



KPPA

Kentucky Public Pensions Authority
A component unit of the Commonwealth of Kentucky

Annual Comprehensive Financial Report

For the Fiscal Year Ended June 30,
2021



CERS
County Employees Retirement System



KERS
Kentucky Employees Retirement System



SPRS
State Police Retirement System

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2021 Annual Comprehensive Financial Report
For The Fiscal Year Ended June 30, 2021

2021

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Management's Responsibility for Financial Reporting

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

December 8, 2021: 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 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 16 through 18 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 black ink that reads 'Connie Davis'.

Connie Davis, CIA, CGAP, CRMA
Director of Accounting

EXECUTIVE DIRECTOR'S MESSAGE

December 8, 2021

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, 2021. This report, including Management's Discussion and Analysis, is provided as a resource for understanding the structure and financial status of KPPA and the systems it operates.

From record investment returns to the finalization of the CERS separation, from the passage of fixed allocation funding legislation for KERS Nonhazardous employers to learning to perform effectively in a work-from-home environment, FY 2021 saw more than its share of challenges and positive developments. Here are a few highlights:

Record Investment Returns

Pension and insurance funds administered by KPPA collectively earned an investment return of 25% net of fees for the Fiscal Year ended June 30.

“

It marked the highest single-year investment return in the history of the organization, surpassing the 24% return recorded in 1997.

”

Those returns were a major contributor to the \$4.5 billion increase in assets across the 10 pension and insurance funds. KPPA closed FY 2021 with \$22.9 billion in assets, based on market value, compared to \$18.4 billion on June 30, 2020.

The overall performance last year compared favorably with the long-term rates of return for the pension and insurance funds. Overall performance continues to exceed the actuarial assumed rates of return, which are 5.25% for the KERS Nonhazardous and State Police pension funds and 6.25% for all other pension and insurance funds.

Detailed information about investments can be found in the investments section of this report. For comprehensive information about our investments, including Investment Policy Statements, visit our website, kyret.ky.gov, and go to the Investments Library section under the Investments tab at the top of the page.

Actuarial

The actuarial value of the CERS Hazardous and Nonhazardous, KERS Hazardous and Nonhazardous, and State Police pension liabilities, and total insurance liability, was determined as of June 30, 2021. Investment performance contributed to improvements in the funded status for all 10 pension and insurance funds. The investment gains in excess of the actuarial assumed rates of return will continue to benefit those funds as the gains are amortized over Fiscal Years 2021-2025.

Funding status by fund, actuarial valuation results, and the economic assumptions used to calculate the total pension

and insurance liability can be found in the actuarial section of this report and are highlighted for the pension funds in the schedule below.

Funded Status		
Pension Fund	6/30/2021	6/30/2020
CERS Nonhazardous	51.8%	49.4%
CERS Hazardous	46.7%	45.1%
KERS Nonhazardous	16.8%	14.2%
KERS Hazardous	60.4%	55.3%
SPRS	30.7%	28.1%

Fixed Allocation Funding

House Bill 8, sponsored by Rep. Jim DuPlessis, changed the method for calculating KERS Nonhazardous employer contributions from a “percent of payroll” model to a “fixed allocation funding” model. Beginning July 1, 2021 employers began paying the normal cost for all their employees, plus their agency’s actuarially-calculated percentage of the unfunded liability specifically attributable to that employer’s current and former employees who participate in KERS Nonhazardous.

“

Because the actuarially accrued contribution is no longer tied to the fluctuating size of the employer’s payroll, KERS Nonhazardous will receive the contribution required to reduce its unfunded liability regardless of employer reductions in covered payroll.

”

CERS Separation

During the past fiscal year, we substantially completed the separation of the CERS system from the KERS and SPRS systems, as mandated and outlined in House Bill 484 (2020) and House Bill 9 (2021), sponsored by Rep. Russell Webber.

Together, the two bills made significant changes to the governance and administrative structure of the former Kentucky Retirement Systems. House Bill 484 transferred governance of CERS to a separate 9-member board of trustees, while another 9-member board of trustees now governs KERS and SPRS under the name Kentucky Retirement Systems. The entity comprising benefits, legal, administration, and investment staff that had been known as Kentucky Retirement Systems is now known as the Kentucky Public Pensions Authority (KPPA). It is governed by a third 8-member board composed of 4 CERS and 4 KRS trustees.

House Bill 9, essentially the blueprint for implementing HB 484, created separate statutes governing CERS and KRS and amended current statutes to allow CERS and KRS to use the existing registration of assets in order to avoid additional expenses.

EXECUTIVE DIRECTOR'S MESSAGE

Staff logged thousands of hours on a multitude of individual tasks to implement the required changes. For instance, to implement changes required in Line of Business and Self Service, the Enterprise and Technology Services staff completed over 700 work items to update forms, reports, and letters as well as language changes on screens to update the agency name to KPPA, which included updating and replacing all the logos and images. This also took a huge effort in testing, which involved staff in Enterprise and Technology Services (IT), Employer Reporting Compliance and Education, Quality Assurance, Communications, Payroll, and Health Insurance. Communications updated logos and branding, kept stakeholders in the loop and made hundreds of changes to the website, not all of which are complete. Procurement and Legal re-established more than 150 vendor contracts with corresponding confidentiality agreements, Business Associate Agreements and Delivery Order/Proofs of Necessity. The list goes on.

Working from Home

Fiscal Year 2021 saw the depths of the COVID crisis during the winter of 2020-21, the green shoots of recovery with the availability of vaccines in the spring of 2021, and then the re-emergence of COVID through the Delta variant in the summer. Through it all the safety of our members and staff remained paramount, and KPPA employees continued to successfully serve members and retirees, while mostly working from home. Typically only between 10% and 20% of the staff reported to the Frankfort campus to perform duties that could not be done remotely.

“

The necessity of working remotely during the pandemic opened a new avenue of service to our members.

”

Now, rather than traveling to Frankfort to meet with a retirement counselor, or relying solely on Self Service, members can meet with counselors face-to-face via online video. What we initially thought of as an inconvenience has been well-received by members. As a result, virtual and phone appointments continue to be the members' primary options elected for counseling services.

KPPA continues to add new features to Self Service, and it remains the best option for members to quickly and easily access their account information and benefit estimates, file for retirement, and submit documents to our office.

Board members also adapted to the new COVID realities, pivoting from in-person meetings to fully online videoconferences. Additionally, board members quickly worked out their organizational structures and set up the necessary committees to implement the CERS separation from KERS and SPRS and to operate under that new structure.

Cyber Security

KPPA's members and employers entrust us with sensitive

data that must be protected. As cyber security threats increase and become more sophisticated, and our work environment changes, we are committed to meeting the challenge of keeping that information secure. Our Enterprise and Technology Services staff continue to monitor threats from social engineering schemes like spear phishing and to require quarterly education campaigns designed to highlight those threats and instruct our staff on how to avoid them. Over the past year, the biggest security concern has shifted from the office network perimeter to the home networks of employees working remotely. Any security system is only as strong as its weakest link. A concerted effort has been made to educate employees on the importance of making sure their home systems are secure and about potential third-party attempts to acquire member and other KPPA confidential information.

Looking Ahead

Our most important job is to meet our obligations to our Members and serve them responsibly. That means working with the Legislature and the Governor's Office to ensure the systems operated by KPPA get the required funding, and being good stewards of the retirement and insurance funds entrusted to us. It means prudently investing assets to generate the best risk-adjusted returns possible. It means being as transparent as we can via our website, social media, and email. And it means being responsive to our members' questions and concerns.

“

Our actuary, GRS, projects that our pension and insurance funds will be fully funded by 2049, provided KPPA receives the full Actuarially Determined Employer Contribution each year and all actuarial assumptions are met.

”

And those same projections show that benefits will be secure going forward thanks to steps taken over the past eight years, including the passage of legislation and adoption of internal policies designed to put the plans operated by KPPA on solid financial footing.

Acknowledgments

The preparation of this report has been a collaborative effort of KPPA Executive Management and the Accounting, Investments, and Communications Divisions. The contents have been reviewed by the Internal Audit Division. KPPA takes responsibility for all the information in the report and confidently presents it as a basis for making management decisions that promote the responsible stewardship of the assets of the systems operated by KPPA.



David Eager

David L. Eager
Executive Director

GOVERNANCE

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. Effective April 1, 2021, the CERS Board of Trustees is responsible for governance of the CERS plans. The governance of the KERS plans and the SPRS plans are the responsibility of the KRS Board of Trustees. CERS and the new KRS each have a Chief Executive Officer (CEO) who serves as a legislative and executive advisor to the respective boards and a General Counsel who provides legal services.



CERS BOARD OF TRUSTEES Three (3) Elected Trustees; Six (6) Appointed by Governor

ELECTED BY MEMBERSHIP



Ed Owens III
CERS Chief Executive
Officer



Betty Pendergrass
Chair
Term ends March 31, 2025



Jerry Wayne Powell
Vice Chair
Term ends March 31, 2025



Dr. Patricia P. Carver
Term ends March 31, 2025

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).



George Cheatham
Term ends March 31, 2025
Nominated by KSBA



J. Michael Foster
Term ends July 1, 2021
Nominated by KACo



J.T. Fulkerson
Term ends July 1, 2021
Nominated by KLC



Dr. Merl Hackbart
Term ends March 31, 2025
Nominated by KACo



Dr. Martin Milkman
Term ends July 1, 2025
Nominated by KSBA



William O'Mara
Term ends March 31, 2025
Nominated by KLC



KRS BOARD OF TRUSTEES Three (3) Elected Trustees; Six (6) Appointed by Governor

ELECTED BY MEMBERSHIP



John E. Chilton
KRS Chief Executive
Officer



Keith Peercy
Chair
Term ends March 31, 2023
Elected by SPRS



Campbell Connell
Term ends March 31, 2022
Elected by KERS



Larry Totten
Term ends March 31, 2022
Appointed by KRS
Trustees to fill vacancy

APPOINTED BY GOVERNOR



John Cheshire III
Vice Chair
Term ends Dec. 1, 2023



Pamela F. Thompson
Term ends June 17, 2023



Joseph L. Grossman
Term ends June 17, 2022



Ellen Lynn Hampton
Term ends June 17, 2022



C. Prewitt Lane
Term ends June 17, 2023



Bruce Brown
Term ends June 17, 2022

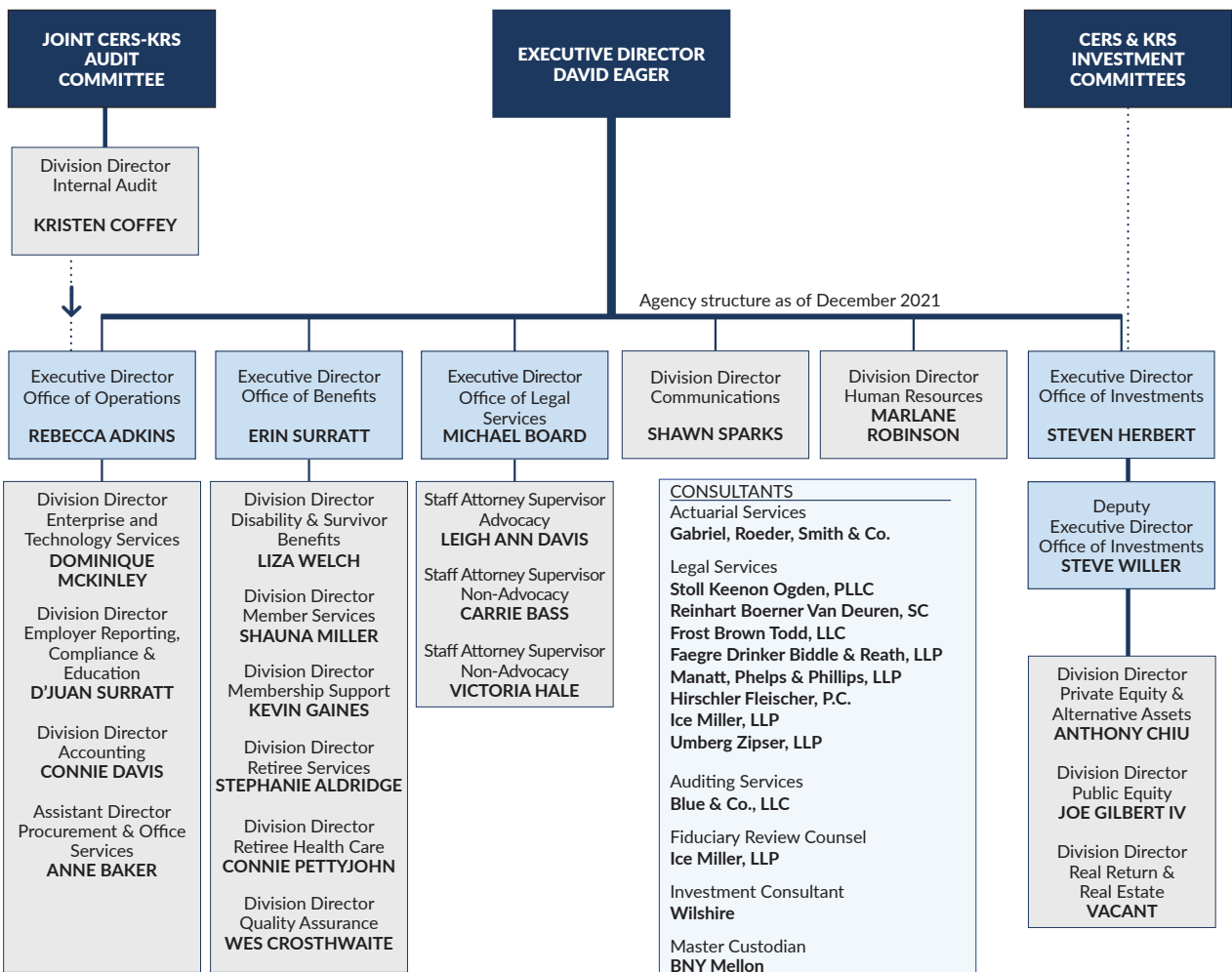
AGENCY STRUCTURE

During the 2020 Legislative Session, House Bill 484 was passed establishing a new governance structure for the agency that operates the Systems. Effective April 1, 2021, KRS as an Agency of the Commonwealth is now known as the Kentucky Public Pensions Authority (KPPA). Current KRS employees became KPPA employees and have continued to provide administrative support, investment management, and conduct daily activities for the new CERS, KRS, and KPPA Boards. KPPA is led by an Executive Director who works with the Chief Executive Officers of the CERS and KRS Boards to carry out the statutory provisions of the Systems.



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

KEITH PEERCY KPPA CHAIR KRS Board Chair	CAMPBELL CONNELL KRS TRUSTEE Selected by KRS Chair	C. PREWITT LANE KRS TRUSTEE Investment Committee Chair	JOHN CHESHIRE III KRS TRUSTEE Selected by KRS Chair
BETTY PENDERGRASS KPPA VICE CHAIR CERS Board Chair	JERRY W. POWELL CERS TRUSTEE Selected by CERS Chair	DR. MERL HACKBART CERS TRUSTEE Investment Committee Chair	WILLIAM O'MARA CERS TRUSTEE Selected by CERS Chair



Refer to the Investments Section for additional information regarding Investment Advisors (pages 137-145) and Schedules of Fees and Expenses (pages 146-147).

Certificate of Achievement

The Government Finance Officers Association (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Kentucky Retirement Systems* for its Comprehensive Annual Financial Report for the fiscal year ended June 30, 2020. 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 22nd award earned by 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 2021 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 Retirement Systems

For its Comprehensive Annual
Financial Report
For the Fiscal Year Ended

June 30, 2020

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.*

2021 Total Fiscal Year KPPA Pension Benefits Paid by County

County	Payees*	Total	County	Payees*	Total	County	Payees*	Total
Adair	518	\$8,636,674	Grant	637	\$12,090,956	McLean	316	\$4,630,982
Allen	408	5,646,321	Graves	924	14,556,071	Meade	468	6,854,906
Anderson	1,407	35,454,310	Grayson	793	12,671,126	Menifee	211	3,119,830
Ballard	252	3,594,282	Green	323	4,580,419	Mercer	783	14,089,638
Barren	1,121	16,948,849	Greenup	683	9,224,136	Metcalfe	312	4,086,635
Bath	409	6,289,636	Hancock	227	3,043,359	Monroe	275	3,157,060
Bell	671	10,770,056	Hardin	2,296	37,864,297	Montgomery	668	11,039,132
Boone	1,909	40,200,767	Harlan	648	9,832,033	Morgan	645	11,165,877
Bourbon	541	9,553,330	Harrison	474	7,418,348	Muhlenberg	816	10,674,563
Boyd	1,077	17,698,430	Hart	349	5,482,910	Nelson	1,102	18,915,124
Boyle	904	15,769,226	Henderson	1,101	18,121,602	Nicholas	217	2,946,151
Bracken	234	3,206,645	Henry	911	20,489,625	Ohio	648	7,129,975
Breathitt	523	7,958,394	Hickman	94	1,650,509	Oldham	1,374	28,658,977
Breckinridge	490	7,311,611	Hopkins	1,299	19,801,507	Owen	521	12,307,098
Bullitt	1,629	30,188,102	Jackson	333	4,527,352	Owsley	214	3,143,098
Butler	322	4,445,505	Jefferson	16,537	362,646,080	Pendleton	371	6,234,261
Caldwell	545	8,258,357	Jessamine	1,157	19,959,431	Perry	796	11,710,127
Calloway	1,090	15,635,607	Johnson	623	9,270,881	Pike	1,287	19,301,293
Campbell	1,587	30,097,169	Kenton	2,356	49,509,934	Powell	345	4,830,277
Carlisle	121	1,760,860	Knott	465	7,388,654	Pulaski	2,293	38,873,480
Carroll	318	5,251,517	Knox	617	9,722,629	Robertson	74	1,139,408
Carter	813	11,038,628	LaRue	378	5,856,473	Rockcastle	401	5,611,002
Casey	373	4,784,467	Laurel	1,302	21,642,492	Rowan	893	15,363,044
Christian	1,561	27,375,213	Lawrence	340	4,136,268	Russell	566	8,668,137
Clark	867	15,076,972	Lee	231	3,339,852	Scott	1,307	27,660,204
Clay	584	8,795,236	Leslie	276	4,106,125	Shelby	1,687	42,193,180
Clinton	285	3,691,338	Letcher	631	8,735,566	Simpson	296	3,597,535
Crittenden	222	3,045,147	Lewis	341	4,398,310	Spencer	527	12,077,888
Cumberland	187	2,873,585	Lincoln	682	8,693,521	Taylor	669	9,858,490
Daviess	2,722	48,987,415	Livingston	274	4,653,749	Todd	262	3,561,816
Edmonson	241	3,399,529	Logan	637	9,151,620	Trigg	538	8,758,400
Elliott	186	2,823,640	Lyon	357	7,137,358	Trimble	286	4,570,639
Estill	419	5,923,031	Madison	2,481	41,963,780	Union	372	4,270,766
Fayette	5,567	121,407,828	Magoffin	369	5,181,376	Warren	2,904	51,149,771
Fleming	489	8,170,932	Marion	572	8,091,764	Washington	355	5,485,367
Floyd	919	14,536,482	Marshall	954	14,045,096	Wayne	562	7,752,067
Franklin	6,313	196,472,207	Martin	282	3,194,338	Webster	372	4,902,549
Fulton	181	2,181,175	Mason	413	6,774,301	Whitley	1,129	16,322,916
Gallatin	125	2,078,723	McCracken	1,620	29,552,871	Wolfe	336	5,585,972
Garrard	439	\$6,542,445	McCreary	396	\$4,144,879	Woodford	1,066	\$26,804,927

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 2021, KPPA paid over \$2 billion to its recipients. The majority, 93.24%, 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, 2021 (in Whole \$)			
	Payees*	%	Payments
Retirement Eligible/Actuarial Refund	468		\$7,221,306
Kentucky	112,643	93.24%	2,096,733,803
Out of State	9,050	6.76%	152,094,571
Grand Total	122,161	100.00%	\$2,256,049,680

*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, 2021

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 Non- Hazardous	1	341	\$3,740,910	160	\$281,083	501	\$4,021,993
	2	487	3,888,436	43	134,102	530	4,022,538
	3	1,388	5,595,623	69	152,672	1,457	5,748,295
	Total	2,216	13,224,969	272	567,857	2,488	13,792,826
CERS Hazardous	1	27	883,931	4	14,687	31	898,618
	2	58	1,791,466	-	-	58	1,791,466
	3	109	1,394,870	2	10,800	111	1,405,670
	Total	194	4,070,267	6	25,487	200	4,095,754
KERS Non- Hazardous	1	201	3,112,956	86	166,205	287	3,279,161
	2	228	2,234,476	13	54,349	241	2,288,825
	3	526	3,008,574	9	21,207	535	3,029,781
	Total	955	8,356,006	108	241,761	1,063	8,597,767
KERS Hazardous	1	14	328,581	3	22,020	17	350,601
	2	51	788,631	3	1,289	54	789,920
	3	259	2,858,359	9	37,333	268	2,895,692
	Total	324	3,975,571	15	60,642	339	4,036,213
SPRS	1	4	56,237	-	-	4	56,237
	2	6	155,262	-	-	6	155,262
	3	3	70,986	-	-	3	70,986
	Total	13	282,485	-	-	13	282,485
TOTALS		3,702	\$29,909,298	401	\$895,747	4,103	\$30,805,045

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, 2021						
Item	CERS Non- Hazardous	CERS Hazardous	KERS Non- Hazardous	KERS Hazardous	SPRS	KPPA Total 2021
Members	239,626	21,195	123,857	13,661	2,704	401,043
Active Membership	80,378	9,138	29,709	3,809	775	123,809
Tier 1	28,381	3,552	14,103	1,122	370	47,528
Tier 2	12,873	1,800	5,234	670	183	20,760
Tier 3	39,124	3,786	10,372	2,017	222	55,521
Average Annual Salary	\$32,685	\$63,050	\$44,701	\$42,549	\$58,501	-
Average Age	48.0	38.4	46.0	40.1	37.7	-
Retired Membership	63,566	8,814	44,469	3,339	1,540	121,728
Tier 1	62,586	8,787	44,184	3,294	1,538	120,389
Tier 2	943	23	271	42	1	1,280
Tier 3	37	4	14	3	1	59
Average Annual Benefit	\$12,017	\$28,781	\$21,328	\$15,793	\$39,833	-
Average Age	70.9	62.4	70.0	65.4	63.5	-
Inactive Members	95,682	3,243	49,679	6,513	389	155,506
Tier 1	49,898	1,431	31,240	1,807	180	84,556
Tier 2	17,713	608	8,715	1,278	68	28,382
Tier 3	28,071	1,204	9,724	3,428	141	42,568

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

CERS Non-Hazardous - Fiduciary Net Position* (\$ in Thousands)									
Fund	2013	2014	2015	2016	2017	2018	2019	2020	2021
Pension	\$5,795,568	\$6,528,146	\$6,440,800	\$6,141,396	\$6,739,142	\$7,086,322	\$7,242,975	\$7,110,889	\$8,670,667
Insurance	1,618,960	1,878,711	1,920,946	1,908,550	2,160,553	2,346,767	2,486,458	2,498,051	3,141,786
Total	\$7,414,528	\$8,406,857	\$8,361,746	\$8,049,946	\$8,899,695	\$9,433,089	\$9,729,433	\$9,608,940	\$11,812,453

CERS Hazardous - Fiduciary Net Position* (\$ in Thousands)									
Fund	2013	2014	2015	2016	2017	2018	2019	2020	2021
Pension	\$1,833,571	\$2,087,002	\$2,078,202	\$2,010,177	\$2,227,679	\$2,361,047	\$2,429,613	\$2,395,688	\$2,934,421
Insurance	891,320	1,030,303	1,056,480	1,056,097	1,179,313	1,268,272	1,324,809	1,305,132	1,607,811
Total	\$2,724,891	\$3,117,305	\$3,134,682	\$3,066,274	\$3,406,992	\$3,629,319	\$3,754,422	\$3,700,820	\$4,542,232

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

KERS Non-Hazardous - Fiduciary Net Position* (\$ in Thousands)									
Fund	2013	2014	2015	2016	2017	2018	2019	2020	2021
Pension	\$2,760,753	\$2,578,290	\$2,327,782	\$1,980,292	\$2,092,781	\$2,048,890	\$2,286,625	\$2,362,231	\$3,085,014
Insurance	496,040	646,905	665,639	668,318	781,406	846,762	942,136	1,006,498	1,353,123
Total	\$3,256,793	\$3,225,195	\$2,993,421	\$2,648,610	\$2,874,187	\$2,895,652	\$3,228,761	\$3,368,729	\$4,438,137

KERS Hazardous - Fiduciary Net Position* (\$ in Thousands)									
Fund	2013	2014	2015	2016	2017	2018	2019	2020	2021
Pension	\$514,592	\$561,484	\$552,468	\$527,880	\$605,921	\$651,173	\$687,877	\$697,366	\$874,928
Insurance	372,883	433,525	439,113	437,397	484,442	513,384	527,108	514,740	624,889
Total	\$887,475	\$995,009	\$991,581	\$965,277	\$1,090,363	\$1,164,557	\$1,214,985	\$1,212,106	\$1,499,817

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

SPRS - Fiduciary Net Position* (\$ in Thousands)									
Fund	2013	2014	2015	2016	2017	2018	2019	2020	2021
Pension	\$248,698	\$260,974	\$247,229	\$218,013	\$256,383	\$268,425	\$287,242	\$295,044	\$357,660
Insurance	142,691	164,958	164,714	160,949	178,191	189,994	200,128	200,245	246,004
Total	\$391,389	\$425,932	\$411,943	\$378,962	\$434,574	\$458,419	\$487,370	\$495,289	\$603,664

KPPA Total Fiduciary Net Position

Fiduciary Net Position (\$ in Thousands)									
Fund	2013	2014	2015	2016	2017	2018	2019	2020	2021
Pension	\$11,153,182	\$12,015,897	\$11,646,481	\$10,877,758	\$11,921,906	\$12,415,856	\$12,934,332	\$12,861,218	\$15,922,690
Insurance	3,521,894	4,154,401	4,246,892	4,231,311	4,783,905	5,165,179	5,480,639	5,524,666	6,973,613
Total	\$14,675,076	\$16,170,298	\$15,893,373	\$15,109,069	\$16,705,811	\$17,581,035	\$18,414,971	\$18,385,884	\$22,896,303

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

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INDEPENDENT AUDITOR'S REPORT

To the Members
Kentucky Public Pensions Authority
Frankfort, Kentucky

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, 2021, and the related notes to the financial statements, which collectively comprise KPPA's basic financial statements on pages 28 through 86.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes 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.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. 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. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to KPPA's preparation and fair presentation of the financial statements 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, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of Kentucky Public Pensions Authority as of June 30, 2021, 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.

Report on Summarized Comparative Information

The financial statements of KPPA for the year ended June 30, 2020, were audited by other auditors whose report dated December 3, 2020, expressed unmodified opinion on those statements. In our opinion, the summarized comparative information presented herein as of and for the year ended June 30, 2020 is consistent, in all material respects, with the audited financial statements from which it has been derived.

Report on Required Supplementary Information

Accounting principles generally accepted in the United States of America require that management's discussion and analysis on pages 19 through 26, and the defined benefit pension plan and other postemployment benefit plan supplemental schedules on pages 88 through 116, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming an opinion on the 2021 financial statements that collectively comprise KPPA's basic financial statements. The additional supporting schedules (pages 118 through 119) are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The schedule of administrative expenses, schedule of professional services and contracts, and schedule of contracted investment management expenses are the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audits 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 2021 information on the schedule of administrative expenses, the schedule of professional services and contracts, and the schedule of contracted investment management expenses is fairly stated, in all material respects, in relation to the 2021 basic financial statements as a whole.

The 2020 information on the additional supporting schedules (pages 118 to 119) was subject to the auditing procedures applied in the 2020 audit of the basic financial statements by other auditors, whose report on such information stated that it was fairly stated in all material respects in relation to the 2020 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 8, 2021, on our consideration of the 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 to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the KPPA's internal control over financial reporting and compliance.

Blue & Co., LLC

Lexington, Kentucky
December 8, 2021

Management's Discussion & Analysis (Unaudited)

This section provides a discussion and analysis of the financial performance of the CERS, KERS, SPRS, and Insurance Fund retirement plans of Kentucky administered by the Kentucky Public Pensions Authority (KPPA) for the year ended June 30, 2021. 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 a defined benefit OPEB plan. All plans are fiduciary plans.

The defined benefit pension plans include:
County Employees Retirement System
Kentucky Employees Retirement System
State Police Retirement System

The defined benefit OPEB plan consists of the Kentucky Retirement System Insurance Trust Fund. The Insurance Fund provides health benefits for CERS, KERS and SPRS retired members and beneficiaries.

Pension Funds

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

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

Total Pension Funds Fiduciary Net Position was \$12.9 billion at the beginning of the fiscal year and increased by to \$15.9 billion as of June 30, 2021. The \$3.0 billion increase is primarily attributable to realized and unrealized gains, creating an increase in the market value of investments. The Pension Funds received \$0.4 million in General Fund appropriations in fiscal year 2021 compared to \$1.1 million in fiscal year 2020.

CONTRIBUTIONS

Total contributions reported for fiscal year 2021 were \$2,243.5 million compared to \$2,064.4 million in fiscal year 2020. The major contributor to the increase resulted from an increase in the Employer Contribution rate for KERS Non-Hazardous, as well as an increase in covered payroll for CERS Hazardous, KERS Hazardous and SPRS.

INVESTMENTS

The investment portfolio for the Pension Funds reported a net return of 25.00% for fiscal year 2021 compared to 1.15% return for fiscal year 2020.

The net appreciation in the fair value of investments for fiscal year 2021 was \$2,898.3 million compared to net depreciation of \$(98.1) million for the previous fiscal year.

Interest, dividends, and net securities lending income for fiscal year 2021 was \$392.0 million compared to \$290.7 million in fiscal year 2020. All investment returns are reported net of fees, including carried interest. Investment expenses totaled \$53.1 million for fiscal year 2020 compared to \$140.0 million in the current fiscal year. The increase in fees is a direct result of the favorable market conditions in fiscal year 2021 and an increase in assets.

DEDUCTIONS

Pension benefits paid to retirees and beneficiaries for fiscal year 2021 totaled \$2,263.4 million compared to \$2,205.9 million in fiscal year 2020, a 2.61% increase. The increase was due to a 3.90% increase in the number of retirees to 136,707. Refunded contributions paid to former members upon termination of employment for fiscal year 2021 totaled \$32.1 million compared to \$33.5 million in fiscal year 2020, a (4.12)% decrease, as fewer members elected a refund at employment termination.

KPPA's fiscal year 2021 Pension administrative expense totaled \$36.8 million compared to \$37.7 million in the prior year. The decrease was mainly due to lower overtime and Information Technology expenses.

Management's Discussion & Analysis (Unaudited)

Insurance Fund

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

The combined fiduciary net position of the Insurance Fund increased by \$1,448.9 million during fiscal year 2021. Total combined net position for the fiscal year was \$6,973.6 million. Total contributions and net investment income of \$1,832.4 million offset deductions of \$383.4 million which resulted in the net position increase.

CONTRIBUTIONS

Employer contributions of \$346.0 million were received in fiscal year 2021 compared to \$369.6 million in fiscal year 2020. Total contributions decreased (6.37)% primarily due to the decrease in the contribution rate for KERS Non-Hazardous, KERS Hazardous, and SPRS. As well as a decrease in covered payroll for CERS Non-Hazardous and KERS Non-Hazardous.

The reimbursement of retired/re-employed health insurance for fiscal year 2021 totaled \$12.5 million compared to \$11.5 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 2021 was \$162.4 million compared to \$126.5 million in fiscal year 2020. The primary driver of this increase was due to favorable market conditions which resulted in an increase in income and dividends.

The investment portfolio reported a net return of 24.95% for the fiscal year, which was higher than fiscal year 2020 net return of 0.48%. The investment return was above the 6.25% assumed rate of return.

The net appreciation in the fair value of investments for fiscal year 2021 was \$ 1,286.3 million compared to net depreciation of \$(81.9) million for the previous fiscal year. This \$ 1,368.2 million increase in fiscal year 2021 was due to favorable market returns compared to fiscal year 2020.

Investment expenses totaled \$71.2 million for fiscal year 2021 compared to \$21.3 million in the prior fiscal year. The increase in fees is a combination of favorable market conditions and an increase in assets.

DEDUCTIONS

Total insurance premiums, plus self-funded reimbursements were \$381.1 million for fiscal year 2021. The fiscal year 2021 insurance premiums were comparable to fiscal year 2020 rates, the number of covered lives only increased by approximately 1% year-over-year.

Insurance administrative expenses for retirees under age 65, decreased from \$2.41 million in fiscal year 2020 to \$2.35 million in fiscal year 2021.

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 plan perspective. This financial report consists of two combining financial statements and two required 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 27 and the Statement of Fiduciary Net Position for the Insurance Fund on page 29 provide a snapshot of the financial position of each of the three systems as of fiscal year 2021. The Combining Statement of Changes in Fiduciary Net Position for the Pension Funds on page 30 , and the Statement of Changes in Fiduciary Net Position for the Insurance Fund on page 32 , summarize the additions and deductions that occurred for each of the three systems during fiscal year 2021.

The economic assumptions for the Pension Funds and Insurance Fund for fiscal year 2021 are on page 68, the Schedules of Changes in Employers' Total Pension Liability on pages 91-97, the Schedules of the Employer Net Pension Liability on pages 88-90; the Schedule of Changes in Employers' Total Other Post-Employment Benefits (OPEB) Liability are on pages 105-110; and, the Schedule of the Employers' Net OPEB Liabilities are on pages 102-104. 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 99-102, and the Schedules of the Employers' Contributions – OPEB are on pages 112-115. These schedules present current and historical trend information about the annual required contributions and the contributions made in relation to the requirement. These schedules provide information that contributes to understanding the changes over time in the funded status of the plans.

Kentucky Public Pensions Authority Combined

KPPA's combined fiduciary net position increased \$4,510.4 million in fiscal year 2021, compared to the fiduciary net position for the previous fiscal year. The increase in fiduciary net position for the fiscal year 2021 is primarily attributable to positive investment performance. The 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)

Plan Activities

The net position of the Pension Plans increased by \$3,061.5 million to \$15,922.7 million in fiscal year 2021 compared to \$12,861.2 million in fiscal year 2020. All of these assets are restricted in use to provide monthly retirement allowances to members who contributed to the Pension Plans as employees and on behalf of their beneficiaries. The net position of the Insurance Plan increased by \$1,448.9 million to \$6,973.6 million in fiscal year 2021 compared to \$5,524.7 million in fiscal year 2020. All of these assets are restricted in use to provide hospital and medical insurance benefits to members of the Pension Funds who receive a monthly retirement allowance.

Financial data presented in this report is abbreviated "in thousands" or "in millions."

Fiduciary Net Position									
As of June 30 (\$ in Thousands)									
	Pension Funds			Insurance Fund			Total		
	2021	2020	2019	2021	2020	2019	2021	2020	2019
Cash & Invest.	\$16,391,137	\$13,150,428	\$13,133,900	\$7,184,408	\$5,687,583	\$5,622,703	\$23,575,545	\$18,838,011	\$18,756,603
Receivables	361,429	295,988	468,221	122,132	87,102	142,538	483,561	383,090	610,759
Equip/Int Assets, net of dep/amort.	677	1,619	2,677	-	-	-	677	1,619	2,677
Total Assets	16,753,243	13,448,035	13,604,798	7,306,540	5,774,685	5,765,241	24,059,783	19,222,720	19,370,039
Total Liabilities	(830,553)	(586,817)	(670,466)	(332,927)	(250,019)	(284,602)	(1,163,480)	(836,836)	(955,068)
Fiduciary Net Position	\$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

Pension Plan Activities

Member contributions decreased by \$10.4 million. This is primarily due to a decrease in member service purchases and covered payroll in CERS Non-Hazardous and KERS Non-Hazardous. Retirement contributions are calculated by applying a percentage factor to salary and are remitted by each employer on behalf of the member. Non-Hazardous Tier 1 members pay pension contributions of 5.00% of creditable compensation and Hazardous Tier 1 members contribute 8.00% of creditable compensation; whereas, Non-Hazardous 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 \$14.8 million as a result of the increase in the contribution rates for KERS Hazardous, KERS Non-Hazardous and SPRS.

Total Pension Plans deductions increased by \$55.3 million. The 2.43% increase was primarily driven by the normal increase in retirements across all plans.

Net investment income increased by \$3,010.8 million. This is illustrated in the Investment Income Pension table on the next page. The Pension Plans experienced an increase in income when compared to fiscal year 2020, due to favorable market conditions. KPPA overall returned 25.00% for the fiscal year. This outperformed the benchmark of 24.07% and outperformed the actuarial assumed rate of return of 6.25% used by CERS and KERS Hazardous, and 5.25% used by KERS Non-Hazardous and SPRS.

Management's Discussion & Analysis (Unaudited)

Changes in Fiduciary Net Position									
For the fiscal year ending June 30, (\$ in Thousands)									
	Pension Plans			Insurance Plan			Total		
	2021	2020	2019	2021	2020	2019	2021	2020	2019
Additions:									
Member Cont.	\$342,980	\$353,360	\$333,664	\$-	\$-	\$-	\$342,980	\$353,360	\$333,664
Employer Cont.	1,724,309	1,709,544	1,594,008	346,026	369,573	387,259	2,070,335	2,079,117	1,981,267
Heath Ins. Cont.	(4)	11	21,332	24,409	23,142	-	24,405	23,153	21,332
Humana Gain Share	-	-	-	42,897	-	7,516	42,897	-	7,516
Pension Spiking Cont.	222	369	677	-	-	-	222	369	677
Northern Trust Settlement	-	-	102	-	-	21	-	-	123
General Fund Appro.	384	1,086	76,944	-	-	-	384	1,086	76,944
Employer Cessation Cont.	175,600	20	10,643	28,400	25	1,391	204,000	45	12,034
Premiums Rec'd	-	-	-	563	730	715	563	730	715
Retired Re-emp Ins.	-	-	-	12,535	11,482	10,498	12,535	11,482	10,498
Medicare Subsidy	-	-	-	3	7	9	3	7	9
Invest. Inc. (net)	3,150,288	139,534	694,013	1,377,531	23,263	288,294	4,527,819	162,797	982,307
Total Additions	5,393,779	2,203,924	2,731,383	1,832,364	428,222	695,703	7,226,143	2,632,146	3,427,086
Deductions:									
Benefit payments	2,263,388	2,205,859	2,144,053	-	-	-	2,263,388	2,205,859	2,144,053
Refunds	32,130	33,511	32,429	-	-	-	32,130	33,511	32,429
Admin. Exp.	36,789	37,668	36,425	2,354	2,415	2,372	39,143	40,083	38,797
Healthcare Costs	-	-	-	381,063	381,780	377,871	381,063	381,780	377,871
Total Deductions	2,332,307	2,277,038	2,212,907	383,417	384,195	380,243	2,715,724	2,661,233	2,593,150
Increase (Decrease) in Fiduciary Net Position	3,061,472	(73,114)	518,476	1,448,947	44,027	315,460	4,510,419	(29,087)	833,936
Beginning of Period	12,861,218	12,934,332	12,415,856	5,524,666	5,480,639	5,165,179	18,385,884	18,414,971	17,581,035
End 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

Management's Discussion & Analysis (Unaudited)

CERS			
As of June 30 (\$ in Thousands)			
Investment Income - Pension	2021	2020	2019
Increase (decrease) in fair value of investments	\$1,779,618	\$(562,768)	\$206,283
Investment income net of investment expense	\$181,561	\$180,226	\$160,480
Gain on sale of investments	\$423,782	\$455,216	\$160,765
Net Investment Income	\$2,384,961	\$72,674	\$527,528
KERS			
As of June 30 (\$ in Thousands)			
Investment Income - Pension	2021	2020	2019
Increase (decrease) in fair value of investments	\$510,655	\$(113,765)	\$61,873
Investment income net of investment expense	\$64,574	\$52,073	\$43,935
Gain on sale of investments	\$128,132	\$122,193	\$45,814
Net Investment Income	\$703,361	\$60,501	\$151,622
SPRS			
As of June 30 (\$ in Thousands)			
Investment Income - Pension	2021	2020	2019
Increase (decrease) in fair value of investments	\$45,055	\$(11,168)	\$6,110
Investment income net of investment expense	\$5,885	\$5,314	\$4,880
Gain on sale of investments	\$11,026	\$12,213	\$3,873
Net Investment Income	\$61,966	\$6,359	\$14,863

Insurance Plan Activities

Employer contributions paid into the Insurance Plan decreased by \$23.5 million in fiscal year 2021 over the prior fiscal year. The decrease in employer contributions is directly related to a decrease in covered payroll for KERS Non-Hazardous and CERS Non-Hazardous as well as a decrease in the insurance transfer rate for KERS Non-Hazardous, KERS Hazardous, and SPRS employer contributions.

Net investment income increased \$1,354.3 million in fiscal year 2021 compared to fiscal year 2020. KPPA overall returned 24.95% for the fiscal year. This outperformed the benchmark of 23.84% and outperformed the actuarial assumed rate of return of 6.25% used by all of the Insurance Plan Funds.

Insurance			
As of June 30 (\$ in Thousands)			
Investment Income - Insurance	2021	2020	2019
Increase (decrease) in fair value of investments	\$1,044,425	\$(308,571)	\$112,566
Investment income net of investment expense	91,204	105,181	92,338
Gain on sale of investments	241,902	226,653	83,390
Net Investment Income	\$1,377,531	\$23,263	\$288,294

Management's Discussion & Analysis (Unaudited)

Historical Trends

Accounting standards require that the Combining Statement of Fiduciary Net Position state asset value at fair value and include only benefits and refunds due plan members and beneficiaries; accrued 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 88-90 and Net OPEB Liability on pages 103-104. The asset values stated in the Schedules of Changes in Employers' Total Pension Liability (TPL) on pages 91-97 and Total OPEB Liability on pages 105-110 are the actuarial value of assets. The actuarial value of assets recognizes a portion of the difference between the fair value of assets and the expected fair value of assets based on the investment return assumption. The amount recognized each year is 20% of the difference between fair value and expected fair value. The actuarial accrued liability is calculated using the entry age normal cost funding method. This actuarial accrued liability is the measure of the cost of benefits that have been earned to date by CERS, KERS and SPRS' members, but not yet paid. The difference in value between the actuarial accrued liability and the actuarial value of assets is defined as the unfunded actuarial accrued liability.

The unfunded actuarial accrued liability from the June 30, 2021, actuarial valuation in the Pension Plans decreased by \$722.4 million for a total unfunded amount of \$25,008.1 million in fiscal year 2021, compared to an unfunded amount of \$25,730.6 million in fiscal year 2020. The overall funding decrease is the result of maintaining a sound funding policy and paying the actuarially determined contribution rate for the KERS and SPRS plans. However, both CERS plans experienced a slight increase as a result of the phase in provisions from House Bill 362 passed during the 2018 legislative session.

The Insurance Plan's unfunded actuarial accrued liability from the June 30, 2021, actuarial valuation for fiscal year 2021, was \$1,960.0 million compared to \$2,536.4 million for fiscal year 2020. This is a decrease in the unfunded actuarial accrued liability of \$576.4 million. The decrease is due to the accrued liability being lower than expected due to the 2021 healthcare premium experience. Please see the charts on the following page for the unfunded actuarial accrued liability.

Annual required actuarially determined contributions of 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 99-102, and in the Schedules of Contributions - OPEB on pages 112-115. The difference in the annual required contributions and actual contributions made by employers and other contributing entities in the KERS and SPRS funds is attributable to the fact that the employer contribution rate set by the Kentucky General Assembly was less than the rate recommended by the KPPA actuary in prior years and adopted by the Board.

Information Requests

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

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

Management's Discussion & Analysis (Unaudited)

Schedule of Unfunded Actuarial Accrued Liability CERS								
As of June 30 (\$ in Millions)								
Item	CERS Non-Hazardous				CERS Hazardous			
	Pension		Insurance		Pension		Insurance	
	2020	2021	2020	2021	2020	2021	2020	2021
Actuarial Accrued Liability (AAL)	\$14,611	\$14,895	\$3,392	\$3,450	\$5,431	\$5,629	\$1,741	\$1,751
Actuarial Value of Assets	7,221	7,716	2,661	2,947	2,448	2,629	1,362	1,476
Unfunded AAL	\$7,390	\$7,179	\$731	\$503	\$2,983	\$3,000	\$379	\$275
Funded Ratio	49.42%	51.80%	78.46%	85.42%	45.07%	46.69%	78.23%	84.26%

Schedule of Unfunded Actuarial Accrued Liability KRS												
As of June 30 (\$ in Millions)												
Item	KERS Non-Hazardous				KERS Hazardous				SPRS			
	Pension		Insurance		Pension		Insurance		Pension		Insurance	
	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021
Actuarial Accrued Liability (AAL)	\$16,349	\$16,321	\$2,565	\$2,574	\$1,284	\$1,295	\$428	\$424	\$1,053	\$1,053	\$276	\$272
Actuarial Value of Assets	2,323	2,736	1,096	1,291	710	782	539	575	296	323	207	223
Unfunded AAL	\$14,026	\$13,585	\$1,469	\$1,283	\$574	\$513	\$(111)	\$(151)	\$757	\$730	\$69	\$49
Funded Ratio	14.21%	16.76%	42.73%	50.17%	55.27%	60.41%	126.00%	135.47%	28.12%	30.69%	74.97%	81.96%

Combining Statement of Fiduciary Net Position

As of June 30, 2021 with Comparative Totals as of June 30, 2020 (\$ in Thousands)

ASSETS	CERS	KERS	SPRS	Insurance	KPPA Total 2021	KPPA Total 2020
	CASH AND SHORT-TERM INVESTMENTS					
Cash Deposits	\$344	\$313	\$55	\$416	\$1,128	\$814
Short-term Investments	486,085	416,480	33,180	429,500	1,365,245	1,255,711
Total Cash and Short-term Investments	486,429	416,793	33,235	429,916	1,366,373	1,256,525
RECEIVABLES						
Accounts Receivable	88,323	50,693	8,283	36,356	183,655	187,123
Accounts Receivable - Investments	153,262	55,983	4,885	85,776	299,906	195,967
Total Receivables	241,585	106,676	13,168	122,132	483,561	383,090
INVESTMENTS, AT FAIR VALUE						
Core Fixed Income	1,427,767	782,124	77,234	856,629	3,143,754	3,371,195
Public Equities	5,374,082	1,381,218	122,674	3,085,630	9,963,604	6,903,781
Private Equities	948,500	267,509	19,384	584,978	1,820,371	1,549,119
Specialty Credit	1,906,671	652,248	58,694	1,163,959	3,781,572	2,871,308
Derivatives	(156)	80	(9)	52	(33)	9,618
Absolute Return	-	-	-	-	-	247,305
Real Return	740,646	235,954	21,541	422,670	1,420,811	985,538
Opportunistic	307,267	88,461	8,341	205,755	609,824	474,760
Real Estate	455,127	141,477	13,611	258,216	868,431	813,850
Total Investments, at Fair Value	11,159,904	3,549,071	321,470	6,577,889	21,608,334	17,226,474
Securities Lending Cash Collateral Invested	310,117	104,773	9,345	176,603	600,838	355,012
CAPITAL/INTANGIBLE ASSETS						
Capital Assets	1,854	1,020	11	-	2,885	2,885
Intangible Assets	10,788	6,413	100	-	17,301	17,302
Accumulated Depreciation	(1,854)	(1,020)	(11)	-	(2,885)	(2,826)
Accumulated Amortization	(10,431)	(6,093)	(100)	-	(16,624)	(15,742)
Total Capital Assets	357	320	-	-	677	1,619
Total Assets	12,198,392	4,177,633	377,218	7,306,540	24,059,783	19,222,720
LIABILITIES						
Accounts Payable	9,796	4,105	82	462	14,445	12,980
Investment Accounts Payable	273,391	108,813	10,131	155,862	548,197	468,844
Securities Lending Cash Collateral	310,117	104,773	9,345	176,603	600,838	355,012
Total Liabilities	593,304	217,691	19,558	332,927	1,163,480	836,836
Total Fiduciary Net Position Restricted for Pension Benefits	\$11,605,088	\$3,959,942	\$357,660	\$6,973,613	\$22,896,303	\$18,385,884

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.

Statement of Fiduciary Net Position - CERS and KERS Pension

As of June 30, 2021 (\$ in Thousands)

ASSETS	CERS	CERS	CERS	KERS	KERS	KERS
	Non-Hazardous	Hazardous	Total	Non-Hazardous	Hazardous	Total
CASH AND SHORT-TERM INVESTMENTS						
Cash Deposits	\$274	\$70	\$344	\$263	\$50	\$313
Short-term Investments	354,401	131,684	486,085	362,327	54,153	416,480
Total Cash and Short-term Investments	354,675	131,754	486,429	362,590	54,203	416,793
RECEIVABLES						
Accounts Receivable	70,560	17,763	88,323	46,945	3,748	50,693
Accounts Receivable - Investments	114,786	38,476	153,262	44,473	11,510	55,983
Total Receivables	185,346	56,239	241,585	91,418	15,258	106,676
INVESTMENTS, AT FAIR VALUE						
Core Fixed Income	1,062,124	365,643	1,427,767	670,631	111,493	782,124
Public Equities	4,019,813	1,354,269	5,374,082	984,670	396,548	1,381,218
Private Equities	710,086	238,414	948,500	202,161	65,348	267,509
Specialty Credit	1,421,018	485,653	1,906,671	505,214	147,034	652,248
Derivatives	(123)	(33)	(156)	84	(4)	80
Absolute Return	-	-	-	-	-	-
Real Return	553,862	186,784	740,646	182,999	52,955	235,954
Opportunistic	230,926	76,341	307,267	67,526	20,935	88,461
Real Estate	344,816	110,311	455,127	109,064	32,413	141,477
Total Investments, at Fair Value	8,342,522	2,817,382	11,159,904	2,722,349	826,722	3,549,071
Securities Lending Cash Collateral	231,593	78,524	310,117	81,365	23,408	104,773
CAPITAL/INTANGIBLE ASSETS						
Capital Assets	1,701	153	1,854	929	91	1,020
Intangible Assets	9,961	827	10,788	5,920	493	6,413
Accumulated Depreciation	(1,701)	(153)	(1,854)	(929)	(91)	(1,020)
Accumulated Amortization	(9,612)	(819)	(10,431)	(5,611)	(482)	(6,093)
Total Capital Assets	349	8	357	309	11	320
Total Assets	9,114,485	3,083,907	12,198,392	3,258,031	919,602	4,177,633
LIABILITIES						
Accounts Payable	8,676	1,120	9,796	3,720	385	4,105
Investment Accounts Payable	203,549	69,842	273,391	87,932	20,881	108,813
Securities Lending Cash Collateral	231,593	78,524	310,117	81,365	23,408	104,773
Total Liabilities	443,818	149,486	593,304	173,017	44,674	217,691
Total Fiduciary Net Position Restricted for Pension Benefits	\$8,670,667	\$2,934,421	\$11,605,088	\$3,085,014	\$874,928	\$3,959,942

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.

Statement of Fiduciary Net Position - Insurance

As of June 30, 2021, (\$ In Thousands)

ASSETS	CERS	CERS	KERS	KERS	SPRS	Insurance Total
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous		2021
CASH AND SHORT-TERM INVESTMENTS						
Cash Deposits	\$117	\$51	\$141	\$59	\$48	\$416
Short-term Investments	190,745	76,432	127,774	23,095	11,454	429,500
Total Cash and Short-term Investments	190,862	76,483	127,915	23,154	11,502	429,916
RECEIVABLES						
Accounts Receivable	15,690	4,690	14,807	371	798	36,356
Investment Accounts Receivable	38,392	19,528	17,102	7,772	2,982	85,776
Total Receivables	54,082	24,218	31,909	8,143	3,780	122,132
INVESTMENTS, AT FAIR VALUE						
Core Fixed Income	379,725	199,916	172,044	75,368	29,576	856,629
Public Equities	1,375,704	707,548	616,647	277,710	108,021	3,085,630
Specialty Credit	529,508	262,287	218,770	112,704	40,690	1,163,959
Private Equities	279,970	157,517	68,950	54,085	24,456	584,978
Derivatives	21	3	27	-	1	52
Absolute Return	-	-	-	-	-	-
Real Return	189,953	99,768	77,866	39,778	15,305	422,670
Opportunistic	93,243	50,798	33,337	20,724	7,653	205,755
Real Estate	118,422	64,920	37,138	27,302	10,434	258,216
Total Investments, at Fair Value	2,966,546	1,542,757	1,224,779	607,671	236,136	6,577,889
Securities Lending Cash Collateral Invested	79,559	40,872	33,994	15,934	6,244	176,603
Total Assets	3,291,049	1,684,330	1,418,597	654,902	257,662	7,306,540
LIABILITIES						
Accounts Payable	292	80	80	8	2	462
Investment Accounts Payable	69,412	35,567	31,400	14,071	5,412	155,862
Securities Lending Cash Collateral	79,559	40,872	33,994	15,934	6,244	176,603
Total Liabilities	149,263	76,519	65,474	30,013	11,658	332,927
Total Fiduciary Net Position Restricted for OPEB	\$3,141,786	\$1,607,811	\$1,353,123	\$624,889	\$246,004	\$6,973,613

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

Combining Statement of Changes In Fiduciary Net Position

For the fiscal year ending June 30, 2021, with Comparative Totals as of June 30, 2020 (\$ In Thousands)

	CERS	KERS	SPRS	Insurance	KPPA Total 2021	KPPA Total 2020
ADDITIONS						
Member Contributions	\$228,065	\$110,163	\$4,752	\$-	\$342,980	\$353,360
Employer Contributions	644,285	1,020,762	59,262	346,026	2,070,335	2,079,117
Medicare Drug Reimbursement	-	-	-	3	3	7
Insurance Premiums	-	-	-	563	563	730
Humana Gain Share	-	-	-	42,897	42,897	-
General Fund Appropriations	-	-	384	-	384	1,086
Pension Spiking Contributions	148	70	4	-	222	369
Retired Re-employed Healthcare	-	-	-	12,535	12,535	11,482
Health Insurance Contributions (HB1)	1	(5)	-	24,409	24,405	23,153
Employer Cessation Contributions	-	175,600	-	28,400	204,000	45
Total Contributions	872,499	1,306,590	64,402	454,833	2,698,324	2,469,349
INVESTMENT INCOME						
From Investing Activities						
Net Appreciation (Depreciation) in FV of Investments	2,203,400	638,787	56,081	1,286,327	4,184,595	(179,997)
Interest/Dividends	291,467	90,939	8,212	161,768	552,386	414,088
Total Investing Activities Income	2,494,867	729,726	64,293	1,448,095	4,736,981	234,091
Less: Investment Expense	48,352	12,912	1,245	30,076	92,585	70,531
Less: Performance Fees	62,584	13,784	1,113	41,086	118,567	3,850
Net Income from Investing Activities	2,383,931	703,030	61,935	1,376,933	4,525,829	159,710
From Securities Lending Activities						
Securities Lending Income	688	227	21	403	1,339	7,933
Less: Securities Lending Borrower Rebates (Income)/Expense	(523)	(162)	(15)	(300)	(1,000)	4,379
Less: Securities Lending Agent Fees	181	58	5	105	349	467
Net Income from Securities Lending	1,030	331	31	598	1,990	3,087
Net Investment Income	2,384,961	703,361	61,966	1,377,531	4,527,819	162,797
Total Additions	3,257,460	2,009,951	126,368	1,832,364	7,226,143	2,632,146
DEDUCTIONS						
Benefit Payments	1,116,749	1,083,390	63,249	-	2,263,388	2,205,859
Refunds	18,524	13,333	273	-	32,130	33,511
Healthcare Premiums Subsidies	-	-	-	375,598	375,598	375,794
Self Funded Healthcare Costs	-	-	-	5,465	5,465	5,986
Administrative Expenses	23,677	12,882	230	2,354	39,143	40,083
Total Deductions	1,158,950	1,109,605	63,752	383,417	2,715,724	2,661,233
Net Increase (Decrease) in Fiduciary Net Position Restricted for Pension Benefits	2,098,510	900,346	62,616	1,448,947	4,510,419	(29,087)
Total Fiduciary Net Position Restricted for Pension Benefits						
Beginning of Period	9,506,578	3,059,596	295,044	5,524,666	18,385,884	18,414,971
End of Period	\$11,605,088	\$3,959,942	\$357,660	\$6,973,613	\$22,896,303	\$18,385,884

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

Statement of Changes In Fiduciary Net Position - CERS and KERS Pension

For the fiscal year ending June 30, 2021 (\$ in Thousands)

	CERS			KERS		
	Non-Hazardous	Hazardous	Total	Non-Hazardous	Hazardous	Total
ADDITIONS						
Member Contributions	\$165,698	\$62,367	\$228,065	\$90,202	\$19,961	\$110,163
Employer Contributions	472,196	172,089	644,285	958,580	62,182	1,020,762
General Fund Appropriations	-	-	-	-	-	-
Pension Spiking Contributions	32	116	148	52	18	70
Northern Trust Settlement	-	-	-	-	-	-
Health Insurance Contributions (HB1)	(1)	2	1	(8)	3	(5)
Employer Cessation Contributions	-	-	-	175,600	-	175,600
Total Contributions	637,925	234,574	872,499	1,224,426	82,164	1,306,590
INVESTMENT INCOME						
From Investing Activities						
Net Appreciation (Depreciation) in FV of Investments						
	1,648,520	554,880	2,203,400	477,809	160,978	638,787
Interest/Dividends	218,068	73,399	291,467	69,458	21,481	90,939
Total Investing Activities Income	1,866,588	628,279	2,494,867	547,267	182,459	729,726
Less: Investment Expense	36,271	12,081	48,352	9,462	3,450	12,912
Less: Performance Fees	46,853	15,731	62,584	9,618	4,166	13,784
Net Income from Investing Activities	1,783,464	600,467	2,383,931	528,187	174,843	703,030
From Securities Lending Activities						
Securities Lending Income	512	176	688	174	53	227
Less: Securities Lending Borrower Rebates (Income)/Expense	(390)	(133)	(523)	(122)	(40)	(162)
Less: Securities Lending Agent Fees	135	46	181	44	14	58
Net Income from Securities Lending	767	263	1,030	252	79	331
Net Investment Income	1,784,231	600,730	2,384,961	528,439	174,922	703,361
Total Additions	2,422,156	835,304	3,257,460	1,752,865	257,086	2,009,951
DEDUCTIONS						
Benefit Payments	826,749	290,000	1,116,749	1,009,501	73,889	1,083,390
Refunds	13,862	4,662	18,524	8,953	4,380	13,333
Administrative Expenses	21,767	1,910	23,677	11,627	1,255	12,882
Total Deductions	862,378	296,572	1,158,950	1,030,081	79,524	1,109,605
Net Increase (Decrease) in Fiduciary Net Position Restricted for Pension Benefits						
	1,559,778	538,732	2,098,510	722,784	177,562	900,346
Total Fiduciary Net Position Restricted for Pension Benefits						
Beginning of Period	7,110,889	2,395,689	9,506,578	2,362,230	697,366	3,059,596
End of Period	\$8,670,667	\$2,934,421	\$11,605,088	\$3,085,014	\$874,928	\$3,959,942

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

Statement of Changes In Fiduciary Net Position - Insurance Fund

For the fiscal year ending June 30, 2021, (\$ In Thousands)

	CERS	CERS	KERS	KERS	SPRS	Insurance Total
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous		2021
ADDITIONS						
Employer Contributions	\$124,697	\$58,451	\$153,571	\$23	\$9,284	\$346,026
Medicare Drug Reimbursement	3	-	-	-	-	3
Insurance Premiums	555	(149)	182	(11)	(14)	563
Humana Gain Share Payment	20,676	2,990	17,167	1,253	811	42,897
Retired Re-employed Healthcare	5,206	1,348	4,705	1,276	-	12,535
Health Insurance Contributions (HB1)	13,614	3,096	6,326	1,164	209	24,409
Employer Cessation Contributions	-	-	28,400	-	-	28,400
Total Contributions	164,751	65,736	210,351	3,705	10,290	454,833
INVESTMENT INCOME						
From Investing Activities						
Net Appreciation (Depreciation) in FV of Investments	578,584	302,532	240,117	118,103	46,991	1,286,327
Interest/Dividends	73,374	38,177	29,240	15,152	5,825	161,768
Total Investing Activities Income	651,958	340,709	269,357	133,255	52,816	1,448,095
Less: Investment Expense	13,895	7,395	4,836	2,815	1,135	30,076
Less: Performance Fees	18,739	10,634	6,044	4,018	1,651	41,086
Net Income from Investing Activities	619,324	322,680	258,477	126,422	50,030	1,376,933
From Securities Lending Activities						
Securities Lending Income	182	92	79	36	14	403
Less: Securities Lending Borrower Rebates (Income)/Expense	(134)	(69)	(60)	(26)	(11)	(300)
Less: Securities Lending Agent Fees	47	24	21	9	4	105
Net Income from Securities Lending	269	137	118	53	21	598
Net Investment Income	619,593	322,817	258,595	126,475	50,051	1,377,531
Total Additions	784,344	388,553	468,946	130,180	60,341	1,832,364
DEDUCTIONS						
Healthcare Premiums Subsidies	136,263	85,151	119,897	19,800	14,487	375,598
Administrative Expenses	884	466	815	118	71	2,354
Self-Funded Healthcare Costs	3,462	257	1,609	112	25	5,465
Excise Tax Insurance	-	-	-	-	-	-
Total Deductions	140,609	85,874	122,321	20,030	14,583	383,417
Net Increase (Decrease) in Fiduciary Net Position Restricted for OPEB	643,735	302,679	346,625	110,150	45,758	1,448,947
Total Fiduciary Net Position Restricted for OPEB						
Beginning of Period	2,498,051	1,305,132	1,006,498	514,739	200,246	5,524,666
End of Period	\$3,141,786	\$1,607,811	\$1,353,123	\$624,889	\$246,004	\$6,973,613
<i>See accompanying notes which are an integral part of these combining financial statements.</i>						

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 also created a separate governing board in KRS 78.782, County Employees Retirement System (CERS), to administer the statewide cost-sharing plan 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 as an authority or 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 the Boards. 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 terms of the plan. Administrative and investment expenses are recognized when incurred. The net position represents the funds of CERS, KERS, SPRS and 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. These accounts are the investment strategies of the pool. Units of Participation are bought and sold as each plan/fund contributes or withdraws cash or assets from the investment pool. The investment pool earnings are then allocated to plans utilizing a cost distribution method that allows for fluctuating prices experienced in capital markets. This involves earnings allocated to the plan accounts with an increase or decrease in cost on the Unit of Participation Holdings of the Plan Accounts. Correspondingly, the price of the Unit of Participation Holdings is updated to reflect change in market value in the investment pool. Earnings are allocated based on the daily weighted average of Master Trust Units held by each plan/fund account during the 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

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 2021 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 2021 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 earning 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 in proportion to the number of total members participating in each plan and direct investment manager 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 the provisions of 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 the provisions of Kentucky Revised Statute 61.515. SPRS was created by the Kentucky General Assembly on July 1, 1958, pursuant to the provisions of Kentucky Revised Statute 16.510. The KRS Insurance Trust Fund was created by the Kentucky General Assembly pursuant to the provisions of 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 if it were 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 properties owned 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 to extend the requirement of this standard to take effect for financial statements starting with the fiscal year that ends June 30, 2022. KPPA is evaluating the impact of this Statement to the financial report.

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 are effective for fiscal years beginning after June 15, 2022, and all reporting periods thereafter. KPPA is evaluating the impact of the Statement to the financial report.

Note B. Descriptions & Contribution Information

CERS Membership Combined

As of June 30

Members	2021		Total
	Non-Haz	Hazardous	
Retirees and Beneficiaries Receiving Benefits	63,566	8,814	72,380
Inactive Memberships	95,682	3,243	98,925
Active Members	80,378	9,138	89,516
Total	239,626	21,195	260,821
Number of Participating Employers			1,122

KERS Membership Combined

As of June 30

Members	2021		Total
	Non-Haz	Hazardous	
Retirees and Beneficiaries Receiving Benefits	44,469	3,339	47,808
Inactive Memberships	49,679	6,513	56,192
Active Members	29,709	3,809	33,518
Total	123,857	13,661	137,518
Number of Participating Employers			329

SPRS Membership

As of June 30

Members	2021		Total
	Non-Haz	Hazardous	
Retirees and Beneficiaries Receiving Benefits	-	1,540	1,540
Inactive Memberships	-	389	389
Active Members	-	775	775
Total	-	2704	2,704
Number of Participating Employers			1

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

Retiree Medical Insurance Coverage As of June 30, 2021

	Single	Couple/ Family	Parent	Medicare Without Prescription	Medicare With Prescription
CERS Non-Hazardous	8,685	508	218	2,081	28,472
CERS Hazardous	1,768	2,894	473	120	4,103
CERS Total	10,453	3,402	691	2,201	32,575
KERS Non-Hazardous	7,415	633	428	1,026	22,648
KERS Hazardous	667	491	104	82	1,693
KERS Total	8,082	1,124	532	1,108	24,341
SPRS	221	448	89	13	1,003
Total	18,756	4,974	1,312	3,322	57,919

The total number of Participating Employers is 1,452.

Plan Descriptions

Pension Funds

CERS, KERS, and 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 is a cost-sharing multiple-employer defined benefit pension plan and was established by KRS 78.520 for the purpose of providing 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 CERS 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 or period and also require a high degree of physical condition. The responsibility for the general administration and operation of CERS is vested in its Board of Trustees. The CERS Board of Trustees consist of 9 members. Six trustees are appointed by the governor and three are elected by CERS members and retired members. 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 is a cost-sharing multiple-employer defined benefit pension plan and was established by Kentucky Revised Statute (KRS) 61.515 for the purpose of providing 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 KERS 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 or period 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 by KERS and SPRS members and retired members. 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. Two elected members represent KERS and must be members of or retired from KERS. One elected member represents SPRS and 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 KRS 16.510 for the purpose of providing 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).

Insurance Fund

Kentucky Retirement System Insurance Trust Fund

The Insurance Fund is a cost-sharing multiple-employer defined benefit other postemployment benefits (OPEB) plan and was established by KRS 61.701 for the purpose of providing hospital and medical insurance benefits for eligible members receiving benefits from CERS, KERS, and SPRS (collectly the Insurance Fund). The responsibility for the general administration and operation of the Insurance is vested with the KRS and CERS Boards of Trustees.

Cost of Living Adjustment (COLA)

Prior to July 1, 2009, COLAs were provided 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 limited to 1.50%. No COLA has been granted since July 1, 2011.

Contributions

Local government participating employers are required to contribute an actuarially determined rate for CERS pension contributions, per the Kentucky Revised Statute Section 78.545(33). 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. Per Kentucky Revised Statute Sections KERS 61.565(3), and SPRS 16.645(18), normal contribution and past service contribution rates shall be determined by the 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, 2021, participating employers contributed a percentage of each employee's creditable compensation. The actuarially determined rates set by the Boards for the fiscal year is a percentage of each employee's creditable compensation. Administrative costs of KPPA are financed through employer contributions and investment earnings. See the chart 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, 2021

Fund	Pension		Insurance		Combined Total	
	Employer Contribution Rates	Actuarially Recommended Rates	Employer Contribution Rates	Actuarially Recommended Rates	Employer Contribution Rates	Actuarially Recommended Rates
CERS Non-Hazardous**	19.30%	21.17%	4.76%	5.78%	24.06%	26.95%
CERS Hazardous**	30.06%	33.86%	9.52%	10.47%	39.58%	44.33%
KERS Non-Hazardous *	41.06%	80.98%	8.41%	12.03%	49.47%	93.01%
KERS Non-Hazardous	73.28%	80.98%	11.15%	12.03%	84.43%	93.01%
KERS Hazardous	36.00%	38.71%	0.00%	0.00%	36.00%	38.71%
SPRS	123.79%	136.12%	19.69%	20.85%	143.48%	156.97%

* House Bill 265 passed during the 2018 legislative session reduced the employer contribution rate for fiscal year 2019 (same as fiscal year 2018 rate) for Regional Mental Health/Mental Retardation Boards, Local and District Health Departments, State Universities, Community Colleges and any agency eligible to voluntarily cease participating in the KERS. The July 2019 Special Session HB 1 continued the reduced KERS Non-Hazardous employer contribution rate for fiscal year 2020 (same as fiscal year 2019) for the agencies listed. The legislated reduced rates have been continued for fiscal year 2021 by the passage of House Bill 352 in the 2020 regular session.

**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, 2021, 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% (Non-Hazardous) 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% (Non-Hazardous) 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% contribution 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% (Non-Hazardous) 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.

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, 2020, and credited to each member's account on June 30, 2021.

(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 Non-Hazardous	10.35%	4.00%	6.35%	4.76%	8.76%	\$21,116
CERS Hazardous	10.53%	4.00%	6.53%	4.90%	8.90%	\$6,833
KERS Non-Hazardous	9.28%	4.00%	5.28%	3.96%	7.96%	\$8,939
KERS Hazardous	10.32%	4.00%	6.32%	4.74%	8.74%	\$2,789
SPRS	9.67%	4.00%	5.67%	4.25%	8.25%	\$412

Insurance Fund Description

KRS Insurance 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 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 Plan 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, 2021, insurance premiums withheld from benefit payments for KPPA's members were \$24.3 million and \$3.3 million for CERS Non-Hazardous and Hazardous, respectively; \$20.4 million and \$1.3 million for KERS Non-Hazardous and Hazardous, respectively; and, \$358,508 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, Non-Hazardous 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 without regard to a maximum dollar amount. 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, 2021	
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 Plan 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 2021 For Member participation date on or after July 1, 2003	
Fund	(in Whole \$)
CERS Non-Hazardous	\$13.78
CERS Hazardous	\$20.68
KERS Non-Hazardous	\$13.78
KERS Hazardous	\$20.68
SPRS	\$20.68

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

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

Cash, Short-Term Investments, & Securities Lending Collateral		
As of June 30 (\$ in Thousands)		
CERS		
	Pension	Insurance
	2021	2021
Cash	\$344	\$168
Short-Term Investments	486,085	267,176
Securities Lending Collateral Invested	310,117	120,431
Total	\$796,546	\$387,775
KERS		
	Pension	Insurance
	2021	2021
Cash	\$313	\$200
Short-Term Investments	416,480	150,869
Securities Lending Collateral Invested	104,773	49,928
Total	\$521,565	\$200,997
SPRS		
	Pension	Insurance
	2021	2021
Cash	\$55	\$48
Short-Term Investments	33,180	11,454
Securities Lending Collateral Invested	9,345	6,244
Total	\$42,580	\$17,746

Note D. Investments

Kentucky Revised Statute 78.790 and 61.650 grants the responsibility for the investment of plan assets to CERS and KRS, respectively. In addition, 61.645 and 78.782 requires six (6) members of the boards shall have at least ten (10) years of investment experience. The Boards established Investment Committees are specifically charged with the oversight and investment of plan assets. The Investment Committees recognize their duty to invest the funds in accordance with the “Prudent Person Rule” set forth in Kentucky Revised Statute 61.650 and 78.790 and manage those funds consistent with the long-term nature of the trusts. The Investment Committees of each Board must adopt an Investment Policy Statements (IPS) that contain guidelines and restrictions for deposits and investments. 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. The IPS contains the specific guidelines for the investment of CERS, KERS, SPRS and Insurance Fund assets. 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.

Growth

Equity Investments

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 prepared, which contains a listing of permissible investments, portfolio restrictions, and standards of performance.

Specialty Credit Investments

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.

Private Equity

Subject to the specific approval of the Investment Committees, Private Equity investments may be made to diversify the Private Equity portfolio. The Boards may invest in, but not limited to and without limitation: venture capital and Private Equity investments. The Investment Committees believe Private Equity investments have the potential to generate substantial income, but may have a higher degree of risk. It is important to note that KERS and SPRS have not made any new investments in Private Equity since 2010 and 2016, respectively, due to the lack of resources available to invest in long-term investments as a result of the underfunding of the plans. Investments may be made in real estate mortgages on a direct basis or in the form of mortgage pool instruments.

Liquidity

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.

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; Short-Term Investment Funds (STIFs); 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 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 is used.

Repurchase agreements shall be deemed to have a maturity equal to the period remaining until the date on which the repurchase of the underlying securities is scheduled to occur. Variable rate securities shall be deemed to have a maturity equal to the time left until the next interest rate reset occurs, but in no case will any security have a stated final maturity of more than three years.

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.

Diversifying

Real Estate/Real Return/Absolute Return/Oppportunistic Investments

Subject to the specific approval of the corresponding Investment Committee, investments may be made to create a diversified portfolio of alternative investments. The Boards may invest in real estate or alternative investments including, but not limited to and without limitation: real return and absolute return investments. Alternative investments have the potential to generate substantial income, but may have a higher degree of risk. Investments may be made in real estate mortgages on a direct basis or in the form of mortgage pool instruments.

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, KRS 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. Investments may be made in derivative securities or strategies which make use of derivative instruments, only if such investments do not cause the portfolio to be in any way leveraged beyond a 100% invested position. Examples of such derivatives include, but are not limited to the following securities: foreign currency forward contracts; collateralized mortgage obligations; treasury inflation protected securities (TIPS); futures; options; and swaps. Investments in derivative securities are subject to large or unanticipated changes in duration or cash flows and can be interest only, principal only, inverse floater or structured note securities. These are permitted only to the extent that they are authorized in a contract or an alternative investment offering memorandum of agreement.

Investments in securities such as collateralized mortgage obligations and planned amortization class issues are allowed if, in the judgment of the investment manager, they are not expected to be subject to large or unanticipated changes in duration or cash flows. Investment managers may make use of derivative securities for defensive or hedging purposes. Any derivative security shall be sufficiently liquid so that it can be expected to be sold at, or near, its most recently quoted market price.

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, 2021. 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. Investments are exposed to counterparty risk with the foreign exchange contracts that are held.

CERS Derivative Instruments

As of June 30, 2021 (\$ in Thousands)

Pension

Derivatives (by Type)	Net Appreciation (Depreciation) in Fair Value for the Fiscal year Ended June 30, 2021	Classification	Fair Value	Notional Value
FX Spots and Forwards	\$(440)	Investment	\$(400)	\$-
Futures	(1,787)	Investment	(1,787)	321,438
Commits and Options	114	Investment	31	-
Swaps	4	Investment	2,001	-

KERS Derivative Instruments

As of June 30, 2021 (\$ in Thousands)

Pension

Derivatives (by Type)	Net Appreciation (Depreciation) in Fair Value for the Fiscal year Ended June 30, 2021	Classification	Fair Value	Notional Value
FX Spots and Forwards	\$(183)	Investment	\$(166)	\$-
Futures	(509)	Investment	(509)	91,486
Commits and Options	54	Investment	15	-
Swaps	2	Investment	740	-

SPRS Derivative Instruments

As of June 30, 2021 (\$ in Thousands)

Pension

Derivatives (by Type)	Net Appreciation (Depreciation) in Fair Value for the Fiscal year Ended June 30, 2021	Classification	Fair Value	Notional Value
FX Spots and Forwards	\$(13)	Investment	\$(12)	\$-
Futures	(57)	Investment	(57)	10,309
Commits and Options	4	Investment	1	-
Swaps	0	Investment	59	-

Insurance Derivative Instruments

As of June 30, 2021 (\$ in Thousands)

Insurance

Derivatives (by Type)	Net Appreciation (Depreciation) in Fair Value for the Fiscal year Ended June 30, 2021	Classification	Fair Value	Notional Value
FX Spots and Forwards	\$(278)	Investment	\$(278)	\$-
Futures	(1,008)	Investment	(1,008)	168,633
Commits and Options	140	Investment	99	-
Swaps	21	Investment	1,239	-

**Derivative Instruments Subject to Counterparty Credit Risk
As of June 30, 2021**

Pension				
Counterparty	S & P Ratings	CERS Percentage of Net Exposure	KERS Percentage of Net Exposure	SPRS Percentage of Net Exposure
Derivative Instruments - Pension Fund				
Australia & New Zealand Banking Group Ltd	AA-	0.06%	0.30%	0.01%
BNP Paribas SA	A+	0.07%	0.30%	0.01%
Bank of America Corp	A-	0.90%	2.44%	0.07%
The Bank of New York Mellon Corp	A	0.16%	0.87%	0.02%
Barclays PLC	BBB	0.65%	2.25%	0.06%
Brown Brothers Harriman & Co		0.03%	0.11%	0.00%
Canadian Imperial Bank of Commerce	A+	0.23%	1.16%	0.03%
Citigroup Inc	BBB+	1.00%	3.60%	0.10%
Credit Suisse Group AG	BBB+	0.37%	1.16%	0.03%
The Goldman Sachs Group Inc	BBB+	7.58%	21.29%	0.63%
HSBS Holding PLC	A-	0.97%	3.10%	0.09%
JPMorgan Chase & Co	A-	2.31%	7.50%	0.21%
Morgan Stanley	BBB+	3.02%	9.69%	0.28%
Royal Bank of Canada	AA-	0.47%	2.36%	0.07%
Standard Chartered PLC	BBB+	0.12%	0.61%	0.02%
State Street Corp	A	0.50%	2.48%	0.07%
The Toronto-Dominion Bank	AA-	1.24%	3.34%	0.10%
UBS Group AG	A-	2.34%	6.66%	0.19%
United Kingdom of Great Britain and Northern Ireland	AA	1.47%	3.96%	0.12%
Westpac Banking Corp	AA-	0.32%	0.87%	0.03%
TOTAL		23.81%	74.05%	2.14%

**Derivative Instruments Subject to Counterparty Credit Risk
As of June 30, 2021**

Insurance		
Counterparty	S & P Ratings	Percentage of Net Exposure
Derivative Instruments - Insurance Fund		
Australia & New Zealand Banking Group Ltd	AA-	0.37%
BNP Paribas SA	A+	0.38%
Bank of America Corp	A-	3.41%
The Bank of New York Mellon Corp	A	1.06%
Barclays PLC	BBB	2.97%
Brown Brothers Harriman & Co		0.14%
Canadian Imperial Bank of Commerce	A+	1.42%
Citigroup Inc	BBB+	4.70%
Credit Suisse Group AG	BBB+	1.56%
The Goldman Sachs Group Inc	BBB+	29.50%
HSBS Holding PLC	A-	4.16%
JPMorgan Chase & Co	A-	10.02%
Morgan Stanley	BBB+	12.99%
Royal Bank of Canada	AA-	2.90%
Standard Chartered PLC	BBB+	0.74%
State Street Corp	A	3.05%
The Toronto-Dominion Bank	AA-	4.68%
UBS Group AG	A-	9.19%
United Kingdom of Great Britain and Northern Ireland	AA	5.55%
Westpac Banking Corp	AA-	1.21%
TOTAL		100.00%

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	
As of June 30 (\$ in Thousands)	
	2021
CERS Pension Funds at JPM Chase	\$1,075
KERS Pension Funds at JPM Chase	1,008
SPRS Pension Funds at JPM Chase	85
Insurance Fund at JPM Chase	419
Clearing Account at JPM Chase	1,498
Excess Benefit Account 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, a government 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, 2021, 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. These funds are cash held by Global Managers and consist of various currencies.

Custodial Credit Risk for Investments	
As of June 30, 2021 (\$ in Thousands)	
	2021
CERS Pension Funds Foreign Currency	\$3,360,396
KERS Insurance Fund Foreign Currency	859,970
SPRS Insurance Fund Foreign Currency	75,841

Pension Plan Securities

CERS Pension Plans Investment Summary

As of June 30, 2021 (\$ in Thousands)

Type	Fair Value
Core Fixed Income	\$1,427,767
Public Equities	5,374,082
Private Equities	948,500
Specialty Credit	1,906,671
Derivatives	(156)
Absolute Return	-
Real Return	740,646
Opportunistic	307,267
Real Estate	455,127
Short-Term Investments	486,085
Accounts Receivable (Payable), Net	(120,129)
Total	\$11,525,860

KERS Pension Plans Investment Summary

As of June 30, 2021 (\$ in Thousands)

Type	Fair Value
Core Fixed Income	\$782,124
Public Equities	1,381,218
Private Equities	267,509
Specialty Credit	652,248
Derivatives	80
Absolute Return	-
Real Return	235,954
Opportunistic	88,461
Real Estate	141,477
Short-Term Investments	416,480
Accounts Receivable (Payable), Net	(52,830)
Total	\$3,912,721

SPRS Pension Plans Investment Summary

As of June 30, 2021 (\$ in Thousands)

Type	Fair Value
Core Fixed Income	\$77,234
Public Equities	122,674
Private Equities	19,384
Specialty Credit	58,694
Derivatives	(9)
Absolute Return	-
Real Return	21,541
Opportunistic	8,341
Real Estate	13,611
Short-Term Investments	33,180
Accounts Receivable (Payable), Net	(5,246)
Total	\$349,404

Insurance Fund Securities

Insurance Plan Investment Summary

As of June 30, 2021 (\$ in Thousands)

Type	Fair Value
Core Fixed Income	\$856,629
Public Equities	3,085,630
Private Equities	584,978
Specialty Credit	1,163,959
Derivatives	52
Absolute Return	-
Real Return	422,670
Opportunistic	205,755
Real Estate	258,216
Short-Term Investments	429,500
Accounts Receivable (Payable), Net	(70,086)
Total	\$6,937,303

Note: Differences due to rounding.

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 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.
- Fixed Income investments, which include both Core Fixed Income and Specialty Credit, will be similar in type to those securities found in the KRS Fixed Income and Specialty Credit benchmarks and the characteristics of the KRS Fixed Income and Specialty Credit portfolios will be similar to the KRS Fixed Income and Specialty Credit benchmarks. The duration of the total Fixed Income and Specialty Credit portfolio shall not deviate from the KRS Fixed Income and Specialty Credit by more than 25%.
- The amount invested in the debt of a single corporation shall not exceed 5% of the total market value of KRS' assets.
- No public Fixed Income manager shall invest more than 5% of the market value of assets held in any single issue Short-Term instrument with the exception of U.S. Government issued, guaranteed or agency obligations.

As of June 30, 2021, the KPPA Pension portfolio had \$1,257.1 million in debt securities rated below BBB- and does not include unrated (NR) securities. The government agencies in which KPPA invested have primarily credit ratings of AA+ or above.

Pension Plans Debt Securities			
As of June 30, 2021 (\$ in Thousands)			
Rating	CERS	KERS	SPRS
AAA	\$387,895	\$207,975	\$20,592
AA+	10,697	5,596	542
AA	26,136	12,568	1,237
AA-	21,687	10,851	1,083
A+	18,422	9,115	902
A	29,597	14,430	1,453
A-	46,814	24,132	2,359
BBB+	143,085	74,809	7,383
BBB	127,619	61,540	6,136
BBB-	255,872	121,671	12,243
BB+	142,316	61,834	5,929
BB	141,040	59,060	5,589
BB-	164,337	69,007	6,617
B+	117,702	49,601	4,755
B	135,185	51,122	5,062
B-	89,782	34,480	3,437
CCC+	42,313	20,537	1,738
CCC	22,340	10,456	940
CCC-	3,387	973	111
CC	3,496	1,240	144
C	1,972	540	71
D	-	-	-
NR	1,158,861	402,831	33,911
Total Credit Risk Debt Securities	3,090,555	1,304,368	122,233
Government Agencies	19,021	9,081	927
Government Mortgage-Backed Securities	15,345	5,843	652
Government Issued Commercial Mortgage Backed	21,203	7,696	665
Government Collateralized Mortgage Obligations	172,002	85,117	8,050
Government Bonds	153,501	73,016	7,459
Total	\$3,471,627	\$1,485,121	\$139,987

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 above consist of pooled investment funds, cash, and derivatives, which do not carry a rating.

As of June 30, 2021, the KPPA Insurance portfolio had \$540.3 million in debt securities rated below BBB- and does not include NR securities. The government agencies in which KPPA invested have credit ratings primarily of AA+ or above.

Insurance Fund Debt Securities As of June 30, (\$ in Thousands)

Rating	Fair Value
AAA	\$223,726
AA+	10,527
AA	17,332
AA-	14,667
A+	12,427
A	20,516
A-	33,942
BBB+	86,240
BBB	80,012
BBB-	147,446
BB+	82,636
BB	88,174
BB-	104,574
B+	74,246
B	85,907
B-	57,485
CCC+	28,034
CCC	13,868
CCC-	1,377
CC	2,454
C	1,507
D	-
NR	694,917
Total Credit Risk Debt	1,882,014
Government Agencies	1,539
Government Mortgage-Backed Securities	106,141
Government Issued Commercial Mortgage Backed	13,085
Government Collateralized Mortgage Obligations	10,645
Government Bonds	88,879
Total	\$2,102,303

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 above consist of pooled investment funds, cash, and derivatives, which do not carry a rating.

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. Debt obligations of any single U.S. corporation is limited to a maximum of 5% of the total portfolio at market value.

Interest Rate Risk

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

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

GASB 40 - Interest Rate Risk - Modified Duration As of June 30, 2021 (\$ in Thousands)

KERS

TYPE	Fair Value	Weighted Avg Modified Duration
Asset Backed Securities	\$173,488	1.58
Financial Institutions	170,100	3.04
Collateralized Mortgage Obligations	28,398	2.49
Commercial Mortgage Backed Securities	116,043	3.50
Corporate Bonds - Industrial	445,509	4.03
Corporate Bonds - Utilities	37,992	3.57
Agencies	9,081	3.40
Government Bonds - Sovereign Debt	4,176	5.91
Mortgage Back Securities Pass-through - Not CMO's	86,636	4.49
Local Authorities - Municipal Bonds	1,974	4.70
Supranational - Multi-National Bonds	545	0.96
Treasuries	73,016	5.20
Unclassified	335,363	0.04
Other	2,800	5.40
Total	\$1,485,121	2.74

GASB 40 - Interest Rate Risk - Modified Duration As of June 30, 2021 (\$ in Thousands)

CERS

TYPE	Fair Value	Weighted Avg Modified Duration
Asset Backed Securities	\$337,027	1.73
Financial Institutions	396,761	2.99
Collateralized Mortgage Obligations	63,337	2.40
Commercial Mortgage Backed Securities	254,663	3.74
Corporate Bonds - Industrial	981,323	4.12
Corporate Bonds - Utilities	72,982	3.62
Agencies	19,021	4.01
Government Bonds - Sovereign Debt	11,491	6.50
Mortgage Back Securities Pass-through - Not CMO's	176,616	4.49
Local Authorities - Municipal Bonds	5,956	4.86
Supranational - Multi-National Bonds	2,715	0.96
Treasuries	153,501	5.14
Unclassified	985,456	0.06
Other	10,778	5.69
Total	\$3,471,627	2.61

GASB 40 - Interest Rate Risk - Modified Duration
As of June 30, 2021 (\$ in Thousands)

SPRS

TYPE	Fair Value	Weighted Avg Modified Duration
Asset Backed Securities	\$17,464	1.74
Financial Institutions	17,651	2.99
Collateralized Mortgage Obligations	2,705	2.40
Commercial Mortgage Backed Securities	12,120	3.74
Corporate Bonds - Industrial	42,328	4.11
Corporate Bonds - Utilities	3,645	3.61
Agencies	927	4.02
Government Bonds - Sovereign Debt	460	6.51
Mortgage Back Securities Pass-through - Not CMO's	8,233	4.49
Local Authorities - Municipal Bonds	224	4.86
Supranational - Multi-National Bonds	75	0.96
Treasuries	7,459	5.14
Unclassified	26,352	0.06
Other	344	5.69
Total	\$139,987	2.92

GASB 40 - Interest Rate Risk - Modified Duration for the Insurance Fund
As of June 30, 2021 (\$ in Thousands)

TYPE	Fair Value	Weighted Avg Modified Duration
Asset Backed Securities	\$194,278	1.57
Financial Institutions	247,780	2.91
Collateralized Mortgage Obligations	37,274	2.32
Commercial Mortgage Backed Securities	158,289	3.64
Corporate Bonds - Industrial	585,032	4.17
Corporate Bonds - Utilities	45,254	3.84
Agencies	10,978	4.47
Government Bonds - Sovereign Debt	6,791	6.93
Mortgage Back Securities Pass-through - Not CMO's	108,920	4.19
Local Authorities - Municipal Bonds	3,651	5.24
Supranational - Multi-National Bonds	1,517	0.93
Treasuries	105,035	5.28
Unclassified	590,817	0.05
Other	6,687	5.42
Total	\$2,102,303	2.61

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 KPPA portfolio. KPPA's currency risk exposure, or exchange rate risk, primarily resides with KPPA's Non-U.S. equity holdings, but also affects other asset classes. KPPA does not 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 Plans (GASB 40)			
As of June 30, 2021 (\$ in Thousands)			
	CERS	KERS	SPRS
Australian Dollar	\$35,449	\$9,879	\$843
Brazilian Real	31,564	8,039	687
Canadian Dollar	53,569	13,129	1,158
Chinese R Yuan HK	(2,260)	(836)	(67)
Chinese Yuan Renminbi	187	38	5
Columbian Peso	2,816	565	78
Czech Koruna	3,113	794	68
Danish Krone	54,479	14,011	1,193
Egyptian Pound	710	181	15
Euro	628,793	160,311	14,640
Hong Kong Dollar	164,920	41,907	3,577
Hungarian Forint	7,048	1,797	153
Indian Rupee	37,733	9,606	822
Indonesian Rupiah	26,204	6,226	619
Israeli Shekel	5,629	1,480	125
Japanese Yen	158,860	40,617	3,480
Kenyan Shilling	-	-	-
Malaysian Ringgit	5,092	1,080	134
Mexican Peso	6,848	1,518	173
New Taiwan Dollar	49,262	12,581	1,073
New Zealand Dollar	(7,281)	(2,803)	(217)
Norwegian Krone	13,414	4,061	363
Philippine Peso	815	163	22
Polish Zloty	1,965	501	43
Pound Sterling	177,835	47,135	4,023
Romanian Leu	-	-	-
Russian Ruble	7	2	-
Singapore Dollar	5,223	1,527	106
South African Rand	6,398	1,632	139
South Korean Won	64,697	16,424	1,402
Swedish Krona	49,758	13,496	1,137
Swiss Franc	79,660	20,413	1,739
Thai Bhat	10,879	2,774	237
Turkish Lira	5,298	1,351	115
UAE Dirham	3,026	772	67
Total Foreign Investment Securities	1,681,710	430,371	37,952
U.S. Dollar	9,844,150	3,482,350	311,452
Total Investment Securities	\$11,525,860	\$3,912,721	\$349,404

Foreign Currency Risk for the Insurance Fund (GASB 40)
As of June 30, 2021 (\$ in Thousands)

	Fair Value
Australian Dollar	\$20,446
Brazilian Real	18,146
Canadian Dollar	30,541
Chinese R Yuan HK	(1,386)
Chinese Yuan Renminbi	165
Columbian Peso	1,444
Czech Koruna	1,871
Danish Krone	31,222
Egyptian Pound	314
Euro	355,609
Hong Kong Dollar	95,578
Hungarian Forint	4,055
Indian Rupee	21,984
Indonesian Rupiah	14,503
Israeli Shekel	3,237
Japanese Yen	90,707
Kenyan Shilling	-
Malaysian Ringgit	2,960
Mexican Peso	3,678
New Taiwan Dollar	29,221
New Zealand Dollar	(4,518)
Norwegian Krone	7,844
Philippine Peso	462
Polish Zloty	1,117
Pound Sterling	102,698
Romanian Leu	-
Russian Ruble	4
Singapore Dollar	3,206
South African Rand	3,619
South Korean Won	36,706
Swedish Krona	29,553
Swiss Franc	45,683
Thai Bhat	6,106
Turkish Lira	2,828
Total Foreign Investment Securities	959,603
U.S. Dollar	5,977,700
Total Investment Securities	\$6,937,303

Note: Differences due to rounding.

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.

KRS 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 Plans As of June 30, 2021 (\$ in Thousands)

Asset Type	CERS			Total	KERS			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	\$300,898	\$-	\$-	\$300,898	\$76,726	\$-	\$-	\$76,726	\$6,544	\$-	\$-	\$6,544
US Equity	2,728,326	-	-	2,728,326	703,700	-	-	703,700	62,995	-	-	62,995
Non-US Equity	1,454,252	-	-	1,454,252	370,823	-	-	370,823	31,626	-	-	31,626
Total Public Equity	4,483,476	-	-	4,483,476	1,151,248	-	-	1,151,248	101,165	-	-	101,165
Fixed Income												
Agencies	-	3,588	-	3,588	-	1,966	-	1,966	-	194	-	194
Asset-Backed	-	342,115	-	342,115	-	175,878	-	175,878	-	17,713	-	17,713
Bank & Finance	3,552	205,574	292,702	501,828	712	104,514	93,495	198,722	98	10,385	10,951	21,435
Cash & Cash Equivalent	41,803	215,787	-	257,590	22,900	304,891	-	327,790	2,261	22,620	-	24,882
Corporate	14,749	824,250	4,886	843,885	3,193	393,148	2,445	398,786	426	36,796	247	37,469
Healthcare	-	37,381	-	37,381	-	16,642	-	16,642	-	1,652	-	1,652
Insurance	-	9,307	-	9,307	-	4,411	-	4,411	-	442	-	442
Mortgage-backed securities	1,469	400,355	-	401,824	324	196,531	-	196,855	44	20,101	-	20,145
Municipals	-	54,852	-	54,852	-	27,279	-	27,279	-	2,641	-	2,641
Sovereign Debt	-	52,629	-	52,629	-	12,929	-	12,929	-	1,634	-	1,634
US Government	121,619	-	-	121,619	66,622	-	-	66,622	6,579	-	-	6,579
Total Fixed Income	183,192	2,145,838	297,588	2,626,618	93,751	1,238,189	95,941	1,427,881	9,408	114,178	11,199	134,785
Derivatives												
Futures	(1,787)	-	-	(1,787)	(509)	-	-	(509)	(57)	-	-	(57)
Options	-	31	-	31	-	15	-	15	-	1	-	1
Swaps	-	2,001	-	2,001	-	740	-	740	-	59	-	59
Total Derivatives	(1,787)	2,032	-	245	(509)	755	-	246	(57)	60	-	3
Real Return												
Real Return	380,653	66,833	-	447,487	140,813	24,723	-	165,536	11,263	1,977	-	13,240
Real Return - Fixed Income	697	135,534	958	137,189	258	50,138	355	50,750	21	4,010	28	4,059
Total Real Return	381,350	202,368	958	584,676	141,071	74,861	355	216,286	11,283	5,988	28	17,300
Total Investments at Fair Value	5,046,231	2,350,238	298,546	7,695,015	1,385,562	1,313,805	96,295	2,795,662	121,799	120,226	11,227	253,252
Investments Measured at NAV												
Specialty Credit	-	-	-	998,425	-	-	-	342,183	-	-	-	27,010
Opportunistic	-	-	-	307,267	-	-	-	88,461	-	-	-	8,341
Private Equity	-	-	-	916,430	-	-	-	265,517	-	-	-	19,384
Real Estate	-	-	-	451,613	-	-	-	138,056	-	-	-	13,245
Real Return	-	-	-	270,150	-	-	-	54,156	-	-	-	6,933
Fixed Income	-	-	-	62,918	-	-	-	34,466	-	-	-	3,403
Non US Equity	-	-	-	909,621	-	-	-	234,822	-	-	-	21,924
US Equity	-	-	-	20,823	-	-	-	5,414	-	-	-	507
Total Investments Measured at NAV	-	-	-	3,937,247	-	-	-	1,163,075	-	-	-	100,748
Cash and Accruals	-	-	-	(106,402)	-	-	-	(46,016)	-	-	-	(4,597)
Total Investments	\$5,046,231	\$2,350,238	\$298,546	\$11,525,860	\$1,385,562	\$1,313,805	\$96,295	\$3,912,721	\$121,799	\$120,226	\$11,227	\$349,404

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 Plans As of June 30, 2021 (\$ in Thousands)

Asset Type	CERS				KERS				SPRS			
	Fair Value	Unfunded			Fair Value	Unfunded			Fair Value	Unfunded		
Specialty Credit ⁽¹⁾	\$998,425	\$338,159	Daily - Quarterly	90 Days	\$342,183	\$101,595	Daily - Quarterly	90 Days	\$27,010	\$9,042	Daily - Quarterly	90 Days
Opportunistic ⁽²⁾	307,267	-	Annually		88,461	-	Annually		8,341	-	Annually	
Real Estate ⁽³⁾	451,613	219,976			138,056	65,017			13,245	6,286		
Real Return ⁽⁴⁾	270,150	49,686	Daily	30 - 60 Days	54,156	7,896	Daily	30 - 60 Days	6,933	1,243	Daily	30 - 60 Days
Private Equity ⁽⁵⁾	916,430	212,534			265,517	23,012			19,384	1,738		
Fixed Income ⁽⁶⁾	62,918	-	Daily		34,466	-	Daily		3,403	-	Daily	
Non US Equity ⁽⁶⁾	909,621	-	Daily		234,822	-	Daily		21,924	-	Daily	
US Equity ⁽⁶⁾	20,823	-	Daily		5,414	-	Daily		507	-	Daily	
Total Investments Measured at NAV	\$3,937,247	\$820,355			\$1,163,075	\$197,520			\$100,747	\$18,309		

⁽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 investments that are intended to provide favorable risk-adjusted returns while maintaining low correlation with equity and fixed income markets. Currently, we have 1 manager in this category that is pursuing a regulatory capital relief strategy.

⁽³⁾ 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.

⁽⁴⁾ 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.

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

⁽⁶⁾ 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 Fund
As of June 30, 2021 (\$ in Thousands)

Asset Type	Level			Fair Value
	1	2	3	
Public Equity				
Emerging Markets	\$172,826	\$-	\$-	\$172,826
US Equity	1,570,388	-	-	1,570,388
Non-US Equity	831,420	-	-	831,420
Total Public Equity	2,574,634	-	-	2,574,634
Core Fixed Income				
Agencies	-	2,158	-	2,158
Asset-Backed	-	199,553	-	199,553
Bank & Finance	11,321	121,832	186,162	319,315
Cash & Cash Equivalent	12,135	297,214	-	309,350
Corporate	8,239	486,573	3,418	498,230
Healthcare	-	22,018	-	22,018
Insurance	-	5,286	-	5,286
Mortgage-backed securities	682	249,784	-	250,466
Municipals	-	35,294	-	35,294
Sovereign Debt	-	27,858	-	27,858
US Government	88,879	-	-	88,879
Total Fixed Income	121,257	1,447,571	189,580	1,758,407
Derivatives				
Futures	(1,008)	-	-	(1,008)
Options	-	99	-	99
Swaps	-	1,240	-	1,240
Total Derivatives	(1,008)	1,338	-	330
Real Return				
Real Return	206,823	42,259	-	249,083
Real Return - Fixed income	-	80,989	726	81,715
Total Real Return	206,823	123,248	726	330,797
Total investments by fair value level	2,901,706	1,572,157	190,306	4,664,169

**Fair Value Measurements and Application (GASB 72) Insurance Fund
As of June 30, 2021 (\$ in Thousands)**

Asset Type	Level			Fair Value
	1	2	3	
Specialty Credit	-	-	-	604,420
Opportunistic	-	-	-	205,754
Private Equity	-	-	-	584,979
Real Estate	-	-	-	258,215
Real Return				125,873
Fixed Income				24,156
Non-US Equity				520,970
US Equity	-	-	-	11,723
Total Investments Measured at NAV	-	-	-	2,336,089
Accruals	-	-	-	(62,955)
Total Investments	\$2,901,706	\$1,572,157	\$190,306	\$6,937,303

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

Note: The Level 3 reported in for Cash and Cash Equivalents are defined as the following - "The assets of the Fund shall be invested primarily in instruments issued by the U.S. Government, Federal agencies, sponsored agencies or sponsored corporations; short-term corporate obligations maturing in 397 days or less; commercial paper rated in the highest rating category (First Tier) for short-term debt by two Nationally Recognized Security Rating Organizations (NRSRO's) (within which there may be sub-categories or gradations indicating relative strength); corporate instruments other than short-term rated A2 and A or better by at least two NRSRO's; obligations of approved domestic and foreign issuers including banker's acceptances, certificates of deposit, demand deposits, repurchase agreements, time deposits, notes and other debt instruments; instruments representing securitized assets, such as asset-backed securities, rated AAA long-term or rated in the highest rating category (First Tier) for short-term debt by two NRSRO's (within which there may be sub-categories or gradations indicating relative strength); securitized assets which are money market eligible; repurchase agreements subject to a minimum 102% collateralization with daily updated valuation. All credit ratings are applicable at time of purchase. The Fund's maximum average maturity will be 60 days and the Fund's maximum weighted average life will be 120 days. No credit instrument will have a maturity in excess of 397 days. Government agencies may have a maturity up to 762 days with a maximum reset of 90 days. Rate reset dates and put dates will be used as a proxy for maturity in calculating the portfolio average maturity. Final maturity dates will be used for maturity in calculating the portfolio weighted average life. The Fund may invest in other collective investment funds maintained by the Trustee or its affiliates, provided such collective investment fund's investment policy is consistent with the Fund's investment policy. To the extent a portion of the Fund is invested in units of another collective investment fund, the terms of that fund are incorporated by reference".

Note: The Level 3 reported in for Bank and Finance and Real Return - Fixed Income are comprised of various term loans.

Note: The Level 3 reported in for Corporate are comprised of Delayed Draws.

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

Fair Value Measurements and Application (GASB 72) Insurance Fund As of June 30, 2021 (\$ in Thousands)

Asset Type	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Specialty Credit ⁽¹⁾	\$604,420	\$200,482	Daily - Quarterly	90 Days
Opportunistic ⁽²⁾	205,754	-	Annually	
Real Estate ⁽³⁾	258,215	121,427		
Real Return ⁽⁴⁾	125,873	24,839	Daily	30 - 60 Days
Private Equity ⁽⁵⁾	584,979	153,491		
Fixed Income ⁽⁶⁾	24,156	-	Daily	
Non-US Equity ⁽⁶⁾	520,970	-	Daily	
US Equity ⁽⁶⁾	11,723	-	Daily	
Total Investments Measured at NAV	\$2,336,090	\$500,239		

⁽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 investments that are intended to provide favorable risk-adjusted returns while maintaining low correlation with equity and fixed income markets. Currently, we have 1 manager in this category that is pursuing a regulatory capital relief strategy.

⁽³⁾ 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.

⁽⁴⁾ 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.

⁽⁵⁾ This type includes 40 managers with multiple strategies. These investments cannot be redeemed with the funds. Instead, the nature of the investments in this type is that distributions are received through the liquidation of the underlying assets of the fund. It is expected that each fund will remain invested for a period of 5 to 10 years. It is probable that the all of the investments in this type will be sold at an amount different from the NAV per share of the Plan's ownership interest in partners' capital. Therefore, the fair values of the investment in this asset class have been determined using recent observable transaction information.

⁽⁶⁾ 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, 2021. 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				
	CERS	KERS	SPRS	Insurance
2021	25.69%	23.14%	21.70%	24.97%

Note E. Securities Lending Transactions

Kentucky Revised Statutes Sections 61.650 and 386.020(2) permit the Pension and Insurance Funds to lend their securities to broker-dealers and other entities. The borrowers of the securities agree to transfer to the Funds' custodial banks 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.

The IPS does not address any restrictions on the amount of loans that can be made. As of June 30, 2021, 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.

As of June 30, 2021, the cash collateral received for the securities on loan for the Pension and Insurance Funds was \$424.2 million and \$176.6 million, respectively. The securities collateral received totaled \$239.3 million and \$98.8 million, respectively. The fair value of the total underlying securities collateral on loan was \$663.5 million in cash collateral and \$275.4 million in securities collateral, respectively.

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 Kentucky Claims Commission 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 Kentucky Claims Commission are paid from the fund of the agency having a claim or claims before the Kentucky Claims Commission.

Claims against 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.

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 non-hazardous positions of any Kentucky State Department, Board, or Agency are directed by Executive Order (EO) to participate in KERS. These employees participate in KERS Non-Hazardous, 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, 2021. Tier 2 and Tier 3 Fund members contributed 6% of creditable compensation for the fiscal year ended June 30, 2021.

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

Payroll and Contributions as of June 30 (\$ in Thousands)	
	2021
Covered Payroll	\$13,892
Required Employer Contributions	11,729
Employer Percentage Contributed	100%

Note I. Income Tax Status

The Internal Revenue Service (IRS) has ruled that plans administered by KPPA qualifies under Section 401(a) of the Internal Revenue Code so is, 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, 2021 (\$ in Thousands)	
	2021
Equipment, cost	\$2,885
Less Accumulated Depreciation	(2,885)
Equipment, net	\$0

Note K. Intangible Assets

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

Software Expenses as of June 30 (\$ in Thousands)	
	2021
Software, Cost	\$17,302
Less Accumulated Amortization	(16,625)
Intangible Assets, Net	\$677

Accumulated amortization rose to \$16.6 million in fiscal year 2021, an increase of \$883 thousand.

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, 2021. 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 Funds and Insurance Fund.

Economic Assumptions - Pension as of June 30										
	CERS		CERS		KERS		KERS		SPRS	
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous
	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020
Assumed Investment Return	6.25%	6.25%	6.25%	6.25%	5.25%	5.25%	6.25%	6.25%	5.25%	5.25%
Inflation Factor	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%
Payroll Growth	2.00%	2.00%	2.00%	2.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Economic Assumptions - Insurance as of June 30										
	CERS		CERS		KERS		KERS		SPRS	
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous
	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020
Assumed Investment Return	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%
Inflation Factor	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%
Payroll Growth	2.00%	2.00%	2.00%	2.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Note M.

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

The following details actuarial information and assumptions utilized in determining the unfunded (overfunded) actuarial accrued liabilities for CERS, KERS, SPRS and Insurance Fund. Please note that calculations for TPL, net fiduciary position, NPL, total OPEB liability, net OPEB fiduciary position, and net OPEB liability are reported in the Plans' Required Supplementary Information (RSI) on pages 78-116 are based on June 30, 2020, actuarial valuations, rolled forward to June 30, 2021. 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, 2021, 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, 2020. The TPL was rolled forward from the valuation date to the Plans' fiscal year ended June 30, 2021, using generally accepted actuarial principles. Information disclosed for years prior to June 30, 2017, were prepared by KPPA's prior actuary. Separate reports will be provided at a later date with additional accounting information determined in accordance with GASB *Statement No. 68, Accounting and Financial Reporting for Pensions*.

Assumptions

There have been no changes in actuarial assumptions since June 30, 2020. Senate Bill 169 passed during the 2021 legislative session and increased the disability benefits for members who become "total and permanently disabled" in the line of duty or as a result of a duty-related disability. The total pension liability as of June 30, 2021, is determined using these updated benefit provisions. 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 Non-Hazardous, and CERS Hazardous, KERS Hazardous, 5.25% for KERS Non-Hazardous and SPRS.
- Inflation - 2.30% for all plans.
- Salary Increases - 3.30% to 10.30% for CERS Non-Hazardous, 3.55% to 19.05% for CERS Hazardous, 3.30% to 15.30% for KERS Non-Hazardous, 3.55% to 20.05% for KERS Hazardous, and 3.55% to 16.05% for SPRS, varies by service.
- Payroll Growth - 2% for CERS Non-Hazardous and Hazardous, 0% for KERS Non-Hazardous 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

Senate Bill 169 Passed during the 2021 legislative session and increased the disability benefits for members who become "total and permanently disabled" in the line of duty or as a result of a duty-related disability. The total pension liability as of June 30, 2021, is determined using these updated benefit provisions.

Additionally, House Bill 8 passed during the 2021 legislative session and changed how employer contributions are allocated and collected from the participating employers in the KERS Non-Hazardous Fund. This change does not impact the calculation of the total pension liability and only impacts the allocation of required contributions amongst the participating employers.

Further, House Bill 1 passed during the 2019 special legislative session and allowed certain agencies in the KERS Non-Hazardous Fund to elect to cease participating in KERS as of June 30, 2020, under different provisions than were previously established. Senate Bill 249 passed during the 2020 legislative session and delayed the effective date of cessation for these provisions to June 30, 2021. Only one employer elected to cease participation under these provisions and freeze accruals for their current employees. As such, there is no material impact on the total pension liability due to this legislation.

There were no other material plan provision changes and it is GRS' opinion that these procedures are reasonable and appropriate, and comply with applicable requirements under GASB No. 67.

Discount Rate

The single discount rates for CERS, KERS and SPRS of 6.25%, 5.33%, and 5.25% respectively, were used to measure the TPL as of June 30, 2020. In accordance with paragraph 40 of GASB Statement No. 67, a single discount rate was used for the reporting and disclosure of the CERS and KERS pension plans. Note, this is the equivalent discount rate that produces the same total pension liability as the discount rates used by each individual fund to measure the total pension liability for the fiscal year ending June 30, 2021 (6.25% for CERS Non-Hazardous, and CERS Hazardous, 5.25% for KERS Non-Hazardous and 6.25% for KERS Hazardous funds).

These single discount rates were based on the expected rate of return on pension investments for each plan. Based on the stated assumptions and the projection of cash flows as of each fiscal year ending, the Pension Plans' 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 rates of return on Pension Plans' investments were applied to all periods of projected benefit payments to determine the TPL for each plan.

The projections 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 each participating employer in CERS, KERS and SPRS contributes the actuarially determined employer contribution each future year calculated in accordance with the current funding policy, as most recently revised by House Bill 8, passed during the 2021 Legislative Session. The assumed future employer contributions for CERS 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, 2020", 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, 2021.

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, 2021. Separate reports will be provided at a later date with additional accounting information determined in accordance with GASB *Statement No. 75, Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*.

Basis of Calculations

The total OPEB liability, net OPEB liability (NOL), and sensitivity information are based on an actuarial valuation date of June 30, 2020. The total OPEB liability was rolled forward from the valuation date to the plan's fiscal year ended June 30, 2021, using generally accepted actuarial principles.

Assumptions

The Insurance Plan single discount rate of 5.18% was used to measure the total OPEB liability as of June 30, 2020. The discount rates used to calculate the total OPEB liability decreased (0.14%-0.27%) for all Funds. The assumed increase in future healthcare costs, or trend assumption, was reviewed during the June 30, 2020, valuation process

and was updated to better reflect the plan's anticipated long-term healthcare cost increases. In general, the updated assumption is assuming higher future increases in healthcare costs. 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 *Statement No. 74*.

The actuarially determined contribution rates effective for fiscal year ended 2021 that are documented in the schedules were calculated as of June 30, 2019. Based on the June 30, 2019, actuarial valuation reports (as amended by SB249, passed during the 2020 legislative session), 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 Non-Hazardous, 3.55% to 19.05% for CERS Hazardous, 3.30% to 15.30% for KERS Non-Hazardous, 3.55% to 20.05% for KERS Hazardous, 3.55% to 16.05% for SPRS, varies by service.
- Payroll Growth - 2.00% for CERS Non-Hazardous and CERS Hazardous, 0.00% for KERS Non-Hazardous, 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 6.25% on January 1, 2021, and gradually decreasing to an ultimate trend rate of 4.05% over a period of 13 years. The 2020 premiums were known at the time of the valuation and were incorporated into the liability measurement.
 - Post-65 - Initial trend starting at 5.50% on January 1, 2021, and gradually decreasing to an ultimate trend rate of 4.05% over a period of 14 years. The 2020 premiums were known at the time of the valuation and were incorporated into the liability measurement.
- Phase-In provision - Board certified rate for CERS is phased into the actuarially determined rate in accordance with HB 362 enacted in 2018.

Plan Provisions

Senate Bill 169 passed during the 2021 legislative session and increased the disability benefits for members who become "total and permanently disabled" in the line of duty or as a result of a duty-related disability. The total OPEB liability as of June 30, 2021, is determined using these updated benefit provisions. There were no other material plan provision changes and it is GRS' opinion that these procedures are reasonable and appropriate, and comply with applicable requirements of GASB *Statement No 74*.

Additionally, House Bill 8 passed during the 2021 legislative session and changed how employer contributions are allocated and collected from the participating employers in the KERS Non-Hazardous Fund. This change does not impact the calculation of the total OPEB liability and only impacts the allocation of required contributions amongst the participating employers.

Further, House Bill 1 passed during the 2019 special legislative session and allowed certain agencies in the KERS Non-Hazardous Fund to elect to cease participating in KERS as of June 30, 2020, under different provisions than were previously established. Senate Bill 249 passed during the 2020 legislative session and delayed the effective date of cessation for these provisions to June 30, 2021. Only one employer elected to cease participation under these provisions and freeze benefit accruals for their current employees. As such, there is no material impact on the total OPEB liability due to this legislation. There were no other material plan provision changes 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 KPPA pays 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 *Statement No. 74* required that the liability associated with this implicit subsidy be included in the calculation of the Total OPEB Liability.

Discount Rates

The Insurance Plan single discount rate of 5.18% was used to measure the total OPEB liability as of June 30, 2020. This rate is derived from the discount rate of each fund as listed below:

CERS Non-Hazardous	5.20%
CERS Hazardous	5.05%
KERS Non-Hazardous	5.26%
KERS Hazardous	5.01%
SPRS	5.20%

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 1.92%, as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 28, 2021. 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 plan. However, the cost associated with the implicit subsidy is not currently being included in the calculation of the actuarial determined contributions, and it is understood 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 each participating employer contributes the actuarially determined employer contribution each future year calculated in accordance with the current funding policy, as most recently reviewed by House Bill 8, passed during the 2021 legislative session. The assumed future employer contributions for CERS 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 the GASB *Statement No. 74*, the 1% member contributions for Tier 2 and Tier 3 members to a 401(h) subaccount is considered as 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 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 the KPPA. Please see the "Actuarial Valuation Report as of June 30, 2020", 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, 2021.

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

Target Asset Allocation

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

Target Asset Allocation - Pension

As of June 30, 2021

Allocations apply only to KERS and SPRS in Pension Funds

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Growth		
US Equity	16.25%	5.70%
Non-US Equity	16.25%	6.35%
Private Equity	7.00%	9.70%
Specialty Credit/High Yield	15.00%	2.80%
Liquidity		
Core Bonds	20.50%	0.00%
Cash	5.00%	(0.60)%
Diversifying Strategies		
Real Estate	10.00%	5.40%
Real Return	10.00%	4.55%

Target Asset Allocation - Pension and Insurance

As of June 30, 2021

Allocations apply to CERS, CERS-Haz, and KERS-Haz in Pension Funds and all Plans are included in the Insurance Fund

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Growth		
US Equity	21.75%	5.70%
Non-US Equity	21.75%	6.35%
Private Equity	10.00%	9.70%
Specialty Credit/High Yield	15.00%	2.80%
Liquidity		
Core Bonds	10.00%	0.00%
Cash	1.50%	(0.60)%
Diversifying Strategies		
Real Estate	10.00%	5.40%
Real Return	10.00%	4.55%

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 2021
As of June 30, 2021 (\$ in Thousands)**

	CERS	KERS	SPRS
	Current 6.25%	Current 5.33%	Current 5.25%
1% Decrease	\$11,570,537	\$15,950,744	\$836,592
Current Discount Rate	9,037,944	13,762,624	699,478
1% Increase	\$6,951,407	\$11,965,291	\$587,977

**Sensitivity of the NPL to Changes in the Discount Rate Fiscal Year 2021
As of June 30, 2021 (\$ in Thousands)**

	CERS	CERS	CERS	KERS	KERS	KERS	SPRS
	Non-Hazardous	Hazardous	Total	Non-Hazardous	Hazardous	Total	
	Current 6.25%	Current 6.25%	Current 6.25%	Current 5.25%	Current 6.25%	Current 5.33%	Current 5.25%
1% Decrease	\$8,177,246	\$3,393,291	\$11,570,537	\$15,340,588	\$610,156	\$15,950,744	\$836,592
Current Discount Rate	6,375,785	2,662,159	9,037,944	13,316,997	445,627	13,762,624	699,478
1% Increase	\$4,885,117	\$2,066,290	\$6,951,407	\$11,653,150	\$312,141	\$11,965,291	\$587,977

**Sensitivity of the Net OPEB Liability to Changes in the Discount Rate and Healthcare Trend Rate
As of June 30, 2021 (\$ in Thousands)**

	CERS	CERS	KERS	KERS	SPRS	Insurance
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous		
	Single 5.20%	Single 5.05%	Single 5.26%	Single 5.01%	Single 5.20%	Single 5.18%
Sensitivity of the Net OPEB Liability to Changes in the Discount Rate						
1% Decrease	\$2,628,525	\$1,172,258	\$2,783,547	\$82,367	\$170,127	\$6,836,824
Single Discount Rate	1,914,450	808,559	2,279,327	(11,525)	117,581	\$5,108,392
1% Increase	\$1,328,433	\$516,349	\$1,865,935	\$(86,891)	\$75,212	\$3,699,038
Sensitivity of the Net OPEB Liability to Changes in the Current Healthcare Cost Trend Rate						
1% Decrease	\$1,378,176	\$529,812	\$1,882,957	\$(79,113)	\$75,680	\$3,787,512
Current Healthcare Cost Trend Rate	1,914,450	808,559	2,279,327	(11,525)	117,581	\$5,108,392
1% Increase	\$2,561,740	\$1,149,958	\$2,756,702	\$71,015	\$168,646	\$6,708,061

Schedule of Employers' NPL

As of June 30, 2021 (\$ in Thousands)	CERS	KERS	SPRS
Total Pension Liability (TPL)	\$20,518,004	\$17,647,424	\$1,055,824
Plan Fiduciary Net Position ⁽¹⁾	\$11,480,060	\$3,884,800	\$356,346
Net Pension Liability	\$9,037,944	\$13,762,624	\$699,478
Ratio of Plan Fiduciary Net Position to TPL	55.95%	22.01%	33.75%
Covered Payroll	\$3,019,096	\$1,614,062	\$47,873
Net Pension Liability as a Percentage of Covered Employee Payroll	299.36%	852.67%	1461.11%

⁽¹⁾ Plan Fiduciary Net Position does not include 401(h) assets.

Schedule of Employers' NPL - CERS Non-Hazardous

As of June 30, 2021 (\$ in Thousands)

Total Pension Liability (TPL)	\$14,941,437
Plan Fiduciary Net Position	8,565,652
Net Pension Liability	\$6,375,785
Ratio of Plan Fiduciary Net Position to TPL	57.33%
Covered Payroll ⁽¹⁾	\$2,446,612
Net Pension Liability as a Percentage of Covered Employee Payroll	260.60%

Schedule of Employers' NPL - CERS Hazardous

As of June 30, 2021 (\$ in Thousands)

Total Pension Liability (TPL)	\$5,576,567
Plan Fiduciary Net Position	2,914,408
Net Pension Liability	\$2,662,159
Ratio of Plan Fiduciary Net Position to TPL	52.26%
Covered Employee Payroll ⁽¹⁾	\$572,484
Net Pension Liability as a Percentage of Covered Employee Payroll	465.02%

Schedule of Employers' NPL - KERS Non-Hazardous

As of June 30, 2021 (\$ in Thousands)

Total Pension Liability (TPL)	\$16,335,657
Plan Fiduciary Net Position	3,018,660
Net Pension Liability	\$13,316,997
Ratio of Plan Fiduciary Net Position to TPL	18.48%
Covered Payroll ⁽¹⁾	\$1,441,337
Net Pension Liability as a Percentage of Covered Employee Payroll	923.93%

Schedule of Employers' NPL - KERS Hazardous

As of June 30, 2021 (\$ in Thousands)

Total Pension Liability (TPL)	\$1,311,767
Plan Fiduciary Net Position	866,140
Net Pension Liability	\$445,627
Ratio of Plan Fiduciary Net Position to TPL	66.03%
Covered Payroll ⁽¹⁾	\$172,725
Net Pension Liability as a Percentage of Covered Employee Payroll	258.00%

Schedule of Employer's NPL - SPRS

As of June 30, 2021 (\$ in Thousands)

Total Pension Liability (TPL)	\$1,055,824
Plan Fiduciary Net Position	356,346
Net Pension Liability	\$699,478
Ratio of Plan Fiduciary Net Position to TPL	33.75%
Covered Payroll ⁽¹⁾	\$47,873
Net Pension Liability as a Percentage of Covered Employee Payroll	1,461.11%

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

**Development of Single Discount Rate for OPEB
As of June 30, 2021**

	CERS	CERS	KERS	KERS	SPRS	Insurance
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous		
2021						
Single Discount Rate	5.20%	5.05%	5.26%	5.01%	5.20%	5.18%
Long-Term Expected Rate of Return	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%
Long-Term Municipal Bond Rate	1.92%	1.92%	1.92%	1.92%	1.92%	1.92%

Note: 1. In accordance with paragraph 48 of GASB Statement No. 74, a single discount rate was used for the reporting and disclosure of the insurance plan. Note, this is the equivalent discount rate that produces the same total OPEB liability as the discount rates used by each individual fund to measure the total OPEB liability for the fiscal year ending June 30, 2021. The single discount rates for each fund are blended rates based on the expected rate of return on OPEB plan investments of 6.25% and a municipal bond rate of 1.92%

2. 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, 2021.

**Schedule of the Employers' Net OPEB Liability - Insurance
As of June 30, 2021 (\$ in Thousands)**

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Employee Payroll ⁽¹⁾	Net OPEB Liability as a Percentage of Covered Employee Payroll
2021	\$12,283,489	\$7,175,097	\$5,108,392	58.41%	\$4,905,905	104.13%

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

Schedule of the Employers' Net OPEB Liability - CERS Non-Hazardous

As of June 30, 2021 (\$ in Thousands)

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Employee Payroll ⁽¹⁾	Net OPEB Liability as a Percentage of Covered Employee Payroll
2021	\$5,161,251	\$3,246,801	\$1,914,450	62.91%	\$2,619,965	73.08%

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

Schedule of the Employers' Net OPEB Liability - CERS Hazardous

As of June 30, 2021 (\$ in Thousands)

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Employee Payroll ⁽¹⁾	Net OPEB Liability as a Percentage of Covered Employee Payroll
2021	\$2,436,383	\$1,627,824	\$808,559	66.81%	\$613,985	131.69%

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

Schedule of the Employers' Net OPEB Liability - KERS Non-Hazardous

As of June 30, 2021 (\$ in Thousands)

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Employee Payroll ⁽¹⁾	Net OPEB Liability as a Percentage of Covered Employee Payroll
2021	\$3,698,804	\$1,419,477	\$2,279,327	38.38%	\$1,452,345	156.94%

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

Schedule of the Employers' Net OPEB Liability - KERS Hazardous

As of June 30, 2021 (\$ in Thousands)

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Employee Payroll ⁽¹⁾	Net OPEB Liability as a Percentage of Covered Employee Payroll
2021	\$622,152	\$633,677	\$(11,525)	101.85%	\$172,725	(6.67)%

⁽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.

Schedule of the Employer's Net OPEB Liability-SPRS Plan

As of June 30, 2021 (\$ in Thousands)

Year	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	Covered Employee Payroll ⁽¹⁾	Net OPEB Liability as a Percentage of Covered Employee Payroll
2021	\$364,899	\$247,318	\$117,581	67.78%	\$47,155	249.35%

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

Note N. Pension Legislation

2021 Regular Session

The 2021 Regular Session of the Kentucky General Assembly adjourned on Tuesday, March 30, 2021. The following is a list of the most significant bills and resolutions passed this Session that will have an impact on the systems operated by KPPA.

1. Passage of House Bill 8 to Help Ensure Agencies Pay Their Fair Share of Unfunded Liability

House Bill 8 (Rep. J. DuPlessis) changes the current method for calculating employer contributions from a percent of payroll model to a fixed allocation funding method. **This is only a change for KERS nonhazardous employers.** Beginning July 1, 2021, 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.

2. CERS Separation Technical Changes Bill

House Bill 9 (Rep. R. Webber) is the CERS separation (House Bill 484 - 2020 Regular Session) cleanup bill. Key elements of this bill include the creation of separate statutes for the CERS as provided by intent language included in HB 484 during the 2020 Regular Session. The bill also amends current statutes to allow KRS and CERS to use the existing registration of assets in order to avoid additional expenses. There were no changes to benefits as a result of this bill.

3. KPPA Housekeeping Bill

House Bill 87 (Rep. J. Decker), the KPPA Housekeeping bill, makes notable changes to current benefits procedures to improve efficiencies and provides eligible members with the flexibility to choose options best suited to their personal situation. For example:

A. Beneficiary Changes after Retirement: House Bill 87 makes changes that will allow retired members to change their beneficiary after retirement under certain conditions:

- **Non-Survivorship Payment Options:** Retired members who selected a non-survivorship payment option (Basic, Annuity, Social Security Adjustment without Survivor Rights, or a life with period certain option (10, 15 or 20 years)) may change their beneficiary designation at any time.
- **Marriage or Remarriage:** Within 120 days of the date of marriage or remarriage, a retired member may name his/her new spouse as beneficiary and elect a new survivorship payment option. The survivorship payment option will be recalculated and must be actuarially equivalent to the retirement allowance at the original retirement date. This bill also establishes a window for retired members who married or remarried prior to June 29, 2021, to do the same if the beneficiary change and new survivorship payment option election is filed with KPPA on or before January 1, 2022. Members must provide a marriage certificate and date of birth verification to name their spouse as beneficiary and elect a survivorship payment option.

B. 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. House Bill 87 amends the current statute to provide that the 10% cap on creditable compensation growth will not apply when it results in a benefit change of less than \$25 per month. If there is a benefit change of \$25 or more per month due to pension spiking, the member's creditable compensation will be reduced by the appropriate amount to meet the new \$25 monthly threshold. This change, effective for retirement dates of July 1, 2021, and after, will save money for KPPA through reduced administrative and legal costs associated with pursuing these cases.

C. Nonhazardous Opt-Out: A member employed in a regular full-time hazardous position, who is simultaneously employed in a part-time nonhazardous position with a different employer, now has the option to decline participation under the part-time nonhazardous position within 30 days of initial employment in the nonhazardous position. Once a member declines participation, they are never permitted to participate as long as they are employed with that employer, even if they change from part-time to full-time at a later date.

This change is prospective and only applies to initial employment in a nonhazardous part-time position on or after June 29, 2021. Members who are dually employed currently cannot terminate and be rehired in order to decline participation under their nonhazardous position. In addition, if a member was previously employed in a participating

position and reemploys with that same employer after June 29, 2021, the member will not be eligible to reject participation under the part-time nonhazardous position.

4. State Executive Branch Budget Bill, House Bill 192

Due to the COVID-19 crisis, the legislature only passed a one-year budget during the 2020 Regular Session rather than the customary two-year budget. Therefore, the General Assembly passed **House Bill 192** (Rep. Petrie) during the 2021 Session that will cover fiscal year 2021-2022.

A few important retirement-related items included in the budget bill were Employer Contribution rates, subsidies for Quasi-governmental agencies to cover anticipated increases in retirement costs for fiscal year 2021-22, and money from the state to assist with covering employer contribution rates for County Attorneys and most universities. The bill contained no raises for State employees, and no Cost of Living Adjustments (COLAs) for retirees. The bill does contain language establishing a process and procedures for State employee layoffs, furloughs, and reduced hours in the event that the Commonwealth or any agency determines it necessary.

House Bill 192 also froze the employer contributions for CERS employers. This allowed employers to use the same contribution rates in fiscal year 2022 that were determined for fiscal year 2021.

5. Changes to Total and Permanent Disability Benefits

Senate Bill 169 (Sen. C. McDaniel) increases the disability benefits for members who become “totally and permanently disabled” as a result of an act in the line of duty (hazardous) or a duty-related injury (nonhazardous) to be equal to 75% of the member’s monthly average pay plus 10% of the member’s monthly average pay for each dependent child. The combined benefit payable to both the member and dependent children while the member is alive is not to exceed 100% of the member’s monthly average pay. Health insurance coverage will be available at 100% of the contribution rate for the member, the member’s spouse, and the member’s dependent children. The bill also provides for prospective adjustments in benefits for those eligible retirees who were already determined to be totally and permanently disabled in the line of duty or due to a duty-related injury.

Members experiencing a total and permanent disability due to a duty related injury in a nonhazardous participating position must meet additional requirements to be considered for these benefits.

6. Additional Requirements for the Actuarial Analysis Performed on Retirement-Related Legislation

House Bill 69 (Rep. J. Miller) establishes additional standards and requirements for information a bill’s actuarial analysis must contain, including lengthening the time period to 30 years from 20 years for certain projections/analysis.

An **actuarial analysis** is intended to show the anticipated economic impact of a bill on the retirement system funding status. Kentucky Revised Statute 6.350 requires an actuarial analysis to be performed on any bill that may increase or decrease benefits, the participation in benefits, or change the actuarial liability of any state-administered retirement system.

7. House Bill 261 Provides Legal Protections Against False Pension Benefit Claims

House Bill 261 (Rep. J. Miller) provides a new level of legal protection for KPPA against anyone who knowingly submits false or fraudulent claims to KPPA in order to obtain benefits.

8. State Senate Confirms Gubernatorial Appointments to CERS and KRS Boards

State law requires that gubernatorial appointments to the CERS and KRS Boards receive Senate approval. On March 30, four Senate Resolutions confirming Governor Andy Beshear’s recent appointments to the boards were unanimously adopted by a vote of 38-0:

1. **Senate Resolution 205** (Sponsor D. Givens) confirmed the appointment of **George Carlisle Cheatham II** to the CERS Board of Trustees for a term ending March 31, 2025;
2. **Senate Resolution 206** (Sponsor J. Adams) confirmed the appointment of **William Thomas O’Mara** to the CERS Board of Trustees for a term ending March 31, 2025;
3. **Senate Resolution 207** (Sponsor J. Adams) confirmed the appointment of **James Michael Foster** to the KRS Board of Trustees for a term ending July 1, 2021;
4. **Senate Resolution 209** (Sponsor J. Adams) confirmed the appointment of **Dr. Merl Hackbart** to the CERS Board of Trustees for a term ending March 31, 2025.

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

Note O. Litigation

City of Fort Wright

In June 2014, the City of Fort Wright and several other participating employers in CERS filed a lawsuit against KRS (although KRS' name changed to KPPA, the cases will remain in KRS' name and not change), alleging that the Board invested CERS funds in investments that were prohibited by both statutory and common law. In addition, the plaintiffs alleged that the Board paid substantial asset management fees, which the suit alleges were improper. On September 20, 2018, Franklin Circuit Court issued an Opinion and Order denying the City of Fort Wright's Motion for Declaratory Judgment and granting KRS' Cross-Motion for Declaratory Judgment. The Court stated in relevant part, "There is nothing in the record or in the City's pleadings to this Court that persuades this Court that the Board did not follow the law or did not appropriately apply the facts to the law." The City of Fort Wright filed an appeal with the Kentucky Court of Appeals. In a January 10, 2020, Opinion, the Court of Appeals affirmed the decision of Franklin Circuit Court. The City of Fort Wright filed a Motion for Discretionary Review with the Supreme Court of Kentucky. On September 16, 2020, the Supreme Court of Kentucky granted this Motion. On September 28, 2020, KRS filed a Cross Motion for Discretionary Review. The Supreme Court also granted this Motion. Argument in front of the KY Supreme Court was held on August 19, 2021. The KY Supreme Court affirmed the Court of Appeals in an Opinion dated October 28, 2021.

On September 2, 2015, a CERS member filed a complaint that is substantially similar in terms of allegations and ambiguous requests for relief to that of the City of Fort Wright. The exact nature and scope of the relief sought is unclear; therefore, no provision has been made in the combining financial statements. The member's complaint is currently being held in abeyance pending the outcome of the City of Fort Wright's appeal. No new action has been taken in this matter to date.

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 case is currently being litigated.

Mayberry

In December 2017, members and beneficiaries of KRS 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.

On August 2, 2021, Blackstone Alternative Asset Management, L.P. (BAAM) filed an action against the Kentucky Public Pensions Authority, the Board of Trustees of the Kentucky Retirement Systems, the Board of Trustees of the County Employees Retirement System, the Kentucky Retirement Systems Insurance Fund, and the Kentucky Retirement Systems Pension Fund (collectively "Defendants") for breach of contract. The Defendants' answers were due on September 8, 2021. In lieu of filing Answers, both KRS and CERS filed motions to dismiss. The motions were heard on November 4, 2021. The Court has not ruled on the motions at this time.

A number of related cases have also developed based on issues raised in the above referenced Mayberry action. There has been an action filed by certain Mayberry Trustees and Officers seeking reimbursement by KRS of legal fees. KRS has also filed an action against Hallmark Specialty Insurance seeking a declaratory judgment that Hallmark has a duty to defend and indemnify KRS in the Mayberry action. Two of the hedge fund defendants in the Mayberry action have also filed an action in the United States District Court for the Eastern District of Kentucky naming individual members of the current KRS Board as defendants. This action is seeking a judgment declaring that the Trustees violated plaintiffs' right to due process as well as an award of costs and attorneys' fees. Three actions have been filed in Delaware Chancery Court regarding the Mayberry action. One filed by Prisma Capital Partners and one filed by Blackstone Alternative Asset Management allege breaches of warranties, representations and more relating to the Subscription Agreements signed by KRS. The Blackstone action was voluntarily dismissed without prejudice on July 8, 2019. The third was filed by Prisma Capital Partners against the Daniel Boone Fund, LLC. Finally, an action was filed by PAAMCO against KRS in California alleging breach of warranties, representations and more relating to the Subscription Agreements. Litigation of those cases is currently ongoing.

Western Kentucky University

On November 17, 2016, Western Kentucky University (WKU), a participating employer, filed a petition for declaration of rights in the Franklin Circuit Court in Frankfort, KY. The petition involved a dispute as to whether WKU can terminate a group of its employees, which participated in KERS, and reutilize those same employees through a privatization process, in order to excuse WKU from its obligations to pay contributions to the KERS Fund. On March 10, 2020, Franklin Circuit Court issued an Opinion and Order declaring that:

1. As of August 1, 2016, former WKU employees are Sodexo employees, not WKU employees;
2. As of August 1, 2016, WKU is no longer required to provide employer or employee contributions to KERS on behalf of the former employees;
3. WKU and its former employees are not responsible for any penalties or interest since August 1, 2016, insofar as they are related to contributions to KERS on behalf of the former employees at issue; and,
4. The former WKU employees had a break in service from WKU as of July 31, 2016, and may have full access to their retirement benefits being held by KERS and administered by KRS for all benefits earned prior to August 1, 2016.

KRS filed an appeal of this Opinion and Order with the Court of Appeals on June 17, 2020. On August 20, 2021, the Court of Appeals issued its Order Affirming the Opinion and Order of the Franklin Circuit Court. Due to the far reaching impacts of this decision, KRS is filing a Petition for Discretionary Review with the Kentucky Supreme Court.

Bayhills

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.

River City Fraternal Order of Police Lodge 614

River City FOP and four retired/reemployed police officers sued KRS in Franklin Circuit Court claiming that KRS wrongfully terminated their health insurance. Though the case originated in state court, it was removed to federal district court. The plaintiffs were awarded summary judgment on the merits of their inviolable contract claims. The court also awarded the plaintiffs money damages. KRS appealed to the Sixth Circuit Court of Appeals who affirmed in part and reversed in part the district court's decision. The matter has been remanded to the district court for a determination of damages. The parties are currently negotiating the damages.

Note P. Reciprocity Agreement

KPPA has a reciprocity agreement with Kentucky Teachers' Retirement System (TRS) for the payment of insurance benefits for those members who have creditable service in both 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, 2021, the reimbursement totaled \$12.5 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 Non-Hazardous and Hazardous funds, and reported in the Insurance Fund. For the fiscal year ended June 30, 2021, members paid into the Insurance Fund \$24.4 million.

Retired Re-Employed Employer Contributions

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

Retired Re-employed Employer Contributions As of June 30 (\$ in Thousands)	CERS			KERS		SPRS	KRS	KPPA Total
	Non-Hazardous	Hazardous	Total	Non-Hazardous	Hazardous		Total	
FY 2021	\$12,693	\$5,085	\$17,778	\$36,087	\$2,662	\$-	\$38,749	\$56,527

Note R. Reduction of Receivables

Employers reported June 2020 wages earned in the following month of July 2020 (next fiscal year) and the new Annual Required Contribution (ARC) rate was applied. The Commonwealth's approved budget guidelines paid contributions at the fiscal year 2020 ARC rate in effect when the wages were earned. KPPA will not receive payments at the new ARC rate for that period; therefore, contribution receivables have been reduced as of June 30, 2021 as noted in the chart.

Reduction of Receivables As of June 30 (\$ in Thousands)	
	2021
KERS Non-Hazardous	\$476
KERS Hazardous	(62)
SPRS	(54)
TOTAL	\$360

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, 2021, is \$97.3 million for the Pension Plans and \$40.4 million for the Insurance Plan. This is based on the May 31, 2021, report because Absolute Return managers are reported on a one month lag.

Note T. Subsequent Events

Management has evaluated the period June 30, 2021, to December 8, 2021, (the date the combining financial statements were available to be issued) for items requiring recognition or disclosure in the combining financial statements.

Note U. Coronavirus

Before the onset of the coronavirus, or COVID-19, in Kentucky in March 2020, KPPA staff were assessing the risks and potential action necessary to address these risks. On March 6, 2020, the Governor of Kentucky declared a state of emergency with the first confirmed case of COVID-19. KPPA staff acted quickly with these goals in mind:

- To preserve the health and safety of staff, members and other stakeholders;
- To protect the assets of every plan;
- To maintain vigilance in cyber security; and,
- To ensure all required services were available to our members.

Although the state of emergency expired, with the increase in the Delta variant of COVID-19 in the Spring and Summer of 2021, the state of emergency was reinstated until January 15, 2022, KPPA staff have continued to assess the risk and potential action necessary to address these risks.

With change as significant as has been experienced since the beginning of the state of emergency, to the current increase in the Delta variant, there have been increased risks.

Note V. 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 unfunded liability was \$204.0 million. The payment of the cessation cost is not required until the final cost amount is calculated by the actuary which will be in early 2022, however, \$175.6 million for the pension portion and \$28.4 million for the insurance portion of the unfunded liability was paid by NKU in the 2021 fiscal year. KHC did not make a payment in fiscal year 2021. 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

Schedule of Employer NPL

CERS

CERS Non-Hazardous

CERS Hazardous

KERS

KERS Non-Hazardous

KERS Hazardous

SPRS

Schedule of Changes in Employers' TPL

CERS

CERS Non-Hazardous

CERS Hazardous

KERS

KERS Non-Hazardous

KERS Hazardous

SPRS

Notes to Schedule of Employers' Contributions

Schedule of Employers' Contributions Pension

CERS

CERS Non-Hazardous

CERS Hazardous

KERS

KERS Non-Hazardous

KERS Hazardous

SPRS

Schedule of Employers' NOL

Insurance Plan

CERS Non-Hazardous

CERS Hazardous

KERS Non-Hazardous

KERS Hazardous

SPRS

Schedule of Changes in Employers' Net OPEB Liability

Insurance Plan

CERS Non-Hazardous

CERS Hazardous

KERS Non-Hazardous

KERS Hazardous

SPRS

Notes to Schedule of Employers' OPEB Contribution

Schedule of Employers' OPEB Contributions

Insurance Plan

CERS Non-Hazardous

CERS Hazardous

KERS Non-Hazardous

KERS Hazardous

SPRS

Money Weighted Rates of Return

Report on Internal Control

Schedule of Employers' NPL - CERS

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
2021	\$20,518,004	\$11,480,060	\$9,037,944	55.95%	\$3,019,096	299.36%
2020	20,091,976	9,407,031	10,684,945	46.82%	3,022,303	353.54%
2019	19,368,969	9,573,629	9,795,340	49.43%	2,978,337	328.89%
2018	17,876,062	9,367,300	8,508,762	52.40%	3,017,780	281.95%
2017	16,995,820	8,905,233	8,090,587	52.40%	2,902,849	278.71%
2016	14,791,128	8,151,569	6,639,559	55.11%	2,943,521	225.57%
2015	14,353,633	8,519,002	5,834,631	59.35%	2,780,357	209.85%
2014	\$13,061,348	\$8,615,148	\$4,446,200	65.96%	\$2,751,434	161.60%

⁽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 Non-Hazardous Pension Funds

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
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 Funds

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
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

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
2021	\$17,647,424	\$3,884,800	\$13,762,624	22.01%	\$1,614,062	852.67%
2020	17,723,760	2,998,430	14,725,330	16.92%	1,647,996	893.53%
2019	17,583,900	2,914,604	14,669,296	16.58%	1,646,454	890.96%
2018	16,758,831	2,649,931	14,108,900	15.81%	1,662,891	848.46%
2017	16,543,836	2,658,399	13,885,437	16.07%	1,780,907	779.68%
2016	14,299,298	2,508,171	11,791,127	17.54%	1,789,853	658.78%
2015	13,255,106	2,880,251	10,374,855	21.73%	1,672,914	620.17%
2014	\$12,366,960	\$3,139,775	\$9,227,185	25.39%	\$1,706,572	540.69%

⁽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 Employers' NPL - KERS Non-Hazardous Pension Funds

As of June 30 (\$ in Thousands)

Year	Total Pension	Plan Fiduciary	Net Pension	Ratio of Plan	Covered	Net Pension
	Liability (TPL)	Net Position	Liability	Fiduciary Net	Payroll ⁽¹⁾	Liability as a Percentage of Covered Payroll
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 Funds

As of June 30 (\$ in Thousands)

Year	Total Pension	Plan Fiduciary	Net Pension	Ratio of Plan	Covered	Net Pension
	Liability (TPL)	Net Position	Liability	Fiduciary Net	Payroll ⁽¹⁾	Liability as a Percentage of Covered Payroll
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 Employers' NPL - SPRS Pension Funds

As of June 30 (\$ in Thousands)

Year	Total Pension	Plan Fiduciary	Net Pension	Ratio of Plan	Covered	Net Pension
	Liability (TPL)	Net Position	Liability	Fiduciary Net	Payroll ⁽¹⁾	Liability as a Percentage of Covered Payroll
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

As of June 30 (\$ in Thousands)

Total Pension Liability (TPL)	2021	2020	2019	2018	2017	2016	2015	2014
Service Cost	\$389,515	\$389,979	\$332,069	\$335,272	\$251,425	\$275,350	\$279,334	\$259,243
Interest	1,220,272	1,176,482	1,084,676	1,031,316	1,074,415	1,043,473	980,010	949,191
Benefit Changes	4,439	-	-	17,880	-	-	-	-
Difference between Expected and Actual Experience	(52,926)	247,041	114,741	485,283	(115,427)	-	91,901	-
Changes of Assumptions	-	-	1,003,892	-	1,925,467	-	773,142	-
Benefit Payments	(1,135,272)	(1,090,495)	(1,042,471)	(989,509)	(931,190)	(881,327)	(832,102)	(789,435)
Net Change in TPL	426,028	723,007	1,492,907	880,242	2,204,691	437,494	1,292,285	418,999
TPL – Beginning	20,091,976	19,368,969	17,876,062	16,995,820	14,791,128	14,353,633	13,061,348	12,642,349
TPL – Ending (a)	\$20,518,004	\$20,091,976	\$19,368,969	\$17,876,062	\$16,995,820	\$14,791,128	\$14,353,633	\$13,061,348
Plan Fiduciary Net Position ⁽¹⁾								
Contributions – Employer	\$644,433	\$643,859	\$531,506	\$485,677	\$449,501	\$389,818	\$406,636	\$439,471
Contributions – Member ⁽²⁾	228,065	232,230	217,725	221,459	210,816	194,646	188,003	172,290
Net Investment Income ⁽²⁾	2,359,380	72,092	522,896	765,153	1,096,373	(49,820)	147,672	1,184,020
Retirement Benefit	(1,116,748)	(1,071,762)	(1,025,230)	(970,687)	(914,445)	(864,694)	(815,469)	(772,485)
Administrative Expense ⁽²⁾	(23,577)	(24,285)	(23,385)	(21,096)	(21,030)	(20,751)	(19,500)	(20,336)
Refunds of Contributions	(18,524)	(18,732)	(17,241)	(18,822)	(16,745)	(16,632)	(16,634)	(16,950)
Other ⁽⁴⁾⁽⁵⁾	-	-	58	472	(50,806)	-	13,145	-
Net Change in Plan Fiduciary Net Position	2,073,029	(166,598)	206,329	462,156	753,665	(367,433)	(96,147)	986,010
Plan Fiduciary Net Position - Beginning	9,407,031	9,573,629	9,367,300	8,905,233	8,151,569	8,519,002	8,615,148	7,629,138
Prior Year Adjustment	-	-	-	(89)	-	-	-	-
Plan Fiduciary Net Position – Ending (b)	11,480,060	9,407,031	9,573,629	9,367,300	8,905,233	8,151,569	8,519,002	8,615,148
Net Pension Liability – Ending (a) – (b)	\$9,037,944	\$10,684,945	\$9,795,340	\$8,508,762	\$8,090,587	\$6,639,559	\$5,834,631	\$4,446,200
Plan Fiduciary Net Position as a Percentage	55.95%	46.82%	49.43%	52.40%	52.40%	55.11%	59.35%	65.96%
Covered Payroll ⁽³⁾	\$3,019,096	\$3,022,303	\$2,978,337	\$3,017,780	\$2,902,849	\$2,943,521	\$2,780,357	\$2,751,434
Net Pension Liability as a Percentage of Covered Payroll	299.36%	353.54%	328.89%	281.95%	278.71%	225.57%	209.85%	161.60%

⁽¹⁾ Does not include 401(h) assets for fiscal years 2017 and later.

⁽²⁾ Does not include 401(h) contributions, associated administrative expenses, and investment income on 401(h) contributions for fiscal years 2017 and later.

⁽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 Non-Hazardous

As of June 30 (\$ in Thousands)

Total Pension Liability (TPL)	2021	2020	2019	2018	2017	2016	2015	2014
Service Cost	\$280,165	\$280,092	\$254,643	\$254,169	\$193,082	\$209,101	\$207,400	\$192,482
Interest	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	(91,776)	173,345	87,377	279,401	(208,015)	-	49,966	-
Changes of Assumptions	-	-	727,351	-	1,388,800	-	606,293	-
Benefit Payments	(840,611)	(810,879)	(780,608)	(741,177)	(701,891)	(665,000)	(628,858)	(597,136)
Net Change in TPL	244,193	504,278	1,083,698	568,723	1,475,532	324,687	967,803	305,872
TPL – Beginning	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)	\$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	\$472,228	\$475,416	\$393,453	\$358,017	\$333,554	\$284,105	\$298,565	\$324,231
Contributions – Member ⁽²⁾	165,698	168,994	159,064	160,370	150,715	141,674	140,311	128,568
Net Investment Income ⁽²⁾	1,762,739	56,178	390,664	573,829	825,900	(40,800)	110,568	895,530
Retirement Benefit	(826,749)	(795,960)	(766,221)	(726,569)	(687,461)	(651,246)	(615,335)	(582,850)
Administrative Expense ⁽²⁾	(21,729)	(22,304)	(21,659)	(19,592)	(19,609)	(19,385)	(18,212)	(18,615)
Refunds of Contributions	(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	1,538,325	(132,594)	140,958	331,808	545,843	(299,405)	(87,346)	732,578
Plan Fiduciary Net Position - Beginning	7,027,327	7,159,921	7,018,963	6,687,237	6,141,395	6,440,800	6,528,146	5,795,568
Prior Year Adjustment	-	-	-	(82)	-	-	-	-
Plan Fiduciary Net Position – Ending (b)	8,565,652	7,027,327	7,159,921	7,018,963	6,687,237	6,141,395	6,440,800	6,528,146
Net Pension Liability – Ending (a) – (b)	\$6,375,785	\$7,669,917	\$7,033,045	\$6,090,305	\$5,853,308	\$4,923,618	\$4,299,525	\$3,244,376
Plan Fiduciary Net Position as a Percentage	57.33%	47.81%	50.45%	53.54%	53.32%	55.50%	59.97%	66.80%
Covered Payroll ⁽³⁾	\$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	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.

⁽²⁾ Does not include 401(h) contributions, associated administrative expenses, and investment income on 401(h) contributions for fiscal years 2017 and later.

⁽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)	2021	2020	2019	2018	2017	2016	2015	2014
Service Cost	\$109,350	\$109,887	\$77,426	\$81,103	\$58,343	\$66,249	\$71,934	\$66,761
Interest	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	38,850	73,696	27,364	205,882	92,588	-	41,935	-
Changes of Assumptions	-	-	276,541	-	536,667	-	166,849	-
Benefit Payments	(294,661)	(279,616)	(261,863)	(248,332)	(229,299)	(216,327)	(203,244)	(192,299)
Net Change in TPL	181,835	218,729	409,209	311,519	729,159	112,807	324,482	113,127
TPL – Beginning	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)	\$5,576,567	\$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	\$172,205	\$168,443	\$138,053	\$127,660	\$115,947	\$105,713	\$108,071	\$115,240
Contributions – Member ⁽²⁾	62,367	63,236	58,661	61,089	60,101	52,972	47,692	43,722
Net Investment Income ⁽²⁾	596,641	15,914	132,232	191,324	270,473	(9,020)	37,104	288,490
Retirement Benefit	(289,999)	(275,802)	(259,009)	(244,118)	(226,984)	(213,448)	(200,134)	(189,635)
Administrative Expense ⁽²⁾	(1,848)	(1,981)	(1,726)	(1,504)	(1,421)	(1,366)	(1,288)	(1,721)
Refunds of Contributions	(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	534,704	(34,004)	65,371	130,348	207,822	(68,028)	(8,801)	253,432
Plan Fiduciary Net Position – Beginning	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)	2,914,408	2,379,704	2,413,708	2,348,337	2,217,996	2,010,174	2,078,202	2,087,002
Net Pension Liability – Ending (a) – (b)	\$2,662,159	\$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	52.26%	44.11%	46.63%	49.26%	49.78%	53.95%	57.52%	63.46%
Covered Payroll ⁽³⁾	\$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	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.

⁽²⁾ Does not include 401(h) contributions associated administrative expenses, and investment income on 401(h) contributions for fiscal years 2017 and later.

⁽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

As of June 30 (\$ in Thousands)

Total Pension Liability (TPL)	2021	2020	2019	2018	2017	2016	2015	2014
Service Cost	\$199,922	\$205,270	\$212,105	\$224,322	\$164,939	\$160,382	\$162,576	\$150,241
Interest	913,827	906,535	862,820	851,659	937,314	956,748	920,514	913,247
Benefit Changes	2,117	-	-	10,329	-	-	-	-
Difference between Expected and Actual Experience	(95,479)	114,420	71,924	177,780	(107,477)	-	37,025	-
Changes of Assumptions	-	-	751,122	-	2,273,408	923,999	746,757	-
Benefit Payments	(1,096,723)	(1,086,365)	(1,072,902)	(1,049,095)	(1,023,647)	(996,937)	(978,726)	(960,715)
Net Change in TPL	(76,336)	139,860	825,069	214,995	2,244,537	1,044,192	888,146	102,773
TPL – Beginning	17,723,760	17,583,900	16,758,831	16,543,836	14,299,298	13,255,106	12,366,960	12,264,187
TPL – Ending (a)	\$17,647,424	\$17,723,760	\$17,583,900	\$16,758,831	\$16,543,835	\$14,299,298	\$13,255,106	\$12,366,960
Plan Fiduciary Net Position ⁽¹⁾								
Contributions – Employer Other ⁽⁶⁾	\$1,196,432	\$1,007,707	\$1,090,721	\$732,804	\$810,095	\$536,843	\$550,227	\$308,506
Contributions – Member ⁽²⁾	110,163	116,363	110,877	122,863	118,067	122,234	117,813	110,033
Net Investment Income ⁽²⁾	689,375	59,238	148,751	196,348	291,979	(22,316)	53,271	418,647
Retirement Benefit	(1,083,390)	(1,071,674)	(1,057,876)	(1,032,991)	(1,009,721)	(982,594)	(962,564)	(944,257)
Administrative Expense ⁽²⁾	(12,877)	(13,117)	(12,815)	(11,667)	(11,876)	(11,905)	(11,318)	(12,042)
Refunds of Contributions	(13,333)	(14,691)	(15,026)	(16,104)	(13,925)	(14,341)	(16,162)	(16,457)
Other ⁽⁴⁾⁽⁵⁾	-	-	41	334	(34,391)	-	9,209	-
Net Change in Fiduciary Net Position	886,370	83,826	264,673	(8,413)	150,228	(372,079)	(259,524)	(135,570)
Plan Fiduciary Net Position – Beginning	2,998,430	2,914,604	2,649,931	2,658,399	2,508,171	2,880,251	3,139,775	3,275,345
Prior Year Adjustment	-	-	-	(55)	-	-	-	-
Plan Fiduciary Net Position – Ending (b)	3,884,800	2,998,430	2,914,604	2,649,931	2,658,399	2,508,171	2,880,251	3,139,775
Net Pension Liability – Ending (a) – (b)	\$13,762,624	\$14,725,330	\$14,669,296	\$14,108,900	\$13,885,436	\$11,791,127	\$10,374,855	\$9,227,185
Plan Fiduciary Net Position as a Percentage	22.01%	16.92%	16.58%	15.81%	16.07%	17.54%	21.73%	25.39%
Covered Payroll ⁽³⁾	\$1,614,062	\$1,647,996	\$1,646,454	\$1,662,891	\$1,780,907	\$1,789,853	\$1,672,914	\$1,706,572
Net Pension Liability as a Percentage of Covered Payroll	852.67%	893.53%	890.96%	848.46%	779.68%	658.78%	620.17%	540.69%

⁽¹⁾ Does not include 401(h) assets for fiscal years 2017 and later.

⁽²⁾ Does not include 401(h) contributions, associated administrative expenses, and investment income on 401(h) contributions for fiscal years 2017 and later.

⁽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 \$175.6 million employer cessation contribution for fiscal year 2021

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 Non-Hazardous

As of June 30 (\$ in Thousands)

Total Pension Liability (TPL)	2021	2020	2019	2018	2017	2016	2015	2014
Service Cost	\$171,472	\$179,702	\$184,988	\$195,681	\$143,858	\$139,631	\$143,847	\$133,361
Interest	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	(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	(1,018,455)	(1,011,336)	(1,000,691)	(980,978)	(960,309)	(935,419)	(919,343)	(903,564)
Net Change in TPL	(137,076)	116,059	748,453	163,015	2,065,425	1,020,108	809,563	83,450
TPL – Beginning	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)	\$16,335,657	\$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⁾	\$1,134,232	\$948,592	\$1,035,462	\$689,143	\$757,121	\$513,084	\$521,691	\$296,836
Contributions – Member ⁽²⁾	90,202	96,594	93,759	104,972	100,543	106,494	104,606	97,487
Net Investment Income ⁽²⁾	516,223	52,499	112,371	144,881	220,985	(20,663)	44,570	337,922
Retirement Benefit	(1,009,502)	(999,813)	(988,349)	(967,375)	(948,490)	(923,288)	(905,791)	(889,937)
Administrative Expense ⁽²⁾	(11,622)	(11,941)	(11,712)	(10,692)	(10,957)	(10,989)	(10,474)	(11,145)
Refunds of Contributions	(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	710,580	74,408	229,226	(52,373)	76,578	(347,491)	(250,508)	(182,463)
Plan Fiduciary Net Position – Beginning	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)	3,018,660	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)	\$13,316,997	\$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	18.48%	14.01%	13.66%	12.84%	13.32%	14.80%	18.83%	22.32%
Covered Payroll ⁽³⁾	\$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	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.

⁽²⁾ Does not include 401(h) contributions, associated administrative expenses, and investment income on 401(h) contributions for fiscal years 2017 and later.

⁽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 \$175.6 million employer cessation contribution for fiscal year 2021.

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Schedule of Changes in Employers' TPL - KERS Hazardous

As of June 30 (\$ in Thousands)

Total Pension Liability (TPL)	2021	2020	2019	2018	2017	2016	2015	2014
Service Cost	\$28,450	\$25,568	\$27,117	\$28,641	\$21,081	\$20,751	\$18,729	\$16,880
Interest	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	34,789	(1,095)	1,395	24,215	26,902	-	6,067	-
Changes of Assumptions	-	-	50,658	-	127,878	-	52,165	-
Benefit Payments	(78,268)	(75,029)	(72,211)	(68,117)	(63,338)	(61,518)	(59,383)	(57,151)
Net Change in TPL	60,740	23,801	76,616	51,980	179,112	24,084	78,583	19,323
TPL – Beginning	1,251,027	1,227,226	1,150,610	1,098,630	919,517	895,433	816,850	797,527
TPL – Ending (a)	\$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	\$62,200	\$59,115	\$55,259	\$43,661	\$52,974	\$23,759	\$28,536	\$11,670
Contributions - Member ⁽²⁾	19,961	19,769	17,118	17,891	17,524	15,739	13,207	12,546
Net Investment Income	173,152	6,739	36,380	51,467	70,994	(1,653)	8,701	80,724
Retirement Benefit	(73,888)	(71,861)	(69,527)	(65,616)	(61,231)	(59,306)	(56,773)	(54,320)
Administrative Expense ⁽²⁾	(1,255)	(1,176)	(1,103)	(975)	(919)	(916)	(844)	(897)
Refunds of Contributions	(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	175,790	9,418	35,447	43,960	73,650	(24,588)	(9,016)	46,893
Plan Fiduciary Net Position – Beginning	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)	866,140	690,350	680,932	645,485	601,529	527,879	552,468	561,484
Net Pension Liability – Ending (a) – (b)	\$445,627	\$560,677	\$546,294	\$505,125	\$497,101	\$391,638	\$342,965	\$255,366
Plan Fiduciary Net Position as a Percentage	66.03%	55.18%	55.49%	56.10%	54.75%	57.41%	61.70%	68.74%
Covered Payroll ⁽³⁾	\$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	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.

⁽²⁾ Does not include 401(h) contributions associated administrative expenses, and investment income on 401(h) contributions for fiscal years 2017 and later.

⁽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)	2021	2020	2019	2018	2017	2016	2015	2014
Service Cost	\$12,530	\$13,192	\$11,726	\$11,890	\$8,297	\$8,402	\$7,695	\$7,142
Interest	53,417	52,697	49,301	47,978	51,769	52,951	50,661	50,391
Benefit Changes	35	-	-	184	-	-	-	-
Difference between Expected and Actual Experience	4,127	10,859	20,952	25,126	8,143	-	9,331	-
Changes of Assumptions	-	-	44,510	0	136,602	56,191	40,201	-
Benefit Payments	(63,522)	(62,511)	(61,111)	(58,827)	(56,960)	(56,279)	(54,850)	(53,239)
Net Change in TPL	6,587	14,237	65,378	26,351	147,850	61,265	53,038	4,294
TPL - Beginning	1,049,237	1,035,000	969,622	943,271	795,421	734,156	681,118	676,824
TPL - Ending (a)	\$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	\$59,650	\$59,453	\$60,048	\$46,877	\$63,239	\$25,822	\$31,990	\$20,279
Contributions - Member ⁽²⁾	4,752	4,767	5,062	5,522	5,348	5,263	5,244	5,075
Net Investment Income ⁽²⁾	61,729	6,341	14,816	18,437	26,795	(3,843)	3,426	40,374
Retirement Benefit	(63,249)	(62,423)	(60,949)	(58,805)	(56,934)	(56,268)	(54,765)	(53,026)
Administrative Expense ⁽²⁾	(212)	(266)	(225)	(194)	(181)	(178)	(201)	(215)
Refunds of Contributions	(273)	(88)	(162)	(22)	(26)	(11)	(85)	(213)
Other	-	-	3 ⁽⁵⁾	21 ⁽⁵⁾	(517) ⁽⁴⁾	-	645	-
Net Change in Plan Fiduciary Net Position	62,397	7,784	18,593	11,836	37,724	(29,215)	(13,746)	12,274
Plan Fiduciary Net Position – Beginning	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)	356,346	293,949	286,165	267,572	255,737	218,012	247,228	260,974
Net Pension Liability – Ending (a) – (b)	\$699,478	\$755,288	\$748,835	\$702,050	\$687,534	\$577,409	\$486,928	\$420,144
Plan Fiduciary Net Position as a Percentage	33.75%	28.02%	27.65%	27.60%	27.11%	27.41%	33.68%	38.32%
Covered Payroll ⁽³⁾	\$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	1,461.11%	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.

⁽²⁾ Does not include 401(h) contributions, associated administrative expenses, and investment income on 401(h) contributions for fiscal years 2017 and later.

⁽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 contribution effective for fiscal year ended 2021 that are documented in the schedules on the following pages, were calculated as of June 30, 2019. Separate contribution rates are determined for the non-hazardous fund and the hazardous 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 balance for each fund.

Based on the June 30, 2019, actuarial valuation report (as amended by SB249, passed during the 2020 legislative session), the actuarial methods and assumptions used to calculate the required contributions are below:

Notes to Schedule of Employers' Contribution			
Item	CERS	KERS	SPRS
Determined by the Actuarial Valuation as of:	June 30, 2019	June 30, 2019	June 30, 2019
Actuarial Cost Method:	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
Amortization Method:	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
Payroll Growth	2.00%	0.00%	0.00%
Investment Return:	6.25%	5.25% for the KERS Non-Hazardous fund assets 6.25% for the KERS Hazardous fund assets	5.25%
Inflation:	2.30%	2.30%	2.30%
Salary Increase:	3.30% to 10.30%, for non-hazardous members, varies by service 3.55% to 19.05% for hazardous members, varies by service	3.30% to 15.30%, for non-hazardous members, varies by service 3.55% to 20.05% for hazardous members, 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
Phase-In provision	Board certified rate is phased into the actuarially determined rate in accordance with HB 362 enacted in 2018.	N/A	N/A

Schedule of Employers' Contributions Pension - CERS

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
2021	\$823,096	\$644,433	\$178,663	\$3,019,096	21.35%
2020	761,534	643,859	117,675	3,022,303	21.30%
2019	727,134	531,506	195,628	2,978,337	17.85%
2018	480,426	485,677	(5,251)	3,017,780	16.09%
2017	445,808	449,501	(3,693)	2,902,849	15.48%
2016	387,719	389,819	(2,100)	2,943,521	13.24%
2015	405,229	406,637	(1,408)	2,780,357	14.63%
2014	439,471	439,471	-	2,751,434	15.97%
2013	415,054	415,054	-	2,697,950	15.38%
2012	\$345,353	\$365,065	\$(19,712)	\$2,700,775	13.52%

⁽¹⁾ Actuarially determined contribution for fiscal year ending 2021 is based on the contribution rate calculated with the June 30, 2019, actuarial valuation, as amended by SB249 (2020 legislative session) which reset the amortization period to 30 years. Separate contribution rates are determined for the non-hazardous pension fund and hazardous pension fund and hazardous pension fund.

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

Schedule of Employers' Contributions Pension - CERS Non-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
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%
2012	\$261,764	\$275,736	\$(13,972)	\$2,236,546	12.33%

⁽¹⁾ Actuarially determined contribution for fiscal year ending 2021 is based on the contribution rate calculated with the June 30, 2019, actuarial valuation, as amended by SB249 (2020 legislative session) which reset the amortization period to 30 years.

⁽²⁾ Based on derived compensation using the provided employer contribution information for fiscal year ending 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
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%
2012	\$83,589	\$89,329	\$(5,740)	\$464,229	19.24%

⁽¹⁾ Actuarially determined contribution for fiscal year ending 2021 is based on the contribution rate calculated with the June 30, 2019, actuarial valuation, as amended by SB249 (2020 legislative session) which reset the amortization period to 30 years.

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

Schedule of Employers' Contributions Pension - KERS

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
2021	\$1,118,392	\$1,196,432	\$(78,040)	\$1,614,062	74.13%
2020	1,107,609	1,007,707	99,902	1,647,996	61.15%
2019	1,110,632	1,090,721	19,911	1,646,454	66.25%
2018	665,200	732,804	(67,604)	1,662,891	44.07%
2017	661,443	810,095	(148,652)	1,780,907	45.49%
2016	536,360	536,843	(483)	1,789,853	29.99%
2015	549,322	550,227	(905)	1,672,914	32.89%
2014	534,335	308,506	225,829	1,706,572	18.08%
2013	506,898	308,208	198,690	1,775,424	17.36%
2012	\$461,359	\$235,595	\$225,764	\$1,776,874	13.26%

⁽¹⁾ Actuarially determined contribution for fiscal year ending 2021 is based on the contribution rate calculated with the June 30, 2019, actuarial valuation, as amended by SB249 (2020 legislative session) which reset the amortization period to 30 years. Separate contribution rates are determined for the non-hazardous pension fund and hazardous pension fund.

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

Schedule of Employers' Contributions Pension - KERS Non-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
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%
2012	\$441,094	\$214,786	\$226,308	\$1,644,897	13.06%

⁽¹⁾ Actuarially determined contribution for fiscal year ending 2021 is based on the contribution rate calculated with the June 30, 2019, actuarial valuation, as amended by SB249 (2020 legislative session) which reset the amortization period to 30 years.

⁽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
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%
2012	\$20,265	\$20,809	\$(544)	\$131,977	15.77%

⁽¹⁾ Actuarially determined contribution for fiscal year ending 2021 is based on the contribution rate calculated with the June 30, 2019, actuarial valuation, as amended by SB249 (2020 legislative session) which reset the amortization period to 30 years.

⁽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
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%
2012	\$20,498	\$15,362	\$5,136	\$48,373	31.76%

⁽¹⁾ Actuarially determined contribution for fiscal year ended 2021 is based on the contribution rate calculated with the June 30, 2019, actuarial valuation, as amended by SB249 (2020 legislative session) which reset the amortization period to 30 years.

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

Schedule of the Employers' Net OPEB Liability

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
2021	\$12,283,489	\$7,175,097	\$5,108,392	58.41%	\$4,905,905	104.13%
2020	\$11,745,554	\$5,686,474	\$6,059,080	48.41%	\$4,929,457	122.92%
2019	\$10,369,782	\$5,640,573	\$4,729,209	54.39%	\$4,877,191	96.97%
2018	\$10,232,580	\$5,296,232	\$4,936,348	51.76%	\$4,972,961	99.26%
2017	\$10,399,986	\$4,886,583	\$5,513,403	46.99%	\$4,835,897	114.01%

⁽¹⁾ Based on derived compensation using the provided employer contribution information. For 2021, derived compensation for KERS Hazardous fund 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 Employers' Net OPEB Liability - CERS Non-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
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
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 Non-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
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
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
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 As of June 30 (\$ in Thousands)

	2021	2020	2019	2018	2017
Total OPEB Liability					
Service Cost	\$258,502	\$255,269	\$230,132	\$241,532	\$165,102
Interest on Total OPEB liability	617,700	577,636	589,654	598,167	592,515
Benefit Changes	6,036	-	-	6,856	-
Difference between Expected and Actual Experience	(633,119)	873,712	(855,049)	(586,623)	(14,634)
Assumption Changes	726,071	136,923	591,634	(19,550)	1,472,895
Benefit Payments ⁽¹⁾	(437,255)	(467,768)	(419,169)	(407,788)	(372,118)
Net Change in Total OPEB Liability	537,935	1,375,772	137,202	(167,406)	1,843,760
Total OPEB Liability - Beginning	11,745,554	10,369,782	10,232,580	10,399,986	8,556,226
Total OPEB Liability - Ending (a)	\$12,283,489	\$11,745,554	\$10,369,782	\$10,232,580	\$10,399,986
Plan Fiduciary Net Position					
Contributions – Employer ⁽²⁾	\$486,616	\$467,797	\$448,684	\$364,109	\$352,728
Contributions – Member	24,405	23,155	21,332	19,848	16,964
Benefit Payments ⁽¹⁾	(437,255)	(467,768)	(419,169)	(407,788)	(372,118)
OPEB Plan Net Investment Income	1,417,333	25,123	295,845	435,370	584,154
OPEB Plan Administrative Expense	(2,476)	(2,406)	(2,372)	(2,063)	(2,202)
Other ⁽⁴⁾	-	-	21	173	-
Net Change in Plan Fiduciary Net Position	1,488,623	45,901	344,341	409,649	579,526
Plan Fiduciary Net Position – Beginning	5,686,474	5,640,573	5,296,232	4,886,583	4,307,057
Plan Fiduciary Net Position – Ending (b)	7,175,097	5,686,474	5,640,573	5,296,232	4,886,583
Net OPEB Liability – Ending (a) – (b)	\$5,108,392	\$6,059,080	\$4,729,209	\$4,936,348	\$5,513,403
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	58.41%	48.41%	54.39%	51.76%	46.99%
Covered Payroll ⁽³⁾	\$4,905,905	\$4,929,457	\$4,877,191	\$4,972,961	\$4,835,897
Net OPEB Liability as a Percentage of Covered Employee Payroll	104.13%	122.92%	96.97%	99.26%	114.01%

⁽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.

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

⁽⁴⁾ Northern Trust Settlement.

⁽⁵⁾ Includes \$28.4 million employer cessation contribution for KERS Non-Hazardous fund.

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 Non-Hazardous
As of June 30 (\$ in Thousands)

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

⁽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)

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

⁽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 Non-Hazardous

As of June 30 (\$ in Thousands)

	2021	2020	2019	2018	2017
Total OPEB Liability					
Service Cost	\$58,831	\$59,600	\$61,345	\$66,360	\$46,992
Interest	191,624	179,811	186,820	191,178	192,911
Benefit Changes	1,382	-	-	1,865	-
Difference between Expected and Actual Experience	(231,631)	288,235	(302,189)	(191,147)	(3,921)
Changes of Assumptions	220,184	13,767	158,004	(11,235)	414,835
Benefit Payments ⁽¹⁾	(141,143)	(159,841)	(148,112)	(148,236)	(139,601)
Net Change in Total OPEB Liability	99,247	381,572	(44,132)	(91,215)	511,216
Total OPEB Liability - Beginning	3,599,557	3,217,985	3,262,117	3,353,332	2,842,116
Total OPEB Liability - Ending (a)	\$3,698,804	\$3,599,557	\$3,217,985	\$3,262,117	\$3,353,332
Plan Fiduciary Net Position					
Contributions – Employer ⁽²⁾⁽⁵⁾	\$223,661	\$208,300	\$201,155	\$152,985	\$162,636
Contributions – Member	6,318	6,128	5,963	5,786	5,156
Benefit Payments ⁽¹⁾	(141,143)	(159,841)	(148,112)	(148,236)	(139,601)
OPEB Plan Net Investment Income	270,811	11,820	45,749	64,028	94,239
OPEB Plan Administrative Expense	(819)	(847)	(875)	(760)	(861)
Other ⁽⁴⁾	-	-	4	32	-
Net Change in Plan Fiduciary Net Position	358,828	65,560	103,884	73,835	121,569
Plan Fiduciary Net Position – Beginning	1,060,649	995,089	891,205	817,370	695,801
Plan Fiduciary Net Position – Ending (b)	1,419,477	1,060,649	995,089	891,205	817,370
Net OPEB Liability – Ending (a) – (b)	\$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	38.38%	29.47%	30.92%	27.32%	24.37%
Covered Payroll ⁽³⁾	\$1,452,345	\$1,482,431	\$1,515,953	\$1,573,898	\$1,593,097
Net OPEB Liability as a Percentage of Covered Employee Payroll	156.94%	171.27%	146.63%	150.64%	159.18%

⁽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 includes expected benefits due to the implicit subsidy for members under age 65.

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

⁽⁴⁾ Northern Trust Settlement.

⁽⁵⁾ Includes \$28.4 million employer cessation contribution.

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)

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

⁽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.

⁽³⁾ 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.

⁽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)

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

⁽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.

⁽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 2021 that is documented in the schedule below was calculated as of June 30, 2019. 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, 2019, actuarial valuation report (as amended by SB249, passed during the 2020 legislative session), the actuarial methods and assumptions used to calculate the required contributions follow.

Notes to Schedule of Employers' OPEB Contributions

Item	Insurance
Determined by the Actuarial Valuation as of:	June 30, 2019
Actuarial Cost Method:	Entry Age Normal
Asset Valuation Method:	20 % of the difference between the market value of assets and the expected actuarial value of assets is recognized.
Amortization Method:	Level Percent of Pay
Amortization Period:	30-year closed period at June 30, 2019 Gains/losses incurring after 2019, will be amortized over separate closed 20-year amortization bases.
Payroll Growth Rate:	2.00% for CERS funds, 0.00% for KERS and SPRS funds
Investment Return:	6.25%
Inflation:	2.30%
Salary Increase:	3.30% to 10.30%, for CERS non-hazardous members, varies by service. 3.55% to 19.05% for CERS hazardous members, varies by service. 3.30% to 15.30% for KERS non-hazardous members, varies by service. 3.55% to 20.05% for KERS hazardous members, varies by service. 3.55% to 16.05% for SPRS members, varies by service.
Mortality:	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019.
Healthcare Trend Rates:	
Pre-65	Initial trend starting at 6.25% at January 1, 2021, and gradually decreasing to an ultimate trend rate of 4.05% over a period of 13 years. The 2020 premiums were known at the time of the valuation and were incorporated into the liability measurement.
Post-65	Initial trend starting at 5.50% at January 1, 2021, and gradually decreasing to an ultimate trend rate of 4.05% over a period of 14 years. The 2020 premiums were known at the time of the valuation and were incorporated into the liability measurement.
CERS Phase-In provision	Board certified rate is phased into the actuarially determined rate in accordance with HB 362 enacted in 2018.

Schedule of Employers' OPEB Contributions
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
2021	\$374,009	\$386,963	\$(12,954)	\$4,905,905	7.89%
2020	382,915	381,080	1,835	4,929,457	7.73%
2019	436,070	399,149	36,921	4,877,191	8.18%
2018	319,801	331,725	(11,924)	4,972,961	6.67%
2017	322,335	339,447	(17,112)	4,835,897	7.02%
2016	314,878	342,274	(27,396)	4,567,976	7.49%
2015	342,111	352,426	(10,315)	4,499,036	7.83%
2014	450,399	403,047	47,352	4,502,623	8.95%
2013	637,202	453,154	184,048	4,519,630	10.03%
2012	\$679,661	\$457,044	\$222,617	\$4,526,021	10.10%

⁽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 2021 is based on the contribution rates calculated with the June 30, 2019, actuarial valuation, as amended by SB249 (2020 legislative session) which reset the amortization period to 30 years. Separate contribution rates are determined for each fund.

⁽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 Non-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
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%
2012	\$214,421	\$171,925	\$42,496	\$2,236,546	7.69%

⁽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 2021 is based on the contribution rate calculated with the June 30, 2019, actuarial valuation, as amended by SB249 (2020 legislative session) which reset the amortization period to 30 years..

⁽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
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%
2012	\$110,763	\$92,564	\$18,199	\$464,229	19.94%

⁽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 2021 is based on the contribution rate calculated with the June 30, 2019, actuarial valuation, as amended by SB249 (2020 legislative session) which reset the amortization period to 30 years.

⁽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 Non-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
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%
2012	\$297,904	\$156,057	\$141,847	\$1,644,897	9.49%

⁽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 2021 is based on the contribution rate calculated with the June 30, 2019, actuarial valuation, amended by SB249 (2020 legislative session) which reset the amortization period to 30 years.

⁽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
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%
2012	\$28,326	\$24,538	\$3,788	\$131,977	18.59%

⁽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 2021 is based on the contribution rate calculated with the June 30, 2019, actuarial valuation, amended by SB249 (2020 legislative session) which reset the amortization period to 30 years.

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

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

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
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%
2012	\$28,247	\$11,960	\$16,287	\$48,373	24.72%

⁽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 2021 is based on the contribution rate calculated with the June 30, 2019, actuarial valuation, amended by SB249 (2020 legislative session) which reset the amortization period to 30 years.

⁽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 Funds. The money-weighted rate of return is a method of calculating period-by-period returns on Pension Funds' and Insurance Funds' 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 Funds' investments, net of Pension Funds' and Insurance Funds' 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, 2021, as calculated by the custodian bank, BNY Mellon:

Money - Weighted Rates of Return As of June 30					
	CERS	KERS	SPRS	Insurance	
2021	25.69%	23.14%	21.70%	24.97%	
2020	0.81%	2.03%	2.21%	0.48%	
2019	5.73%	5.75%	5.67%	5.67%	
2018	8.82%	7.88%	7.68%	9.07%	
2017	13.78%	12.38%	12.50%	13.71%	
2016	(0.58)%	(0.84)%	(1.76)%		
2015	1.91%	2.21%	1.80%		
2014	15.55%	15.52%	15.66%		

Money - Weighted Rates of Return As of June 30					
	CERS	CERS	KERS	KERS	SPRS
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous	
Pension Funds					
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 Funds					
	CERS	CERS	KERS	KERS	SPRS
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous	
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)

	2021	2020
Personnel		
Salaries and Per Diem	\$14,426	\$14,725
Pension, Insurance Related Benefits	14,875	14,616
Unemployment Compensation	-	6
Tuition Assistance	10	12
Total Personnel	29,311	29,359
Contractual		
Actuarial Services	449	512
Audit Services	72	160
Healthcare	-	7
Legal Counsel	754	811
Medical Review Services	316	249
Miscellaneous	88	93
Total Contractual	1,679	1,832
Communication		
Printing	107	104
Telephone	106	113
Postage	552	412
Travel	15	62
Total Communication	780	691
Internal Audit		
Travel/Conferences	1	1
Dues/Subscriptions	2	-
Total Internal Audit	3	1
Investments-Pension Funds		
Travel/Conferences	-	35
Dues/Subscriptions	9	1
Legal	10	32
Total Investments	19	\$68
Rentals		
Office Space	1,061	\$999
Equipment	67	74
Total Rentals	1,128	1,073
Information Technology		
Software	2,430	3,224
Total Information Technology	2,430	3,224
Miscellaneous		
Utilities	153	186
Supplies	47	107
Insurance	4	10
Dues & Subscriptions	44	56
Maintenance	1	1
Other	1	-
COVID Expenses	153	2
Total Miscellaneous	403	362
Depreciation/Amortization/Accruals	1,113	1,058
Bayhills legal fees paid out of admin	(77)	
Total Pension Fund Administrative Expense	36,789	37,668
Healthcare Fees	2,354	2,415
Total Insurance Fund Administrative Expense	2,354	2,415
Total Administrative Expenses	\$39,143	\$40,083

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

	CERS	KERS	SPRS
	2021	2021	2021
Security Lending Fees			
Borrower (Income) Rebates	\$(523)	\$(162)	\$(15)
Lending Agent Fees	181	58	5
Total Security Lending	(342)	(104)	(10)
Contractual Services			
Investment Management	46,888	12,431	1,200
Security Custody	1,116	369	34
Investment Consultant	348	112	11
Performance Fees	62,584	13,784	1,113
Total Contractual Services	\$110,936	\$26,696	\$2,358

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

	2021
Security Lending Fees	
Borrower (Income) Rebates	\$(300)
Lending Agent Fees	105
Total Security Lending	(195)
Contractual Services	
Investment Management	28,905
Security Custody	966
Investment Consultant	205
Performance Fees	41,086
Total Contractual Services	\$71,162

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

	2021	2020
Actuarial Services	\$448	\$512
Medical Review Services	316	249
Audit Services	72	160
Legal Counsel	687	842
Healthcare	-	7
Miscellaneous	88	93
Total	\$1,611	\$1,863



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

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, 2021, 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 8, 2021.

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

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 8, 2021

INVESTMENTS

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Investment Overview

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

Investment returns play an important role at KPPA in terms of funding status of the plans and continued funding of operations. The investment Committees of each Board of Trustees is committed to maximizing the 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 based upon statutory investment authority, the investment policies adopted by the KRS Board and the CERS Board, and a detailed service contract with each manager. 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 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.

Investment managers are also required to diversify their portfolios at the security level, across sectors, and industries. 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 charts represent the composites for the plans (dollar-weighted by plan):

Pension Board Policies vs. Actual Asset Allocation
As of June 30, 2021

	GROWTH					LIQUIDITY		DIVERSIFYING STRATEGIES		
	Total Plan	U.S. Equity	Non U.S. Equity	Private Equity	Specialty Credit	Core Fixed Income	Cash	Real Estate	Absolute Return/ Opportunistic	Real Return
KERS and SPRS Policy's Pension Asset Allocation	100.00%	16.25%	16.25%	7.00%	15.00%	20.50%	5.00%	10.00%	0.00%	10.00%
Actual Pension Asset Allocation	100.00%	16.81%	16.20%	7.19%	16.16%	22.96%	8.54%	3.62%	2.24%	6.28%
CERS, CERS Hazardous, and KERS Hazardous Policy's Pension Asset Allocation	100.00%	21.75%	21.75%	10.00%	15.00%	10.00%	1.50%	10.00%	0.00%	10.00%
Actual Pension Asset Allocation	100.00%	23.82%	23.23%	9.12%	15.79%	12.93%	1.91%	3.93%	2.65%	6.62%

Insurance Board Policy vs. Actual Asset Allocation
As of June 30, 2021

	GROWTH					LIQUIDITY		DIVERSIFYING STRATEGIES		
	Total Plan	U.S. Equity	Non U.S. Equity	Private Equity	Specialty Credit	Core Fixed Income	Cash	Real Estate	Absolute Return/ Opportunistic	Real Return
Policy's Insurance Asset Allocation	100.00%	18.75%	18.75%	10.00%	15.00%	13.50%	1.00%	5.00%	3.00%	15.00%
Actual Insurance Asset Allocation	100.00%	22.82%	22.11%	9.30%	16.12%	12.48%	4.20%	3.72%	2.97%	6.28%

Investment Strategies

Diversification

The Pension and Insurance portfolios are diversified on several levels, primarily through the use of the aforementioned multiple asset classes. 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 Advisors. 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 Non-Hazardous and SPRS pensions and 6.25% for CERS Non-Hazardous, CERS Hazardous, and KERS Hazardous Pension and all Insurance plans. This is measured for 20 years and beyond and should exceed the actuarially required rate of return as well as the return achieved by its total fund benchmark.

In keeping with its responsibility as Boards and wherever consistent with their fiduciary responsibility, the Boards encourage the investment of the trust assets in investments, funds, and securities of corporations which provide a positive contribution to the economy of the Commonwealth of Kentucky.

Investment Results

For the purposes of this report, total return information has been reported net of investment manager fees 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 2021 Results

For the fiscal year ended June 30, 2021, Pension Plans in total earned a net return of 25.00%, outperforming its benchmark return of 24.07%. The Insurance Plan in total for that period earned a return net of fees of 24.95% compared to the benchmark return of 23.84%.

Net Returns As of June 30, 2021 (\$ in Thousands)

Pension	Market Value	% of Total	1 Year		3 Years		5 Years		10 Years		Inception		
			KRS	Index	KRS	Index	KRS	Index	GANIR	KRS	Index	KRS	Index
CERS	\$8,608,160	54.52%	25.72%	24.87%	10.27%	9.98%	10.66%	10.35%	8.76%	7.98%	7.93%	9.24%	9.30%
CERS HAZ	2,917,700	18.48%	25.58%	24.87%	10.20%	9.98%	10.60%	10.34%	8.90%	7.97%	7.93%	9.24%	9.30%
KERS	3,041,248	19.26%	22.56%	21.00%	9.87%	9.10%	9.83%	9.27%	7.96%	7.60%	7.53%	9.14%	9.19%
KERS HAZ	871,504	5.52%	25.21%	24.87%	10.13%	9.98%	10.49%	10.33%	8.74%	7.93%	7.93%	9.23%	9.30%
SPRS	349,404	2.21%	21.70%	21.00%	9.56%	9.06%	9.75%	9.44%	8.25%	7.43%	7.52%	9.09%	9.19%
Total	\$15,787,986	100.00%	25.00%	24.07%	10.20%	9.74%	10.51%	10.07%		7.92%	7.88%	9.22%	9.29%

Net Returns As of June 30, 2021 (\$ in Thousands)

Insurance	Market Value	% of Total	1 Year		3 Years		5 Years		10 Years		Inception	
			KRS	Index	KRS	Index	KRS	Index	KRS	Index	KRS	Index
CERS	\$3,126,271	45.06%	24.78%	23.90%	9.81%	9.57%	10.45%	10.17%	7.61%	7.88%	7.68%	7.96%
CERS HAZ	1,603,150	23.11%	24.98%	23.90%	9.86%	9.57%	10.50%	10.17%	7.65%	7.88%	7.69%	7.96%
KERS	1,338,255	19.29%	25.16%	23.90%	9.87%	9.57%	10.26%	10.19%	7.35%	7.83%	7.61%	7.94%
KERS HAZ	624,467	9.00%	24.97%	23.90%	9.76%	9.57%	10.37%	10.20%	7.55%	7.86%	7.66%	7.95%
SPRS	245,160	3.53%	25.34%	23.90%	10.08%	9.57%	10.65%	10.17%	7.71%	7.88%	7.71%	7.96%
Total	\$6,937,303	100.00%	24.95%	23.84%	9.88%	9.50%	10.47%	10.09%	7.59%	7.93%	7.68%	7.97%

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 As of June 30, 2021				
Index	Asset Class	Asset Allocation by Fund		
		KERS/SPRS	KERS-H/CERS/ CER-H	Insurance
Russell 3000	U.S. Equity	16.25%	21.75%	21.75%
MSCI ACWI Ex-US IMI	Non U.S. Equity	16.25%	21.75%	21.75%
50% Bloomberg Barclays US High Yield, 50% S&P LSTA Leveraged Loan	High Yield/Specialty Credit	15.00%	15.00%	15.00%
Bloomberg Barclay's US Aggregate	Core Fixed Income	20.50%	10.00%	10.00%
NCREIF ODCE	Real Estate	10.00%	10.00%	10.00%
Highest Assumed Rate of Participating Plans	Opportunistic	0.00%	0.00%	0%
US CPI + 3%	Real Return	10.00%	10.00%	10%
Actual Performance	Private Equity < 5 years			
Russell 3000 Quarter Lagged + 300 bps	Private Equity > 5 years	7.00%	10.00%	10.00%
Citi Group 3-mos Treasury Bill	Cash	5.00%	1.50%	1.50%

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. Beginning with the fiscal year 2018 valuation, the Board lowered the actuarial rates of return to 5.25% for KERS Non-Hazardous and SPRS pension funds and 6.25% for all other funds.

Since June 30, 2012, returns ranged from a minimum of (0.52)% in 2016 to a maximum of 25.00% in 2021. For fiscal year 2021, the annualized total net return exceeded the actuarially assumed rates of return. Translating this into dollars, an ending balance of \$1,000 in fiscal year 2011 would have a balance of \$2,552 in fiscal year. The annualized benchmark would have returned \$2,581.

Pension Plan Growth

As of June 30 (in Whole \$)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total Pension Return	0.14%	10.82%	15.55%	2.01%	-0.52%	13.47%	8.57%	5.83%	1.15%	25.00%
Performance BM	0.90%	11.21%	14.91%	3.13%	-0.19%	13.28%	7.91%	6.00%	0.50%	24.07%
Actuarial Assumed ROR CERS, CERS-H, and KERS-H	7.75%	7.75%	7.75%	7.75%	7.50%	7.50%	6.25%	6.25%	6.25%	6.25%
Actuarial Assumed ROR KERS and SPRS	7.75%	7.75%	7.75%	7.75%	7.50%	6.75%	5.25%	5.25%	5.25%	5.25%

Pension	\$1,000	\$1,191	\$1,320	\$1,525	\$1,556	\$1,548	\$1,757	\$1,907	\$2,018	\$2,041	\$2,552
Performance Benchmark	1,000	1,214	1,350	1,552	1,600	1,597	1,809	1,952	2,070	2,080	2,581
Actuarial Assumed ROR CERS, CERS-H, and KERS-H	1,000	1,161	1,251	1,348	1,452	1,561	1,678	1,783	1,895	2,013	2,139
Actuarial Assumed ROR KERS and SPRS	\$1,000	\$1,161	\$1,251	\$1,348	\$1,452	\$1,561	\$1,667	\$1,754	\$1,846	\$1,943	\$2,045

The chart below shows theoretical annual returns for the Insurance portfolio since June 30, 2011, where returns range from a minimum of -1.71% in 2012 to a maximum of 23.47% in 2011. As of June 30, 2020, the Insurance portfolio earned 0.48% versus the annualized benchmark return of 0.13%. The chart below indicates that with a ending balance of \$1,000 in fiscal year 2010, the Insurance portfolio would have earned \$2,057 compared to the actuarially assumed rate of return of \$2,013 and the annualized benchmark return of \$2,211 over the 10-year period.

Insurance Plan

As of June 30 (in Whole \$)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total Return	1.71%	(10.11)%	14.89%	1.86%	-0.09%	13.72%	9.05%	5.67%	0.48%	24.95%
Performance BM	0.58%	11.05%	15.03%	3.79%	0.03%	13.55%	8.48%	5.89%	0.13%	23.84%
Actuarial Assumed ROR	7.75%	7.75%	7.75%	7.75%	7.50%	7.50%	6.25%	6.25%	6.25%	6.25%

Insurance	\$1,000	\$1,214	\$1,336	\$1,535	\$1,564	\$1,562	\$1,777	\$1,938	\$2,047	\$2,057	\$2,082
Performance Benchmark	1,000	1,277	1,418	1,631	1,693	1,693	1,923	2,086	2,208	2,211	2,157
Actuarial Assumed ROR	\$1,000	\$1,161	\$1,251	\$1,348	\$1,452	\$1,561	\$1,678	\$1,783	\$1,895	\$2,013	\$1,985

U.S. Equity

For the fiscal year ended June 30, 2021, the Pension U.S. Equity portfolio posted a return of 44.76% versus the benchmark return of 44.16%. The Insurance U.S. Equity portfolio posted a return of 44.68% compared to the benchmark return of 44.16%. Stock selection added to relative outperformance; however, allocation was the primary driver. The portfolio tilts slightly smaller in terms of market cap versus the Russell 3000 index. Small and midcaps earned 62.03% and 53.24%, respectively, outpacing the 40.79% return provided by large cap stocks. The portfolio also employs a value tilt, which served as a benefit to relative performance as value outpaced growth by 2.20% during the period (45.40% vs 42.99%). Since inception, performance has remained sound. The Pension Public Equity portfolio has generated an annualized return of 11.87% throughout its duration against the benchmark's annualized return of 11.96%. The Insurance has returned 10.55% since inception, while the benchmark returned 10.52%.

Return on U.S. Equity As of June 30, 2021

	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	4/1/1984	44.76%	17.81%	17.18%	13.91%	11.87%
Performance Benchmark		44.16%	18.73%	17.89%	14.70%	11.96%
Insurance	7/1/1992	44.68%	17.76%	17.15%	13.96%	10.55%
Performance Benchmark		44.16%	18.73%	17.89%	14.70%	10.52%

Note: Pension and Insurance benchmark is Russell 3000.

Top 10 U.S. Equity Holdings Pension

Pension

As of June 30, 2021 (\$ in Thousands)

Company	Shares	Fair Value
APPLE INC	1,096,270	\$150,145
MICROSOFT CORP	496,562	134,519
AMAZON.COM INC	30,891	106,270
FACEBOOK INC	218,130	75,846
ALPHABET INC-CL A	24,726	60,376
BERKSHIRE HATHAWAY INC	193,925	53,896
ALPHABET INC-CL C	16,581	41,557
NVIDIA CORP	44,626	35,705
VISA INC	133,880	31,304
TESLA INC	44,877	30,503
Total	2,300,468	\$720,120

Top 10 U.S. Equity Holdings Insurance

Insurance

As of June 30, 2021 (\$ in Thousands)

Company	Shares	Fair Value
APPLE INC	492,951	\$67,514
MICROSOFT CORP	222,930	60,392
AMAZON.COM INC	13,909	47,849
FACEBOOK INC	98,731	34,330
ALPHABET INC-CL A	11,170	27,275
BERKSHIRE HATHAWAY INC	87,903	24,430
ALPHABET INC-CL C	7,411	18,574
NVIDIA CORP	20,076	16,063
VISA INC	60,447	14,134
TESLA INC	20,058	13,633
Total	1,035,586	\$324,194

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

Non-U.S. Equity

For the fiscal year ended June 30, 2021, the Pension Non-U.S. Equity portfolio returned 37.77%, compared to its benchmark of 37.18%. The Insurance Non-U.S. Equity portfolio returned 37.81% versus its benchmark of 37.18% during the same period. The relative outperformance of the portfolios can be attributed to strong stock selection within the active mandates, particularly within the dedicated emerging market portfolio. Within this segment of the market, both individual mandates outperformed by roughly 9%. Since inception, the Insurance Non-U.S. Equity portfolios have outperformed the benchmark by 0.68%; while the Pension portfolio has slightly underperformed the benchmark.

Return on Non-U.S. Equity

As of June 30, 2021

	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	7/1/2000	37.77%	10.92%	12.71%	6.40%	4.32%
Performance Benchmark		37.18%	9.42%	11.32%	5.81%	4.36%
Insurance	4/1/2000	37.81%	10.84%	12.65%	6.28%	4.29%
Performance Benchmark		37.18%	9.42%	11.32%	5.81%	3.61%

Note: Pension and Insurance benchmark is MSCI ACWI ex US IMI.

Top 10 Non-U.S. Equity Holdings

Pension

As of June 30, 2021 (\$ in Thousands)

Company	Shares	Fair Value
TAIWAN SEMICONDUCTOR MANUFACTU	1,022,097	\$32,507
HDFC BANK LTD	546,317	27,240
PARTNERS GROUP HOLDING AG	15,800	23,956
CAPGEMINI SE	117,760	22,624
CELLNEX TELECOM SA	351,939	22,421
SAMSUNG ELECTRONICS CO LTD	240,510	21,306
SANOFI	190,739	19,987
LUKOIL PJSC	213,385	19,631
BANK CENTRAL ASIA TBK PT	8,491,100	17,641
WUXI BIOLOGICS CAYMAN INC	942,500	17,270
Total	12,132,147	\$224,583

Top 10 Non-U.S. Equity Holdings

Insurance

As of June 30, 2021 (\$ in Thousands)

Company	Shares	Fair Value
TAIWAN SEMICONDUCTOR MANUFACTU	455,456	\$14,316
HDFC BANK LTD	238,586	11,718
PARTNERS GROUP HOLDING AG	6,930	10,507
CAPGEMINI SE	51,730	9,938
CELLNEX TELECOM SA	155,317	9,895
SAMSUNG ELECTRONICS CO LTD	108,987	9,630
SANOFI	87,340	9,152
LUKOIL PJSC	94,958	8,736
BANK CENTRAL ASIA TBK PT	3,806,300	7,908
WUXI BIOLOGICS CAYMAN INC	430,500	7,888
Total	5,436,104	\$99,689

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, 2021, the Pension Core Fixed Income portfolio returned 3.39% versus the Bloomberg Barclays U.S. Aggregate Bond Index return of (0.33)%. The Insurance Core Fixed Income portfolio posted a 3.32% rate of return, which outperformed the Bloomberg Barclays U.S. Aggregate Bond Index by 3.65%. Relative outperformance is primarily due to the overweight portfolio positioning in short-term corporates. Since the Pension Core Fixed Income portfolio inception, it has outperformed the benchmark by 0.16%; while the Insurance Core Fixed Income portfolio has underperformed by 16bps annually.

Return on Core Fixed Income

As of June 30, 2021

Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	7/1/2013	3.39%	5.26%	3.14%	N/A	3.57%
Performance Benchmark	7/1/2013	(0.33)%	5.34%	3.03%	N/A	3.41%
Insurance	7/1/2013	3.32%	5.09%	3.04%	N/A	3.25%
Performance Benchmark	7/1/2013	(0.33)%	5.34%	3.03%	N/A	3.41%

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

Top 10 Core Fixed Income Holdings

Pension

As of June 30, 2021 (\$ in Thousands)

Issuer	Shares	Fair Value
U S TREASURY NOTE	182,008,000	\$ 181,810
COMMIT TO PUR FNMA SF MTG	69,085,000	71,180
U S TREASURY BILL	66,972,000	66,965
BOEING CO/THE	20,681,000	22,624
CITIGROUP INC	21,520,000	22,491
BANK OF AMERICA CORP	20,050,000	21,326
GENERAL MOTORS FINANCIAL CO IN	17,690,000	18,876
HYUNDAI CAPITAL AMERICA 144A	17,613,000	18,237
DANSKE BANK A/S 144A	16,906,000	17,593
FORD MOTOR CREDIT CO LLC	16,832,000	17,464
Total	449,357,000	\$458,565

Top 10 Core Fixed Income Holdings

Insurance

As of June 30, 2021 (\$ in Thousands)

Issuer	Shares	Fair Value
U S TREASURY NOTE	80,403,000	\$80,313
COMMIT TO PUR FNMA SF MTG	24,755,000	25,143
U S TREASURY BILL	12,138,000	12,135
CITIGROUP INC	9,567,000	9,936
U S TREASURY BOND	8,140,000	8,566
BANK OF AMERICA CORP	7,956,000	8,450
BOEING CO/THE	7,276,000	7,989
DANSKE BANK A/S 144A	6,220,000	6,488
GOLDMAN SACHS GROUP INC/THE	6,217,000	6,260
MRA ISSUANCE TRUST 8 A1Y 144A	6,000,000	6,000
Total	168,672,000	\$ 171,281

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

Specialty Credit

For the fiscal year ended June 30, 2021, the Pension Specialty Credit portfolio returned 15.27% versus the benchmark return of 13.52%. The Insurance Specialty Credit portfolio posted a 15.01% rate of return, versus the benchmark return of 13.52%. Since inception, the Pension and Insurance Specialty Credit portfolios have outperformed their respective benchmarks by 1.18% and 0.88% respectively.

Return on Specialty Credit						
As of June 30, 2021						
Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	7/1/2017	15.27%	6.68%	N/A	N/A	6.49%
Performance Benchmark	7/1/2017	13.52%	5.92%	N/A	N/A	5.31%
Insurance	7/1/2017	15.01%	6.47%	N/A	N/A	6.19%
Performance Benchmark	7/1/2017	13.52%	5.92%	N/A	N/A	5.31%

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, 2021 (\$ in Thousands)		
Issuer	Shares	Base Fair Value
FORD MOTOR CREDIT CO LLC	13,075,000	\$13,741
OCCIDENTAL PETROLEUM CORP	12,541,000	13,657
CCO HOLDINGS LLC / CCO HO 144A	10,768,000	11,320
BAUSCH HEALTH COS INC 144A	11,434,000	11,226
HCA INC	9,269,000	10,444
POST HOLDINGS INC 144A	9,754,000	10,016
INDONESIA TREASURY BOND		9,957
CASCADE FUNDING LP SERIES 7	8,130,821	9,668
KRAFT HEINZ FOODS CO	8,166,000	9,637
1011778 BC ULC / NEW RED 144A	9,157,000	9,168
Total		\$108,835

Top 10 Specialty Credit Holdings		
Insurance		
As of June 30, 2021 (\$ in Thousands)		
Issuer	Shares	Base Fair Value
FORD MOTOR CREDIT CO LLC	5,661,000	\$5,933
OCCIDENTAL PETROLEUM CORP	5,209,000	5,625
DELL 2/21 COV-LITE TLB	5,090,511	5,088
HCA INC	4,172,000	4,689
CASCADE FUNDING LP SERIES 7	3,940,183	4,685
BAUSCH HEALTH COS INC 144A	4,563,000	4,486
KRAFT HEINZ FOODS CO	3,533,000	4,183
INDONESIA TREASURY BOND		4,028
1011778 BC ULC / NEW RED 144A	4,005,000	4,022
CCO HOLDINGS LLC / CCO HO 144A	3,783,000	3,976
Total		\$46,715

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

Opportunistic

For the fiscal year ended June 30, 2021, the Pension and Insurance Opportunistic portfolio both returned 20.60% versus the S&P LSTA Leveraged Loan Index return of 11.65%. Since inception, the Pension and Insurance Opportunistic portfolios have both returned 9.06%, which outperformed the benchmark's return of 4.31%.

Return on Opportunistic						
As of June 30, 2021						
Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	7/1/2018	20.60%	9.06	N/A	N/A	9.06%
Performance Benchmark	6/1/2018	11.65%	4.39	N/A	N/A	4.31%
Insurance	7/1/2018	20.60%	9.06	N/A	N/A	9.06%
Performance Benchmark	6/1/2018	11.65%	4.39	N/A	N/A	4.31%

Note: Pension and Insurance benchmark is the Highest Assumed Rate of Participating Plans.

Private Equity

For the fiscal year ended June 30, 2021, the Pension Private Equity portfolio posted a return of 41.97%, while the Insurance Private Equity portfolio returned 34.29%. The Investment Committee determined that the short-term benchmark (1, 3, and 5 year) should match actual performance because of the difficulty in assessing short-term returns. 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. 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, 2021, the Pension and Insurance Private Equity portfolios returned 15.44% and 13.35%, respectively. Over the past 10 years, the Pension portfolio trailed its benchmark by 3.41% but still produced a 13.81% return. The Insurance portfolio 13.56% return was below its benchmark of 17.22%. Since inception in 2002, the Pension portfolio's 12.02% return has trailed its benchmark by 0.65%; the Insurance portfolio's 10.52% return has lagged its benchmark return of 12.17%.

Return on Private Equity						
As of June 30, 2021						
Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	7/1/2002	41.97%	16.66%	15.44%	13.81%	12.02%
Performance Benchmark		41.97%	16.66%	15.44%	17.22%	12.67%
Insurance	7/1/2002	34.29%	11.93%	13.35%	13.56%	10.52%
Performance Benchmark		34.29%	11.93%	13.35%	17.22%	12.17%

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, 2021, the Pension Real Estate portfolio saw returns of 10.10%, exceeding its benchmark return of 1.47%. The Insurance Real Estate portfolio also surpassed the benchmark, returning 10.17% compared to 1.47%. For the five years ending June 30, 2021, both the Pension and Insurance portfolios outperformed the benchmarks return by 4.69% and 4.88% respectively.

Return on Real Estate

As of June 30, 2021

Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	Jul-84	10.10%	9.56%	9.95%	9.43%	6.38%
Performance Benchmark		1.47%	3.96%	5.26%	8.67%	6.25%
Insurance	May-09	10.17%	9.71%	10.14%	9.32%	9.34%
Performance Benchmark		1.47%	3.96%	5.26%	8.67%	5.48%

Note: Pension and Insurance benchmark is NCREIF ODCE

Real Return

For the fiscal year ended June 30, 2021, the Pension Real Return portfolio returned 23.98% matching its benchmark's performance. The Insurance Real Return portfolio posted a return of 22.47%, also in line with the benchmark return of 22.47% for the period. Since inception, the Pension and Insurance Real Return portfolios have outperformed their respective benchmarks by 0.84% and 0.59% respectively.

Return on Real Return

As of June 30, 2021

Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	7/1/2011	23.98%	5.72%	5.31%	4.31%	4.31%
Performance Benchmark		23.98%	5.72%	5.31%	3.47%	3.47%
Insurance	7/1/2011	22.47%	6.07%	5.32%	4.21%	4.21%
Performance Benchmark		22.47%	6.07%	5.31%	3.62%	3.62%

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

Cash

For the fiscal year ended June 30, 2021, the Pension Cash portfolio returned 0.12%, outpacing its benchmark, the FTSE Treasury Bill - 3 Month by 0.04%. The Insurance Cash portfolio underperformed the index, posting a return of 0.10% 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, 2021, the Pension portfolio has outperformed its custom benchmark by 0.31% on an annualized basis. Since its inception, the portfolio has exceeded its benchmark by 0.42% per year. The Insurance portfolio has also outperformed its benchmark return over the five-year and since inception periods by 0.07% and 0.12%, respectively.

Return on Cash

As of June 30, 2021

Portfolio	Inception Date	Fiscal Year	3-Year	5-Year	10-Year	Inception
Pension	Jan-88	0.12%	1.46%	1.45%	0.90%	3.40%
Performance Benchmark		0.08%	1.31%	1.14%	0.60%	2.98%
Insurance	Jul-92	0.10%	1.28%	1.21%	0.74%	2.50%
Performance Benchmark		0.08%	1.31%	1.14%	0.60%	2.38%

Note: Pension and Insurance benchmark is the Citi Group 3-month Treasury.

Additional Schedules

In the following pages are additional schedules which include the assets under management for each firm KRS 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, 2021.

Investment Advisors & Assets Under Management	
Actively Managed - Alphabetical by Manager	
As of June 30, 2021 (\$ in Thousands)	
Advisor	Assets Under Management
Adams Street	\$154,716
American Century Investments	738,238
Arrowmark	609,823
Baring Real Estate	108,550
Blue Torch	96,714
Black Diamond Capital Management	57,771
BlackRock ACWI Ex-US	1,544,242
BNY Mellon Accruals	(1,227)
BSP Private Credit	183,049
BTG Pactual	32,322
Cash	819,150
Capital Springs	98,416
Cerberus	198,025
Columbia Capital	3,917
DivcoWest	4,128
Franklin Templeton	552,737
Greenfield Acquisition Partners	18,341
H/2 Credit Partners	123,443
Harrison Street	126,459
IFM Infrastructure Debt Fund	67,869
Internally Managed Accounts	636,734
JP Morgan Emerging Markets	297,353
Lazard Asset Management	795,495
Loomis, Sayles & Company	628,820
Lord Abbett	2,350,942
LSV Asset Management	652,149
Lubert-Adler	73,991
Magnetar Capital	13,737
Manulife Financial	507,712
Marathon Bluegrass	669,016
Mesa West	126,990
Middle Ground	51,091

Investment Advisors & Assets Under Management**Actively Managed - Alphabetical by Manager****As of June 30, 2021 (\$ in Thousands)**

Advisor	Assets Under Management
Next Century	217,558
NISA Investment Advisors	267,068
Northern Trust Global Investments	515,352
Nuveen Real Asset	256
Oberland Capital	11,283
Patron Capital	33,795
Perimeter Park	7,300
Prologis	224,055
Putnam	868,643
Pzena Emergings Markets	271,163
River Road Asset Management	387,440
Rubenstein Capital	22,343
S&P 500	3,067,122
Shenkman Capital	320,653
Stockbridge	142,547
Strategic Value Special Fund	84,846
Taurus Mine Finance	16,330
Tenaska Power	762
Tortoise Capital	185,662
Transition Accounts	1,627
Walton Street	25,682
Waterfall Investment	381,458
Westfield Capital	391,857
White Oak	233,955
Assets Under Management	\$20,019,470

Investment Advisors & Assets Under Management
Managers With Terminated or Runoff Status - Alphabetical by Manager
As of June 30, 2021 (\$ in Thousands)

Advisor	Assets Under Management
AMERRA Capital Management	\$100,203
Arcano Capital	23,948
ARES Capital	32,790
Bay Hills Emerging Partners	317,060
Blackstone Capital Partners	65,790
CM Growth Capital Partners	11,327
Columbia Asset Management	728,049
Crestview Partners	86,850
CVC Capital Partners	48,968
DAG Ventures	87,320
DB Secondary Opportunities	53,192
DCM	15,369
Essex Woodland	2,686
Fundamental Partners	81,234
Green Equity Investors	143,419
Harvest Partners	70,565
Hellman & Friedman	12,044
H.I.G Capital	52,714
Horsley Bridge International	159,517
Institutional Venture Partners	989
Invesco	50
JW Childs Equity	33
Kayne Anderson	34,224
Keyhaven Capital Partners	35,519
Levine Leichtman	98,911
Luxor Capital	1,516
Matlin Patterson	1,738

Investment Advisors & Assets Under Management
Managers With Terminated or Runoff Status - Alphabetical by Manager
As of June 30, 2021 (\$ in Thousands)

Advisor	Assets Under Management
Merit Capital Partners	288
MHR Insituitional Advisors	1,911
Mill Road Capital	3,704
Myriad Opportunities	21,475
New Mountain Partners	70,483
Oak Hill Partners	11,917
Oaktree Capital Management	6
Pine River Capital	113
Prisma Capital	137,755
Riverside Capital	28,406
SRS Partners	7,455
Sun Capital Partners IV	287
Technology Crossover Ventures	47
Tricadia Select	1,839
Triton Fund	27,623
VantagePoint Capital Partners	9,580
Vista Equity Partners	104,636
Warburg Pincus	2,046
Wayzata Investment Partners	10,222
Assets Under Management	2,705,818
Total	\$22,725,288

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

Note: For fiscal year 2021, 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.

Investment Advisors & Assets Under Management by Fund and Asset Class

Pension

As of June 30, 2021 (\$ in Thousands)

Advisor/Asset Class	CERS	CERS	KERS	KERS	SPRS Haz	KPPA
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous		Total
Accruals	(\$416)	(\$141)	(\$146)	(\$42)	(\$16)	(\$761)
BNYM Fee Accruals	(416)	(141)	(146)	(42)	(16)	(761)
Cash	\$145,709	\$59,189	\$267,801	\$32,438	\$21,950	\$527,087
Cash	145,709	59,189	267,801	32,438	21,950	527,087
Core Fixed Income	\$1,105,608	\$380,613	\$698,085	\$116,058	\$80,396	\$2,380,760
Lord Abbett	812,428	279,684	512,971	85,282	59,077	1,749,442
Loomis, Sayles & Company Core	216,187	74,424	136,501	22,694	15,720	465,526
NISA Investment Advisors	76,993	26,505	48,613	8,082	5,599	165,792
Opportunistic	\$230,926	\$76,341	\$67,526	\$20,935	\$8,341	\$404,069
Arrowmark	230,926	76,341	67,526	20,935	8,341	404,069
Private Equity	\$710,614	\$238,594	\$202,161	\$65,398	\$19,395	\$1,236,162
Arcano Capital	9,332	2,905	7,814	988	514	21,553
ARES Capital IV	14,703	5,019	-	1,330	419	21,471
Bay Hills Capital Partners	120,743	39,103	58,814	12,006	5,312	235,978
Black Diamond Capital Management	23,459	8,007	-	2,123	669	34,258
Blackstone Capital Partners	24,257	11,641	424	2,104	28	38,454
CM Growth I	4,414	1,374	3,696	467	243	10,194
Columbia Asset Management IV	1,526	475	1,278	162	84	3,525
Crestview Partners	36,358	11,924	13,538	3,539	1,467	66,826
CVC Capital Partners	21,940	7,488	-	1,985	626	32,039
DAG Ventures	33,502	11,045	25,052	3,477	1,649	74,725
DB Private Equity	10,325	2,973	-	-	-	13,298
DCM VI	5,989	1,865	5,014	634	330	13,832
Essex Woodland VIII	952	296	797	101	52	2,198
Green Equity Investors	50,210	19,839	1,840	4,351	121	76,361
Harvest Partners	27,553	8,338	57	2,291	89	38,328
Hellman & Friedman	3,793	1,181	3,175	402	209	8,760
H.I.G. Capital	20,794	8,233	1,645	1,877	405	32,954
Horsley Bridge International V	62,163	19,351	52,044	6,582	3,425	143,565
Institutional Venture Partners XII	385	120	323	41	21	890
JW Childs III	13	4	11	1	1	30
Kayne Anderson	12,252	3,816	-	1,044	-	17,112
Keyhaven Capital Partners	14,121	4,603	6,031	1,389	594	26,738
Levine Leichtman	40,325	13,277	-	3,563	686	57,851
Matlin Patterson	677	211	567	72	37	1,564
Merit Capital Partners	112	35	94	12	6	259
Middle Ground	24,439	7,630	-	1,992	-	34,061
Mill Road Capital	1,444	449	1,209	153	79	3,334
New Mountain Partners	28,725	9,475	9,183	2,768	1,111	51,262
Oak Hill Partners	3,843	1,196	3,218	407	212	8,876
Riverside Capital VI	13,603	3,787	-	1,053	158	18,601
Strategic Value Special Fund	40,075	12,562	671	3,304	77	56,689
Triton Fund	12,386	4,228	-	1,121	353	18,088
VantagePoint Capital Partners	3,604	1,122	3,017	382	199	8,324
Vista Equity Partners	37,145	13,453	1,353	3,211	89	55,251
Warburg Pincus	741	231	620	78	41	1,711
Wayzata Investment Partners	4,711	1,338	676	388	89	7,202
Public Equity	\$3,833,337	\$1,291,244	\$939,722	\$377,984	\$117,305	\$6,559,592
American Century Investments	298,719	100,906	72,190	29,711	8,691	510,217

BlackRock ACWI Ex-US	602,633	202,513	149,787	58,393	19,652	1,032,978
Franklin Templeton	224,444	75,816	54,240	22,324	6,530	383,354
Internally Managed	256,912	86,405	63,414	25,325	8,042	440,098
Invesco	29	10	7	3	1	50
Lazard Asset Management	321,764	108,691	77,759	32,003	9,361	549,578
LSV Asset Management	263,106	88,876	63,583	26,169	7,655	449,389
Next Century	87,126	29,226	21,753	8,574	2,879	149,558
Northern Trust	228,165	76,688	56,453	22,520	7,286	391,112
River Road Asset Management	154,370	51,783	38,542	15,191	5,101	264,987
S & P 500	1,239,514	417,812	302,911	122,365	36,936	2,119,538
Transition Accounts	677	229	164	67	20	1,157
Westfield Capital	155,878	52,289	38,919	15,339	5,151	267,576
Emerging Markets	\$229,811	\$77,629	\$55,537	\$22,857	\$6,687	\$392,521
JP Morgan Emerging Markets	120,352	40,654	29,085	11,970	3,502	205,563
Pzena Emerging Markets	109,459	36,975	26,452	10,887	3,185	186,958
Real Estate	\$344,815	\$110,312	\$109,063	\$32,412	\$13,611	\$610,213
Baring Real Estate	42,750	13,518	14,194	3,883	1,641	75,986
DivcoWest IV	2,005	625	-	171	62	2,863
Fundamental Partners	31,992	10,116	10,622	2,906	1,228	56,864
Greenfield Acquisition Partners	8,929	2,782	-	762	274	12,747
Harrison Street	47,186	14,759	16,911	4,191	1,999	85,046
Lubert-Adler	32,379	10,162	5,117	2,848	1,113	51,619
Patron Capital	13,689	4,329	4,545	1,243	526	24,332
Perimeter Park West	1,682	1,832	1,880	1,541	365	7,300
Prologis	90,870	28,734	30,172	8,254	3,489	161,519
Rubenstein Capital II	10,850	3,381	-	927	333	15,491
Stockbridge	50,776	16,191	22,342	4,448	2,155	95,912
Walton Street	11,707	3,883	3,280	1,238	426	20,534
Real Return	\$572,909	\$193,322	\$190,517	\$54,840	\$22,295	\$1,033,883
AMERRA Capital Management	46,359	14,637	-	4,156	2,102	67,254
Blackstone Strategic Opportunities	887	281	285	74	31	1,558
BTG Pactual	15,416	4,940	-	1,330	616	22,302
IFM Infrastructure Debt Fund	26,923	9,272	7,926	2,441	946	47,508
Internally Managed	68	23	27	7	3	128
Luxor Capital	647	205	208	54	23	1,137
MAGNETAR MTP EOF II	5,291	1,673	2,636	470	233	10,303
Myriad Opportunities	8,738	2,768	2,808	733	304	15,351
Nuveen Real Asset	102	35	41	10	4	192
Oberland Capital	5,586	1,744	-	455	-	7,785
Pine River Capital	48	15	16	4	2	85
Prisma Capital	55,400	17,549	17,803	4,645	1,927	97,324
Putnam	320,617	110,411	127,510	31,938	12,753	603,229
SRS Partners	3,044	964	978	255	106	5,347
Taurus Mining Finance	7,759	2,648	-	702	221	11,330
Tenaska Power II	308	103	224	35	16	686
Tortoise Capital	74,965	25,816	29,814	7,468	2,982	141,045
Tricadia Select	751	238	241	63	26	1,319
Specialty Credit	\$1,434,847	\$490,597	\$510,951	\$148,624	\$59,440	\$2,644,459
Adam Street	60,107	20,268	19,648	5,843	2,436	108,302
Blue Torch	37,554	12,680	12,262	3,684	1,520	67,700
BSP Private Credit	72,213	23,917	18,174	6,528	1,687	122,519
Capital Springs	40,605	13,448	10,219	3,670	949	68,891
Cerberus	81,702	27,060	20,562	7,385	1,909	138,618
Columbia Asset Management	230,422	91,415	147,716	32,336	13,835	515,724
H/2 Credit Partners	45,206	14,202	23,486	4,006	1,979	88,879
Loomis, Sayles & Company Core	23	8	4	2	1	38

Manulife Financial	218,518	72,842	39,219	19,213	8,046	357,837
Marathon Bluegrass	239,734	78,769	126,476	21,368	11,419	477,766
Mesa West	47,806	15,078	9,005	4,286	1,382	77,557
Shenkman Capital	120,441	40,797	19,639	19,117	5,043	205,038
Waterfall Investment	146,751	49,058	40,943	12,710	7,043	256,505
White Oak	93,765	31,055	23,598	8,476	2,191	159,085
Total Assets Under Management	\$8,608,160	\$2,917,700	\$3,041,217	\$871,504	\$349,404	\$15,787,985

Investment Advisors & Assets Under Management by Fund and Asset Class

Insurance Fund

As of June 30, 2020 (\$ in Thousands)

Advisor/Asset Class	CERS	CERS	KERS	KERS	SPRS Haz	KPPA
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous		Total
Accruals	(\$210)	(\$108)	(\$90)	(\$42)	(\$16)	(\$466)
BNYM Fee Accruals	(210)	(108)	(90)	(42)	(16)	(466)
Cash	\$129,508	\$45,115	\$100,072	\$10,677	\$6,691	\$292,063
Cash	129,508	45,115	100,072	10,677	6,691	292,063
Core Fixed Income	\$383,877	\$202,101	\$173,925	\$76,193	\$29,899	\$865,995
Lord Abbett	266,632	140,375	120,804	52,922	20,767	601,500
Loomis, Sayles & Company Core	72,352	38,091	32,781	14,360	5,635	163,219
NISA Investment Advisors	44,893	23,635	20,340	8,911	3,497	101,276
Opportunistic	\$93,243	\$50,798	\$33,337	\$20,724	\$7,652	\$205,754
Arrowmark	93,243	50,798	33,337	20,724	7,652	205,754
Private Equity	\$280,216	\$157,649	\$68,960	\$54,117	\$24,478	\$585,420
Arcano Capital	965	516	541	258	115	2,395
ARES Capital IV	6,450	3,489	-	851	529	11,319
Bay Hills Capital Partners	43,192	23,321	4,073	6,682	3,814	81,082
Black Diamond Capital Management	13,398	7,247	-	1,768	1,100	23,513
Blackstone Capital Partners	13,745	8,219	70	2,121	1,009	25,164
CM Growth I	457	244	256	122	54	1,133
Columbia Asset Management IV	158	85	88	42	19	392
Crestview Partners	10,717	5,787	938	1,640	942	20,024
CVC Capital Partners	9,646	5,218	-	1,273	792	16,929
DAG Ventures	5,788	3,269	1,735	1,239	564	12,595
DB Private Equity	18,556	10,026	5,611	4,658	1,043	39,894
DCM VI	619	332	347	165	74	1,537
Essex Woodland VIII	197	105	110	53	23	488
Green Equity Investors	32,250	19,361	6,125	6,536	2,786	67,058
Harvest Partners	13,986	8,298	5,120	3,431	1,402	32,237
Hellman & Friedman	1,323	708	742	354	157	3,284
H.I.G. Capital	10,930	6,266	114	1,601	849	19,760
Horsley Bridge International V	6,427	3,440	3,605	1,717	763	15,952
Institutional Venture Partners XII	40	21	22	11	5	99
JW Childs III	1	1	1	0	0	3
Kayne Anderson	7,084	4,278	3,115	1,899	736	17,112
Keyhaven Capital Partners	4,695	2,535	418	720	413	8,781
Levine Leichtman	19,853	11,331	4,139	3,902	1,835	41,060
Matlin Patterson	70	38	39	19	8	174
Merit Capital Partners	12	6	7	3	1	29
MHR Institutional Partners	770	412	432	205	92	1,911
Middle Ground	2,555	1,362	11,921	851	341	17,030
Mill Road Capital	149	80	84	39	18	370
New Mountain Partners	10,013	5,403	1,271	1,628	906	19,221
Oak Hill Partners	1,225	656	687	327	146	3,041
Oaktree Capital Management	2	2	1	1	0	6
Riverside Capital VI	5,632	2,989	-	732	452	9,805
Strategic Value Special Fund	9,001	4,874	10,524	3,028	730	28,157
Sun Capital	115	62	65	31	14	287

TCV	19	10	11	5	2	47
Triton Fund	5,433	2,939	-	717	446	9,535
VantagePoint Capital Partners	506	271	284	135	60	1,256
Vista Equity Partners	22,403	13,474	6,341	5,085	2,082	49,385
Warburg Pincus	135	72	76	36	16	335
Wayzata Investment Partners	1,699	902	47	232	140	3,020
Public Equity	\$1,310,425	\$673,852	\$589,049	\$264,475	\$102,808	\$2,940,609
American Century Investments	102,457	52,863	43,752	20,764	8,185	228,021
BlackRock	232,155	119,233	94,731	46,971	18,174	511,264
Franklin Templeton	76,109	39,269	32,501	15,424	6,080	169,383
Internally Managed	86,494	44,401	41,159	17,408	6,774	196,236
Lazard Asset Management	110,498	57,012	47,186	22,394	8,827	245,917
LSV Asset Management	91,106	47,007	38,905	18,464	7,278	202,760
Next Century	29,927	15,344	14,279	6,031	2,419	68,000
Northern Trust	54,678	28,034	26,090	11,018	4,419	124,240
River Road Asset Management	53,892	27,631	25,714	10,860	4,356	122,453
S & P 500	418,201	214,905	198,544	84,076	31,858	947,584
Transition Accounts	211	109	90	43	17	470
Westfield Capital	54,697	28,044	26,098	11,022	4,421	124,281
Emerging Markets	\$79,080	\$40,802	\$33,769	\$16,027	\$6,317	\$175,995
JP Morgan Emerging Markets	41,244	21,280	17,612	8,359	3,295	91,790
Pzena Emerging Markets	37,836	19,522	16,157	7,668	3,022	84,205
Real Estate	\$118,420	\$64,919	\$37,138	\$27,301	\$10,434	\$258,212
Baring Real Estate	14,954	8,206	4,624	3,458	1,322	32,564
DivcoWest IV	584	317	179	134	51	1,265
Fundamental Partners	11,191	6,141	3,461	2,588	989	24,370
Greenfield Acquisition Partners	2,581	1,402	793	594	224	5,594
Harrison Street	19,003	10,394	6,003	4,348	1,665	41,413
Lubert-Adler	10,296	5,624	3,174	2,376	902	22,372
Patron Capital	4,345	2,385	1,344	1,005	384	9,463
Prologis	28,717	15,759	8,880	6,641	2,539	62,536
Rubenstein Capital II	3,161	1,718	971	728	274	6,852
Stockbridge	21,257	11,710	6,918	4,880	1,870	46,635
Walton Street	2,331	1,263	791	549	214	5,148
Real Return	\$195,868	\$102,826	\$80,462	\$40,980	\$15,773	\$435,909
AMERRA Capital Management	15,259	8,424	4,380	3,552	1,335	32,949
Blackstone Strategic Opportunistic	275	154	97	64	24	614
BTG Pactual	4,536	2,492	1,546	1,048	398	10,020
IFM Infrastructure Debt Fund	9,428	4,857	3,468	1,951	657	20,361
Internally Managed	121	63	54	24	10	272
Luxor Capital	170	95	60	39	15	379
MAGNETAR MTP EOF II	1,584	876	467	367	140	3,434
Myriad Opportunities	2,741	1,536	966	641	240	6,124
Nuveen Real Asset	29	15	12	6	2	64
Oberland Capital	1,092	594	1,343	380	89	3,498
Pine River Capital	13	7	4	3	1	28
Prisma Capital	18,097	10,139	6,375	4,233	1,587	40,431
Putnam	118,539	61,088	52,445	23,981	9,361	265,414
SRS Partners	943	529	332	221	83	2,108
Taurus Mining Finance	2,849	1,541	-	376	234	5,000
Tenaska Power II	32	17	15	8	4	76
Tortoise Capital	19,927	10,269	8,816	4,032	1,573	44,617
Tricadia Select	233	130	82	54	20	520
Specialty Credit	\$535,844	\$265,196	\$221,632	\$114,015	\$41,124	\$1,177,812
Adam Street	21,046	11,118	8,163	4,391	1,696	46,414
Blue Torch	13,138	6,906	5,187	2,727	1,056	29,014
BSP Private Credit	27,050	14,753	10,283	6,209	2,235	60,530
Capital Springs	13,194	7,196	5,016	3,029	1,090	29,525
Cerberus	26,548	14,479	10,092	6,094	2,194	59,407
Columbia Asset Management	106,808	41,600	39,614	17,496	6,807	212,325

H/2 Credit Partners	15,967	8,797	4,739	3,656	1,405	34,564
Loomis, Sayles & Company	17	9	6	4	1	37
Manulife Financial	67,801	36,960	24,396	15,188	5,530	149,875
Marathon Bluegrass	84,258	46,057	33,760	20,200	6,975	191,250
Mesa West	22,985	12,687	6,381	5,365	2,015	49,433
Shenkman Capital	47,942	17,177	38,193	9,109	3,194	115,615
Waterfall Investment	55,632	29,209	23,084	12,867	4,161	124,953
White Oak	33,458	18,248	12,719	7,680	2,765	74,870
Total Assets Under Management	\$3,126,271	\$1,603,150	\$1,338,255	\$624,467	\$245,160	\$6,937,303

External Investment Expense - Pension Asset Class/Type Breakdown

For the fiscal year ending June 30, 2021 (\$ in Thousands)

	US Public	Non US Equity	Core Fixed Income	Real Return	Private Equity	Real Estate	Specialty Credit	Cash	Total	
Fee for Long Balance	\$-	\$11	\$-	\$-	\$-	\$-	\$-	\$2	\$-	\$13
Securities Lending Fee Rebate	(317)	(178)	(72)	(41)	-	-	-	(92)	-	(700)
Investment Advisory Fees	2,837	9,630	2,580	4,663	8,576	4,772	-	15,570	-	48,628
Performance/Incentive Fees	-	-	-	3,021	47,965	2,415	4,233	19,847	-	77,481
Securities Lending Fees	99	46	40	19	-	-	-	40	-	244
Taxes and Insurance	-	-	-	-	98	-	-	-	-	98
Administration	149	2	-	-	-	-	-	-	2,259	2,410
Miscellaneous	5	54	-	586	2,148	2,004	-	4,452	-	9,249
Commission on Future Contracts	2	-	69	23	-	-	-	8	-	102
Commission on Swaps Contracts	-	-	-	21	-	-	-	-	-	21
Consultant Fees	-	-	-	-	-	-	-	-	471	471
Custodial Fees	-	-	-	-	-	-	-	-	1,519	1,519
	\$2,775	\$9,565	\$2,617	\$8,292	\$58,786	\$9,191	\$4,233	\$39,827	\$4,248	\$139,534

External Investment Expense - Insurance Asset Class/Type Breakdown

For the fiscal year ending June 30, 2021 (\$ in Thousands)

	US Public	Non US Equity	Core Fixed Income	Real Return	Private Equity	Real Estate	Specialty Credit	Cash	Total	
Fee for Long Balance	\$-	\$4	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$4
Securities Lending Fee Rebate	(131)	(92)	(22)	(23)	-	-	-	(32)	-	(300)
Investment Advisory Fees	1,315	4,297	1,024	2,005	5,232	2,048	-	6,978	-	22,900
Performance/Incentive Fees	-	-	-	92	29,558	1,043	2,156	8,237	-	41,086
Securities Lending Fees	43	22	15	8	-	-	-	17	-	105
Administration	66	1	-	-	-	-	-	-	989	1,056
Miscellaneous	2	23	-	1,171	956	853	-	1,800	22	4,827
Taxes and Insurance	-	-	-	-	75	-	-	-	-	75
Commission on Future Contracts	1	-	26	10	-	-	-	4	-	41
Consultant Fees	-	-	-	-	-	-	-	-	206	206
Custodial Fees	-	-	-	-	-	-	-	-	966	966
	\$1,296	\$4,255	\$1,043	\$3,264	\$35,821	\$3,945	\$2,156	\$17,004	\$2,183	\$70,967

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 Investment Expenses

For the fiscal year ending June 30, 2021 (\$ in Thousands)

Expense	Fees Paid	Share of Total
Portfolio Management		
Pension Funds	\$138,000	65.20%
Insurance Fund	69,990	33.62%
Securities Lending		
Pension Funds	(456)	-0.22%
Insurance Fund	(195)	-0.09%
Custody		
Pension Funds	1,519	0.72%
Insurance Fund	966	0.46%
Consultant		
Pension Funds	471	0.22%
Insurance Fund	206	0.10%
Total Pension Funds		
	139,534	65.92%
Total Insurance Fund		
	70,967	34.08%
Total Expenses		
	\$210,501	100.00%

Schedule of Commissions Paid (Whole \$)

For the fiscal year ending June 30, 2021

Assets	Total Shares	Commissions Paid	Price per Share
U.S. Equities	38,197,493	\$717,324	0.02
Non U.S. Equities	158,048,748	\$988,168	0.01
Total	196,246,241	\$1,705,492	0.01

Fair Values - Pension

As of June 30, 2021 (\$ in Thousands)

	CERS Non-Hazardous		CERS-Hazardous		KERS Non-Hazardous		KERS-Hazardous	
	Fair Value (FV)	% of Total FV	Fair Value (FV)	% of Total FV	Fair Value (FV)	% of Total FV	Fair Value (FV)	% of Total FV
Assets								
Liquidity								
Cash	\$145,293	1.69%	\$59,048	2.02%	\$267,655	8.80%	\$32,396	3.72%
Core Fixed Income	1,105,607	12.84%	380,612	13.05%	698,087	22.95%	116,058	13.32%
Growth								
Public Equity	4,063,147	47.20%	1,368,874	46.92%	995,260	32.73%	400,842	45.99%
US Equity	2,057,853	23.91%	692,547	23.74%	506,498	16.65%	202,937	23.29%
Non-US Equity	2,005,294	23.29%	676,327	23.18%	488,762	16.07%	197,905	22.71%
Specialty Credit	1,434,848	16.67%	490,597	16.82%	510,947	16.80%	148,624	17.05%
Private Equity	710,614	8.25%	238,594	8.18%	202,161	6.65%	65,396	7.50%
Diversifying Strategies								
Opportunistic	230,926	2.68%	76,341	2.60%	67,526	2.22%	20,935	2.40%
Real Return	572,909	6.66%	193,323	6.63%	190,517	6.27%	54,840	6.29%
Real Estate	344,816	4.01%	110,311	3.78%	109,064	3.59%	32,413	3.72%
TOTAL PORTFOLIO	\$8,608,160		\$2,917,700		\$3,041,217		\$871,504	

Fair Values - Insurance

As of June 30, 2021 (\$ in Thousands)

	CERS Non-Hazardous		CERS-Hazardous		KERS Non-Hazardous		KERS-Hazardous	
	Fair Value (FV)	% of Total FV	Fair Value (FV)	% of Total FV	Fair Value (FV)	% of Total FV	Fair Value (FV)	% of Total FV
Assets								
Liquidity								
Cash	\$129,297	4.14%	\$45,007	2.81%	\$99,983	7.47%	\$10,635	1.70%
Core Fixed Income	383,877	12.28%	202,101	12.61%	173,925	13.00%	76,192	12.20%
Growth								
Public Equity	1,389,505	44.45%	714,651	44.58%	622,820	46.54%	280,499	44.92%
US Equity	697,897	22.32%	358,362	22.35%	331,888	24.80%	140,416	22.49%
Non-US Equity	691,608	22.12%	356,289	22.23%	290,932	21.74%	140,083	22.43%
Specialty Credit	535,844	17.14%	265,197	16.54%	221,632	16.56%	114,014	18.26%
Private Equity	280,216	8.96%	157,650	9.83%	68,958	5.15%	54,120	8.67%
Diversifying Strategies								
Opportunistic	93,243	2.98%	50,798	3.17%	33,337	2.49%	20,724	3.32%
Real Return	195,867	6.27%	102,826	6.41%	80,462	6.01%	40,981	6.56%
Real Estate	118,422	3.79%	64,920	4.05%	37,138	2.78%	27,302	4.37%
TOTAL PORTFOLIO	\$3,126,271		\$1,603,150		\$1,338,255		\$624,467	

Fair Values - Pension

As of June 30, 2021 (\$ in Thousands)

	SPRS		Total	
	Fair Value (FV)	% of Total FV	Fair Value (FV)	% of Total FV
Assets				
Liquidity				
Cash	\$21,933	6.28%	\$526,325	3.33%
Core Fixed Income	80,396	23.01%	2,380,760	15.08%
Growth				
Public Equity	123,991	35.49%	6,952,114	44.03%
US Equity	63,531	18.18%	3,523,366	22.32%
Non-US Equity	60,460	17.30%	3,428,748	21.72%
Specialty Credit	59,439	17.01%	2,644,455	16.74%
Private Equity	19,399	5.55%	1,236,164	7.83%
Diversifying Strategies				
Opportunistic	8,341	2.39%	404,069	2.56%
Real Return	22,295	6.38%	1,033,884	6.55%
Real Estate	13,610	3.90%	610,214	3.87%
TOTAL PORTFOLIO	\$349,404		\$15,787,985	

Fair Values - Insurance

As of June 30, 2021 (\$ in Thousands)

	SPRS		Total	
	Fair Value (FV)	% of Total FV	Fair Value (FV)	% of Total FV
Assets				
Liquidity				
Cash	\$6,674	2.72%	\$291,596	4.20%
Core Fixed Income	29,899	12.20%	865,994	12.48%
Growth				
Public Equity	109,123	44.51%	3,116,598	44.93%
US Equity	54,246	22.13%	1,582,809	22.82%
Non-US Equity	54,877	22.38%	1,533,789	22.11%
Specialty Credit	41,126	16.78%	1,177,813	16.98%
Private Equity	24,477	9.98%	585,421	8.44%
Diversifying Strategies				
Opportunistic	7,653	3.12%	205,755	2.97%
Real Return	15,774	6.43%	435,910	6.28%
Real Estate	10,434	4.26%	258,216	3.72%
TOTAL PORTFOLIO	\$245,160		\$6,937,303	

ACTUARIAL

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Certification of Actuarial Results

Re: Certification for the Actuarial Results as of June 30, 2021.

Dear Board of Trustees:

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

Under Kentucky Statute, the Board of Trustees of the Kentucky Retirement System (KRS) must recommend the employer contribution requirements for KERS and SPRS for the fiscal years beginning July 1, 2022 and ending June 30, 2024. 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, 2022 and ending June 30, 2023. The contribution requirements determined by June 30, 2021 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, 2022.

These contributions are calculated based on the membership data and plan assets as of June 30, 2021. These calculations are also based on the benefit provisions in effect as of June 30, 2021. If new legislation is enacted between the valuation date and the date the contributions become effective, the applicable Board of these Systems may adjust the calculated rates to reflect this new legislation. Such adjustments are based on information supplied by the actuary.

FINANCING OBJECTIVES AND FUNDING POLICY

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

The employer contribution is determined in accordance with Section 61.565 of Kentucky Statute. As specified by the Statute, the employer contribution is comprised of a normal cost contribution and an actuarial accrued liability contribution. The actuarial accrued liability contribution is calculated by amortizing the unfunded accrued liability as of June 30, 2019 over a closed 30-year amortization period (28 years remaining as of June 30, 2021). 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 Non-Hazardous Fund. Each employer will pay a normal cost contribution on the payroll of their covered employees and contribute to the fund an allocated share of the cost required to amortize the unfunded liability.

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, 2021, the funded ratios for the pension and health insurance funds are as follows:

Funding Level As of June 30

System	2021		2020		2019		2018	
	Pension Fund	Insurance Fund	Pension Fund	Insurance Fund	Pension Fund	Insurance Fund	Pension Fund	Insurance Fund
CERS Non-Hazardous	51.8%	85.4%	49.4%	78.5%	49.1%	70.7%	52.7%	76.7%
CERS Hazardous	46.7%	84.3%	45.1%	78.2%	45.3%	75.8%	48.4%	74.6%
KERS Non-Hazardous	16.8%	50.2%	14.2%	42.7%	13.4%	36.3%	12.9%	36.4%
KERS Hazardous	60.4%	135.5%	55.3%	126.0%	54.8%	123.1%	55.5%	130.0%
SPRS	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, 2021 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. There were no changes in actuarial assumptions or methods since the prior valuation.

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 this valuation 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, 2021, by KPPA staff. The staff also supplied asset information as of June 30, 2021. 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.

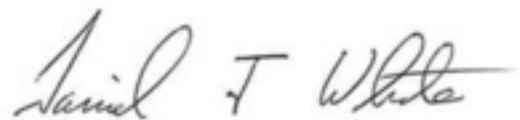
CERTIFICATION

We certify that the information presented herein is accurate and fairly portrays the actuarial position of the Retirement Systems as of June 30, 2021. 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, 2021 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 Non-Hazardous 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 Non-Hazardous 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 Non-Hazardous 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 Non-Hazardous 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 non-hazardous systems and 1.25% for the hazardous systems. This assumption was adopted in 2019.

Table 1. Salary Increase Assumptions

Service	CERS Non-Hazardous	CERS Hazardous	KERS Non-Hazardous	KERS Hazardous	SPRS
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⁾
2023	6.30%	6.30%	1.50%
2024	6.20%	6.20%	1.50%
2025	6.10%	6.10%	1.50%
2026	6.00%	6.00%	1.50%
2027	5.80%	5.80%	1.50%
2028	5.60%	5.60%	1.50%
2029	5.40%	5.40%	1.50%
2030	5.20%	5.20%	1.50%
2031	5.00%	5.00%	1.50%
2032	4.80%	4.80%	1.50%
2033	4.60%	4.60%	1.50%
2034	4.40%	4.40%	1.50%
2035	4.20%	4.20%	1.50%
2036+	4.05%	4.05%	1.50%

⁽¹⁾ All increases are assumed to occur on January 1. The 2022 premiums were known at the time of the June 30, 2021 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 Non-Hazardous fund) is assumed to increase at a rate of 0.00% per year for KERS (Non-Hazardous and Hazardous) and SPRS and the active member payroll in CERS (Non-hazardous 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): KRS 61.691 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 Non-Hazardous 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	
	Non-Hazardous		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							
	CERS Non-Hazardous	CERS Hazardous		KERS Non-Hazardous	KERS		SPRS
Years of Service			Years of Service			Years of Service	
1	20.00%	20.00%	1	20.00%	25.00%	1	15.00%
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					
	CERS Non-Hazardous	CERS Hazardous	KERS Non-Hazardous	KERS Hazardous	SPRS
Nearest Age	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: None.

Summary of Actuarial Valuation Results					
	CERS Non-Hazardous	CERS Hazardous	KERS Non-Hazardous	KERS Hazardous	SPRS
Recommended Contribution Rate (Fiscal Year 2023)⁽¹⁾					
Pension Fund Contribution	23.40%	42.81%	7.82%	31.82%	126.40%
Insurance Fund Contribution	3.39%	6.78%	2.15%	0.00%	14.11%
Actuarially Determined Employer Contributions Rate ⁽²⁾ , payable as a percentage of payroll	26.79%	49.59%	9.97%	31.82%	140.51%
Amortization Cost to be Allocated, if applicable	N/A	N/A	\$994,421,476	N/A	N/A
Funded Status as of Valuation Date As of June 30, 2021 (in Whole \$)					
Pension Fund					
Actuarial Liability	\$14,894,906,514	\$5,629,457,968	\$16,321,372,580	\$1,295,242,844	\$1,053,259,535
Actuarial Value of Assets	7,715,883,468	2,628,621,092	2,735,875,974	782,496,050	323,250,208
Unfunded Liability on Actuarial Value of Assets	7,179,023,046	3,000,836,876	13,585,496,606	512,746,794	730,009,327
Funding Ratio on Actuarial Value of Assets	51.80%	46.69%	16.76%	60.41%	30.69%
Market Value of Assets	8,565,652,199	2,914,408,092	3,018,659,670	866,140,470	356,345,662
Unfunded Liability on Market Value of Assets	\$6,329,254,315	\$2,715,049,876	\$13,302,712,910	\$429,102,374	\$696,913,873
Funding Ratio on Market Value of Assets	57.51%	51.77%	18.50%	66.87%	33.83%
Insurance Fund					
Actuarial Liability	\$3,450,484,466	\$1,751,203,226	\$2,574,111,678	\$424,455,939	\$272,405,954
Actuarial Value of Assets	2,947,311,993	1,475,634,783	1,291,472,004	575,024,703	223,251,488
Unfunded Liability on Actuarial Value of Assets	503,172,473	275,568,443	1,282,639,674	(150,568,764)	49,154,466
Funding Ratio on Actuarial Value of Assets	85.42%	84.26%	50.17%	135.47%	81.96%
Market Value of Assets	3,246,801,110	1,627,823,974	1,419,477,195	633,676,988	247,318,260
Unfunded Liability on Market Value of Assets	\$203,683,356	\$123,379,252	\$1,154,634,483	\$(209,221,049)	\$25,087,694
Funding Ratio on Market Value of Assets	94.10%	92.95%	55.14%	149.29%	90.79%
Member Data (See Footnotes)					
Number of Active Members	77,367	9,173	30,186	3,827	775
Total Annual Payroll (Active Members) ⁽³⁾	\$2,528,734,577	\$578,355,213	\$1,349,329,648	\$162,835,694	\$45,337,921
Average Annual Pay (Active Members)	\$32,685	\$63,050	\$44,701	\$42,549	\$58,501
Number of Retired Members & Beneficiaries	67,206	10,858	47,700	4,726	1,673
Average Annual Retirement Allowance	\$11,778	\$26,605	\$20,386	\$14,982	\$37,477
Number of Vested Inactive Members	50,723	1,811	31,661	2,192	313
Number of Inactive Members Due a Refund	50,015	2,084	22,861	5,488	321

⁽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 FYE2023, and therefore, the rates shown above are equal to the actuarially determined rates.

⁽²⁾ For the KERS non-hazardous 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, 2021.

CERS Funds

The Insurance Fund contribution rates and the employer contribution rates for CERS Non-Hazardous and CERS Hazardous shown in the tables below are the full funding rates presented by the actuary in the 2012 through 2021 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 (Non-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
2012	2013-2014	4.68%	9.06%	13.74%	5.84%	19.58%
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%

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
2012	2013-2014	6.44%	15.33%	21.77%	16.02%	37.79%
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%

The insurance fund contribution rates and the employer contribution rates for CERS Non-Hazardous and CERS Hazardous shown in the above tables are the full funding rates presented by the actuary in the 2012 through 2021 annual valuations. However, in the case of CERS Non-Hazardous 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.

KERS Funds

The contribution rates for KERS Non-Hazardous and KERS Hazardous shown in the tables below are the full funding rates presented by the actuary for 2012 through 2021 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 Non-Hazardous Fund. Each employer will pay a normal cost contribution on the payroll of their covered employees and contribute to the fund an allocated share of the cost required to amortize the unfunded liability.

Recommended Employer Contribution Rates

As of June 30

KERS (Non-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
2012	2013-2014	4.26%	28.31%	32.57%	12.71%	45.28%
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	

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
2012	2013-2014	6.09%	10.91%	17.00%	11.84%	28.84%
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%

The contribution rates for KERS Non-Hazardous and KERS Hazardous shown in the above tables are the full funding rates presented by the actuary in the 2012 through 2021 annual valuations. However, the actual employer contribution rates have been less than those shown above. As a result of HB 1 passed in 2008 the statute called for an employer contribution rate at an increasing percentage of the full funding rates until 100% was achieved in 2025 for KERS Non-Hazardous and 2019 for KERS Hazardous. SB2 eliminated this phase-in beginning with the June 30, 2013 actuarial valuation. Additionally, 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 non-hazardous fund. HB 8 (passed during the 2021 legislative session) changed how employer contributions are allocated and collected amongst employers in the KERS non-hazardous fund. 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 2012 through 2021 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
2012	2013-2014	8.14%	45.21%	53.35%	43.17%	96.52%
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%	107.80%	126.40%	14.11%	140.51%

The contribution rates for SPRS shown in the below tables are the full funding rates presented by the actuary in the 2012 through 2021 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.

Summary of Actuarial Unfunded Liabilities

As of June 30 (\$ in Thousands)

CERS (Non-Hazardous Pension Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liability		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2012	\$9,139,568	\$5,547,236	\$5,372,770	\$3,592,332	\$3,766,798	60.69%	58.79%
2013	9,378,876	5,637,094	5,780,830	3,741,782	3,598,046	60.10%	61.64%
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%

CERS (Non-Hazardous Insurance Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liability		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2012	\$2,370,771	\$1,512,854	\$1,439,226	\$857,917	\$931,545	63.81%	60.71%
2013	2,443,894	1,628,244	1,633,697	815,650	810,197	66.62%	66.85%
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%

CERS (Hazardous Pension Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liability		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2012	\$3,009,992	\$1,747,379	\$1,677,940	\$1,262,613	\$1,332,052	58.05%	55.75%
2013	3,124,206	1,801,691	1,830,658	1,322,514	1,293,548	57.67%	58.60%
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%

CERS (Hazardous Insurance Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liability		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2012	\$1,364,843	\$829,041	\$788,071	\$535,802	\$576,772	60.74%	57.74%
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%

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

KERS (Non-Hazardous Pension Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liabilities		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2012	\$11,361,048	\$3,101,317	\$2,980,402	\$8,259,731	\$8,380,647	27.30%	26.23%
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%

KERS (Non-Hazardous Insurance Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liabilities		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2012	\$3,125,330	\$446,081	\$430,806	\$2,679,250	\$2,694,524	14.27%	13.78%
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%

KERS (Hazardous Pension Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liabilities		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2012	\$752,699	\$497,226	\$478,104	\$255,473	\$274,596	66.06%	63.52%
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%

KERS (Hazardous Insurance Fund)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liabilities		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2012	\$384,592	\$345,574	\$333,298	\$39,018	\$51,294	89.85%	86.66%
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%

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
2012	\$647,689	\$259,792	\$252,897	\$387,897	\$394,792	40.11%	39.05%
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%

SPRS (Insurance)

Valuation Date	Actuarial Liability	Value of Assets		Unfunded Actuarial Liability		Funding Level	
		Actuarial	Market	Actuarial	Market	Actuarial	Market
2012	\$333,904	\$124,372	\$125,568	\$209,532	\$208,336	37.25%	37.61%
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%

Solvency Test

As of June 30 (\$ in Thousands)

CERS (Non-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)	
2012	\$1,117,549	\$5,416,933	\$2,605,085	\$5,547,236	100.00%	81.80%	0.00%	
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	\$4,172,113	\$7,715,884	100.00%	68.00%	0.00%	

CERS (Non-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)	
2012	\$-	\$1,146,908	\$1,223,864	\$1,512,854	100.00%	100.00%	29.90%	
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%	

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)	
2012	\$381,672	\$1,889,884	\$738,435	\$1,747,379	100.00%	72.30%	0.00%	
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	\$1,394,753	\$2,628,621	100.00%	57.50%	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)	
2012	\$-	\$575,099	\$789,744	\$829,041	100.00%	100.00%	32.20%	
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%	

Solvency Test

As of June 30 (\$ in Thousands)

KERS (Non-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)	
2012	\$885,137	\$8,708,536	\$1,767,375	\$3,101,317	100.00%	25.40%	0.00%	
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%	

KERS (Non-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)	
2012	\$-	\$1,924,069	\$1,201,262	\$446,081	100.00%	23.20%	0.00%	
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%	

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)	
2012	\$82,101	\$521,689	\$148,910	\$497,226	100.00%	79.60%	0.00%	
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%	

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)	
2012	\$-	\$196,579	\$188,013	\$345,574	100.00%	100.00%	79.20%	
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%	

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)	
2012	\$41,139	\$523,017	\$83,533	\$259,792	100.00%	41.80%	0.00%	
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%	

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)	
2012	\$-	\$190,259	\$143,645	\$124,372	100.00%	65.40%	0.00%	
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%	

Active Member Valuation

Methodology 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.

Summary of Active Member Valuation Data

As of June 30 (\$ in Thousands)

CERS Non-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
2012	1,080	83,052	\$2,236,546	\$27	0.90%	47.5	9.1
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

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
2012	254	9,130	\$464,229	\$51	2.40%	39.3	10.3
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

⁽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, 2021.

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 a CERS and is reported in two membership categories).

KERS Non-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
2012	286	42,196	\$1,644,897	\$39	4.90%	44.3	9.8
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

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
2012	14	4,086	\$131,977	\$32	4.20%	41.1	7.3
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

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
2012	1	907	\$48,373	\$53	5.70%	37.3	10.4
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

⁽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, 2021.

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 a CERS and is reported in two membership categories).

Summary of Retired Member Valuation Data

As of June 30 (\$ in Thousands)

CERS (Non-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
2012	3,300	1,207	45,304	\$41,161	\$9,746	\$515,008	6.50%	\$11
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

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
2012	483	73	6,878	\$14,149	\$1,187	\$173,221	8.09%	\$25
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

⁽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.

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 (Non-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
2012	1,707	1,078	39,226	\$37,458	\$13,774	\$844,881	2.88%	\$22
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	883,578	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

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
2012	243	54	3,253	\$4,213	\$591	\$49,231	7.94%	\$15
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

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
2012	52	16	1,299	\$3,027	\$607	\$49,887	5.10%	\$38
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

⁽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.

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 non-hazardous 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 Board to be necessary for the actuarial soundness of the systems, as required by KRS 61.565 and KRS 61.752. KERS rates are subject to state budget approval.

Membership Eligibility

For non-school board employers, all regular full-time positions that average 100 or more hours of work per month over a fiscal or calendar year. For school board employers, all regular full-time positions that average 80 hours of work per month over the actual days worked during the school year.

Retirement Eligibility for Non-Hazardous 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 Non Hazardous

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 Non Hazardous

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 KRS' 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 2021)		
CERS Non-Hazardous	5.00%	4.00%	4.00%	6.35%	See www.kyret.ky.gov for most recent Actuarial Factors	
CERS Hazardous	8.00%	7.50%	4.00%	6.53%		
KERS Non-Hazardous	5.00%	4.00%	4.00%	5.28%		
KERS Hazardous	8.00%	7.50%	4.00%	6.32%		
SPRS	8.00%	7.50%	4.00%	5.67%		

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 Non-hazardous 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 hypothetical account which includes member contributions, employer contributions and interest credits can be withdrawn from the System as a lump sum or an annuity equal to the greater of 20% for Non-hazardous and 25% for Hazardous of the member's monthly final rate of pay or the annuitized hypothetical account into a single life annuity option.

Members disabled in the line of duty may be eligible for special benefits.

Pre-Retirement Death Benefits

The beneficiary of a deceased active member is eligible for a monthly benefit if the member died while in the line of duty with one month of service credit. The beneficiary of a deceased active member who did not die in the line of duty 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 non-hazardous 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 contributions and any accumulated interest.

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 Non-hazardous 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 member contributions and accumulated interest 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

Senate Bill 169 passed during the 2021 legislative session and increased the disability benefits for qualified members who become “totally and permanently disabled” as a result of a duty-related disability. The minimum disability benefit increased from 25% of the member’s monthly final rate of pay to 75% of the member’s monthly average pay. The insurance premium for the member, the member’s spouse, and the member’s dependent children shall also be paid in full by the System. For non-hazardous members to be eligible for this benefit, they must be working in a position that could be certified as a hazardous position. There were no other material plan provision changes since the prior valuation.

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Plan Statistics

Definitions

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

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

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

A single member may have multiple accounts, which contribute to one pension. Each person is only counted once in the Membership by System report. A member who has both a membership account and a retired account is included in the retired count. Members who have multiple membership accounts are included under the system where they most recently contributed. Members who have more than one retirement account are included in the system with the greatest service credit. If the retired accounts have equal service credit, they are counted first in SPRS, CERS Hazardous, KERS Hazardous, CERS Non-Hazardous, then KERS Non-Hazardous. These tables do not include individuals receiving payments under dependent child accounts, Qualified Domestic Relations Orders, or multiple beneficiary accounts.

CERS Non-Hazardous Membership As of June 30, 2021

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

CERS Hazardous Membership As of June 30, 2021

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

KERS Non-Hazardous Membership As of June 30, 2021

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

KERS Hazardous Membership As of June 30, 2021

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

SPRS Membership As of June 30, 2021

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

Kentucky Public Pensions Authority Membership Totals As of June 30, 2021

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	102,725	364,710
2017	135,418	130,871	106,234	372,523
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

Principal Participating Employers in CERS As of June 30, 2021

Participating Employer	Rank	Covered Employees	% of Total System
JEFFERSON COUNTY BOARD OF EDUCATION	1	5,544	6.17%
LOUISVILLE JEFFERSON COUNTY METRO GOVERNMENT	2	4,543	5.05%
FAYETTE COUNTY BOARD OF EDUCATION	3	2,052	2.28%
LEXINGTON FAYETTE URBAN COUNTY GOVERNMENT	4	1,628	1.81%
JUDICIAL DEPARTMENT ADMINISTRATIVE OFFICE OF THE COURTS	5	1,485	1.65%
BOONE COUNTY BOARD OF EDUCATION	6	1,134	1.26%
BULLITT COUNTY BOARD OF EDUCATION	7	1,077	1.20%
HARDIN COUNTY BOARD OF EDUCATION	8	997	1.11%
WARREN COUNTY BOARD OF EDUCATION	9	884	0.98%
PULASKI COUNTY BOARD OF EDUCATION	10	827	0.92%
ALL OTHERS		69,757	77.57%
Total		89,928	100.00%

Schedule of Participating Employers in CERS As of June 30, 2021

Agency Classification	Number of Agencies	Number of Employees
Airport Boards	5	491
Ambulance Services	18	438
Area Development Districts	14	661
Boards of Education	171	45,629
Cities	221	10,167
Community Action Agencies	21	2,908
Conservation Districts	49	63
County Attorneys	78	563
County Clerks	16	566
Development Authorities	6	7
Fire Departments	31	1,049
Fiscal Courts	118	10,788
Hospitals & Clinics (incl. Dental)	1	321
Housing Authorities	39	401
Jailers	2	67
Libraries	85	1,213
Other Retirement Systems	2	3
P1 State Agencies	3	1,491
Parks and Recreation	6	62
Planning Commissions	16	201
Police Departments	2	14
Riverport Authorities	5	65
Sanitation Districts	9	332
Sheriff Departments	12	708
Special Districts & Boards	47	1,332
Tourist Commissions	24	160
Urban Government Agencies	2	6,171
Utility Boards	119	4,057
Total	1,122	89,928

Total Employees By Tier Levels

Tier 1	32,295
Tier 2	14,677
Tier 3	42,956

Principal Participating Employers in KERS As of June 30, 2021

Participating Employer	Rank	Covered Employees	% of Total System
DEPARTMENT FOR COMMUNITY BASED SERVICES	1	4,279	12.55%
DEPARTMENT OF HIGHWAYS	2	3,543	10.38%
DEPARTMENT OF CORRECTIONS	3	3,332	9.76%
JUDICIAL DEPARTMENT ADMINISTRATIVE OFFICE OF THE COURTS	4	1,353	3.96%
DEPARTMENT OF JUVENILE JUSTICE	5	973	2.85%
KENTUCKY STATE POLICE	6	875	2.56%
UNIFIED PROSECUTORIAL SYSTEM	7	834	2.44%
DEPARTMENT OF REVENUE	8	761	2.23%
NEW VISTA OF THE BLUEGRASS, INC	9	646	1.89%
DEPARTMENT OF VETERANS AFFAIRS	10	611	1.79%
ALL OTHERS		16,925	49.59%
Total		34,132	100.00%

Schedule of Participating Employers in KERS As of June 30, 2021

Agency Classification	Number of Agencies	Number of Employees
County Attorneys	57	280
Health Departments	60	1,951
Master Commissioner	31	60
Non-P1 State Agencies	34	588
Other Retirement Systems	1	22
P1 State Agencies	129	27,872
Regional Mental Health Units	10	1,623
Universities	7	1,736
Total	329	34,132

Total Employees By Tier Levels

Tier 1	15,610
Tier 2	5,988
Tier 3	12,534

Schedule of Participating Employers in SPRS As of June 30, 2021

Agency Classification	Number of Agencies	Number of Employees
Kentucky State Police - Uniformed Police Officers	1	775

Total Employees By Tier Levels

Tier 1	368
Tier 2	185
Tier 3	222

Average Monthly Benefit by Length of Service in CERS As of June 30, 2021 (in Whole \$)

Service Credit Range	CERS Non-Hazardous		CERS Hazardous	
	Number of Accounts	Average Monthly Benefit	Number of Accounts	Average Monthly Benefit
Under 5 years	10,235	\$166	1,240	\$411
5 or more but less than 10	11,779	343	1,146	709
10 or more but less than 15	11,996	545	1,120	1,280
15 or more but less than 20	9,963	817	1,174	1,847
20 or more but less than 25	12,072	1,019	4,373	2,626
25 or more but less than 30	13,475	1,926	1,569	3,618
30 or more but less than 35	3,131	2,687	424	4,347
35 or more	850	3,730	92	5,392
Total	73,501	\$956	11,138	\$2,193

Average Monthly Benefit by Length of Service in KERS As of June 30, 2021 (in Whole \$)

Service Credit Range	KERS Non-Hazardous		KERS Hazardous	
	Number of Accounts	Average Monthly Benefit	Number of Accounts	Average Monthly Benefit
Under 5 years	6,608	\$176	935	\$206
5 or more but less than 10	6,253	436	895	573
10 or more but less than 15	5,826	728	813	1,028
15 or more but less than 20	4,975	1,068	735	1,537
20 or more but less than 25	5,400	1,419	1,231	2,030
25 or more but less than 30	13,392	2,295	213	2,900
30 or more but less than 35	6,782	3,228	62	3,742
35 or more	2,547	4,577	6	4,231
Total	51,783	\$1,649	4,890	\$1,236

Average Monthly Benefit by Length of Service in SPRS As of June 30, 2021 (in Whole \$)

Service Credit Range	Number of Accounts	Average Monthly Benefit
Under 5 years	144	\$543
5 or more but less than 10	56	950
10 or more but less than 15	72	1,436
15 or more but less than 20	124	2,109
20 or more but less than 25	536	2,746
25 or more but less than 30	509	3,737
30 or more but less than 35	231	4,787
35 or more	62	6,116
Total	1,734	\$3,088

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	Non-Hazardous			Hazardous		
	Pension	Insurance	Total	Pension	Insurance	Total
2012	\$5,381,602	\$1,428,821	\$6,810,423	\$1,672,970	\$785,874	\$2,458,844
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

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

Fiscal Year	Non-Hazardous			Hazardous		
	Pension	Insurance	Total	Pension	Insurance	Total
2012	\$2,977,935	\$418,490	\$3,396,425	\$476,589	\$330,730	\$807,319
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

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

Fiscal Year	Pension	Insurance	Total
2012	\$250,476	\$125,398	\$375,874
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

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

Fiscal Year	Pension	Insurance	Total
2012	\$10,758,706	\$3,089,313	\$13,848,019
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

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>

Changes in Fiduciary Net Position - CERS Non-Hazardous Pension Fund

As of June 30 (\$ in Thousands)

Additions	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Members' Contributions	\$119,123	\$120,777	\$122,459	\$133,637	\$133,987	\$150,714	\$160,370	\$159,064	\$168,994	\$165,698
Employers' Contributions	270,664	294,914	324,231	297,714	282,767	331,493	355,473	393,302	475,311	472,196
Health Insurance Contributions (HB1)	5,101	4,659	6,109	6,674	7,687	9,158	10,826	11,801	5	(1)
Net Investment Income (Loss)	(3,349)	579,161	895,531	110,569	(40,799)	825,901	578,377	394,558	56,682	1,784,231
Bank of America Settlement	-	-	-	10,280	-	-	-	-	-	-
Northern Trust Settlement	-	-	-	-	-	-	361	44	-	-
Pension Spiking	-	-	-	850	1,339	2,061	2,544	151	105	32
Total Additions	391,539	999,511	1,348,330	559,724	384,981	1,319,327	1,107,951	958,920	701,097	2,422,156
Deductions										
Benefit Payments	524,385	553,204	582,850	615,335	651,247	687,460	726,568	766,221	795,960	826,749
Refunds	12,765	13,306	14,286	13,524	13,754	14,430	14,608	14,387	14,918	13,862
Administrative Expenses	16,740	17,743	18,615	18,212	19,078	19,614	19,592	21,659	22,304	21,767
Capital Project Expenses	9	-	-	-	307	77	-	-	-	-
Total Deductions	553,899	584,253	615,751	647,071	684,385	721,581	760,768	802,267	833,182	862,378
Net Increase (Decrease) in Fiduciary Net Position	\$(162,360)	\$415,258	\$732,579	\$(87,347)	\$(299,404)	\$597,746	\$347,183	\$156,653	\$(132,085)	\$1,559,778

CERS Non-Hazardous Insurance Fund

Additions	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Employers' Contributions	\$164,297	\$158,212	\$121,161	\$115,836	\$108,269	\$117,310	\$120,798	\$135,570	\$124,740	\$124,697
Net Investment Income (Loss)	(32,992)	147,194	232,330	36,731	(1,422)	259,586	197,520	133,697	8,656	619,593
Retired Re-employed (HB1)	-	-	2,117	3,608	3,567	3,402	3,821	4,085	4,528	5,206
Member Drug Reimbursement	8,443	5,360	6	-	-	1	11	6	4	3
Premiums Received from Retirees	17,493	16,293	1,450	582	629	707	637	616	596	555
Humana Gain Share	-	-	-	-	-	-	-	3,574	-	20,676
Northern Trust Settlement	-	-	-	-	-	-	75	9	-	-
Health Insurance Contributions (HB1)	-	-	-	-	-	-	-	-	12,959	13,614
Total Additions	157,241	327,059	357,064	156,757	111,043	381,006	322,862	277,557	151,483	784,344
Deductions										
Health Insurance Premiums	141,694	132,489	96,804	113,734	122,713	124,573	131,631	133,005	135,094	136,263
Administrative Expenses	5,545	4,431	508	782	726	789	761	877	903	884
Self-Funded Healthcare Costs	-	-	-	-	-	3,635	4,248	3,979	3,887	3,462
Excise Tax Insurance	-	-	-	6	-	6	6	6	6	-
Total Deductions	147,239	136,920	97,312	114,522	123,439	129,003	136,646	137,867	139,890	140,609
Net Increase (Decrease) in Fiduciary Net Position	\$10,002	\$190,139	\$259,751	\$42,235	\$(12,396)	\$252,003	\$186,216	\$139,690	\$11,593	\$643,735

Changes in Fiduciary Net Position - CERS Hazardous Pension Fund

As of June 30 (\$ in Thousands)

Additions	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Members' Contributions	\$41,797	\$42,863	\$42,631	\$46,609	\$51,554	\$60,102	\$61,089	\$58,661	\$63,236	\$62,367
Employers' Contributions	77,311	120,140	115,240	107,515	104,952	114,315	124,953	137,664	168,201	172,089
Health Insurance Contributions (HB1)	811	734	1,091	1,084	1,418	1,708	2,173	2,458	1	2
Net Investment Income (Loss)	(24,724)	181,171	288,490	37,104	(9,021)	270,473	192,174	132,970	15,992	600,730
Bank of America Settlement	-	-	-	2,865	-	-	-	-	-	-
Northern Trust Settlement	-	-	-	-	-	-	111	14	-	-
Pension Spiking	-	-	-	557	762	1,632	2,707	387	242	116
Total Additions	95,195	344,908	447,452	195,734	149,665	448,230	383,207	332,154	247,672	835,304
Deductions										
Benefit Payments	169,352	179,696	189,635	200,134	213,448	226,985	244,119	259,008	275,802	290,000
Refunds	3,516	3,158	2,664	3,111	2,879	2,315	4,214	2,854	3,814	4,662
Administrative Expenses	1,319	1,202	1,721	1,289	1,337	1,421	1,504	1,726	1,981	1,910
Capital Project Expenses	-	-	-	-	26	7	-	-	-	-
Total Deductions	174,187	184,056	194,020	204,534	217,690	230,728	249,837	263,588	281,597	296,572
Net Increase (Decrease) in Fiduciary Net Position	\$(79,992)	\$160,852	\$253,431	\$(8,800)	\$(68,025)	\$217,502	\$133,370	\$68,566	\$(33,925)	\$538,732

CERS Hazardous Insurance Fund

Additions	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Employers' Contributions	\$90,204	\$84,962	\$74,265	\$71,008	\$66,757	\$50,743	\$55,027	\$61,106	\$56,739	\$58,451
Net Investment Income (Loss)	(16,127)	79,885	125,278	20,283	1,102	142,929	109,004	72,580	2,237	322,817
Retired Re-employed (HB1)	-	-	526	770	862	794	975	1,166	1,158	1,348
Member Drug Reimbursement	871	562	-	-	-	-	-	-	-	-
Premiums Received from Retirees	695	657	32	10	(106)	(301)	(265)	(53)	(32)	(149)
Humana Gain Share	-	-	-	-	-	-	-	506	-	2,990
Northern Trust Settlement	-	-	-	-	-	-	40	5	-	-
Health Insurance Contributions (HB1)	-	-	-	-	-	-	-	-	2,760	3,096
Total Additions	75,643	166,066	200,101	92,071	68,615	194,165	164,781	135,310	62,862	388,553
Deductions										
Health Insurance Premiums	50,155	59,941	60,843	65,553	68,518	70,407	74,844	78,190	81,849	85,151
Administrative Expenses	688	679	275	339	480	381	376	434	462	466
Self-Funded Healthcare Costs	-	-	-	-	-	160	603	149	228	257
Total Deductions	50,843	60,620	61,117	65,894	68,998	70,948	75,823	78,773	82,539	85,874
Net Increase (Decrease) in Fiduciary Net Position	\$24,800	\$105,446	\$138,983	\$26,177	\$(383)	\$123,216	\$88,958	\$56,537	\$(19,677)	\$302,679

Changes in Fiduciary Net Position - KERS Non-Hazardous Pension Fund

As of June 30 (\$ in Thousands)

Additions	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Members' Contributions	\$96,418	\$96,744	\$92,941	\$100,424	\$101,677	\$100,544	\$104,972	\$93,759	\$96,594	\$90,202
Employers' Contributions	211,071	280,874	296,836	520,948	512,670	644,803	619,988	948,866	948,578	1,134,180
General Fund Appropriations	-	-	-	-	-	58,193	67,574	75,858	-	-
Health Insurance Contributions (HB1)	5,337	3,344	4,546	4,181	4,817	5,156	5,786	5,963	1	(8)
Employer Cessation	-	-	-	-	-	53,215	17	10,643	20	-
Net Investment Income (Loss)	9,789	303,011	337,923	44,570	(20,662)	220,985	147,577	114,918	53,696	528,439
Bank of America Settlement	-	-	-	8,442	-	-	-	-	-	-
Northern Trust Settlement	-	-	-	-	-	-	301	37	-	-
Pension Spiking	-	-	-	743	414	909	1,564	95	(6)	52
Total Additions	322,615	683,973	732,246	679,308	598,916	1,083,805	947,779	1,250,139	1,098,883	1,752,865
Deductions										
Benefit Payments	858,151	873,906	889,937	905,790	923,288	948,489	967,374	988,349	999,813	1,009,501
Refunds	12,004	12,907	13,627	13,552	12,130	11,819	13,603	12,342	11,523	8,953
Administrative Expenses	8,776	10,719	11,145	10,474	10,807	10,974	10,692	11,712	11,941	11,627
Capital Project Expenses	8	-	-	-	181	34	-	-	-	-
Total Deductions	878,939	897,532	914,709	929,816	946,406	971,316	991,669	1,012,403	1,023,277	1,030,081
Net Increase (Decrease) in Fiduciary Net Position						\$112,489	\$(43,890)	\$237,736	\$75,606	\$722,784

KERS Non-Hazardous Insurance Fund

Additions	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Employers' Contributions	\$146,844	\$162,191	\$164,176	\$132,208	\$131,935	\$133,024	\$132,364	\$173,576	\$170,479	\$153,571
Net Investment Income (Loss)	(4,803)	40,661	96,738	8,690	(3,904)	90,915	61,331	43,202	10,624	258,595
Retired Re-employed (HB1)	-	-	2,433	3,732	3,880	3,765	4,055	3,996	4,502	4,705
Member Drug Reimbursement	7,865	4,846	8	-	-	1	5	3	2	-
Premiums Received from Retirees	15,666	14,294	918	272	240	248	216	184	183	182
Humana Gain Share Payment	-	-	-	-	-	-	-	3,079	-	17,167
Employer Cessations	-	-	-	-	-	15,567	-	1,391	25	28,400
Northern Trust Settlement	-	-	-	-	-	-	32	4	-	-
Health Insurance Contribution (HB1)	-	-	-	-	-	-	-	-	6,127	6,326
Total Additions	165,563	221,992	264,273	144,902	132,151	243,520	198,003	225,435	191,942	468,946
Deductions										
Health Insurance Premiums	163,841	140,157	112,671	123,127	126,550	127,648	130,069	127,221	125,006	119,897
Administrative Expenses	5,203	4,285	736	893	818	861	760	875	847	815
Self-Funded Healthcare Costs	-	-	-	2,145	2,095	1,920	1,819	1,962	1,724	1,609
Excise Tax Insurance	-	-	-	3	6	3	3	3	3	-
Total Deductions	169,044	144,442	113,407	126,168	129,469	130,432	132,651	130,061	127,580	122,321
Net Increase (Decrease) in Fiduciary Net Position	\$(3,481)	\$77,550	\$150,866	\$18,734	\$2,679	\$113,088	\$65,352	\$95,374	\$64,362	\$346,625

Changes in Fiduciary Net Position - KERS Hazardous Pension Fund

As of June 30 (\$ in Thousands)

Additions	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Members' Contributions	\$11,602	\$11,467	\$11,995	\$12,670	\$15,055	\$17,523	\$17,891	\$17,118	\$19,769	\$19,961
Employers' Contributions	17,367	27,334	11,670	28,374	23,690	37,630	32,790	55,229	59,096	62,182
General Fund Appropriations	-	-	-	-	-	15,000	10,000	-	-	-
Health Insurance Contributions (HB1)	629	402	551	537	684	811	909	934	4	3
Net Investment Income (Loss)	(10,286)	51,497	80,724	8,701	(1,652)	70,993	51,848	36,704	6,805	-
Bank of America Settlement	-	-	-	767	-	-	-	-	-	-
Northern Trust Settlement	-	-	-	-	-	-	33	4	-	-
Pension Spiking	-	-	-	162	70	344	871	29	19	18
Investment Income										174,922
Total Additions	19,312	90,700	104,941	51,211	37,847	142,301	114,342	110,018	85,693	257,086
Deductions										
Benefit Payments	48,424	48,855	54,320	56,774	59,306	61,231	65,616	69,527	71,861	73,889
Refunds	2,543	2,762	2,830	2,609	2,211	2,106	2,501	2,684	3,168	4,380
Administrative Expenses	877	733	897	844	903	919	975	1,103	1,176	1,255
Capital Project Expenses	-	-	-	-	15	4	-	-	-	-
Total Deductions	51,844	52,350	58,048	60,227	62,435	64,260	69,092	73,314	76,205	79,524
Net Increase (Decrease) in Fiduciary Net Position	\$(32,532)	\$38,350	\$46,892	\$(9,016)	\$(24,588)	\$78,041	\$45,250	\$36,704	\$9,488	\$177,562

KERS Hazardous Insurance Fund

Additions	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Employers' Contributions	\$23,984	\$25,144	\$23,336	\$14,173	\$15,929	\$4,688	\$4,302	\$3,725	\$4,482	\$23
Net Investment Income (Loss)	60	32,887	52,214	7,793	(882)	59,188	42,567	28,049	638	126,475
Retired Re-employed (HB1)	-	-	538	709	837	932	986	1,245	1,294	1,276
Member Drug Reimbursement	351	243	-	-	-	-	-	-	1	-
Premiums Received from Retirees	876	895	37	14	(13)	(51)	(50)	(19)	(5)	(11)
Humana Gain Share	-	-	-	-	-	-	-	213	-	1,253
Northern Trust Settlement	-	-	-	-	-	-	18	2	-	-
Health Insurance Contributions (HB1)	-	-	-	-	-	-	-	-	1,100	1,164
Total Additions	25,271	59,169	76,126	22,689	15,871	64,757	47,823	33,215	7,510	130,180
Deductions										
Health Insurance Premiums	13,941	16,837	15,405	17,000	17,490	17,562	18,697	19,280	19,630	19,800
Administrative Expenses	335	179	78	101	97	105	104	117	123	118
Self-Funded Healthcare Costs	-	-	-	-	-	45	79	94	125	112
Excise Tax Insurance	-	-	-	-	-	-	-	-	-	-
Total Deductions	14,276	17,016	15,482	17,101	17,587	17,712	18,880	19,491	19,878	20,030
Net Increase (Decrease) in Fiduciary Net Position	\$10,995	\$42,153	\$60,642	\$5,588	\$(1,716)	\$47,045	\$28,943	\$13,724	\$(12,368)	\$110,150

Changes in Fiduciary Net Position - SPRS Pension Fund

As of June 30 (\$ in Thousands)

Additions	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Members' Contributions	\$5,154	\$4,495	\$5,005	\$5,150	\$5,149	\$5,349	\$5,522	\$5,062	\$4,767	\$4,752
Employers' Contributions	15,040	18,501	20,279	31,444	25,723	38,028	36,486	58,947	58,358	59,262
General Fund Appropriations	-	-	-	-	-	25,000	10,000	1,086	1,086	384
Health Insurance Contributions (HB1)	46	48	70	94	113	131	155	176	-	-
Net Investment Income (Loss)	43	25,954	40,374	3,427	(3,841)	26,795	18,487	14,863	6,359	61,966
Bank of America Settlement	-	-	-	646	-	-	-	-	-	-
Northern Trust Settlement	-	-	-	-	-	-	21	3	-	-
Pension Spiking	-	-	-	546	99	210	392	15	9	4
Total Additions	20,283	48,998	65,729	41,307	27,243	95,513	71,063	80,152	70,579	126,368
Deductions										
Benefit Payments	48,867	50,559	53,026	54,766	56,268	56,935	58,805	60,948	62,423	63,249
Refunds	149	31	214	85	11	26	22	162	88	273
Administrative Expenses	73	184	215	201	176	181	194	225	266	230
Capital Project Expenses	-	-	-	-	4	1	-	-	-	-
Total Deductions	49,089	50,774	53,454	55,052	56,459	57,143	59,021	61,335	62,777	63,752
Net Increase (Decrease) in Fiduciary Net Position	\$(28,806)	\$(1,776)	\$12,276	\$(13,745)	\$(29,216)	\$38,370	\$12,042	\$18,817	\$7,802	\$62,616

SPRS Insurance Fund

Additions	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Employers' Contributions	\$10,810	\$16,829	\$14,498	\$10,379	\$10,228	\$9,222	\$9,397	\$13,282	\$13,133	\$9,284
Net Investment Income (Loss)	(1,458)	12,993	20,508	2,921	(48)	21,570	16,420	10,766	1,108	50,051
Retired Re-employed (HB1)	-	-	(5)	3	9	-	-	6	-	-
Member Drug Reimbursement	279	178	-	-	-	-	-	-	-	-
Premiums Received from Retirees	20	23	11	1	(29)	(55)	(41)	(13)	(12)	(14)
Humana Gain Share	-	-	-	-	-	-	-	144	-	811
Northern Trust Settlement	-	-	-	-	-	-	8	1	-	-
Health Insurance contributions (HB1)	-	-	-	-	-	-	-	-	196	209
Total Additions	9,651	30,023	35,012	13,304	10,160	30,737	25,784	24,186	14,425	60,341
Deductions										
Health Insurance Premiums	10,791	12,546	12,688	13,483	13,836	13,405	13,881	13,942	14,215	14,487
Administrative Expenses	201	184	58	65	89	66	62	69	71	71
Self-Funded Healthcare Costs	-	-	-	-	-	24	38	40	22	25
Excise Tax Insurance	-	-	-	-	-	-	-	-	-	-
Total Deductions	10,992	12,730	12,745	13,548	13,925	13,495	13,981	14,051	14,308	14,583
Net Increase (Decrease) in Fiduciary Net Position	\$(1,341)	\$17,293	\$22,267	\$(244)	\$(3,765)	\$17,242	\$11,803	\$10,135	\$117	\$45,758

**Schedule of Benefit Expenses CERS Non-Hazardous
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%

Note: This table includes 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 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%

Note: This table includes 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 - KERS Non-Hazardous

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	1,028
Total Monthly Benefits	\$7,565,780	\$67,591,003	\$2,807,938	\$950,318
% of Total Monthly Benefits	9.59%	85.65%	3.56%	1.20%
Fiscal Year 2018				
Average Benefit	\$998	\$1,879	\$1,019	\$940
Number of Accounts	8,070	37,141	2,767	1,007
Total Monthly Benefits	\$8,049,794	\$69,780,011	\$2,818,593	\$946,466
% of Total Monthly Benefits	9.87%	85.52%	3.45%	1.16%
Fiscal Year 2019				
Average Benefit	\$993	\$1,876	\$1,029	\$933
Number of Accounts	8,387	37,751	2,751	997
Total Monthly Benefits	\$8,328,706	\$70,826,696	\$2,831,527	\$930,110
% of Total Monthly Benefits	10.04%	85.42%	3.41%	1.12%
Fiscal Year 2020				
Average Benefit	\$984	\$1,872	\$1,031	\$937
Number of Accounts	8,622	38,233	2,676	987
Total Monthly Benefits	\$8,483,484	\$71,585,386	\$2,759,983	\$924,459
% of Total Monthly Benefits	10.13%	85.47%	3.30%	1.10%
Fiscal Year 2021				
Average Benefit	\$984	\$1,864	\$1,036	\$949
Number of Accounts	9,046	39,020	2,698	1,019
Total Monthly Benefits	\$8,897,420	\$72,724,923	\$2,796,355	\$966,951
% of Total Monthly Benefits	10.42%	85.17%	3.27%	1.13%

Note: This table includes 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 - 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%

Note: This table includes 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 - 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%

Note: This table includes 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.

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

	CERS Non- Hazardous	CERS Hazardous	KERS Non- Hazardous	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

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

	CERS Non- Hazardous	CERS Hazardous	KERS Non- Hazardous	KERS Hazardous	SPRS
Fiscal Year 2020					
Number of Accounts	3,584	580	1,755	195	54
Average Service Credit (months)	189	221	211	150	245
Average Final Compensation	\$36,968	\$67,994	\$47,069	\$51,021	\$78,468
Average Monthly Benefit	\$935	\$2,715	\$1,352	\$1,242	\$3,313
Average System Payment for Health Insurance	\$539	\$1,361	\$579	\$1,013	\$1,404
Fiscal Year 2021					
Number of Accounts	3,967	531	1,644	201	32
Average Service Credit (months)	194	209	201	143	217
Average Final Compensation	\$38,245	\$68,216	\$46,600	\$49,664	\$72,942
Average Monthly Benefit	\$987	\$2,589	\$1,276	\$1,248	\$2,872
Average System Payment for Health Insurance	\$543	\$1,326	\$560	\$1,019	\$1,347

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, 2021 (in Whole \$)

	Basic	Other	Period Certain	Pop Up	Social Security Adjustment	Survivorship	Annuity
CERS Non-Hazardous							
Number of Accounts	31,833	22	10,505	11,711	2,216	17,198	16
Monthly Benefits	\$26,072,657	\$32,968	\$9,329,054	\$14,477,132	\$2,882,852	\$17,454,489	\$2,494
CERS Hazardous							
Number of Accounts	1,904	32	1,038	4,459	564	3,141	-
Monthly Benefits	\$3,665,204	\$46,596	\$2,007,178	\$11,268,983	\$895,534	\$6,543,065	\$-
KERS Non-Hazardous							
Number of Accounts	19,231	19	6,495	10,072	3,349	12,610	7
Monthly Benefits	\$28,501,606	\$40,269	\$9,994,413	\$20,396,453	\$5,749,298	\$20,702,021	\$1,589
KERS Hazardous							
Number of Accounts	1,393	3	528	1,382	309	1,273	2
Monthly Benefits	\$1,531,628	\$4,763	\$638,708	\$2,040,250	\$328,842	\$1,499,210	\$482
SPRS							
Number of Accounts	190	1	133	751	194	465	-
Monthly Benefits	\$542,224	\$3,084	\$377,315	\$2,576,373	\$391,100	\$1,464,940	\$-
KPPA Total							
Number of Accounts	54,551	77	18,699	28,375	6,632	34,687	25
Monthly Benefits	\$60,313,319	\$127,680	\$22,346,668	\$50,759,191	\$10,247,626	\$47,663,725	\$4,565

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. Non-Hazardous 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 up to 12% per year over the prior fiscal year for the period of July 1, 2018 to June 30, 2028. 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 Non Hazardous 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 and changed how employer contributions are allocated and collected from the participating employers in the KERS Non-Hazardous Fund. Each employer will pay a normal cost contribution on the payroll of their covered employees and contribute to the fund an allocated share of the cost required to amortize the unfunded liability.

Employer Contribution Rates (%) As of June 30									
	2013	2014	2015	2016	2017	2018	2019	2020	2021
CERS Non-Hazardous									
Actual Rate	19.55%	18.89%	17.67%	17.06%	18.68%	19.18%	21.48%	24.06%	24.06%
CERS Hazardous									
Actual Rate	37.60%	35.70%	34.31%	32.95%	31.06%	31.55%	35.34%	39.58%	39.58%
KERS Non-Hazardous									
Actual Rate	23.61%	26.79%	38.77%	38.77%	48.59%	49.47%	83.43%	83.43%	84.43%
KERS Hazardous									
Actual Rate	29.79%	32.21%	26.34%	26.34%	23.82%	23.70%	36.85%	36.85%	36.00%
SPRS									
Actual Rate	63.67%	71.15%	75.76%	75.76%	89.21%	91.24%	146.28%	146.28%	143.48%

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, 2021 (in Whole \$)					
	CERS Non - Hazardous	CERS Hazardous	KERS Non - Hazardous	KERS Hazardous	SPRS
Number	39,966	9,358	32,150	3,037	1,774
Average Service Credit (Months)	265	278	311	264	321
Average Monthly System Payment for Health Insurance	\$328	\$975	\$358	\$693	\$898
Average Monthly Member Payment for Health Insurance	\$57	\$36	\$57	\$42	\$22
Total Monthly Payment for Health Insurance	\$14,473,699	\$7,748,633	\$12,493,475	\$1,838,807	\$1,261,186

Insurance Contracts by Type As of June 30 (in Whole \$)

CERS Non-Hazardous	2013	2014	2015	2016	2017	2018	2019	2020	2021
KEHP Parent Plus	340	278	242	235	222	231	214	210	218
KEHP Couple/Family	857	546	473	465	462	510	530	519	508
KEHP Single	7,652	7,843	8,098	8,164	8,313	8,802	8,912	8,751	8,685
Medicare without Prescription	2,707	2,583	2,531	2,499	2,462	2,389	2,278	2,183	2,081
Medicare with Prescription	18,824	20,200	21,520	23,007	24,247	25,476	26,848	27,786	28,472
CERS Hazardous	2013	2014	2015	2016	2017	2018	2019	2020	2021
KEHP Parent Plus	400	432	456	378	395	422	430	425	473
KEHP Couple/Family	2,155	2,184	2,255	2,321	2,387	2,571	2,648	2,816	2,894
KEHP Single	1,425	1,447	1,500	1,595	1,645	1,712	1,746	1,731	1,768
Medicare without Prescription	79	89	107	114	125	119	121	116	120
Medicare with Prescription	2,324	2,510	2,697	2,969	3,205	3,388	3,658	3,911	4,103
KERS Non-Hazardous	2013	2014	2015	2016	2017	2018	2019	2020	2021
KEHP Parent Plus	618	506	452	441	411	460	441	433	428
KEHP Couple/Family	1,276	797	714	656	663	696	700	666	633
KEHP Single	9,364	9,491	9,251	8,876	8,627	8,638	8,304	7,942	7,415
Medicare without Prescription	1,474	1,370	1,303	1,286	1,229	1,179	1,141	1,089	1,026
Medicare with Prescription	16,834	17,738	18,577	19,447	20,215	21,117	21,713	22,271	22,648
KERS Hazardous	2013	2014	2015	2016	2017	2018	2019	2020	2021
KEHP Parent Plus	106	110	110	97	88	96	103	112	104
KEHP Couple/Family	451	448	448	439	432	478	493	491	491
KEHP Single	625	647	656	663	667	686	699	677	667
Medicare without Prescription	60	56	62	66	72	73	83	82	82
Medicare with Prescription	985	1,104	1,177	1,302	1,401	1,495	1,584	1,662	1,693
SPRS	2013	2014	2015	2016	2017	2018	2019	2020	2021
KEHP Parent Plus	76	78	81	77	79	74	77	85	89
KEHP Couple/Family	421	444	441	447	420	426	454	459	448
KEHP Single	283	263	265	246	251	253	224	226	221
Medicare without Prescription	20	20	16	18	17	21	16	16	13
Medicare with Prescription	682	712	777	850	897	941	975	998	1003
KPPA Total	2013	2014	2015	2016	2017	2018	2019	2020	2021
KEHP Parent Plus	1,540	1,404	1,341	1,228	1,195	1,283	1,265	1,265	1,312
KEHP Couple/Family	5,160	4,419	4,331	4,328	4,364	4,681	4,825	4,951	4,974
KEHP Single	19,349	19,691	19,770	19,544	19,503	20,091	19,885	19,327	18,756
Medicare without Prescription	4,340	4,118	4,019	3,983	3,905	3,781	3,639	3,486	3,322
Medicare with Prescription	39,649	42,264	44,748	47,575	49,965	52,417	54,778	56,628	57,919

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



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