

Annual Comprehensive **Financial Report**



County Employees Retirement System



Kentucky Employees Retirement System



State Police Retirement System



KPPA

Kentucky Public Pensions Authority

A Component Unit of the Commonwealth of Kentucky

FOR THE FISCAL YEAR ENDED JUNE 30,

2022

Prepared by the Accounting Division, Communications Division, and Office of Investments

TABLE OF CONTENTS

INTRODUCTION

FINANCIAL

REQUIRED SUPPLEMENTARY INFORMATION

5	Management Responsibility Letter
6	Letter of Transmittal
8	Agency Structure
9	Governance
10	GFOA Certificate
11	Pension Benefits by County
12	Active Refunds
13	Benefit Tiers

17	Report of Independent Auditors
20	Management's Discussion & Analysis
27	Historical Trends
29	<i>Combining Statements of Fiduciary Net Position - Pension Funds</i>
30	<i>Combining Statements of Changes In Fiduciary Net Position - Pension Funds</i>
31	<i>Combining Statements of Fiduciary Net Position - Insurance Fund</i>
32	<i>Combining Statements of Changes in Fiduciary Net Position - Insurance Fund</i>
33	<i>Combining Statement of Fiduciary Net Position KPPA</i>
34	<i>Combining Statement of Changes in Fiduciary Net Position KPPA</i>
35	<i>Note A. Summary of Significant Accounting Policies</i>
38	<i>Note B. Descriptions & Contribution Information</i>
45	<i>Note C. Cash, Short-Term Investments & Securities Lending Collateral</i>
46	<i>Note D. Investments</i>
73	<i>Note E. Securities Lending Transactions</i>
74	<i>Note F. Risk of Loss</i>
74	<i>Note G. Contingencies</i>
74	<i>Note H. Defined Benefit Pension Plan</i>
75	<i>Note I. Income Tax Status</i>
75	<i>Note J. Equipment</i>
75	<i>Note K. Intangible Assets</i>
76	<i>Note L. Actuarial Valuation</i>
77	<i>Note M. GASB 67 and GASB 74 Valuations</i>
85	<i>Note N. Pension Legislation</i>
89	<i>Note O. Litigation</i>
91	<i>Note P. Reciprocity Agreement</i>
91	<i>Note Q. Reimbursement Of Retired-Reemployed and Active Member Health Insurance</i>
91	<i>Note R. General Fund Appropriations</i>
92	<i>Note S. Prisma Daniel Boone Fund Adjustment</i>
92	<i>Note T. Subsequent Events</i>
92	<i>Note U. Employer Cessation</i>

94	Schedule of Employers' NPL CERS Nonhazardous
94	CERS Hazardous
95	KERS Nonhazardous
95	KERS Hazardous
95	SPRS
96	Schedule of Changes in Employers' TPL CERS Nonhazardous
97	CERS Hazardous
98	KERS Nonhazardous
99	KERS Hazardous
100	SPRS
101	Notes to Schedule of Employers' Contributions
102	Schedule of Employers' Contributions Pension CERS Nonhazardous
102	CERS Hazardous
103	KERS Nonhazardous
103	KERS Hazardous
104	SPRS
105	Schedule of Employers' NOL CERS Nonhazardous
105	CERS Hazardous
106	KERS Nonhazardous
106	KERS Hazardous
106	SPRS
107	Schedule of Changes CERS Nonhazardous
108	CERS Hazardous
109	KERS Nonhazardous
110	KERS Hazardous
111	SPRS
112	Notes to Schedule of Employers' OPEB Contribution
114	Schedule of Employers' OPEB Contributions CERS Nonhazardous
114	CERS Hazardous
115	KERS Nonhazardous
115	KERS Hazardous
116	SPRS
117	Money Weighted Rates of Return
119	Schedule of Administrative Expenses
120	Schedule of Direct Investment Expenses
120	Schedule of Professional Consultant Fees
121	Report on Internal Control

TABLE OF CONTENTS

INVESTMENTS

124	Investment Overview
127	Investment Strategies
128	Investment Objectives
129	Investment Results
130	Benchmarks
131	Long-Term Results
132	Public Equity
134	Core Fixed Income
135	Specialty Credit
136	Private Equity
136	Real Estate
137	Real Return
137	Cash
138	Additional Schedules & Required Supplemental Information
138	Investment Advisors
144	External Investment Expense
145	Commissions
146	Fair Values By Plan

ACTUARIAL

149	Certification of Actuarial Results
153	Summary of Actuarial Assumptions
160	Summary of Actuarial Valuation Results
161	Recommended Employer Contribution Rates
164	Summary of Actuarial Unfunded Liabilities
168	Solvency Test
173	Active Member Valuation
177	Summary of Benefit Provisions CERS, KERS & SPRS Plans

STATISTICAL

183	Plan Statistics
185	Participating Employers
188	Member Monthly Benefit
189	Fiduciary Net Position
191	Changes in Fiduciary Net Position
196	Schedule of Benefit Expenses
201	Analysis of Initial Retirees
202	Payment Options
203	Employer Contribution Rates
204	Insurance Contracts
206	Glossary

INTRODUCTION

TABLE OF CONTENTS

5	MANAGEMENT RESPONSIBILITY LETTER
6	LETTER OF TRANSMITTAL
8	AGENCY STRUCTURE
9	GOVERNANCE
10	GFOA CERTIFICATE
11	PENSION BENEFITS BY COUNTY
12	ACTIVE REFUNDS
13	BENEFIT TIERS

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 7, 2022: 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 judgements. These estimates and judgements 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 Joint Audit Committee and CERS and KRS Boards.

KPPA's external auditors, Blue and Company, LLC, have 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 17 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.



A handwritten signature in black ink that reads 'David Eager'.

David L. Eager
Executive Director

A handwritten signature in black ink that reads 'Rebecca H. Adkins'.

Rebecca H. Adkins
Executive Director, Office of Operations

A handwritten signature in blue ink that reads 'Connie Davis'.

Connie Davis, CIA, CGAP, CRMA
Director of Accounting

EXECUTIVE DIRECTOR'S MESSAGE



David Eager
David L. Eager
Executive Director

December 7, 2022 On behalf of the Kentucky Public Pensions Authority and the Boards of the County Employees Retirement System and the Kentucky Retirement Systems, it is my honor to present the Annual Comprehensive Financial Report for the Fiscal Year (FY) ended June 30, 2022. This report, and the Summary Annual Financial Report, are provided as a resource for understanding the structure and financial status of KPPA and the Systems it operates.

We manage assets solely for the long-term benefit of our members and retirees. With this in mind, despite this challenging market environment, the investments managed by KPPA outperformed those of most peer public pension and insurance funds over trailing 1-, 3-, and 5-year periods on a risk-adjusted basis. More information about that can be found in the Investments section of this report.

Governance Update

FY 2022 marked the first full year KPPA operated under the governance structure legislated by the General Assembly in 2020. KPPA continues to provide support to the CERS and KRS Boards and their CEOs in terms of being a liaison to the legislature and helping the CERS and KRS boards and committees with meeting logistics. In all, there were 82 board and committee meetings during FY 2022.

Return to the Office

Effective September 12, 2022, the Kentucky Personnel Cabinet updated its telecommuting policy to require most employees that had been telecommuting either full-time or part-time to now work from an Executive Branch office a minimum of three days per week. According to the Personnel Cabinet, 91% of state government employees are now working in the office three days a week or more.

Cyber Security

The security of the data KPPA manages on behalf of the Systems' members is of paramount importance. Cyber security threats have become much more frequent, sophisticated, and complex. Keeping this data secure requires that KPPA business and technical staff members work together with business partners, service providers,

and our members. Security awareness materials and quarterly training are provided to all staff to help them stay alert to indicators of malicious activity. Since our members play such an important role in securing their own data, security awareness material has been added to KPPA member newsletters. Our Enterprise and Technology Services staff continue to monitor threats from a variety of attack vectors, and agency-wide efforts in planning and readiness continue in the areas of disaster recovery, business continuity, and incident response.

Investments

FY 2021 was a record year for investment returns. This year, however, economic headwinds led to negative returns. Pension and insurance funds for Kentucky state and local government employees and the State Police had their investments collectively return about -5.7% net of fees during the fiscal year ended June 30. Most broad market indexes finished the fiscal year with negative returns. For example, in equities the Russell 3000 fell 13.9%, while in fixed income the Bloomberg Barclays US Aggregate bond index fell 10.3% for the fiscal year.

PENSION	CERS-NH	CERS-H	KERS-NH	KERS-H	SPRS
2022	-5.9%	-6.1%	-5.2%	-6.0%	-4.6%
2021	25.7%	25.6%	22.6%	25.2%	21.7%
INSURANCE	CERS-NH	CERS-H	KERS-NH	KERS-H	SPRS
2022	-5.4%	-5.0%	-6.2%	-4.5%	-4.5%
2021	24.8%	25.0%	25.2%	25.0%	25.3%

Year-to-year fluctuations in investment returns highlights the benefits of having reasonable and conservative long-term assumed rates of return, and smoothing excess annual gains and losses over five-year periods. The highs are often balanced out by lows, and smoothing spreads out the effects of large year-to-year run-ups and declines. The long-term assumed rates of return are 5.25% for the KERS Nonhazardous and State Police pension funds, and 6.25% for all other pension and all of the insurance funds. Those rates are reviewed annually by the CERS and KRS Boards to determine their appropriateness going forward.

More information about investments can be found in the Investments section of our website.

EXECUTIVE DIRECTOR'S MESSAGE

Additionally, in the 2022 Regular Session of the General Assembly, the Legislature granted KPPA an exemption from salary caps set by the Personnel Cabinet for four additional investment positions (now six in total), thereby making KPPA competitive in recruiting and retaining qualified and experienced investment talent.

Looking Ahead

As always, our number one job is to meet our obligations to our members and serve them responsibly. To that end, we are soliciting a consulting firm to help us develop a strategic plan designed to improve our processes, governance, and member services. KPPA is also in the final stages of hiring a Chief Financial Officer (CFO). That person will oversee the Division of Accounting and will be responsible for financial reporting and compliance, budget preparation and monitoring, cash management, and external coordination with service providers, including the Systems' outside accountants, banks, and actuary. KPPA expects to fill that position early in 2023.

A Message from CERS CEO Ed Owens III and KRS CEO John Chilton

This first full fiscal year operating under the separate CERS and KRS governance structure has seen important accomplishments. The trustees of the system boards have approved bylaws and other policies and created various standing committees. Both boards have worked collaboratively to establish a process for considering the KPPA annual budget and implementing new mandates for trustee education. The CERS and KRS Investment Committees drafted and ratified separate Investment Policy Statements, which can be found in the Investments section of the KPPA website.

From CERS' perspective, the legislative and staff work that has gone into creating the separate governance structure for CERS and KRS was important, and we thank everyone who worked diligently on passing the necessary legislation and implementing required changes. Moving forward, CERS intends to continue working to establish substantive working relationships with CERS employers and employer association groups.

From the KRS perspective, during the most recent legislative session, the General Assembly provided full funding for the actuarially determined pension and insurance contributions, plus additional appropriations totaling \$695 million over fiscal years 2023 and 2024. That includes \$105 million in each fiscal year as part of House

Bill 604, passed on the final day of the session, and \$485 million included in House Bill 1, the state executive branch budget bill - \$135 million each year in FY 2023 and FY 2024 for the KERS Nonhazardous pension fund and \$215 million in FY 2022 for the SPRS pension fund. The effect on the SPRS pension fund, in particular, is significant. That SPRS appropriation increased the plan's funded status to 52.5% from 30.7%. The positive effect of the additional appropriations on the KERS Nonhazardous plan will be seen in the June 30, 2023, actuarial valuation.

Together the CERS and KRS trustees continue to track the evolving world of Environmental, Social, and Governance (ESG) issues as they relate to investments. Further, we monitor litigation with an eye toward resolving longstanding cases. And we are working with KPPA to ensure technology infrastructure is upgraded regularly.

In 2021, the General Assembly passed House Bill 8, which amended Kentucky Revised Statute 61.565 to change the method of calculating the KERS Nonhazardous employer pension contribution from a percent of pay to a two-part calculation. Each KERS Nonhazardous employer pays the "normal cost" contribution rate to fund the retirement benefits earned during the year, and a dollar amount each month representing that employer's share of the KERS Nonhazardous unfunded pension liability. Due to the change in the method of calculating contributions, the KERS Nonhazardous pension fund received an additional \$29 million in Fiscal Year 2022. Pension contributions for all other plans continue to be calculated based on a percent of pay.

In its first full year of operation, KPPA, CERS, and KRS have worked to further improve the governance of the organization, including the Investments team. The progress toward funding the actuarial liabilities will continue.

Acknowledgments

The preparation of this report has been a collaborative effort of KPPA Executive Management and the Accounting Division, Communications Division, the 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 7, 2022

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

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



GOVERNANCE

As of December 7, 2022

The funds 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.

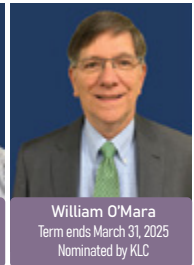
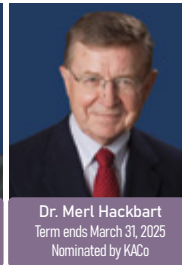
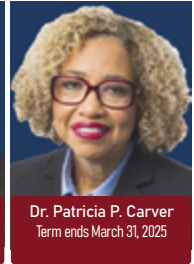
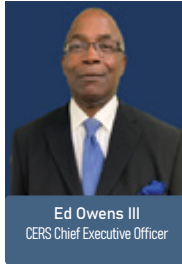
ELECTED BY MEMBERSHIP

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
Jerry Wayne Powell, Vice Chair

Three (3) Elected Trustees
Six (6) Appointed by Governor



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

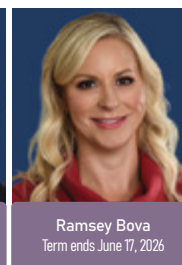
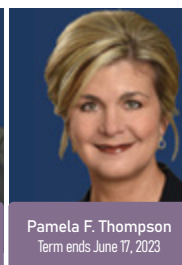
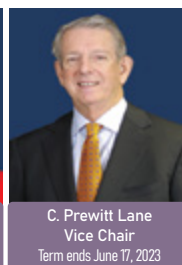
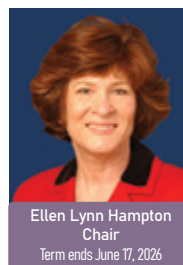
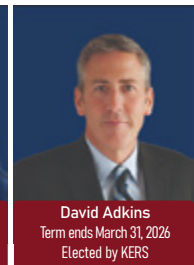
ELECTED BY MEMBERSHIP

APPOINTED BY GOVERNOR

KRS BOARD OF TRUSTEES

Ellen Lynn Hampton, Chair
C. Prewitt Lane, Vice Chair

Three (3) Elected Trustees
Six (6) Appointed by Governor



Certificate of Achievement

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, 2021. 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 was the 23rd 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 2022 report will continue to meet the Certificate of Achievement Program's requirements, and we will be submitting it to the GFOA for their consideration.



Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

Kentucky Public Pensions Authority

For its Annual Comprehensive
Financial Report
For the Fiscal Year Ended

June 30, 2021

Christopher P. Morill

Executive Director/CEO

**As of April 1, 2021, the agency formerly known as Kentucky Retirement Systems is now the Kentucky Public Pensions Authority, as legislated by House Bill 484 during the 2020 Regular Session of the Kentucky General Assembly.*

2022 Total Fiscal Year KPPA Pension Benefits Paid by County

County	Payees*	Total	County	Payees*	Total	County	Payees*	Total
Adair	540	\$9,044,021	Grant	644	\$12,172,773	McLean	316	\$4,709,379
Allen	425	5,883,203	Graves	956	15,055,436	Meade	482	7,184,507
Anderson	1,426	35,864,429	Grayson	820	13,302,833	Menifee	222	3,231,563
Ballard	262	3,778,941	Green	335	4,743,250	Mercer	802	14,729,226
Barren	1,158	17,440,332	Greenup	693	9,793,264	Metcalfe	318	4,278,894
Bath	418	6,499,037	Hancock	230	3,146,707	Monroe	292	3,477,395
Bell	679	10,863,227	Hardin	2,347	39,544,214	Montgomery	683	11,355,881
Boone	2,024	43,261,344	Harlan	635	9,789,407	Morgan	661	11,506,125
Bourbon	552	9,274,039	Harrison	481	7,627,191	Muhlenberg	842	11,121,504
Boyd	1,097	18,091,667	Hart	352	5,389,405	Nelson	1,147	19,933,316
Boyle	900	15,831,963	Henderson	1,139	18,967,328	Nicholas	223	3,214,842
Bracken	234	3,281,971	Henry	938	20,767,906	Ohio	668	7,653,537
Breathitt	524	8,221,467	Hickman	99	1,703,985	Oldham	1,411	29,854,331
Breckinridge	507	7,670,141	Hopkins	1,308	20,488,445	Owen	523	12,162,956
Bullitt	1,697	31,641,171	Jackson	341	4,475,526	Owsley	228	3,417,324
Butler	332	4,656,485	Jefferson	16,528	366,113,357	Pendleton	390	6,651,271
Caldwell	553	8,470,707	Jessamine	1,168	20,639,432	Perry	827	11,769,391
Calloway	1,107	16,202,681	Johnson	630	9,611,309	Pike	1,330	19,946,619
Campbell	1,611	31,172,763	Kenton	2,391	50,809,164	Powell	353	4,948,783
Carlisle	116	1,746,696	Knott	479	7,465,880	Pulaski	2,362	39,967,084
Carroll	324	5,280,321	Knox	641	9,882,091	Robertson	70	1,164,305
Carter	827	11,033,844	LaRue	401	6,297,303	Rockcastle	417	5,943,355
Casey	381	4,993,505	Laurel	1,341	22,317,881	Rowan	901	15,527,026
Christian	1,577	27,853,307	Lawrence	336	4,240,007	Russell	580	8,998,324
Clark	866	15,342,518	Lee	240	3,438,179	Scott	1,354	28,511,236
Clay	603	8,788,508	Leslie	280	4,161,866	Shelby	1,712	43,049,642
Clinton	295	3,769,120	Letcher	647	8,895,814	Simpson	312	3,824,613
Crittenden	235	3,146,715	Lewis	342	4,650,756	Spencer	553	12,782,306
Cumberland	192	2,854,845	Lincoln	707	9,158,538	Taylor	696	10,347,284
Daviess	2,837	50,471,244	Livingston	278	4,629,196	Todd	271	3,684,134
Edmonson	244	3,446,183	Logan	667	9,488,414	Trigg	557	9,062,433
Elliott	192	3,291,250	Lyon	364	7,311,217	Trimble	292	4,768,618
Estill	427	6,098,148	Madison	2,528	42,979,480	Union	376	4,302,069
Fayette	5,640	122,914,311	Magoffin	377	5,247,234	Warren	2,985	53,313,547
Fleming	492	8,266,855	Marion	572	8,140,282	Washington	362	5,714,893
Floyd	920	14,473,479	Marshall	961	14,335,756	Wayne	578	8,227,101
Franklin	6,339	196,109,197	Martin	283	3,250,002	Webster	382	5,011,052
Fulton	184	2,121,507	Mason	429	6,988,993	Whitley	1,177	17,176,095
Gallatin	126	2,208,588	McCracken	1,644	30,289,502	Wolfe	342	5,777,898
Garrard	460	\$6,928,371	McCreary	413	\$4,269,907	Woodford	1,093	\$27,639,918

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 2022, KPPA paid over \$2 billion to its recipients. The majority, 92.95%, 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, 2022 (in Whole \$)			
	Payees*	%	Payments
Retirement Eligible/Actuarial Refund	504		\$7,746,011
Kentucky	114,834	92.95%	2,145,807,108
Out of State	9,489	7.05%	162,711,233
Grand Total	124,827	100.00%	\$2,316,264,352

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

Active Refunds Report For the Period ended June 30, 2022

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	1	277	\$3,744,740	184	\$332,988	461	\$4,077,728
	2	453	5,060,610	33	133,868	486	5,194,478
	3	1,679	10,401,337	99	247,639	1,778	10,648,976
	Total	2,409	19,206,687	316	714,495	2,725	19,921,182
CERS Hazardous	1	21	603,535	2	1,603	23	605,138
	2	48	1,903,018	-	-	48	1,903,018
	3	145	3,089,129	2	7,981	147	3,097,110
	Total	214	5,595,681	4	9,585	218	5,605,266
KERS	1	182	3,072,408	74	216,559	256	3,288,967
	2	254	3,017,124	9	25,693	263	3,042,817
	3	643	5,135,924	18	61,235	661	5,197,159
	Total	1,079	11,225,457	101	303,487	1,180	11,528,944
KERS Hazardous	1	14	313,050	1	14,342	15	327,392
	2	50	888,721	4	15,754	54	904,475
	3	297	3,530,180	8	45,620	305	3,575,799
	Total	361	4,731,950	13	75,716	374	4,807,666
SPRS	1	4	73,136	-	-	4	73,136
	2	1	8,615	-	-	1	8,615
	3	6	198,340	-	-	6	198,340
	Total	11	280,091	-	-	11	280,091
TOTALS		4,074	\$41,039,866	434	\$1,103,283	4,508	\$42,143,149

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, 2022							
Item	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS	KPPA Total 2022	
Members	247,037	21,751	124,550	13,936	2,808	410,082	
Active Membership	80,263	9,149	29,069	3,607	844	122,932	
Tier 1	25,552	3,205	12,760	940	331	42,788	
Tier 2	11,767	1,751	4,859	599	179	19,155	
Tier 3	42,944	4,193	11,450	2,068	334	60,989	
Average Annual Salary	\$34,569	\$67,610	\$45,862	\$45,794	\$56,736	-	
Average Age	47.6	38.3	46.0	40.0	36.5	-	
Retired Membership	65,266	9,121	44,952	3,440	1,562	124,341	
Tier 1	63,984	9,083	44,537	3,380	1,560	122,544	
Tier 2	1,202	30	382	54	1	1,669	
Tier 3	80	8	33	6	1	128	
Average Annual Benefit	\$12,145	\$29,084	\$21,263	\$16,019	\$39,763	-	
Average Age	71.1	62.7	70.3	65.6	63.7	-	
Inactive Members	101,508	3,481	50,529	6,889	402	162,809	
Tier 1	48,981	1,399	30,665	1,796	169	83,010	
Tier 2	17,959	611	8,690	1,278	70	28,608	
Tier 3	34,568	1,471	11,174	3,815	163	51,191	

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

CERS Nonhazardous - Fiduciary Net Position* (\$ in Thousands)			
Year	Pension	Insurance	Total
2013	\$5,795,568	\$1,618,960	\$7,414,528
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

CERS Hazardous - Fiduciary Net Position* (\$ in Thousands)			
Year	Pension	Insurance	Total
2013	\$1,883,571	\$891,320	\$2,724,891
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

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

KERS Nonhazardous - Fiduciary Net Position* (\$ in Thousands)			
Year	Pension	Insurance	Total
2013	\$2,760,753	\$496,040	\$3,256,793
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

KERS Hazardous - Fiduciary Net Position* (\$ in Thousands)			
Year	Pension	Insurance	Total
2013	\$514,592	\$372,883	\$887,475
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

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

SPRS - Fiduciary Net Position* (\$ in Thousands)				
Year	Pension	Insurance	Total	
2013		\$248,698	\$142,691	\$391,389
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

KPPA Total Fiduciary Net Position

Fiduciary Net Position (\$ in Thousands)			
Year	Pension	Insurance	Total
2013	\$11,153,182	\$3,521,894	\$14,675,076
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

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

FINANCIAL TABLE OF CONTENTS

17	REPORT OF INDEPENDENT AUDITORS
20	MANAGEMENT'S DISCUSSION & ANALYSIS
27	HISTORICAL TRENDS
29	COMBINING STATEMENT OF FIDUCIARY NET POSITION - PENSION FUNDS
30	COMBINING STATEMENT OF CHANGES IN FIDUCIARY NET POSITION - PENSION FUNDS
31	COMBINING STATEMENT OF FIDUCIARY NET POSITION - INSURANCE FUND
32	COMBINING STATEMENT OF CHANGES IN FIDUCIARY NET POSITION - INSURANCE FUND
33	COMBINING STATEMENT OF FIDUCIARY NET POSITION KPPA
34	COMBINING STATEMENT OF CHANGES IN FIDUCIARY NET POSITION KPPA
35	NOTE A. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES
38	NOTE B. PLAN DESCRIPTIONS & CONTRIBUTION INFORMATION
45	NOTE C. CASH, SHORT-TERM INVESTMENTS & SECURITIES LENDING COLLATERAL
46	NOTE D. INVESTMENTS
73	NOTE E. SECURITIES LENDING TRANSACTIONS
74	NOTE F. RISK OF LOSS
74	NOTE G. CONTINGENCIES
74	NOTE H. DEFINED BENEFIT PENSION PLAN
75	NOTE I. INCOME TAX STATUS
75	NOTE J. EQUIPMENT
75	NOTE K. INTANGIBLE ASSETS
76	NOTE L. ACTUARIAL VALUATION
77	NOTE M. GASB 67 AND GASB 74 VALUATIONS
85	NOTE N. PENSION LEGISLATION
89	NOTE O. LITIGATION
91	NOTE P. RECIPROCITY AGREEMENT
91	NOTE Q. REIMBURSEMENT OF RETIRED-REEMPLOYED AND ACTIVE MEMBER HEALTH INSURANCE
91	NOTE R. GENERAL FUND APPROPRIATIONS
92	NOTE S. PRISMA DANIEL BOONE FUND ADJUSTMENT
92	NOTE T. SUBSEQUENT EVENTS
92	NOTE U. EMPLOYER CESSATION



Blue & Co., LLC / 250 West Main Street, Suite 2900 / Lexington, KY 40507
main 859.253.1100 fax 859.253.1384 email blue@blueandco.com

REPORT OF INDEPENDENT AUDITORS

To the Members
Kentucky Public Pensions Authority
Frankfort, Kentucky

Report on the Audit of Financial Statements

Opinion

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

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

Basis for Opinion

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

Responsibilities of Management for the Financial Statements

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

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

Auditor's Responsibilities for the Audit of the Financial Statements

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

REPORT OF INDEPENDENT AUDITORS (Continued)

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

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

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

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

Summarized Comparative Information

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

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis on pages 20 through 28, and the defined benefit pension plan and other post-employment benefit plan supplemental schedules on pages 94 through 117, be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a

REPORT OF INDEPENDENT AUDITORS (Continued)

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

Other Information

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

The introductory, investment, actuarial and statistical sections have not been subjected to auditing procedures applied in the audit of the basic financial statements and, accordingly, we do not express an opinion or provide any assurance on them.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated December 7, 2022, on our consideration of KPPA's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of KPPA's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering KPPA's internal control over financial reporting and compliance.

Blue & Co., LLC

Lexington, Kentucky
December 7, 2022

Management's Discussion & Analysis (Unaudited)

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

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

The defined benefit pension plans include:

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

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

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

PENSION FUNDS

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

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

CONTRIBUTIONS

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

INVESTMENTS

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

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

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

DEDUCTIONS

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

Management's Discussion & Analysis (Unaudited)

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

INSURANCE FUND

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

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

CONTRIBUTIONS

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

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

INVESTMENTS

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

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

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

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

DEDUCTIONS

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

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

Management's Discussion & Analysis (Unaudited)

Using This Financial Report

Because of the long-term nature of a defined benefit pension plan and post-employment healthcare benefit plan, the combining financial statements alone cannot provide sufficient information to properly reflect the Plans' ongoing financial perspective. This financial report consists of three combining financial statements and two schedules of historical trend information. All plans within KPPA are included in the aforementioned combining financial statements. The Combining Statement of Fiduciary Net Position for the Pension Funds on page 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 2022. 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 2022.

The economic assumptions for the Pension Funds and Insurance Fund for fiscal year 2022 are on page 76, the Schedules of Changes in Employers' Total Pension Liability on pages 96-100, the Schedules of the Employer Net Pension Liability on pages 94-95; the Schedule of Changes in Employers' Total Other Post-Employment Benefits (OPEB) Liability are on pages 107-111; and, the Schedule of the Employers' Net OPEB Liabilities are on pages 105-106. 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 102-104, and the Schedules of the Employers' Contributions – OPEB are on pages 114-116. These schedules present current and historical trend information about the annual required contributions and the contributions made in relation to the requirement. These schedules provide information that contributes to understanding the changes over time in the funded status of the plans.

Kentucky Public Pensions Authority Combined

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

Management's Discussion & Analysis (Unaudited)

Fiduciary Net Position									
As of June 30 (\$ in Thousands)									
	Pension Plans			Insurance Plans			Total		
	2022	2021	2020	2022	2021	2020	2022	2021	2020
Cash & Invest.	\$15,418,076	\$16,391,137	\$13,150,428	\$6,766,874	\$7,184,408	\$5,687,583	\$22,184,950	\$23,575,545	\$18,838,011
Receivables	337,832	361,429	295,988	77,410	122,132	87,102	415,242	483,561	383,090
Capital Assets	324	677	1,619	-	-	-	324	677	1,619
Total Assets	15,756,232	16,753,243	13,448,035	6,844,284	7,306,540	5,774,685	22,600,516	24,059,783	19,222,720
Total Liabilities	(508,052)	(830,553)	(586,817)	(247,644)	(332,927)	(250,019)	(755,696)	(1,163,480)	(836,836)
Fiduciary Net Position	\$15,248,180	\$15,922,690	\$12,861,218	\$6,596,640	\$6,973,613	\$5,524,666	\$21,844,820	\$22,896,303	\$18,385,884

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

Pension Plan Activities

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

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

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

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

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

Management's Discussion & Analysis (Unaudited)

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

Management's Discussion & Analysis (Unaudited)

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

Insurance Plan Activities

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

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

Management's Discussion & Analysis (Unaudited)

CERS			
As of June 30 (\$ in Thousands)			
CERS Nonhazardous Investment Income - Insurance	2022	2021	2020
Increase (decrease) in fair value of investments	\$(360,292)	\$469,201	\$(145,098)
Investment income net of investment expense	51,633	41,009	47,683
Gain on sale of investments	137,960	109,383	106,071
Total Investment Income (loss) from Investing Activities	\$(170,699)	\$619,593	\$8,656
CERS Hazardous Investment Income - Insurance	2022	2021	2020
Increase (decrease) in fair value of investments	\$(177,397)	\$245,549	\$(80,031)
Investment income net of investment expense	24,818	20,284	24,998
Gain on sale of investments	74,126	56,984	57,270
Total Investment Income (loss) from Investing Activities	\$(78,453)	\$322,817	\$2,237
KERS			
KERS Nonhazardous Investment Income - Insurance	2022	2021	2020
Increase (decrease) in fair value of investments	\$(146,482)	\$195,110	\$(41,651)
Investment income net of investment expense	20,023	18,478	18,946
Gain on sale of investments	40,904	45,007	33,329
Total Investment Income (loss) from Investing Activities	\$(85,555)	\$258,595	\$10,624
KERS Hazardous Investment Income - Insurance	2022	2021	2020
Increase (decrease) in fair value of investments	\$(63,789)	\$96,312	\$(30,360)
Investment income net of investment expense	9,471	8,372	9,884
Gain on sale of investments	26,912	21,791	21,114
Total Investment Income (loss) from Investing Activities	\$(27,406)	\$126,475	\$638
SPRS			
Investment Income - Insurance	2022	2021	2020
Increase (decrease) in fair value of investments	\$(25,758)	\$38,253	\$(11,431)
Investment income net of investment expense	3,632	3,060	3,670
Gain on sale of investments	11,339	8,738	8,869
Total Investment Income (loss) from Investing Activities	\$(10,787)	\$50,051	\$1,108

Management's Discussion & Analysis (Unaudited)

Historical Trends

Accounting standards require that the Combining Statement of Fiduciary Net Position state asset values at fair value and include benefits and refunds due plan members and beneficiaries; unrealized investment income (loss); and administrative expenses as of the reporting date. Information regarding the actuarial funding status of the Pension and Insurance Funds is provided in the Schedules of Net Pension Liability (NPL) on page 94-95 and Net OPEB Liability on pages 105-106. The asset values stated in the Schedules of Changes in Employers' Total Pension Liability (TPL) on pages 96-100 and Total OPEB Liability on pages 107-111 are the actuarial value of assets. The actuarial value of assets recognizes a portion of the difference between the fair value of assets and the expected fair value of assets based on the investment return assumption. The amount recognized each year is 20% of the difference between fair value and expected fair value. The actuarial accrued liability is calculated using the entry age normal cost funding method. This actuarial accrued liability is the measure of the cost of benefits that have been earned to date by CERS, KERS and SPRS' members, but not yet paid. The difference in value between the actuarial accrued liability and the actuarial value of assets is defined as the unfunded actuarial accrued liability.

The unfunded actuarial accrued liability from the June 30, 2022, actuarial valuation in the Pension Plans increased by \$93.4 million for a total unfunded amount of \$25,101.5 million in fiscal year 2022, compared to an unfunded amount of \$25,008.1 million in fiscal year 2021. The overall increase in the unfunded actuarial accrued liability is the result of a loss in the fair value of the assets due to less than favorable market conditions during fiscal year 2022.

The Insurance Plan's unfunded actuarial accrued liability from the June 30, 2022, actuarial valuation for fiscal year 2022, was negative \$663.0 million compared to \$1,960.0 million for fiscal year 2021. This is a decrease in the unfunded actuarial accrued liability of \$2,623.0 million. The decrease is due to a significant decrease in the 2023 Medicare premiums. Please see the charts on the following page for the unfunded actuarial accrued liability.

Annual required actuarially determined contributions by the employers and actual contributions made by employers and other contributing entities in relation to the required contributions, are provided in the Schedules of Employer Contributions - Pension on pages 102-104, and in the Schedules of Contributions - OPEB on pages 114-116. 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	
	2022	2021	2022	2021	2022	2021	2022	2021
Actuarial Accrued Liability (AAL)	\$15,674	\$14,895	\$2,392	\$3,450	\$5,862	\$5,629	\$1,538	\$1,751
Actuarial Value of Assets	8,149	7,716	3,160	2,947	2,789	2,629	1,554	1,476
Unfunded AAL	\$7,525	\$7,179	\$(768)	\$503	\$3,073	\$3,000	\$(16)	\$275
Funded Ratio	51.99%	51.80%	132.11%	85.42%	47.58%	46.69%	101.02%	84.26%

Schedule of Unfunded Actuarial Accrued Liability KRS												
As of June 30 (\$ in Millions)												
Item	KERS Nonhazardous				KERS Hazardous				SPRS			
	Pension		Insurance		Pension		Insurance		Pension		Insurance	
	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021
Actuarial Accrued Liability (AAL)	\$16,576	\$16,321	\$1,782	\$2,574	\$1,316	\$1,295	\$347	\$424	\$1,067	\$1,053	\$233	\$272
Actuarial Value of Assets	3,065	2,736	1,409	1,291	832	782	598	575	560	323	234	223
Unfunded AAL	\$13,511	\$13,585	\$373	\$1,283	\$484	\$513	\$(251)	\$(151)	\$507	\$730	\$(1)	\$49
Funded Ratio	18.49%	16.76%	79.08%	50.17%	63.22%	60.41%	172.23%	135.47%	52.46%	30.69%	100.62%	81.96%

Combining Statement of Fiduciary Net Position - Pension

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

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

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

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

The Opportunistic asset class was merged with Specialty Credit.

Combining Statement of Changes In Fiduciary Net Position - Pension

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

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

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

Combining Statement of Fiduciary Net Position - Insurance

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

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

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

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

The Opportunistic asset class was merged with Specialty Credit.

Combining Statement of Changes In Fiduciary Net Position - Insurance

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

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

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

Combining Statement of Fiduciary Net Position

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

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

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

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

The Opportunistic asset class was merged with Specialty Credit.

Combining Statement of Changes In Fiduciary Net Position

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

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

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

NOTE A. Summary of Significant Accounting Policies

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

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

Basis of Accounting

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

Method Used to Value Investments

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

Investment Unitization

Within the plan accounting structure there are two primary types of accounts: Plan Accounts and Pool Accounts. Plan Accounts are the owners of the investment pool. An account is established for each plan/fund and these accounts hold Units of Participation that represent the plan's/fund's invested value of the investment pool. Pool Accounts are accounts that hold the assets of the investment pool where all investment related activity and earnings occur. The pooled accounts are the investment strategies of the pool. Units of Participation are bought and sold as each plan/fund contributes or withdraws cash or assets from the investment pool. The investment pool earnings are then allocated to plans utilizing a cost distribution method that allows for fluctuating prices experienced in capital markets. This involves earnings allocated to the plan accounts with an increase or decrease in cost on the Unit of Participation Holdings of the Plan Accounts. Correspondingly, the price of the Unit of Participation Holdings is updated to reflect change in 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 2022 was \$3,000 (see Equipment Note J for further information).

Intangible Assets

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

Accounts Receivable

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

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

Payment of Benefits

Benefits are recorded when paid.

Expense Allocation

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

Component Unit

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

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

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

Recent Accounting Pronouncements

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

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

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

Note B. Descriptions & Contribution Information

CERS Membership Combined

As of June 30

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

KERS Membership Combined

As of June 30

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

SPRS Membership

As of June 30

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

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

Retiree Medical Insurance Coverage

As of June 30, 2022

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

The total number of Participating Employers is 1,448.

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

Plan Descriptions

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

CERS - County Employees Retirement System

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

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

KERS - Kentucky Employees Retirement System

KERS was established by Kentucky Revised Statute 61.515. The KERS system is comprised of two plans - KERS Nonhazardous plan and KERS Hazardous plan. The KERS Nonhazardous plan was established to provide retirement benefits to all regular full-time members employed in positions of any state department, board, or agency directed by Executive Order to participate in KERS. The membership of the KERS Hazardous plan includes employees whose position is considered hazardous with principal job duties including, but are not limited to, active law enforcement, probation and parole officer, detective, pilots, paramedics, and emergency medical technicians, with duties that require frequent exposure to a high degree of danger and also require a high degree of physical condition.

The responsibility for the general administration and operation of KERS is vested with the Kentucky Retirement Systems (KRS) Board of Trustees. The KRS Board of Trustees consist of 9 members. Six trustees are appointed by the governor and three are elected. Of the elected trustees, two are elected by KERS members and one is elected by SPRS members. Active, inactive and retired members of the appropriate system are invited to participate in the election of trustees. Of the six appointed trustees, three must have investment experience and three must have retirement experience as defined by statute. All appointments by the governor are subject to Senate confirmation. The two trustees elected by the KERS membership must be members of or retired from KERS. The one trustee elected by the SPRS membership must be a member of or retired from SPRS.

SPRS - State Police Retirement System

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

Kentucky Retirement System Insurance Trust Fund

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

Cost of Living Adjustment (COLA)

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

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

No COLA has been granted since July 1, 2011.

Employer Contributions

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

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

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

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

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

Contribution Rate Breakdown by Fund As of June 30, 2022

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

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

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

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

TIER 1:

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

TIER 2:

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

TIER 3:

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

Tier 3

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

Upside Sharing Interest

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

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

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

Insurance Fund Description

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

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

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

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

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

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

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

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

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

Note D. Investments

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

Equity

Public Equity

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

Private Equity

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

Fixed Income

Core Fixed Income

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

Specialty Credit

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

Cash and Cash Equivalent Securities

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

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

Inflation Protected

Real Estate and Real Return

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

Investment Expenses

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

Derivatives

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

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

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

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

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

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

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

SPRS Pension and Insurance Derivative Instruments - GASB 53

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

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

Derivative Instruments Subject to Counterparty Credit Risk - GASB 53

As of June 30, 2022

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

Derivative Instruments Subject to Counterparty Credit Risk - GASB 53

As of June 30, 2022

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

Custodial Credit Risk for Deposits

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

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

Custodial Credit Risk for Investments

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

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

Pension Plans Securities

CERS Pension Investment Summary - GASB 40

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

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

KERS Pension Investment Summary - GASB 40

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

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

SPRS Pension Investment Summary - GASB 40

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

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

Insurance Plans Securities

CERS Insurance Investment Summary - GASB 40

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

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

KERS Insurance Investment Summary - GASB 40

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

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

SPRS Insurance Investment Summary - GASB 40

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

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

Credit Risk Debt Securities

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

- Bonds, notes, or other obligations issued or guaranteed by the U.S. Government, its agencies or instrumentalities are permissible investments and may be held without restrictions.
- The duration of the core fixed income portfolios combined shall not vary from that of the system's Fixed Income Index by more than +/- 25% duration as measured by effective duration, modified duration or dollar duration except when the system's Investment Committee has determined a target duration to be used for an interim basis.
- The amount invested in the debt of a single corporation shall not exceed 5% of the total 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, 2022, the Pension portfolio had \$911.9 million in debt securities rated below BBB- which does not include unrated (NR) securities.

Pension Debt Securities - GASB 40					
As of June 30, 2022 (\$ in Thousands)					
Rating	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
AAA	\$241,678	\$81,819	\$163,232	\$27,612	\$28,870
AA+	4,196	1,416	2,422	457	432
AA	13,495	4,565	8,740	1,522	1,550
AA-	14,816	5,011	9,549	1,668	1,693
A+	8,978	3,031	5,292	985	944
A	15,755	5,328	10,065	1,769	1,786
A-	45,536	15,416	30,761	5,207	5,443
BBB+	73,384	24,843	49,513	8,379	8,756
BBB	88,431	29,943	55,453	9,945	9,867
BBB-	135,398	46,079	77,000	15,279	13,913
BB+	94,622	33,524	43,040	10,860	7,728
BB	58,417	21,397	28,172	7,455	5,108
BB-	71,888	26,041	33,768	9,002	6,188
B+	66,056	23,675	30,578	8,537	5,873
B	78,547	28,216	32,497	10,614	6,657
B-	49,751	17,718	19,742	7,014	4,319
CCC+	22,630	8,561	12,773	3,074	2,229
CCC	6,983	2,664	3,991	977	701
CCC-	141	47	26	22	10
CC	14	6	9	2	1
C	-	-	-	-	-
NR	1,268,275	420,607	433,831	116,836	60,083
WD	1,106	369	232	101	66
Total Credit Risk Debt Securities	2,360,097	800,277	1,050,686	247,316	172,220
Government Agencies	8,178	2,752	3,956	851	716
Government Mortgage-Backed Securities	79,526	26,937	55,069	9,155	9,725
Government Issued Commercial Mortgage Backed	3,671	1,243	2,542	423	449
Government Collateralized Mortgage Obligations	6,302	2,122	3,163	662	570
Government Bonds	129,953	43,888	77,586	14,303	13,825
Total	\$2,587,727	\$877,220	\$1,193,002	\$272,710	\$197,504

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

Insurance Debt Securities - GASB 40 As of June 30, 2022 (\$ in Thousands)

Rating	CERS		KERS		SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
AAA	\$83,799	\$42,391	\$38,735	\$16,609	\$6,703
AA+	5,193	2,635	2,380	996	416
AA	4,747	2,414	2,161	884	380
AA-	5,384	2,736	2,456	1,011	431
A+	3,401	1,738	1,526	594	273
A	6,851	3,479	3,132	1,299	549
A-	18,265	9,231	8,467	3,644	1,461
BBB+	27,430	13,878	12,671	5,436	2,194
BBB	33,290	16,854	15,237	6,161	2,659
BBB-	50,109	24,899	23,326	8,619	3,952
BB+	36,267	17,016	15,269	4,688	2,696
BB	24,177	10,310	10,962	3,674	1,693
BB-	28,614	12,426	13,226	4,284	2,036
B+	26,473	11,307	13,580	4,352	1,894
B	32,538	13,358	18,274	5,535	2,300
B-	19,854	7,905	12,489	3,696	1,406
CCC+	9,827	3,997	4,291	1,647	662
CCC	3,104	1,225	1,402	538	206
CCC-	48	18	42	10	4
CC	7	3	3	1	-
C	-	-	-	-	-
NR	467,130	251,306	180,441	105,182	38,000
WD	259	135	112	19	21
Total Credit Risk Debt Securities	886,765	449,259	380,183	178,881	69,936
Government Agencies	3,193	1,657	1,365	436	257
Government Mortgage-Backed Securities	33,122	16,719	15,403	6,748	2,648
Government Issued Commercial Mortgage Backed	1,538	776	715	313	123
Government Collateralized Mortgage Obligations	2,129	1,104	914	297	171
Government Bonds	45,537	23,286	20,393	7,875	3,653
Total	\$972,284	\$492,802	\$418,974	\$194,551	\$76,788

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.

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, 2022 (\$ in Thousands)

CERS Pension

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

Interest Rate Risk - Modified Duration - GASB 40

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

KERS Pension

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

Interest Rate Risk - Modified Duration - GASB 40

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

SPRS Pension

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

Interest Rate Risk - Modified Duration - GASB 40

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

CERS Insurance

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

Interest Rate Risk - Modified Duration - GASB 40

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

KERS Insurance

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

Interest Rate Risk - Modified Duration - GASB 40

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

SPRS Insurance

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

Foreign Currency Risk

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

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

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

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

Fair Value Measurement and Applications (GASB 72)

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

KPPA defined the Fair Value Hierarchy and Levels as follows:

Level 1

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

Level 2

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

Level 3

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

Net Asset Value (NAV)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

⁽⁴⁾ This type includes 36 managers with multiple strategies. These investments cannot be redeemed. Instead, the investments are redeemed throughout the life of the investment. Distributions are received through the liquidation of the underlying assets of the fund. It is expected that each fund will remain invested for a period of 5 to 10 years. It is probable that 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, 2022 (\$ in Thousands)

Asset Type	CERS Nonhazardous			Total	CERS Hazardous			Total
	Level			Fair Value	Level			Fair Value
	1	2	3		1	2	3	
Public Equity								
Emerging Markets	\$56,842	\$-	\$-	\$56,842	\$28,743	\$-	\$-	\$28,743
US Equity	795,684	-	-	795,684	391,849	-	-	391,849
Non-US Equity	314,478	-	-	314,478	159,024	-	-	159,024
Total Public Equity	1,167,004	-	-	1,167,004	579,616	-	-	579,616
Fixed Income								
Agencies	-	650	-	650	-	328	-	328
Asset-Backed	-	74,257	-	74,257	-	37,492	-	37,492
Bank & Finance	422	58,057	63,188	121,667	230	29,111	27,049	56,390
Cash & Cash Equivalent	-	76,471	-	76,471	-	13,018	-	13,018
Corporate	2,404	187,416	696	190,516	1,301	85,208	333	86,842
Healthcare	-	5,879	-	5,879	-	2,981	-	2,981
Insurance	-	1,778	-	1,778	-	894	-	894
Mortgage-backed securities	-	88,382	-	88,382	-	44,703	-	44,703
Municipals	-	898	-	898	-	453	-	453
Sovereign Debt	-	8,955	-	8,955	-	4,873	-	4,873
US Government	43,776	184	-	43,960	22,132	93	-	22,225
Total Fixed Income	46,602	502,927	63,884	613,413	23,663	219,154	27,382	270,199
Derivatives								
Futures	(649)	-	-	(649)	(326)	-	-	(326)
Options	-	1	-	1	-	1	-	1
Swaps	-	-	-	-	-	-	-	-
Total Derivatives	(649)	1	-	(648)	(326)	1	-	(325)
Real Return								
Real Return	21,738	-	-	21,738	11,203	-	-	11,203
Real Return - Fixed Income	-	-	2	2	-	-	1	1
Total Real Return	21,738	-	2	21,740	11,203	-	1	11,204
Total Investments at Fair Value	1,234,695	502,928	63,886	1,801,509	614,156	219,155	27,383	860,694
Investments Measured at NAV								
Specialty Credit	-	-	-	440,159	-	-	-	238,052
Private Equity	-	-	-	292,493	-	-	-	164,729
Real Estate	-	-	-	171,045	-	-	-	93,762
Real Return	-	-	-	53,385	-	-	-	29,146
Fixed Income	-	-	-	19,294	-	-	-	9,153
Non US Equity	-	-	-	194,194	-	-	-	96,628
Emerging Markets	-	-	-	1,270	-	-	-	642
US Equity	-	-	-	8,273	-	-	-	4,117
Total Investments Measured at NAV	-	-	-	1,180,113	-	-	-	636,229
Cash and Accruals	-	-	-	25,875	-	-	-	12,400
Total Investments	\$1,234,695	\$502,928	\$63,886	\$3,007,497	\$614,156	\$219,155	\$27,383	\$1,509,323

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

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

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

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

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

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

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

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

Asset Type	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⁾	\$440,159	\$67,076	Daily - Quarterly	90 Days	\$238,052	\$35,965	Daily - Quarterly	90 Days
Real Estate ⁽²⁾	171,045	44,019			93,762	24,143		
Real Return ⁽³⁾	53,385	8,740	Daily	30 - 60 Days	29,146	4,727	Daily	30 - 60 Days
Private Equity ⁽⁴⁾	292,493	80,491			164,729	43,671		
Fixed Income ⁽⁵⁾	19,294	-	Daily		9,153	-	Daily	
Non US Equity ⁽⁵⁾	195,464	-	Daily		97,270	-	Daily	
US Equity ⁽⁵⁾	8,273	-	Daily		4,117	-	Daily	
Total Investments Measured at NAV	\$1,180,113	\$200,326			\$636,229	\$108,506		

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

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

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

⁽⁴⁾ This type includes 38 managers with multiple strategies. These investments cannot be redeemed. Instead, the investments are redeemed throughout the life of the investment. Distributions are received through the liquidation of the underlying assets of the fund. It is expected that each fund will remain invested for a period of 5 to 10 years. It is probable that all of the investments in this type will be sold at an amount different from the NAV per share of the Plan's ownership interest in partners' capital. Therefore, the fair values of the investment in this asset class have been determined using recent observable transaction information.

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

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

Fair Value Measurements and Application (GASB 72) Insurance As of June 30, 2022 (\$ in Thousands)													
Asset Type	KERS Nonhazardous				KERS Hazardous				SPRS				
	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period	
Specialty Credit ⁽¹⁾	\$166,813	\$25,502	Daily - Quarterly	90 Days	\$99,958	\$14,643	Daily - Quarterly	90 Days	\$35,905	\$5,494	Daily - Quarterly	90 Days	
Real Estate ⁽²⁾	53,737	13,620			39,387	10,180			15,064	3,890			
Real Return ⁽³⁾	18,560	3,474	Daily	30 - 60 Days	12,160	1,999	Daily	30 - 60 Days	4,455	721	Daily	30 - 60 Days	
Private Equity ⁽⁴⁾	84,753	21,567			57,568	15,063			25,912	6,732			
Fixed Income ⁽⁵⁾	9,689	-	Daily		3,388	-	Daily		1,486	-	Daily		
Non US Equity ⁽⁵⁾	42,975	-	Daily		24,116	-	Daily		8,496	-	Daily		
US Equity ⁽⁵⁾	3,211	-	Daily		1,422	-	Daily		568	-	Daily		
Total Investments Measured at NAV	\$379,738	\$64,163			\$237,999	\$41,885			\$91,886	\$16,837			

⁽¹⁾ This type includes 17 high yield specialty credit managers with multiple strategies. These managers may invest in U.S. or non-U.S. investment grade corporate credit, U.S. or non U.S. non-investment grade corporate credit, including both bonds and bank loans, municipal bonds, non-U.S. sovereign debt, mortgages including residential mortgage backed securities, commercial mortgage backed securities and whole loans, asset-backed securities and emerging market debt.

⁽²⁾ This type includes 15 real estate funds that invest primarily in U.S. commercial real estate; however, there is one manager who invests solely in non-U.S. commercial real estate. The fair value of the investments have been determined using the NAV per share of the Plan's ownership interest and in the partners' capital. Distributions from each fund will be received as the underlying investments of the funds are liquidated. It is expected that the funds will be liquidated over the next 7 to 10 years. Because it is not probable that any individual investment will be sold, the fair value of each individual investment has been determined using the NAV per share of the Plan's ownership interest in the partners' capital. Due to restrictions in the contract, redemptions are not likely until the assets of the fund are liquidated.

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

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

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

Money-Weighted Rates of Return

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

Money-Weighted Rates of Return As of June 30 - Pension					
	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
2022	(5.83)%	(6.02)%	(5.29)%	(5.94)%	(5.80)%

Money-Weighted Rates of Return As of June 30 - Insurance					
	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
2022	(5.49)%	(4.95)%	(6.22)%	(4.43)%	(4.43)%

Note E. Securities Lending Transactions

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

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

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

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

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

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

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

Securities Lending Cash Collateral

As of June 30, 2022

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

Note F. Risk of Loss

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

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

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

Note G. Contingencies

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

Note H. Defined Benefit Pension Plan

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

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

Payroll and Contributions as of June 30, 2022 (\$ in Thousands)	
Covered Payroll	14,399
Required Employer Contributions	1,463
Employer Percentage Contributed	100%

Note: KRS 61.565, as amended by the 2021 Regular Legislative Session House Bill 8, requires the employers to contribute a normal cost for retirement plus and actuarially determined unfunded liability contribution. The Office of the State Budget Director determined the percentage of the contribution for FY 2022 for the Executive Branch to be 73.87% for the actuarially determined unfunded liability and 10.10% for the normal cost.

Note I. Income Tax Status

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

Note J. Equipment

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

Note L. Actuarial Valuation

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

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

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

Note M. Financial Report for (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 94-111 are based on June 30, 2021, actuarial valuations, rolled forward to June 30, 2022. The prior year valuations are used as the basis for the roll forward method and are applied to complete the current year pension and OPEB valuations as of the measurement date, June 30, 2022, in accordance with GASB *Statement No. 67*, paragraph 37, and GASB *Statement No. 74*, paragraph 41.

Financial Report for Pension Plan (GASB 67)

Basis of Calculations

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

Assumptions

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

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

Plan Provisions

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

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

Discount Rate

A single discount rate of 5.25% was used for the KERS Nonhazardous pension plan and SPRS pension plan, and a single discount rate of 6.25% was used for the KERS Hazardous pension plan, the CERS Nonhazardous pension

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

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

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

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

Additional Disclosures

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

Financial Reporting for Postemployment Benefit Plans (GASB 74)

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

Basis of Calculations

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

Assumptions

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

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

- Investment Return - 6.25%.
- Inflation - 2.30%.
- Salary Increases - 3.30% to 10.30% for CERS Nonhazardous, 3.55% to 19.05% for CERS Hazardous, 3.30% to 15.30% for KERS Nonhazardous, 3.55% to 20.05% for KERS Hazardous, 3.55% to 16.30% for SPRS, varies by service.

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

Plan Provisions

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

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

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

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

Implicit Employer Subsidy for non-Medicare retirees

The fully-insured premiums paid for the Kentucky Employees’ Health Plan are blended rates based on the combined experience of active and retired members. Because the average cost of providing health care benefits to retirees under age 65 is higher than the average cost of providing health care benefits to active employees, there is an implicit employer subsidy for the non-Medicare eligible retirees. GASB No. 74 requires that the liability associated with this implicit subsidy be included in the calculation of the Total OPEB Liability.

Discount Rates

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

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

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

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

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

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

Additional Disclosures¹

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

Target Asset Allocation

The long-term (10-year) expected rates of return were determined by using a building block method in which best estimated ranges of expected future real rates of return were developed for each asset class. The ranges were combined by weighting the expected future real rate of return by the target asset allocation percentage. The target allocation and best estimates of arithmetic real rate of return for each major asset class are summarized in the tables 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, 2022

Allocations apply to All Pension and Insurance Funds maintained by CERS

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

Target Asset Allocation - Pension As of June 30, 2022

Allocations apply to KERS Nonhazardous and SPRS Pension Funds

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

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

Allocations apply to KERS Hazardous Pension and all KRS Insurance Funds

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

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

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

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

Sensitivity of the Net OPEB Liability to Changes in the Discount Rate and Healthcare Trend Rate

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

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

Development of Single Discount Rate for OPEB

As of June 30, 2022

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Note N. Pension Legislation

2022 Regular Session

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

HOUSE BILLS:

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

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

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

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

House Bill 604: KERS Nonhazardous receives additional allocations

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

House Bill 9: Charter Schools

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

House Bill 49: Pension Spiking

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SENATE BILLS:

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

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

Senate Bill 209: Health Insurance Benefits

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

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

State Senate Confirms Gubernatorial Appointments to CERS and KRS Boards

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

- A. **Senate Resolution 198** confirmed the appointment of **Pamela F. Thompson** to the Board of Trustees of the Kentucky Retirement Systems for a term expiring June 17, 2023;

- B. **Senate Resolution 242** confirmed the appointment of **Martin I. Milkman** to the Board of Trustees of the County Employees Retirement System for a term ending July 1, 2025; and

- C. **Senate Resolution 261** confirmed the appointment of **E. Lynn Hampton** to the Board of Trustees of the Kentucky Retirement Systems for a term expiring June 17, 2022, completing the term of David Harris. Subsequently, on June 10, 2022, Governor Andy Beshear issued Executive Order 2022-325 re-appointing Ms. Hampton to a full four year term to expire on June 17, 2026. This Executive Order also appointed Ramsey Bova and William E Summers to a term of four years to expire on June 17, 2026. This Executive Order will need to be confirmed by the Senate during the 2023 Regular Session.

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

Note O. Litigation

Seven Counties

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

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

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

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

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

Mayberry

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

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

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

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

Bayhills

In 2018, Kentucky Retirement Systems sued Bayhills for breach of contract seeking to terminate Bayhills as investment managers. Kentucky Retirement Systems filed the suit in Franklin Circuit Court, but Bayhills removed it to federal district court. Kentucky Retirement Systems successfully had the case remanded back to state court. The case is now pending before Franklin Circuit Court. The Court entered an injunction preventing Bayhills from paying themselves management and other fees during the litigation. Bayhills has appealed this ruling to the Court of Appeals. The Court of Appeals and the Kentucky Supreme Court denied 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 to receive their health insurance through the Kentucky Employees Health Plan, and KPPA has promulgated a regulation to reimburse those individuals who had to pay for health insurance consistent with the Sixth Circuit Opinion. The two lawsuits from January and February are currently in the discovery phase concerning class certification.

Mountain Comprehensive Care Center & Adanta

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

Note P. Reciprocity Agreement

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

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

Reimbursement of Retired Re-Employed Health Insurance

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

Active Member Health Insurance Contributions

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

Retired Re-Employed Employer Contributions

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

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

Note R. General Fund Appropriations

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

Note S. Prisma Daniel Boone Fund

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

Note T. Subsequent Events

Management has evaluated the period June 30, 2022 to December 7, 2022 (the date the combining financial statements were available to be issued) for items requiring recognition or disclosure in the combining financial statements.

Note U. Employer Cessation

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

REQUIRED SUPPLEMENTARY INFORMATION

INCLUDING GASB 67 AND 74

- 94 Schedule of Employers' NPL CERS
Nonhazardous
- 94 CERS Hazardous
- 95 KERS Nonhazardous
- 95 KERS Hazardous
- 95 SPRS
- 96 Schedule of Changes in Employers' CERS
Nonhazardous
- 97 CERS Hazardous
- 98 KERS Nonhazardous
- 99 KERS Hazardous
- 100 SPRS
- 101 Notes to Schedule of Employers' Contributions
- 102 Schedule of Employers' Contributions Pension
CERS Nonhazardous
- 102 CERS Hazardous
- 103 KERS Nonhazardous
- 103 KERS Hazardous
- 104 SPRS
- 105 Schedule of Employers' NOL CERS
Nonhazardous
- 105 CERS Hazardous
- 106 KERS Nonhazardous
- 106 KERS Hazardous
- 106 SPRS
- 107 Schedule of Changes NOL CERS Nonhazardous
- 108 CERS Hazardous
- 109 KERS Nonhazardous
- 110 KERS Hazardous
- 111 SPRS
- 112 Notes to Schedule of Employers' OPEB
Contribution
- 114 Schedule of Employers' OPEB Contributions
CERS Nonhazardous
- 114 CERS Hazardous
- 115 KERS Nonhazardous
- 115 KERS Hazardous
- 116 SPRS
- 117 Money Weighted Rates of Return
- 121 Report on Internal Control

Schedule of Employers' NPL - CERS Nonhazardous Pension

As of June 30 (\$ in Thousands)

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

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

Schedule of Employers' NPL - CERS Hazardous Pension

As of June 30 (\$ in Thousands)

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

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

Schedule of Employers' NPL - KERS Nonhazardous Pension

As of June 30 (\$ in Thousands)

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

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

Schedule of Employers' NPL - KERS Hazardous Pension

As of June 30 (\$ in Thousands)

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

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

Schedule of Employer's NPL - SPRS Pension

As of June 30 (\$ in Thousands)

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

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

Schedule of Changes in Employers' TPL - CERS Nonhazardous

As of June 30 (\$ in Thousands)

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

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

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

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

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

⁽⁵⁾ Northern Trust Settlement.

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

Schedule of Changes in Employers' TPL - CERS Hazardous

As of June 30 (\$ in Thousands)

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

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

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

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

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

⁽⁵⁾ Northern Trust Settlement.

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

Schedule of Changes in Employers' TPL - KERS Nonhazardous

As of June 30 (\$ in Thousands)

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

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

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

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

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

⁽⁵⁾ Northern Trust Settlement.

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

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

Schedule of Changes in Employers' TPL - KERS Hazardous

As of June 30 (\$ in Thousands)

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

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

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

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

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

⁽⁵⁾ Northern Trust Settlement.

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

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

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

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

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

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

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

⁽⁵⁾ Northern Trust Settlement.

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

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

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

Schedule of Employers' Contributions Pension - CERS Nonhazardous

As of June 30 (\$ in Thousands)

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

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

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

Schedule of Employers' Contributions Pension - CERS Hazardous

As of June 30 (\$ in Thousands)

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

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

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

Schedule of Employers' Contributions Pension - KERS Nonhazardous

As of June 30 (\$ in Thousands)

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

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

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

Schedule of Employers' Contributions Pension - KERS Hazardous

As of June 30 (\$ in Thousands)

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

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

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

Schedule of Employer's Contributions Pension - SPRS

As of June 30 (\$ in Thousands)

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

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

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

Schedule of the Employers' Net OPEB Liability - CERS Nonhazardous

As of June 30 (\$ in Thousands)

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

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

Schedule of the Employers' Net OPEB Liability - CERS Hazardous

As of June 30 (\$ in Thousands)

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

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

Schedule of the Employers' Net OPEB Liability - KERS Nonhazardous

As of June 30 (\$ in Thousands)

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

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

Schedule of the Employers' Net OPEB Liability - KERS Hazardous

As of June 30 (\$ in Thousands)

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

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

Schedule of the Employer's Net OPEB Liability - SPRS

As of June 30 (\$ in Thousands)

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

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

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

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

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

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

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

⁽⁴⁾ Northern Trust Settlement.

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

Schedule of Changes in Employers' Net OPEB Liability - CERS Hazardous

As of June 30 (\$ in Thousands)

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

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

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

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

⁽⁴⁾ Northern Trust Settlement.

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

Schedule of Changes in Employers' Net OPEB Liability - KERS Nonhazardous

As of June 30 (\$ in Thousands)

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

Schedule of Changes in Employers' Net OPEB Liability - KERS Hazardous

As of June 30 (\$ in Thousands)

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

⁽¹⁾ Benefit payments are offset by insurance premiums received from retirees, Medicare Drug Reimbursements, and Humana Gain Share Payments (in applicable years).

⁽²⁾ Employer contributions and benefit payments include expected benefits due to the implicit subsidy for members under age 65, equal to \$2,835,815 for fiscal year 2022.

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

⁽⁴⁾ Northern Trust Settlement.

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

Schedule of Changes in Employer's Net OPEB Liability - SPRS

As of June 30 (\$ in Thousands)

	2022	2021	2020	2019	2018	2017
Total OBEPL Liability						
Service Cost	\$5,605	\$5,218	\$5,389	\$4,816	\$6,087	\$4,147
Interest on Total OPEB liability	18,592	17,984	17,600	17,724	18,432	17,993
Benefit Changes	4,975	101	-	-	34	-
Difference between Expected and Actual Experience	(5,952)	(6,318)	13,810	(14,295)	(23,320)	(573)
Assumption Changes	(21,937)	21,784	4,578	16,483	(358)	57,312
Benefit Payments ⁽¹⁾⁽²⁾	(14,729)	(13,812)	(13,988)	(13,187)	(13,097)	(12,123)
Net Change in Total OPEB Liability	(13,446)	24,957	27,389	11,541	(12,222)	66,756
Total OPEB Liability - Beginning	364,899	339,942	312,553	301,012	313,234	246,478
Total OPEB Liability - Ending (a)	\$351,453	\$364,899	\$339,942	\$312,553	\$301,012	\$313,234
Plan Fiduciary Net Position						
Contributions – Employer ⁽²⁾	\$9,343	\$9,381	\$12,873	\$12,623	\$8,535	\$7,862
Contributions – Member	230	209	196	176	155	131
Benefit Payments ⁽¹⁾⁽²⁾	(14,729)	(13,812)	(13,988)	(13,187)	(13,097)	(12,123)
OPEB Plan Net Investment Income	(10,847)	50,289	1,124	10,815	16,470	21,627
OPEB Plan Administrative Expense	(73)	(89)	(71)	(69)	(62)	(66)
Other ⁽⁴⁾	-	-	-	1	8	-
Net Change in Plan Fiduciary Net Position	(16,076)	45,978	134	10,359	12,009	17,431
Plan Fiduciary Net Position – Beginning	247,318	201,340	201,206	190,847	178,838	161,407
Plan Fiduciary Net Position – Ending (b)	231,242	247,318	201,340	201,206	190,847	178,838
Net OPEB Liability – Ending (a) – (b)	\$120,211	\$117,581	\$138,602	\$111,347	\$110,165	\$134,396
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	65.80%	67.78%	59.23%	64.38%	63.40%	57.09%
Covered Payroll ⁽³⁾	\$48,600	\$47,155	\$48,231	\$48,780	\$50,064	\$48,873
Net OPEB Liability as a Percentage of Covered Payroll	247.35%	249.35%	287.37%	228.26%	220.05%	274.99%

⁽¹⁾ Benefit payments are offset by insurance premiums received from retirees, Medicare Drug Reimbursements, and Humana Gain Share Payments (in applicable years).

⁽²⁾ Employer contributions and benefit payments include expected benefits due to the implicit subsidy for members under age 65, equal to \$561,417 for fiscal year 2022.

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

⁽⁴⁾ Northern Trust Settlement.

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

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

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

Notes to Schedule of Employers' OPEB Contributions

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

Notes to Schedule of Employers' OPEB Contributions

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

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

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

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

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

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

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

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

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

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

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

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

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

Schedule of Employers' OPEB Contributions - KERS NonHazardous

As of June 30 (\$ in Thousands)

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

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

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

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

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

Schedule of Employers' OPEB Contributions - KERS Hazardous

As of June 30 (\$ in Thousands)

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

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

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

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

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

Schedule of Employer's OPEB Contributions - SPRS

As of June 30 (\$ in Thousands)

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

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

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

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

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

Money-Weighted Rates of Return

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

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

Money - Weighted Rates of Return As of June 30					
	CERS	CERS	KERS	KERS	SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
Pension					
2022	(5.83)%	(6.02)%	(5.29)%	(5.94)%	(5.80)%
2021	25.72%	25.58%	22.53%	25.21%	21.70%
2020	0.84%	0.71%	2.35%	0.96%	2.21%
2019	5.72%	5.76%	5.77%	5.68%	5.67%
2018	8.82%	8.82%	7.63%	8.69%	7.68%
2017	13.80%	13.72%	12.08%	13.45%	12.50%
2016	(0.62)%	(0.46)%	(0.97)%	(0.33)%	(1.76)%
2015	1.90%	1.95%	2.30%	1.84%	1.80%
2014	15.56%	15.50%	15.50%	15.65%	15.66%
Insurance					
	CERS	CERS	KERS	KERS	SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
2022	(5.49)%	(4.95)%	(6.22)%	(4.43)%	(4.43)%
2021	24.81%	24.99%	25.16%	24.99%	25.36%
2020	0.36%	0.27%	0.98%	0.21%	0.64%
2019	5.73%	5.78%	5.04%	5.56%	5.73%
2018	9.22%	9.35%	7.95%	8.93%	9.39%
2017	13.67%	13.69%	13.77%	13.75%	13.69%

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)

	2022	2021
Personnel		
Salaries and Per Diem	\$15,803	\$14,426
Pension, Insurance Related Benefits	16,165	14,875
Unemployment Compensation	-	-
Employee Training	10	10
Total Personnel	31,978	29,311
Contractual		
Actuarial Services	474	449
Audit Services	142	72
Human Resource Consulting	6	-
Legal Counsel	1,126	754
Medical Review Services	1,593	316
Miscellaneous	124	88
Total Contractual	3,465	1,679
Communication		
Printing	77	107
Telephone	123	106
Postage	377	552
Travel	32	15
Total Communication	609	780
Internal Audit		
Travel/Conferences	2	1
Dues/Subscriptions	1	2
Total Internal Audit	3	3
Investments-Pension Funds		
Travel/Conferences	7	-
Dues/Subscriptions	13	9
Legal	-	10
Total Investments	15	19
Rentals		
Office Space	1,013	1,061
Equipment	92	67
Total Rentals	1,103	1,128
Information Technology		
Software	2,972	2,430
Total Information Technology	2,972	2,430
Miscellaneous		
Utilities	142	153
Supplies	83	47
Insurance	5	4
Dues & Subscriptions	52	44
Maintenance	-	1
Other	34	1
COVID Expenses	13	153
Total Miscellaneous	336	403
Depreciation/Amortization/Accruals	(739)	1,113
Bayhills legal fees paid out of admin	-	(77)
Total Pension Fund Administrative Expense	39,742	36,789
Healthcare Fees	2,454	2,354
Total Insurance Fund Administrative Expense	2,454	2,354
Total Administrative Expenses	\$42,196	\$39,143

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

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

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

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

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

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



Blue & Co., LLC / 250 West Main Street, Suite 2900 / Lexington, KY 40507
main 859.253.1100 fax 859.253.1384 email blue@blueandco.com

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

To the Members
Kentucky Public Pensions Authority
Frankfort, Kentucky

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of Kentucky Public Pensions Authority, as of and for the year ended June 30, 2022, and the related notes to the financial statements, which collectively comprise the Kentucky Public Pensions Authority's basic financial statements, and have issued our report thereon dated December 7, 2022.

Report on Internal Control Over Financial Reporting

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

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

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

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

Report on Compliance and Other Matters

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

Purpose of this Report

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

Blue & Co., LLC

Lexington, Kentucky
December 7, 2022

INVESTMENTS

TABLE OF CONTENTS

124	INVESTMENT OVERVIEW
127	INVESTMENT STRATEGIES
128	INVESTMENT OBJECTIVES
129	INVESTMENT RESULTS
130	BENCHMARKS
131	LONG-TERM RESULTS
132	PUBLIC EQUITY
134	CORE FIXED INCOME
135	SPECIALTY CREDIT
136	PRIVATE EQUITY
136	REAL ESTATE
137	REAL RETURN
137	CASH
138	ADDITIONAL SCHEDULES & REQUIRED SUPPLEMENTAL INFORMATION
138	INVESTMENT ADVISORS AND ASSETS UNDER MANAGEMENT
144	EXTERNAL INVESTMENT EXPENSE
145	COMMISSIONS
146	FAIR VALUES BY PLAN

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 total rate of return on investments, within prudent risk parameters, 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 and the CERS Board. 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

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 investment return to the plans 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 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 manager 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.

Board Policies vs. Actual Asset Allocation As of June 30, 2022

	Public Equity	Private Equity	Core Fixed Income	Specialty Credit	Cash	Real Estate	Real Return	Total Plan
Pension								
CERS Nonhazardous Policy Asset Allocation	50.00%	10.00%	10.00%	10.00%	0.00%	7.00%	13.00%	100.00%
CERS Nonhazardous Actual Asset Allocation	45.85%	9.48%	11.79%	21.58%	1.04%	6.22%	4.04%	100.00%
CERS Hazardous Policy Asset Allocation	50.00%	10.00%	10.00%	10.00%	0.00%	7.00%	13.00%	100.00%
CERS Hazardous Actual Asset Allocation	45.96%	9.31%	11.75%	21.53%	1.67%	5.83%	3.95%	100.00%
KERS Nonhazardous Policy Asset Allocation	32.50%	7.00%	20.50%	15.00%	5.00%	10.00%	10.00%	100.00%
KERS Nonhazardous Actual Asset Allocation	30.33%	6.56%	21.69%	19.44%	13.44%	5.51%	3.03%	100.00%
KERS Hazardous Policy Asset Allocation	43.50%	10.00%	10.00%	15.00%	1.50%	10.00%	10.00%	100.00%
KERS Hazardous Actual Asset Allocation	40.98%	8.50%	13.23%	21.15%	6.85%	5.62%	3.67%	100.00%
SPRS Policy Asset Allocation	32.50%	7.00%	20.50%	15.00%	5.00%	10.00%	10.00%	100.00%
SPRS Actual Asset Allocation	28.51%	3.59%	21.14%	16.53%	24.30%	3.65%	2.28%	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, 2022

	Public Equity	Private Equity	Core Fixed Income	Specialty Credit	Cash	Real Estate	Real Return	Total Plan
Insurance								
CERS Nonhazardous Policy Asset Allocation	50.00%	10.00%	10.00%	10.00%	0.00%	7.00%	13.00%	100.00%
CERS Nonhazardous Actual Asset Allocation	45.74%	9.74%	11.58%	21.47%	2.50%	5.69%	3.28%	100.00%
CERS Hazardous Policy Asset Allocation	50.00%	10.00%	10.00%	10.00%	0.00%	7.00%	13.00%	100.00%
CERS Hazardous Actual Asset Allocation	45.25%	10.92%	11.64%	21.68%	0.81%	6.22%	3.48%	100.00%
KERS Nonhazardous Policy Asset Allocation	43.50%	10.00%	10.00%	15.00%	1.50%	10.00%	10.00%	100.00%
KERS Nonhazardous Actual Asset Allocation	40.89%	6.58%	12.55%	20.71%	12.11%	4.17%	2.99%	100.00%
KERS Hazardous Policy Asset Allocation	43.50%	10.00%	10.00%	15.00%	1.50%	10.00%	10.00%	100.00%
KERS Hazardous Actual Asset Allocation	40.88%	9.93%	12.23%	22.00%	4.49%	6.79%	3.68%	100.00%
SPRS Policy Asset Allocation	43.50%	10.00%	10.00%	15.00%	1.50%	10.00%	10.00%	100.00%
SPRS Actual Asset Allocation	40.74%	11.31%	12.14%	22.07%	3.65%	6.58%	3.51%	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.

Investments Performance Review Procedures

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 industry leading external consultants to assist in determining and reviewing the asset allocation guidelines. Consultants also provide performance reports covering both the internally managed and externally managed assets.

Investment Objectives

The investment objectives of the portfolios are to produce results that exceed the stated goals over both short-term and long-term periods.

- **Shorter-Term** (5 years and less): The returns of the particular asset classes of the managed funds, measured on an annual basis, should exceed the returns achieved by a policy benchmark portfolio of comparable unmanaged market indices.
- **Medium-Term** (5 to 20 years): The returns of the particular asset classes of the managed funds, measured on a rolling 5 to 20 year basis, should exceed the returns achieved by a policy benchmark portfolio composed of comparable unmanaged market indices and perform above the median of an appropriate peer universe, if there is one.
- **Longer-Term**: The total assets of KRS should achieve a return of 5.25% for KERS Nonhazardous and SPRS Pension and 6.25% for CERS Nonhazardous, CERS Hazardous, and KERS Hazardous Pension and all Insurance plans. This is measured for 20 years and beyond and should exceed the actuarially assumed rate of return as well as the return achieved by its total fund benchmark.

In keeping with their responsibilities, the CERS and KRS Boards, and wherever consistent with their fiduciary responsibilities, will encourage the investment of the fund's assets in investments, funds, and securities of corporations which provide a positive contribution to the economy of the Commonwealth of Kentucky. However, where any security is not a prohibited investment under the governing laws and policies, discretion will be granted to the appointed investment managers in the selection of such securities and timing of transactions consistent with established guidelines and restrictions.

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 2022 Results

Please see the tables below for the net returns reported for the fiscal year ended June 30, 2022.

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

Pension Funds	Fair Value	% of Total	1 Year		3 Years		5 Years		GANIR	10 Years		Inception	
			Plan	Index	Plan	Index	Plan	Index		Plan	Index	Plan	Index
CERS	\$7,948,697	52.98%	(5.90)%	(6.41)%	6.06%	5.64%	6.53%	6.06%	5.68%	7.32%	7.08%	8.82%	8.85%
CERS Hazardous	2,703,103	18.02%	(6.07)%	(6.41)%	5.91%	5.64%	6.45%	6.06%	5.79%	7.29%	7.08%	8.81%	8.85%
KERS	2,992,877	19.95%	(5.19)%	(4.79)%	5.95%	5.13%	6.21%	5.66%	5.28%	7.03%	6.85%	8.74%	8.78%
KERS Hazardous	815,643	5.44%	(5.95)%	(5.22)%	5.93%	6.08%	6.43%	6.33%	5.70%	7.27%	7.22%	8.80%	8.88%
SPRS	542,364	3.62%	(4.63)%	(4.79)%	5.86%	5.13%	6.19%	5.66%	5.58%	6.92%	6.82%	8.71%	8.78%
Total	\$15,002,684	100.00%	(5.73)%	(5.76)%	6.03%	5.67%	6.49%	6.03%		7.28%	7.12%	8.81%	8.86%

Net Returns As of June 30, 2022 (\$ 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	\$3,004,344	45.45%	(5.43)%	(6.22)%	5.80%	5.23%	6.46%	5.86%	7.21%	7.04%	7.29%	7.50%
CERS Hazardous	1,508,531	22.82%	(4.99)%	(6.22)%	5.99%	5.23%	6.61%	5.86%	7.30%	7.05%	7.31%	7.50%
KERS	1,288,569	19.49%	(6.15)%	(4.85)%	5.85%	5.89%	6.09%	6.23%	6.87%	7.20%	7.19%	7.55%
KERS Hazardous	579,533	8.77%	(4.53)%	(4.85)%	6.13%	5.74%	6.57%	6.17%	7.25%	7.19%	7.30%	7.54%
SPRS	229,049	3.47%	(4.50)%	(4.85)%	6.41%	5.74%	6.85%	6.17%	7.41%	7.21%	7.34%	7.55%
Total	6,610,026	100.00%	(5.34)%	(5.21)%	5.92%	5.61%	6.49%	6.09%	7.20%	7.20%	7.28%	7.55%

NOTE: The fair values in the above charts for CERS and CERS Hazardous will not match those fair values reported on the Combining Statements of Fiduciary Net Position due to an adjustment made to the FY22 statements to capture a correction to FY22 earnings that was made after 6/30/2022.

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, 2022				
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 Barclays US Aggregate	Core Fixed Income	10.00%	20.50%	10.00%
50% Bloomberg Barclays US High Yield/50% S&P LSTA Leveraged Loan	Specialty Credit	10.00%	15.00%	15.00%
Citigroup 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. The actuarial rate of return for KERS Nonhazardous and SPRS pension is 5.25% and 6.25% for all other funds.

Since June 30, 2013, returns ranged from a minimum of (5.73)% in 2022 to a maximum of 25.00% in 2021. For fiscal year 2022, the annualized total net returns failed to meet the actuarially assumed rates of return. Translating this into dollars, an ending balance of \$1,000 in fiscal year 2012 would have a balance of \$2,022 in fiscal year 2022. The annualized benchmark would have returned \$2,021.

Pension Trust Growth As of June 30 (in Whole \$)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Pension Return	10.82%	15.55%	2.01%	(0.52)%	13.47%	8.57%	5.83%	1.15%	25.00%	(5.73)%
Performance BM	11.21%	14.91%	3.13%	(0.19)%	13.28%	7.91%	6.00%	0.50%	24.07%	(5.76)%
Actuarial Assumed ROR CERS Nonhazardous, CERS Hazardous and KERS Hazardous	7.75%	7.75%	7.75%	7.50%	7.50%	6.25%	6.25%	6.25%	6.25%	6.25%
Actuarial Assumed ROR KERS Nonhazardous and SPRS	7.75%	7.75%	7.75%	7.50%	6.75%	5.25%	5.25%	5.25%	5.25%	5.25%

Pension	\$1,000	\$1,320	\$1,525	\$1,556	\$1,548	\$1,757	\$1,907	\$2,018	\$2,041	\$2,552	\$2,022
Performance Benchmark	1,000	1,350	1,552	1,600	1,597	1,809	1,952	2,070	2,080	2,581	2,021
Actuarial Assumed ROR CERS Nonhazardous, CERS Hazardous and KERS Hazardous	1,000	1,251	1,348	1,452	1,561	1,678	1,783	1,895	2,013	2,139	2,109
Actuarial Assumed ROR KERS Nonhazardous and SPRS	\$1,000	\$1,251	\$1,348	\$1,452	\$1,561	\$1,667	\$1,754	\$1,846	\$1,943	\$2,045	\$1,998

The chart below shows theoretical annual returns for the Insurance portfolio since June 30, 2013, where returns range from a minimum of (5.34)% in 2022 to a maximum of 24.95% in 2021. As of June 30, 2022, the Insurance portfolio earned (5.34)% versus the annualized benchmark return of (5.21)%. The chart below indicates that with an ending balance of \$1,000 in fiscal year 2012, the Insurance portfolio would have earned \$2,005 compared to the actuarially assumed rate of return of \$1,958 and the annualized benchmark return of \$2,033 over the 10-year period.

Insurance Trust As of June 30 (in Whole \$)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
Total Return	10.11%	14.89%	1.86%	(0.09)%	13.72%	9.05%	5.67%	0.48%	24.95%	(5.34)%	
Performance BM	11.05%	15.03%	3.79%	0.03%	13.55%	8.48%	5.89%	0.13%	23.84%	(5.21)%	
Actuarial Assumed ROR	7.75%	7.75%	7.75%	7.50%	7.50%	6.25%	6.25%	6.25%	6.25%	6.25%	
Insurance	\$1,000	\$1,336	\$1,535	\$1,564	\$1,562	\$1,777	\$1,938	\$2,047	\$2,057	\$2,082	\$2,005
Performance Benchmark	1,000	1,418	1,631	1,693	1,693	1,923	2,086	2,208	2,211	2,157	2,033
Actuarial Assumed ROR	\$1,000	\$1,251	\$1,348	\$1,452	\$1,561	\$1,678	\$1,783	\$1,895	\$2,013	\$1,985	\$1,958

Public Equity

During the fiscal year ending June 30, 2022, a significant change to the public equity allocation occurred as both the KRS and CERS Investment Committees and Boards approved a new target allocation and benchmark. Historically, the plans have invested in both U.S. and Non-U.S. markets, and have done so with respect to their own distinct allocation with representative benchmark. During the course of the fiscal year, it was decided that plans would now target a global allocation (rather than U.S. and Non-U.S. separately), and benchmark that to the MSCI ACWI Index.

For the fiscal year, the KPPA Pension Public Equity portfolio underperformed the benchmark by 106bps, (18.1)% versus the (17.0)% (KPPA Insurance Public Equity: (17.9)%). Relative underperformance was influenced by an overweight to Non-U.S. equities during the new target allocation transition combined with weaker stock selection in the international growth portion of the portfolio.

During the 12-months ending June 30, 2022, the KPPA Pension U.S. equity mandates combined to outperform the R3000, (13.6)% versus (13.9)%; while the aggregate KPPA Insurance U.S. equity mandates returned (13.4)%. Stock selection was solid with the only relative weakness coming from the all cap mandates. The small and microcap strategies held up significantly better than their respective indices. The aggregate value tilt was additive, as the style provided over 12% of downside protection over growth. Since inception the Pension U.S. equity mandates have returned 11.1%, underperforming the benchmark by 8bps, while the Insurance U.S. equity mandates earned 9.7% annualized, outpacing the benchmark by 4bps.

For the fiscal year, the KPPA Pension Non-U.S. equity mandates combined to underperform the MSCI ACWI Ex-US by 194bps, returning (22.8)% versus (19.9)%; while the aggregate KPPA Insurance international mandates returned (22.7)%. During a risk off environment, the growth managers and aggregate slight emerging market overweight hampered relative performance. Value mandates performed well, and partially offset some of the weakness in other parts of the portfolio. Since inception the Pension Non-U.S. equity mandates have returned 2.9%, underperforming the benchmark by 20bps, while the Insurance U.S. equity mandates earned 2.9% annualized, outpacing the benchmark by 47bps.

Return on Public Equity As of June 30, 2022

	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Public equity						
Pension	4/1/1984	(18.05)%	5.50%	6.56%	8.60%	10.02%
Performance Benchmark		(16.99)%	5.62%	6.54%	8.51%	9.88%
Insurance	7/1/1992	(17.94)%	5.53%	6.54%	8.62%	8.28%
Performance Benchmark		(17.02)%	5.58%	6.51%	8.46%	8.11%
US Equity						
Pension	4/1/1984	(13.56)%	9.48%	10.11%	12.03%	11.12%
Performance Benchmark		(13.87)%	9.77%	10.60%	12.57%	11.20%
Insurance	7/1/1992	(13.39)%	9.50%	10.11%	12.11%	9.65%
Performance Benchmark		(13.87)%	9.77%	10.60%	12.57%	9.61%
Non US Equity						
Pension	7/1/2000	(22.80)%	1.38%	3.15%	5.69%	2.91%
Performance Benchmark		(19.86)%	1.55%	2.52%	5.08%	3.11%
Insurance	4/1/2000	(22.73)%	1.40%	3.09%	5.59%	2.89%
Performance Benchmark		(19.86)%	1.55%	2.52%	5.08%	2.42%

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

Top 10 Public Equity Holdings		
Pension		
As of June 30, 2022 (\$ in Thousands)		
Company	Shares	Fair Value
APPLE INC	1,141,182	\$156,022
MICROSOFT CORP	555,085	142,562
AMAZON.COM INC	649,413	68,974
ALPHABET INC	22,322	48,645
ALPHABET INC	20,467	44,771
TESLA INC	62,282	41,942
BERKSHIRE HATHAWAY INC	134,275	36,660
UNITEDHEALTH GROUP INC	69,630	35,764
JOHNSON & JOHNSON	195,299	34,668
NVIDIA CORP	185,845	28,172
Total	3,035,800	\$638,181

Top 10 Public Equity Holdings		
Insurance		
As of June 30, 2022 (\$ in Thousands)		
Company	Shares	Fair Value
APPLE INC	525,318	\$71,821
MICROSOFT CORP	255,521	65,625
AMAZON.COM INC	298,943	31,751
ALPHABET INC	10,276	22,394
ALPHABET INC	9,422	20,610
TESLA INC	28,670	19,307
BERKSHIRE HATHAWAY INC	61,810	16,875
UNITEDHEALTH GROUP INC	32,053	16,463
JOHNSON & JOHNSON	89,902	15,959
NVIDIA CORP	85,549	12,968
Total	1,397,464	\$293,774

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, 2022, the Pension Core Fixed Income portfolio outperformed the benchmark by 4.81%, with a return of (5.48)% compared to the Bloomberg Barclays U.S. Aggregate which returned (10.29)%. The Insurance Core Fixed Income portfolio posted a (5.67)% rate of return, which outperformed the Bloomberg Barclays U.S. Aggregate Bond Index by 4.62%. Relative outperformance was driven by the shorter duration profile and tactical allocation to front end investment grade credit as rates rose and credit spreads widened. Since inception, the Pension Core Fixed Income portfolio has outperformed the benchmark by 0.73%; while the Insurance Core Fixed Income portfolio has outperformed by 0.43% annually.

Return on Core Fixed Income

As of June 30, 2022

Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	7/1/2013	(5.48)%	0.97%	2.05%	N/A	2.52%
Performance Benchmark	7/1/2013	(10.29)%	(0.93)%	0.88%	N/A	1.79%
Insurance	7/1/2013	(5.67)%	0.75%	1.93%	N/A	2.22%
Performance Benchmark	7/1/2013	(10.29)%	(0.93)%	0.88%	N/A	1.79%

Note: Pension and Insurance benchmark is Bloomberg Barclays US Aggregate.

Top 10 Core Fixed Income Holdings

Pension

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

Issuer	Shares	Fair Value
U S TREASURY BILL	30,902,000	\$ 30,877
U S TREASURY NOTE	31,049,000	30,804
U S TREASURY NOTE	21,145,000	20,891
U S TREASURY NOTE	11,430,000	11,335
U S TREASURY NOTE	11,498,000	11,298
CHARTER COMM OPERATING 10/19	10,737,743	10,438
U S TREASURY NOTE	10,177,000	9,286
CITIGROUP INC	9,469,000	9,098
SMRT 2022-MINI MINI A 144A	8,580,000	8,264
BX TRUST 2022-LBA6 LBA6 A 144A	8,580,000	8,245
Total	153,567,743	\$150,536

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

Top 10 Core Fixed Income Holdings

Insurance

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

Issuer	Shares	Fair Value
U S TREASURY NOTE	12,413,000	\$ 12,264
U S TREASURY BILL	10,888,000	10,879
U S TREASURY NOTE	3,874,000	3,842
U S TREASURY NOTE	4,115,000	3,755
CHARTER COMM OPERATING 10/19	3,655,185	3,553
CITIGROUP INC	3,391,000	3,258
U S TREASURY NOTE	3,212,000	3,156
MICROCHIP TECHNOLOGY INC	2,907,000	2,860
SMRT 2022-MINI MINI A 144A	2,960,000	2,851
BB-UBS TRUST 2012- SHOW A 144A	2,955,000	2,845
Total	50,370,185	\$ 49,263

Specialty Credit

For the fiscal year ended June 30, 2022, the Pension Specialty Credit portfolio returned 1.20%, outperforming the benchmark by 9.06% which returned (7.86)% for the year. The Insurance Specialty Credit portfolio posted a 1.39% rate of return, outperforming the benchmark by 9.25%. Since inception, the Pension and Insurance Specialty Credit portfolios have outperformed their respective benchmarks by 2.88% and 2.68%, respectively.

Return on Specialty Credit						
As of June 30, 2022						
Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	7/1/2017	1.20%	4.78%	5.41%	N/A	5.41%
Performance Benchmark	7/1/2017	(7.86)%	1.17%	2.53%	N/A	2.53%
Insurance	7/1/2017	1.39%	4.68%	5.21%	N/A	5.21%
Performance Benchmark	7/1/2017	(7.86)%	1.17%	2.53%	N/A	2.53%

Note: Pension and Insurance benchmark is 50% Bloomberg Barclays US High Yield 50% S&P LSTA Leveraged Loan

Top 10 Specialty Credit Holdings	
Pension	
As of June 30, 2022 (\$ in Thousands)	
Issuer	Fair Value
POWERSCOURT	\$24,015
HILTON GRAND 5/21 COV-LITE TLB	3,186
HCA INC	3,168
TRANSDIGM INC 144A	3,083
INDONESIA TREASURY BOND	3,045
UBER TECHNOLOGIES INC 144A	2,797
CALLON PETROLEUM CO	2,740
NEXTERA ENERGY INC	2,736
DELTA AIR LINES INC / SKY 144A	2,701
HUBBAY MINERALS INC 144A	2,674
Total	\$50,145

Top 10 Specialty Credit Holdings	
Insurance	
As of June 30, 2022 (\$ in Thousands)	
Issuer	Fair Value
POWERSCOURT	\$11,614
AVANTOR 7/21 B5 COV-LITE TLB	1,499
TRANSDIGM INC 144A	1,221
HILTON GRAND 5/21 COV-LITE TLB	1,190
HCA INC	1,167
UBER TECHNOLOGIES INC 144A	1,152
AMAYA 6/18 (USD) TL	1,127
CALLON PETROLEUM CO	1,116
AUTHENTIC BRANDS 1/21 TLB	1,103
HUBBAY MINERALS INC 144A	1,100
Total	\$22,289

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, 2022, the Pension Private Equity portfolio posted a return of 22.70%, while the Insurance Private Equity portfolio returned 30.26%. 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 2022. 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, 2022, the Pension and Insurance Private Equity portfolios returned 17.41% and 16.67%, respectively. Over the past 10 years, the Pension portfolio trailed its benchmark by 2.84% but still produced a 14.77% return. The Insurance portfolio return of 15.41% was below its benchmark of 17.61%. Since inception in 2002, the Pension and Insurance portfolio's have reported a 12.53% return and a 11.43% return, respectively.

Return on Private Equity

As of June 30, 2022

Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	7/1/2002	22.70%	20.44%	17.41%	14.77%	12.53%
Performance Benchmark		14.92%	21.32%	18.45%	17.61%	12.78%
Insurance	7/1/2002	30.26%	18.10%	16.67%	15.41%	11.43%
Performance Benchmark		14.92%	21.32%	18.45%	17.61%	12.31%

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, 2022, the Pension Real Estate portfolio saw returns of 28.05%, exceeding its benchmark return of 27.26%. The Insurance Real Estate portfolio also surpassed the benchmark, returning 27.50% compared to 27.26%. For the five years ending June 30, 2022, both the Pension and Insurance portfolios outperformed the benchmarks return by 4.47% and 4.45%, respectively.

Return on Real Estate

As of June 30, 2022

Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	7/1/1984	28.05%	15.67%	13.37%	11.36%	6.90%
Performance Benchmark		27.26%	10.30%	8.90%	9.91%	6.76%
Insurance	5/1/2009	27.50%	15.61%	13.35%	11.20%	10.63%
Performance Benchmark		27.26%	10.30%	8.90%	9.91%	6.99%

Note: Pension and Insurance benchmark is NCREIF ODCE

Real Return

For the fiscal year ended June 30, 2022, the Pension Real Return portfolio returned 2.44%, coming in under its benchmark of 8.03%. The Insurance Real Return portfolio posted a return of 2.24%, also coming in under its benchmark return of 6.98% for the period. These returns were driven by a portfolio underweight that resulted from a significant asset allocation change and coincided with a strong year of performance for this asset class. Since inception, the Pension and Insurance Real Return portfolios have outperformed their respective benchmarks by 0.27% and 0.10% respectively.

Return on Real Return

As of June 30, 2022

Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	7/1/2011	2.44%	4.85%	4.30%	3.38%	4.14%
Performance Benchmark		8.03%	6.72%	5.26%	3.79%	3.87%
Insurance	7/1/2011	2.24%	5.16%	4.44%	3.27%	4.03%
Performance Benchmark		6.98%	6.76%	5.28%	3.85%	3.93%

Note: Pension and Insurance benchmark is US CPI + 3%

Cash

For the fiscal year ended June 30, 2022, the Pension Cash portfolio returned 0.25%, outpacing its benchmark, the Citigroup 3-Month US Treasury Bill by 0.06%. The Insurance Cash portfolio outperformed the index, posting a return of 0.24% during the same 12-month period.

As the accompanying table indicates, longer-term Cash portfolios have performed well compared to their benchmark. For the five years ending June 30, 2022, the Pension portfolio has outperformed its custom benchmark by 0.21% on an annualized basis. Since its inception, the Pension portfolio has exceeded its benchmark by 0.42%. The Insurance portfolio has also outperformed its benchmark return over the five-year and since inception periods by 0.04% and 0.11%, respectively.

Return on Cash

As of June 30, 2022

Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	1/1/1988	0.25%	0.75%	1.30%	0.90%	3.31%
Performance Benchmark		0.19%	0.61%	1.09%	0.62%	2.89%
Insurance	7/1/1992	0.24%	0.59%	1.13%	0.75%	2.42%
Performance Benchmark		0.19%	0.61%	1.09%	0.62%	2.31%

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, 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, 2022.

Investment Managers & Assets Under Management	
Active Mandate- Alphabetical by Manager	
As of June 30, 2022 (\$ in Thousands)	
Advisor	Assets Under Management
Internally Managed by KPPA	\$5,347,054
Adams Street	\$301,266
American Century Investments	527,773
Arrowmark	695,455
Axiom	105,740
Barings Real Estate	116,366
Blue Torch	177,845
BlackRock ACWI Ex-US	1,076,080
Benefit Street Partners	200,247
CapitalSpring	113,460
Cerberus	209,097
Columbia Threadneedle Investments	629,584
Franklin Templeton	387,352
Harrison Street	353,896
IFM	83,997
JP Morgan Emerging Markets	192,260
Lazard Asset Management	646,121
Loomis, Sayles & Company	567,753
Lord Abbett & Co	2,100,226
LSV Asset Management	601,625
Manulife Investment Management	430,797
Marathon Asset Management	707,703
Mesa West	118,146
Middle Ground	112,584
New State	2,204
Next Century	162,727
NISA Investment Advisors	242,523
Northern Trust Global Investments	350,035
Prologis	355,912
Pzena Emerging Markets	227,605
River Road Asset Management	384,207
Shenkman Capital Management	335,987
Stockbridge	184,217
Strategic Value Partners	131,406
Tortoise	204,842
Waterfall Asset Management	399,671
Westfield Capital	383,994
White Oak Global Advisors	238,703
Assets Under Management	\$19,406,460

Investment Managers & Assets Under Management
Managers With Terminated or Runoff Status - Alphabetical by Manager
As of June 30, 2022 (\$ in Thousands)

Advisor	Assets Under Management
AMERRA	\$101,475
Ares	29,595
Bay Hills	368,621
Black Diamond	81,125
Blackstone	45,628
BTG Pactual	39,117
Crestview	92,579
CVC	48,126
DAG Ventures	58,318
DB Secondary Opportunities	35,142
Fundamental	96,590
Leonard Green	152,267
Harvest Partners	67,990
H.I.G	41,252
Horsley Bridge	140,073
Kayne Anderson	61,331
Keyhaven	34,605
Levine Leichtman	130,430
Lubert-Adler	48,181
New Mountain	24,213
Patron	30,273
Prisma	136,843
Rubenstein	23,454
Triton	31,784
Vista Equity	115,251
Walton Street	28,869
Other	143,118
Assets Under Management	2,206,250
Total	\$21,612,710

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

Note: For fiscal year 2022, 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. Manager 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, 2022 (\$ in Thousands)

Advisor/Asset Class	CERS	CERS	KERS	KERS	SPRS	KPPA
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous		Total
Core Fixed Income	\$1,020,337	\$362,657	\$1,051,502	\$163,833	\$246,424	\$2,844,753
Lord Abbett & Co.	684,520	231,863	474,003	78,804	83,704	1,552,894
Loomis, Sayles & Company Core	185,722	62,909	128,605	21,381	22,710	421,327
NISA Investment Advisors	67,226	22,771	46,552	7,739	8,221	152,509
Internally Managed by KPPA	82,869	45,114	402,342	55,909	131,789	718,023
Private Equity	\$708,859	\$238,164	\$169,967	\$64,976	\$17,583	\$1,199,549
Ares	13,270	4,529	-	1,201	379	19,379
Bay Hills	140,910	45,340	76,817	14,162	6,458	283,687
Black Diamond	32,943	11,244	-	2,980	940	48,107
Blackstone	16,913	8,162	77	1,462	5	26,619
Crestview	39,030	12,862	12,820	3,767	1,520	69,999
CVC	21,562	7,360	-	1,951	615	31,488
DAG Ventures	22,511	7,260	17,619	2,355	1,160	50,905
DB Secondary Opportunities	6,822	1,964	-	-	-	8,786
Leonard Green	53,265	20,946	1,175	4,596	77	80,059
Harvest Partners	26,413	8,006	-	2,198	78	36,695
H.I.G.	16,368	6,446	1,161	1,476	323	25,774
Horsley Bridge	54,585	16,992	45,701	5,780	3,008	126,066
Kayne Anderson	21,957	6,838	-	1,871	-	30,666
Keyhaven	13,855	4,588	3,934	1,326	520	24,223
Levine Leichtman	51,658	16,814	-	4,529	693	73,694
Middle Ground	50,783	16,117	3,431	4,330	395	75,056
New Mountain	10,659	3,614	684	977	326	16,260
New State	842	286	296	85	34	1,543
Strategic Value Partners	59,401	18,910	4,774	5,107	549	88,741
Triton	14,252	4,865	-	1,290	406	20,813
Vista	40,860	15,021	1,478	3,533	97	60,989
Public Equity	\$3,644,563	\$1,242,338	\$907,853	\$334,236	\$154,645	\$6,283,635
American Century Investments	206,941	70,214	54,134	20,270	9,751	361,310
Axiom	41,711	14,153	10,911	4,086	1,965	72,826
BlackRock ACWI Ex-US	441,574	151,859	87,611	30,949	12,280	724,273
Franklin Templeton	152,450	51,726	39,880	14,932	7,184	266,172
Lazard Asset Management	252,053	85,521	65,935	24,689	11,877	440,075
LSV Asset Management	234,192	79,461	61,263	22,939	11,036	408,891
Next Century	66,155	22,174	15,630	5,673	2,365	111,997
Northern Trust	144,865	48,555	34,226	12,423	5,178	245,247
River Road Asset Management	152,668	51,171	36,069	13,092	5,457	258,457
Westfield Capital	152,844	51,230	36,111	13,107	5,463	258,755
JP Morgan Emerging Markets	76,083	25,815	19,903	7,452	3,585	132,838
Pzena Emerging Markets	89,967	30,526	23,535	8,812	4,239	157,079
Internally Managed by KPPA	1,633,060	559,933	422,645	155,812	74,265	2,845,715
Real Estate	\$489,403	\$155,856	\$164,991	\$45,416	\$19,664	\$875,330
Barings Real Estate	45,827	14,491	15,216	4,162	1,760	81,456
Fundamental Partners	38,039	12,028	12,630	3,455	1,461	67,613
Harrison Street	135,154	42,275	48,438	12,003	5,727	243,597
Lubert-Adler	21,941	6,868	2,128	1,908	723	33,568
Patron	12,263	3,877	4,071	1,114	471	21,796
Prologis	144,361	45,648	47,932	13,112	5,542	256,595

Rubenstein	11,390	3,549	-	973	350	16,262
Stockbridge	65,619	20,924	28,874	5,748	2,785	123,950
Walton Street	13,127	4,364	3,822	1,400	480	23,193
Internally Managed by KPPA	1,682	1,832	1,880	1,541	365	7,300
Real Return	\$311,240	\$103,861	\$90,063	\$29,112	\$12,212	\$546,488
AMERRA	46,803	14,777	-	4,195	2,123	67,898
Blackstone Strategic Opportunities	550	174	177	46	19	966
BTG Pactual	18,657	5,979	-	1,610	745	26,991
IFM	33,321	11,475	9,810	3,020	1,171	58,797
Prisma	55,025	17,430	17,682	4,613	1,914	96,664
Tortoise	82,717	28,485	32,897	8,240	3,290	155,629
Internally Managed by KPPA	74,167	25,541	29,497	7,388	2,950	139,543
Specialty Credit	\$1,774,295	\$600,227	\$608,501	\$178,070	\$91,836	\$3,252,929
Adams Street	117,042	39,465	38,258	11,377	4,744	210,886
Arrowmark	263,353	87,061	77,008	23,875	9,512	460,809
Blue Torch	69,057	23,317	22,548	6,775	2,795	124,492
Benefit Street Partners	79,305	26,266	19,958	7,169	1,853	134,551
CapitalSpring	46,812	15,504	11,781	4,231	1,094	79,422
Cerberus	86,270	28,573	21,711	7,798	2,015	146,367
Columbia Threadneedle Investments	196,608	78,000	126,038	27,590	20,453	448,689
Manulife Investment Management	190,863	63,623	34,255	16,782	7,028	312,551
Marathon Asset Management	253,790	83,388	133,891	22,621	12,088	505,778
Mesa West	43,356	13,671	7,585	3,883	1,215	69,710
Shenkman Capital Management	122,652	41,341	22,625	18,718	8,705	214,041
Waterfall Asset Management	150,247	50,227	41,918	13,013	15,926	271,331
White Oak Global Advisors	95,669	31,686	24,076	8,648	2,235	162,314
Other	\$59,271	\$18,105	\$26,849	\$5,590	\$2,173	\$111,988
Total Assets Under Management	\$7,948,697	\$2,703,103	\$2,992,877	\$815,643	\$542,364	\$15,002,684

Investment Managers & Assets Under Management by Fund and Asset Class

Insurance Funds

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

Advisor/Asset Class	CERS	CERS	KERS	KERS	SPRS	KPPA
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous		Total
Core Fixed Income	\$423,019	\$187,828	\$317,841	\$96,879	\$36,169	\$1,061,736
Lord Abnett & Co.	242,880	122,599	112,953	49,482	19,418	547,332
Loomis, Sayles & Company Core	64,977	32,799	30,218	13,237	5,195	146,426
NISA Investment Advisors	39,944	20,163	18,576	8,138	3,193	90,014
Internally Managed by KPPA	75,218	12,267	156,094	26,022	8,363	277,964
Private Equity	\$282,064	\$159,173	\$81,973	\$55,532	\$24,885	\$603,627
Ares	5,821	3,149	-	768	478	10,216
Bay Hills	44,465	23,998	5,320	7,151	4,000	84,934
Black Diamond	18,814	10,176	-	2,483	1,545	33,018
Blackstone	9,670	5,786	13	1,485	707	17,661
Crestview	12,210	6,596	888	1,825	1,061	22,580
CVC	9,480	5,128	-	1,251	779	16,638
DAG Ventures	3,279	1,825	1,220	750	339	7,413
DB Secondary Opportunities	12,259	6,624	3,707	3,077	689	26,356
Leonard Green	34,551	20,753	6,827	7,075	3,002	72,208
Harvest Partners	13,537	8,041	5,017	3,340	1,360	31,295
H.I.G.	8,575	4,905	81	1,250	667	15,478
Horsley Bridge	5,643	3,021	3,165	1,508	670	14,007
Kayne Anderson	12,695	7,666	5,581	3,404	1,319	30,665
Keyhaven	5,715	3,088	272	820	487	10,382
Levine Leichtman	26,371	15,261	6,959	5,635	2,510	56,736
Middle Ground	8,319	4,361	21,721	2,238	889	37,528
New Mountain	4,462	2,413	94	611	373	7,953
New State	298	153	127	60	23	661
Strategic Value Partners	14,799	7,906	14,333	4,436	1,191	42,665
Triton	6,251	3,381	-	825	514	10,971
Vista	24,850	14,942	6,648	5,540	2,282	54,262
Public Equity	\$1,374,087	\$682,691	\$526,822	\$236,904	\$93,320	\$2,913,824
American Century Investments	74,755	37,802	33,801	14,271	5,834	166,463
Axiom	14,781	7,474	6,683	2,822	1,154	32,914
BlackRock	188,038	93,516	39,631	22,703	7,919	351,807
Franklin Templeton	54,419	27,519	24,606	10,389	4,247	121,180
Lazard Asset Management	92,531	46,791	41,838	17,665	7,221	206,046
LSV Asset Management	86,553	43,767	39,135	16,524	6,755	192,734
Next Century	23,877	11,973	9,215	4,033	1,632	50,730
Northern Trust	49,321	24,732	19,034	8,331	3,370	104,788
River Road Asset Management	59,187	29,679	22,842	9,998	4,044	125,750
Westfield Capital	58,946	29,559	22,749	9,957	4,028	125,239
JP Morgan Emerging Markets	26,685	13,494	12,066	5,095	2,082	59,422
Pzena Emerging Markets	31,672	16,016	14,320	6,046	2,472	70,526
Internally Managed by KPPA	613,322	300,369	240,902	109,070	42,562	1,306,225
Real Estate	\$169,538	\$92,942	\$53,274	\$39,042	\$14,932	\$369,728
Barings Real Estate	16,031	8,797	4,957	3,708	1,417	34,910
Fundamental Partners	13,306	7,302	4,115	3,077	1,177	28,977
Harrison Street	50,613	27,683	15,987	11,581	4,435	110,299
Lubert-Adler	6,732	3,670	2,072	1,552	587	14,613
Patron	3,893	2,136	1,204	900	344	8,477
Prologis	45,606	25,028	14,103	10,548	4,032	99,317
Rubenstein	3,318	1,803	1,019	764	288	7,192

Stockbridge	27,471	15,133	8,941	6,306	2,416	60,267
Walton Street	2,568	1,390	876	606	236	5,676
Real Return	\$96,192	\$51,144	\$37,077	\$20,721	\$7,827	\$212,961
AMERRA	15,549	8,584	4,464	3,620	1,360	33,577
Blackstone Strategic Opportunistic	171	96	60	40	15	382
BTG Pactual	5,489	3,016	1,871	1,269	481	12,126
IFM	11,668	6,011	4,292	2,415	814	25,200
Prisma	17,984	10,076	6,335	4,207	1,577	40,179
Tortoise	21,980	11,327	9,724	4,446	1,736	49,213
Internally Managed by KPPA	23,351	12,034	10,331	4,724	1,844	52,284
Specialty Credit	\$659,444	\$334,753	\$271,582	\$130,455	\$51,916	\$1,448,150
Adams Street	40,981	21,650	15,895	8,551	3,303	90,380
Arrowmark	106,337	57,930	38,018	23,634	8,727	234,646
Blue Torch	24,160	12,699	9,538	5,014	1,942	53,353
Benefit Street Partners	29,359	16,012	11,160	6,739	2,426	65,696
CapitalSpring	15,211	8,296	5,782	3,492	1,257	34,038
Cerberus	28,033	15,289	10,656	6,435	2,317	62,730
Columbia Threadneedle Investments	90,997	35,442	33,750	14,906	5,800	180,895
Manulife Investment Management	59,064	32,197	21,252	916	4,817	118,246
Marathon Asset Management	88,961	48,628	35,644	21,328	7,364	201,925
Mesa West	22,539	12,446	6,212	5,264	1,975	48,436
Shenkman Capital Management	48,156	17,842	42,267	10,148	3,533	121,946
Waterfall Asset Management	57,141	30,001	23,709	13,216	4,273	128,340
White Oak Global Advisors	34,137	18,618	12,977	7,836	2,821	76,389
Other	\$14,368	\$7,703	\$4,722	\$2,976	\$1,361	\$31,130
Total Assets Under Management	\$3,004,344	\$1,508,531	\$1,288,569	\$579,533	\$229,049	\$6,610,026

Investment Expenses - Pension Asset Class/Type Breakdown

For the fiscal year ending June 30, 2022 (\$ in Thousands)

	Public Equity	Private Equity	Fixed Income	Specialty Credit	Cash	Real Return	Real Estate	Total
Fee for Long Balance	\$11	\$1	\$-	\$3	\$-	\$0	\$3	\$18
Securities Lending Fee Rebate	(504)	-	(24)	62	-	(40)	-	(506)
Investment Advisory Fees	13,774	7,269	2,284	18,168	-	3,238	5,759	50,492
Performance/Incentive Fees	-	47,992	327	23,790	-	1,327	25,779	99,215
Securities Lending Fees	206	-	48	50	-	20	-	324
Taxes and Insurance	-	58	-	-	-	-	-	58
Administration	150	-	-	-	1,771	-	-	1,921
Miscellaneous	119	4,524	-	9,018	-	341	3,334	17,336
Commission on Future Contracts	2	-	68	4	-	18	-	92
Consultant Fees	-	-	-	-	875	-	-	875
Custodial Fees	-	-	-	-	1,642	-	-	1,642
	\$13,758	\$59,844	\$2,703	\$51,095	\$4,288	\$4,904	\$34,875	\$171,467

External Expenses - Insurance Asset Class/Type Breakdown

For the fiscal year ending June 30, 2022 (\$ in Thousands)

	Public Equity	Private Equity	Fixed Income	Specialty Credit	Cash	Real Return	Real Estate	Total
Fee for Long Balance	\$4	\$1	\$-	\$1	\$-	\$0	\$1	\$7
Securities Lending Fee Rebate	(228)	-	(4)	37	-	(3)	-	(198)
Investment Advisory Fees	6,151	4,821	884	8,084	-	1,457	2,492	23,889
Performance/Incentive Fees	-	28,809	118	10,651	-	526	10,457	50,561
Securities Lending Fees	91	-	16	19	-	5	-	131
Administration	69	-	-	-	800	-	-	869
Miscellaneous	29	1,696	-	3,885	-	164	1,429	7,203
Taxes and Insurance	-	38	-	-	-	-	-	38
Commission on Future Contracts	1	-	24	2	-	8	-	35
Consultant Fees	-	-	-	-	387	-	-	387
Custodial Fees	-	-	-	-	984	-	-	984
	\$6,117	\$35,365	\$1,038	\$22,679	\$2,171	\$2,157	\$14,379	\$83,906

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, 2022 (\$ in Thousands)

Expense	Fees Paid	Share of Total
Portfolio Management		
Pension Funds	\$169,456	66.36%
Insurance Fund	82,733	32.40%
Securities Lending		
Pension Funds	(506)	(0.20)%
Insurance Fund	(198)	(0.08)%
Custody		
Pension Funds	1,642	0.64%
Insurance Fund	984	0.39%
Consultant		
Pension Funds	875	0.34%
Insurance Fund	387	0.15%
Total Pension Funds	171,467	67.14%
Total Insurance Fund	83,906	32.86%
Total Expenses	\$255,373	100.00%

Schedule of Commissions Paid (in whole \$)

For the fiscal year ending June 30, 2022

Assets	Total Shares	Commissions Paid	Price per Share
U.S. Equities	59,063,145	\$988,528	0.0167
Non U.S. Equities	205,128,433	\$1,096,108	0.0053
Total	264,191,578	\$2,084,636	0.01

Fair Values (FV) - Pension Funds

As of June 30, 2022 (\$ 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	\$3,644,593	45.85%	\$1,242,346	45.96%	\$907,859	30.33%	\$334,239	40.98%
Private Equity	753,384	9.48%	251,589	9.31%	196,183	6.56%	69,314	8.50%
Fixed Income								
Core Fixed Income	937,469	11.79%	317,543	11.75%	649,160	21.69%	107,924	13.23%
Specialty Credit	1,715,047	21.58%	582,129	21.53%	581,658	19.44%	172,481	21.15%
Cash	82,869	1.04%	45,115	1.67%	402,342	13.44%	55,909	6.85%
Inflation Protected								
Real Return	320,728	4.04%	106,903	3.95%	90,684	3.03%	29,916	3.67%
Real Estate	494,607	6.22%	157,478	5.83%	164,991	5.51%	45,860	5.62%
TOTAL PORTFOLIO	\$7,948,697		\$2,703,103		\$2,992,877		\$815,643	

Fair Values (FV) - Insurance Funds

As of June 30, 2022 (\$ 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	\$1,374,088	45.74%	\$682,689	45.25%	\$526,822	40.89%	\$236,904	40.88%
Private Equity	292,493	9.74%	164,729	10.92%	84,753	6.58%	57,568	9.93%
Fixed Income								
Core Fixed Income	347,801	11.58%	175,561	11.64%	161,747	12.55%	70,857	12.23%
Specialty Credit	645,094	21.47%	327,062	21.68%	266,869	20.71%	127,477	22.00%
Cash	75,217	2.50%	12,267	0.81%	156,095	12.11%	26,022	4.49%
Inflation Protected								
Real Return	98,607	3.28%	52,461	3.48%	38,546	2.99%	21,316	3.68%
Real Estate	171,044	5.69%	93,762	6.22%	53,737	4.17%	39,389	6.79%
TOTAL PORTFOLIO	\$3,004,344		\$1,508,531		\$1,288,569		\$579,533	

NOTE: The fair values in the above charts for CERS and CERS Hazardous will not match those fair values reported on the Combining Statements of Fiduciary Net Position due to an adjustment made to the FY22 statements to capture a correction to FY22 earnings that was made after 6/30/2022.

Fair Values (FV) - Pension Funds

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

	SPRS		Total	
	Fair Value	% of Total FV	Fair Value	% of Total FV
Assets				
Equity				
Public Equity	\$154,648	28.51%	\$6,283,685	41.88%
Private Equity	19,462	3.59%	1,289,932	8.60%
Fixed Income				
Core Fixed Income	114,635	21.14%	2,126,731	14.18%
Specialty Credit	89,663	16.53%	3,140,978	20.93%
Cash	131,789	24.30%	718,024	4.79%
Inflation Protected				
Real Return	12,344	2.28%	560,575	3.74%
Real Estate	19,823	3.65%	882,759	5.88%
TOTAL PORTFOLIO	\$542,364		\$15,002,684	

Fair Values (FV) - Insurance Funds

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

	SPRS		Total	
	Fair Value	% of Total FV	Fair Value	% of Total FV
Assets				
Equity				
Public Equity	\$93,320	40.74%	\$2,913,823	44.08%
Private Equity	25,912	11.31%	625,455	9.46%
Fixed Income				
Core Fixed Income	27,806	12.14%	783,772	11.86%
Specialty Credit	50,558	22.07%	1,417,060	21.44%
Cash	8,362	3.65%	277,963	4.21%
Inflation Protected				
Real Return	8,027	3.51%	218,957	3.31%
Real Estate	15,064	6.58%	372,996	5.64%
TOTAL PORTFOLIO	\$229,049		\$6,610,026	

ACTUARIAL

TABLE OF CONTENTS

149	CERTIFICATION OF ACTUARIAL RESULTS
153	SUMMARY OF ACTUARIAL ASSUMPTIONS
160	SUMMARY OF ACTUARIAL VALUATION RESULTS
161	RECOMMENDED EMPLOYER CONTRIBUTION RATES
164	SUMMARY OF ACTUARIAL UNFUNDED LIABILITIES
168	SOLVENCY TEST
173	ACTIVE MEMBER VALUATION
177	SUMMARY OF BENEFIT PROVISIONS CERS, KERS & SPRS PLANS



Certification of Actuarial Results

Re: Certification for the Actuarial Results as of June 30, 2022.

Dear Board 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.

The results of the actuarial valuation for KERS and SPRS, including the calculated employer contribution requirement will be used by the Board of Trustees of the Kentucky Retirement Systems (KRS) and stakeholders for informational purposes only as the employer contribution rate for the fiscal years ending June 30, 2023 and June 30, 2024 were certified in the June 30, 2021 actuarial valuation, which was adopted by the Board and incorporated in the Commonwealth's budget for the biennium period.

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, 2023 and ending June 30, 2024. The contribution requirements determined by June 30, 2022 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, 2023.

These contributions are calculated based on the membership data and plan assets as of June 30, 2022. These calculations are also based on the benefit provisions in effect as of June 30, 2022.

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 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 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 (27 years remaining as of June 30, 2022). Gains and losses incurring in years after June 30, 2019 are amortized as separate, closed 20-year amortization bases.

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.

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, 2022, the funded ratios for the pension and health insurance funds are as follows:

Table 1 shown below provides a comparison of the change in funded ratio from June 30, 2021 to June 30, 2022 for the retirement funds. As the table shows, the funded ratios for all funds have increased since the prior year, with a substantial increase in the funded ratio for the State Police Retirement System due to a \$215 million appropriation made by the Commonwealth in 2022. The improvement in the financial health of these retirement funds is dependent on CERS and KRS Boards, as well as the Commonwealth maintaining a sound funding policy and the participating employers paying the full actuarially determined contributions

Funding Level As of June 30

System	2022		2021		2020		2019		2018	
	Pension	Insurance	Pension	Insurance	Pension	Insurance	Pension	Insurance	Pension	Insurance
CERS										
Nonhazardous	52.0%	132.1%	51.8%	85.4%	49.4%	78.5%	49.1%	70.7%	52.7%	76.7%
CERS Hazardous	47.6%	101.0%	46.7%	84.3%	45.1%	78.2%	45.3%	75.8%	48.4%	74.6%
KERS										
Nonhazardous	18.5%	79.1%	16.8%	50.2%	14.2%	42.7%	13.4%	36.3%	12.9%	36.4%
KERS Hazardous	63.2%	172.2%	60.4%	135.5%	55.3%	126.0%	54.8%	123.1%	55.5%	130.0%
SPRS	52.5%	100.6%	30.7%	82.0%	28.1%	75.0%	27.0%	71.3%	27.1%	71.6%

ASSUMPTIONS AND METHODS

The Boards of Trustees, in consultation with the actuary, set the actuarial assumptions and methods used in the actuarial valuation. In general, the assumptions used in the June 30, 2022 actuarial valuations were adopted for first use in the June 30, 2019 actuarial valuation and are based on an experience study conducted with experience through June 30, 2018.

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, 2022, by KPPA staff. The staff also supplied asset information as of June 30, 2022. 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.

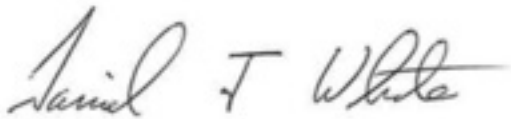
CERTIFICATION

We certify that the information presented herein is accurate and fairly portrays the actuarial position of the Retirement Systems as of June 30, 2022. 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.

The undersigned are independent actuaries and consultants. Both of the undersigned are Enrolled Actuaries, Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. Both of the undersigned 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 that reads "Daniel J. White".

Daniel J. White, FSA, MAAA, EA

Senior Consultant

A handwritten signature in cursive script that reads "Janie Shaw".

Janie Shaw, ASA, MAAA

Consultant

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, 2022 valuation are based on the most recent actuarial experience study for the five-year period ending June 30, 2018, submitted, and adopted by the KRS Board in April 2019.

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 6.25% per annum for the CERS Nonhazardous Retirement System, the CERS Hazardous Retirement System, the KERS Hazardous Retirement System, and all Insurance Systems. This rate consists of a 2.30% price inflation component and a 3.95% real rate of return component. The assumed rate of return for the KERS Nonhazardous Retirement System and the State Police Retirement System is 5.25% and consists of a 2.30% inflationary component and a 2.95% real rate of return component. This assumption was adopted in 2017.

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 2.30% for all plans and the productivity component is 1.00% for the nonhazardous systems and 1.25% for the hazardous systems. This assumption was adopted in 2019.

Table 1. Salary Increase Assumptions

Service	CERS	CERS	KERS	KERS	SPRS
	Nonhazardous	Hazardous	Nonhazardous	Hazardous	
0	10.30%	19.05%	15.30%	20.05%	16.05%
1	7.30%	7.55%	6.80%	7.55%	8.55%
2	6.30%	5.55%	6.05%	6.55%	7.55%
3	4.80%	4.80%	5.80%	6.55%	5.55%
4	4.55%	4.55%	5.30%	5.55%	5.55%
5	4.55%	4.55%	4.80%	5.05%	5.55%
6	4.30%	4.55%	4.55%	4.55%	5.55%
7	4.30%	4.05%	4.30%	4.05%	4.55%
8	4.05%	4.05%	4.05%	4.05%	4.55%
9	4.05%	3.55%	3.80%	3.55%	3.55%
10	3.80%	3.55%	3.80%	3.55%	3.55%
11	3.80%	3.55%	3.30%	3.55%	3.55%
12	3.55%	3.55%	3.30%	3.55%	3.55%
13	3.55%	3.55%	3.30%	3.55%	3.55%
14	3.55%	3.55%	3.30%	3.55%	3.55%
15 & Over	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⁾
2024	6.20%	9.00%	1.50%
2025	6.10%	8.50%	1.50%
2026	6.00%	8.00%	1.50%
2027	5.80%	8.00%	1.50%
2028	5.60%	8.00%	1.50%
2029	5.40%	7.50%	1.50%
2030	5.20%	7.00%	1.50%
2031	5.00%	6.50%	1.50%
2032	4.80%	6.00%	1.50%
2033	4.60%	5.50%	1.50%
2034	4.40%	5.00%	1.50%
2035	4.20%	4.50%	1.50%
2036	4.05%	4.05%	1.50%
2037 & Beyond	4.05%	4.05%	1.50%

⁽¹⁾ All increases are assumed to occur on January 1. The 2023 premiums were known at the time of the June 30, 2022, 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 2019.

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

Age	Non-Hazardous				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.

Non-Hazardous System: 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.

Non-Hazardous System: 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-2014 mortality improvement scale using a base year of 2010.

Post-retirement mortality (non-disabled): 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.

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 a 4-year set-forward for both male and female rates, projected with the ultimate rates from the MP-2014 mortality improvement scale using a base year of 2010.

These mortality assumptions were adopted in 2019. Table 4b provides sample annual rates of mortality in the base year of each table (2019 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				
	2020	2025	2030	2035	2040
Male	21.0	21.4	21.8	22.2	22.6
Female	24.0	24.4	24.8	25.2	25.6

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%	0.29%	0.16%
22	0.03%	0.01%	0.04%	0.02%	0.03%	0.01%	0.29%	0.18%
32	0.04%	0.02%	0.04%	0.03%	0.04%	0.02%	0.49%	0.44%
42	0.08%	0.04%	0.07%	0.06%	0.07%	0.04%	1.11%	1.07%
52	0.18%	0.10%	0.14%	0.10%	0.31%	0.22%	2.20%	1.79%
62	0.37%	0.22%	0.32%	0.19%	1.04%	0.72%	3.19%	2.35%
72	0.84%	0.60%	0.98%	0.60%	1.79%	1.18%	5.54%	4.32%

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 2019.

Table 5: Selected Rates of Termination Prior to Retirement							
Years of Service	CERS Nonhazardous	CERS Hazardous	Years of Service	KERS Nonhazardous	KERS Hazardous	Years of Service	SPRS
	1	20.00%		20.00%	1		20.00%
2	15.58%	9.11%	2	16.45%	19.68%	2	4.82%
3	12.48%	7.24%	3	13.39%	15.12%	3	3.76%
4	10.66%	6.14%	4	11.61%	12.45%	4	3.15%
5	9.37%	5.37%	5	10.34%	10.56%	5	2.71%
6	8.37%	4.76%	6	9.35%	9.09%	6	2.37%
7	7.56%	4.27%	7	8.55%	7.89%	7	2.09%
8	6.87%	3.85%	8	7.87%	6.87%	8	1.86%
9	6.27%	3.49%	9	7.28%	5.99%	9	1.66%
10	5.74%	3.18%	10	6.76%	5.22%	10	1.48%
11	5.27%	2.89%	11	6.30%	4.53%	11	1.32%
12	4.84%	2.63%	12	5.88%	3.90%	12	1.17%
13	4.45%	2.40%	13	5.49%	3.33%	13	1.04%
14	4.09%	2.18%	14	5.14%	2.80%	14	0.92%
15	3.76%	1.98%	15	4.81%	2.31%	15	0.80%
16	3.45%	1.80%	16	4.51%	1.86%	16	0.70%
17	3.16%	1.62%	17	4.22%	1.43%	17	0.60%
18	2.89%	1.46%	18	3.96%	1.03%	18	0.51%
19	2.64%	1.30%	19	3.70%	0.66%	19	0.42%
20	2.39%	1.16%	20	3.47%	0.30%	20	0.34%
21	2.16%	0.00%	21	3.24%	0.00%	21	0.00%
22	1.94%	0.00%	22	3.02%	0.00%	22	0.00%
23	1.74%	0.00%	23	2.82%	0.00%	23	0.00%
24	1.54%	0.00%	24	2.62%	0.00%	24	0.00%
25	1.35%	0.00%	25	2.43%	0.00%	25	0.00%
26+	0.00%	0.00%	26+	0.00%	0.00%	26+	0.00%

13. Rates of Disablement: KERS/CERS/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 2019.

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%	0.07%	0.03%	0.05%	0.05%
30	0.06%	0.12%	0.06%	0.08%	0.09%
40	0.14%	0.26%	0.12%	0.18%	0.20%
50	0.39%	0.73%	0.34%	0.50%	0.56%
60	1.02%	1.90%	0.88%	1.32%	1.46%

14. Assumption Changes Since Prior Valuation: In conjunction with the review of the healthcare per capita claims cost, the assumed increase in future healthcare costs, or trend assumption, is reviewed on an annual basis. The trend assumption for the Medicare Plans was increased during the select period as a result of this review. Additionally, due to the enactment of HB 259, an assumption for unused sick leave that will be converted to cash balance pay credits for Tier 3 members was added to the SPRS valuation.

Summary of Actuarial Valuation Results					
Recommended Contribution Rate (FY 2023)⁽¹⁾	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
Pension Fund Contribution	23.34%	41.11%	7.74%	30.12%	85.39%
Insurance Fund Contribution	0.00%	2.58%	1.86%	0.00%	3.68%
Actuarially Determined Employer Contributions Rate ⁽²⁾ , payable as a percentage of payroll	23.34%	43.69%	9.60%	30.12%	89.07%
Amortization Cost to be Allocated, if applicable	N/A	N/A	\$905,892,818	N/A	N/A
Funded Status as of Valuation Date As of June 30, 2022 (in Whole \$)					
Pension Fund					
Actuarial Liability	\$15,674,219,847	\$5,861,690,901	\$16,576,630,410	\$1,316,825,246	\$1,067,447,757
Actuarial Value of Assets	8,148,911,515	2,788,713,975	3,065,263,298	832,436,199	559,973,178
Unfunded Liability on Actuarial Value of Assets	7,525,308,332	3,072,976,926	13,511,367,112	484,389,047	507,474,579
Funding Ratio on Actuarial Value of Assets	51.99%	47.58%	18.49%	63.22%	52.46%
Market Value of Assets	7,963,585,859	2,718,233,752	3,013,845,326	810,977,576	551,698,915
Unfunded Liability on Market Value of Assets	\$7,710,633,988	\$3,143,457,149	\$13,562,785,084	\$505,847,670	\$515,748,842
Funding Ratio on Market Value of Assets	50.81%	46.37%	18.18%	61.59%	51.68%
Insurance Fund					
Actuarial Liability	\$2,391,989,752	\$1,538,130,332	\$1,782,386,300	\$347,043,977	\$232,798,506
Actuarial Value of Assets	3,160,084,076	1,553,760,685	1,409,552,576	597,700,735	234,238,705
Unfunded Liability on Actuarial Value of Assets	(768,094,324)	(15,630,353)	372,833,724	(250,656,758)	(1,440,199)
Funding Ratio on Actuarial Value of Assets	132.11%	101.02%	79.08%	172.23%	100.62%
Market Value of Assets	3,079,984,119	1,522,671,104	1,364,419,377	588,161,670	231,241,872
Unfunded Liability on Market Value of Assets	\$(687,994,367)	\$15,459,228	\$417,966,923	\$(241,117,693)	\$1,556,634
Funding Ratio on Market Value of Assets	128.76%	98.99%	76.55%	169.48%	99.33%
Member Data (See Footnotes)					
Number of Active Members	77,849	9,184	29,551	3,617	844
Total Annual Payroll (Active Members) ⁽³⁾	\$2,691,170,682	\$620,934,017	\$1,355,266,557	\$165,637,019	\$47,885,394
Average Annual Pay (Active Members)	\$34,569	\$67,610	\$45,862	\$45,794	\$56,736
Number of Retired Members & Beneficiaries	68,889	11,231	48,195	4,850	1,702
Average Annual Retirement Allowance	\$11,913	\$26,887	\$20,362	\$15,194	\$37,473
Number of Vested Inactive Members	50,594	1,816	31,606	2,309	318
Number of Inactive Members Due a Refund	55,113	2,284	23,904	5,845	349
⁽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 FYE2024, 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, 2022.					

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 2013 through 2022 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

County Employees Retirement System

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
2013	2014-2015	4.35%	8.40%	12.75%	5.35%	18.10%
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%

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
2013	2014-2015	6.35%	14.38%	20.73%	14.97%	35.70%
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%

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 2013 through 2022 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 2013 through 2022 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
2013	2014-2015	4.13%	26.71%	30.84%	7.93%	38.77%
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	

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
2013	2014-2015	5.79%	10.58%	16.37%	9.97%	26.34%
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%

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 2013 through 2022 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 2013 through 2022 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
2013	2014-2015	8.46%	45.44%	53.90%	21.86%	75.76%
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%

The contribution rates for SPRS shown in the above tables are the full funding rates presented by the actuary in the 2013 through 2022 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
		2013	\$9,378,876	\$5,637,094	\$5,780,830	\$3,741,782	\$3,598,046
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%

CERS (Nonhazardous Insurance Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liability		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
		2013	\$2,443,894	\$1,628,244	\$1,633,697	\$815,650	\$810,197
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%

CERS (Hazardous Pension Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liability		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
		2013	\$3,124,206	\$1,801,691	\$1,830,658	\$1,322,514	\$1,293,548
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%

CERS (Hazardous Insurance Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liability		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2013	\$1,437,333	\$892,774	\$894,232	\$544,558	\$543,101	62.11%	62.21%
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%

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
2013	\$11,386,602	\$2,636,123	\$2,747,428	\$8,750,479	\$8,639,174	23.15%	24.13%
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%

KERS (Nonhazardous Insurance Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liabilities		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2013	\$2,128,754	\$497,584	\$509,364	\$1,631,170	\$1,619,390	23.37%	23.93%
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%

KERS (Hazardous Pension Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liabilities		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2013	\$783,981	\$505,657	\$513,162	\$278,324	\$270,818	64.50%	65.46%
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%

KERS (Hazardous Insurance Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liabilities		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2013	\$385,518	\$370,774	\$374,310	\$14,743	\$11,208	96.18%	97.09%
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%

**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
2013	\$651,581	\$241,800	\$248,559	\$409,780	\$403,022	37.11%	38.15%
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%

SPRS (Insurance)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liability		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2013	\$222,327	\$136,321	\$142,831	\$86,006	\$79,496	61.32%	64.24%
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%

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)	
2013	\$1,149,611	\$5,638,371	\$2,590,894	\$5,637,094	100.00%	79.60%	0.00%	
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%	

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)	
2013	\$-	\$1,205,599	\$1,238,295	\$1,628,244	100.00%	100.00%	34.10%	
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%	

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)	
2013	\$390,471	\$1,988,030	\$745,705	\$1,801,691	100.00%	71.00%	0.00%	
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%	

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)	
2013	\$-	\$660,955	\$776,377	\$892,774	100.00%	100.00%	29.90%	
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%	

Solvency Test

As of June 30 (\$ in Thousands)

KERS (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)	
2013	\$922,928	\$8,709,324	\$1,754,351	\$2,636,123	100.00%	19.70%	0.00%	
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%	

KERS (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)	
2013	\$-	\$1,338,773	\$789,981	\$497,584	100.00%	37.20%	0.00%	
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%	

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)	
2013	\$82,146	\$545,597	\$156,238	\$505,657	100.00%	77.60%	0.00%	
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%	

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)	
2013	\$-	\$202,032	\$183,486	\$370,774	100.00%	100.00%	92.00%	
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%	

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)	
2013	\$39,788	\$535,720	\$76,072	\$241,800	100.00%	37.70%	0.00%	
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%	

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)	
2013	\$-	\$139,509	\$82,818	\$136,321	100.00%	97.70%	0.00%	
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%	

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
2013	1,081	81,815	\$2,236,277	\$27	1.50%	47.8	9.3
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

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
2013	248	9,123	\$461,673	\$51	(0.50)%	39.1	10.3
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

⁽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, 2022.

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
2013	285	42,226	\$1,644,409	\$39	(0.10)%	44.5	10.1
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

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
2013	14	4,127	\$132,015	\$32	(1.00)%	40.6	7.2
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

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
2013	1	902	\$45,256	\$50	(5.90)%	37.0	10.0
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

⁽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, 2022.

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
2013	3,570	1,198	47,676	\$56,721	\$13,750	\$557,979	8.34%	\$12
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

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
2013	519	104	7,293	\$10,924	\$1,510	\$182,635	5.43%	\$25
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

⁽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 \$25,332,000 in KERS Nonhazardous annual benefits and \$29,075,000 in CERS Nonhazardous benefits not included in June 30, 2022 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
2013	1,982	1,014	40,194	\$41,468	\$14,209	\$872,140	3.23%	\$22
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

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
2013	229	52	3,430	\$2,391	\$500	\$51,122	3.84%	\$15
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

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
2013	63	16	1,346	\$1,471	\$453	\$50,906	2.04%	\$38
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

⁽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 \$25,332,000 in KERS Nonhazardous annual benefits and \$29,075,000 in CERS Nonhazardous benefits not included in June 30, 2022 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.	Includes earned service, purchased service, prior service, and sick leave service (if the member's employer participates in an approved sick leave program).
	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.	

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		Includes earned service, purchased service, prior service, and sick leave service (if the member's employer participates in an approved sick leave program)
	*Service	Multiplier	
	10 years or less	1.10%	
	10-20 years	1.30%	
	20-26 years	1.50%	
	26-30 years	1.75%	

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:	Includes earned service, purchased service, prior service, and sick leave service (if the member's employer participates in an approved sick leave program).
	KERS 2.49% if:	
	SPRS 2.50% if:	

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*	Includes earned service, purchased service, prior service, and sick leave service (if the member's employer participates in an approved sick leave program).	
	*Service		Multiplier
	10 years or less		1.30%
	10-20 years		1.50%
	20-25 years		2.25%
	25+ years	2.50%	

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				Actuarial Factor
	Member	Employer	Base Annual	Upside Sharing	
	Contributions	Contributions	Interest	Interest (FY 2022)	
CERS Nonhazardous	5.00%	4.00%	4.00%	5.68%	See www.kyret.ky.gov for most recent Actuarial Factors
CERS Hazardous	8.00%	7.50%	4.00%	5.79%	
KERS Nonhazardous	5.00%	4.00%	4.00%	5.28%	
KERS Hazardous	8.00%	7.50%	4.00%	5.70%	
SPRS	8.00%	7.50%	4.00%	5.58%	

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.

Note: Please see Plan Provisions for additional details.

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.

Disability Benefits

Members participating before 8/1/2004 may retire on account of disability provided the member has at least 60 months of service credit (requirement is waived if line of duty disability) 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 retire on account of disability provided the member has at least 60 months of service credit. Benefits are computed as the greater of 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.

Members participating on or after 1/1/2014 may retire on account of disability 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 of 20% for Nonhazardous and 25% for Hazardous of the member's monthly final rate of pay or the annuitized account into a single life annuity option.

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

Pre-Retirement Death Benefits

The beneficiary, which shall be the spouse unless another person was named beneficiary after the date of marriage, of a deceased active member is eligible for a monthly benefit if the member died while in the line of duty, or a duty-related injury, with one month of service credit. The beneficiary of a deceased active member who did not die in the line of duty, or a duty-related injury, is eligible for a monthly benefit if the member was: (1) eligible for retirement at the time of death or, (2) under the age of 65 for Nonhazardous members and under age 55 for Hazardous members with at least 60 months of service credit and currently working for a participating agency at the time of death or (3) no longer working for a participating agency but at the time of death had at least 144 months of service credit. If the beneficiary of a deceased active member is not eligible for a monthly benefit, the beneficiary will receive a lump-sum payment of the member's accumulated account balance..

Cost of Living Adjustment

SB 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.

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 at least 10 years of service credit in order to be eligible for insurance benefits at retirement. Members participating on or after September 1, 2008, are required to earn at least 15 years of service credit in order to be eligible for insurance benefits at 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 the CPI prior to July 1, 2009, and by 1.5% annually from July 1, 2009.

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 Board 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 (HB) 297 passed during the 2022 legislative session and included language allowing the Systems to provide health insurance coverage through the Kentucky Employees Health Plan (KEHP) for retired reemployed retirees who are Medicare-eligible and affected by the Medicare Secondary Payer Act (MSPA). HB 1 exempts pay raises for public defenders and their staff from pension spiking provisions, while HB 49 adds two pension spiking exemptions on a broader scope: 1. The first one hundred (100) hours of mandated overtime required by an employer during a fiscal year, and 2. Any overtime performed by a local government which the Governor authorizes mobilization of the Kentucky National Guard. HB 76 creates an exception for members "bound by an educational contract prior to December 31, 2003" with the Department of Transportation, to use the start date of the contract to establish the membership date and to purchase service credit after 8/1/2004, allowing the service purchase(s) to apply toward retirement eligibility and health insurance vesting. HB 259 provides that at each fiscal year end beginning 2023, members of the SPRS participating in the hybrid cash balance plan with a minimum of five (5) years of service, can convert unused sick leave in excess of 480 hours to employer pay credits. Upon retirement, the account is credited with an employer pay credit for the entire balance of the member's accumulated sick leave. This benefit is subject to funding in the executive branch budget. In the event funding for this additional employer credit is not provided in the executive branch budget, no employer credits for accumulated sick leave shall be provided during the period the budget is effective. SB 27 allows part-time adjunct instructors for the Kentucky Fire Commission, meeting specific conditions, to retire from CERS without terminating employment as part-time instructors. Lastly, SB 209 increases the non-Medicare eligible subsidy by \$5 for each year worked beyond the defined career threshold for members eligible for the fixed-dollar retiree health subsidy. The annual increase will only occur if the most recent actuarial valuation determines the funding level of the retiree health benefits is at least 90% and will remain at that level for the year. Additionally, the bill allows members eligible for the fixed-dollar health subsidy to be reimbursed for health insurance premiums other than those administered by KPPA.

STATISTICAL TABLE OF CONTENTS

183	PLAN STATISTICS
185	PARTICIPATING EMPLOYERS
188	MEMBER MONTHLY BENEFIT
189	FIDUCIARY NET POSITION
191	CHANGES IN FIDUCIARY NET POSITION
196	SCHEDULE OF BENEFIT EXPENSES
201	ANALYSIS OF INITIAL RETIREES
202	PAYMENT OPTIONS
203	EMPLOYER CONTRIBUTION RATES
204	INSURANCE CONTRACTS
206	GLOSSARY

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
2013	82,631	67,013	44,164	193,808
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

CERS Hazardous Membership As of June 30

Fiscal Year	Active	Inactive	Retired	Total
2013	9,069	1,956	5,840	16,865
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

KERS Nonhazardous Membership As of June 30

Fiscal Year	Active	Inactive	Retired	Total
2013	40,710	40,375	37,240	118,325
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

KERS Hazardous Membership As of June 30

Fiscal Year	Active	Inactive	Retired	Total
2013	4,057	2,882	2,312	9,251
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

SPRS Membership As of June 30

Fiscal Year	Active	Inactive	Retired	Total
2013	901	236	1,240	2,377
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

Kentucky Public Pensions Authority Membership Totals As of June 30

Fiscal Year	Active	Inactive	Retired	Total
2013	137,368	112,462	90,796	340,626
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

Principal Participating Employers in CERS As of June 30, 2022

Participating Employer	Rank	Covered Employees	% of Total System
JEFFERSON COUNTY BOARD OF EDUCATION	1	5,286	5.89%
LOUISVILLE JEFFERSON COUNTY METRO GOVERNMENT	2	4,490	5.00%
FAYETTE COUNTY BOARD OF EDUCATION	3	1,939	2.16%
LEXINGTON FAYETTE URBAN COUNTY GOVERNMENT	4	1,595	1.78%
JUDICIAL DEPARTMENT ADMINISTRATIVE OFFICE OF THE COURTS	5	1,409	1.57%
BOONE COUNTY BOARD OF EDUCATION	6	1,123	1.25%
BULLITT COUNTY BOARD OF EDUCATION	7	1,027	1.14%
HARDIN COUNTY BOARD OF EDUCATION	8	1,014	1.13%
WARREN COUNTY BOARD OF EDUCATION	9	892	0.99%
PULASKI COUNTY BOARD OF EDUCATION	10	862	0.96%
ALL OTHERS		70,131	78.13%
Total		89,768	100.00%

Schedule of Participating Employers in CERS As of June 30, 2022

Agency Classification	Number of Agencies	Number of Employees
Airport Boards	5	499
Ambulance Services	18	428
Area Development Districts	14	656
Boards of Education	171	45,638
Cities	221	10,282
Community Action Agencies	21	2,756
Conservation Districts	49	61
County Attorneys	76	527
County Clerks	16	591
Development Authorities	6	8
Fire Departments	31	1,107
Fiscal Courts	118	10,817
Hospitals & Clinics (incl. Dental)	1	305
Housing Authorities	39	396
Jailers	2	63
Libraries	85	1,245
Other Retirement Systems	2	3
P1 State Agencies	4	1,410
Parks and Recreation	6	55
Planning Commissions	16	200
Police Departments	2	14
Riverport Authorities	5	65
Sanitation Districts	9	322
Sheriff Departments	12	696
Special Districts & Boards	47	1,341
Tourist Commissions	25	185
Urban Government Agencies	2	6,085
Utility Boards	119	4,013
Total	1,122	89,768

Total Employees By Tier Levels

Tier 1	29,046
Tier 2	13,528
Tier 3	47,194

Principal Participating Employers in KERS As of June 30, 2022

Participating Employer	Rank	Covered Employees	% of Total System
DEPARTMENT FOR COMMUNITY BASED SERVICES	1	3,977	11.97%
DEPARTMENT OF HIGHWAYS	2	3,407	10.25%
DEPARTMENT OF CORRECTIONS	3	3,179	9.57%
JUDICIAL DEPARTMENT ADMINISTRATIVE OFFICE OF THE COURTS	4	1,352	4.07%
DEPARTMENT OF JUVENILE JUSTICE	5	922	2.77%
UNIFIED PROSECUTORIAL SYSTEM	6	871	2.62%
KENTUCKY STATE POLICE	7	845	2.54%
DEPARTMENT OF REVENUE	8	698	2.10%
ENVIRONMENTAL PROTECTION	9	606	1.82%
DEPARTMENT OF PARKS	10	590	1.78%
ALL OTHERS		16,784	50.51%
Total		33,231	100.00%

Schedule of Participating Employers in KERS As of June 30, 2022

Agency Classification	Number of Agencies	Number of Employees
County Attorneys	56	234
Health Departments	60	2,037
Master Commissioner	31	57
Non-P1 State Agencies	33	594
Other Retirement Systems	1	20
P1 State Agencies	127	26,919
Regional Mental Health Units	10	1,771
Universities	7	1,599
Total	325	33,231

Total Employees By Tier Levels

Tier 1	14,048
Tier 2	5,522
Tier 3	13,661

Schedule of Participating Employers in SPRS As of June 30, 2022

Agency Classification	Number of Agencies	Number of Employees
Kentucky State Police - Uniformed Police Officers	1	844

Total Employees By Tier Levels

Tier 1	331
Tier 2	179
Tier 3	334

Average Monthly Benefit by Length of Service in CERS As of June 30, 2022 (in Whole \$)

Service Credit Range	CERS Nonhazardous		CERS Hazardous	
	Number of Accounts	Average Monthly Benefit	Number of Accounts	Average Monthly Benefit
Under 5 years	10,665	\$166	1,270	\$421
5 or more but less than 10	11,831	347	1,162	713
10 or more but less than 15	12,076	546	1,148	1,286
15 or more but less than 20	10,185	825	1,235	1,853
20 or more but less than 25	12,638	1,025	4,584	2,662
25 or more but less than 30	14,080	1,938	1,602	3,655
30 or more but less than 35	3,181	2,693	426	4,411
35 or more	861	3,790	86	5,471
Total	75,517	\$966	11,513	\$2,218

Average Monthly Benefit by Length of Service in KERS As of June 30, 2022 (in Whole \$)

Service Credit Range	KERS Nonhazardous		KERS Hazardous	
	Number of Accounts	Average Monthly Benefit	Number of Accounts	Average Monthly Benefit
Under 5 years	6,755	\$178	955	\$205
5 or more but less than 10	6,247	436	906	575
10 or more but less than 15	5,898	733	826	1,035
15 or more but less than 20	5,075	1,075	746	1,555
20 or more but less than 25	5,533	1,428	1,300	2,050
25 or more but less than 30	13,644	2,296	212	2,934
30 or more but less than 35	6,743	3,233	62	3,792
35 or more	2,534	4,573	6	4,231
Total	52,429	\$1,647	5,013	\$1,252

Average Monthly Benefit by Length of Service in SPRS As of June 30, 2022 (in Whole \$)

Service Credit Range	Number of Accounts	Average Monthly Benefit
Under 5 years	146	\$546
5 or more but less than 10	59	915
10 or more but less than 15	71	1,426
15 or more but less than 20	123	2,112
20 or more but less than 25	550	2,771
25 or more but less than 30	510	3,770
30 or more but less than 35	230	4,783
35 or more	59	6,209
Total	1,748	\$3,094

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
2013	\$5,795,568	\$1,618,960	\$7,414,528	\$1,833,571	\$891,320	\$2,724,891
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

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

Fiscal Year	Nonhazardous			Hazardous		
	Pension	Insurance	Total	Pension	Insurance	Total
2013	\$2,760,753	\$496,040	\$3,256,793	\$514,592	\$372,883	\$887,475
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

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

Fiscal Year	Pension	Insurance	Total
2013	\$248,698	\$142,691	\$391,389
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

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

Fiscal Year	Pension	Insurance	Total
2013	\$11,153,182	\$3,521,894	\$14,675,076
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

Note: For additional historical data for all charts presented, please visit our website for previous annual reports at [https://kyret.ky.gov/Publications /Pages/Comprehensive-Annual-Financial- Reports.aspx](https://kyret.ky.gov/Publications/Pages/Comprehensive-Annual-Financial-Reports.aspx)

Changes in Fiduciary Net Position - CERS Nonhazardous Pension Fund

As of June 30 (\$ in Thousands)

Additions	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Members' Contributions	\$120,777	\$122,459	\$133,637	\$133,987	\$150,714	\$160,370	\$159,064	\$168,994	\$165,698	\$186,648
Employers' Contributions	294,914	324,231	297,714	282,767	331,493	355,473	393,302	475,311	472,196	606,772
Health Insurance Contributions (HB1)	4,659	6,109	6,674	7,687	9,158	10,826	11,801	5	(1)	(60)
Net Investment Income (Loss)	579,161	895,531	110,569	(40,799)	825,901	578,377	394,558	56,682	1,784,231	(500,996)
Bank of America Settlement	-	-	10,280	-	-	-	-	-	-	-
Northern Trust Settlement	-	-	-	-	-	361	44	-	-	-
Pension Spiking	-	-	850	1,339	2,061	2,544	151	105	32	35
Total Additions	999,511	1,348,330	559,724	384,981	1,319,327	1,107,951	958,920	701,097	2,422,156	292,399
Deductions										
Benefit Payments	553,204	582,850	615,335	651,247	687,460	726,568	766,221	795,960	826,749	858,260
Refunds	13,306	14,286	13,524	13,754	14,430	14,608	14,387	14,918	13,862	19,789
Administrative Expenses	17,743	18,615	18,212	19,078	19,614	19,592	21,659	22,304	21,767	22,670
Capital Project Expenses	-	-	-	307	77	-	-	-	-	-
Total Deductions	584,253	615,751	647,071	684,385	721,581	760,768	802,267	833,182	862,378	900,719
Net Increase (Decrease) in Fiduciary Net Position	\$415,258	\$732,579	\$(87,347)	\$(299,404)	\$597,746	\$347,183	\$156,653	\$(132,085)	\$1,559,778	\$(608,321)

CERS Nonhazardous Insurance Fund

Additions	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Employers' Contributions	\$158,212	\$121,161	\$115,836	\$108,269	\$117,310	\$120,798	\$135,570	\$124,740	\$124,697	\$118,550
Net Investment Income (Loss)	147,194	232,330	36,731	(1,422)	259,586	197,520	133,697	8,656	619,593	(170,699)
Retired Re-employed (HB1)	-	2,117	3,608	3,567	3,402	3,821	4,085	4,528	5,206	4,816
Member Drug Reimbursement	5,360	6	-	-	1	11	6	4	3	1
Premiums Received from Retirees	16,293	1,450	582	629	707	637	616	596	555	534
Humana Gain Share	-	-	-	-	-	-	3,574	-	20,676	8,912
Northern Trust Settlement	-	-	-	-	-	75	9	-	-	-
Health Insurance Contributions (HB1)	-	-	-	-	-	-	-	12,959	13,614	15,985
Total Additions	327,059	357,064	156,757	111,043	381,006	322,862	277,557	151,483	784,344	(21,901)
Deductions										
Health Insurance Premiums	132,489	96,804	113,734	122,713	124,573	131,631	133,005	135,094	136,263	134,428
Administrative Expenses	4,431	508	782	726	789	761	877	903	884	933
Self-Funded Healthcare Costs	-	-	-	-	3,635	4,248	3,979	3,887	3,462	3,288
Excise Tax Insurance	-	-	6	-	6	6	6	6	-	12
Total Deductions	136,920	97,312	114,522	123,439	129,003	136,646	137,867	139,890	140,609	138,661
Net Increase (Decrease) in Fiduciary Net Position	\$190,139	\$259,751	\$42,235	\$(12,396)	\$252,003	\$186,216	\$139,690	\$11,593	\$643,735	\$(160,562)

Changes in Fiduciary Net Position - CERS Hazardous Pension Fund

As of June 30 (\$ in Thousands)

Additions	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Members' Contributions	\$42,863	\$42,631	\$46,609	\$51,554	\$60,102	\$61,089	\$58,661	\$63,236	\$62,367	\$69,565
Employers' Contributions	120,140	115,240	107,515	104,952	114,315	124,953	137,664	168,201	172,089	221,968
Health Insurance Contributions (HB1)	734	1,091	1,084	1,418	1,708	2,173	2,458	1	2	(104)
Net Investment Income (Loss)	181,171	288,490	37,104	(9,021)	270,473	192,174	132,970	15,992	600,730	(175,431)
Bank of America Settlement	-	-	2,865	-	-	-	-	-	-	-
Northern Trust Settlement	-	-	-	-	-	111	14	-	-	-
Pension Spiking	-	-	557	762	1,632	2,707	387	242	116	60
Total Additions	344,908	447,452	195,734	149,665	448,230	383,207	332,154	247,672	835,304	116,058
Deductions										
Benefit Payments	179,696	189,635	200,134	213,448	226,985	244,119	259,008	275,802	290,000	305,790
Refunds	3,158	2,664	3,111	2,879	2,315	4,214	2,854	3,814	4,662	5,766
Administrative Expenses	1,202	1,721	1,289	1,337	1,421	1,504	1,726	1,981	1,910	1,995
Capital Project Expenses	-	-	-	26	7	-	-	-	-	-
Total Deductions	184,056	194,020	204,534	217,690	230,728	249,837	263,588	281,597	296,572	313,551
Net Increase (Decrease) in Fiduciary Net Position	\$160,852	\$253,431	\$(8,800)	\$(68,025)	\$217,502	\$133,370	\$68,566	\$(33,925)	\$538,732	\$(197,493)

CERS Hazardous Insurance Fund

Additions	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Employers' Contributions	\$84,962	\$74,265	\$71,008	\$66,757	\$50,743	\$55,027	\$61,106	\$56,739	\$58,451	\$58,374
Net Investment Income (Loss)	79,885	125,278	20,283	1,102	142,929	109,004	72,580	2,237	322,817	(78,453)
Retired Re-employed (HB1)	-	526	770	862	794	975	1,166	1,158	1,348	1,530
Member Drug Reimbursement	562	-	-	-	-	-	-	-	-	-
Premiums Received from Retirees	657	32	10	(106)	(301)	(265)	(53)	(32)	(149)	(271)
Humana Gain Share	-	-	-	-	-	-	506	-	2,990	1,259
Northern Trust Settlement	-	-	-	-	-	40	5	-	-	-
Health Insurance Contributions (HB1)	-	-	-	-	-	-	-	2,760	3,096	3,758
Total Additions	166,066	200,101	92,071	68,615	194,165	164,781	135,310	62,862	388,553	(13,803)
Deductions										
Health Insurance Premiums	59,941	60,843	65,553	68,518	70,407	74,844	78,190	81,849	85,151	89,319
Administrative Expenses	679	275	339	480	381	376	434	462	466	502
Self-Funded Healthcare Costs	-	-	-	-	160	603	149	228	257	210
Total Deductions	60,620	61,117	65,894	68,998	70,948	75,823	78,773	82,539	85,874	90,031
Net Increase (Decrease) in Fiduciary Net Position	\$105,446	\$138,983	\$26,177	\$(383)	\$123,216	\$88,958	\$56,537	\$(19,677)	\$302,679	\$(103,834)

Changes in Fiduciary Net Position - KERS Nonhazardous Pension Fund

As of June 30 (\$ in Thousands)

Additions	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Members' Contributions	\$96,744	\$92,941	\$100,424	\$101,677	\$100,544	\$104,972	\$93,759	\$96,594	\$90,202	\$89,607
Employers' Contributions	280,874	296,836	520,948	512,670	644,803	619,988	948,866	948,578	1,134,180	141,027
General Fund Appropriations	-	-	-	-	58,193	67,574	75,858	-	-	912,705
Health Insurance Contributions (HB1)	3,344	4,546	4,181	4,817	5,156	5,786	5,963	1	(8)	(13)
Employer Cessation	-	-	-	-	53,215	17	10,643	20	-	63,113
Net Investment Income (Loss)	303,011	337,923	44,570	(20,662)	220,985	147,577	114,918	53,696	528,439	(165,904)
Bank of America Settlement	-	-	8,442	-	-	-	-	-	-	-
Northern Trust Settlement	-	-	-	-	-	301	37	-	-	-
Pension Spiking	-	-	743	414	909	1,564	95	(6)	52	24
Total Additions	683,973	732,246	679,308	598,916	1,083,805	947,779	1,250,139	1,098,883	1,752,865	1,040,559
Deductions										
Benefit Payments	873,906	889,937	905,790	923,288	948,489	967,374	988,349	999,813	1,009,501	1,023,375
Refunds	12,907	13,627	13,552	12,130	11,819	13,603	12,342	11,523	8,953	12,116
Administrative Expenses	10,719	11,145	10,474	10,807	10,974	10,692	11,712	11,941	11,627	13,339
Capital Project Expenses	-	-	-	181	34	-	-	-	-	-
Total Deductions	897,532	914,709	929,816	946,406	971,316	991,669	1,012,403	1,023,277	1,030,081	1,048,830
Net Increase (Decrease) in Fiduciary Net Position	\$(213,559)	\$(182,463)	\$(250,508)	\$(347,490)	\$112,489	\$(43,890)	\$237,736	\$75,606	\$722,784	\$(8,271)

KERS Nonhazardous Insurance Fund

Additions	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Employers' Contributions	\$162,191	\$164,176	\$132,208	\$131,935	\$133,024	\$132,364	\$173,576	\$170,479	\$153,571	\$31,611
Actuarially Accrued Liability Contributions	-	-	-	-	-	-	-	-	-	101,637
Net Investment Income (Loss)	40,661	96,738	8,690	(3,904)	90,915	61,331	43,202	10,624	258,595	(85,555)
Retired Re-employed (HB1)	-	2,433	3,732	3,880	3,765	4,055	3,996	4,502	4,705	5,041
Member Drug Reimbursement	4,846	8	-	-	1	5	3	2	-	-
Premiums Received from Retirees	14,294	918	272	240	248	216	184	183	182	182
Humana Gain Share Payment	-	-	-	-	-	-	3,079	-	17,167	7,321
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
Total Additions	221,992	264,273	144,902	132,151	243,520	198,003	225,435	191,942	468,946	69,202
Deductions										
Health Insurance Premiums	140,157	112,671	123,127	126,550	127,648	130,069	127,221	125,006	119,897	118,451
Administrative Expenses	4,285	736	893	818	861	760	875	847	815	821
Self-Funded Healthcare Costs	-	-	2,145	2,095	1,920	1,819	1,962	1,724	1,609	1,525
Excise Tax Insurance	-	-	3	6	3	3	3	3	-	6
Total Deductions	144,442	113,407	126,168	129,469	130,432	132,651	130,061	127,580	122,321	120,803
Net Increase (Decrease) in Fiduciary Net Position	\$77,550	\$150,866	\$18,734	\$2,679	\$113,088	\$65,352	\$95,374	\$64,362	\$346,625	\$(51,601)

Changes in Fiduciary Net Position - KERS Hazardous Pension Fund

As of June 30 (\$ in Thousands)

Additions	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Members' Contributions	\$11,467	\$11,995	\$12,670	\$15,055	\$17,523	\$17,891	\$17,118	\$19,769	\$19,961	\$20,588
Employers' Contributions	27,334	11,670	28,374	23,690	37,630	32,790	55,229	59,096	62,182	59,052
General Fund Appropriations	-	-	-	-	15,000	10,000	-	-	-	-
Health Insurance Contributions (HB1)	402	551	537	684	811	909	934	4	3	(5)
Net Investment Income (Loss)	51,497	80,724	8,701	(1,652)	70,993	51,848	36,704	6,805	174,922	(51,841)
Bank of America Settlement	-	-	767	-	-	-	-	-	-	-
Northern Trust Settlement	-	-	-	-	-	33	4	-	-	-
Pension Spiking	-	-	162	70	344	871	29	19	18	3
Total Additions	90,700	104,941	51,211	37,847	142,301	114,342	110,018	85,693	257,086	27,797
Deductions										
Benefit Payments	48,855	54,320	56,774	59,306	61,231	65,616	69,527	71,861	73,889	77,047
Refunds	2,762	2,830	2,609	2,211	2,106	2,501	2,684	3,168	4,380	4,976
Administrative Expenses	733	897	844	903	919	975	1,103	1,176	1,255	1,465
Capital Project Expenses	-	-	-	15	4	-	-	-	-	-
Total Deductions	52,350	58,048	60,227	62,435	64,260	69,092	73,314	76,205	79,524	83,488
Net Increase (Decrease) in Fiduciary Net Position	\$38,350	\$46,892	\$(9,016)	\$(24,588)	\$78,041	\$45,250	\$36,704	\$9,488	\$177,562	\$(55,691)

KERS Hazardous Insurance Fund

Additions	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Employers' Contributions	\$25,144	\$23,336	\$14,173	\$15,929	\$4,688	\$4,302	\$3,725	\$4,482	\$23	\$1
Net Investment Income (Loss)	32,887	52,214	7,793	(882)	59,188	42,567	28,049	638	126,475	(27,406)
Retired Re-employed (HB1)	-	538	709	837	932	986	1,245	1,294	1,276	1,280
Member Drug Reimbursement	243	-	-	-	-	-	-	1	-	1
Premiums Received from Retirees	895	37	14	(13)	(51)	(50)	(19)	(5)	(11)	(54)
Humana Gain Share	-	-	-	-	-	-	213	-	1,253	548
Northern Trust Settlement	-	-	-	-	-	18	2	-	-	-
Health Insurance Contributions (HB1)	-	-	-	-	-	-	-	1,100	1,164	1,232
Total Additions	59,169	76,126	22,689	15,871	64,757	47,823	33,215	7,510	130,180	(24,398)
Deductions										
Health Insurance Premiums	16,837	15,405	17,000	17,490	17,562	18,697	19,280	19,630	19,800	20,355
Administrative Expenses	179	78	101	97	105	104	117	123	118	125
Self-Funded Healthcare Costs	-	-	-	-	45	79	94	125	112	109
Excise Tax Insurance	-	-	-	-	-	-	-	-	-	-
Total Deductions	17,016	15,482	17,101	17,587	17,712	18,880	19,491	19,878	20,030	20,589
Net Increase (Decrease) in Fiduciary Net Position	\$42,153	\$60,642	\$5,588	\$(1,716)	\$47,045	\$28,943	\$13,724	\$(12,368)	\$110,150	\$(44,987)

Changes in Fiduciary Net Position - SPRS Pension Fund

As of June 30 (\$ in Thousands)

Additions	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Members' Contributions	\$4,495	\$5,005	\$5,150	\$5,149	\$5,349	\$5,522	\$5,062	\$4,767	\$4,752	\$4,773
Employers' Contributions	18,501	20,279	31,444	25,723	38,028	36,486	58,947	58,358	59,262	62,341
General Fund Appropriations	-	-	-	-	25,000	10,000	1,086	1,086	384	215,000
Health Insurance Contributions (HB1)	48	70	94	113	131	155	176	-	-	(26)
Net Investment Income (Loss)	25,954	40,374	3,427	(3,841)	26,795	18,487	14,863	6,359	61,966	(22,148)
Bank of America Settlement	-	-	646	-	-	-	-	-	-	-
Northern Trust Settlement	-	-	-	-	-	21	3	-	-	-
Pension Spiking	-	-	546	99	210	392	15	9	4	-
Total Additions	48,998	65,729	41,307	27,243	95,513	71,063	80,152	70,579	126,368	259,940
Deductions										
Benefit Payments	50,559	53,026	54,766	56,268	56,935	58,805	60,948	62,423	63,249	64,121
Refunds	31	214	85	11	26	22	162	88	273	280
Administrative Expenses	184	215	201	176	181	194	225	266	230	273
Capital Project Expenses	-	-	-	4	1	-	-	-	-	-
Total Deductions	50,774	53,454	55,052	56,459	57,143	59,021	61,335	62,777	63,752	64,674
Net Increase (Decrease) in Fiduciary Net Position	\$(1,776)	\$12,276	\$(13,745)	\$(29,216)	\$38,370	\$12,042	\$18,817	\$7,802	\$62,616	\$195,266

SPRS Insurance Fund

Additions	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Employers' Contributions	\$16,829	\$14,498	\$10,379	\$10,228	\$9,222	\$9,397	\$13,282	\$13,133	\$9,284	\$8,782
Net Investment Income (Loss)	12,993	20,508	2,921	(48)	21,570	16,420	10,766	1,108	50,051	(10,787)
Retired Re-employed (HB1)	-	(5)	3	9	-	-	6	-	-	-
Member Drug Reimbursement	178	-	-	-	-	-	-	-	-	-
Premiums Received from Retirees	23	11	1	(29)	(55)	(41)	(13)	(12)	(14)	(27)
Humana Gain Share	-	-	-	-	-	-	144	-	811	342
Northern Trust Settlement	-	-	-	-	-	8	1	-	-	-
Health Insurance contributions (HB1)	-	-	-	-	-	-	-	196	209	256
Total Additions	30,023	35,012	13,304	10,160	30,737	25,784	24,186	14,425	60,341	(1,434)
Deductions										
Health Insurance Premiums	12,546	12,688	13,483	13,836	13,405	13,881	13,942	14,215	14,487	14,461
Administrative Expenses	184	58	65	89	66	62	69	71	71	73
Self-Funded Healthcare Costs	-	-	-	-	24	38	40	22	25	21
Excise Tax Insurance	-	-	-	-	-	-	-	-	-	-
Total Deductions	12,730	12,745	13,548	13,925	13,495	13,981	14,051	14,308	14,583	14,555
Net Increase (Decrease) in Fiduciary Net Position	\$17,293	\$22,267	\$(244)	\$(3,765)	\$17,242	\$11,803	\$10,135	\$117	\$45,758	\$(15,989)

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 2013				
Average Benefit	\$591	\$1,042	\$878	\$625
Number of Accounts	11,266	33,393	4,537	1,075
Total Monthly Benefits	\$6,661,524	\$34,797,169	\$3,982,213	\$672,310
% of Total Monthly Benefits	14.45%	75.46%	8.64%	1.45%
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

Schedule of Benefit Expenses - CERS Hazardous

As of June 30 (in Whole \$)

	Normal Retirement	Early Retirement	Disability Retirement	Beneficiary Payments
Fiscal Year 2013				
Average Benefit	\$1,433	\$2,429	\$1,121	\$1,073
Number of Accounts	1,883	4,683	681	119
Total Monthly Benefits	\$2,699,176	\$11,374,811	\$763,700	\$127,689
% of Total Monthly Benefits	18.04%	76.01%	5.10%	0.85%
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%

Schedule of Benefit Expenses - KERS Nonhazardous

As of June 30 (in Whole \$)

	Normal Retirement	Early Retirement	Disability Retirement	Beneficiary Payments
Fiscal Year 2013				
Average Benefit	\$1,003	\$1,915	\$1,020	\$889
Number of Accounts	6,441	32,310	2,687	962
Total Monthly Benefits	\$6,459,840	\$61,882,399	\$2,740,491	\$855,033
% of Total Monthly Benefits	8.98%	86.02%	3.81%	1.19%
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	1014
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	1028
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%

Schedule of Benefit Expenses - KERS Hazardous

As of June 30 (in Whole \$)

	Normal Retirement	Early Retirement	Disability Retirement	Beneficiary Payments
Fiscal Year 2013				
Average Benefit	\$961	\$1,543	\$662	\$725
Number of Accounts	1,751	1,417	190	93
Total Monthly Benefits	\$1,682,541	\$2,186,334	\$125,704	\$67,440
% of Total Monthly Benefits	41.42%	53.82%	3.10%	1.66%
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%

Schedule of Benefit Expenses - SPRS

As of June 30 (in Whole \$)

	Normal Retirement	Early Retirement	Disability Retirement	Beneficiary Payments
Fiscal Year 2013				
Average Benefit	\$3,601	\$3,130	\$1,320	\$2,198
Number of Accounts	149	1,126	74	23
Total Monthly Benefits	\$536,481	\$3,524,248	\$97,681	\$50,563
% of Total Monthly Benefits	12.75%	83.73%	2.32%	1.20%
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%

Analysis of Initial Retirees As of June 30 (in Whole \$)

	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
Fiscal Year 2013					
Number of Accounts	3,303	443	1,810	205	59
Average Service Credit (months)	189	202	199	157	234
Average Final Compensation	\$34,292	\$58,516	\$47,168	\$46,456	\$69,325
Average Monthly Benefit	\$938	\$2,196	\$1,275	\$1,250	\$2,893
Average System Payment for Health Insurance	\$259	\$853	\$303	\$433	\$994
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

Analysis of Initial Retirees As of June 30 (in Whole \$) Continued

	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
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
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

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, 2022 (in Whole \$)

	Basic	Other	Period Certain	Pop Up	Social Security Adjustment	Survivorship	Annuity
CERS Nonhazardous							
Number of Accounts	32,542	22	10,864	11,922	2,252	17,881	34
Monthly Benefits	\$26,961,178	\$32,387	\$9,793,265	\$14,776,243	\$2,991,161	\$18,385,612	\$4,270
CERS Hazardous							
Number of Accounts	1,943	32	1,081	4,530	576	3,351	-
Monthly Benefits	\$3,778,861	\$50,442	\$2,161,127	\$11,528,942	\$946,127	\$7,070,606	\$-
KERS Nonhazardous							
Number of Accounts	19,378	20	6,655	10,145	3,318	12,901	12
Monthly Benefits	\$28,630,115	\$40,930	\$10,221,485	\$20,518,430	\$5,732,705	\$21,187,117	\$2,681
KERS Hazardous							
Number of Accounts	1,421	4	550	1,396	318	1,321	3
Monthly Benefits	\$1,573,356	\$4,869	\$677,746	\$2,084,287	\$348,072	\$1,588,811	\$742
SPRS							
Number of Accounts	191	1	133	748	182	493	-
Monthly Benefits	\$545,905	\$3,084	\$381,117	\$2,585,979	\$369,341	\$1,523,016	\$-
KPPA Total							
Number of Accounts	55,475	79	19,283	28,741	6,646	35,947	49
Monthly Benefits	\$61,489,415	\$131,712	\$23,234,740	\$51,493,881	\$10,387,406	\$49,755,162	\$7,693

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 Statute 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 Statute 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 Statute 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										
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
CERS Nonhazardous										
Actual Rate	19.55%	18.89%	17.67%	17.06%	18.68%	19.18%	21.48%	24.06%	24.06%	26.95%
CERS Hazardous										
Actual Rate	37.60%	35.70%	34.31%	32.95%	31.06%	31.55%	35.34%	39.58%	39.58%	44.33%
KERS Nonhazardous*										
Actual Rate	23.61%	26.79%	38.77%	38.77%	48.59%	49.47%	83.43%	83.43%	84.43%	10.10%
KERS Hazardous										
Actual Rate	29.79%	32.21%	26.34%	26.34%	23.82%	23.70%	36.85%	36.85%	36.00%	33.43%
SPRS										
Actual Rate	63.67%	71.15%	75.76%	75.76%	89.21%	91.24%	146.28%	146.28%	143.48%	146.06%

**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, 2022 (in Whole \$)					
	CERS Nonhazardous	CERS Hazardous	KERS Nonhazardous	KERS Hazardous	SPRS
Number	40,419	9,657	32,079	3,109	1,791
Average Service Credit (Months)	266	277	311	263	320
Average Monthly System Payment for Health Insurance	\$333	\$992	\$360	\$702	\$915
Average Monthly Member Payment for Health Insurance	\$56	\$37	\$56	\$43	\$22
Total Monthly Payment for Health Insurance	\$14,866,268	\$8,130,817	\$12,503,151	\$1,899,754	\$1,301,013

Insurance Contracts by Type As of June 30

CERS										
Nonhazardous										
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
KEHP Parent Plus	340	278	242	235	222	231	214	210	218	225
KEHP Couple/Family	857	546	473	465	462	510	530	519	508	543
KEHP Single	7,652	7,843	8,098	8,164	8,313	8,802	8,912	8,751	8,685	8,692
Medicare without Prescription	2,707	2,583	2,531	2,499	2,462	2,389	2,278	2,183	2,081	1,958
Medicare with Prescription	18,824	20,200	21,520	23,007	24,247	25,476	26,848	27,786	28,472	29,001
CERS Hazardous										
KEHP Parent Plus	400	432	456	378	395	422	430	425	473	468
KEHP Couple/Family	2,155	2,184	2,255	2,321	2,387	2,571	2,648	2,816	2,894	2,961
KEHP Single	1,425	1,447	1,500	1,595	1,645	1,712	1,746	1,731	1,768	1,810
Medicare without Prescription	79	89	107	114	125	119	121	116	120	134
Medicare with Prescription	2,324	2,510	2,697	2,969	3,205	3,388	3,658	3,911	4,103	4,284
KERS										
Nonhazardous										
KEHP Parent Plus	618	506	452	441	411	460	441	433	428	434
KEHP Couple/Family	1,276	797	714	656	663	696	700	666	633	612
KEHP Single	9,364	9,491	9,251	8,876	8,627	8,638	8,304	7,942	7,415	7,141
Medicare without Prescription	1,474	1,370	1,303	1,286	1,229	1,179	1,141	1,089	1,026	989
Medicare with Prescription	16,834	17,738	18,577	19,447	20,215	21,117	21,713	22,271	22,648	22,903
KERS Hazardous										
KEHP Parent Plus	106	110	110	97	88	96	103	112	104	116
KEHP Couple/Family	451	448	448	439	432	478	493	491	491	477
KEHP Single	625	647	656	663	667	686	699	677	667	686
Medicare without Prescription	60	56	62	66	72	73	83	82	82	84
Medicare with Prescription	985	1,104	1,177	1,302	1,401	1,495	1,584	1,662	1,693	1,746
SPRS										
KEHP Parent Plus	76	78	81	77	79	74	77	85	89	90
KEHP Couple/Family	421	444	441	447	420	426	454	459	448	454
KEHP Single	283	263	265	246	251	253	224	226	221	217
Medicare without Prescription	20	20	16	18	17	21	16	16	13	14
Medicare with Prescription	682	712	777	850	897	941	975	998	1003	1016
KPPA Total										
KEHP Parent Plus	1,540	1,404	1,341	1,228	1,195	1,283	1,265	1,265	1,312	1,333
KEHP Couple/Family	5,160	4,419	4,331	4,328	4,364	4,681	4,825	4,951	4,974	5,047
KEHP Single	19,349	19,691	19,770	19,544	19,503	20,091	19,885	19,327	18,756	18,546
Medicare without Prescription	4,340	4,118	4,019	3,983	3,905	3,781	3,639	3,486	3,322	3,179
Medicare with Prescription	39,649	42,264	44,748	47,575	49,965	52,417	54,778	56,628	57,919	58,950

Acronym Glossary for Kentucky Retirement Systems
As of December 8, 2021

Phrase	Acronym
Annual Required Contribution	ARC
Annual Comprehensive Financial Report	ACFR
Board of Trustees	Board
Centers for Disease Control and Prevention	CDC
Commonwealth of Kentucky	Commonwealth
Continuity of Operations Plan	COOP
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
Public Pension Oversight Board	PPOB
Perimeter Park West	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
Treasury Inflation Protected Securities	TIPS
Total Pension Liability	TPL
Teachers' Retirement System	TRS
Unfunded Actuarial Accrued Liability	UAAL
Unfunded Accrued Liability	UAL
Unrelated Business Income	UBI
Work from Home	WFH
Western Kentucky University	WKU



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 410,000 active and retired state and local government employees, state police officers, and nonteaching staff of local school boards and regional universities.

CONNECT WITH US!



KYRET.KY.GOV



Self Service



@KYretire



@KYretirement