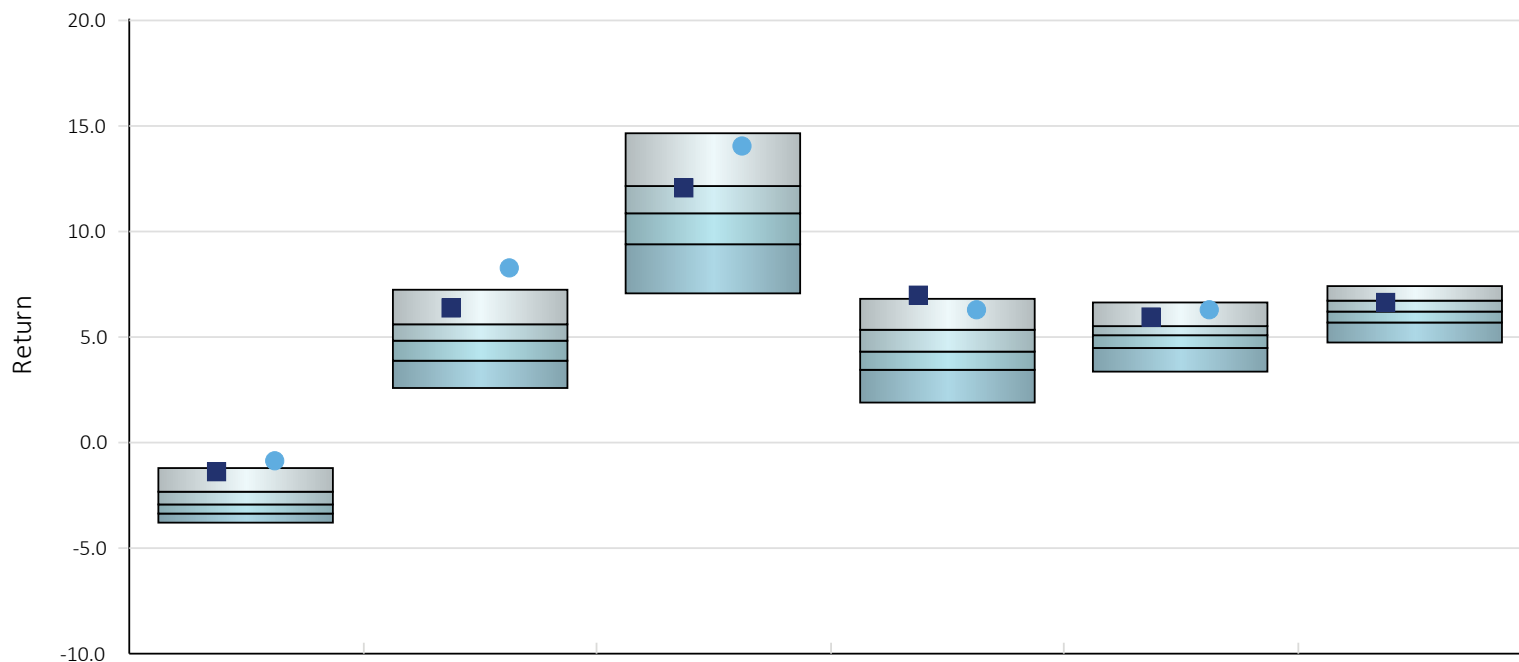
	QTD	YTD	1 Year	3 Years	5 Years	10 Years
■ CERS Pension Plan	-1.42 (8)	6.29 (16)	11.99 (30)	7.01 (4)	6.03 (11)	6.65 (30)
● CERS Pension IPS Index	-0.85 (5)	8.28 (2)	14.04 (9)	6.32 (9)	6.29 (8)	
5th Percentile	-1.20	7.23	14.64	6.78	6.61	7.44
1st Quartile	-2.31	5.60	12.19	5.37	5.53	6.75
Median	-2.93	4.82	10.90	4.33	5.06	6.22
3rd Quartile	-3.36	3.90	9.43	3.49	4.47	5.70
95th Percentile	-3.83	2.56	7.05	1.86	3.36	4.77
Population	541	524	517	497	478	395

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis

CERS (H) Pension Plan vs All Public Plans-Total Fund

Periods Ended September 30, 2023



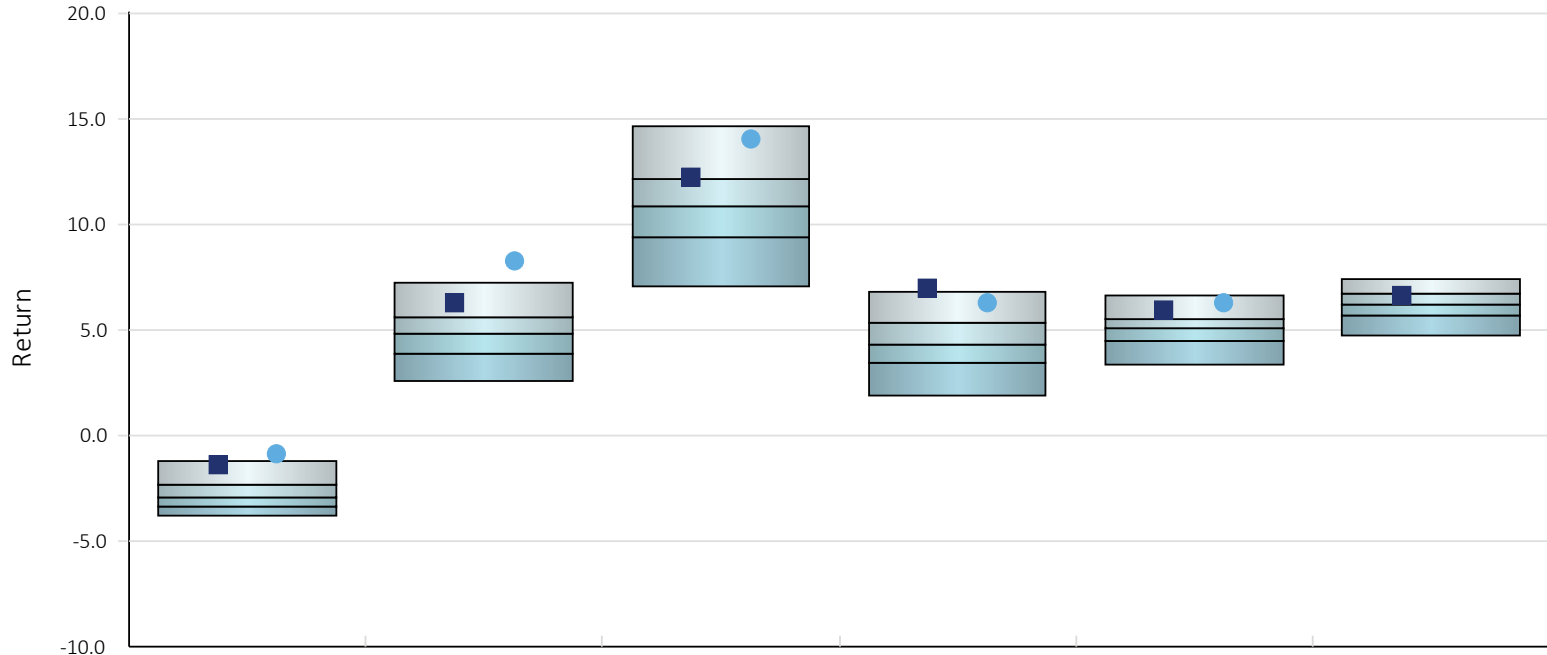
	QTD	YTD	1 Year	3 Years	5 Years	10 Years
■ CERS (H) Pension Plan	-1.42 (8)	6.34 (15)	12.10 (27)	6.94 (5)	5.97 (12)	6.64 (31)
● CERS (H) Pension IPS Index	-0.85 (5)	8.28 (2)	14.04 (9)	6.32 (9)	6.29 (8)	
5th Percentile	-1.20	7.23	14.64	6.78	6.61	7.44
1st Quartile	-2.31	5.60	12.19	5.37	5.53	6.75
Median	-2.93	4.82	10.90	4.33	5.06	6.22
3rd Quartile	-3.36	3.90	9.43	3.49	4.47	5.70
95th Percentile	-3.83	2.56	7.05	1.86	3.36	4.77
Population	541	524	517	497	478	395

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis

CERS Insurance Plan vs All Public Plans-Total Fund

Periods Ended September 30, 2023



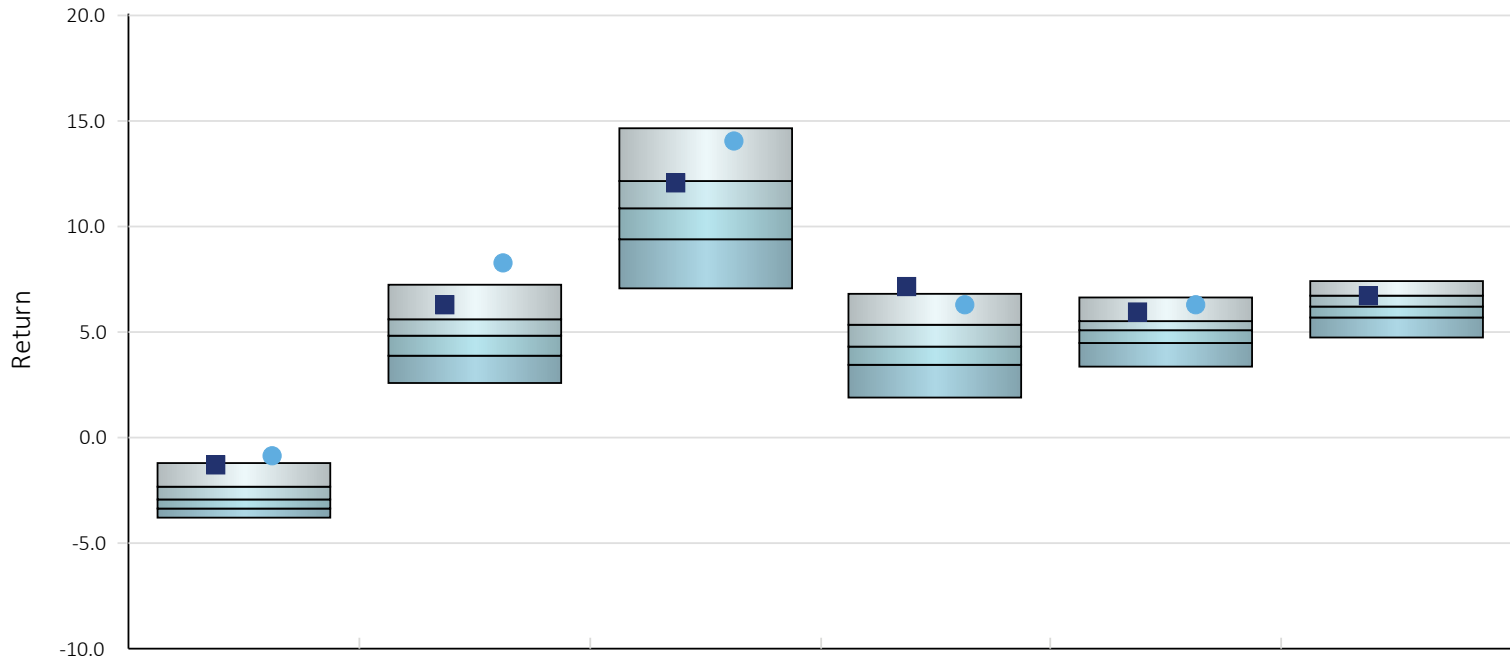
	QTD	YTD	1 Year	3 Years	5 Years	10 Years
■ CERS Insurance Plan	-1.39 (8)	6.33 (15)	12.21 (25)	7.01 (4)	5.91 (14)	6.62 (31)
● CERS Insurance IPS Index	-0.85 (5)	8.28 (2)	14.04 (9)	6.32 (9)	6.29 (8)	
5th Percentile	-1.20	7.23	14.64	6.78	6.61	7.44
1st Quartile	-2.31	5.60	12.19	5.37	5.53	6.75
Median	-2.93	4.82	10.90	4.33	5.06	6.22
3rd Quartile	-3.36	3.90	9.43	3.49	4.47	5.70
95th Percentile	-3.83	2.56	7.05	1.86	3.36	4.77
Population	541	524	517	497	478	395

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis

CERS (H) Insurance Plan vs All Public Plans-Total Fund

Periods Ended September 30, 2023



	QTD	YTD	1 Year	3 Years	5 Years	10 Years
■ CERS (H) Insurance Plan	-1.33 (7)	6.31 (15)	12.04 (29)	7.18 (3)	5.99 (12)	6.70 (28)
● CERS (H) Insurance IPS Index	-0.85 (5)	8.28 (2)	14.04 (9)	6.32 (9)	6.29 (8)	
5th Percentile	-1.20	7.23	14.64	6.78	6.61	7.44
1st Quartile	-2.31	5.60	12.19	5.37	5.53	6.75
Median	-2.93	4.82	10.90	4.33	5.06	6.22
3rd Quartile	-3.36	3.90	9.43	3.49	4.47	5.70
95th Percentile	-3.83	2.56	7.05	1.86	3.36	4.77
Population	541	524	517	497	478	395

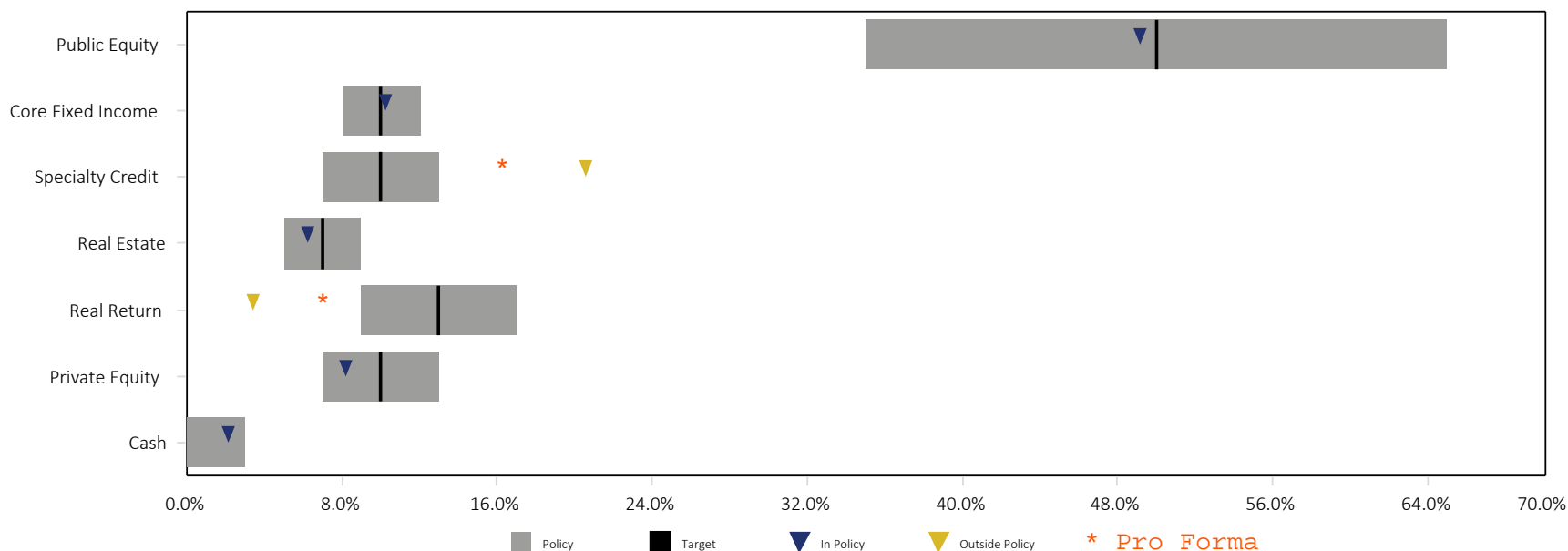
Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Asset Allocation Compliance

CERS Pension Plan

Periods Ended As of September 30, 2023

Executive Summary



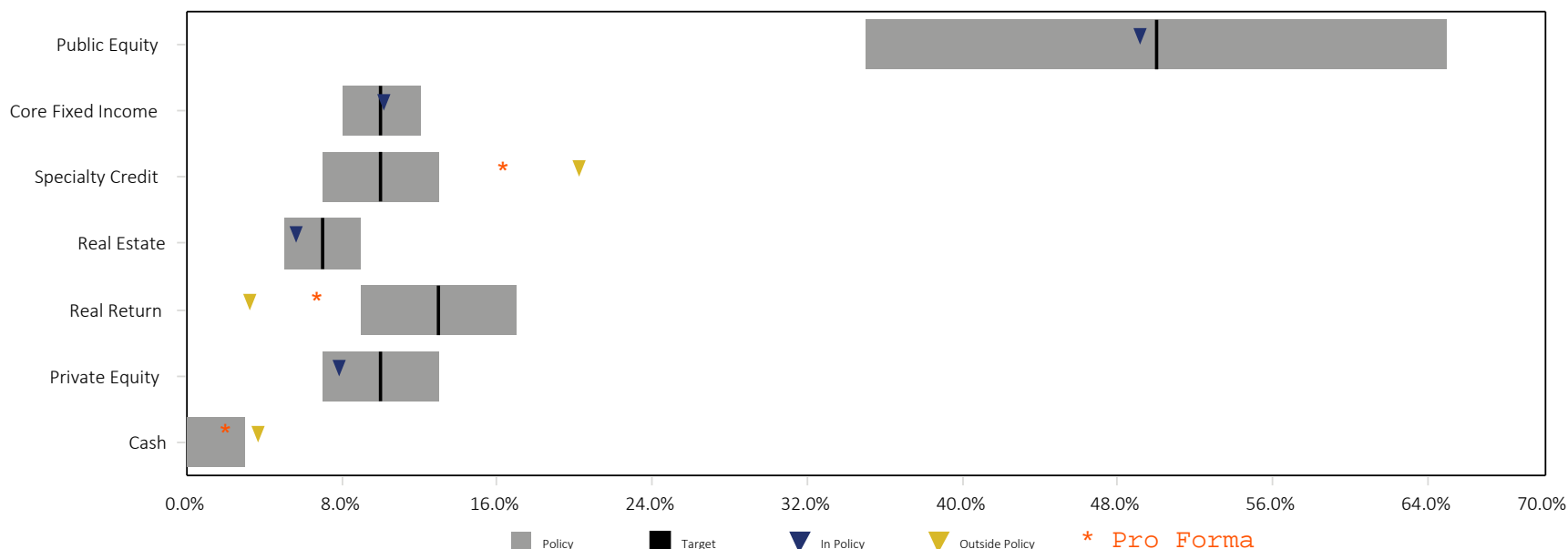
	Asset Allocation \$	Asset Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)	Target Rebalance \$
Public Equity	4,201,221,831	49.16	35.00	65.00	50.00	71,486,626
Core Fixed Income	877,873,128	10.27	8.00	12.00	10.00	-23,331,436
Specialty Credit	1,760,475,733	20.60	7.00	13.00	10.00	-905,934,041
Real Estate	532,052,128	6.23	5.00	9.00	7.00	66,127,056
Real Return	291,059,259	3.41	9.00	17.00	13.00	819,844,939
Private Equity	700,541,631	8.20	7.00	13.00	10.00	154,000,060
Cash	182,193,203	2.13	0.00	3.00	0.00	-182,193,203
Total Fund	8,545,416,914	100.00			100.00	

Asset Allocation Compliance

CERS (H) Pension Plan

Periods Ended As of September 30, 2023

Executive Summary



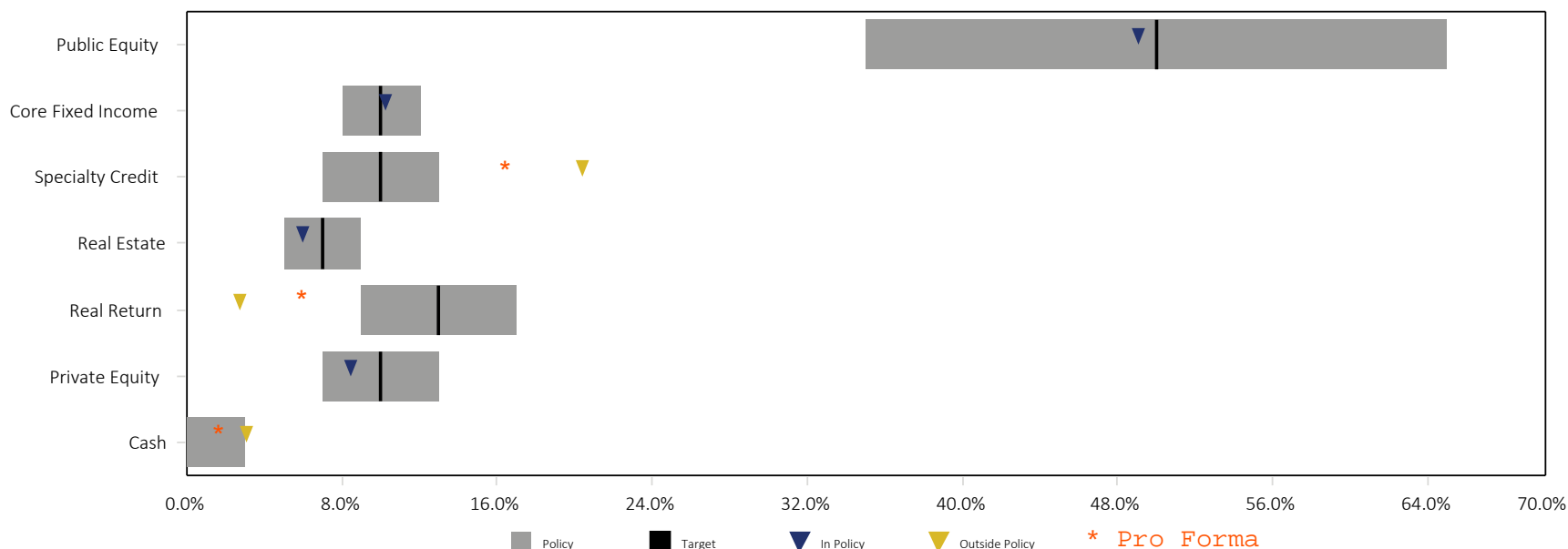
	Asset Allocation \$	Asset Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)	Target Rebalance \$
Public Equity	1,471,095,867	49.17	35.00	65.00	50.00	24,746,050
Core Fixed Income	304,514,639	10.18	8.00	12.00	10.00	-5,346,255
Specialty Credit	606,523,795	20.27	7.00	13.00	10.00	-307,355,411
Real Estate	169,250,594	5.66	5.00	9.00	7.00	40,167,274
Real Return	97,714,353	3.27	9.00	17.00	13.00	291,204,545
Private Equity	233,967,869	7.82	7.00	13.00	10.00	65,200,515
Cash	108,616,718	3.63	0.00	3.00	0.00	-108,616,718
Total Fund	2,991,683,834	100.00			100.00	

Asset Allocation Compliance

CERS Insurance Plan

Periods Ended As of September 30, 2023

Executive Summary



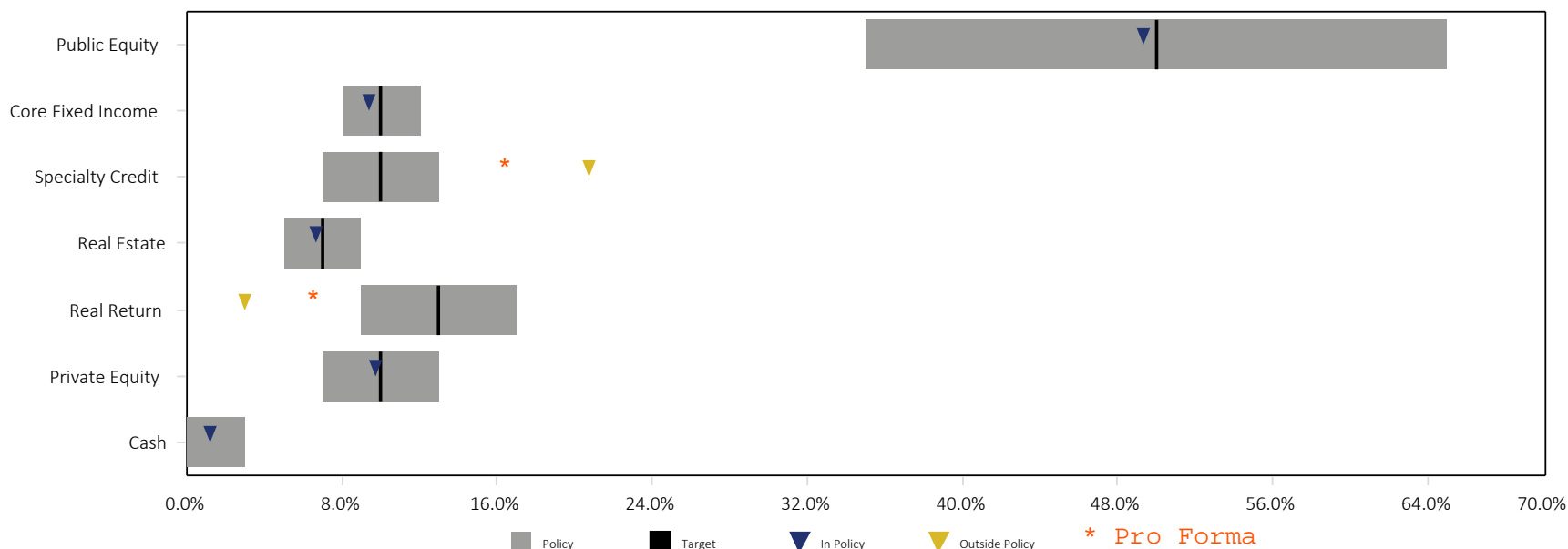
	Asset Allocation \$	Asset Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)	Target Rebalance \$
Public Equity	1,585,099,586	49.10	35.00	65.00	50.00	29,207,136
Core Fixed Income	331,029,447	10.25	8.00	12.00	10.00	-8,168,102
Specialty Credit	660,051,790	20.44	7.00	13.00	10.00	-337,190,446
Real Estate	192,132,243	5.95	5.00	9.00	7.00	33,870,698
Real Return	89,567,075	2.77	9.00	17.00	13.00	330,152,673
Private Equity	272,727,622	8.45	7.00	13.00	10.00	50,133,722
Cash	98,005,682	3.04	0.00	3.00	0.00	-98,005,682
Total Fund	3,228,613,446	100.00			100.00	

Asset Allocation Compliance

CERS (H) Insurance Plan

Periods Ended As of September 30, 2023

Executive Summary



	Asset Allocation \$	Asset Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)	Target Rebalance \$
Public Equity	776,610,535	49.32	35.00	65.00	50.00	10,775,538
Core Fixed Income	147,846,745	9.39	8.00	12.00	10.00	9,630,469
Specialty Credit	326,568,851	20.74	7.00	13.00	10.00	-169,091,637
Real Estate	105,415,370	6.69	5.00	9.00	7.00	4,818,680
Real Return	46,852,338	2.98	9.00	17.00	13.00	157,868,041
Private Equity	153,092,675	9.72	7.00	13.00	10.00	4,384,539
Cash	18,385,631	1.17	0.00	3.00	0.00	-18,385,631
Total Fund	1,574,772,145	100.00			100.00	

Asset Allocation & Performance

Total Fund

Periods Ended September 30, 2023

	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
CERS Pension Plan	8,545,416,914	-1.42	6.29	-1.42	11.99	7.01	6.03	9.40	6.69	7.58	8.75	4/1/1984
CERS Pension IPS Index		-0.85	8.28	-0.85	14.04	6.32	6.29					
Value Added		-0.57	-1.99	-0.57	-2.05	0.69	-0.26					
Assumed Rate 6.25%		1.53	4.65	1.53	6.25	6.25	6.25					
Value Added		-2.95	1.64	-2.95	5.74	0.76	-0.22					
CERS Insurance Plan	3,228,613,446	-1.39	6.33	-1.39	12.21	7.01	5.91	6.63	6.70	6.68	7.28	4/1/1987
CERS Insurance IPS Index		-0.85	8.28	-0.85	14.04	6.32	6.29					
Value Added		-0.54	-1.95	-0.54	-1.83	0.69	-0.38					
Assumed Rate 6.50%		1.59	4.84	1.59	6.50	6.50	6.50					
Value Added		-2.98	1.49	-2.98	5.71	0.51	-0.59					
CERS (H) Pension Plan	2,991,683,834	-1.42	6.34	-1.42	12.10	6.94	5.97	9.40	6.68	7.58	8.75	4/1/1984
CERS (H) Pension IPS Index		-0.85	8.28	-0.85	14.04	6.32	6.29					
Value Added		-0.57	-1.94	-0.57	-1.94	0.62	-0.32					
Assumed Rate 6.25%		1.53	4.65	1.53	6.25	6.25	6.25					
Value Added		-2.95	1.69	-2.95	5.85	0.69	-0.28					
CERS (H) Insurance Plan	1,574,772,145	-1.33	6.31	-1.33	12.04	7.18	5.99	6.63	6.74	6.70	7.29	4/1/1987
CERS (H) Insurance IPS Index		-0.85	8.28	-0.85	14.04	6.32	6.29					
Value Added		-0.48	-1.97	-0.48	-2.00	0.86	-0.30					
Assumed Rate 6.50%		1.59	4.84	1.59	6.50	6.50	6.50					
Value Added		-2.92	1.47	-2.92	5.54	0.68	-0.51					

Asset Allocation & Performance

Pension Plan Accounts

Periods Ended September 30, 2023

	Performance (%) net of fees								
	1 Month	QTD	YTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Public Equity	-4.39	-4.04	8.95	-4.04	20.43			-4.18	12/1/2021
Public Equity Policy Index	-4.14	-3.40	10.06	-3.40	20.80			-3.63	
Value Added	-0.25	-0.64	-1.11	-0.64	-0.37			-0.55	
US Equity Composite	-4.78	-3.50	11.10	-3.50	19.46	9.68	8.80	11.13	4/1/1984
Russell 3000 Index	-4.76	-3.25	12.39	-3.25	20.46	9.38	9.14	11.05	
Value Added	-0.02	-0.25	-1.29	-0.25	-1.00	0.30	-0.34	0.08	
S&P 500 Index	-4.71	-3.21	13.15	-3.21	21.70	10.14	10.18	8.24	7/1/2001
S&P 500 Index	-4.77	-3.27	13.07	-3.27	21.62	10.15	9.92	7.87	
Value Added	0.06	0.06	0.08	0.06	0.08	-0.01	0.26	0.37	
Scientific Beta	-3.81	-3.14	2.70	-3.14	14.04	8.27	6.64	9.03	7/1/2016
S&P 500 Index	-4.77	-3.27	13.07	-3.27	21.62	10.15	9.92	12.38	
Value Added	0.96	0.13	-10.37	0.13	-7.58	-1.88	-3.28	-3.35	
River Road FAV	-3.51	-1.65	3.39	-1.65	15.63	5.27	3.53	8.03	7/1/2016
Russell 3000 Value Index	-3.94	-3.15	1.67	-3.15	14.05	11.19	5.98	8.08	
Value Added	0.43	1.50	1.72	1.50	1.58	-5.92	-2.45	-0.05	
Westfield Capital	-5.18	-2.27	25.56	-2.27	26.78	7.79	12.48	13.23	7/1/2011
Russell 3000 Growth Index	-5.50	-3.34	23.77	-3.34	26.63	7.54	11.70	13.93	
Value Added	0.32	1.07	1.79	1.07	0.15	0.25	0.78	-0.70	
Internal US Mid Cap	-5.09	-3.83	5.26	-3.83	16.88	12.50	6.67	8.94	8/1/2014
S&P MidCap 400 Index	-5.26	-4.20	4.27	-4.20	15.51	12.05	6.06	8.50	
Value Added	0.17	0.37	0.99	0.37	1.37	0.45	0.61	0.44	
NTGI Structured	-5.01	-3.41	3.88	-3.41	13.49	11.46	4.86	9.42	10/1/1999
Russell 2000 Index	-5.89	-5.13	2.54	-5.13	8.93	7.16	2.40	7.56	
Value Added	0.88	1.72	1.34	1.72	4.56	4.30	2.46	1.86	

Asset Allocation & Performance

Pension Plan Accounts

Periods Ended September 30, 2023

	Performance (%) net of fees								
	1 Month	QTD	YTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Next Century Growth	-9.51	-16.67	1.63	-16.67	-2.96	8.55		19.80	11/1/2019
Russell Microcap Growth Index	-7.57	-11.95	-5.65	-11.95	-3.10	-4.65		1.90	
Value Added	-1.94	-4.72	7.28	-4.72	0.14	13.20		17.90	
Non-US Equity Composite	-3.78	-4.86	5.86	-4.86	21.85	3.17	3.00	3.32	7/1/2000
MSCI ACWI ex US IMI (10/17)	-3.24	-3.49	5.30	-3.49	20.19	3.77	2.57	3.31	
Value Added	-0.54	-1.37	0.56	-1.37	1.66	-0.60	0.43	0.01	
BlackRock World Ex US	-3.34	-4.06	7.36	-4.06	24.90	6.67	3.86	6.05	7/1/2009
MSCI World ex US (11/19)	-3.37	-4.10	6.73	-4.10	24.00	6.07	3.43	5.75	
Value Added	0.03	0.04	0.63	0.04	0.90	0.60	0.43	0.30	
American Century	-5.98	-10.79	-1.24	-10.79	12.46	-3.20	3.64	4.38	7/1/2014
MSCI ACWI ex US IMI (10/17)	-3.24	-3.49	5.30	-3.49	20.19	3.77	2.57	2.66	
Value Added	-2.74	-7.30	-6.54	-7.30	-7.73	-6.97	1.07	1.72	
Franklin Templeton	-7.91	-10.75	-0.81	-10.75	11.20	-7.35	-0.99	2.86	7/1/2014
MSCI ACWI ex US IMI (10/17)	-3.24	-3.49	5.30	-3.49	20.19	3.77	2.57	2.66	
Value Added	-4.67	-7.26	-6.11	-7.26	-8.99	-11.12	-3.56	0.20	
Lazard Asset Mgmt	-3.31	-4.57	8.10	-4.57	23.19	4.56	3.14	3.52	7/1/2014
MSCI ACWI ex US IMI (10/17)	-3.24	-3.49	5.30	-3.49	20.19	3.77	2.57	2.66	
Value Added	-0.07	-1.08	2.80	-1.08	3.00	0.79	0.57	0.86	
LSV Asset Mgmt	-0.89	0.62	11.28	0.62	33.20	9.98	3.60	3.40	7/1/2014
MSCI ACWI ex US IMI (10/17)	-3.24	-3.49	5.30	-3.49	20.19	3.77	2.57	2.66	
Value Added	2.35	4.11	5.98	4.11	13.01	6.21	1.03	0.74	
Axiom	-5.49	-3.80	2.64	-3.80	12.16			-16.52	12/1/2021
MSCI AC World ex USA Small Cap (Net)	-3.76	-1.70	5.03	-1.70	19.01			-6.96	
Value Added	-1.73	-2.10	-2.39	-2.10	-6.85			-9.56	

Asset Allocation & Performance

Pension Plan Accounts

Periods Ended September 30, 2023

	Performance (%) net of fees								
	1 Month	QTD	YTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
JP Morgan Emerging Markets	-3.69	-6.33	-2.25	-6.33	9.63	-5.56		-0.69	11/1/2019
MSCI Emerging Markets IMI Index	-2.50	-1.99	3.73	-1.99	13.69	0.11		1.61	
Value Added	-1.19	-4.34	-5.98	-4.34	-4.06	-5.67		-2.30	
Pzena Emerging Markets	-1.81	1.70	16.59	1.70	31.98	14.56		7.61	11/1/2019
MSCI Emerging Markets (Net)	-2.62	-2.93	1.82	-2.93	11.70	-1.73		0.17	
Value Added	0.81	4.63	14.77	4.63	20.28	16.29		7.44	
Private Equity Composite	2.40	2.71	7.55	2.71	3.07	17.98	13.34	11.82	7/1/2002
Russell 3000 +3% 1 Quarter Lag	7.09	9.19	27.30	9.19	22.52	17.30	14.73	12.01	
Value Added	-4.69	-6.48	-19.75	-6.48	-19.45	0.68	-1.39	-0.19	
Core Fixed Composite	-2.02	-1.14	0.68	-1.14	2.13	-1.15	1.87	1.87	10/1/2018
Blmbg. U.S. Aggregate Index	-2.54	-3.23	-1.21	-3.23	0.64	-5.21	0.10	0.10	
Value Added	0.52	2.09	1.89	2.09	1.49	4.06	1.77	1.77	
Loomis Sayles Intmd	-2.46	-2.00	-0.09	-2.00	1.73	-3.47		0.33	2/1/2019
Blmbg. U.S. Intermediate Aggregate Index	-1.76	-1.89	-0.30	-1.89	1.42	-3.66		-0.11	
Value Added	-0.70	-0.11	0.21	-0.11	0.31	0.19		0.44	
Lord Abbett	-0.09	0.58	2.35	0.58	3.66	0.30	1.68	1.68	10/1/2018
ICE BofA 1-3 Year U.S. Corporate Index	-0.07	0.91	2.50	0.91	3.93	-0.31	1.71	1.71	
Value Added	-0.02	-0.33	-0.15	-0.33	-0.27	0.61	-0.03	-0.03	
NISA	-2.54	-2.24	0.02	-2.24	2.03	-4.58	0.69	2.68	2/1/2009
Blmbg. U.S. Aggregate Index	-2.54	-3.23	-1.21	-3.23	0.64	-5.21	0.10	2.34	
Value Added	0.00	0.99	1.23	0.99	1.39	0.63	0.59	0.34	

Asset Allocation & Performance

Pension Plan Accounts

Periods Ended September 30, 2023

	Performance (%) net of fees								
	1 Month	QTD	YTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
High Yield / Specialty Credit Composite	1.08	2.65	7.53	2.65	9.66	7.16	5.90	5.90	10/1/2018
Policy Index	-0.12	1.94	7.99	1.94	11.66	3.94	3.74	3.74	
Value Added	1.20	0.71	-0.46	0.71	-2.00	3.22	2.16	2.16	
Adams St SPC II A	3.81	3.81	10.81	3.81	13.77	16.83		15.02	6/1/2020
Adams St SPC II B	2.99	2.99	7.79	2.99	9.73	11.01		9.85	6/1/2020
Arrowmark	0.89	3.48	11.69	3.48	15.81	13.32	10.26	10.12	6/1/2018
Morningstar LSTA US Leveraged Loan	0.94	3.43	10.13	3.43	13.02	6.07	4.46	4.55	
Value Added	-0.05	0.05	1.56	0.05	2.79	7.25	5.80	5.57	
Blue Torch	2.74	2.74	10.26	2.74	13.99	11.15		10.53	8/1/2020
BSP Coinvestment	2.73	2.73	8.38	2.73	8.99	7.47		7.08	10/1/2019
Morningstar LSTA US Leveraged Loan	0.94	3.43	10.13	3.43	13.02	6.07		4.80	
Value Added	1.79	-0.70	-1.75	-0.70	-4.03	1.40		2.28	
BSP Private Credit	2.60	2.60	7.14	2.60	9.06	10.72	7.00	6.16	2/1/2018
Morningstar LSTA US Leveraged Loan	0.94	3.43	10.13	3.43	13.02	6.07	4.46	4.47	
Value Added	1.66	-0.83	-2.99	-0.83	-3.96	4.65	2.54	1.69	
Capital Springs	21.87	21.87	46.70	21.87	48.77	21.33		18.25	2/1/2020
Morningstar LSTA US Leveraged Loan	0.94	3.43	10.13	3.43	13.02	6.07		4.59	
Value Added	20.93	18.44	36.57	18.44	35.75	15.26		13.66	
Cerberus Capital Mgmt	0.82	1.85	5.94	1.85	8.52	12.35	10.69	9.56	9/1/2014
Morningstar LSTA US Leveraged Loan	0.94	3.43	10.13	3.43	13.02	6.07	4.46	4.23	
Value Added	-0.12	-1.58	-4.19	-1.58	-4.50	6.28	6.23	5.33	
Columbia	-1.12	0.44	5.94	0.44	10.41	1.88	3.51	5.42	11/1/2011
Blmbg. U.S. Corp: High Yield Index	-1.18	0.46	5.86	0.46	10.28	1.76	2.96	5.19	
Value Added	0.06	-0.02	0.08	-0.02	0.13	0.12	0.55	0.23	

Asset Allocation & Performance

Pension Plan Accounts

Periods Ended September 30, 2023

	Performance (%) net of fees								
	1 Month	QTD	YTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Manulife Asset Mgmt	-1.44	-1.05	3.51	-1.05	7.69	0.58	3.32	3.54	12/1/2011
Policy Index	-2.38	-2.88	-0.62	-2.88	1.61	-4.68	0.34	0.72	
Value Added	0.94	1.83	4.13	1.83	6.08	5.26	2.98	2.82	
Marathon Bluegrass	0.45	1.95	2.97	1.95	0.93	5.80	4.16	5.49	1/1/2016
Blmbg. U.S. Corp: High Yield Index	-1.18	0.46	5.86	0.46	10.28	1.76	2.96	5.32	
Value Added	1.63	1.49	-2.89	1.49	-9.35	4.04	1.20	0.17	
Shenkman Capital	0.35	2.14	7.79	2.14	11.13	4.88	3.94	4.47	10/1/2010
Morningstar LSTA US Leveraged Loan	0.94	3.43	10.13	3.43	13.02	6.07	4.46	4.67	
Value Added	-0.59	-1.29	-2.34	-1.29	-1.89	-1.19	-0.52	-0.20	
Waterfall	1.41	6.74	8.02	6.74	6.99	9.26	5.13	9.37	2/1/2010
Policy Index	-0.35	1.37	6.41	1.37	8.99	2.35	2.90	4.39	
Value Added	1.76	5.37	1.61	5.37	-2.00	6.91	2.23	4.98	
White Oak Yield Spectrum	1.53	1.53	4.12	1.53	5.45	5.98	5.67	5.36	3/1/2018
Morningstar LSTA US Leveraged Loan	0.94	3.43	10.13	3.43	13.02	6.07	4.46	4.50	
Value Added	0.59	-1.90	-6.01	-1.90	-7.57	-0.09	1.21	0.86	
H/2 Credit Partner	0.00	0.00	0.00	0.00	0.00	7.37	0.93	3.96	7/1/2011
Cash Composite	0.39	1.12	3.08	1.12	3.96	1.60	1.73	3.32	1/1/1988
FTSE 3 Month T-Bill	0.45	1.38	3.80	1.38	4.71	1.78	1.74	2.94	
Value Added	-0.06	-0.26	-0.72	-0.26	-0.75	-0.18	-0.01	0.38	

Asset Allocation & Performance

Pension Plan Accounts

Periods Ended September 30, 2023

	Performance (%) net of fees								
	1 Month	QTD	YTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Real Estate Composite	-1.28	-2.63	-8.80	-2.63	-7.72	10.27	8.93	6.45	7/1/1984
NCREIF ODCE NOF 1 Quarter Lag	-2.88	-2.88	-11.01	-2.88	-10.73	7.04	5.56		
Value Added	1.60	0.25	2.21	0.25	3.01	3.23	3.37		
Baring	-21.16	-21.57	-42.26	-21.57	-37.45	-9.05		3.04	1/1/2019
Barings Euro RE II	-8.01	-8.49	-32.05	-8.49	-29.08			-22.67	12/1/2020
Divcowest IV	-0.07	-0.07	-3.91	-0.07	-4.71	15.48	10.06	16.53	3/1/2014
Fundamental Partners III	0.68	0.68	4.84	0.68	3.72	16.89	15.74	13.24	5/1/2017
Greenfield Acq VI	-1.12	-1.12	-25.21	-1.12	-27.23	-34.06	-39.37	-18.19	12/1/2012
Greenfield Acq VII	2.87	2.87	-8.68	2.87	-1.08	17.89	14.74	13.66	7/1/2014
Harrison Street	0.00	0.25	-0.78	0.25	1.34	6.81	6.25	7.82	5/1/2012
Lubert Adler VII	-7.15	-7.15	-16.14	-7.15	-15.69	-3.80	-3.13	-2.38	7/1/2014
Lubert Adler VII B	3.74	3.74	13.48	3.74	15.83	28.04	20.40	15.81	7/1/2017
Mesa West Core Lend	0.14	0.14	-4.80	0.14	-3.01	2.69	4.10	5.57	5/1/2013
Mesa West IV	-7.45	-7.45	-18.57	-7.45	-18.00	-2.69	1.20	1.92	3/1/2017
Patron Capital	-8.84	-9.35	-6.96	-9.35	-7.71	4.34	4.21	2.74	8/1/2016
Prologis Targeted US	0.00	-4.24	-10.23	-4.24	-10.18	20.83	16.50	16.19	10/1/2014
Rubenstein PF II	-9.46	-9.46	-44.04	-9.46	-46.94	-21.10	-12.47	0.24	7/1/2013
Stockbridge Sm/Mkts	-1.08	-1.08	-10.82	-1.08	-10.25	8.81	7.57	8.29	5/1/2014
Walton St RE VI	1.02	1.02	8.60	1.02	11.54	11.83	4.51	-10.50	5/1/2009
Walton St RE VII	-4.68	-4.68	-11.51	-4.68	-13.42	0.50	-3.93	4.20	7/1/2013

Asset Allocation & Performance

Pension Plan Accounts

Periods Ended September 30, 2023

	Performance (%) net of fees								
	1 Month	QTD	YTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Real Return Composite	1.40	4.73	9.67	4.73	15.04	13.61	7.28	5.13	7/1/2011
US CPI + 3%	0.64	1.95	5.14	1.95	6.80	8.92	7.17	5.67	
Value Added	0.76	2.78	4.53	2.78	8.24	4.69	0.11	-0.54	
Tortoise Capital	1.13	8.71	17.19	8.71	29.57	40.82	7.36	9.99	8/1/2009
Alerian MLP Index	3.24	9.90	20.56	9.90	32.74	43.10	6.81	7.58	
Value Added	-2.11	-1.19	-3.37	-1.19	-3.17	-2.28	0.55	2.41	
Amerra AGRI Fund II	5.47	5.47	5.15	5.47	9.01	10.60	10.16	6.65	12/1/2012
Amerra AGRI Holdings	2.77	2.77	-4.15	2.77	-6.38	-4.25	-2.28	-2.03	8/1/2015
BTG Pactual	9.37	9.37	13.32	9.37	21.57	17.01	8.19	-0.43	12/1/2014
IFM Infrastructure	-0.19	-0.19	4.71	-0.19	6.34	6.30		4.74	7/1/2019
Magnetar MTP EOF II	-1.10	-1.10	16.52	-1.10	20.12	77.22	44.60	26.54	8/1/2015
Oberland Capital	3.29	3.29	10.21	3.29	12.13	12.22	17.54	13.44	8/1/2018
Taurus Mine Finance	1.37	1.37	9.50	1.37	18.61	26.08	16.01	15.37	4/1/2015
TPF II	-1.40	-1.40	-6.43	-1.40	-7.62	3.18	4.52	-0.94	10/1/2008
Blackstone Strat Opp	-0.46	-0.55	-6.09	-0.55	-8.90	-1.94	-5.04	-3.16	8/1/2017
Luxor Capital	-0.70	-2.44	-2.63	-2.44	0.73	6.16	-1.93	-0.30	4/1/2014
Myriad Opportunities	0.00	0.00	-0.28	0.00	-7.04	-22.51	-15.83	-9.07	5/1/2016
Pine River	0.49	0.15	-7.24	0.15	-8.34	-4.68	4.23	1.59	5/1/2014
PRISMA Capital	0.44	1.26	2.97	1.26	3.17	0.28	0.48	2.46	9/1/2011
SRS Partners US	0.00	0.00	0.00	0.00	0.00	5.86	7.33	7.28	8/1/2017
Tricadia Select	0.00	0.00	0.00	0.00	0.00	0.00	-0.21	-4.12	9/1/2017

County Employees Retirement System

Investment Budget Update

Quarter Ending: September 30, 2023

CERS Board Meeting - Investment Committee Report

KENTUCKY PUBLIC PENSIONS AUTHORITY									
Investment Budget									
For the three month period ending September 30, 2023									
Account Name	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Trust Budget FY 2024	Q1 2024	Remaining	Percentage Spent
CONSULTING SERVICES									
Wilshire Associates	\$ 1,021,799	\$ 1,238,170	\$ 1,225,671	\$ 1,021,175	\$ 838,172	\$ 1,200,000	\$ 274,600	\$ 925,400	23%
Albourne	-	-	-	-	306,750	275,000	67,500	207,500	25%
MercerInsight	-	-	-	-	153,548	165,000	40,000	125,000	24%
SUBTOTAL	1,021,799	1,238,170	1,225,671	1,021,175	1,298,471	1,640,000	382,100	1,257,900	23%
LEGAL & AUDITING SERVICES									
Faegre Drinker			96,039	202,502	16,428	100,000	3,380	96,620	3%
Intelligent Management Solutions (IMS)	620,001	202,140	155,700	69,884	81,880	350,000	-	350,000	0%
McClain/Goldberg			891	-	-	100,000	-	100,000	0%
Reinhart	317,909	671,269	663,689	619,509	109,508	2,500,000	12,347	2,487,653	0%
Stoll-Keenon-Ogden	10,314	135,353	254,211	463,560	750,438	750,000	26,960	723,040	4%
Haystack			-	-	120,175	100,000	55,008	44,992	55%
Umberg Zipser			289,100	498,058	606,701	850,000	255,459	594,541	30%
Swansburg & Smith	-	-	-	-	5,288	50,000	-	50,000	0%
Eddins Domine	-	-	-	-	40,305	50,000	-	50,000	0%
Taft	-	-	-	-	142,720	50,000	478	49,522	1%
Miscellaneous					-	50,000	-	50,000	0%
SUBTOTAL	948,225	1,008,762	1,459,630	1,853,513	1,873,441	4,950,000	353,632	4,596,368	7%
CONTRACTURAL SERVICES									
Bloomberg	68,722	71,810	98,163	102,243	104,153	150,000	27,533	122,467	18%
BNYM Custodial Fees	2,056,390	2,088,475	2,379,838	2,565,169	2,333,981	2,600,000	590,273	2,009,727	23%
eVestment (Solovis RMS)			-	30,000	33,800	35,000	-	35,000	0%
Solovis (Reporting & Analytics)			-	245,000	266,017	275,000	306,319	(31,319)	111%
FactSet	222,476	162,295	109,662	140,098	146,411	150,000	31,657	118,343	21%
Russell Index Subscription	1,075	1,250	1,000	1,000	750	1,500	500	1,000	33%
S&P Global		94,500	26,250	68,250	27,563	75,000	-	75,000	0%
TradeWeb			-	6,000	7,700	7,500	2,100	5,400	28%
State Street/Elkins McSherry	10,000	5,000	15,000	10,000	10,000	10,000	-	10,000	0%
ISS	32,050	32,050	28,288	35,813	39,875	60,000	15,719	44,281	26%
MSCI	1,000	1,000	1,000	1,000	1,000	1,000	1,000	-	100%
KPMG Tax Guarantor Services		7,606	22,050	7,350	-	7,500	9,450	(1,950)	126%
Jayant Ghevaria and CO		10,050	-	52,085	-	55,000	-	55,000	0%
India Renewal Fee (SEBI)			-	3,000	-	3,000	2,950	50	98%
With Intelligence	-	-	-	-	9,520	9,520	-	9,520	0%
Miscellaneous & New Services	-	-	-	-	-	250,000	19,500	230,500	8%
SUBTOTAL	2,391,713	2,474,036	2,681,251	3,267,008	2,980,769	3,690,020	1,007,001	2,683,019	27%

CERS Board Meeting - Investment Committee Report

KENTUCKY PUBLIC PENSIONS AUTHORITY									
Investment Budget									
For the three month period ending September 30, 2023									
Account Name	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Trust Budget FY 2024	Q1 2024	Remaining	Percentage Spent
INACTIVE CONTRACTURAL SERVICES									
Dean Dorton	9,719		-	-	250	-	-	-	
Hirschler		4,794	-	-		-	-	-	
INFORMA	12,904		-	-		-	-	-	
Lighthouse Solutions	3,093		-	-		-	-	-	
London Stock Exchange GBP (GREAT BRITISH POUNDS)	6,467	3,544	-	-		-	-	-	
Deutsche Bank Trust	3,000		3,000	-		-	-	-	
Morris James LLP	94,192	20,154	-	-		-	-	-	
Calcaterra Pollack			1,200,000	-		-	-	-	
Manatt		90,798	30,757	-		-	-	-	
ORG	162,344		-	-		-	-	-	
SUBTOTAL	291,718	119,290	1,233,757	-	250	-		-	
TOTAL	\$ 4,653,455	\$ 4,840,258	\$ 6,600,309	\$ 6,141,696	\$ 6,152,931	\$ 10,280,020	1,742,733	\$ 8,537,287	17%

CERS Board Meeting - Investment Committee Report

INVESTMENT BUDGET	
CONSULTING SERVICES	
Wilshire Associates	General Investment Consulting Services, Manager Research and Due Dilligence, Reporting, Asset Allocation
Albourne	Investment Consultant Research database - Private Markets Manager Research, Private Markets Research, Pension Markets Research
MercerInsight	Investment Consultant Research database - Public Markets Manager Research, Public Markets Research, Pension Markets Research
LEGAL & AUDITING SERVICES	
Faegre Drinker	Delaware litigation counsel
Intelligent Management Solutions (IMS)	IMS is an expert witness in the Bay Hills case.
McClain/Goldberg	Blackstone litigation counsel for the Trustees and Officers
Reinhart	Bay Hills counsel and investment counsel for contract negotiations
Stoll-Keenon-Ogden	Mayberry counsel
Haystack	Conduct Mayberry eDiscovery
Umberg Zipser	PAAMCO-Prisma (California litigation)
Frost Brown Todd	Currently has no investment-related cases
Swansburg & Smith	Reimbursement of Fiduciary Legal Expenses (KKR)
Eddins Domine	Reimbursement of Fiduciary Legal Expenses (KKR)
Taft	Reimbursement of Fiduciary Legal Expenses (Calcaterra Pollack)
CONTRACTURAL SERVICES	
Bloomberg	Bloomberg Professional Services, Data Analytics and Tools, Market Information and News, Research Portal
BNYM Custodial Fees	Full Service Custodial Services, Investment Accounting, Investment Operations, Transaction Services, Performance and Attribution, Reporting
eVestment (Solovis RMS)	Research Management Program organizing internal and external research
Solovis (Reporting & Analytics)	Portfolio and Risk Analytics, Performance Measurement and Attribution, Reporting
FactSet	Workstation and Quant/Risk Applications for managing Public Equity Portfolios
Russell Index Subscription	Access to Russell Indexes for Portfolio Management, Reporting and Performance
S&P Global	Data on the S & P US Index / License to 10,000 Identifiers for Portfolio Management, Reporting and Performance
TradeWeb	Electronic Trading Platform for Internal Management
State Street/Elkins McSherry	Public Equity Trade Cost Analysis
ISS	Portfolio Monitoring and Proxy Voting Services
MSCI	International Public Equity Data Package
KPMG Tax Guarantor Services	Tax Accounting Services - Taiwan
Jayant Ghevaria and CO	Tax Accounting Services - India
India Renewal Fee (SEBI)	Registration of India Local Market Accounts
Oxford Economics	Global macroeconomics and markets research
With Intelligence	Portfolio Management Research provider

KENTUCKY PUBLIC PENSIONS AUTHORITY Investment Fees and Expenses For the three month period ending September 30, 2023 Pension								
	2024		2023		2022		2021	
	FYTD Fees	Market Value	FYTD Fees	Market Value	FYTD Fees	Market Value	FY Fees	Market Value
Core Fixed Income	538,998	2,131,936,660	879,295	2,084,448,991	964,078	2,367,680,815	2,648,483	2,380,760,174
<i>Investment Advisory Fees</i>	525,105		552,736		618,246		2,579,704	
<i>Carried Interest</i>	-		313,985		327,140		-	
<i>Miscellaneous Fees and Expenses</i>	13,893		12,575		18,692		68,779	
Public Equity	3,672,514	7,378,700,486	3,142,570	6,065,660,923	3,636,256	6,871,426,987	12,690,120	6,952,113,563
<i>Investment Advisory Fees</i>	3,567,463		3,040,804		3,523,547		12,466,655	
<i>Miscellaneous Fees and Expenses</i>	105,051		101,766		112,709		223,465	
Specialty Credit Fixed Income	22,856,573	3,275,957,851	12,036,439	3,083,985,656	13,440,821	3,152,469,147	44,112,571	3,048,523,710
<i>Investment Advisory Fees</i>	4,074,866		4,746,299		3,964,000		15,415,716	
<i>Carried Interest</i>	9,400,428		1,673,157		7,358,655		24,234,258	
<i>Miscellaneous Fees and Expenses</i>	9,381,280		5,616,983		2,118,166		4,462,596	
Real Estate	849,546	946,221,229	4,455,872	969,436,952	7,779,711	677,700,443	9,191,005	610,213,834
<i>Investment Advisory Fees</i>	1,924,845		1,579,279		1,114,665		4,772,617	
<i>Carried Interest</i>	(2,524,451)		2,231,775		6,615,761		2,414,707	
<i>Miscellaneous Fees and Expenses</i>	1,449,153		644,817		49,285		2,003,680	
Real Return	1,385,926	507,885,793	998,699	426,178,862	1,718,873	1,010,028,940	8,313,392	1,033,884,979
<i>Investment Advisory Fees</i>	1,044,249		488,379		1,085,377		4,663,221	
<i>Carried Interest</i>	167,367		285,096		380,418		3,021,470	
<i>Miscellaneous Fees and Expenses</i>	174,310		225,224		253,079		628,701	
Private Equity	7,960,728	1,178,285,116	(274,776)	1,209,741,651	24,096,611	1,305,498,399	58,785,850	1,236,163,938
<i>Investment Advisory Fees</i>	1,360,253		1,804,660		1,673,732		8,081,476	
<i>Carried Interest</i>	5,008,292		(2,822,439)		20,395,224		48,458,818	
<i>Miscellaneous Fees and Expenses</i>	1,592,184		743,004		2,027,655		2,245,555	
Administrative Expense/Cash	1,036,738	1,175,409,476	666,582	799,782,744	858,178	572,193,644	4,248,561	526,326,268
Total Investment Mgmt Fees	38,301,024	16,594,396,612	21,904,681	14,639,235,779	52,494,529	15,956,998,375	139,989,981	15,787,986,466

KENTUCKY PUBLIC PENSIONS AUTHORITY Investment Fees and Expenses For the three month period ending September 30, 2023 Insurance								
	2024		2023		2022		2021	
	FYTD Fees	Market Value	FYTD Fees	Market Value	FYTD Fees	Market Value	FY Fees	Market Value
Core Fixed Income	184,881	754,337,920	324,043	767,219,317	354,733	862,879,050	1,050,510	865,995,148
<i>Investment Advisory Fees</i>	180,211		208,100		230,338		995,622	
<i>Performance</i>	-		112,040		117,337		28,448	
<i>Miscellaneous Fees and Expenses</i>	4,670		3,903		7,058		26,440	
Public Equity	1,705,220	3,360,758,473	1,436,037	2,807,242,353	1,625,181	3,080,276,960	5,708,928	3,116,599,040
<i>Investment Advisory Fees</i>	1,657,228		1,389,622		1,574,855		5,612,577	
<i>Miscellaneous Fees and Expenses</i>	47,991		46,415		50,326		96,351	
Specialty Credit Fixed Income	10,206,292	1,472,221,495	5,558,434	1,371,584,870	5,969,311	1,429,342,653	19,174,439	1,383,567,012
<i>Investment Advisory Fees</i>	1,741,424		2,178,608		1,781,734		6,978,722	
<i>Carried Interest</i>	4,295,204		964,003		3,271,465		10,392,111	
<i>Miscellaneous Fees and Expenses</i>	4,169,664		2,415,823		916,112		1,803,605	
Real Estate	511,795	418,297,047	1,799,878	428,984,339	3,228,037	286,774,553	3,945,135	258,214,840
<i>Investment Advisory Fees</i>	870,090		604,578		482,095		2,048,449	
<i>Carried Interest</i>	(979,568)		919,660		2,722,999		1,043,274	
<i>Miscellaneous Fees and Expenses</i>	621,274		275,640		22,943		853,412	
Real Return	603,897	197,048,651	487,514	166,445,599	740,678	426,269,531	3,278,267	435,909,260
<i>Investment Advisory Fees</i>	466,172		266,024		484,286		2,005,961	
<i>Carried Interest</i>	59,893		116,876		140,229		91,499	
<i>Miscellaneous Fees and Expenses</i>	77,832		104,614		116,163		1,180,807	
Private Equity	4,590,785	600,831,793	(393,210)	598,395,346	16,466,674	616,691,355	35,821,138	585,420,005
<i>Investment Advisory Fees</i>	887,506		1,238,396		1,410,084		5,232,127	
<i>Carried Interest</i>	3,008,749		(1,963,029)		14,392,982		29,557,732	
<i>Miscellaneous Fees and Expenses</i>	694,529		331,423		663,608		1,031,279	
Administrative Expense/Cash	503,596	304,679,290	359,092	272,226,093	453,829	337,944,259	2,183,105	291,596,737
Total Investment Mgmt Fees	\$ 18,306,465	\$ 7,108,174,671	\$ 9,571,788	\$ 6,412,097,917	\$ 28,838,443	\$ 7,040,178,361	\$ 71,161,521	\$ 6,937,302,042

KENTUCKY PUBLIC PENSIONS AUTHORITY				
Investment Fees and Expenses				
For the three month period ending September 30, 2023				
Pension				
	CERS		CERS Hazardous	
	FYTD Fees	Market Value	FYTD Fees	Market Value
Core Fixed Income	221,945	877,873,131	76,988	304,514,640
<i>Investment Advisory Fees</i>	216,224		75,003	
<i>Performance Fees</i>	-		-	
<i>Miscellaneous Fees and Expenses</i>	5,721		1,984	
Public Equity	2,099,600	4,201,221,831	731,440	1,471,095,867
<i>Investment Advisory Fees</i>	2,040,386		711,011	
<i>Miscellaneous Fees and Expenses</i>	59,213		20,430	
Specialty Credit Fixed Income	12,793,027	1,760,475,733	4,280,674	606,523,795
<i>Investment Advisory Fees</i>	2,217,615		752,769	
<i>Performance Fees</i>	5,292,432		1,753,760	
<i>Miscellaneous Fees and Expenses</i>	5,282,980		1,774,145	
Real Estate	502,526	532,052,128	157,674	169,250,594
<i>Investment Advisory Fees</i>	1,102,853		347,611	
<i>Performance Fees</i>	(1,418,413)		(448,560)	
<i>Miscellaneous Fees and Expenses</i>	818,086		258,623	
Real Return	866,717	291,059,259	291,539	97,714,353
<i>Investment Advisory Fees</i>	605,846		216,623	
<i>Performance Fees</i>	145,474		37,620	
<i>Miscellaneous Fees and Expenses</i>	115,397		37,296	
Private Equity	4,903,488	700,541,631	1,725,829	233,967,869
<i>Investment Advisory Fees</i>	887,737		294,694	
<i>Performance Fees</i>	3,034,843		1,111,605	
<i>Miscellaneous Fees and Expenses</i>	980,908		319,530	
Administrative Expenses/Cash	750,663	182,193,203	189,803	108,616,718
Total Investment Fees and Expenses	22,137,964	8,545,416,917	7,453,948	2,991,683,835

KENTUCKY PUBLIC PENSIONS AUTHORITY				
Investment Fees and Expenses				
For the three month period ending September 30, 2023				
Insurance				
	CERS		CERS Hazardous	
	FYTD Fees	Market Value	FYTD Fees	Market Value
Core Fixed Income	81,059	331,029,452	36,369	147,846,748
<i>Investment Advisory Fees</i>	79,011		35,453	
<i>Performance Fees</i>	-		-	
<i>Miscellaneous Fees and Expenses</i>	2,049		916	
Public Equity	788,356	1,585,099,586	390,217	776,610,535
<i>Investment Advisory Fees</i>	765,902		379,334	
<i>Miscellaneous Fees and Expenses</i>	22,454		10,884	
Specialty Credit Fixed Income	4,587,794	660,051,790	2,444,504	326,568,851
<i>Investment Advisory Fees</i>	776,073		395,223	
<i>Performance Fees</i>	1,928,994		1,047,533	
<i>Miscellaneous Fees and Expenses</i>	1,882,728		1,001,749	
Real Estate	235,320	192,132,243	128,978	105,415,370
<i>Investment Advisory Fees</i>	399,817		219,288	
<i>Performance Fees</i>	(449,805)		(246,859)	
<i>Miscellaneous Fees and Expenses</i>	285,308		156,550	
Real Return	278,131	89,567,075	140,010	46,852,338
<i>Investment Advisory Fees</i>	221,508		101,709	
<i>Performance Fees</i>	21,013		19,000	
<i>Miscellaneous Fees and Expenses</i>	35,610		19,301	
Private Equity	2,116,734	272,727,622	1,201,160	153,092,675
<i>Investment Advisory Fees</i>	432,845		242,975	
<i>Performance Fees</i>	1,456,865		836,249	
<i>Miscellaneous Fees and Expenses</i>	227,024		121,936	
Administrative Expenses/Cash	236,515	98,005,682	152,496	18,385,631
Total Investment Fees and Expenses	\$ 8,323,909	\$ 3,228,613,451	\$ 4,493,735	\$ 1,574,772,148

County Employees Retirement System

Compliance Report

Quarter Ending: September 30, 2023



Compliance Guideline Review Period Ended September 30, 2023	Compliance Status	Legend
Total assets assigned to the selected manager shall not exceed 25% of that firm's total assets under management and shall not exceed 25% of a firm's total assets under management in a commingled product.	●	<p>Legend</p> <ul style="list-style-type: none"> ● In Compliance ● To be determined ● Not In Compliance
The assets managed by any one active or passive investment manager shall not exceed 15% of the overall assets in the Pension and Insurance funds.	● ¹	
No more than 20% of the total net assets of the Real Return portfolio may be invested in any single closed-end or open-end limited partnership or other unregistered investment vehicle.	●	
An investment in any single domestic or international equity allocation in any single corporation cannot exceed 5% of the market value of total assets.	●	
The systems in aggregate shall not hold in excess of 3% of the outstanding shares of any single corporation.	●	

The amount of stock in any one industry in the domestic equity allocation shall not exceed 10% of the aggregate market value of the System's assets.



Investment in "frontier" markets shall not exceed 5% of the System's international equity assets.



The duration of the total fixed income portfolio shall not deviate from the Barclays Aggregate Index by more than 25%.



The amount invested in the debt of a single corporation shall not exceed 5% of the total market value of the System's Assets.



50% of the fixed income assets must have liquidity that is T+3 (trade date plus three days) or better.



No public fixed income manager shall invest more than 5% of the total market value of assets held in any single issue, short-term instruments, with the exception of U.S. Government issued, guaranteed, or agency obligations.



No more than 50% of the total net assets of the Real Return portfolio may be invested in any one registered investment vehicle, mutual fund, or separately managed account.



No more than 20% of the total net assets of the Real Return portfolio may be invested in any single closed-end or open-end limited partnership or other unregistered investment vehicle.



Derivatives Applications not Permitted: Derivatives may not be used for any activity for which the primary purpose is speculation or cause the portfolio to be leveraged beyond a 100% invested position.



All instruments in the Liquidity allocation shall have a maturity at the time of purchase that does not exceed 397 days.



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- 1. Interpretation that this restrictions only applies to external manager and not assets managed by KPPA Investment Staff.*

Kentucky Public Pensions Authority

CERS & CERS-Hazardous Unit Holdings

Quarter Ending: September 30, 2023

CERS Board Meeting - Investment Committee Report

Kentucky Public Pensions Authority									
Pension: CERS & CERS-H Unit Holdings									
Quarter Ended September 30, 2023									
UNIT OF PARTICIPATION	CERS				CERS-H				
	Shares/Par	Base Cost	Base Market Value	Base Market Unrealized G/L	Shares/Par	Base Cost	Base Market Value	Base Market Unrealized G/L	
Grand Total	45,230,401.494	7,182,090,850.04	8,531,918,849.16	1,349,827,999.12	16,061,287.587	2,550,107,230.27	2,987,183,353.81	437,076,123.54	
KRS ABSOLUTE RETURN UNIT	465,018.762	58,019,204.71	57,809,964.36	-209,240.35	147,301.212	18,444,792.76	18,312,116.66	-132,676.10	
KRS ADAMS STREET A1 UNIT	493,059.791	72,867,545.87	78,266,664.90	5,399,119.03	166,254.112	24,570,101.14	26,390,622.62	1,820,521.48	
KRS ADAMS STREET B1 UNIT	566,478.217	73,607,620.53	76,968,525.47	3,360,904.94	191,009.965	24,819,645.19	25,952,905.01	1,133,259.82	
KRS AMERRA AGRU UNIT	288,719.874	27,416,808.33	24,437,015.12	-2,979,793.21	91,158.311	8,656,382.13	7,715,565.24	-940,816.89	
KRS AMERRA UNIT	81,312.370	11,493,419.34	16,642,460.20	5,149,040.86	25,672.974	3,628,850.37	5,254,568.87	1,625,718.50	
KRS ARCTOS SPORTS II UNIT	61,846.071	6,684,799.17	10,457,882.96	3,773,083.79	26,505.459	2,892,208.25	4,481,949.84	1,589,741.59	
KRS ARROWMARK UNIT	1,387,072.461	186,039,677.74	307,432,901.31	121,393,223.57	458,544.662	61,501,551.45	101,632,553.30	40,131,001.85	
KRS BLACKROCK UNIT	2,925,438.069	333,585,958.20	477,954,616.77	144,368,658.57	1,024,153.712	122,574,561.03	167,325,023.94	44,750,462.91	
KRS BLUE TORCH UNIT	435,007.963	70,459,753.78	73,128,858.05	2,669,104.27	146,878.053	23,790,349.17	24,691,557.86	901,208.69	
KRS BNYM CUSTODY FEE UNIT	-322,583.986	-322,583.99	-322,583.99	0.00	-111,520.064	-111,520.06	-111,520.06	0.00	
KRS BTG UNIT	199,420.716	13,189,056.48	19,642,410.86	6,453,354.38	63,908.686	4,226,717.92	6,294,835.83	2,068,117.91	
KRS CASH UNIT	1,820,314.733	178,721,188.54	182,578,525.21	3,857,336.67	1,084,253.358	108,303,466.48	108,751,182.12	447,715.64	
KRS DB PRIVATE EQ UNIT	14,394.435	5,175,840.99	4,034,631.01	-1,141,209.98	4,144.056	1,490,088.35	1,161,541.72	-328,546.63	
KRS DIVCOWEST IV UNIT	1,339.798	0.00	704,584.86	704,584.86	417.494	0.00	219,555.45	219,555.45	
KRS DOMESTIC EQUITY UNIT	2,848,033.647	642,788,827.11	730,552,189.52	87,763,362.41	1,036,782.611	236,924,730.22	265,946,228.31	29,021,498.09	
KRS GLOBAL FIXED UNIT	1,294,230.689	190,052,952.81	172,176,811.02	-17,876,141.79	505,255.412	72,279,229.52	67,216,197.49	-5,063,032.03	
KRS GREENFIELD UNIT	3,105.533	1,273,148.24	29,572.43	-1,243,575.81	967.716	396,726.40	9,215.07	-387,511.33	
KRS GREENFIELD VII UNIT	4,427.832	1,230,597.35	1,332,888.39	102,291.04	1,379.758	383,466.26	415,341.73	31,875.47	
KRS HARRISON UNIT	639,390.832	123,004,797.92	145,440,454.41	22,435,656.49	199,992.765	38,477,065.71	45,491,798.07	7,014,732.36	
KRS IFM INFRAST DEBT UNIT	267,825.438	41,359,409.31	39,669,303.55	-1,690,105.76	92,231.578	14,243,023.98	13,660,996.85	-582,027.13	
KRS INTERNATIONAL EQUITY UNIT	5,761,731.928	1,292,259,527.04	1,804,608,099.89	512,348,572.85	1,983,802.691	454,321,018.97	621,338,592.20	167,017,573.23	
KRS INTERNAAL EQUITY UNIT	7,218,592.358	1,143,403,877.95	1,184,826,139.88	41,422,261.93	2,530,471.152	404,501,163.62	415,339,753.02	10,838,589.40	
KRS L-A VII UNIT	142,596.532	14,069,493.52	11,443,255.33	-2,626,238.19	44,444.354	4,385,166.66	3,566,623.14	-818,543.52	
KRS LIQUID CORE FIXED UNIT	7,099,169.274	913,337,094.29	877,920,322.99	-35,416,771.30	2,462,543.731	316,420,117.33	304,531,009.79	-11,889,107.54	
KRS LIQUID CREDIT FIXED UNIT	44,070.529	3.36	3.35	-0.01	13,249.620	1.01	1.01	0.00	
KRS LIQUID HY FI UNIT	1,172,101.735	208,485,268.04	186,024,316.76	-22,460,951.28	459,943.152	81,533,957.44	72,997,597.43	-8,536,360.01	
KRS MAGNETAR MTP UNIT	113.929	98,279.70	70,403.09	-27,876.61	36.025	31,077.30	22,261.86	-8,815.44	
KRS MESA WEST CORE UNIT	205,495.934	39,279,287.96	36,106,008.58	-3,173,279.38	64,772.004	12,380,773.06	11,380,558.66	-1,000,214.40	
KRS MESA WEST IV UNIT	105,087.787	11,055,825.38	8,380,399.18	-2,675,426.20	33,229.849	3,495,966.98	2,649,969.20	-845,997.78	
KRS MULTI SECTOR CREDIT FI	1,492,072.539	177,410,298.71	247,202,407.92	69,792,109.21	490,250.072	58,286,583.25	81,223,261.68	22,936,678.43	
KRS OBERLAND UNIT	54,294.957	3,504,168.92	4,374,992.89	870,823.97	16,950.611	1,093,983.41	1,365,850.66	271,867.25	
KRS PE 2010 UNIT	527,632.303	138,367,606.06	164,257,654.40	25,890,048.34	164,247.615	43,073,648.41	51,132,062.67	8,058,414.26	
KRS PE 2011 UNIT	160,689.933	34,465,727.87	53,846,047.13	19,380,319.26	77,694.315	16,662,926.11	26,034,809.21	9,371,883.10	
KRS PE 2012 A UNIT	6,977.987	2,834,394.72	3,837,845.51	1,003,450.79	1,942.729	789,118.48	1,068,487.77	279,369.29	
KRS PE 2012 B UNIT	64,631.763	8,873,398.75	11,306,455.51	2,433,056.76	17,994.036	2,470,430.44	3,147,813.98	677,383.54	
KRS PE 2013 UNIT	219,623.383	45,122,948.36	82,259,778.00	37,136,829.64	74,961.695	15,391,952.25	28,076,848.22	12,684,895.97	
KRS PE 2014 UNIT	211,281.185	16,535,730.34	35,894,092.11	19,358,361.77	72,114.341	5,643,966.38	12,251,345.51	6,607,379.13	
KRS PE 2015 UNIT	151,589.841	18,518,249.46	51,322,631.00	32,804,381.54	51,740.534	6,320,636.17	17,517,402.99	11,196,766.82	
KRS PE 2016 UNIT	316,988.501	25,646,757.78	79,665,330.72	54,018,572.94	98,726.872	7,987,747.41	24,811,969.15	16,824,221.74	
KRS PE 2017 UNIT	204,756.143	23,367,324.76	36,249,137.28	12,881,812.52	63,771.911	7,277,823.11	11,289,901.84	4,012,078.73	
KRS PE 2018 UNIT	221,717.289	37,863,729.15	38,207,170.87	343,441.72	69,219.057	11,820,871.70	11,928,092.53	107,220.83	
KRS PE 2019 UNIT	266,481.053	28,073,713.17	64,754,427.94	36,680,714.77	83,194.085	8,764,475.82	20,216,016.57	11,451,540.75	
KRS PE 2021 UNIT	548,518.497	56,987,532.64	70,356,512.14	13,368,979.50	185,968.593	19,320,938.19	23,853,528.45	4,532,590.26	
KRS PERIMETER PARK UNIT	16,232.813	2,106,517.23	1,588,987.96	-517,529.27	17,672.730	2,293,373.45	1,729,937.70	-563,435.75	
KRS POST-2015 REAL ESTATE UNIT	582,177.302	57,489,710.94	75,388,018.10	17,898,307.16	184,090.510	18,181,328.26	23,838,474.38	5,657,146.12	
KRS PRIVATE CREDIT FI UNIT	1,480,670.457	292,917,722.86	310,406,798.09	17,489,075.23	490,403.584	97,008,857.93	102,807,890.55	5,799,032.62	
KRS PROLOGIS UNIT	741,098.600	90,156,955.71	172,546,646.17	82,389,690.46	234,343.128	28,508,571.71	54,561,054.07	26,052,482.36	
KRS REAL RETURN UNIT	581,790.595	80,954,765.73	115,356,807.93	34,402,042.20	200,352.390	27,728,435.97	39,725,654.51	11,997,218.54	
KRS RUBENSTEIN PF II UNIT	72,479.805	12,548,932.75	7,412,765.22	-5,136,167.53	22,585.445	3,910,374.03	2,309,893.10	-1,600,480.93	
KRS SHENKMAN UNIT	827,185.252	139,136,139.78	137,239,210.10	-1,896,929.68	278,810.950	46,855,009.00	46,257,829.73	-597,179.27	
KRS STOCKBRIDGE UNIT	280,090.753	53,740,926.94	59,533,231.29	5,792,304.35	89,313.398	17,136,534.40	18,983,544.17	1,847,009.77	
KRS TAURUS UNIT	7,028.034	118,783.60	2,358,996.26	2,240,212.66	2,398.804	40,542.86	805,171.07	764,628.21	
KRS TPF II UNIT	351.766	3,985,492.04	34,923.55	-3,950,568.49	117.591	1,332,302.74	11,674.51	-1,320,628.23	
KRS WALTON VI UNIT	38,991.717	7,033,548.42	7,507,314.76	473,766.34	13,784.580	2,486,539.73	2,654,029.85	167,490.12	
KRS WALTON VII UNIT	34,690.105	9,879,893.26	5,278,126.78	-4,601,766.48	10,809.793	3,078,675.30	1,644,718.51	-1,433,956.79	
KRS WATERFALL UNIT	897,545.670	155,813,200.42	165,415,914.07	9,602,713.65	300,043.810	52,080,905.12	55,297,488.20	3,216,583.08	

CERS Board Meeting - Investment Committee Report

Kentucky Public Pensions Authority									
Insurance: CERS & CERS-H Unit Holdings									
Quarter Ended September 30, 2023									
UNIT OF PARTICIPATION	CERS INS				CERS-H INS				
	Shares/Par	Base Cost	Base Market Value	Base Market Unrealized G/L	Shares/Par	Base Cost	Base Market Value	Base Market Unrealized G/L	
Grand Total	24,466,710.652	2,723,649,390.01	3,222,628,889.56	498,979,499.55	12,029,595.398	1,301,207,068.66	1,571,522,235.98	270,315,167.32	
KR3 ARROWMARK UNIT	554,115.798	75,108,520.65	124,134,854.08	49,026,333.43	301,875.792	40,918,416.92	67,627,213.53	26,708,796.61	
KRS INS PE 2014 UNIT	93,873.463	7,372,342.16	15,961,786.11	8,589,443.95	50,775.439	3,987,642.14	8,633,608.17	4,645,966.03	
KRS INS ABSOLUTE RETURN UNIT	151,358.489	15,673,335.44	18,828,641.55	3,155,306.11	84,801.175	8,976,291.48	10,549,067.57	1,572,776.09	
KRS INS ADAMS STREET A1 UNIT	172,638.916	25,513,691.53	27,404,125.60	1,890,434.07	91,204.490	13,478,786.89	14,477,496.48	998,709.59	
KRS INS ADAMS STREET B1 UNIT	198,318.043	25,772,818.51	26,949,597.52	1,176,779.01	104,770.669	13,615,681.57	14,237,370.03	621,688.46	
KRS INS AMERRA AGRU UNIT	104,435.608	9,918,111.28	8,840,162.27	-1,077,949.01	57,653.438	5,475,270.50	4,880,191.32	-595,079.18	
KRS INS AMERRA UNIT	21,939.624	3,114,126.41	4,509,252.02	1,395,125.61	12,111.721	1,719,146.27	2,489,322.62	770,176.35	
KRS INS ARCTOS SPORTS II UNIT	30,186.776	3,263,934.16	5,104,444.27	1,840,510.11	10,307.679	1,124,747.90	1,742,980.87	618,232.97	
KRS INS BLACKCROCK UNIT	3,012,626.063	151,641,479.06	195,910,232.35	44,268,753.29	1,497,643.560	73,596,789.40	97,391,342.86	23,794,553.46	
KRS INS BLUE TORCH UNIT	152,188.673	24,650,527.78	25,584,322.15	933,794.37	79,995.007	12,957,070.69	13,447,899.83	490,829.14	
KRS INS BNYM CUSTODY FEE UNIT	-165,048.917	-165,048.92	-165,048.92	0.00	-80,707.080	-80,707.08	-80,707.08	0.00	
KRS INS BTG UNIT	58,674.170	3,880,524.10	5,779,249.91	1,898,725.81	32,238.357	2,132,143.48	3,175,392.54	1,043,249.06	
KRS INS CASH UNIT	927,389.535	96,724,565.30	98,203,369.12	1,478,803.82	174,539.095	19,842,283.61	18,482,338.36	-1,359,945.25	
KRS INS DB PRIVATE EQ UNIT	25,889.690	10,059,485.97	7,250,703.94	-2,808,782.03	13,988.962	5,435,434.78	3,917,768.88	-1,517,665.90	
KRS INS DIVCOWEST IV UNIT	388.165	0.00	205,296.03	205,296.03	210.909	0.00	111,547.36	111,547.36	
KRS INS DOMESTIC EQUITY UNIT	1,078,352.654	238,438,013.70	276,913,883.24	38,475,869.54	548,397.275	119,725,744.75	140,824,820.54	21,099,075.79	
KRS INS GLOBAL FIXED UNIT	415,098.604	58,934,757.21	54,138,174.02	-4,796,583.19	180,263.467	26,576,377.14	23,510,401.75	-3,065,975.39	
KRS INS GREENFIELD UNIT	903.324	368,593.15	8,561.36	-360,031.79	490.809	200,271.65	4,651.70	-195,619.95	
KRS INS GREENFIELD VII UNIT	1,279.863	515,669.09	385,288.25	-130,380.84	695.397	280,181.57	209,341.38	-70,840.19	
KRS INS HARRISON UNIT	244,840.322	46,804,374.98	54,464,944.35	7,660,569.37	133,920.349	25,595,138.60	29,790,699.08	4,195,560.48	
KRS INS IFM INFRASTR DEBT UNIT	94,964.510	14,482,355.23	13,890,549.47	-591,805.76	48,928.929	7,461,799.02	7,156,881.12	-304,917.90	
KRS INS INTERNAL EQUITY UNIT	2,142,615.214	490,770,410.47	672,532,113.18	181,761,702.71	1,028,756.715	228,328,169.75	322,910,022.74	94,581,852.99	
KRS INS INTL EQ UNIT	2,703,697.479	425,411,525.46	438,461,902.46	13,050,377.00	1,324,815.260	205,252,449.53	214,846,899.04	9,594,449.51	
KRS INS I-A-VII UNIT	41,214.677	4,067,474.71	3,308,231.85	-759,242.86	22,393.841	2,210,047.14	1,797,515.44	-412,531.70	
KRS INS LIQUID CORE FIXED UNIT	2,707,568.848	344,197,791.44	331,047,419.61	-13,150,371.83	1,209,273.813	154,907,891.31	147,854,772.26	-7,053,119.05	
KRS INS LIQUID CREDIT FIXED UN	5,562,779.296	4.36	5.56	1.20	2,995,343.950	2.38	3.00	0.62	
KRS INS LIQUID HY FI UNIT	578,159.003	97,321,281.59	89,291,342.42	-8,029,939.17	216,559.576	36,489,677.45	33,445,635.46	-3,044,041.99	
KRS INS MAGNETAR MTP	33.855	29,422.17	21,075.62	-8,346.55	18.727	16,272.98	11,658.05	-4,614.93	
KRS INS MESA WEST CORE UNIT	117,798.214	22,210,751.90	20,262,031.64	-1,948,720.26	65,081.046	12,272,266.69	11,194,348.10	-1,077,918.59	
KRS INS MESA WEST IV UNIT	34,504.073	3,490,151.96	2,660,065.73	-830,086.23	18,935.158	1,915,328.55	1,459,791.86	-455,536.69	
KRS INS MULTI SECTOR CREDIT FI	531,206.774	62,379,870.21	86,590,120.88	24,210,250.67	290,366.710	34,052,770.50	47,331,641.37	13,278,870.87	
KRS INS OBERLAND UNIT	10,280.748	685,249.39	855,539.24	170,289.85	5,589.719	372,574.32	465,163.03	92,588.71	
KRS INS PE 2010 UNIT	60,673.968	16,265,633.05	18,523,653.82	2,258,020.77	32,478.360	8,706,771.13	9,915,585.17	1,208,814.04	
KRS INS PE 2011 UNIT	110,651.058	22,918,350.57	37,932,122.66	15,013,772.09	66,229.162	13,717,988.85	22,703,919.35	8,985,930.50	
KRS INS PE 2012 A UNIT	2,213.500	811,828.11	1,221,389.78	409,561.67	1,197.264	439,110.71	660,639.72	221,529.01	
KRS INS PE 2012 B UNIT	26,635.323	3,631,198.67	4,681,298.39	1,050,099.72	14,137.520	1,927,052.26	2,484,743.64	557,691.38	
KRS INS PE 2013 UNIT	123,242.005	26,372,243.19	45,583,368.43	19,211,125.24	66,660.666	14,264,550.69	24,655,698.34	10,391,147.65	
KRS INS PE 2015 UNIT	87,128.117	10,733,244.07	29,310,204.47	18,576,960.40	47,126.956	5,805,530.71	15,853,673.46	10,048,142.75	
KRS INS PE 2016 UNIT	183,293.687	16,831,844.83	46,063,470.13	29,231,625.30	110,684.607	10,164,159.92	27,816,108.52	17,651,948.60	
KRS INS PE 2017 UNIT	119,039.049	16,340,170.85	20,959,715.44	4,619,544.59	71,883.325	9,867,231.20	12,656,805.05	2,789,573.85	
KRS INS PE 2018 UNIT	47,006.210	5,069,394.56	8,334,244.04	3,264,849.48	25,557.654	2,756,270.33	4,531,395.44	1,775,125.11	
KRS INS PE 2019 UNIT	27,855.176	2,865,343.56	6,768,756.57	3,903,413.01	14,856.088	1,528,183.81	3,610,002.08	2,081,818.27	
KRS INS PE 2021 UNIT	214,265.731	22,436,060.37	27,588,227.51	5,152,167.14	110,247.545	11,544,172.48	14,195,150.76	2,650,978.28	
KRS INS POST-2015 REAL ESTATE	202,089.638	19,790,779.42	26,073,114.22	6,282,334.80	110,902.818	10,862,651.68	14,308,412.20	3,445,760.52	
KRS INS PRIVATE CREDIT FI UNIT	519,264.396	101,357,146.37	106,890,845.93	5,533,699.56	283,201.805	55,272,462.62	58,297,238.82	3,024,776.20	
KRS INS PROLOGIS UNIT	150,318.422	29,697,138.20	55,667,883.00	25,970,744.80	82,491.818	16,297,211.83	30,549,448.37	14,252,236.54	
KRS INS REAL RETURN UNIT	154,824.683	21,859,193.92	30,798,750.11	8,939,556.19	79,787.539	11,308,664.61	15,871,865.05	4,563,200.44	
KRS INS RUBENSTEIN PF II UNIT	21,246.598	3,656,364.10	2,159,845.74	-1,496,518.36	11,544.310	1,986,678.13	1,173,549.23	-813,128.90	
KRS INS SHENKMAN UNIT	327,705.332	54,862,367.41	54,018,456.02	-843,911.39	121,420.554	20,375,758.58	20,014,782.23	-360,976.35	
KRS INS STOCKBRIDGE UNIT	117,767.220	22,966,320.52	24,923,357.53	1,957,037.01	64,874.850	12,651,539.24	13,729,619.17	1,078,079.93	
KRS INS TAURUS UNIT	2,575.300	173,275.74	866,109.89	692,834.15	1,392.960	100,770.23	468,472.19	367,701.96	
KRS INS TPF II UNIT	37.089	82,285.20	3,734.39	-78,550.81	19.666	43,631.34	1,980.12	-41,651.22	
KRS INS WALTON VI UNIT	3,937.153	705,968.60	753,521.50	47,552.90	2,109.889	378,320.59	403,806.18	25,485.59	
KRS INS WALTON VII UNIT	10,043.246	2,856,209.73	1,528,087.59	-1,328,122.14	5,456.865	1,551,881.95	830,266.20	-721,615.75	
KRS INS WATERFALL UNIT	350,626.197	58,730,918.52	62,646,495.52	3,915,577.00	184,093.223	30,820,513.89	32,891,995.43	2,071,481.54	

Kentucky Public Pensions Authority

Security Litigation Report

Quarter Ending: September 30, 2023

Claims Filed during the Quarter (pg 3):

14

Proceeds Received during the Quarter (pg 4):

\$95,674.83

Kentucky Retirement Systems	
Quarterly Securities Litigation Report	
Quarter Ended 09/30/23	
Total Claims Filed	
No Claim on File	9
Fiscal Year 1997	1
Fiscal Year 1998	2
Fiscal Year 1999	5
Fiscal Year 2000	9
Fiscal Year 2001	8
Fiscal Year 2002	33
Fiscal Year 2003	45
Fiscal Year 2004	38
Fiscal Year 2005	89
Fiscal Year 2006	150
Fiscal Year 2007	70
Fiscal Year 2008	73
Fiscal Year 2009	85
Fiscal Year 2010	65
Fiscal Year 2011	69
Fiscal Year 2012	54
Fiscal Year 2013	48
Fiscal Year 2014	65
Fiscal Year 2015	80
Fiscal Year 2016	224
Fiscal Year 2017	140
Fiscal Year 2018	74
Fiscal Year 2019	55
Fiscal Year 2020	42
Fiscal Year 2021	43
Fiscal Year 2022	49
Fiscal Year 2023	49
Fiscal Year 2024	14
Total Filed	1,688
Proceeds Received	
Fiscal Year 1998	\$67,682
Fiscal Year 1999	\$233,370
Fiscal Year 2000	\$303,918
Fiscal Year 2001	\$415,502
Fiscal Year 2002	\$387,318
Fiscal Year 2003	\$519,059
Fiscal Year 2004	\$1,080,920
Fiscal Year 2005	\$1,645,440
Fiscal Year 2006	\$797,535
Fiscal Year 2007	\$5,398,363
Fiscal Year 2008	\$5,402,336
Fiscal Year 2009	\$3,504,682
Fiscal Year 2010	\$2,776,544
Fiscal Year 2011	\$1,292,484
Fiscal Year 2012	\$468,657
Fiscal Year 2013	\$1,070,427
Fiscal Year 2014	\$308,704
Fiscal Year 2015	\$23,639,565
Fiscal Year 2016	\$2,417,957
Fiscal Year 2017	\$1,886,532
Fiscal Year 2018	\$2,247,966
Fiscal Year 2019	\$1,702,272
Fiscal Year 2020	\$1,743,474
Fiscal Year 2021	\$286,420
Fiscal Year 2022	\$616,557
Fiscal Year 2023	\$259,261
Fiscal Year 2024	\$95,675
Total Proceeds	\$60,568,622

CERS Board Meeting - Investment Committee Report

Class Action Name	TNT Status Code	Status as of Date	Class Period Start Date	Class Period End Date	Class Account Id	Claimed Account Name
ARCONIC INC., Securities Litigation	FILED	8/21/2023	11/4/2013	6/27/2017	956589	KRS SYSTEMATIC
ARCONIC INC., Securities Litigation	FILED	8/22/2023	11/4/2013	6/27/2017	KR3F1005002	SASCO CAPITAL
ARCONIC INC., Securities Litigation	FILED	8/22/2023	11/4/2013	6/27/2017	KR2F1005002	SASCO CAPITAL
ARCONIC INC., Securities Litigation	FILED	8/21/2023	11/4/2013	6/27/2017	956766	KRS INS SYSTEMATIC
ARCONIC INC., Securities Litigation	FILED	8/21/2023	11/4/2013	6/27/2017	KR2F3006002	LOOMIS
ARCONIC INC., Securities Litigation	FILED	8/21/2023	11/4/2013	6/27/2017	956599	KRS S P 500 INDEX
ARCONIC INC., Securities Litigation	FILED	8/21/2023	11/4/2013	6/27/2017	KR3F1002002	NTGI STRUCTURED
ARCONIC INC., Securities Litigation	FILED	8/21/2023	11/4/2013	6/27/2017	KR2F1002002	NTGI STRUCTURED
ARCONIC INC., Securities Litigation	FILED	8/21/2023	11/4/2013	6/27/2017	KR2F1009002	INVESCO
ARCONIC INC., Securities Litigation	FILED	8/21/2023	11/4/2013	6/27/2017	KR3F3006002	LOOMIS
ARCONIC INC., Securities Litigation	FILED	8/22/2023	11/4/2013	6/27/2017	956772	KRS INS KRS INTERNAL EQUITY
ARCONIC INC., Securities Litigation	FILED	8/22/2023	11/4/2013	6/27/2017	956774	KRS INS S P 500 INDEX
ARCONIC INC., Securities Litigation	FILED	8/21/2023	11/4/2013	6/27/2017	956596	KRS KRS INTERNAL EQUITY
BUMBLE INC., Securities Litigation	FILED	9/20/2023	9/7/2021	1/24/2022	956588	KRS NTGI STRUCTURED
BUMBLE INC., Securities Litigation	FILED	9/20/2023	9/7/2021	1/24/2022	956765	KRS INS NTGI STRUCTURED
CARDINAL HEALTH, INC., Securities Litigation	FILED	7/24/2023	3/2/2015	5/2/2018	KR2F1006002	WESTFIELD CAPITAL
CARDINAL HEALTH, INC., Securities Litigation	FILED	7/24/2023	3/2/2015	5/2/2018	909181	KRS INS RIVER ROAD FAV
CARDINAL HEALTH, INC., Securities Litigation	FILED	7/24/2023	3/2/2015	5/2/2018	956597	KRS RIVER ROAD FAV
CARDINAL HEALTH, INC., Securities Litigation	FILED	7/24/2023	3/2/2015	5/2/2018	956599	KRS S P 500 INDEX
CARDINAL HEALTH, INC., Securities Litigation	FILED	7/24/2023	3/2/2015	5/2/2018	KR2F1009002	INVESCO
CARDINAL HEALTH, INC., Securities Litigation	FILED	7/24/2023	3/2/2015	5/2/2018	KR3F1008002	WESTWOOD MGMT
CARDINAL HEALTH, INC., Securities Litigation	FILED	7/24/2023	3/2/2015	5/2/2018	956596	KRS KRS INTERNAL EQUITY
CARDINAL HEALTH, INC., Securities Litigation	FILED	7/24/2023	3/2/2015	5/2/2018	KR2F1008002	WESTWOOD MGMT
CARDINAL HEALTH, INC., Securities Litigation	FILED	7/24/2023	3/2/2015	5/2/2018	956769	KRS INS RIVER ROAD
CARDINAL HEALTH, INC., Securities Litigation	FILED	7/24/2023	3/2/2015	5/2/2018	KR3F1006002	WESTFIELD CAPITAL
CARDINAL HEALTH, INC., Securities Litigation	FILED	7/24/2023	3/2/2015	5/2/2018	956592	KRS RIVER ROAD
CARDINAL HEALTH, INC., Securities Litigation	FILED	7/24/2023	3/2/2015	5/2/2018	956774	KRS INS S P 500 INDEX
CARDINAL HEALTH, INC., Securities Litigation	FILED	7/24/2023	3/2/2015	5/2/2018	956772	KRS INS KRS INTERNAL EQUITY
CBL & ASSOCIATES PROPERTIES, INC., Securities Litigation	FILED	9/20/2023	7/29/2014	3/26/2019	956765	KRS INS NTGI STRUCTURED
CBL & ASSOCIATES PROPERTIES, INC., Securities Litigation	FILED	9/20/2023	7/29/2014	3/26/2019	KR2F1003002	SYSTEMATIC
CBL & ASSOCIATES PROPERTIES, INC., Securities Litigation	FILED	9/20/2023	7/29/2014	3/26/2019	956816	KRS INS NUVEEN REAL ASSET
CBL & ASSOCIATES PROPERTIES, INC., Securities Litigation	FILED	9/20/2023	7/29/2014	3/26/2019	KR3F1003002	SYSTEMATIC
CBL & ASSOCIATES PROPERTIES, INC., Securities Litigation	FILED	9/20/2023	7/29/2014	3/26/2019	956642	KRS NUVEEN REAL ASSET
CBL & ASSOCIATES PROPERTIES, INC., Securities Litigation	FILED	9/20/2023	7/29/2014	3/26/2019	956588	KRS NTGI STRUCTURED
D-MARKET Electronic Services & Trading, Securities Litigation	FILED	9/25/2023	5/28/2021	11/23/2021	412207	KRS JP MORGAN EMERGING MARKETS
D-MARKET Electronic Services & Trading, Securities Litigation	FILED	9/25/2023	5/28/2021	11/23/2021	412211	KRS INS JP MORGAN EMERGING MARKETS
EXELON CORPORATION Securities Litigation	FILED	9/26/2023	2/8/2019	10/31/2019	956599	KRS S P 500 INDEX
EXELON CORPORATION Securities Litigation	FILED	9/26/2023	2/8/2019	10/31/2019	956774	KRS INS S P 500 INDEX
EXELON CORPORATION Securities Litigation	FILED	9/26/2023	2/8/2019	10/31/2019	956596	KRS KRS INTERNAL EQUITY
EXELON CORPORATION Securities Litigation	FILED	9/26/2023	2/8/2019	10/31/2019	956772	KRS INS KRS INTERNAL EQUITY
FIFTH THIRD BANCORP, Securities Litigation	FILED	9/1/2023	5/21/2018	5/22/2019	956596	KRS KRS INTERNAL EQUITY
FIFTH THIRD BANCORP, Securities Litigation	FILED	9/1/2023	5/21/2018	5/22/2019	956765	KRS INS NTGI STRUCTURED
FIFTH THIRD BANCORP, Securities Litigation	FILED	9/1/2023	5/21/2018	5/22/2019	904032	KRS PUTNAM
FIFTH THIRD BANCORP, Securities Litigation	FILED	9/1/2023	5/21/2018	5/22/2019	956599	KRS S P 500 INDEX
FIFTH THIRD BANCORP, Securities Litigation	FILED	9/1/2023	5/21/2018	5/22/2019	956588	KRS NTGI STRUCTURED
FIFTH THIRD BANCORP, Securities Litigation	FILED	9/1/2023	5/21/2018	5/22/2019	956629	KRS MANULIFE ASSET MGMT
FIFTH THIRD BANCORP, Securities Litigation	FILED	9/1/2023	5/21/2018	5/22/2019	956805	KRS INS MANULIFE ASSET MGMT
FIFTH THIRD BANCORP, Securities Litigation	FILED	9/1/2023	5/21/2018	5/22/2019	956772	KRS INS KRS INTERNAL EQUITY
FIFTH THIRD BANCORP, Securities Litigation	FILED	9/1/2023	5/21/2018	5/22/2019	904033	KRS INS PUTNAM
FIFTH THIRD BANCORP, Securities Litigation	FILED	9/1/2023	5/21/2018	5/22/2019	956774	KRS INS S P 500 INDEX
FIFTH THIRD BANCORP, Securities Litigation	FILED	9/1/2023	5/21/2018	5/22/2019	140455	KRS INS ABEL NOSER TRANSITION
FIFTH THIRD BANCORP, Securities Litigation	FILED	9/1/2023	5/21/2018	5/22/2019	140454	KRS ABEL NOSER TRANSITION
INTERFACE, INC., Securities Litigation	FILED	9/11/2023	5/12/2016	9/28/2020	KR3F1011002	KRS INTERNAL EQUITY
INTERFACE, INC., Securities Litigation	FILED	9/11/2023	5/12/2016	9/28/2020	956588	KRS NTGI STRUCTURED
INTERFACE, INC., Securities Litigation	FILED	9/11/2023	5/12/2016	9/28/2020	KR2F1011002	KRS INTERNAL EQUITY
INTERFACE, INC., Securities Litigation	FILED	9/11/2023	5/12/2016	9/28/2020	956765	KRS INS NTGI STRUCTURED
KRAFT HEINZ COMPANY, Fair Fund	FILED	9/21/2023	2/26/2016	2/21/2019	956596	KRS KRS INTERNAL EQUITY
KRAFT HEINZ COMPANY, Fair Fund	FILED	9/21/2023	2/26/2016	2/21/2019	956599	KRS S P 500 INDEX
KRAFT HEINZ COMPANY, Fair Fund	FILED	9/21/2023	2/26/2016	2/21/2019	956592	KRS RIVER ROAD
KRAFT HEINZ COMPANY, Fair Fund	FILED	9/21/2023	2/26/2016	2/21/2019	956772	KRS INS KRS INTERNAL EQUITY
KRAFT HEINZ COMPANY, Fair Fund	FILED	9/21/2023	2/26/2016	2/21/2019	956597	KRS RIVER ROAD FAV
KRAFT HEINZ COMPANY, Fair Fund	FILED	9/21/2023	2/26/2016	2/21/2019	909181	KRS INS RIVER ROAD FAV
KRAFT HEINZ COMPANY, Fair Fund	FILED	9/21/2023	2/26/2016	2/21/2019	956769	KRS INS RIVER ROAD
MAXAR TECHNOLOGIES INC., Securities Litigation	FILED	9/25/2023	2/24/2017	9/27/2023	956588	KRS NTGI STRUCTURED
MAXAR TECHNOLOGIES INC., Securities Litigation	FILED	9/25/2023	2/24/2017	9/27/2023	956765	KRS INS NTGI STRUCTURED
MOHAWK INDUSTRIES, INC Securities Litigation	FILED	7/17/2023	4/28/2017	7/25/2019	956774	KRS INS S P 500 INDEX
MOHAWK INDUSTRIES, INC Securities Litigation	FILED	7/17/2023	4/28/2017	7/25/2019	956599	KRS S P 500 INDEX
MOHAWK INDUSTRIES, INC Securities Litigation	FILED	7/17/2023	4/28/2017	7/25/2019	956596	KRS KRS INTERNAL EQUITY
MOHAWK INDUSTRIES, INC Securities Litigation	FILED	7/17/2023	4/28/2017	7/25/2019	956772	KRS INS KRS INTERNAL EQUITY
SHATTUCK LABS, INC., et al., Securities Litigation	FILED	9/28/2023	9/18/2020	11/8/2021	956588	KRS NTGI STRUCTURED
SHATTUCK LABS, INC., et al., Securities Litigation	FILED	9/28/2023	9/18/2020	11/8/2021	956765	KRS INS NTGI STRUCTURED
TACTILE SYSTEMS TECHNOLOGY, INC., Securities Litigation	FILED	8/21/2023	5/7/2018	6/8/2020	412224	KRS NEXT CENTURY GROWTH
TACTILE SYSTEMS TECHNOLOGY, INC., Securities Litigation	FILED	8/21/2023	5/7/2018	6/8/2020	956588	KRS NTGI STRUCTURED
TACTILE SYSTEMS TECHNOLOGY, INC., Securities Litigation	FILED	8/21/2023	5/7/2018	6/8/2020	412227	KRS INS NEXT CENTURY GROWTH
TACTILE SYSTEMS TECHNOLOGY, INC., Securities Litigation	FILED	8/21/2023	5/7/2018	6/8/2020	956765	KRS INS NTGI STRUCTURED
WELLS FARGO & COMPANY, Securities Litigation (18CV03948WH0)	FILED	8/25/2023	11/3/2016	8/3/2017	956596	KRS KRS INTERNAL EQUITY
WELLS FARGO & COMPANY, Securities Litigation (18CV03948WH0)	FILED	8/25/2023	11/3/2016	8/3/2017	956599	KRS S P 500 INDEX
WELLS FARGO & COMPANY, Securities Litigation (18CV03948WH0)	FILED	8/25/2023	11/3/2016	8/3/2017	956772	KRS INS KRS INTERNAL EQUITY
WELLS FARGO & COMPANY, Securities Litigation (18CV03948WH0)	FILED	8/25/2023	11/3/2016	8/3/2017	909181	KRS INS RIVER ROAD FAV
WELLS FARGO & COMPANY, Securities Litigation (18CV03948WH0)	FILED	8/25/2023	11/3/2016	8/3/2017	956774	KRS INS S P 500 INDEX
WELLS FARGO & COMPANY, Securities Litigation (18CV03948WH0)	FILED	8/25/2023	11/3/2016	8/3/2017	956597	KRS RIVER ROAD FAV



Transaction Detail
Reported By Transaction Category

Report ID: IACS0008

Base Currency: USD

KR2G00000000 - TOTAL FUND

6/30/2023 - 9/30/2023

Status: PRELIMINARY

Trans Code	Shares/Par	Description	Trade Date	Price	Cost	Amount	Net Gain/Loss
Link Ref	Security Id	Broker	C. Settle Date	Local/Base	Local/Base	Local/Base	Local/Base
		Transaction No./Client Ref No.	Reported Date				
CLASS ACTIONS							
CASH & CASH EQUIVALENTS							
U.S. DOLLAR							
CD	0.000	04-cv-9866 (LTS)(HBP)Pfizer, I	6/30/2023	0.000000	90.23	90.23	90.23
	NA9123459	nc. (2004) Distribution 4TH DI		0.000000	90.23	90.23	90.23
		20230630S000470 / 000000008745	6/30/2023				Gain/Loss Local Amounts: 90.23 Long
		KR2F19020002 : S&P 500 INDEX					Gain/Loss Base Amounts: 90.23 Long
CD	0.000	24274NAVIENT CORPORATION Secur	7/5/2023	0.000000	5,343.07	5,343.07	5,343.07
	NA9123459	ities Litigation Distribution		0.000000	5,343.07	5,343.07	5,343.07
		20230705S000020 / 000000000009	7/5/2023				Gain/Loss Local Amounts: 5,343.07 Long
		KR2F30060002 : LOOMIS					Gain/Loss Base Amounts: 5,343.07 Long
CD	0.000	24274NAVIENT CORPORATION Secur	7/5/2023	0.000000	2,349.64	2,349.64	2,349.64
	NA9123459	ities Litigation Distribution		0.000000	2,349.64	2,349.64	2,349.64
		20230705S000110 / 000000000009	7/5/2023				Gain/Loss Local Amounts: 2,349.64 Long
		KR2F19020002 : S&P 500 INDEX					Gain/Loss Base Amounts: 2,349.64 Long
CD	0.000	24274NAVIENT CORPORATION Secur	7/5/2023	0.000000	190.56	190.56	190.56
	NA9123459	ities Litigation Distribution		0.000000	190.56	190.56	190.56
		20230705S000120 / 000000000009	7/5/2023				Gain/Loss Local Amounts: 190.56 Long
		KR2F30070002 : COLUMBIA					Gain/Loss Base Amounts: 190.56 Long
CD	0.000	18385DEPOMED, INC., Securities	7/18/2023	0.000000	43.41	43.41	43.41
	NA9123459	Litigation (17CV04830) Distri		0.000000	43.41	43.41	43.41
		20230718S000380 / 000000000010	7/18/2023				Gain/Loss Local Amounts: 43.41 Long
		KR2F10020002 : NTGI STRUCTURED					Gain/Loss Base Amounts: 43.41 Long
CD	0.000	24219INTRUSION INC., Security	7/18/2023	0.000000	37.61	37.61	37.61
	NA9123459	Litigation Distribution 1ST DI		0.000000	37.61	37.61	37.61
		20230718S000410 / 000000000000	7/18/2023				Gain/Loss Local Amounts: 37.61 Long
		KR2F10020002 : NTGI STRUCTURED					Gain/Loss Base Amounts: 37.61 Long



Transaction Detail
Reported By Transaction Category

Report ID: IACS0008

Base Currency: USD

Status: PRELIMINARY

KR2G0000000 - TOTAL FUND

6/30/2023 - 9/30/2023

Trans Code	Shares/Par	Description	Trade Date	Price	Cost	Amount	Net Gain/Loss
Link Ref	Security Id	Broker	C. Settle Date	Local/Base	Local/Base	Local/Base	Local/Base
		Transaction No./Client Ref No.	Reported Date				
CD	0.000	17866SYNCHRONOSS TECHNOLOGIES, INC, Securities Litigation (1	7/19/2023	0.000000	152.01	152.01	152.01
	NA9123459	20230719S041230 / 000000000000	7/19/2023	0.000000	152.01	152.01	152.01
		KR2F10020002 : NTGI STRUCTURED					Gain/Loss Local Amounts: 152.01 Long Gain/Loss Base Amounts: 152.01 Long
CD	0.000	14-CV-09662 (JSR)PETROBRAS - P	7/21/2023	0.000000	8,568.01	8,568.01	8,568.01
	NA9123459	ETROLEO BRASILEIRO S.A (2014)	7/21/2023	0.000000	8,568.01	8,568.01	8,568.01
		20230721S000050 / 000000000009	7/21/2023				Gain/Loss Local Amounts: 8,568.01 Long Gain/Loss Base Amounts: 8,568.01 Long
		KR2F90010002 : CASH ACCOUNT KR2					
CD	0.000	18145HD SUPPLY HOLDINGS, INC.	7/25/2023	0.000000	131.13	131.13	131.13
	NA9123459	Distribution 2ND DISTRIBUTION	7/25/2023	0.000000	131.13	131.13	131.13
		20230725S000020 / 000000000008	7/25/2023				Gain/Loss Local Amounts: 131.13 Long Gain/Loss Base Amounts: 131.13 Long
		KR2F10060002 : WESTFIELD CAPITAL					
CD	0.000	15861VALEANT PHARMACEUTICALS I	7/25/2023	0.000000	17,796.03	17,796.03	17,796.03
	NA9123459	NTERNATIONAL, INC., Securities	7/25/2023	0.000000	17,796.03	17,796.03	17,796.03
		20230725S000140 / 000000000003	7/25/2023				Gain/Loss Local Amounts: 17,796.03 Long Gain/Loss Base Amounts: 17,796.03 Long
		KR2F30070002 : COLUMBIA					
CD	0.000	19486TEVA PHARMACEUTICAL INDUS	8/18/2023	0.000000	479.48	479.48	479.48
	NA9123459	TRIES LIMITED Securities Litig	8/18/2023	0.000000	479.48	479.48	479.48
		20230818S000880 / 000000000006	8/18/2023				Gain/Loss Local Amounts: 479.48 Long Gain/Loss Base Amounts: 479.48 Long
		KR2F30080002 : NISA					
CD	0.000	25093SCANA CORPORATION Securit	8/25/2023	0.000000	5,481.85	5,481.85	5,481.85
	NA9123459	ies Litigation Distribution 1S	8/25/2023	0.000000	5,481.85	5,481.85	5,481.85
		20230825S000170 / 000000000000	8/25/2023				Gain/Loss Local Amounts: 5,481.85 Long Gain/Loss Base Amounts: 5,481.85 Long
		KR2F19020002 : S&P 500 INDEX					
CD	0.000	22102EVOLENT HEALTH, INC., Sec	8/25/2023	0.000000	2,005.26	2,005.26	2,005.26
	NA9123459	urities Litigation Distributio	8/25/2023	0.000000	2,005.26	2,005.26	2,005.26
		20230825S000420 / 000000006055	8/25/2023				Gain/Loss Local Amounts: 2,005.26 Long Gain/Loss Base Amounts: 2,005.26 Long
		KR2F10020002 : NTGI STRUCTURED					



Transaction Detail
Reported By Transaction Category

Report ID: IACS0008

Base Currency: USD

Status: PRELIMINARY

KR2G0000000 - TOTAL FUND

6/30/2023 - 9/30/2023

Trans Code	Shares/Par	Description	Trade Date	Price	Cost	Amount	Net Gain/Loss
Link Ref	Security Id	Broker	C. Settle Date	Local/Base	Local/Base	Local/Base	Local/Base
		Transaction No./Client Ref No.	Reported Date				
CD	0.000	APPLIED MICRO CIRCUITS CORPS	8/25/2023	0.000000	45.67	45.67	45.67
	NA9123459	SEC LIT PROCEEDS		0.000000	45.67	45.67	45.67
		20230831A000010	8/25/2023				
		KR2F90010002 : CASH ACCOUNT KR2					Gain/Loss Local Amounts: 45.67 Long Gain/Loss Base Amounts: 45.67 Long
CD	0.000	VALEANT PHARMACEUTICALS INTL	8/25/2023	0.000000	21,578.44	21,578.44	21,578.44
	NA9123459	INC (2015) SEC LIT PROCEEDS		0.000000	21,578.44	21,578.44	21,578.44
		20230831A000020	8/25/2023				
		KR2F90010002 : CASH ACCOUNT KR2					Gain/Loss Local Amounts: 21,578.44 Long Gain/Loss Base Amounts: 21,578.44 Long
CD	0.000	FUQI INTERNATIONAL INC SEC LIT	8/25/2023	0.000000	216.96	216.96	216.96
	NA9123459	PROCEEDS		0.000000	216.96	216.96	216.96
		20230831A000030	8/25/2023				
		KR2F90010002 : CASH ACCOUNT KR2					Gain/Loss Local Amounts: 216.96 Long Gain/Loss Base Amounts: 216.96 Long
CD	0.000	21392HEALTHCARE SERVICES GROUP	9/1/2023	0.000000	58.81	58.81	58.81
	NA9123459	, INC., Securities Litigation		0.000000	58.81	58.81	58.81
		20230901S000790 / 000000000000	9/1/2023				
		KR2F10020002 : NTGI STRUCTURED					Gain/Loss Local Amounts: 58.81 Long Gain/Loss Base Amounts: 58.81 Long
CD	0.000	1-18-cv-01428-MKB-VMSHENRY SCH	9/7/2023	0.000000	131.03	131.03	131.03
	NA9123459	EIN, INC. Distribution 2ND DIS		0.000000	131.03	131.03	131.03
		20230907S000200 / 000000000000	9/7/2023				
		KR2F10110002 : KRS INTERNAL EQUITY					Gain/Loss Local Amounts: 131.03 Long Gain/Loss Base Amounts: 131.03 Long
CD	0.000	HARBORVIEW MORTGAGE LOAN	8/25/2023	0.000000	1,157.23	1,157.23	1,157.23
	NA9123459	TRUSTSEC LIT PROCEEDS		0.000000	1,157.23	1,157.23	1,157.23
		20230915A000020	8/25/2023				
		KR2F90010002 : CASH ACCOUNT KR2					Gain/Loss Local Amounts: 1,157.23 Long Gain/Loss Base Amounts: 1,157.23 Long
CD	0.000	HARBORVIEW MORTGAGE LOAN	8/25/2023	0.000000	833.97	833.97	833.97
	NA9123459	TRUSTSEC LIT PROCEEDS		0.000000	833.97	833.97	833.97
		20230915A000030	8/25/2023				
		KR2F90010002 : CASH ACCOUNT KR2					Gain/Loss Local Amounts: 833.97 Long Gain/Loss Base Amounts: 833.97 Long
TOTAL U.S. DOLLAR CASH & CASH EQUIVALENTS:					66,690.40	66,690.40	66,690.40
					66,690.40	66,690.40	66,690.40



Transaction Detail
Reported By Transaction Category

Report ID: IACS0008

Base Currency: USD

KR2G00000000 - TOTAL FUND

6/30/2023 - 9/30/2023

Status: PRELIMINARY

Trans Code	Shares/Par	Description	Trade Date	Price	Cost	Amount	Net Gain/Loss
Link Ref	Security Id	Broker	C. Settle Date	Local/Base	Local/Base	Local/Base	Local/Base
Transaction No./Client Ref No.			Reported Date				
TOTAL CASH & CASH EQUIVALENTS CLASS ACTIONS:					66,690.40	66,690.40	66,690.40
EQUITY							
CANADIAN DOLLAR							
CD	0.000	ORD INST: BSDTUS33GBL THE BANK	8/2/2023	0.000000	1,703.81	1,703.81	1,703.81
	NCB63VJ03	OF NEW YORK MELLON 02149,MA,U		0.000000	1,276.79	1,276.79	1,274.69
		20230828A000010	8/2/2023				Gain/Loss Local Amounts: 1,703.81 Long
		KR2F20010002 : KRS NONUS ACWI-EX US					Gain/Loss Base Amounts: 1,276.79 Long
U.S. DOLLAR							
CD	0.000	PFIZER, INC (2004)	7/6/2023	0.000000	28.07	28.07	28.07
	717081103	PFIZER INC		0.000000	28.07	28.07	28.07
		20230712A000070	7/6/2023				Gain/Loss Local Amounts: 28.07 Long
		KR2F90010002 : CASH ACCOUNT KR2					Gain/Loss Base Amounts: 28.07 Long
TOTAL EQUITY CLASS ACTIONS:					1,304.86	1,304.86	1,302.76
TOTAL CLASS ACTIONS:					67,995.26	67,995.26	67,993.16
TOTAL TRANSACTIONS BASE:					67,995.26	67,995.26	67,993.16



Transaction Detail
Reported By Transaction Category

Report ID: IACS0008

Base Currency: USD

KR3G00000000 - TOTAL FUND

6/30/2023 - 9/30/2023

Status: PRELIMINARY

Trans Code	Shares/Par	Description	Trade Date	Price	Cost	Amount	Net Gain/Loss
Link Ref	Security Id	Broker	C. Settle Date	Local/Base	Local/Base	Local/Base	Local/Base
		Transaction No./Client Ref No.	Reported Date				
CLASS ACTIONS							
CASH & CASH EQUIVALENTS							
U.S. DOLLAR							
CD	0.000	04-cv-9866 (LTS)(HBP)Pfizer, I	6/30/2023	0.000000	30.01	30.01	30.01
	NA9123459	nc. (2004) Distribution 4TH DI		0.000000	30.01	30.01	30.01
		20230630S000460 / 000000008745	6/30/2023				
		KR3F19020002 : S&P 500 INDEX					Gain/Loss Local Amounts: 30.01 Long Gain/Loss Base Amounts: 30.01 Long
CD	0.000	24274NAVIENT CORPORATION Secur	7/5/2023	0.000000	1,806.65	1,806.65	1,806.65
	NA9123459	ities Litigation Distribution		0.000000	1,806.65	1,806.65	1,806.65
		20230705S000020 / 000000000009	7/5/2023				
		KR3F30060002 : LOOMIS					Gain/Loss Local Amounts: 1,806.65 Long Gain/Loss Base Amounts: 1,806.65 Long
CD	0.000	24274NAVIENT CORPORATION Secur	7/5/2023	0.000000	2,301.85	2,301.85	2,301.85
	NA9123459	ities Litigation Distribution		0.000000	2,301.85	2,301.85	2,301.85
		20230705S000110 / 000000000009	7/5/2023				
		KR3F19020002 : S&P 500 INDEX					Gain/Loss Local Amounts: 2,301.85 Long Gain/Loss Base Amounts: 2,301.85 Long
CD	0.000	2-17-CV-3711-TJSEndo Internati	7/12/2023	0.000000	840.14	840.14	840.14
	NA9123459	onal plc (2017) (E.D. Pa.) Dis		0.000000	840.14	840.14	840.14
		20230712S000010 / 000000000000	7/12/2023				
		KR3F90010002 : CASH ACCOUNT KR3					Gain/Loss Local Amounts: 840.14 Long Gain/Loss Base Amounts: 840.14 Long
CD	0.000	2-17-CV-3711-TJSEndo Internati	7/14/2023	0.000000	439.94	439.94	439.94
	NA9123459	onal plc (2017) (E.D. Pa.) Dis		0.000000	439.94	439.94	439.94
		20230717S000040 / 000000000000	7/14/2023				
		KR3F90010002 : CASH ACCOUNT KR3					Gain/Loss Local Amounts: 439.94 Long Gain/Loss Base Amounts: 439.94 Long
CD	0.000	25914DEUTSCHE BANK AKTIENGESEL	7/19/2023	0.000000	3,218.96	3,218.96	3,218.96
	NA9123459	LSCHAFT, Securities Litigation		0.000000	3,218.96	3,218.96	3,218.96
		20230719S000010 / 000000006051	7/19/2023				
		KR3F20070002 : LSV ASSET MGMT					Gain/Loss Local Amounts: 3,218.96 Long Gain/Loss Base Amounts: 3,218.96 Long



Transaction Detail
Reported By Transaction Category

Report ID: IACS0008

Base Currency: USD

KR3G0000000 - TOTAL FUND

6/30/2023 - 9/30/2023

Status: PRELIMINARY

Trans Code	Shares/Par	Description	Trade Date	Price	Cost	Amount	Net Gain/Loss
Link Ref	Security Id	Broker	C. Settle Date	Local/Base	Local/Base	Local/Base	Local/Base
		Transaction No./Client Ref No.	Reported Date				
CD	0.000	20479MICROCHIP TECHNOLOGY INC. NA9123459 , Securities Litigation Distri 20230724S000040 / 000000006040 KR3F90010002 : CASH ACCOUNT KR3	7/24/2023 7/24/2023	0.000000 0.000000	2,641.97 2,641.97	2,641.97 2,641.97	2,641.97 2,641.97
						Gain/Loss Local Amounts: 2,641.97 Long Gain/Loss Base Amounts: 2,641.97 Long	
CD	0.000	18145HD SUPPLY HOLDINGS, INC. NA9123459 Distribution 2ND DISTRIBUTION 20230725S000020 / 000000000008 KR3F10060002 : WESTFIELD CAPITAL	7/25/2023 7/25/2023	0.000000 0.000000	55.50 55.50	55.50 55.50	55.50 55.50
						Gain/Loss Local Amounts: 55.50 Long Gain/Loss Base Amounts: 55.50 Long	
CD	0.000	15861VALEANT PHARMACEUTICALS I NA9123459 NTERNATIONAL, INC., Securities 20230725S000140 / 000000000003 KR3F30070002 : COLUMBIA	7/25/2023 7/25/2023	0.000000 0.000000	4,763.88 4,763.88	4,763.88 4,763.88	4,763.88 4,763.88
						Gain/Loss Local Amounts: 4,763.88 Long Gain/Loss Base Amounts: 4,763.88 Long	
CD	0.000	23064LIBERTY OILFIELD SERVICES NA9123459 INC Securities Litigation Dis 20230815S000370 / 000000000000 KR3F10020002 : NTGI STRUCTURED	8/15/2023 8/15/2023	0.000000 0.000000	29.76 29.76	29.76 29.76	29.76 29.76
						Gain/Loss Local Amounts: 29.76 Long Gain/Loss Base Amounts: 29.76 Long	
CD	0.000	19486TEVA PHARMACEUTICAL INDUS NA9123459 TRIES LIMITED Securities Litig 20230818S000470 / 000000000006 KR3F30080002 : NISA	8/18/2023 8/18/2023	0.000000 0.000000	162.31 162.31	162.31 162.31	162.31 162.31
						Gain/Loss Local Amounts: 162.31 Long Gain/Loss Base Amounts: 162.31 Long	
CD	0.000	25093SCANA CORPORATION Securit NA9123459 ies Litigation Distribution 1S 20230825S000170 / 000000000000 KR3F19020002 : S&P 500 INDEX	8/25/2023 8/25/2023	0.000000 0.000000	2,431.71 2,431.71	2,431.71 2,431.71	2,431.71 2,431.71
						Gain/Loss Local Amounts: 2,431.71 Long Gain/Loss Base Amounts: 2,431.71 Long	
CD	0.000	VALEANT PHARMACEUTICALS INTL NA9123459 INC (2015) SEC LIT PROCEEDS 20230831A000010 KR3F90010002 : CASH ACCOUNT KR3	8/25/2023 8/25/2023	0.000000 0.000000	8,621.97 8,621.97	8,621.97 8,621.97	8,621.97 8,621.97
						Gain/Loss Local Amounts: 8,621.97 Long Gain/Loss Base Amounts: 8,621.97 Long	



Transaction Detail
Reported By Transaction Category

Report ID: IACS0008

Base Currency: USD

KR3G00000000 - TOTAL FUND

6/30/2023 - 9/30/2023

Status: PRELIMINARY

Trans Code	Shares/Par	Description	Trade Date	Price	Cost	Amount	Net Gain/Loss
Link Ref	Security Id	Broker	C. Settle Date	Local/Base	Local/Base	Local/Base	Local/Base
		Transaction No./Client Ref No.	Reported Date				
CD	0.000	VALEANT PHARMACEUTICALS INTL	8/25/2023	0.000000	67.91	67.91	67.91
	NA9123459	INC (2015) SEC LIT PROCEEDS		0.000000	67.91	67.91	67.91
		20230831A000020	8/25/2023				
		KR3F90010002 : CASH ACCOUNT KR3					Gain/Loss Local Amounts: 67.91 Long Gain/Loss Base Amounts: 67.91 Long
CD	0.000	1-18-cv-01428-MKB-VMSHENRY SCH	9/7/2023	0.000000	267.01	267.01	267.01
	NA9123459	EIN, INC. Distribution 2ND DIS		0.000000	267.01	267.01	267.01
		20230907S000200 / 000000000000	9/7/2023				
		KR3F10110002 : KRS INTERNAL EQUITY					Gain/Loss Local Amounts: 267.01 Long Gain/Loss Base Amounts: 267.01 Long
TOTAL U.S. DOLLAR CASH & CASH EQUIVALENTS:					<u>27,679.57</u>	<u>27,679.57</u>	<u>27,679.57</u>
					27,679.57	27,679.57	27,679.57
TOTAL CASH & CASH EQUIVALENTS CLASS ACTIONS:					<u>27,679.57</u>	<u>27,679.57</u>	<u>27,679.57</u>
TOTAL CLASS ACTIONS:					27,679.57	27,679.57	27,679.57
TOTAL TRANSACTIONS BASE:					<u>27,679.57</u>	<u>27,679.57</u>	<u>27,679.57</u>

County Employees Retirement System

Capital Calls and Distributions

Quarter Ending: September 30, 2023

**Kentucky Public Pensions Authority
Capital Calls and Distributions
For the period July 1, 2023 thru September 30, 2023**

Pension Funds Managers	Total Pension Fund Commitment	County Employees Retirement System					County Employees Hazardous Retirement System				
		Commitment	Beginning Valuation	Period Contributions	Period Distributions	Ending Valuation	Commitment	Beginning Valuation	Period Contributions	Period Distributions	Ending Valuation
Adams Street SPC II A1	175,000,000	97,124,912	80,937,595	0	2,670,930	78,266,665	32,749,407	27,291,230	0	900,607	26,390,622
Adams Street SPC II B1	175,000,000	97,124,911	79,077,584	0	2,109,057	76,968,526	32,749,407	26,664,055	0	711,150	25,952,905
AMERRA Agri Fund II, LP	40,100,000	27,641,371	16,787,038	0	144,578	16,642,460	8,727,285	5,300,217	0	45,648	5,254,569
AMERRA-KRS Agri Holding Company, LP	65,000,000	44,805,214	25,876,615	0	1,439,602	24,437,013	14,146,472	8,170,094	0	454,529	7,715,565
Arcano KRS Fund I, L.P.	36,000,000	15,587,717	7,278,370	0	0	7,278,370	4,852,329	2,265,697	0	0	2,265,697
Arctos Sports Partners Fund II	85,000,000	42,000,000	5,077,267	5,380,616	0	10,457,883	18,000,000	2,175,972	2,305,978	0	4,481,950
Ares Special Situations Fund IV, L.P.	26,192,000	17,935,797	13,039,673	0	198,892	12,840,781	6,121,833	4,450,692	0	67,886	4,382,806
Barings Euro Real Estate II	157,489,063	88,603,348	17,105,941	0	0	16,600,289	28,017,299	5,409,076	0	0	5,249,184
Barings Real Estate European Value Add I SCSp	111,168,750	62,543,540	8,621,753	952,812	0	9,320,021	19,776,917	2,726,288	301,289	0	2,947,087
Bay Hills Capital I, L.P.	67,500,000	29,226,970	2,253,720	0	0	2,253,720	9,098,116	701,565	0	0	701,565
Bay Hills Capital III, L.P.	51,250,000	35,095,051	36,158,030	0	0	36,158,030	11,978,618	12,341,433	0	0	12,341,433
Bay Hills Emerging Partners II LP	45,000,000	19,484,647	42,509,357	0	0	42,509,357	6,065,411	13,232,815	0	0	13,232,815
Bay Hills Emerging Partners II-B LP	45,000,000	19,484,647	28,358,486	0	0	28,358,486	6,065,411	8,827,764	0	0	8,827,764
BDCM Opportunity Fund IV, L.P.	35,580,000	24,364,524	44,677,663	0	3,047,040	41,630,622	8,316,082	15,249,348	0	1,040,014	14,209,334
Blackstone Capital Partners V, L.P.	47,174,735	20,426,290	20,003	0	0	20,003	6,358,537	6,227	0	0	6,227
Blackstone Capital Partners VI, L.P.	60,000,000	38,220,311	13,519,387	0	880,672	12,638,715	18,479,695	6,536,685	0	425,809	6,110,876
Blue Torch Credit Opportunities Fund II LP	140,000,000	77,659,705	80,856,192	0	7,727,334	73,128,858	26,221,374	27,300,650	0	2,609,092	24,691,558
BSP Co-Invest Vehicle K LP			22,759,352	0	413,370	22,345,982	0	7,537,983	0	136,910	7,401,073
BSP Private Credit Fund	100,000,000	58,940,485	54,525,943	0	1,249,367	53,276,577	19,521,309	18,059,196	0	413,795	17,645,401
BTG Pactual Brazil Timberland Fund I	34,500,000	23,847,150	19,642,411	0	0	19,642,411	7,642,335	6,294,836	0	0	6,294,836
Camelot Opportunities Fund, L.P.	23,400,000	10,132,016	2,919,833	0	0	2,919,833	3,154,014	908,920	0	0	908,920
Cerberus KRS Levered Loan Opportunities Fund, L.P.	140,000,000	82,516,679	109,569,263	0	0	111,211,715	27,329,832	36,289,749	0	0	36,833,735
Ceres Farms	100,000,000										
Columbia Captal Equity Partners IV, L.P.	27,000,000	11,690,788	1,332,335	0	0	1,332,335	3,639,247	414,745	0	0	414,745
Crestview Partners II, L.P.	67,500,000	29,226,970	14,989,371	111,320	796,336	14,304,355	9,098,116	4,666,068	34,653	247,893	4,452,828
Crestview Partners III, L.P.	39,000,000	26,706,479	23,053,309	0	0	23,053,309	9,115,436	7,868,539	0	0	7,868,539
CS Adjacent Investment Partners Parallel LP	140,000,000	82,516,679	52,441,696	4,916,734	15,980,218	41,378,213	27,329,832	17,368,886	1,628,441	5,292,708	13,704,619
CVC European Equity Partners VI, L.P.	23,208,615	15,892,830	14,964,563	53,056	105,754	14,469,755	5,424,529	5,107,694	18,109	36,096	4,938,806
DAG Ventures II, L.P.	27,000,000	11,690,788	987,889	0	0	987,889	3,639,247	307,522	0	0	307,522
DAG Ventures III, L.P.	27,000,000	11,690,788	139,291	0	0	139,291	3,639,247	43,360	0	0	43,360
DAG Ventures IV, L.P.	90,000,000	38,969,294	9,025,944	0	0	9,025,944	12,130,822	2,809,703	0	0	2,809,703
DAG Ventures V, L.P.	8,000,000	5,096,042	25,437	0	16,397	9,040	2,463,959	12,299	0	7,928	4,371
DCM VI, L.P.	13,500,000	5,845,394	1,556,355	0	278,863	1,277,492	1,819,623	484,481	0	86,808	397,673
DivcoWest Fund IV	20,800,000	14,568,740	704,585	0	0	704,585	4,539,761	219,556	0	0	219,556
Fundamental Partners III LP	70,000,000	39,382,001	34,696,168	0	396,596	34,299,572	12,452,997	10,971,289	0	125,408	10,845,881
Green Equity Investors V, L.P.	90,000,000	38,969,294	573,273	0	0	573,273	12,130,822	178,455	0	0	178,455
Green Equity Investors VI, L.P.	32,000,000	20,384,166	23,629,196	778,171	23,429	24,383,938	9,855,837	11,424,824	376,249	11,328	11,789,745
Green Equity Investors VII LP	25,000,000	17,900,000	22,484,599	1,476,912	2,842,145	21,119,366	5,575,000	7,002,885	459,988	885,193	6,577,680
Greenfield Acquisition Partners VII, L.P.	27,800,000	19,471,678	1,442,862	0	109,973	1,332,889	6,067,572	449,610	0	34,269	415,342
H.I.G. BioVentures II, L.P.	13,500,000	8,599,570	5,809,794	0	1,581,374	4,228,421	4,157,931	2,809,062	0	764,601	2,044,461
H.I.G. Capital Partner V, L.P.	13,100,000	8,970,638	6,993,705	0	1,440,346	5,553,359	3,061,852	2,387,086	0	491,618	1,895,468
H.I.G. Ventures II, L.P.	18,000,000	7,793,859	1,172,483	0	0	1,172,483	2,426,164	364,984	0	0	364,984
H&F Spock I LP	3,250,153	1,407,291	4,534,079	0	0	4,534,079	438,078	1,411,422	0	0	1,411,422
Harvest Partners VI, L.P.	28,400,000	20,768,921	3,837,845	0	0	3,837,845	5,782,239	1,068,488	0	0	1,068,488
Harvest Partners VII LP	20,000,000	14,320,000	20,184,307	0	0	20,184,307	4,460,000	6,286,453	0	0	6,286,453

**Kentucky Public Pensions Authority
Capital Calls and Distributions
For the period July 1, 2023 thru September 30, 2023**

Pension Funds Managers	Total Pension Fund Commitment	County Employees Retirement System					County Employees Hazardous Retirement System				
		Commitment	Beginning Valuation	Period Contributions	Period Distributions	Ending Valuation	Commitment	Beginning Valuation	Period Contributions	Period Distributions	Ending Valuation
Hellman and Friedman Capital Partners VI, L.P.	20,000,000	8,659,843	132	0	0	132	2,695,738	41	0	0	41
Horsley Bridge International Fund V, L.P.	45,000,000	19,484,647	39,794,415	0	1,450,496	38,343,919	6,065,411	12,387,675	0	451,527	11,936,148
IFM US Infrastructure Debt Fund	70,000,000	39,669,146	39,669,303	2,783,608	2,783,608	39,669,303	13,660,943	13,660,997	958,597	958,597	13,660,997
Institutional Venture Partners XII, L.P.	27,000,000	11,690,788	2,214	0	0	2,214	3,639,247	689	0	0	689
Kayne Anderson Energy Fund VII LP	50,000,000	35,800,000	19,415,352	117,332	296,750	19,235,934	11,150,000	6,046,960	36,543	92,423	5,991,080
KCP IV Co-Invest	12,556,775	8,598,647	1,679,010	0	0	1,629,379	2,934,884	573,079	0	0	556,138
Keyhaven Capital Partners Fund III, L.P.	26,714,582	11,567,204	4,040,425	0	0	3,920,990	3,600,776	1,257,751	0	0	1,220,572
Keyhaven Capital Partners IV LP	12,556,775	8,598,647	8,308,222	0	0	8,062,631	2,934,884	2,835,757	0	0	2,751,931
Levine Leichtman Capital Partners V, L.P.	46,000,000	31,499,949	11,449,717	58,093	24,279	11,483,531	10,751,540	3,908,009	19,828	8,287	3,919,550
Levine Leichtman Capital Partners VI LP	37,500,000	26,849,987	37,127,679	781,491	155,693	37,753,477	8,362,509	11,563,526	243,398	48,491	11,758,433
Lubert Adler VII	34,750,000	24,338,900	12,310,991	0	867,735	11,443,256	7,585,925	3,837,078	0	270,455	3,566,623
Lubert-Adler Real Estate Fund VII-B LP	36,750,000	20,675,550	5,967,259	0	0	5,967,259	6,537,824	1,886,909	0	0	1,886,909
Magentar MTP Energy Opportunities Fund II LLC	37,500,000	26,265,000	96,028	0	0	96,028	8,186,251	29,930	0	0	29,930
Maritime Partners LP	175,000,000										
MatlinPatterson Global Opportunities Partners II	45,000,000	19,484,647	296,390	0	97,250	199,140	6,065,411	92,264	0	30,273	61,991
MatlinPatterson Global Opportunities Partners III	45,000,000	19,484,647	4,803	0	4,481	323	6,065,411	1,495	0	1,395	100
Merit Mezzanine Fund IV, L.P.	27,000,000	11,690,788	173,373	0	0	173,373	3,639,247	53,970	0	0	53,970
Mesa West Core Lending Fund, LP	57,500,000	36,357,250	36,106,009	735,140	735,140	36,106,009	11,459,750	11,380,559	231,715	231,715	11,380,559
Mesa West Real Estate Income Fund IV LP	36,000,000	15,587,717	6,449,781	0	0	6,449,781	4,852,329	2,007,764	0	0	2,007,764
MiddleGround Partners I LP	50,000,000	35,875,000	62,913,822	3,813,099	1,635,447	64,754,428	11,200,000	19,641,388	1,190,431	510,578	20,216,017
MiddleGround Partners II LP	50,000,000	27,301,556	27,346,247	3,070,660	311,413	30,228,773	9,256,264	9,271,416	1,041,070	105,581	10,248,702
MiddleGround Partners II-X LP	25,000,000	13,650,778	13,579,188	2,297,808	124,722	15,782,929	4,628,132	4,603,860	779,044	42,286	5,351,012
Mill Road Capital I, L.P.	27,000,000	11,690,788	755,421	0	0	755,421	3,639,247	235,156	0	0	235,156
New Mountain Partners III, L.P.	32,337,197	14,001,752	701,569	0	0	701,569	4,358,631	218,393	0	0	218,393
New Mountain Partners IV, L.P.	32,800,000	22,460,833	7,706,873	0	0	7,706,873	7,666,315	2,630,504	0	0	2,630,504
New State Capital Partners Fund III LP	17,500,000	9,555,545	1,896,705	298,286	0	2,194,991	3,239,692	643,055	101,130	0	744,185
Oak Hill Capital Partners II, L.P.	67,500,000	29,226,970	67,348	0	0	67,348	9,098,116	20,965	0	0	20,965
Oberland Capital Healthcare LP	3,450,000	2,475,375	4,374,993	0	0	4,374,993	772,800	1,365,851	0	0	1,365,851
Patron Capital V LP	38,115,000	21,443,499	9,627,876	98,203	240,800	9,200,876	6,780,657	3,044,434	31,053	76,143	2,909,412
Riverside Capital Appreciation Fund VI, L.P.	35,500,000	25,961,146	8,266,130	0	0	8,266,130	7,227,806	2,301,361	0	0	2,301,361
Rubenstein Properties Fund II	20,800,000	14,568,738	5,489,125	1,923,639	0	7,412,765	4,539,767	1,710,467	599,426	0	2,309,893
Secondary Opportunities Fund III, L.P.	25,000,000	19,411,552	4,263,514	0	228,802	4,034,631	5,588,448	1,227,436	0	65,871	1,161,542
Strategic Value Special Situations Fund IV LP	43,300,000	31,067,750	38,231,122	0	23,951	38,207,171	9,699,200	11,935,570	0	7,477	11,928,092
Strategic Value Special Situations Fund V LP	70,000,000	38,222,178	22,178,486	-28,667	0	22,149,819	12,958,769	7,519,349	-9,719	0	7,509,630
Taurus Mining Finance Fund LLC	45,100,000	30,883,643	2,539,912	0	180,916	2,358,996	10,541,186	866,921	0	61,750	805,171
Tenaska Power Fund II, L.P.	27,000,000	12,131,225	34,924	0	0	34,924	4,055,317	11,675	0	0	11,675
Triton Fund IV, L.P.	26,637,009	18,240,531	9,202,451	0	0	8,930,426	6,225,845	3,140,974	0	0	3,048,127
VantagePoint Venture Partners 2006, L.P.	27,000,000	11,690,788	2,491,982	0	0	2,491,982	3,639,247	775,734	0	0	775,734
VantagePoint Venture Partners IV, L.P.	36,000,000	15,587,717	27,573	0	0	27,573	4,852,329	8,583	0	0	8,583
Vista Equity Partners III, L.P.	45,000,000	19,484,647	844,769	0	0	844,769	6,065,411	262,970	0	0	262,970
Vista Equity Partners IV, L.P.	27,000,000	17,199,140	12,522,760	63,284	0	12,586,044	8,315,863	6,054,812	30,598	0	6,085,410
Vista Equity Partners VI LP	25,000,000	17,900,000	24,043,918	0	4,219,300	19,824,618	5,575,000	7,488,539	0	1,314,112	6,174,427
Walton Street Real Estate Fund VI, LP	36,000,000	17,056,796	7,507,315	0	0	7,507,315	6,030,018	2,654,030	0	0	2,654,030
Walton Street Real Estate Fund VII, LP	38,120,000	26,700,008	5,695,901	29,227	446,997	5,278,131	8,319,997	1,774,901	9,107	139,289	1,644,720
Warburg, Pincus Private Equity IX, L.P.	50,000,000	21,649,608	24,292	0	0	24,292	6,739,345	7,562	0	0	7,562

**Kentucky Public Pensions Authority
Capital Calls and Distributions
For the period July 1, 2023 thru September 30, 2023**

Pension Funds Managers	Total Pension Fund Commitment	County Employees Retirement System					County Employees Hazardous Retirement System				
		Commitment	Beginning Valuation	Period Contributions	Period Distributions	Ending Valuation	Commitment	Beginning Valuation	Period Contributions	Period Distributions	Ending Valuation
Warburg, Pincus Private Equity X, L.P.	38,750,000	16,778,446	306,736	0	0	306,736	5,222,993	95,484	0	0	95,484
Wayzata Opportunities Fund II, L.P.	67,500,000	29,226,970	632	0	0	632	9,098,116	197	0	0	197
Wayzata Opportunities Fund III, L.P.	35,500,000	25,961,146	3,341,281	0	300,955	3,040,325	7,227,806	930,241	0	83,789	846,453
White Oak Yield Spectrum Parallel Fund LP	100,000,000	58,940,485	80,328,283	7,013,637	5,147,609	82,194,311	19,521,309	26,605,027	2,322,943	1,704,907	27,223,063

**Kentucky Public Pensions Authority
Capital Calls and Distributions
For the period July 1, 2023 thru September 30, 2023**

Insurance Funds Managers	Total Insurance Fund Commitment	County Employees Retirement System					County Employees Hazardous Retirement System				
		Commitment	Beginning Valuation	Period Contributions	Period Distributions	Ending Valuation	Commitment	Beginning Valuation	Period Contributions	Period Distributions	Ending Valuation
Adams Street SPC II A1	75,000,000	34,007,112	28,339,319	0	935,194	27,404,125	17,965,829	14,971,556	0	494,059	14,477,497
Adams Street SPC II B1	75,000,000	34,007,113	27,688,059	0	738,461	26,949,598	17,965,828	14,627,496	0	390,126	14,237,370
AMERRA Agri Fund II, LP	16,200,000	7,502,182	4,548,425	0	39,173	4,509,252	4,141,562	2,510,948	0	21,626	2,489,322
AMERRA-KRS Agri Holding Company, LP	35,000,000	16,208,417	9,360,941	0	520,780	8,840,161	8,947,820	5,167,687	0	287,496	4,880,191
Arcano KRS Fund I, L.P.	4,000,000	1,611,501	752,458	0	0	752,458	862,625	402,786	0	0	402,786
Arctos Sports Partners Fund II	40,000,000	20,500,000	2,478,190	2,626,254	0	5,104,444	7,000,000	846,211	896,770	0	1,742,981
Ares Special Situations Fund IV, L.P.	13,808,000	7,867,793	5,720,039	0	87,247	5,632,792	4,255,629	3,093,925	0	47,191	3,046,734
Barings Euro Real Estate II	67,495,313	30,993,850	5,983,735	0	0	5,806,855	17,008,815	3,283,756	0	0	3,186,688
Barings Real Estate European Value Add I SCSp	47,643,750	21,878,012	3,015,928	333,298	0	3,260,186	12,006,222	1,655,082	182,907	0	1,789,126
Bay Hills Capital I, L.P.	7,500,000	3,021,564	232,996	0	0	232,996	1,617,422	124,721	0	0	124,721
Bay Hills Capital III, L.P.	48,750,000	27,777,730	25,739,773	0	0	25,739,773	15,024,764	13,922,448	0	0	13,922,448
Bay Hills Emerging Partners II LP	5,000,000	2,014,376	4,394,733	0	0	4,394,733	1,078,282	2,352,470	0	0	2,352,470
Bay Hills Emerging Partners II-B LP	5,000,000	2,070,000	3,012,734	0	0	3,012,734	1,250,000	1,819,284	0	0	1,819,284
BDCM Opportunity Fund IV, L.P.	24,420,000	13,914,506	25,515,285	0	1,740,155	23,775,130	7,526,253	13,801,029	0	941,237	12,859,792
Blackstone Capital Partners V, L.P.	12,414,403	5,001,455	4,785	0	0	4,785	2,677,245	2,561	0	0	2,561
Blackstone Capital Partners VI, L.P.	40,000,000	21,919,994	7,753,599	0	505,080	7,248,519	13,120,008	4,640,845	0	302,311	4,338,533
Blue Torch Credit Opportunities Fund II LP	60,000,000	27,169,450	28,287,750	0	2,703,428	25,584,322	14,281,092	14,868,904	0	1,421,004	13,447,900
BSP Co-Invest Vehicle K LP			7,916,936	0	135,424	7,781,512		4,317,821	0	73,859	4,243,962
BSP Private Credit Fund	50,000,000	22,344,255	20,670,708	0	473,633	20,197,075	12,186,342	11,273,605	0	258,315	11,015,290
BTG Pactual Brazil Timberland Fund I	15,500,000	7,016,381	5,779,250	0	0	5,779,250	3,855,131	3,175,393	0	0	3,175,393
Camelot Opportunities Fund, L.P.	2,600,000	1,047,475	301,858	0	0	301,858	560,706	161,583	0	0	161,583
Cerberus KRS Levered Loan Opportunities Fund, L.P.	60,000,000	26,813,106	35,603,618	0	0	36,137,319	14,623,610	19,417,871	0	0	19,708,946
Ceres Farms	50,000,000										
Columbia Capital Equity Partners IV, L.P.	3,000,000	1,208,626	137,741	0	0	137,741	646,969	73,732	0	0	73,732
Crestview Partners II, L.P.	7,500,000	3,021,564	1,549,633	11,509	82,327	1,478,815	1,617,422	829,508	6,160	44,069	791,599
Crestview Partners III, L.P.	21,000,000	11,965,793	10,328,993	0	0	10,328,993	6,472,206	5,586,873	0	0	5,586,873
CS Adjacent Investment Partners Parallel LP	60,000,000	26,813,106	17,040,492	1,597,652	5,192,639	13,445,505	14,623,610	9,293,720	871,344	2,832,015	7,333,049
CVC European Equity Partners VI, L.P.	12,811,087	7,299,752	6,579,533	23,328	46,497	6,361,979	3,948,381	3,558,820	12,618	25,150	3,441,146
DAG Ventures II, L.P.	3,000,000	1,208,626	102,127	0	0	102,127	646,969	54,668	0	0	54,668
DAG Ventures III, L.P.	3,000,000	1,208,626	14,395	0	0	14,395	646,969	7,706	0	0	7,706
DAG Ventures IV, L.P.	10,000,000	4,028,752	933,127	0	0	933,127	2,156,563	499,496	0	0	499,496
DAG Ventures V, L.P.	7,000,000	3,835,999	19,143	0	12,343	6,800	2,296,001	11,458	0	7,388	4,070
DCM VI, L.P.	1,500,000	604,313	160,901	0	28,830	132,071	323,484	86,129	0	15,432	70,697
DivcoWest Fund IV	9,200,000	4,244,869	205,296	0	0	205,296	2,306,449	111,547	0	0	111,547
Fundamental Partners III LP	30,000,000	13,776,001	12,136,879	0	138,731	11,998,148	7,559,998	6,660,480	0	76,133	6,584,348
Green Equity Investors V, L.P.	10,000,000	4,028,752	59,267	0	0	59,267	2,156,563	31,725	0	0	31,725
Green Equity Investors VI, L.P.	28,000,000	15,343,995	17,786,669	585,761	17,636	18,354,794	9,184,005	10,646,045	350,602	10,556	10,986,091
Green Equity Investors VII LP	25,000,000	10,349,999	13,000,870	853,968	1,643,363	12,211,476	6,250,000	7,850,768	515,682	992,369	7,374,081
Greenfield Acquisition Partners VII, L.P.	12,200,000	5,628,527	417,077	0	31,789	385,288	3,058,186	226,613	0	17,272	209,341
H.I.G. BioVentures II, L.P.	11,500,000	6,301,998	4,257,575	0	1,158,873	3,098,701	3,772,002	2,548,332	0	693,633	1,854,699
H.I.G. Capital Partner V, L.P.	6,900,000	3,931,617	3,065,175	0	631,270	2,433,906	2,126,582	1,657,930	0	341,449	1,316,481
H.I.G. Ventures II, L.P.	2,000,000	805,750	121,214	0	0	121,214	431,313	64,885	0	0	64,885
H&F Spock I LP	1,794,672	723,029	1,582,015	0	0	1,582,015	387,032	846,842	0	0	846,842
Harvest Partners VI, L.P.	11,600,000	6,609,681	1,221,390	0	0	1,221,390	3,575,121	660,640	0	0	660,640
Harvest Partners VII LP	20,000,000	8,279,999	11,670,813	0	0	11,670,813	5,000,000	7,047,594	0	0	7,047,594

**Kentucky Public Pensions Authority
Capital Calls and Distributions
For the period July 1, 2023 thru September 30, 2023**

Insurance Funds Managers	Total Insurance Fund Commitment	County Employees Retirement System					County Employees Hazardous Retirement System				
		Commitment	Beginning Valuation	Period Contributions	Period Distributions	Ending Valuation	Commitment	Beginning Valuation	Period Contributions	Period Distributions	Ending Valuation
Hellman and Friedman Capital Partners VI, L.P.	7,500,000	3,021,564	46	0	0	46	1,617,422	25	0	0	25
Horsley Bridge International Fund V, L.P.	5,000,000	2,014,376	4,114,056	0	149,956	3,964,100	1,078,282	2,202,226	0	80,271	2,121,955
IFM US Infrastructure Debt Fund	30,000,000	13,890,494	13,890,549	974,705	974,705	13,890,549	7,156,853	7,156,881	502,201	502,201	7,156,881
Institutional Venture Partners XII, L.P.	3,000,000	1,208,626	229	0	0	229	646,969	122	0	0	122
Kayne Anderson Energy Fund VII LP	50,000,000	20,699,998	11,226,194	67,843	171,584	11,122,453	12,500,001	6,779,104	40,968	103,614	6,716,458
KCP IV Co-Invest	8,618,225	4,910,661	958,878	0	0	930,533	2,656,140	518,650	0	0	503,318
Keyhaven Capital Partners Fund III, L.P.	2,964,500	1,194,323	417,710	0	0	405,363	639,313	223,597	0	0	216,988
Keyhaven Capital Partners IV LP	8,618,225	4,910,661	4,744,800	0	0	4,604,544	2,656,140	2,566,427	0	0	2,490,564
Levine Leichtman Capital Partners V, L.P.	24,000,000	13,675,190	4,970,709	25,220	10,540	4,985,389	7,396,807	2,688,619	13,641	5,701	2,696,559
Levine Leichtman Capital Partners VI LP	37,500,000	15,525,007	21,454,693	451,868	90,024	21,816,537	9,374,983	12,955,704	272,867	54,362	13,174,208
Lubert Adler VII	15,250,000	7,036,350	3,559,093	0	250,861	3,308,232	3,823,174	1,933,820	0	136,305	1,797,515
Lubert-Adler Real Estate Fund VII-B LP	15,750,000	7,232,401	2,087,374	0	0	2,087,374	3,968,999	1,145,510	0	0	1,145,510
Magentar MTP Energy Opportunities Fund II LLC	12,500,000	5,764,587	21,076	0	0	21,076	3,188,762	11,658	0	0	11,658
Maritime Partners LP	75,000,000										
MatlinPatterson Global Opportunities Partners II	5,000,000	2,014,376	30,641	0	10,054	20,587	1,078,282	16,402	0	5,382	11,020
MatlinPatterson Global Opportunities Partners III	5,000,000	2,014,376	497	0	464	33	1,078,282	266	0	248	18
Merit Mezzanine Fund IV, L.P.	3,000,000	1,208,626	17,924	0	0	17,924	646,969	9,595	0	0	9,595
Mesa West Core Lending Fund, LP	29,600,000	13,790,640	20,262,032	412,564	412,564	20,262,032	7,619,040	11,194,348	227,933	227,933	11,194,348
Mesa West Real Estate Income Fund IV LP	14,000,000	6,428,800	2,660,066	0	0	2,660,066	3,527,999	1,459,792	0	0	1,459,792
MiddleGround Partners I LP	25,000,000	3,750,000	6,576,359	398,582	170,953	6,768,757	1,999,999	3,507,390	212,577	91,175	3,610,002
MiddleGround Partners II LP	25,000,000	11,262,207	11,280,643	1,266,683	128,461	12,469,718	5,794,817	5,804,303	651,755	66,098	6,416,125
MiddleGround Partners II-X LP	12,500,000	5,631,103	5,601,570	947,872	51,449	6,510,639	2,897,408	2,882,212	487,715	26,473	3,349,961
Mill Road Capital I, L.P.	3,000,000	1,208,626	78,097	0	0	78,097	646,969	41,805	0	0	41,805
New Mountain Partners III, L.P.	7,186,045	2,895,079	145,060	0	0	145,060	1,549,716	77,649	0	0	77,649
New Mountain Partners IV, L.P.	17,200,000	9,800,553	3,362,810	0	0	3,362,810	5,301,045	1,818,918	0	0	1,818,918
New State Capital Partners Fund III LP	7,500,000	3,378,662	670,640	105,472	0	776,112	1,738,445	345,069	54,269	0	399,338
Oak Hill Capital Partners II, L.P.	7,500,000	3,021,564	6,963	0	0	6,963	1,617,422	3,727	0	0	3,727
Oberland Capital Healthcare LP	15,500,000	4,840,652	855,539	0	0	855,539	2,631,898	465,163	0	0	465,163
Patron Capital V LP	14,822,500	6,806,493	3,056,088	31,171	76,434	2,920,550	3,735,269	1,677,121	17,106	41,945	1,602,740
Riverside Capital Appreciation Fund VI, L.P.	18,712,500	10,748,972	3,422,480	0	0	3,422,480	5,705,349	1,816,587	0	0	1,816,587
Rubenstein Properties Fund II	9,200,000	4,244,871	1,599,358	560,488	0	2,159,846	2,306,445	869,009	304,540	0	1,173,549
Secondary Opportunities Fund III, L.P.	75,000,000	34,884,827	7,662,033	0	411,185	7,250,703	18,849,301	4,140,022	0	222,175	3,917,769
Strategic Value Special Situations Fund IV LP	21,700,000	6,776,910	8,339,469	0	5,225	8,334,244	3,684,660	4,534,236	0	2,841	4,531,395
Strategic Value Special Situations Fund V LP	30,000,000	13,514,648	7,841,895	-10,136	0	7,831,759	6,953,780	4,034,941	-5,215	0	4,029,726
Taurus Mining Finance Fund LLC	19,900,000	11,339,013	932,535	0	66,424	866,111	6,133,188	504,401	0	35,928	468,473
Tenaska Power Fund II, L.P.	3,000,000	1,278,755	3,682	0	0	3,682	678,044	1,952	0	0	1,952
Triton Fund IV, L.P.	13,704,460	7,808,796	4,036,311	0	0	3,916,997	4,223,718	2,183,210	0	0	2,118,674
VantagePoint Venture Partners 2006, L.P.	3,000,000	1,208,626	257,628	0	0	257,628	646,969	137,907	0	0	137,907
VantagePoint Venture Partners IV, L.P.	4,000,000	1,611,501	2,851	0	0	2,851	862,625	1,526	0	0	1,526
Vista Equity Partners III, L.P.	5,000,000	2,014,376	87,337	0	0	87,337	1,078,282	46,751	0	0	46,751
Vista Equity Partners IV, L.P.	23,000,000	12,603,996	9,177,019	46,376	0	9,223,395	7,544,005	5,492,819	27,758	0	5,520,577
Vista Equity Partners VI LP	25,000,000	10,349,999	13,902,488	0	2,439,651	11,462,837	6,250,000	8,395,223	0	1,473,219	6,922,004
Walton Street Real Estate Fund VI, LP	4,000,000	1,712,019	753,521	0	0	753,521	917,457	403,806	0	0	403,806
Walton Street Real Estate Fund VII, LP	16,755,000	7,730,005	1,649,039	8,462	129,411	1,528,088	4,199,996	895,983	4,598	70,314	830,267
Warburg, Pincus Private Equity IX, L.P.	10,000,000	4,028,752	4,521	0	0	4,521	2,156,563	2,420	0	0	2,420

**Kentucky Public Pensions Authority
Capital Calls and Distributions
For the period July 1, 2023 thru September 30, 2023**

Insurance Funds Managers	Total Insurance Fund Commitment	County Employees Retirement System					County Employees Hazardous Retirement System				
		Commitment	Beginning Valuation	Period Contributions	Period Distributions	Ending Valuation	Commitment	Beginning Valuation	Period Contributions	Period Distributions	Ending Valuation
Warburg, Pincus Private Equity X, L.P.	7,500,000	3,021,564	55,215	0	0	55,215	1,617,422	29,556	0	0	29,556
Wayzata Opportunities Fund II, L.P.	7,500,000	3,021,564	65	0	0	65	1,617,422	35	0	0	35
Wayzata Opportunities Fund III, L.P.	18,712,500	10,748,972	1,383,426	0	124,608	1,258,819	5,705,349	734,296	0	66,139	668,157
White Oak Yield Spectrum Parallel Fund LP	50,000,000	22,344,255	28,663,637	2,502,456	1,836,660	29,329,433	12,186,342	15,632,872	0	1,001,697	15,995,991

Kentucky Public Pensions Authority

Commissions Report

Quarter Ending: September 30, 2023

Reports can be found:

<https://kyret.ky.gov/Investments/Investments-Library/Pages/Commissions-Reports.aspx>

Kentucky Public Pensions Authority

Internal Asset Holdings Report & Internal Asset Transaction Report

Quarter Ending: September 30, 2023

Reports can be found:

<https://kyret.ky.gov/Investments/Investments-Library/Pages/Internal-Reports.aspx>



PROPOSED RECURRING MEETING SCHEDULE

BY MONTH		2024 CERS	BY COMMITTEE	
MONTH	MEETINGS		COMMITTEE	SCHEDULE
January	Personnel – 2 nd Tuesday Training – 3 rd Wednesday	Jan 9 – Personnel Jan 17 – Trustee Training	Actuarial	Feb – 2 nd Wednesday April – 2 nd Wednesday October – 4 th Wednesday
February	Actuarial – 2 nd Wednesday Healthcare – 3 rd Thursday Finance – 3 rd Monday Investment – 4 th Wednesday	Feb 14 – Actuarial Feb 15 – Retiree Health Feb 19 – Finance Feb 28 -- Investment	Finance	Feb – 3 rd Monday May – 3 rd Monday August – 3 rd Monday November – 4 th Monday
March	Board – 2 nd Monday	Mar 11 – Board	Investment	Feb – 4 th Wednesday May – 4 th Wednesday August – 4 th Wednesday November – 4 th Tuesday
April	Actuarial – 2 nd Wednesday Board (Annual) – 2 nd Monday	April 8 – Annual Meeting April 10 – Actuarial	Legislative	July – 4 th Monday August – 4 th Monday
May	Healthcare – 2 nd Wednesday Finance – 3 rd Monday Investment – 4 th Wednesday	May 8 – Retiree Health May 20 – Finance May 22 -- Investment	Personnel	Jan – 2 nd Tuesday June – 2 nd Tuesday
June	Personnel – 2 nd Tuesday Board – 2 nd Monday	June 4 – Personnel June 10 – Board	Joint Retiree Health Care	Feb – 3 rd Thursday May – 2 nd Wednesday September – 1 st Tuesday October – 3 rd Monday
July	Trustee Training – 3 rd Wednesday Legislative – 4 th Monday	July 17 – Trustee Training July 29 – Legislative	Board of Trustees	March – 2 nd Monday April – 2 nd Monday June – 2 nd Monday Sept – 2 nd Monday Nov – 1 st Monday December – 1 st Monday
August	Finance – 3 rd Monday Legislative – 4 th Monday Investment – 4 th Wednesday	Aug 19 – Finance Aug 26 – Legislative Aug 28 -- Investment	Trustee Training	Jan – 3 rd Wednesday July – 3 rd Wednesday October – 3 rd Wednesday
September	Healthcare – 1 st Tuesday Board – 2 nd Monday	Sept 3 – Retiree Health Sept 9 – Board		
October	Trustee Training – 3 rd Wednesday Healthcare – 3 rd Monday Actuarial – 4 th Wednesday	Oct 16 – Trustee Training Oct 21 – Retiree Health Oct 30 -- Actuarial		
November	Board – 1 st Monday Finance – 4 th Monday Investment – 4 th Tuesday	Nov 4 – Board Nov 25 – Finance Nov 26 – Investment		
December	Board – 1 st Monday	Dec 2 – Board		



MEMORANDUM

DATE: December 4, 2023
TO: CERS Board of Trustees
FROM: Ed Owens, III
CEO
SUBJECT: CEO Quarterly Report

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A few of the issues I worked on during the fourth quarter are as follows:

- 1. Actuary Committee.** The committee held a regularly scheduled meeting in November to address two primary issues. First, the committee wanted to determine whether they could recommend that the full CERS Board accept the 2023 Draft Valuation provided by the actuary, GRS, and second, to recommend to the full Board a set of annuity rates to be utilized by the System.

The 2023 Draft Valuation represented good news for the CERS system. There was a significant increase in both active membership and payroll that exceeded the actuarial assumptions. Both Pension and Insurance funds posted investment returns of approximately 10.3% which placed CERS in the top 5 of public pension returns for the fiscal year 2023. The investment return, substantially above the raised assumed rate of return of 6.5%, resulted in \$601 million more to the CERS funds than was expected.

The Draft Valuation increases the funded status of Non-Hazardous Pension from 52% to 56%; while increasing Hazardous Pension from 47.6% to 51%. Both Insurance funds are over 100% funded. While contribution rates for CERS employers goes down substantially.

The committee recommended that the entire CERS Board accept the 2023 Draft Valuation report. Additionally, the committee also recommended the Board accept a compromise annuity rate of 5.875%. This rate is the middle between the assumed rate of return of CERS (6.25%) and KRS (5.25%). The annuity rate is important as it determines then value of Tier 3 retirement payments and how much prospective retirees would need to pay to purchase time from the System.

- 2. Investment Committee.** The committee held a regularly scheduled meeting to review the asset/liability study that had been performed by Investment Consultant Wilshire and the KPPA Investment Office. It is recommended that a full asset/liability study be performed every 3-4 years. The last full study commissioned by then KRS was in 2020.

Wilshire and the Investment Office presented the committee with two (2) choices concerning a new asset allocation. Importantly, both options reduce the risk in the portfolio from over 100 basis points to almost 195 basis points. Public Equity is lowered in both options from 50% to 40% and 45%. Specialty Credit is significantly increased in both options to either 20% or 23%. Core Fixed Income remains the same in one option and increases from 10% to 15.5% in the other option.

The committee determined it wanted to consider the options fully before making a recommendation to the full Board. Also, the committee wanted to ensure that Dr. Milkman had an opportunity to voice his opinion prior to the committee making a recommendation. Accordingly, the Chair indicated the committee would reconvene the asset allocation discussion in early January 2024.

- 3. Finance Committee.** The committee held a regularly scheduled meeting in November to review the first quarter results from fiscal year 2024. The fiduciary net position for the pension funds stood at approximately \$11.6 billion which was up over 11% from the first quarter of fiscal year 2023. Both member and employer contributions were up year over year in the Non-Hazardous pension plan.

The fiduciary net position for the insurance funds stood at approximately \$4.8 billion which was up over 11% from the first quarter of fiscal year 2023. The employer contribution was significantly down in both the Non-Hazardous and Hazardous funds as both are over 100% funded.

The fiduciary net position for pensions was down from last quarter approximately \$206 million, which represents a smaller decline than the funds saw in the first quarter of fiscal year 2023 where the loss was approximately \$345 million. The administrative expense was up from the first quarter of last year.

The fiduciary net position for insurance was down from last quarter approximately \$92 million which also represents a smaller decline from the first quarter of fiscal year 2023 which showed the net position down by approximately \$155 million.

- 4. Data Dissemination.** I worked with the KLC Research Economist to provide information for fiscal years 2012-2023 regarding payroll, active membership, and contributions of CERS members for KLC to be able to analyze trends and growth potential of the membership.
- 5. Meeting with PPOB Co-Chairs.** Along with several members of KPPA's executive team and John Chilton, I met with the PPOB Co-Chairs and several LRC staff members to discuss several topics. We fully discussed the KPPA Housekeeping Bill that did not pass in the most recent legislative session. It was determined that the proposed legislation would move forward to the upcoming session of the General Assembly with only minor changes. The group further discussed proposed KPPA lease

legislation and determined that although it will move forward it will be separate from the KPPA Housekeeping Bill. Finally, the group briefly discussed some proposed changes John Chilton wanted to suggest on behalf of his Board to amend aspects of HB 484. It was quickly determined that those suggestions were not yet ripe and couldn't be codified for the upcoming legislative session. They were left to be reviewed later.

CERS Trustee Education Hours Summary 2023-2024			
Name	Current Hours	Hours Needed	Due Date
Merl Hackbart	4	8	3/31/2024
George Cheatham	11	1	3/31/2024
William O'Mara	14	0	3/31/2024
Jerry Wayne Powell	4	8	3/31/2024
Betty Pendergrass	19	0	3/31/2024
Patricia P. Carver	6.5	5.5	3/31/2024
J. Michael Foster	4	8	7/1/2024
J.T. Fulkerson	4	8	7/1/2024
Martin Milkman	0	12	7/1/2024



POTENTIAL TRUSTEE TRAINING OPPORTUNITIES

1. Investment Risk Management (2 hours)
 - a. Date: TBD
 - b. Will be available to be viewed later (contact Katie Park)
 - c. Office of Investments

2. NCPERS Paper (2 hours)
 - a. [Ten Ways to Close Public Pension Funding Gaps \(September 2020\)](#)
 - b. Please let Katie know you have completed by filling out the training form

3. Wilshire Quarterly Market Update – 2nd Quarter 2023 (1 hour)
 - a. [Second Quarter 2023 Market Update Webinar Replay | Wilshire](#)
 - b. Please let Katie know you have completed by filling out the training form

4. Wilshire Quarterly Market Update – 3rd Quarter 2023 (1 hour)
 - a. [Third Quarter 2023 Market Update Webinar Replay | Wilshire](#)
 - b. Please let Katie know you have completed by filling out the training form

5. KPPA Retirement Tiers (2 hours total)
 - a. Tier 1 Webinar
https://youtu.be/IGG24V6Nx_A

 - b. Tier 2 Webinar
<https://youtu.be/w0Z5wYkx-LI>

 - c. Tier 3 Webinar
<https://youtu.be/WX7AvRX8jvU>



KENTUCKY PUBLIC PENSIONS AUTHORITY

David L. Eager, Executive Director

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To: County Employees Retirement System Board

From: David Eager, Executive Director

Date: December 4, 2023

Subject: KPPA Update

I. LEGISLATION: Rep. Johnson has agreed to sponsor our Housekeeping Bill. It is essentially a carbon copy of last year's bill.

Sen. Higdon has agreed to sponsor a bill allowing us to lease space for the investment office to be located in Louisville and we are looking for a sponsor for a bill that will permit the creation of the Office of Financial Management.

II. STRATEGIC PLAN UPDATE FROM PROVALIANT: The KPPA strategic planning project is moving forward as planned and the delivery of a strategic plan document by Provaliant Retirement by January 31 is still on track. Since our last monthly update on October 23, the following activities have been conducted. Also included are upcoming activities. As defined previously, the major categories for strategic planning continue to be:

1. KPPA Governance – Confirm, Improve, Monitor
2. KPPA Service Delivery Operations – Create a sustainable “KPPA Operational Excellence” model for administration and investment operations.
3. Modernize, maintain, and sustain high quality customer service delivery.
4. Modernize, maintain, and sustain high quality primary resources and infrastructure.

Components of the following activities are being categorized into the four areas above as additional input and information is identified.

Three more onsite workshops were conducted with KPPA staff by Provaliant consultants. The topics covered were future vision of external customer services delivery via the web, future technology infrastructure needs to support customers and KPPA staff, and future continuous improvement opportunities regarding the process of KPPA board governance and direction to KPPA organization. Workshops, small group, and individual follow-ups will continue in December as needed.

Provaliant also continued to conduct, target, and refine best practice research information to support strategic initiatives being identified through KPPA staff input in workshops, from Provaliant review of a wide variety of KPPA documents, system specifications, KPPA operational

information, and in the strategic planning request for proposal. These best practices are being packaged into a research summary document and will become guiding practices for executing the strategic initiatives once KPPA approves the strategic plan.

Provaliant is in the process of creating a summary presentation of the major strategic initiatives that Provaliant recommends for the KPPA strategic plan. This draft summary will be explained to KPPA executive staff and vetted in December. We will be providing potential dates for this presentation this week. Input from that summary review will guide the draft strategic plan delivery in early January and after more review, discussion, and editing will become the KPPA strategic plan delivered by Provaliant by January 31.

III. BOARD SMART: Board Smart presented their new version of Board Smart 3.0 to the CEOs and a group of staff members. They are attempting to offer a product that Trustees see as being of more value, more relevant, and easier to use. Staff will rely on the decisions the CEOs make regarding the continued use of Board Smart beyond June 30, 2024.

IV. EXECUTIVE DIRECTOR SEARCH: Bill O’Mara and his group finished up on three versions of public communications regarding the search for a new Executive Director:

- 1) The copy for an ad announcing the job opportunity.
- 2) A more detailed description of the position and background on the systems
- 3) A type of brochure with more information including information on Kentucky, etc.

The ads/announcements will start in December with a January 15 cutoff. They hope to have a candidate hired by the end of April.

V. INCIDENT RESPONSE PLANNING ACTIVITIES: KPPA has been working in a variety of areas since early 2020 to facilitate KPPA Security Incident Response Planning and Response Readiness, including developing a Security Incident Response Plan (SIRP). The KPPA Security Incident Reporting and Handling Policy provides for two teams: the KPPA Security Incident Handling Team (technical team), and Security Incident Response Team (Executive will level team with oversight on response strategy, etc.).

Next Steps	
Item	Target
Finish the first version of the KPPA Security Incident Response Plan (SIRP) and its associated appendices	12/31/2023
Submit SIRP for review by InfoTech	2024 Q1
Conduct Formal Tabletop Exercise with Executive Group	2024 Q1
Facilitate an annual review of the SIRP	Ongoing
Conduct periodic technical tabletop exercises	Ongoing

VI. STAFFING: We continue to hover around 250 staff with no unfilled leadership positions except for two portfolio managers in the investment department. We recently received work from home approval for the Division of Retiree Healthcare and the Division of Disability and Survivor Benefits.

VII. KECC: I am pleased to report that KPPA employees pledged and/or contributed over \$24 Thousand (as of November 20, 2023) to the Kentucky Employees Charitable Campaign through payroll deductions, our silent auction and other fund raisers (e.g., Legal's bake sale and a chili cook off in Benefits). Kudos go to a lot of people, but particularly to Lori Casey, Kimberly Leet, and Lori Wells all in HR.

VIII. Conference Attendance: Since the KPPA Board meeting in September, the executive staff attended the following professional conferences:

Erin Surratt – NCPERS Fall Conference – October 2023

Mike Lamb – P2F2 (Public Pension Finance Forum) – October 2023

IX. PPOB: We attended and presented material at the PPOB meetings held on October 24th and November 20th.

X. HOSTING MEETINGS: Since July 1, 2023, and through the end of this week we have hosted 36 Board and Committee meetings and held 8 bi-weekly meetings with the CEOs.