County Employees Retirement System
and Kentucky Retirement Systems
Joint Audit Committee
November 4, 2021 at 10:00 a.m. EST
Live Video Conference/Facebook Live

AGENDA

1.	**Call to Order**	Betty Pendergrass
2.	**Opening Video Teleconference Statement**	Betty Pendergrass
3.	**Roll Call**	Sherry Rankin
4.	**Public Comment**	Sherry Rankin
5.	**Approval of August 26, 2021 Joint Audit Committee Minutes***	Betty Pendergrass
6.	**External Audit**	Blue and Co.
	a. **DRAFT Results of annual financial audit, fiscal year ended June 30, 2021***	
	i. Includes Financial Section of the Annual Report	
	ii. Includes GASB 67 and 74 Reports	
	b. Management Letter Comments	
	c. Auditor Communications with those Charged with Governance	
7.	**Financial Reporting**	
	a. Quarterly Financial Statements for quarter ended September 30, 2021	Rebecca Adkins
	i. Discussion on presentation of quarterly financials to Audit Committee	Betty Pendergrass
	b. Update on Annual Report and SAFR Timetable	Connie Davis
	c. DRAFT Management Response to Fiscal Year 2020 GFOA ACFR Letter	Connie Davis
8.	**IT Security Updates**	
	a. **Purchase of Infrastructure and Application Security Assessment***	Dominique McKinley
9.	**Joint Audit Committee Administrative Updates**	
	a. **Charter for the Joint Audit Committee***	Kristen Coffey
	b. **Establishment of Joint Audit Committee Meetings for Calendar Year 2022***	Kristen Coffey
	c. Information Disclosure Incidents	Jillian Hall
	d. Anonymous Tips	Jillian Hall
	e. Internal Audit Budget as of 9/30/2021	Kristen Coffey
	f. Status of Current Internal Audit Projects	Kristen Coffey
	g. Review of Issued Reports – Security Access Review	Kristen Coffey
10.	**Professional Articles**	Kristen Coffey
	a. Institute of Internal Auditors – Tone at the Top – Recognizing the Value of Independent Assurance – *Issue #105 June 2021*	
	b. Institute of Internal Auditors – Tone at the Top – Confronting the Cybersecurity Monster – *Issue #106 August 2021*	
11.	**Adjourn***	Betty Pendergrass

***Joint Audit Committee Action Required**

MINUTES OF MEETING
COUNTY EMPLOYEES RETIREMENT SYSTEM
AND KENTUCKY RETIREMENT SYSTEMS
BOARD OF TRUSTEES JOINT AUDIT COMMITTEE
SPECIAL CALLED MEETING
AUGUST 26, 2021, 10:00 A.M., E.T.
VIA LIVE VIDEO TELECONFERENCE

At the August 26, 2021 meeting of the Joint Audit Committee of the Board of Trustees of the County Employees Retirement System and the Kentucky Retirement Systems, the following Committee members were present: Betty Pendergrass, William O'Mara, Kelly Downard, and Lynn Hampton. Staff members present were David Eager, Rebecca Adkins, Erin Surratt, Michael Board, Steven Herbert, Vicki Hale, Carrie Bass, Connie Davis, Madeline Perry, Matthew Daugherty, Steve Willer, Jerry Yang, Kristen Coffey, Dominique McKinley, Chris Johnson, Shaun Case, Phillip Cook, and Glenna Frasher. Others present included Larry Totten, Ed Owes, and John Chilton.

Mr. Eager called the meeting to order.

Ms. Bass read the Statement on Special Meetings.

Ms. Rankin called roll.

Being no Public Comment, Mr. Eager introduced the agenda item *Election of Chair.* Mr. Eager opened the floor for nominations for the position of Chair of this committee. Mr. Downard made a motion and Mr. O'Mara seconded to elect Ms. Betty Pendergrass as Chair. The motion carried unanimously.

Ms. Pendergrass introduced the agenda item *Election of Vice-Chair*. Ms. Pendergrass opened the floor for nominations for the position of Vice-Chair of this committee. Mr. O'Mara made a motion and Mr. Downard seconded to elect Ms. Lynn Hampton as Vice-Chair. The motion carried unanimously.

Ms. Pendergrass introduced the agenda item *Approval of February 4, 2021 Audit Committee Minutes.* Ms. Pendergrass noted that these are the minutes from the Kentucky Retirement Systems Audit Committee when they met in February 4, 2021. Ms. Pendergrass indicated that she was on that committee, and Mr. Chilton who is present today, was the chair of that committee; she has reviewed these minutes for their completeness and has no edits. Ms. Pendergrass asked Mr. Chilton if he saw any edits that were needed, and he indicated he saw none. Mr. Downard asked if they didn't attend the meeting, can we vote on approving the minutes. Ms. Pendergrass stated that she asked for clarification on that subject, and according to *Robert's Rules of Order*, approval of minutes even though you did not attend that particular meeting is allowed. Ms. Pendergrass noted that her personal rule is to not make motions on those minutes, and she feels most would follow that rule. However, in this instance, we are in a situation that *Robert's* calls "an item of necessity". Ms. Pendergrass stated that out of necessity, we need to approve these minutes, and with her being the only member of the committee that was present at this particular meeting, and Mr. Chilton, as the Chair of the prior committee, weighing in on this matter, she is asking this Board to approve those previous meeting minutes. Mr. Downard made a motion and Mr. O'Mara seconded to approve the minutes from the February 4, 2021 Kentucky Retirement Systems Audit Committee. The motion carried unanimously.

Ms. Pendergrass introduced the agenda item *Joint Audit Committee Approval Requests.* Ms. Pendergrass indicated that there are two charters being presented for review, the Charter for the Joint Audit Committee and the Charter for the Division of Internal Audit Administration. The Charter for the Joint Audit Committee was reviewed first. Ms. Pendergrass asked the question, "is it possible for the Joint Audit Committee itself to hire an external firm to conduct and audit or investigation of its own, separate from that routine audit that is completed every year". Ms. Coffey deferred to the legal department for their input, and then it was discussed that this matter would be researched further. Ms. Pendergrass indicated it wasn't necessary for this particular document, but that she was curious if it could be done after reviewing the section regarding who hires which firms.

Ms. Pendergrass then referenced page 2 of the document there is a discussion about independence, wherein it states "Each Joint Audit Committee member will be independent". In the footnote for that, there is the Merriam-Webster definition. In the AICPA Code of Ethics outlines a different definition of independent, so Ms. Pendergrass feels like there may need to be another word used in this instance in order to protect the CPAs that are on this committee to not interfere with the AICPA Code of Ethics. Ms. Pendergrass asked for suggestions on another word other than "independence" that could be used in this context. Ms. Hampton asked for clarification of Ms. Pendergrass' view on where she sees the conflict since the committee members are not conducting audits or doing any financial work for KPPA. Ms. Pendergrass responded that her concern would be that if someone else looked at this sentence and then goes to the AICPA Code of Ethics and sees their definition of independent, then the CPAs on the committee don't meet that definition and there might be criticism of the Joint Audit Committee members because we are not meeting the AICPA code of ethics definition. Ms. Pendergrass indicated that it is just the use of the word and how it is defined differently in the KPPA Joint Audit context and in professional standards. Ms. Hampton suggested that maybe the legal counsel should approach the state board to inquire if the usage of the word is inappropriate in this context. Ms. Pendergrass indicated that it's not a legal matter but rather a professional ethics question and she offered to contact AICPA to have them review the paragraph that includes this language for their comments. Mr. Chilton suggested working the concept in there that instead of being independent, indicate that the members have no conflicts of interest. Ms. Pendergrass indicated that was one thought she had considered, and it might be a better way of phrasing it. Ms. Pendergrass suggested a possible change of wording to state that each audit committee member will not have conflicts of interest with respect to projects under the purview of the joint audit committee, or something to that effect. Mr. Downard indicated that it is easier and accomplishes the intent. Ms. Pendergrass asked Ms. Coffey to make those changes and updates.

Ms. Coffey indicated that she had received a comment regarding section Internal Controls and Compliance, in that should we specify KPPA, CERS and KRS, or do we think that is clear in this Charter. Ms. Pendergrass indicated that it never hurts to make things more clear, and has no problem with the heading indicating all 3 names. Mr. Chilton agreed. Ms. Coffey indicated that she would make that change.

Ms. Pendergrass then spoke about the Internal Audit Section we talk about the review and make recommendations regarding the appointment, dismissal and replacement of the Internal Auditor. Ms. Pendergrass questioned who has the authority to appoint or dismiss the Internal Auditor, does that lie with the Governor since in number 2 the rest of the staff is at the discretion of the Governor, and she assumes that they are under Section 18A. Ms. Coffey indicated that she had received comments on this section as well. Ms. Coffey received a suggestion that perhaps the language in number 1 should read, "review and make recommendations to the KPPA Executive Director regarding appointment, dismissal and replacement", due to the fact that the KPPA Executive Director is the one who has been given that authority. Ms. Coffey indicated that the same would also be true for number 2, and should read, "review and make recommendations to the KPPA Executive Directors regarding salary of the internal auditor". Ms. Pendergrass stated that her concern with the internal auditor being hired and fired by the Executive Director was whether that would create a subtle pressure if internal audit, especially the director, is choosing audit engagements and making reports on audit findings, but the director's appointment, dismissal and replacement is controlled by the Executive Director, then there might be some issues there. Ms. Pendergrass is wondering if the Joint Audit Committee should have the responsibility, especially for the Internal Audit Director, for appointment, dismissal and replacement. Mr. Downard stated that he did not agree with that, he feels that the committee can make a recommendation, but he is not sure that the Board Committee can take on the executive duties of hiring and firing of personnel. Mr. Downard indicated that we make the recommendation as required, and if the Executive Director disagreed, and hired someone else, then I think we would take it back to our Boards and indicate that we have a problem. Mr. Chilton stated that in most organizational charts, the Internal Auditor would report to the Board with a solid line on the chart and with a dotted line to the Executive Director. Mr. Eager stated that the Bylaws indicate that the Executive Director is responsible for staffing and compensation. Mr. Downard asked if language could be added to indicate that the Joint Audit Committee would approve the actions of the Executive Director in the appointment, dismissal and replacement of the Internal Audit Director, in case any issues arose. Ms. Bass stated that

KRS 61.505 requires the Executive Director of KPPA to make all of the hiring, firing, salary decisions for all KPPA staff, and this includes the Internal Audit Director. Ms. Bass expressed concerns that a committee or board would not have the authority to override or add to that statutory language. Ms. Hale agreed and further stated that the statutes for the CERS and KRS indicated they were authorized to hire a CEO and general counsel, but did not indicate that jointly or separately that they are authorized to hire any other staff. Mr. O'Mara stated that the intentions of the committee is to maintain independence for the Director of Internal Audit and working within the confines of our state statutes, what would be the best way to do that. Mr. O'Mara agreed with Mr. Chilton regarding his comments on the organizational chart and how the dotted line to the Executive Director was so that the day to day business is conducted. So, if the state law states that we cannot usurp this, but can't the Executive Director accept that they will come to the Committee for approval before hiring and firing. Mr. O'Mara asked if there is an art to the wording where we are within the confines and still meet the independence that we are trying to establish. Ms. Bass responded that there may be some phrasing that can be done there, but it would have to be done in a way not to imply that the committee has the final approval or final say in the hiring, firing, or salary of the position. Ms. Bass indicated that there is a remedy in place if there is an issue with the KPPA Executive Director and the Director of Internal Audit. The remedy includes the members of the Joint Audit Committee going back to their respective boards to report the issue, and those boards will request that their members who are serving on the KPPA Board to take action to terminate the contract of the KPPA Executive Director or to reprimand the KPPA Executive Director in some other fashion. Ms. Hampton asked if it would be permissible to put a time frame in that the Executive Director would inform the committee, but not take action for a length of time, i.e. 5 days or longer, that would allow a board or committee meeting to be held quickly. Ms. Pendergrass asked if it is possible to reword number 1 paragraph so that the Executive Director makes a choice from a list provided by the Joint Audit Committee. This would take care of the appointment and replacement, and then we would just need to request that the Executive Director bring a request for dismissal to the committee prior to taking action. Mr. Eager asked what if the committee rejects the request for dismissal. Ms. Pendergrass responded that then we would have to go through the complications of reporting to our respective boards and then bring it before the KPPA board to attempt to resolve the differences. Mr. O'Mara asked if the word, "consult" is acceptable to all parties, within the legal definition, that the "Executive Director will consult". Ms. Bass answered yes, absolutely. Mr. O'Mara then stated this would ensure that the Executive Director has shared, either with the Chair or the committee as a whole, the issue of hiring and firing. Mr. Eager pointed out that if the committee is going to provide a list of candidates, then they will have to go through 45A and be involved in the hiring process. Ms. Pendergrass asked if the Internal Audit Director position under 18A or is it a contract position. Ms. Bass answered that this position falls under 18A and that prevents those individuals outside of 18A, like the committee members, from being allowed to sit on the hiring panel of an 18A employee. Ms. Pendergrass then asked if the Personnel Cabinet would be able to provide the committee with a list of applicants that are being interviewed. Ms. Bass indicated that she would like to follow-up with the Personnel Cabinet regarding if she is correct on individuals outside of 18A not being on the hiring panel of an 18A employee, and if so, then will ask if the committee can be contacted and included in a second interview process. Ms. Pendergrass indicated that otherwise, she unsure how they would be able to review and recommend if they were not provided information or be able to interview. Ms. Pendergrass suggested that we leave it as it is now and do the research regarding protecting the Director of Internal Audit from undue pressure and influence, and we can modify this Charter at a later date, when we get better language. Mr. Downard stated that he feels that we not only have to protect the Director of Internal Audit, but also, the Executive Director, but he doesn't feel that the committee needs to get involved in the executive duties.

Ms. Pendergrass then indicated that under the heading External Audit, a provision needs to be added about the Joint Audit Committee having the authority to receive communications required by AICPA Auditing Standards Board from external auditors to governing boards. Ms. Pendergrass indicated that back in March, a question was asked that could the joint audit committee serve in that governing board role and the answer we received from the auditors that we consulted at that time was, yes, the joint audit committee as a designated representative of the two governing boards and the relationship that the joint committee has with KPPA, was sufficient for the external auditors to come to this Committee to deliver those communications. Ms. Pendergrass suggested that Ms. Coffey discuss this with our new external auditors and maybe get some wording from them or just make a simple statement. Mr. Chilton stated that his impression is that the external auditor's communications are directed to the Board not the audit committee. Ms. Pendergrass responded that we have three boards, which means that the auditors would have to go to all three boards to make those communications. And when discussions were held with the auditors, they felt like the Joint Audit Committee was a suitable representative for the three boards. Mr. O'Mara asked why wouldn't the communications go to the KPPA Board, which has members of both boards on them. Ms. Pendergrass responded that these communications have more to do with planning the audit, describing the scope of the audit, the management representation letters, etc. Mr. O'Mara then stated these are not the findings then. Ms. Pendergrass indicated no, but they could bring those to us, but finished report definitely goes to KPPA. Ms. Pendergrass stated that the communications she is speaking of are interim pieces and this function was previously held by the KRS Audit Committee. Ms. Hampton asked if this would be reviewed by the new auditors for their opinion. Ms. Pendergrass indicated that Ms. Coffey would reach out to the new auditors, Blue and Company, because we need to make sure that they have a path for their communications based on the auditing standards.

Ms. Pendergrass then referred to Section 7 of the Charter, we have a reference to financial statements in accordance with GAAP. We should add a phrase, GAAP for governmental entities in accordance with standards issued by the Governmental Accounting Standards Board. Mr. Downard agreed. Ms. Pendergrass asked that other than the items to be researched further, is the committee comfortable with voting to approve this Charter with the edits noted today, or would the committee prefer to see a clean copy at a later date. Mr. Downard made a motion and Mr. O'Mara seconded to adopt the Charter with edits, and get a clean copy to review at our next quarterly meeting. The motion carried unanimously. After the meeting, while determining if the Charter was consistent with State statutes, the KPPA Legal team suggested additional changes other than those discussed during the Joint Audit Committee meeting. The Joint Audit Committee Charter will be returned to the Joint Audit Committee for consideration of these changes. After approval by the Joint Audit Committee, both KRS and CERS need to review and approve.

Ms. Pendergrass then moved to the Charter for the Division of Internal Audit Administration. Ms. Coffey stated she has an edit, on the second page, under the heading "Independence", under number 1, at the end of that statement it says “if required”. She received a comment that it may be better stated as “as deemed necessary”. Ms. Pendergrass suggested moving that quote “as deemed necessary” to follow the word “access” in that sentence, so that it is clear that it only applies to the access and not the independence. Ms. Pendergrass indicated that on page 3 of the Charter, under Activities, number 10, it states “Adherence to appropriate auditing standards”, she would suggest adding “including, but not limited to” then list the standards that you are following. Ms. Pendergrass then commented on Section 10, Risk Assessment and Audit Plan with more suggested research.

Ms. Pendergrass stated that the Committee of Sponsoring Organizations, known as COSO, has an internal control framework that outlines 5 basic components, one of which is risk assessment. It has 17 principles that an organization must have in place so that external auditors can do any kind of assessment of your internal controls. And since we are subject to yellow book audits, there is a separate internal control report that auditors provide to us that does a limited assessment, not an opinion on our internal controls, but they do evaluate whether we have any material weaknesses or substantial deficiencies. Ms. Pendergrass indicated that at some point she would like to add a section to the internal audit to outline how internal audit can assist KPPA in making sure that those 17 principles are in place and operating effectively.

Ms. Pendergrass had a question for Ms. Coffey regarding the last page with the approval date listed as September 15^{th}, and was that correct given all of the Boards will need to sign after they approve. Ms. Coffey indicated that she used the date of the last scheduled meeting of the boards, which is the County Employees Retirement System meeting which is scheduled for September 15^{th}. Mr. O’Mara made a motion and Mr. Downard seconded to adopt the Internal Audit Charter with the edits noted today. The motion carried unanimously.

Ms. Pendergrass introduced the agenda item *Office of Legal Services Reports.* Ms. Bass began by providing a Summary of Potential Disclosures/Breaches from the 4^{th} Quarter of Calendar Year 2020. Even though the 4^{th} Quarter would be from October through December 2020, notification was received from an outside vendor in February 2021, regarding potential event that occurred during this time frame. Ms. Bass then reviewed the same summaries for both the

1st and 2nd Quarters of 2021. Ms. Bass then reviewed the summary memorandum of anonymous tips and updates regarding those ongoing investigations. Ms. Hampton asked if this was a normal report and if these are usual numbers for these types of cases. Ms. Bass indicated that many of the cases included in this particular report have been ongoing for the last 18 months to 2 years, and due to COVID restrictions, it had been difficult for the investigations to proceed as they had prior to the pandemic. These documents were presented for informational purposes.

Mr. Eager asked that Ms. Bass provide a quick overview of the retired reemployed restrictions. Ms. Bass stated that there are limitations or prohibitions on reemploying with a participating employer of the County Employees Retirement System or the systems administered by Kentucky Retirement Systems, after retirement. One of those requirements is that there cannot have been a prearranged agreement, or an agreement between the employer and employee to engage in employment once the employee retires. Another requirement is that the employee must sever their employment relationship with all participating employers before their retirement date. The third requirement is that a retired member cannot go back to work for a participating employer until they have observed the statutory break in service, and that can be from 1 month to 3 months in length.

Ms. Pendergrass introduced the agenda item *External Audit Updates.* Ms. Davis began by indicating that the external audit is going on and the auditors were in the office recently doing some testing. A calendar outlining the progress and estimated time lines for the annual report was reviewed by Ms. Davis. Ms. Adkins stated that our External Auditors, Blue and Company, with a question on whether we needed two annual reports or just one. After researching the subject, all parties agree that we can proceed with one annual report. Ms. Davis then reviewed the Financial Statements for Fiscal Year End June 30, 2021 including the Combined Statement of Fiduciary Net Position for the Pension Funds, Combined Statement of Changes in Fiduciary Net Position for Pension Funds and the Combined Statement of Fiduciary Net Position for Insurance Funds. Ms. Davis noted that this is not an audited statement. Ms. Adkins stated that the CERS Financial Statements will be presented to the CERS Finance Committee and will present the KRS and SPRS Financial Statements to the full KRS Board at their next respective meetings. These documents were presented for informational purposes.

Ms. Pendergrass introduced the agenda item *Division of Internal Audit Updates.* Ms. Coffey began by introducing herself and the Internal Audit staff, Jerry Yang and Madeline Perry, and Matthew Daugherty. Ms. Coffey then presented the Internal Audit Budget as of June 30, 2021. Mr. O'Mara asked if it was normal for the year to end with the budget at about a 90% usage. Ms. Coffey indicated that this was due to an employee that left, leaving a vacant position open for a few months. Ms. Coffey then reviewed the Fiscal Year 2022 Auditor Independence Statements. The Status of Current Internal Audit Projects that have been in progress or completed since the last update were then reviewed. Ms. Coffey reviewed the two audit reports that were completed the since the last meeting and were comprised of the Reconciliation of Great Plains to eMARS and Coding of Expenditures and the Custodial Fee Payment Process. Ms. Coffey discussed the Audit Plan, which is still in place as a new plan has yet to be presented to the committee for a vote, pending the review of the list of current and possible additional audits that the Internal Audit department would like to conduct. These documents were presented for informational purposes.

Ms. Pendergrass introduced the agenda item *Professional Articles.* Ms. Pendergrass thanked Ms. Coffey for always including the articles that are very insightful in these meetings. The two articles presented were entitled, "Institute of Internal Auditors – Be a Problem Solver" and "AICPA – COVID – 19 Audit Committee Checklist". These documents were presented for informational purposes.

Ms. Pendergrass introduced the agenda item *Closed Session.* Ms. Pendergrass then indicated that a closed session would be needed to discuss an infrastructure item related to public safety. Mr. Downard made a motion and Mr. O'Mara seconded to go into closed session.

Ms. Bass read the following Closed Session Statement:
A motion having been made in open session to move into a closed session for a specific purpose, and such a motion having carried by majority vote in open, public session, the Joint Audit Committee shall now enter closed session to discuss an infrastructure record to keep it from disclosure due to public safety pursuant to KRS 61.810(1)(m) and KRS 61.878(1)(m), because

of the necessity of preventing and protecting against a terrorist act.

There were no actions taken in the closed session.

There being no further business a motion was made by Mr. O'Mara and seconded by Mr. Downardto adjourn the meeting. Copies of all documents presented are incorporated as part of the minutes of theAudit Committee meeting as of August 26, 2021.

The remainder of the page intentionally left blank.

CERTIFICATION

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

____

Recording Secretary

I, as Chair of the Audit Committee of the Board of Trustees of the Kentucky Retirement Systems, do certify that the Minutes of the meeting held on August 26, 2021 were approved by the Joint Audit Committee on November 4, 2021.

____

Committee Chair

I have reviewed the Minutes of the Audit Committee Meeting on August 26, 2021 for form,content, and legality.

____

Executive Director
Office of Legal Services

FINANCIAL
TABLE OF CONTENTS

1

Management's Discussion & Analysis (Unaudited)

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

Total Pension Fiduciary Net Position was $12.9 billion at the beginning of the fiscal year and increased by 23.80% 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 $140.0million 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 ## and the Combining Statement of Fiduciary Net Position for the Insurance Fund on page ## provide a snapshot of the financial position of each of the three systems as of fiscal year 2021. The Combining Statement of Changes in Fiduciary Net Position for the Pension Funds on page ##, and the Combining Statement of Changes in Fiduciary Net Position for the Insurance Fund on page ##, summarize the additions and deductions that occurred for each of the three systems during fiscal year 2021.

The economic assumptions for the Pension and Insurance Funds for fiscal year 2021 are on page ##, the Schedules of Changes in Employers' Total Pension Liability on pages ##-##, the Schedules of the Employer Net Pension Liability on pages ##-##; the Schedule of Changes in Employers' Total Other Post-Employment Benefits (OPEB) Liability are on pages ##-##; and, the Schedule of the Employers' Net OPEB Liabilities are on page ##-##. These schedules include current and historical trend information about the actuarially funded status of each plan from a long-term, ongoing plan perspective and the progress made in accumulating sufficient assets to pay benefits and insurance premiums when due. The Schedules of the Employers' Contributions – Pensions are on pages ##-##, and the Schedules of the Employers' Contributions – OPEB are on pages ###-###. These schedules present current and historical trend information about the annual required contributions and the contributions made in relation to the requirement. These schedules provide information that contributes to understanding the changes over time in the funded status of the plans.

Kentucky Public Pensions Authority Combined

KPPA's combined fiduciary net position increased $4,514.6 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 $1,453.1 million to $6,977.8 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.	$16,391,138	$13,150,428	$13,133,900	$7,184,407	$5,687,583	$5,622,703	$23,575,545	$18,838,011	$18,756,603
Receivables	361,429	295,988	468,221	126,278	87,102	142,538	487,707	383,090	610,759
Equip/Int Assets, net of dep/amort.	677	1,619	2,677	-	-	-	677	1,619	2,677
Total Assets	**16,753,244**	**13,448,035**	**13,604,798**	**7,310,685**	**5,774,685**	**5,765,241**	**24,063,929**	**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	**$15,922,691**	**$12,861,218**	**$12,934,332**	**$6,977,758**	**$5,524,666**	**$5,480,639**	**$22,900,449**	**$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 Funds 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	22,788	23,142	-	22,784	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	1,830,743	428,222	695,703	7,224,522	2,632,146	3,427,086
Deductions:									
Benefit payments	2,263,387	2,205,859	2,144,053	-	-	-	2,263,387	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	2,406	2,372	39,143	40,074	38,797
Healthcare Costs	-	-	-	381,063	381,789	377,871	381,063	381,789	377,871
Total Deductions	2,332,306	2,277,038	2,212,907	383,417	384,195	380,243	2,715,723	2,661,233	2,593,150
Increase (Decrease) in Fiduciary Net Position	**3,061,473**	**(73,114)**	**518,476**	**1,447,326**	**44,027**	**315,460**	**4,508,799**	**(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	**$15,922,691**	**$12,861,218**	**$12,934,332**	**$6,971,992**	**$5,524,666**	**$5,480,639**	**$22,894,683**	**$18,385,884**	**$18,414,971**

Management's Discussion & Analysis (Unaudited)

CERS Investment Income - Pension As of June 30 ($ in Thousands)			
Investment Income - Pension	**2021**	**2020**	**2019**
Increase (decrease) in fair value of investments	$1,779,618	$(562,768)	$206,282
Investment income net of investment expense	$181,561	$180,227	$160,480
Gain on sale of investments	$423,782	$455,215	$160,765
Net Investment Income	**$2,384,961**	**$72,674**	**$527,527**

KERS Investment Income - Pension 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 Investment Income - Pension 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	$4,881
Gain on sale of investments	$11,026	$12,213	$3,873
Net Investment Income	**$61,966**	**$6,359**	**$14,864**

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.

Investment Income - 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 ## and Net OPEB Liability on pages ##-##. The asset values stated in the Schedules of Changes in Employers' TPL on pages ##-## and Total OPEB Liability on pages ##-## are the actuarial value of assets. The actuarial value of assets recognizes a portion of the difference between the fair value of assets and the expected fair value of assets based on the investment return assumption. The amount recognized each year is 20% of the difference between fair value and expected fair value. The actuarial accrued liability is calculated using the entry age normal cost funding method. This actuarial accrued liability is the measure of the cost of benefits that have been earned to date by KPPA's 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 $24.1 million for a total unfunded amount of $25,730.6 million in fiscal year 2021, compared to an unfunded amount of $25.754.7 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 $2,536.4 million compared to $3,186.4 million for fiscal year 2020. This is a decrease in the unfunded actuarial accrued liability of $650.0 million. The decrease is due to the accrued liability being lower than expected due to the 2021 healthcare premium experience.

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

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	$ 70	$ 416	$ 1,143	$ 608
Short-term Investments	486,085	416,480	131,684	429,500	1,463,749	935,267
Total Cash and Short-term Investments	**486,429**	**416,793**	**131,754**	**429,916**	**1,464,892**	**935,875**
RECEIVABLES						
Accounts Receivable	88,323	50,693	17,763	36,356	193,135	147,337
Accounts Receivable - Investments	153,262	55,983	38,476	85,776	333,497	148,651
Total Receivables	**241,585**	**106,676**	**56,239**	**122,132**	**526,632**	**295,988**
INVESTMENTS, AT FAIR VALUE						
Core Fixed Income	1,427,767	782,124	365,643	856,629	3,432,163	2,387,690
Public Equities	5,374,082	1,381,218	1,354,269	3,085,629	11,195,198	4,780,088
Private Equities	948,500	267,509	238,414	584,978	2,039,401	1,051,884
Specialty Credit	1,906,671	652,248	485,653	1,163,959	4,208,531	1,998,223
Derivatives	(156)	80	(33)	52	(57)	7,466
Absolute Return	-	-	-	-	-	175,390
Real Return	740,646	235,954	186,784	422,670	1,586,054	689,769
Opportunistic	307,267	88,461	76,341	205,755	677,824	314,575
Real Estate	455,127	141,477	110,311	258,216	965,131	573,313
Total Investments, at Fair Value	**11,159,904**	**3,549,071**	**2,817,382**	**6,577,888**	**24,104,245**	**11,978,398**
Securities Lending Collateral Invested	310,117	104,773	78,524	176,603	670,017	236,155
CAPITAL/INTANGIBLE ASSETS						
Capital Assets	1,854	1,020	153	-	3,027	2,885
Intangible Assets	10,788	6,413	827	-	18,028	17,302
Accumulated Depreciation	(1,854)	(1,020)	(153)	-	(3,027)	(2,826)
Accumulated Amortization	(10,431)	(6,093)	(819)	-	(17,343)	(15,742)
Total Capital Assets	**357**	**320**	**8**	**-**	**685**	**1,619**
Total Assets	**12,198,392**	**4,177,633**	**3,083,907**	**7,306,539**	**26,766,471**	**13,448,035**
LIABILITIES						
Accounts Payable	9,796	4,105	1,119	462	15,482	12,602
Investment Accounts Payable	273,391	108,813	69,842	155,862	607,908	338,060
Securities Lending Collateral	310,117	104,773	78,524	176,603	670,017	236,155
Total Liabilities	**593,304**	**217,691**	**149,485**	**332,927**	**1,293,407**	**586,817**
Total Fiduciary Net Position Restricted for Pension Benefits	**$ 11,605,088**	**$ 3,959,942**	**$ 2,934,422**	**$ 6,973,612**	**$ 25,473,064**	**$ 12,861,218**

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

which include only those investable assets held by each System.

Combining Statement of Fiduciary Net Position
As of June 30, 2021 ($ in Thousands

ASSETS	CERS Pension Non-Hazardous	CERS Pension Hazardous	CERS Pension Total	KERS Pension Non-Hazardous	KERS Pension Hazardous	KERS Pension TOTAL
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 Collateral Invested	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 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 thos

which include only those investable assets held by each System.

Combining Statement of Fiduciary Net Position - Insurance

As of June 30, 2021 ($ in thousands)

ASSETS	CERS Non-Hazardous	CERS Hazardous	KERS Non-Hazardous	KERS Hazardous	SPRS	Insurance Total 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 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 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.

Note: The displayed fair values include investable assets held by each System and its associated contributions, payables, equipment and intangible assets; unlike those found

Section, which include only those investable assets held by each System.

Combining Statement of Changes In Fiduciary Net Position
For the fiscal year ending June 30, 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	$ 346,026	$ 689,006	$ 353,360
Employer Contributions	644,285	1,020,762	59,262	3	1,724,312	1,709,544
General Fund Appropriations	-	-	384	563	947	1,086
Pension Spiking Contributions	148	70	4	42,897	43,119	369
Northern Trust Settlement	-	-	-	12,535	12,535	-
Health Insurance Contributions (HB1)	1	(5)	-	24,409	24,405	11
Employer Cessation Contributions	-	175,600	-	28,400	204,000	20
Total Contributions	**872,499**	**1,306,590**	**64,402**	**454,833**	**2,698,324**	**2,064,390**
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	(98,079)
Interest/Dividends	291,467	90,939	8,212	161,768	552,386	288,521
Total Investing Activities Income	2,494,867	729,726	64,293	1,448,095	4,736,981	190,442
Less: Investment Expense	48,352	12,912	1,245	30,076	92,585	50,740
Less: Performance Fees	62,584	13,784	1,113	41,086	118,567	2,366
Net Income from Investing Activities	2,383,931	703,030	61,935	1,376,933	4,525,829	137,336
From Securities Lending Activities						
Securities Lending Income	688	227	21	403	1,339	5,577
Less: Securities Lending Borrower Rebates (Income)/Expense	(523)	(162)	(15)	(300)	(1,000)	3,052
Less: Securities Lending Agent Fees	181	58	5	105	349	327
Net Income from Securities Lending	1,030	331	31	598	1,990	2,198
Net Investment Income	**2,384,961**	**703,361**	**61,966**	**1,377,531**	**4,527,819**	**139,534**
Total Additions	**3,257,460**	**2,009,951**	**126,368**	**1,832,364**	**7,226,143**	**2,203,924**
DEDUCTIONS						
Benefit Payments	1,116,749	1,083,390	63,249	375,598	2,638,986	2,205,859
Refunds	18,524	13,333	273	2,354	34,484	33,511
Administrative Expenses	23,677	12,882	230	5,465	42,254	37,668
Total Deductions	**1,158,950**	**1,109,605**	**63,752**	**383,417**	**2,715,724**	**2,277,038**
Net Increase (Decrease) in Fiduciary Net Position Restricted for Pension Benefits	2,098,510	900,346	62,616	1,448,947	4,510,419	(73,114)
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**	**12,934,332**
End of Period	**$ 11,605,088**	**$ 3,959,942**	**$ 357,660**	**$ 6,973,613**	**$ 22,896,303**	**$ 12,861,218**

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

($ in Thousands)

	CERS Pension			KERS Pension		
	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.

Combining Statement of Changes In Fiduciary Net Position - Insurance Fund						
For the fiscal year ending June 30, 2021 ($ in thousands)						
	CERS Non-Hazardous	**CERS Hazardous**	**KERS Non-Hazardous**	**KERS Hazardous**	**SPRS**	**Insurance Total 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						
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
(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**
Restricted for OPEB	643,735	302,679	346,625	110,150	45,758	1,448,947
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**
See accompanying notes which are an integral part of these combining financial statements.						

NOTE A. Summary of Significant Accounting Policies

This summary of KPPA's significant accounting policies is presented to assist in understanding KPPA's combining financial statements. 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 CERS and KRS 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

KPPA uses a unitization process administered by our custodian BNY Mellon. Each plan is an owner within each investment pool (a pool can be a single manager or a group of managers). The allocation of the pool is determined when the initial investment is made and any changes to the unitization are a result of cash flows made by each plan within the pool.

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).

Contributions Receivable

Contributions receivable consist of amounts due from employers. KPPA management considers contributions 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 pursuant to the provisions of Kentucky Revised Statute 78.520 KERS was created by the Kentucky General Assembly pursuant to the provisions of Kentucky Revised Statute 61.515. SPRS was created by the Kentucky General Assembly 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 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 elected by shareholders. Although it is legally separate from KPPA, PPW is reported as if it were part of KPPA, because it is solely owned by the plans administered by KPPA to function 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 84 Fiduciary Activities* established the criteria for identifying fiduciary activities of all state and local governments. The Statement also clarified whether and how business type activities should report their fiduciary activities. This Statement became effective for the fiscal year beginning July 1, 2019. KPPA meets the criteria as a fiduciary activity. KPPA reports the plan's assets, deferred outflows of resources, liabilities, deferred inflows of resources, and fiduciary net position in accordance with Statement Number 67 and Statement Number 74, as applicable.

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. To the extent relevant, the standards for SBITAs are based on 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			
		2021	
Members	**Non-Haz**	**Hazardous**	**Total**
Retirees and Beneficiaries Receiving Benefits	63,566	8,814	72,380
Inactive Memberships	95,682	3,243	98,925
Active Plan 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			
		2021	
Members	**Non-Haz**	**Hazardous**	**Total**
Retirees and Beneficiaries Receiving Benefits	44,469	3,339	47,808
Inactive Memberships	49,679	6,513	56,192
Active Plan 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**
Retirees and Beneficiaries Receiving Benefits	1,540
Inactive Memberships	389
Active Plan Members	775
Total	**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 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

System	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
KPPA Total	**18,756**	**4,974**	**1,312**	**3,322**	**57,919**

Pension Plan Descriptions

KPPA provides retirement, disability, and death benefits to system members. Retirement benefits may be extended to beneficiaries of members under certain circumstances. The Kentucky Employees Retirement System (KERS), County Employees Retirement System (CERS), State Police Retirement System (SPRS), and Kentucky Retirement System Insurance trust fund (Insurance Fund) operate under common management and are collectively referred to as the Kentucky Public Pensions Authority (KPPA or Systems). 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. Similar to KERS, 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 Plan

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 Plan

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 Plan for KRS Board composition).

Insurance 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. The responsibility for the general administration and operation of the Insurance is vested with the KRS and CERS Board 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

The Commonwealth is required to contribute at an actuarially determined rate for KERS and SPRS pensions. Participating employers are required to contribute at an actuarially determined rate for CERS pensions. Per Kentucky Revised Statute Sections CERS 78.545(33), KERS 61.565(3), and SPRS 16.645(18), normal contribution and past service contribution rates shall be determined by the Boards on the basis of the last annual valuation preceding July 1 of a new biennium. The Boards 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 Boards. However, formal commitment to provide the contributions by the employer is made through the biennial budget for KERS and SPRS.

For the fiscal years ended June 30, 2021 and 2020, 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.

As of , the number of participating employers were as follows:

KERS - 329

CERS - 1,122

SPRS - 1

As of , 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.

Contribution Rate Breakdown by Fund
As of June 30, 2021

	Pension		Insurance		Combined Total	
Fund	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.

Tier 3 Plan

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 Plan Description

KRS Insurance Fund Plan 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. For fiscal year 2020, insurance premiums withheld from benefit payments for KPPA's members were $24.5 million and $3.0 million for CERS Non-Hazardous and Hazardous, respectively; $20.9 million and $1.3 million for KERS Non-Hazardous and Hazardous, respectively; and, $292,556 for SPRS.

The amount of benefit paid by the Insurance Plan 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 Fund 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 Plan
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 be reported as assets on the financial statements. In accordance with GASB *No. 28*, KRS 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	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 61.650 grants the responsibility for the investment of plan assets to the KRS Board and the CERS Board. In addition, KRS 61.645 requires six (6) members of the board shall have at least ten (10) years of investment experience. The Board established Investment Committee is specifically charged with the oversight and investment of plan assets. The Investment Committee recognizes their duty to invest the funds in accordance with the “Prudent Person Rule” set forth in Kentucky Revised Statute 61.650 and manage those funds consistent with the long-term nature of KRS. The Investment Committee has adopted an Investment Policy Statement (IPS) that contains guidelines and restrictions for deposits and investments. A copy of the IPS can be found on the KRS website. By statute, all investments are to be registered and held in the name of KRS. The IPS contains the specific guidelines for the investment of Pension and Insurance assets. Additionally, the Investment Committee establishes 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 Committee, Private Equity investments may be made to diversify the Private Equity portfolio. The Board may invest in, but not limited to and without limitation: venture capital and Private Equity investments. The Investment Committee believes 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.

KRS' 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/Opportunistic Investments

Subject to the specific approval of the Investment Committee, investments may be made to create a diversified portfolio of alternative investments. The Board may invest in real estate or alternative investments including, but not limited to and without limitation: real return and absolute return investments. The Investment Committee believes 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*, KRS 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. KRS made this decision to enhance transparency reporting. Prior to 2015, the majority of KRS' Private Equity investment fees were netted against investment activity which is the standard used within the Private Equity sector. KRS' 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. KRS 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*, KRS provides additional disclosure regarding its derivatives. The charts included represent the derivatives by types as of June 30, 2020. The chart shows the change in fair value of each of the derivatives 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. KRS holds investments in options, commitments, futures, and forward foreign exchange contracts. KRS is 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

Counterparty	S & P Ratings	CERS Percentage of Net Exposutre	KERS Percentage of Net Exposutre	SPRS Percentage of Net Exposutre
	Pension			
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

Counterparty	S & P Ratings	Percentage of Net Exposure
Insurance		
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	$1,075
KERS Pension Funds at JPM Chase	1,008
SPRS Pension Funds at JPM Chase	85
Insurance Fund at JPM Chase	419
Clearing Account at JPM Chase	1,498
Excess Benefit Account at JPM Chase	As of June 30 ($ in Thousands)

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.

Custodial Credit Risk for Investments As of June 30 ($ 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 ($ in Thousands)	
Type	**2021**
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 ($ in Thousands)	
Type	**2021**
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 ($ in Thousands)	
Type	**2021**
Core Fixed Income	$77,234
Public Equities	122,675
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	**$349,405**

Insurance Plan Securities

Insurance Plan Investment Summary As of June 30 ($ in Thousands)	
Type	**2021**
Core Fixed Income	$856,629
Public Equities	3,085,629
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	**$6,937,302**
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 duration of TIPS portfolio shall not deviate from the KRS Fixed Income Index by more than 10%.
- 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 $2,852.7 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 ($ in Thousands)

	CERS	KERS	SPRS
Rating	**2021**	**2021**	**2021**
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.

Note: Differences due to rounding.

Note: 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.

Note: 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 $1,235.2 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 Plan Debt Securities
As of June 30 ($ in Thousands)

Rating	2021
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
Governement 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.

Note: Differences due to rounding.

Note: 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.

Note: 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 Pension Plan market values and modified durations for the combined debt securities.

GASB 40 - Interest Rate Risk - Modified Duration for the Pension Plans
As of June 30 ($ in Thousands)

KERS

TYPE	2021	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
Unclassifed	335,363	0.04
Other	2,800	5.40
Total	**$1,485,121**	**2.74**

GASB 40 - Interest Rate Risk - Modified Duration for the Pension Plans
As of June 30 ($ in Thousands)

CERS

TYPE	2021	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
Unclassifed	985,456	0.06
Other	10,778	5.69
Total	**$3,471,627**	**2.61**

GASB 40 - Interest Rate Risk - Modified Duration for the Pension Plans
As of June 30 ($ in Thousands)

SPRS

TYPE	2021	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
Unclassifed	26,352	0.06
Other	344	5.69
Total	**$139,987**	**2.92**

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

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

TYPE	2021	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 ($ in Thousands)

	CERS	KERS	SPRS
	2021	**2021**	**2021**
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)	(839)	(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	775	67
Total Foreign Investment Securities	**1,681,710**	**430,371**	**37,952**
U.S. Dollar	9,844,150	3,482,351	311,452
Total Investment Securities	**$11,525,860**	**$3,912,722**	**$349,404**

Foreign Currency Risk for the Insurance Plan (GASB 40) As of June 30 ($ in Thousands)	
	2021
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	**5,977,699**
Total Investment Securities	$6,937,302
Note: Differences due to rounding	

Fair Value Measurement and Applications (GASB 72)

In accordance with GASB *Statement No. 72, Fair Value Measurement and Application*, KRS provides this additional disclosure regarding the fair value of its Pension and Insurance investments. KRS 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 KRS 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 KRS 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)

	CERS			Total	KERS			Total	SPRS			Total
		Level				Level				Level		Fair
Asset Type	**1**	**2**	**3**	**Fair Value**	**1**	**2**	**3**	**Fair Value**	**1**	**2**	**3**	**Value**
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)**	**-**	**-**	**-**	**(46,015)**	**-**	**-**	**-**	**(4,597)**
Total Investments	**$5,046,231**	**$2,350,238**	**$298,546**	**$11,525,860**	**$1,385,562**	**$1,313,805**	**$96,295**	**$3,912,722**	**$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)

	CERS				KERS				SPRS			
Asset Type	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 throughture 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 comminlged investment instruments issued by the US Government, Federal agencies, sponsored agencies or sponsored corporations.

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

	Level			
Asset Type	1	2	3	Fair Value
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**
Investments Measured at NAV				
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	**-**	**-**	**-**	**(62,956)**
Total Investments	**$2,901,706**	**$1,572,157**	**$190,306**	**$6,937,302**

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.

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

Fair Value Measurements and Application (GASB 72) Insurance Plan
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 comminlged 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 Pension and Insurance Funds 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 the Pension and Insurance Funds' investments, net of the Pension and Insurance Funds' investment expenses, then adjusted for the changing amounts actually invested.

Money-Weighted Rates of Return As of June 30

	CERS Non-Hazardous	CERS Hazardous	KERS Non-Hazardous	KERS Hazardous	SPRS
Pension Funds					
2021	25.72%	25.58%	22.53%	25.21%	21.70%
	CERS Non-Hazardous	**CERS Hazardous**	**KERS Non-Hazardous**	**KERS Hazardous**	**SPRS**
Insurance Funds					
2021	24.81%	24.99%	25.16%	24.99%	25.36%

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 at a later date. 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, KRS had no credit risk exposure to borrowers because the collateral amounts received exceeded the amounts out on loan. The contracts with the custodial banks require them to indemnify KRS 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 of the Funds cannot pledge or sell collateral securities received unless the borrower defaults. KRS 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 $176.6176.6 million, respectively. The total collateral received included both cash and non-cash totaling $239.3 million and $98.8 million, respectively. The fair value of the underlying securities on loan was $638.0 million and $264.3 million, 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 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 KPPA qualifies under Section 401(a) of the Internal Revenue Code so is, generally, not subject to tax. KPPA is 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 Plan 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 over fiscal year 2020.

Note L. Actuarial Valuation

KPPA's actuary, Gabriel, Roeder, Smith & Co. (GRS), completed the actuarial valuation of the Pension and Insurance plans 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 Non-Hazardous		CERS Hazardous		KERS Non-Hazardous		KERS Hazardous		SPRS	
	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 Non-Hazardous		CERS Hazardous		KERS Non-Hazardous		KERS Hazardous		SPRS	
	2020	**2019**	**2020**	**2019**	**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%

Target Asset Allocation

The long-term 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	**54.50%**	
US Equity	16.25%	4.75%
Non-US Equity	16.25%	6.00%
Private Equity	7.00%	7.80%
Specialty Credit/High Yield	15.00%	4.00%
Liquidity	**25.50%**	
Core Bonds	20.50%	1.85%
Cash	5.00%	1.40%
Diversifying Strategies	**20.00%**	
Real Estate	10.00%	6.20%
Opportunistic/Absolute Return	0.00%	4.06%
Real Return	10.00%	5.38%
Total	**100.00%**	**2.05%**

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	**68.50%**	
US Equity	21.75%	4.75%
Non-US Equity	21.75%	6.00%
Private Equity	10.00%	7.80%
Specialty Credit/High Yield	15.00%	4.00%
Liquidity	**11.50%**	
Core Bonds	10.00%	1.85%
Cash	1.50%	1.40%
Diversifying Strategies	**20.00%**	
Real Estate	10.00%	6.20%
Opportunistic	0.00%	4.06%
Real Return	10.00%	5.38%
Total	**100.00%**	**2.63%**

Long Term Inflation Expectation is 2.30%

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 KRS' current asset allocation and applying the most recent long term market expectations for each asset class as of June 30.

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 both Pension and Insurance Funds. Please note that calculations for TPL, net fiduciary position, NPL, total OPEB liability, net OPEB fiduciary position, and net OPEB liability are reported in the Plans' Required Supplementary Information (RSI) on pages ##-### are based on June 30, 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 S*tatement 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, 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 following single discount rates were used to measure the TPL as of June 30, 2020.

CERS Non-Hazardous	6.25%
CERS Hazardous	6.25%
KERS Non-Hazardous	5.25%
KERS Hazardous	6.25%
SPRS	5.25%

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 and KRS 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 S*tatement 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 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% for all Investment Fund Plans.
- Inflation - 2.30% for all Investment Fund 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, 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 for CERS Non-Hazardous, CERS Hazardous. 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 for CERS Non-Hazardous, CERS Hazardous. The 2020 premiums were known at the time of the valuation and were incorporated into the liability measurement.
  - 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 for KERS Non-Hazardous, KERS Hazardous and SPRS. 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 for KERS Non-Hazardous, KERS Hazardous and SPRS. The 2020 premiums were known at the time of the valuation and were incorporated into the liability measurement.
- Phase-In provision - Board certified rate 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 following single discount rates were used to measure the total OPEB liability as of June 30, 2020.

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 System's 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 in the System 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 Disclosures[1]

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.

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	Current 5.25%
1% Decrease			
Current Discount Rate			
1% Increase			

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

	CERS	CERS	KERS	KERS	SPRS
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous	
	Current 6.25%	**Current 6.25%**	**Current 5.25%**	**Current 6.25%**	**Current 5.25%**
1% Decrease	$8,177,248	$3,393,291	$15,340,582	$610,156	$836,608
Current Discount Rate	6,375,787	2,662,159	13,316,992	445,626	699,493
1% Increase	$4,885,119	$2,066,289	$11,653,144	$312,141	$587,992

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

	Insurance
	Single 5.20%
Sensitivity of the Net OPEB Liability to Changes in the Discount Rate	
1% Decrease	$2,628,525
Single Discount Rate	1,914,450
1% Increase	$1,328,433
Sensitivity of the Net OPEB Liability to Changes in the Current Healthcare Cost Trend Rate	
1% Decrease	$1,378,176
Current Healthcare Cost Trend Rate	1,914,450
1% Increase	$2,561,740

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
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous	
	Single 5.20%	**Single 5.05%**	**Single 5.26%**	**Single 5.01%**	**Single 5.20%**
Sensitivity of the Net OPEB Liability to Changes in the Discount Rate					
1% Decrease	$2,628,525	$1,172,258	$2,779,402	$82,367	$170,127
Single Discount Rate	1,914,450	808,559	2,275,181	(11,525)	117,581
1% Increase	$1,328,433	$516,349	$1,861,789	$(86,891)	$75,212
Sensitivity of the Net OPEB Liability to Changes in the Current Healthcare Cost Trend Rate					
1% Decrease	$1,378,176	$529,812	$1,878,812	$(79,113)	$75,680
Current Healthcare Cost Trend Rate	1,914,450	808,559	2,275,181	(11,525)	117,581
1% Increase	$2,561,740	$1,149,958	$2,752,557	$71,015	$168,646

Schedule of Employers' NPL - CERS Non-Hazardous As of June 30 ($ in Thousands)		
	2021	**2020**
Total Pension Liability (TPL)	$14,941,437	$14,697,244
Plan Fiduciary Net Position	8,565,650	7,027,327
Net Pension Liability	$6,375,787	$7,669,917
Ratio of Plan Fiduciary Net Position to TPL	57.33%	47.81%
Covered Payroll [(1)]	$2,446,612	$2,462,752
Net Pension Liability as a Percentage of Covered Employee Payroll	260.60%	311.44%

Schedule of Employers' NPL - CERS Hazardous As of June 30 ($ in Thousands)		
	2021	**2020**
Total Pension Liability (TPL)	$5,576,567	$5,394,732
Plan Fiduciary Net Position	2,914,408	2,379,704
Net Pension Liability	$2,662,159	$3,015,028
Ratio of Plan Fiduciary Net Position to TPL	52.26%	44.11%
Covered Employee Payroll [(1)]	$572,484	$559,551
Net Pension Liability as a Percentage of Covered Employee Payroll	465.02%	538.83%

Schedule of Employers' NPL - KERS Non-Hazardous As of June 30 ($ in Thousands)		
	2021	**2020**
Total Pension Liability (TPL)	$16,335,657	$16,472,733
Plan Fiduciary Net Position	3,018,665	2,308,080
Net Pension Liability	$13,316,992	$14,164,653
Ratio of Plan Fiduciary Net Position to TPL	18.48%	14.01%
Covered Payroll [(1)]	$1,441,337	$1,476,156
Net Pension Liability as a Percentage of Covered Employee Payroll	923.93%	959.56%

Schedule of Employers' NPL - KERS Hazardous As of June 30 ($ in Thousands)		
	2021	**2020**
Total Pension Liability (TPL)	$1,311,767	$1,251,027
Plan Fiduciary Net Position	866,141	690,350
Net Pension Liability	$445,626	$560,677
Ratio of Plan Fiduciary Net Position to TPL	66.03%	55.18%
Covered Payroll [(1)]	$172,725	$171,840
Net Pension Liability as a Percentage of Covered Employee Payroll	258.00%	326.28%

Schedule of Employer's NPL - SPRS As of June 30 ($ in Thousands)		
	2021	**2020**
Total Pension Liability (TPL)	$1,055,824	$1,049,237
Plan Fiduciary Net Position	356,331	293,949
Net Pension Liability	$699,493	$755,288
Ratio of Plan Fiduciary Net Position to TPL	33.75%	28.02%
Covered Payroll [(1)]	$47,873	$49,019
Net Pension Liability as a Percentage of Covered Employee Payroll	1,464.14%	1,540.81%

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

Development of Single Discount Rate for OPEB As of June 30	CERS Non-Hazardous	CERS Hazardous	KERS Non-Hazardous	KERS Hazardous	SPRS
2021					
Single Discount Rate	5.20%	5.05%	5.26%	5.01%	5.20%
Long-Term Expected Rate of Return	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%
2020					
Single Discount Rate	5.34%	5.30%	5.43%	5.28%	5.40%
Long-Term Expected Rate of Return	6.25%	6.25%	6.25%	6.25%	6.25%
Long-Term Municipal Bond Rate	2.45%	2.45%	2.45%	2.45%	2.45%

Note: 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, 2020 and June 30, 2019.

Schedule of the Employers' Net OPEB Liability - CERS Non-Hazardous Plan
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 Employee Payroll [1]	Net OPEB Liability as a Percentage of Covered Employee Payroll
2021	$5,161,251	$3,426,801	$1,914,450	62.91%	$2,619,965	73.08%
2020	$4,996,309	$2,581,613	$2,414,696	51.67%	$2,620,585	92.14%

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

Schedule of the Employers' Net OPEB Liability - CERS Hazardous Plan
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 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%
2020	$2,245,222	$1,321,117	$924,105	58.84%	$596,001	155.05%

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

Schedule of the Employers' Net OPEB Liability - KERS Non-Hazardous Plan
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 Employee Payroll (1)	Net OPEB Liability as a Percentage of Covered Employee Payroll
2021	$3,698,804	$1,423,623	$2,275,181	38.49%	$1,452,345	156.66%
2020	$3,599,557	$1,060,649	$2,538,908	29.47%	$1,482,431	171.27%

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

Schedule of the Employers' Net OPEB Liability - KERS Hazardous Plan
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 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)%
2020	$564,524	$521,755	$42,769	92.42%	$182,209	23.47%

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

Schedule of the Employer's Net OPEB Liability-SPRS Plan
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 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%
2020	$339,942	$201,340	$138,602	59.23%	$48,231	287.37%

[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 will pay the normal cost for all employees plus their actuarially-calculated portion of the unfunded liability.

2. CERS Separation Clean-Up 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.

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, 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's decision is pending.

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 estion 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 KERS filed a derivative action suit in Franklin Circuit Court naming KRS as a nominal defendant. The suit alleges that investment managers actively pursued KRS while it was under the control of Trustees who were acting adversely to its interests, and that the investment managers recommended risky investments in alternative investment strategies which resulted in billions of dollars in losses to KRS. The Amended Complaint alleges numerous claims against KRS Trustees and Officers, hedge fund sellers, actuarial, fiduciary, and investment advisors, and an annual report certifier. Plaintiffs alleged that the defendants breached statutory, fiduciary, and other duties and engaged in civil conspiracy. The Complaint further alleged claims against Officers and hedge fund sellers, actuarial, fiduciary, and investment advisors, and an annual report certifier for aiding and abetting breaches of statutory, fiduciary, and other duties. Plaintiffs sought compensatory and punitive damages, as well as equitable relief. More specifically, plaintiffs sought compensatory damages against defendants for the violations of statutory, fiduciary, and other duties; while also seeking punitive damages against hedge fund sellers, investment, actuarial, and fiduciary advisors and each of their principals/officers named as defendants. Further, plaintiffs requested several forms of equitable relief, which included directing a complete accounting of fees associated with fund of hedge funds and other absolute return strategies.

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

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. Answers were filed in the BAAM vs KPPA matter on September 8th and the motion is scheduled to be heard on October 6, 2021.

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.

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

As a result of the passage of House Bill 1 on September 1, 2008, 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. For the fiscal years ended June 30, 2021, the reimbursement totaled $12.5 million.

Also, for new plan participants after August 31, 2008, House Bill 1 required an active member contribution of 1% in addition to the member pension contribution. This 1% is applicable to all Non-hazardous and Hazardous plans. Due to a change in accounting for the 1% contribution, the contribution was placed in the Insurance Fund starting fiscal year 2020. For the fiscal year ended June 30, 2021, members paid into the Insurance Fund $24.4 million.

In addition, employers are required to report employer contributions on 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 Non-Hazardous	CERS Hazardous	CERS Total	KERS Non-Hazardous	KERS	SPRS	KRS Total	KPPA Total
FY 2021	$12,693	$5,085	$17,778	$36,087	$2,662	$-	$38,749	$56,527

Note S. 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 T. 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 Funds and $40.4 million for the Insurance Fund. This is based on the May 31, 2021, report because Absolute Return managers are reported on a one month lag.

Note U. Subsequent Events

Management has evaluated the period June 30, 2021, to December 15, 2021, (the date the combining financial statements were available to be issued) for items requiring recognition or disclosure in the combining financial statements.

Note V. 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.

REQUIRED SUPPLEMENTARY INFORMATION
INCLUDING GASB 67 AND 74

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	$8,565,650	$6,375,787	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 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	$16,335,657	$3,018,665	$13,316,992	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 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	$1,311,767	$866,141	$445,626	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 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	$1,055,824	$356,331	$699,493	33.75%	$47,873	1,461.14%
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 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]	(21,731)	(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	**1,538,323**	**(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)	**8,565,650**	**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)	**$6,375,787**	**$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 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	$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]	516,222	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]	(11,616)	(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	**710,585**	**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)	**3,018,665**	**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)	**$13,316,992**	**$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.

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

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

Total Pension Liability (TPL)	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	173,153	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	**175,791**	**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)	**866,141**	**690,350**	**680,932**	**645,485**	**601,529**	**527,879**	**552,468**	**561,484**
Net Pension Liability – Ending (a) – (b)	**$445,626**	**$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)	(227)	(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	**62,382**	**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)	**356,331**	**293,949**	**286,165**	**267,572**	**255,737**	**218,012**	**247,228**	**260,974**
Net Pension Liability – Ending (a) – (b)	**$699,493**	**$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	**1,461.14%**	**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 rates effective for fiscal year ended 2021 that are documented in the schedules on the following pages, were calculated as of June 30, 2019. Based on the June 30, 2019, actuarial valuation report (as amended fy SB249, passed during the 2020 legislative session), the actuarial methods and assumptions used to calculate these contributions are below:

Notes to Schedule of Employers' Contribution					
	CERS	CERS	KERS	KERS	SPRS
Item	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous	
Determined by the Actuarial Valuation as of:	June 30, 2019	June 30, 2019	June 30, 2019	June 30, 2019	June 30, 2019
Actuarial Cost Method:	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal
Asset Valuation Method:	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized
Amortization Method:	Level Percent of Pay	Level Percent of Pay	Level Percent of Pay	Level Percent of Pay	Level Percent of Pay
Amortization Period:	30-year closed period at June 30, 2019, Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases	30-year closed period at June 30, 2019, Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases	30-year closed period at June 30, 2019, Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases	30-year closed period at June 30, 2019, Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases	30-year closed period at June 30, 2019, Gains/losses incurring after 2019 will be amortized over separate closed 20-year amortization bases
Payroll Growth	2.00%	2.00%	0.00%	0.00%	0.00%
Investment Return:	6.25%	6.25%	5.25%	6.25%	5.25%
Inflation:	2.30%	2.30%	2.30%	2.30%	2.30%
Salary Increase:	3.30% to 10.30%, varies by service	3.05% to 19.05%, varies by service	3.30% to 15.30%, varies by service	3.55% to 20.05%, varies by service	3.55% to 16.05%, varies by service
Mortality:	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019	System-specific mortality table based on mortality experience from 2013-2018, projected with the ultimate rates from MP-2014 mortality improvement scale using a base year of 2019
Phase-In provision	Board certified rate is phased into the actuarially determined rate in accordance with HB 362 enacted in 2018.	Board certified rate is phased into the actuarially determined rate in accordance with HB 362 enacted in 2018.	N/A	N/A	N/A

Schedule of Employers' Contributions Pension - CERS 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 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 - CERS Non-Hazardous Plan
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 Plan
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 Plan
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	$1,423,623	$2,275,181	38.49%	$1,452,345	156.66%
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 Plan
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.
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 Plan
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 - CERS Non-Hazardous Plan
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 Plan
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 Plan
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	10,463	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	270,812	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	**362,974**	**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)	**1,423,623**	**1,060,649**	**995,089**	**891,205**	**817,370**
Net OPEB Liability – Ending (a) – (b)	**$2,275,181**	**$2,538,908**	**$2,222,896**	**$2,370,912**	**$2,535,962**
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	38.49%	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	**156.66%**	**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 Plan
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 Plan As of June 30 ($ in Thousands)	2021	2020	2019	2018	2017
Total OBEP 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 rates effective for fiscal year ending 2021 that are documented in the schedules on the previous pages were calculated as of June 30, 2019. 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 contribution follow.

Notes to Schedule of Employers' OPEB Contributions

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

Notes to Schedule of Employers' OPEB Contributions

Item	CERS Non-Hazardous	CERS Hazardous	KERS Non-Hazardous	KERS Hazardous	SPRS
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.	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.	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.	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.	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 5.00% at January 1, 2020 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 10 years. The 2019 premiums were known at the time of the valuation and were incorporated into the liability measurement.	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.	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.	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.	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.
Phase-In provision	Board certified rate is phased into the actuarially determined rate in accordance with HB 362 enacted in 2018.	Board certified rate is phased into the actuarially determined rate in accordance with HB 362 enacted in 2018.	N/A	N/A	N/A

Schedule of Employers' 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 CAFR, 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 included in exhibit 3.

[(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 CAFR, 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 included in exhibit 3.

[(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)	$14,532,345	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 CAFR, 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) wihich reset the amortization period to 30 years.

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

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

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	75.00%
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 CAFR, 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 included in exhibit 3.

[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 CAFR, 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 included in exhibit 3.

[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 Non-Hazardous	CERS Hazardous	KERS Non-Hazardous	KERS Hazardous	SPRS
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	5.78%	5.80%	5.73%	5.68%	5.71%
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	1.65%	1.88%	1.89%	1.69%	1.71%
2014	15.56%	15.50%	15.50%	15.65%	15.66%
Insurance Funds					
	CERS Non-Hazardous	CERS Hazardous	KERS Non-Hazardous	KERS Hazardous	SPRS
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%	5.81%	4.95%	5.61%	5.74%
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 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	2,406
Total Insurance Fund Administrative Expense	**2,354**	**2,406**
Total Administrative Expenses	**$39,143**	**$40,074**

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

	CERS		KERS		SPRS	
	2021	2020	2021	2020	2021	2020
Security Lending Fees						
Borrower (Income) Rebates	$(523)	$2,326	$(162)	$654	$(15)	$7
Lending Agent Fees	181	249	58	71	5	47
Total Security Lending	**(342)**	**2,575**	**(104)**	**725**	**(10)**	**54**
Contractual Services						
Investment Management	46,891	37,253	12,432	10,463	1,200	1,101
Security Custody	1,116	931	369	293	34	28
Investment Consultant	345	500	111	156	11	15
Performance Fees	62,584	854	13,784	1,352	1,113	160
Total Contractual Services	**$110,936**	**$39,538**	**$26,696**	**$12,264**	**$2,358**	**$1,304**

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

	2021	2020
Security Lending Fees		
Borrower (Income) Rebates	$(300)	$1,327
Lending Agent Fees	105	140
Total Security Lending	**(195)**	**1,467**
Contractual Services		
Investment Management	28,905	18,738
Security Custody	966	765
Investment Consultant	205	288
Performance Fees	41,086	1,484
Total Contractual Services	**$71,162**	**$21,275**

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**

KPPA

Combining Statement of Fiduciary Net Position - Pension Funds

As of September 30, 2021 with Comparative Totals as of September 30, 2020 ($ in Thousands) (Unaudited)

	CERS		KERS		SPRS	KPPA TOTAL			
ASSETS	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous		2022	2021	Percentage of Change	Note
CASH AND SHORT-TERM INVESTMENTS									
Cash Deposits	$2,002	$295	$1,605	$148	$111	$4,162	$3,154	31.95%	1
Short-term Investments	350,941	135,986	438,176	57,283	35,125	1,017,510	779,123	30.60%	2
Total Cash and Short-term Investments	**352,943**	**136,281**	**439,781**	**57,431**	**35,236**	**1,021,672**	**782,277**		
RECEIVABLES									
Accounts Receivable	59,061	20,239	161,873	3,518	8,416	253,106	139,362	81.62%	3
Accounts Receivable - Investments	73,114	25,080	29,932	7,604	3,652	139,382	389,302	-64.20%	4
Total Receivables	**132,174**	**45,319**	**191,805**	**11,121**	**12,068**	**392,488**	**528,664**		
INVESTMENTS, AT FAIR VALUE									
Core Fixed Income	1,053,808	362,780	665,380	110,620	76,629	2,269,217	2,443,573	-7.14%	
Public Equities	3,964,672	1,335,677	971,227	391,083	121,009	6,783,669	5,068,465	33.84%	5
Private Equities	753,842	253,841	208,133	69,390	20,293	1,305,498	1,120,309	16.53%	6
Specialty Credit	1,480,734	505,677	523,924	152,756	61,136	2,724,226	2,251,088	21.02%	7
Derivatives	2,149	732	816	208	100	4,005	1,976	102.65%	8
Absolute Return	-	-	-	-	-	-	153,030	-100.00%	9
Real Return	520,786	175,645	170,275	49,782	20,251	936,739	805,442	16.30%	10
Opportunistic	247,734	81,897	72,441	22,459	8,948	433,478	323,596	33.96%	11
Real Estate	382,380	122,102	122,295	35,753	15,170	677,700	575,319	17.80%	12
Total Investments, at Fair Value	**8,406,104**	**2,838,351**	**2,734,491**	**832,049**	**323,535**	**15,134,531**	**12,742,800**		
Securities Lending Collateral Invested	250,152	84,798	89,921	25,357	10,163	460,391	261,990	75.73%	13
CAPITAL/INTANGIBLE ASSETS									
Capital Assets	1,701	153	929	91	11	2,885	2,885	0.00%	
Intangible Assets	9,961	827	5,920	494	100	17,301	17,301	0.00%	
Accumulated Depreciation	(1,701)	(153)	(929)	(91)	(11)	(2,885)	(2,846)	1.38%	
Accumulated Amortization	(9,612)	(819)	(5,611)	(482)	(100)	(16,624)	(15,962)	4.15%	
Total Capital Assets	**349**	**8**	**309**	**11**	**-**	**677**	**1,378**		
Total Assets	**9,141,722**	**3,104,757**	**3,456,307**	**925,971**	**381,002**	**17,009,758**	**14,317,110**		
LIABILITIES									
Accounts Payable	5,014	763	2,117	216	42	8,152	7,279	11.99%	14
Investment Accounts Payable	171,357	58,787	77,164	17,819	9,298	334,424	639,381	-47.70%	15
Securities Lending Collateral	250,152	84,798	89,921	25,357	10,163	460,391	261,990	75.73%	16
Total Liabilities	**426,522**	**144,347**	**169,202**	**43,392**	**19,503**	**802,966**	**908,649**		
Total Fiduciary Net Position Restricted for Pension Benefits	**$8,715,200**	**$2,960,409**	**$3,287,105**	**$882,579**	**$361,499**	**$16,206,792**	**$13,408,460**		

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

1) Variance is a result of continuous fluctuation of deposits and transactions that flow through the cash account.

2) Short Term Investments is primarily comprised of the cash on hand with the custodial bank along with any small amounts of cash managers and brokers may have; therefore, the variance is driven by cash flow.

3) The increase in Accounts Receivable is due to the timing of the generation of the AALC invoices (generated around the 26th of the month, not due until the 10th of the following month).

4) The variance in Accounts Receivable - Investments is due to pending trades.

5) The increase in Public Equities is due to additional funding and positive market conditions resulting in increased market values.

NOTE - Variance Explanation continued on next page.

6) The increase in Private Equity is a result of positive market conditions resulting in increased market values.

7) The increase in Specialty Credit is due to additional funding and positive market conditions increasing market values.

8) Variance is a result of hedging and arbitration of risk within the portfolios.

9) The decline in Absolute Return is a result of the merging of the Absolute Return asset class with the Real Return asset class.

10) The increase in Real Return is a result of the merging of the Absolute Return asset class with the Real Return asset class and positive market conditions resulting in increased market values.

11) The increase in Opportunistic is due to additional funding and positive market conditions increasing market values.

12) The increase in Real Estate is due to additional funding and positive market conditions increasing market values.

13) Variance is a result of the demands of the Securities Lending Program.

14) The variance in Accounts Payable is due to an increase in outstanding employer reporting credit invoices.

15) The variance in Accounts Payable is due to pending trades.

16) Variance is a result of the demands of the Securities Lending Program.

KPPA Kentucky Public Pensions Authority

Combining Statement of Changes In Fiduciary Net Position - Pension Funds

For the fiscal year ending September 30, 2021, with Comparative Totals as of September 30, 2020 ($ in Thousands) (Unaudited)

	CERS	CERS	KERS	KERS	SPRS	KPPA Total			
	Non-Hazardous		Non-			2022	2021	Percentage of Change	Note
ADDITIONS									
Member Contributions	$40,774	$16,489	$22,186	$4,705	$1,231	$85,385	$83,560	2.18%	
Employer Contributions	122,121	50,872	366,482	14,038	15,395	568,908	425,154	33.81%	1
Pension Spiking Contributions	20	21	3	0	-	45	74	-39.76%	2
Health Insurance Contributions (HB1)	-	-	2	0	-	2	-		
Employer Cessation Contributions	-	-	50,464	-	-	50,464	-		
Total Contributions	**162,914**	**67,383**	**439,137**	**18,743**	**16,625**	**704,802**	**508,788**		
INVESTMENT INCOME									
From Investing Activities									
Net Appreciation (Depreciation) in FV of Investments	71,220	24,214	15,542	5,884	1,879	118,737	562,567	-78.89%	3
Interest/Dividends	65,764	22,297	18,553	6,525	2,225	115,364	76,884	50.05%	4
Total Investing Activities Income	136,984	46,511	34,095	12,408	4,104	234,101	639,452		
Less: Investment Expense	10,099	3,369	2,964	966	354	17,752	16,590	7.00%	
Less: Performance Fees	21,560	7,371	3,401	1,920	490	34,742	6,174	462.72%	5
Net Income from Investing Activities	105,325	35,771	27,729	9,522	3,260	181,607	616,687		
From Securities Lending Activities									
Securities Lending Income	143	49	49	15	6	262	217		
Less: Securities Lending Borrower Rebates (Income)/ Expense	(381)	(130)	(105)	(39)	(13)	(667)	(177)		
Less: Securities Lending Agent Fees	79	27	23	8	3	139	59		
Net Income from Securities Lending	445	152	131	45	16	789	335	135.51%	6
Net Investment Income	**105,770**	**35,923**	**27,860**	**9,567**	**3,275**	**182,396**	**617,022**		
Total Additions	**268,685**	**103,306**	**466,997**	**28,310**	**19,901**	**887,199**	**1,125,811**		
DEDUCTIONS									
Benefit Payments	212,490	75,409	258,199	18,818	15,973	580,888	561,131	3.52%	
Refunds	5,211	1,337	3,114	1,471	17	11,150	8,350	33.53%	7
Administrative Expenses	6,451	572	3,594	371	72	11,060	9,087	21.71%	8
Total Deductions	**224,152**	**77,318**	**264,906**	**20,659**	**16,062**	**603,097**	**578,568**		
Net Increase (Decrease) in Fiduciary Net Position Restricted for Pension Benefits	44,533	25,988	202,091	7,651	3,839	284,101	547,243		
Total Fiduciary Net Position Restricted for Pension Benefits									
Beginning of Period	**8,670,667**	**2,934,421**	**3,085,014**	**874,928**	**357,660**	**15,922,691**	**12,861,218**		
End of Period	**$8,715,200**	**$2,960,409**	**$3,287,105**	**$882,579**	**$361,499**	**$16,206,792**	**$13,408,460**		

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

1) Employer Contributions increased due to an increase in covered payroll and Employer contribution rates for CERS, CERH and SPRS, as well as an increase in total ERCON for KERS due to AAL contributions.

2) Pension Spiking contributions decreased due to a change in statute. Pension spiking is now the member's responsibility.

3) The decrease in Net Appreciation in Fair Value of Investments is a result of unfavorable market conditions resulting in unrealized losses in public equity for the first quarter of FY22.

4) The increase in Interest/Dividends is due to increased income from Private Equity, Core Fixed Income, and Specialty Credit asset classes.

NOTE - Variance Explanation continued on next page.

5) The increase in Performance fees is due to favorable market conditions resulting in higher performance fees primarily within private equity.
6) Variance is a result of the demand of the Securities Lending Program.
7) The increase in Refunds is due to an increase in refunds taken by CERS and KERS members who terminated employment and were not eligible for a retirement benefit.
8) Administrative Expenses increased for the first quarter of FY2022.

Combining Statement of Fiduciary Net Position - Insurance Fund

As of September 30, 2021, with Comparative Totals as of September 30, 2020 ($ In Thousands) (Unaudited)

	CERS	CERS	KERS	KERS	SPRS	KPPA Total			
ASSETS	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous		2022	2021		
CASH AND SHORT-TERM INVESTMENTS									
Cash Deposits	$469	$69	$283	$52	$49	$923	$781	18.15%	1
Short-term Investments	351,981	129,441	246,634	31,582	18,350	777,988	290,161	168.12%	2
Total Cash and Short-term Investments	**352,450**	**129,510**	**246,917**	**31,635**	**18,399**	**778,911**	**290,942**		
RECEIVABLES									
Accounts Receivable	15,123	5,001	21,851	540	787	43,302	38,181	13.41%	3
Investment Accounts Receivable	26,607	13,470	11,974	5,369	2,045	59,464	165,306	-64.03%	4
Total Receivables	**41,730**	**18,470**	**33,825**	**5,908**	**2,832**	**102,766**	**203,486**		
INVESTMENTS, AT FAIR VALUE									
Core Fixed Income	375,397	197,637	170,083	74,510	29,239	846,866	972,539	-12.92%	5
Public Equities	1,356,324	697,563	608,244	273,785	106,464	3,042,380	2,271,529	33.94%	6
Specialty Credit	548,508	272,304	226,841	116,901	42,196	1,206,749	998,144	20.90%	7
Private Equities	294,200	165,498	75,010	56,331	25,653	616,691	517,344	19.20%	8
Derivatives	658	349	269	138	52	1,466	696	110.73%	9
Absolute Return	-	-	-	-	-	-	62,511	-100.00%	10
Real Return	176,355	92,628	72,334	36,974	14,202	392,493	346,569	13.25%	11
Opportunistic	100,030	54,495	35,763	22,232	8,210	220,730	164,777	33.96%	12
Real Estate	131,518	72,090	41,280	30,304	11,583	286,775	242,914	18.06%	13
Total Investments, at Fair Value	**2,982,989**	**1,552,564**	**1,229,824**	**611,174**	**237,599**	**6,614,149**	**5,577,023**		
Securities Lending Collateral Invested	60,720	31,040	26,235	12,050	4,738	134,782	104,786	28.63%	14
Total Assets	**3,437,890**	**1,731,584**	**1,536,801**	**660,767**	**263,567**	**7,630,608**	**6,176,237**		
LIABILITIES									
Accounts Payable	268	61	98	9	2	438	509	-13.83%	15
Investment Accounts Payable	185,647	72,063	123,686	19,694	10,333	411,423	283,721	45.01%	16
Securities Lending Collateral	60,720	31,040	26,235	12,050	4,738	134,782	104,786	28.63%	17
Total Liabilities	**246,635**	**103,164**	**150,019**	**31,753**	**15,073**	**546,643**	**389,016**		
Total Fiduciary Net Position Restricted for OPEB	**$3,191,255**	**$1,628,420**	**$1,386,781**	**$629,014**	**$248,495**	**$7,083,965**	**$5,787,221**		

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

1) Variance is a result of continuous fluctuation of deposits and transactions that flow through the cash account.

2) Short Term Investments is primarily comprised of the cash on hand with the custodial bank along with any small amounts of cash managers and brokers may have; therefore, the variance is driven by cash flow.

3) The increase in Accounts Receivable is due to the timing of the generation of the AALC invoices (generated around the 26th of the month, not due until the 10th of the following month).

4) The variance in Investment Accounts Receivable is due to pending trades.

5) The decline in Core Fixed Income is a result of a rebalance to move money from Core Fixed Income to Public Equities and Speicialy Credit as a result of the revised IPS.

6) The increase in Public Equities is due to additional funding and positive market conditions resulting in increased market values.

7) The increase in Specialty Credit is due to additional funding and positive market conditions increasing market values.

8) The increase in Private Equity is due to positive market conditions resulting in increased market values

9) Variance is a result of hedging and arbitration of risk within the portfolios.

10) The decline in Absolute Return is a result of the merging of the Absolute Return asset class with the Real Return asset class.

11) The increase in Real Return is a result of the merging of the Absolute Return asset class with the Real Return asset class and positive market conditions resulting in increased market values.

NOTE - Variance Explanation continued on next page.

12) The increase in Opportunistic is due to additional funding and positive market conditions increasing market values.
13) The increase in Real Estate is due to additional funding and positive market conditions increasing market values.
14) Variance is a result of the demands of the Securities Lending Program.
15) The decrease in Accounts Payable is due to a decrease in outstanding employer reporting (insurance) invoices.
16) The variance In Investment Accounts Payable is due to pending trades.
17) Variance is a result of the demands of the Securities Lending Program.

KPPA Kentucky Public Pensions Authority

Combining Statement of Changes In Fiduciary Net Position - Insurance

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

	CERS Non-Hazardous	CERS Hazardous	KERS Non-Hazardous	KERS	SPRS	KPPA Total 2022	KPPA Total 2021	Percentage of Change	Note
ADDITIONS									
Employer Contributions	$35,524	$16,512	$41,922	$184	$2,248	$96,391	$86,302	11.69%	1
Medicare Drug Reimbursement	1	-	-	0	-	1	1	142.93%	2
Insurance Premiums	140	5	41	3	(1)	188	174	8.47%	
Humana Gain Share Payment	-	-	-	-	-	-	-		
Retired Re-employed Healthcare	977	338	1,216	314	-	2,844	3,473	-18.09%	3
Health Insurance Contributions (HB1)	3,359	857	1,587	281	53	6,138	5,488	11.84%	4
Employer Cessation Contributions	-	-	9,536	-	-	9,536	-		
Total Contributions	**40,002**	**17,712**	**54,303**	**782**	**2,300**	**115,099**	**95,437**		
INVESTMENT INCOME									
From Investing Activities									
Net Appreciation (Depreciation) in FV of Investments	34,726	20,557	4,206	6,769	3,139	69,397	242,807	-71.42%	5
Interest/Dividends	21,898	11,452	8,658	4,552	1,759	48,318	33,182	45.62%	6
Total Investing Activities Income	56,623	32,009	12,863	11,321	4,898	117,715	275,989		
Less: Investment Expense	3,721	1,972	1,530	781	307	8,311	5,577	49.02%	7
Less: Performance Fees	9,662	5,468	2,580	1,974	842	20,528	4,651	341.39%	8
Net Income from Investing Activities	43,240	24,570	8,753	8,565	3,749	88,877	265,761		
From Securities Lending Activities									
Securities Lending Income	49	25	22	10	4	109	96		
Less: Securities Lending Borrower Rebates (Income)/ Expense	(123)	(63)	(53)	(25)	(10)	(275)	(74)		
Less: Securities Lending Agent Fees	26	13	11	5	2	58	25		
Net Income from Securities Lending	147	75	64	30	12	327	144	126.72%	9
Net Investment Income	**43,386**	**24,644**	**8,817**	**8,595**	**3,761**	**89,204**	**265,905**		
Total Additions	**83,388**	**42,357**	**63,120**	**9,377**	**6,061**	**204,302**	**361,342**		
DEDUCTIONS									
Healthcare Premiums Subsidies	32,734	21,552	28,819	5,195	3,548	91,848	97,002	-5.31%	
Administrative Expenses	238	122	208	32	18	618	580	6.53%	
Self-Funded Healthcare Costs	942	73	431	25	4	1,475	1,205	22.36%	10
Excise Tax Insurance	6	-	3	-	-	9	-		
Total Deductions	**33,919**	**21,748**	**29,461**	**5,253**	**3,570**	**93,951**	**98,787**		
Net Increase (Decrease) in Fiduciary Net Position Restricted for OPEB	49,469	20,609	33,659	4,124	2,491	110,352	262,555		
Total Fiduciary Net Position Restricted for OPEB									
Beginning of Period	**3,141,786**	**1,607,811**	**1,353,123**	**624,889**	**246,004**	**6,973,613**	**5,524,666**		
End of Period	**$3,191,255**	**$1,628,420**	**$1,386,781**	**$629,014**		**$7,083,965**	**$5,787,221**		

NOTE - Variance Explanation continued on next page.

1) Employer Contributions increased due to an increase in covered payroll and Employer contribution rates for CERS, CERH and SPRS, as well as an increase in total ERCON for KERS due to AAL contributions.

2) Medicare drug reimbursement payments fluctuate year to year based on claims reviewed.

3) The decrease in Retired Re-employed Health Insurance is due to a decrease in retired re-employed members reported for the first quarter of the fiscal year.

4) Health Insurance Contributions will continue to rise as Tier 3 members increase.

5) The decrease in Net Appreciation in Fair Value of Investments is a result of unfavorable market conditions resulting in unrealized losses in public equity for the first quarter of FY22.

6) The increase in Interest/Dividends is due to increased income from Private Equity, Core Fixed Income, and Specialty Credit asset classes.

7) The management fees are up due to the increase in market values across all asset classes.

8) The increase in Performance fees is due to favorable market conditions resulting in higher performance fees primarily within private equity.

9) Variance is a result of the demand of the Securities Lending Program.

10) The increase in Self Funded Healthcare Claims is due to an increase in claims billed from the self funded insurance plan.

KPPA ADMINISTRATIVE BUDGET 2020-2021 FOURTH QUARTER BUDGET-TO-ACTUAL ANALYSIS Fiscal Year 2021				
Account Name	**Budgeted**	**Actual Expenditures**	**Remaining**	**Percent Remaining**
PERSONNEL				
KPPA PERSONNEL				
Salaries/Wages	$16,900,000	$4,316,718	$12,583,282	74.46%
Wages (Overtime)	342,000	48,884	293,116	85.71%
Emp Paid Retirement	14,478,107	3,426,929	11,051,178	76.33%
Emp Paid Health Ins	2,500,000	735,904	1,764,096	70.56%
Emp Paid Sick Leave	115,650	-	115,650	100.00%
Workers Compensation	77,100	75,163	1,937	2.51%
Unemployment	3,600	-	3,600	100.00%
Other Personnel	1,130,250	309,998	820,252	72.57%
Employee Training	18,400	2,421	15,979	86.84%
LEGAL & AUDITING SERVICES				
Legal Hearing Officers	84,600	16,665	67,935	80.30%
Legal (Stoll, Keenon)	180,000	9,199	170,801	94.89%
Frost Brown (Tax Advisor)	173,000	(11,335)	184,335	106.55%
Reinhart	24,000	-	24,000	100.00%
Ice Miller	336,000	303	335,697	99.91%
Legal Expense	12,000	-	12,000	100.00%
Auditing	118,350	41,385	76,965	65.03%
CONSULTING SERVICES				
Medical Reviewers	1,200,000	300,493	899,507	74.96%
Escrow for Actuary Fees	12,000	-	12,000	100.00%
CONTRACTUAL SERVICES				
Miscellaneous Contracts	22,750	8,850	13,900	61.10%
Human Resources Consulting	6,600	5,794	806	12.21%
Actuarial Services	700,000	81,179	618,821	88.40%
Facility Security Charges	112,000	17,887	94,113	84.03%
PERSONNEL SUBTOTAL	**$38,546,407**	**$9,386,436**	**$29,159,971**	**75.65%**

OPERATIONAL				
Natural Gas	25,200	1,227	$23,973	95.13%
Electric	138,000	30,238	$107,762	78.09%
Rent-NonState Building	52,000	12,661	$39,339	75.65%
Building Rental - PPW	1,100,000	240,524	$859,476	78.13%
Copier Rental	122,587	15,890	$106,697	87.04%
Rental Carpool	4,800	970	$3,830	79.79%
Vehicle/Equip. Mainten.	1,350	249	$1,101	81.56%
Postage	610,000	24,300	$585,700	96.02%
Freight	600	114	$486	81.00%
Printing (State)	6,000	320	$5,680	94.67%
Printing (non-state)	112,500	4,219	$108,281	96.25%
Insurance	6,000	5,422	$578	9.63%

KPPA ADMINISTRATIVE BUDGET 2020-21 FOURTH QUARTER BUDGET-TO-ACTUAL ANALYSIS				
Account Name	**Budgeted**	**Actual Expenditures**	**Remaining**	**Percent Remaining**
Garbage Collection	6,000	1,324	$4,676	77.93%
Conference Expense	25,750	4,307	$21,443	83.27%
MARS Usage	52,800	6,775	$46,025	87.17%
COVID-19 Expenses	168,000	3,716	$164,284	97.79%
Office Supplies	42,600	16,170	$26,430	62.04%
Furniture & Office Equipment	9,600	-	$9,600	100.00%
Travel (In-State)	12,600	1,565	$11,035	87.58%
Travel (Out of State)	45,150	-	45,150	100.00%
Dues & Subscriptions	61,600	15,872	45,728	74.23%
Miscellaneous	1,600	128	1,472	92.00%
COT Charges	24,000	3,940	20,060	83.58%
Telephone - Wireless	5,400	1,368	4,032	74.67%
Telephone - Other	120,000	26,541	93,459	77.88%
Computer Equip./Software	2,640,000	696,646	1,943,354	73.61%
OPERATIONAL SUBTOTAL	**$5,394,137**	**$1,114,484**	**$4,279,653**	**79.34%**
SUB-TOTAL	**43,940,544**	**10,500,920**	**33,439,624**	**76.10%**
Major Legislative Implementation	**4,064,956**	**-**	**4,064,956**	**100.00%**
TOTAL	**$48,005,500**	**$10,500,921**	**$37,504,579**	**78.13%**

Differences due to rounding

Plan	Budgeted	Actual Expenditures	% of Total KPPA Actual Expenditures
CERS	**$28,683,286**	**$6,274,300**	**59.75%**
CHAZ	**$2,539,491**	**$555,499**	**5.29%**
KERS	**$14,824,098**	**$3,242,684**	**30.88%**
KHAZ	**$1,636,988**	**$358,081**	**3.41%**
SPRS	**$321,637**	**$70,356**	**0.67%**
TOTAL	**$48,005,500**	**$10,500,921**	

Plan - Specific Expenses	CERS	CHAZ	KERS	KHAZ	SPRS	Amount
CERS Legal Adjustment	$-	$-	$-	$-	$-	$1,069
CERS Legal Actual	-	-				
KERS Legal Adjustment	-	-	-	-	-	14,522
KERS Legal Actual			-	-		
Subtotal Plan Specific Legal	-	-	-	-	-	
Total Expenses	**$6,274,300**	**$555,499**	**$3,242,684**	**$358,081**	**$70,356**	**$-**

Pension Fund Contribution Report

For the period ending September 30, 2021, with Comparative Totals as of September 30, 2020 ($ in Millions)

CERS County Employees Retirement System	County Employees Retirement System			
	Non-Hazardous		Hazardous	
	FY22	FY21	FY22	FY21
Member Contributions	$ 40.8	$ 37.8	$ 16.5	$ 17.3
Employer Contributions	122.1	106.1	50.9	47.9
Net Investment Income	34.6	30.2	11.7	10.1
Total Inflows	**197.5**	**174.1**	**79.1**	**75.3**
Benefit Payments/Refunds	217.7	207.6	76.7	72.7
Administrative Expenses	6.5	5.4	0.6	0.5
Total Outflows	**224.2**	**213.0**	**77.3**	**73.2**
NET Contributions	**(26.7)**	**(38.9)**	**1.8**	**2.1**
Realized Gain/(Loss)	78.3	34.5	26.9	11.9
Unrealized Gain/(Loss)	(7.1)	280.0	(2.7)	94.1
Change in Net Position	**44.5**	**275.6**	**26.0**	**108.1**
Beginning of Period	**8,670.7**	**7,110.9**	**2,934.4**	**2,395.7**
End of Period	**$ 8,715.2**	**$ 7,386.5**	**$ 2,960.4**	**$ 2,503.8**

Differences due to rounding.

Insurance Fund Contribution Report

For the period ending September 30, 2021, with Comparative Totals as of September 30, 2020 ($ in Millions)

CERS County Employees Retirement System	County Employees Retirement System			
	Non-Hazardous		Hazardous	
	FY22	FY21	FY22	FY21
Employer Contributions	$35.5	$28.2	$16.6	$16.8
Insurance Premiums	0.1	0.1	-	-
Retired Reemployed Healthcare	1.0	1.8	0.3	0.3
Health Insurance Contributions	3.4	2.8	0.9	0.8
Net Investment Income	8.7	10.7	4.1	5.4
Total Inflows	**48.7**	**43.6**	**21.8**	**23.2**
Healthcare Premiums	33.7	36.8	21.6	20.6
Administrative Expenses	0.2	0.2	0.2	0.1
Total Outlfows	**33.9**	**37.0**	**21.8**	**20.7**
NET Contributions	**14.8**	**6.6**	**-**	**2.5**
Realized Gain/(Loss)	36.6	10.2	19.6	5.4
Unrealized Gain/(Loss)	(1.9)	97.8	0.9	51.3
Change in Net Position	**49.5**	**114.6**	**20.6**	**59.2**
Beginning of Period	**3,141.8**	**2,498.1**	**1,607.8**	**1,305.1**
End of Period	**$3,191.3**	**$2,612.7**	**$1,628.4**	**$1,364.3**

Differences due to rounding.

Pension Fund Contribution Report

For the period ending September 30, 2021, with Comparative Totals as of September 30, 2020 ($ in Millions)

KERS Kentucky Employees Retirement System / SPRS State Police Retirement System	Kentucky Employees Retirement System				State Police Retirement System	
	Non-Hazardous		Hazardous			
	FY22	FY21	FY22	FY21	FY22	FY21
Member Contributions	$22.2	$22.1	$4.7	$5.1	$1.2	$1.2
Employer Contributions	416.9	240.1	14.0	15.9	15.4	15.2
Net Investment Income	12.3	9.8	3.7	3.0	1.4	1.4
Total Inflows	**451.4**	**272.0**	**22.4**	**24.0**	**18.0**	**17.8**
Benefit Payments/ Refund	261.3	254.2	20.3	19.1	16.0	15.8
Administrative Expenses	3.6	2.8	0.4	0.3	0.1	0.1
Total Outflows	**264.9**	**257.0**	**20.7**	**19.4**	**16.1**	**15.9**
NET Contributions	**186.5**	**15.0**	**1.7**	**4.6**	**1.9**	**1.9**
Realized Gain/(Loss)	11.6	11.2	7.2	3.5	2.2	1.3
Unrealized Gain/(Loss)	3.9	88.5	(1.3)	27.5	(0.4)	10.1
Change in Net Position	**202.0**	**114.7**	**7.6**	**35.6**	**3.7**	**13.3**
Beginning of Period	**3,085.0**	**2,362.2**	**874.9**	**697.4**	**357.7**	**295.0**
End of Period	**$3,287.0**	**$2,476.9**	**$882.5**	**$733.0**	**$361.4**	**$308.3**

Insurance Fund Contribution Report

For the period ending September 30, 2021, with Comparative Totals as of September 30, 2020 ($ in Millions)

KERS Kentucky Employees Retirement System / SPRS State Police Retirement System	Kentucky Employees Retirement System				State Police Retirement System	
	Non-Hazardous		Hazardous			
	FY22	FY21	FY22	FY21	FY22	FY21
Employer Contributions	$51.5	$38.8	$0.2	$0.1	$2.2	$2.4
Insurance Premiums	-	-	-	-	-	-
Retired Reemployed Healthcare	1.2	1.1	0.3	0.3	-	-
Health Insurance Contributions	1.6	1.6	0.3	0.3	0.1	0.1
Net Investment Income	4.6	4.2	1.8	2.0	0.6	0.8
Total Inflows	**58.9**	**45.7**	**2.6**	**2.7**	**2.9**	**3.3**
Healthcare Premiums	29.3	32.1	5.2	5.1	3.6	3.7
Administrative Expenses	0.2	0.2	-	-	-	-
Total Outflows	**29.5**	**32.3**	**5.2**	**5.1**	**3.6**	**3.7**
NET Contributions	**29.4**	**13.4**	**(2.6)**	**(2.4)**	**(0.7)**	**(0.4)**
Realized Gain/(Loss)	9.0	3.7	6.5	1.9	2.9	0.8
Unrealized Gain/(Loss)	(4.8)	42.9	0.2	20.8	0.2	8.0
Change in Net Position	**33.6**	**60.0**	**4.1**	**20.3**	**2.4**	**8.4**
Beginning of Period	**1,353.1**	**1,006.5**	**624.9**	**514.7**	**246.0**	**200.2**
End of Period	**$1,386.7**	**$1,066.5**	**$629.0**	**$535.0**	**$248.4**	**$208.6**

Differences in the charts above are due to rounding.

KENTUCKY PUBLIC PENSIONS AUTHORITY

Outstanding Invoices by Type and Employer

Invoice Type	9/30/2021	6/30/2021	Change H/(L)
Averaging Refund to Employer	$(431,762)	$(459,730)	-6%
Employer Free Military and Decompression Service	280,778	58,861	377%
Member Pension Spiking Refund	(28,486)	(25,546)	12%
Monthly Reporting Invoice	(50,017)	(74,761)	-33%
Penalty – Monthly Reporting	249,807	234,473	7%
Reinstatement	275,235	244,823	12%
Total	**$295,555**	**$22,498**	**1214%**
Actuarially Accrued Liability Contribution	$428,570	$-	
Health Insurance Reimbursement	1,484,849	1,198,562	24%
Omitted Employer	1,658,929	1,576,232	5%
Employer Pension Spiking*	1,371,944	1,760,350	-22%
Standard Sick Leave	8,578,095	8,253,827	4%
Total	**$13,522,387**	**$12,788,971**	**6%**
Grand Total	**$13,817,942**	**$12,811,468**	**8%**

Employer Name (Top Ten)	9/30/2021	6/30/2021	Change H/(L)
Kentucky State Police	$7,398,671	$7,011,463	6%
Kentucky River Regional Jail	979,925	979,925	0%
Department of Highways	795,367	826,323	-4%
City of Covington	375,368	371,872	1%
Department for Community Based Services	370,767	218,148	70%
Kentucky River Community Care	361,582	361,582	0%
Kenton County Airport Board	329,030	322,897	2%
City of Fort Thomas	224,422	220,287	2%
TARC - Transit Authority River City	209,713	178,211	18%
Henry County Fiscal Court	$206,088	$205,792	0%

	Total Unpaid Balance	Number of Invoices
CERS	$1,644,590.41	2,039
CERH	$1,612,753.19	361
KERS	$2,441,195.22	1,113
KERH	$665,119.35	228
SPRS	$7,398,670.73	131
Grand Total:	**$13,762,328.90**	**3,872**

	Total Unpaid Balance	Number of Invoices
CERS/CERH	$3,257,343.60	2,400
KERS/KERH	$3,106,314.57	1,341
SPRS	$7,398,670.73	131
Grand Total:	**$13,762,328.90**	**3,872**

KENTUCKY PUBLIC PENSIONS AUTHORITY
Penalty Waivers Report
From: 7/1/2021 To: 9/30/2021
Note: Delinquent Interest amounts are included in the totals for the invoice

	Invoice Amount	Invoice Remaining Balance	Delinquent Interest	Invoice Status Date	Invoice Due Date	Invoice Status	Employer Classification	Plan	Comments
	$1,000	$-	$-	7/7/2021	5/23/2014	CANC	Cities	CERS	Agency in good standing with KPPA
	1,000	-	-	7/29/2021	10/20/2016	CANC	Development Authorities	CERS	New employer reporting official
	1,000	-	-	7/29/2021	10/20/2016	CANC	Development Authorities	CERS	New employer reporting official
	1,000	-	-	7/29/2021	4/19/2017	CANC	Development Authorities	CERS	New employer reporting official
	1,000	-	-	7/29/2021	4/19/2017	CANC	Development Authorities	CERS	New employer reporting official
	1,000	-	-	7/29/2021	4/19/2017	CANC	Development Authorities	CERS	New employer reporting official
	1,000	-	-	7/21/2021	7/5/2019	CANC	Special Districts & Boards	CERS	Agency in good standing with KPPA
	1,000	-	-	8/25/2021	5/12/2021	CANC	Cities	CERS	New employer reporting official
	1,000	-	-	8/25/2021	5/12/2021	CANC	Cities	CERS	New employer reporting official
	1,000	-	-	8/25/2021	5/12/2021	CANC	Cities	CERS	New employer reporting official
	1,000	-	-	7/30/2021	8/15/2021	CANC	Fiscal Courts	CERS	Agency in good standing with KPPA
	1,000	-	-	7/29/2021	8/20/2021	CANC	Housing Authorities	CERS	New employer reporting official
	1,000	-	-	7/30/2021	8/25/2021	CANC	Fiscal Courts	CERS	Agency in good standing with KPPA
	1,000	-	-	8/24/2021	9/16/2021	CANC	County Attorneys	KERS	Agency in good standing with KPPA
	1,000	-	-	8/31/2021	9/22/2021	CANC	Boards of Education	CERS	New employer reporting official
Total	**$15,000**	**15**							
	1,000	1,000	-	7/6/2021	8/5/2021	CRTD	Conservation Districts	CERS	
	1,000	1,000	-	7/26/2021	8/25/2021	CRTD	Libraries	CERS	
	1,000	1,000	-	7/28/2021	8/27/2021	CRTD	Cities	CERS	
	1,000	1,000	-	8/5/2021	9/4/2021	CRTD	Cities	CERS	
	1,000	1,000	-	8/24/2021	9/23/2021	CRTD	Boards of Education	CERS	
	1,000	1,000	-	8/26/2021	9/25/2021	CRTD	Boards of Education	CERS	
	1,000	1,000	-	8/27/2021	9/26/2021	CRTD	Fiscal Courts	CERS	
	1,000	1,000	-	9/8/2021	10/8/2021	CRTD	Cities	CERS	
	1,000	1,000	-	9/13/2021	10/13/2021	CRTD	Cities	CERS	
	1,000	1,000	-	9/22/2021	10/22/2021	CRTD	Cities	CERS	
	1,360	1,360	-	9/23/2021	10/23/2021	CRTD	Cities	CERS	

	Invoice Amount	Invoice Remaining Balance	Delinquent Interest	Invoice Status Date	Invoice Due Date	Invoice Status	Employer Classification	Plan	Comments
	1,000	1,000	-	9/28/2021	10/28/2021	CRTD	Housing Authorities	CERS	
Total	**$12,360**	**12**							
	$1,000	$-	$-	7/2/2021	7/12/2021	PAID	Housing Authorities	CERS	
	1,000	-	-	7/1/2021	7/11/2021	PAID	Utility Boards	CERS	
	1,000	-	-	7/1/2021	7/11/2021	PAID	Utility Boards	CERS	
	1,000	-	-	8/27/2021	2/22/2018	PAID	Housing Authorities	CERS	
	1,000	-	-	7/23/2021	8/2/2021	PAID	Non-P1 State Agencies	KERS	
	1,000	-	-	7/1/2021	7/11/2021	PAID	Utility Boards	CERS	
	1,000	-	-	8/27/2021	8/9/2019	PAID	Fiscal Courts	CERS	
	1,000	-	-	7/1/2021	7/11/2021	PAID	Utility Boards	CERS	
	1,000	-	-	8/27/2021	9/22/2019	PAID	Fiscal Courts	CERS	
	1,000	-	-	8/27/2021	2/9/2020	PAID	Fiscal Courts	CERS	
	1,000	-	-	8/27/2021	5/28/2020	PAID	Fiscal Courts	CERS	
	1,082	-	-	7/21/2021	7/31/2021	PAID	Cities	CERS	
	1,000	-	-	8/27/2021	8/9/2020	PAID	Fiscal Courts	CERS	
	1,000	-	-	7/29/2021	8/23/2020	PAID	County Attorneys	CERS	
	1,000	-	-	7/9/2021	7/19/2021	PAID	Non-P1 State Agencies	KERS	
	1,000	-	-	8/27/2021	11/19/2020	PAID	Fiscal Courts	CERS	
	2,282	-	-	8/31/2021	9/10/2021	PAID	Boards of Education	CERS	
	1,000	-	-	8/27/2021	12/11/2020	PAID	Fiscal Courts	CERS	
	1,000	-	-	8/27/2021	5/9/2021	PAID	Fiscal Courts	CERS	
	1,000	-	-	8/27/2021	5/9/2021	PAID	Fiscal Courts	CERS	
	1,222	-	-	7/19/2021	7/29/2021	PAID	Cities	CERS	
	1,000	-	-	8/27/2021	5/28/2021	PAID	Fiscal Courts	CERS	
	1,000	-	-	8/4/2021	6/18/2021	PAID	Boards of Education	CERS	
	1,000	-	-	7/29/2021	6/27/2021	PAID	County Attorneys	CERS	
	1,000	-	-	9/1/2021	7/14/2021	PAID	Housing Authorities	CERS	
	1,145	-	-	7/19/2021	7/29/2021	PAID	Cities	CERS	
	1,000	-	-	8/2/2021	8/15/2021	PAID	Airport Boards	CERS	
	1,146	-	-	7/21/2021	7/31/2021	PAID	Cities	CERS	
	5,726	-	-	8/31/2021	9/10/2021	PAID	Boards of Education	CERS	

	Invoice Amount	Invoice Remaining Balance	Delinquent Interest	Invoice Status Date	Invoice Due Date	Invoice Status	Employer Classification	Plan	Comments
	1,149	-	-	7/28/2021	8/7/2021	PAID	Cities	CERS	
	1,000	-	-	9/7/2021	9/17/2021	PAID	Utility Boards	CERS	
	1,000	-	-	8/27/2021	9/6/2021	PAID	Cities	CERS	
	1,000	-	-	8/27/2021	8/26/2021	PAID	Fiscal Courts	CERS	
	1,165	-	-	9/23/2021	10/3/2021	PAID	Cities	CERS	
	1,000	-	-	9/10/2021	8/28/2021	PAID	County Attorneys	CERS	
	1,000	-	-	9/21/2021	10/1/2021	PAID	Health Departments	KERS	
	1,208	-	-	9/23/2021	10/3/2021	PAID	Cities	CERS	
	1,000	-	-	9/29/2021	9/17/2021	PAID	Community Action Agencies	CERS	
	1,000	-	-	9/10/2021	9/17/2021	PAID	Utility Boards	CERS	
	1,000	-	-	9/8/2021	9/17/2021	PAID	Fiscal Courts	CERS	
	1,016	-	-	9/8/2021	9/29/2021	PAID	Fiscal Courts	CERS	
	1,970	-	-	9/23/2021	10/3/2021	PAID	Cities	CERS	
	1,000	-	-	7/29/2021	4/15/2012	PAID	County Attorneys	CERS	
Total	**$51,110**	**43**							

Notes:

Invoice Status:

CANC - Cancelled CRTD - Created PAID - Paid

KENTUCKY PUBLIC PENSIONS AUTHORITY
David L. Eager, Executive Director
1260 Louisville Road • Frankfort, Kentucky 40601
kyret.ky.gov • Phone: 502-696-8800 • Fax: 502-696-8822

Kentucky Public Pensions Authority

December 15, 2021

Government Finance Officers Association
203 North LaSalle Street, Suite 2700
Chicago, IL 60601-1210

RE: Certificate of Achievement for Excellence in Financial Reporting
Report #00808

Pursuant to the instructions included in the report referenced above, responses to the comments and suggestions for improvement of Kentucky Public Pensions Authority's (KPPA) Annual Comprehensive Financial Report (ACFR) for the Fiscal Year Ended June 30, 2020 follow:

Comment 102: Introductory Section

It is recommended that the letter of transmittal specifically direct readers to Management's Discussion and Analysis.

Management concurs with the recommendation. Readers are directed to Management's Discussion and Analysis in the first paragraph of the letter of transmittal.

Specify the page number(s).

The organization chart (or other discussion of the administrative organization) should inform readers of the specific location within the investment section where information can be found regarding investment professionals who provide service to the postemployment benefit system (i.e., the Schedule of Fees and Commissions)

Management concurs with the recommendation. The page number is referenced in the footnote on the organization chart.

Include investment policies and strategies and safeguards on investments.

The letter of transmittal should include financial information for investment activities that includes investment policies and strategies, safeguards on investments, and yield information.

Management concurs with the comment. The investment policies, strategies, and safeguards on investments have been added to the letter of transmittal.

Comment 112: ***Note disclosures (other than the SSAP and pension–related disclosures)***

The term "fair value" should be used in place of "market value"

Management concurs with the recommendation. The term "market value" has been replaced with the term "fair value".

Comment 114: ***Required supplementary information (RSI)***

For single employer and cost-sharing multiple-employer defined benefit OPEB plans, the RSI schedules should use "covered payroll" as the measure of payroll if contributions to the OPEB plan are based on a measure of pay. If contributions to the OPEB plan are not based on a measure of pay, no measure of payroll should be presented.

Management concurs with the recommendation. The contributions are based on a measure of pay. Therefore, the RSI schedules have been changed to use "covered payroll" as the measure of payroll for contributions to the OPEB plan.

Should you have any questions regarding our responses, or our ACFR for FYE 2021, please do not hesitate to telephone me directly at (502) 696-8604.

Sincerely,

Rebecca H. Adkins
Executive Director, Office of Operations

Enclosure

cc:	David L. Eager Executive Director	Connie A. Davis, CIA, CGAP, CRMA Director of Accounting

h:/ACFR Submission Letter - 2021

KENTUCKY PUBLIC PENSIONS AUTHORITY
David L. Eager, Executive Director
1260 Louisville Road • Frankfort, Kentucky 40601
kyret.ky.gov • Phone: 502-696-8800 • Fax: 502-696-8822

Kentucky Public Pensions Authority

To: Members of the Audit Committee

Through: Rebecca H Adkins
Executive Director, Office of Operations

From: Dominique McKinley
Director, Enterprise and Technology Services

Date: November 4, 2021

Subject: Cyber Security – Infrastructure Assessment by external vendor

---

The technology and security staff of KPPA request approval to contract an external vendor to perform an infrastructure security assessment. These are generally performed annually and are a critical component of the cyber security stance adopted by KPPA.

The cyber threat landscape is always changing. According to the FBI, the top five types of cybercrime in 2020 were phishing, non-payment/non-delivery, extortion (including ransomware), data breaches, and identity theft. Phishing is likely to remain the top threat in 2021. To combat these threats and others, KPPA's security and tech teams are always looking for ways to protect the systems. An infrastructure assessment by an external vendor is an excellent way to identify new vulnerabilities.

Action Needed: We request the Audit Committee approve the expenditure of up to $70,000 on an infrastructure assessment.

County Employees Retirement System and Kentucky Retirement Systems

Charter for the Joint Audit Committee

I. Charter

This Charter establishes the authority and responsibility of the Joint Audit Committee of the County Employees Retirement System (CERS) and the Kentucky Retirements Systems (KRS).

II. Purpose

The purpose of the Joint Audit Committee is to assist the Board of Trustees (Board) and Executive Management teams of the CERS and the KRS as well as the Kentucky Public Pensions Authority (KPPA) in fulfilling their oversight responsibilities for the:

1. System of internal controls,
2. Internal and external audit processes, and
3. Process for monitoring compliance with laws and regulations and the code of conduct as described in the appropriate entity bylaws.

As defined by the Institute of Internal Auditors, internal auditing is *an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. The goal of internal auditing is to help the organization accomplish its objectives by bringing a systematic, disciplined approach to evaluating and improving the effectiveness of risk management, control, and governance processes.*

Consistent with this definition, internal auditing within KPPA can be defined as the *independent appraisal of the various operations and systems of control within KPPA, CERS, and, KRS to determine whether acceptable policies and procedures are followed, legislative requirements and established standards are met, resources are used efficiently and economically, planned missions are accomplished effectively, and the objectives of KPPA, CERS, and KRS are being achieved.*

III. Authority

The Joint Audit Committee has authority to conduct or authorize investigations into any matters within its scope of responsibility. The Joint Audit Committee is empowered to:

1. Oversee the work of any registered Certified Public Accounting (CPA) firm employed by KPPA;
2. Resolve any disagreements between KPPA, CERS, and/or KRS management and the internal auditor regarding internal audit reports;
3. Resolve any disagreements between KPPA, CERS, and/or KRS management and the external auditor regarding financial reporting;
4. Pre-approve the scope of all financial audit and non-financial audit services;
5. Oversee independent counsel, accountants, or others retained by KPPA to advise the Joint Audit Committee or assist in conducting an investigation;
6. Seek and obtain any necessary information from person(s) employed by KPPA, CERS, or KRS (all of whom are directed to cooperate with the Joint Audit Committee's requests) or external parties; and
7. Meet with officers, internal and/or external auditor, or outside counsel as necessary.

Commented [CK(1]: Legal believes that any outside entity used by the Audit Committee would have to be hired through KPPA utilizing 45A.

IV. Composition

The Joint Audit Committee will consist of four (4) members – two CERS members appointed by the Chair of the CERS Board and two KRS members appointed by the Chair of the KRS Board. The members of the Joint Audit Committee will elect a Joint Audit Committee Chair and Vice-Chair.

A quorum to conduct business is satisfied if a majority of the Joint Audit Committee members are present. Each Joint Audit Committee member will be free of conflicts of interest with respect to the projects under the scope of the Joint Audit Committee. ~~independent.[1]~~ For the purposes of the Joint Audit Committee, independent shall mean those individuals who do not report directly to KPPA, CERS, or KRS management and also those persons who are not directly responsible for the day-to-day operations of KPPA, CERS or KRS. At least one member of the Joint Audit Committee will be designated as the "financial expert.[2]" A financial expert is an individual who possesses, among other attributes:

1. An understanding of generally accepted accounting principles (GAAP) – in this case, the accounting standards issued by the Governmental Accounting Standards Board (GASB) or the Federal Accounting Standards Advisory Board (FASAB) and financial statements.
2. The ability to assess the general application of such principles in connection with the accounting for estimates, accruals, and reserves.
3. Experience preparing, auditing, analyzing, or evaluating financial statements that present a breadth, depth, and level of complexity of accounting issues that can reasonably be expected to be raised by the government entity's financial statements or experience actively supervising one or more persons engaged in such activities.
4. An understanding of internal control and the procedures for financial reporting.
5. An understanding of audit committee functions.

V. Meetings

Joint Audit Committee meetings must comply with Kentucky's Open Meetings Act contained in Kentucky Revised Statutes Chapter 61.800, et seq. The Joint Audit Committee will meet at least four (4) times a year, with authority to convene additional meetings, as circumstances require. The regular quarterly meetings shall be held on the first Thursday of February, May, and November and the fourth Thursday of August. All Joint Audit Committee members and the Director of the Division of Internal Audit Administration (Internal Audit) are expected to attend each meeting. The Joint Audit Committee will invite KPPA, CERS, and/or KRS staff; auditors; or others to attend meetings and provide pertinent information, as deemed necessary. The Joint Audit Committee may conduct closed session when legally authorized under Kentucky's Open Meetings Act. Meeting agendas will be provided to members of the Joint Audit Committee, along with appropriate briefing materials. Minutes will also be prepared and approved by the Joint Audit Committee. Agendas and minutes will also be posted in compliance with Kentucky's Open Meetings Act.

~~[1] Merriam-Webster Dictionary defines "independent" as "not subject to control by others; not requiring or relying on something else; not looking to others for one's opinions or for guidance in conduct; and not bound by or committed to a political party."~~

[1] See Sarbanes-Oxley Act of 2002 § 407.

VI. Responsibilities

The Joint Audit Committee is responsible for the following activities.

Internal Controls and Compliance for KPPA, CERS, and KRS

1. Evaluate the effectiveness of the internal controls system, including information technology security and control.
2. Understand the scope of internal and external auditors' review of internal controls over financial reporting and obtain reports on significant findings and recommendations, together with management's responses.
3. Evaluate the effectiveness of the system used to monitor compliance with laws and regulation.
4. Evaluate the results of management's investigations and follow-up (including disciplinary action) of any instances of noncompliance.
5. Review the findings of any examinations by regulatory agencies and any auditor observations.
6. Evaluate the effectiveness of the system used to monitor noncompliance with entity code of conduct and/or bylaws as well as evaluate the process in which the code of conduct and bylaws are communicated to personnel.
7. Obtain regular updates from management and legal counsel regarding compliance matters.

Internal Audit

1. ~~Review and m~~Make recommendations to the KPPA Executive Director regarding the appointment, dismissal, and replacement of the Internal Audit Director. Since the Internal Audit Director is a non-merit position under Kentucky Revised Statute 18A, request for appointment must come from the KPPA Executive Director and receive final approval from the Governor.
2. ~~Review and m~~Make recommendations to the KPPA Executive Director on the salary for the Internal Audit Director. Since the Internal Audit Director is a non-merit position under Kentucky Revised Statute 18A, the salary recommendations must come from the KPPA Executive Director and receive ~~with the understanding that~~ final ~~salary~~ approval from ~~is at the discretion of~~ the Governor.
3. Review the Internal Audit staffing and organizational structure with the KPPA Executive Management team and the Internal Audit Director.
4. Annually, review and approve the Charter for Internal Audit Administration, Audit Plan, and Internal Audit Budget.
5. Ensure there are no unjustified restrictions or limitations placed on Internal Audit in relation to the completion of audit projects.
6. Evaluate the effectiveness of the internal audit function, including compliance with the Institute of Internal Auditors' International Standards for the Professional Practice of Internal Auditing.
7. On a regular basis meet with the Internal Audit Director, including closed session discussions, pursuant to Kentucky's Open Meeting Act in Kentucky Revised Statutes Chapter 61.800, et seq.

External Audit

1. Receive communications from external auditors that are required by the AICPA Standards to be received by "Governing Boards."

Commented [CK(2]: Since the Internal Audit Director position is non-merit, the rules for hiring are different than the rules for merit staff. The Joint Audit Committee can be involved in the process, including recruiting, interviewing, recommending, etc.

Commented [CK(3]: Verified wording with external auditors. Confirmation that this is sufficient received on 8/27/2021.

2. Evaluate the external auditors' proposed audit scope and approach, including coordination of audit effort with internal audit.
3. Evaluate the performance of the external auditors and exercise final approval on the appointment or discharge of the auditors.
4. Evaluate and confirm the independence of the external auditors by obtaining statements from the auditors on relationships between the auditors and KPPA, CERS, and KRS, including non-audit services. Discuss the relationships with the auditors.
5. Annually, meet separately with the external auditors to discuss any matters that the Joint Audit Committee or auditors believe should be discussed privately.

Reporting

1. Regularly report Joint Audit Committee activities, issues, and related recommendations to the Boards of Trustees for CERS and KRS for ratification.
2. As needed, report Joint Audit Committee recommendations to the KPPA for implementation.
3. Review any other reports issued by the KPPA staff that relate to the responsibilities of the Joint Audit Committee.

Other

1. Facilitate open channels of communication between internal auditor, external auditors, and the KPPA.
2. Perform other activities related to this Charter as requested by the Boards of Trustees of CERS or KRS; KPPA; or the Executive Management teams of the KPPA, CERS, or KRS.
3. Institute and oversee special investigations, as needed.
4. Annually, review and assess the adequacy of the Charter for the Joint Audit Committee.
5. Confirm annually that all responsibilities outlined in this Charter have been completed.
6. Evaluate the Joint Audit Committee's and individual members' performance on a regular basis.

VII. Responsibilities of Other Parties

1. The auditors (internal and external) are responsible for planning and conducting audits.
2. The Boards of Trustees for CERS and KRS are responsible for ratifying actions taken by the Joint Audit Committee.
3. KPPA management personnel are responsible for implementing recommendations approved by the Joint Audit Committee and ratified by Boards of Trustees for CERS and/or KRS.
4. KPPA is responsible for the selection and hiring of the external auditor.
5. KPPA management personnel are responsible for preparing and fairly presenting the financial statements in accordance with GAAP for governmental entities as issued by GASB, maintaining effective internal control over financial reporting, and ensuring KPPA complies with applicable laws, regulations, and other requirements.
6. The Boards of Trustees for CERS and KRS are responsible for approval of the Annual Report.
7. KPPA is responsible for final approval and publishing of the Annual Report.

VIII. Approvals

We, the undersigned of the Joint Audit Committee, CERS Board of Trustees, and KRS Board of Trustees do certify that this Charter was approved on the 16th day of November, 2021.

Joint Audit Committee Chair — Date

Board Chair — Date
County Employees Retirement System

Board Chair — Date
Kentucky Retirement Systems

History: Approval Date: November 16, 2021
Amended:

Kentucky Public Pensions Authority

Internal Audit Administration

Kentucky Public Pensions Authority

To: Members of the Joint Audit Committee

From: Kristen N. Coffey, CICA KNC
Division Director, Internal Audit Administration

Date: November 4, 2021

Subject: Establishment of Joint Audit Committee Meeting Dates

As stated in the Charter for the Joint Audit Committee, Section V, "The Joint Audit Committee will meet at least four (4) times a year, with authority to convene additional meetings, as circumstances require. The regular quarterly meetings shall be held on the first Thursday of February, May, and November, and the fourth Thursday of August."

All Joint Audit Committee meetings are scheduled to begin at 10:00 a.m. Eastern Standard Time (EST). The meeting dates for calendar year 2022 are below:

February 3, 2022	August 25, 2022
May 5, 2022	November 3, 2022

In addition, a Special Called Joint Audit Committee meeting is needed at 9:30 a.m. EST on November 30, 2021. The agenda will be prepared at a later date, but topics to discuss will include the fiscal year 2021 external audit and any internal audits released since the previous Joint Audit Committee meeting.

Action Needed: We request the Joint Audit Committee approve the starting time and dates for the calendar year 2022 Audit Committee meetings as well as the Special Called meeting for November 30, 2021.

KENTUCKY PUBLIC PENSIONS AUTHORITY
David L. Eager, Executive Director
1260 Louisville Road • Frankfort, Kentucky 40601
kyret.ky.gov • Phone: 502-696-8800 • Fax: 502-696-8822

Kentucky Public Pensions Authority

MEMORANDUM

TO: Kristen Coffey, Director of Internal Audit Administration

FROM: Jillian Hall, Staff Attorney, Office of Legal Services
Michael Board, Executive Director, Office of Legal Services

DATE: October 18, 2021

SUBJECT: Potential Information Disclosures/Breaches, 3rd Quarter Calendar Year 2021

The following memo outlines the potential information disclosure/breach incidents by the Kentucky Public Pensions Authority ("KPPA") or an external vendor during the 3rd Quarter of Calendar Year 2021 (July through September), and compares them to the 1st Quarter of Calendar Year 2021 (January through March) and 2nd Quarter of Calendar Year 2021 (April through June).

SUMMARY OF POTENTIAL DISCLOSURES/BREACHES IN THE 3rd QUARTER OF CALENDAR YEAR 2021

The KPPA investigated or became aware of seven (7) possible information disclosure/breach incidents by the KPPA or its external vendors during the 3rd Quarter of Calendar Year 2021. Three (3) incidents were a breach that implicated HIPAA/HITECH and no incidents have been determined to be a breach implicating state law. In three (3) incidents, the KPPA determined that these incidents were a data disclosure incident warranting member notification under its internal Data Disclosure Notification Policy. In the remaining one (1) incident, the KPPA determined that the incident was not a data disclosure incident warranting member notification under its internal Data Disclosure Notification Policy.

Potential Information Disclosures/Breaches - Calendar Year 2021				
	1st Q	2nd Q	3rd Q	4th Q
Number of Potential Disclosures by Type				
Email	1	1	1	
Postal Mail	4	2	3	
Fax	0	0	0	
Other	0	2	3	
TOTAL	**5**	**5**	**7**	
Members Affected --- KRS & CERS	**5**	**3**	**73**	
Members Affected --- External	**0**	**2**	**65**	

Number of Incidents by Source				
KPPA, KRS, & CERS	3	3	4	
External Entity (e.g. Bus. Assocs)	2	2	3	
TOTAL	**5**	**5**	**7**	

POTENTIAL DISCLOSURES/BREACHES BY THE KPPA IN THE 3rd QUARTER OF CALENDAR YEAR 2021

Federal law (HIPAA/HITECH): There were no potential breaches of protected health information by the KPPA during the 3rd Quarter of Calendar Year 2021.

State law (KRS 61.931, et seq.): There were no potential "security breaches" of "personal information" as defined by state law by the KPPA during the 3rd Quarter of Calendar Year 2021.

Additional information: In one (1) instance, a document containing a member's full name, mailing address, member ID, and monthly retirement payment amount was inadvertently mailed to the wrong member. The document did not contain any protected health information under federal law or constitute a "security breach" under state law. The member that erroneously received the document returned the document to the KPPA and signed an affidavit stating that they did not save or duplicate the information contained in the document received in error in any manner. The affected member was notified of the disclosure pursuant to the KPPA's internal Data Disclosure Notification Policy.

In one (1) instance, an email containing a member's full name and member ID was inadvertently sent to an email address associated with a participating employer (not a participating employer at which the member has been employed). The email did not contain any protected health information under federal law, constitute a "security breach" under state law, or constitute a disclosure pursuant to the KPPA's internal Data Disclosure Notification Policy.

In one (1) instance, a member erroneously received three (3) documents by mail containing various information for other members, their spouses, and their dependent children. The documents did not contain any protected health information under federal law or constitute a "security breach" under state law. The member that received the documents in error returned the documents to the KPPA and has been sent an affidavit to sign stating that they did not save or duplicate the information contained in the document received in error in any manner. The affected members were notified of the disclosure of their information, their spouse's information, and their dependent children's information pursuant to the KPPA's internal Data Disclosure Notification Policy.

In one (1) instance, an issue with the KPPA's Self-Service website caused some information of two members and one deceased member to be visible to nine (9) other members. The information available on Self-Service did not contain any protected health information under federal law or constitute a "security breach" under state law. The members that had access to the information in error have been sent an affidavit stating that they did not save or duplicate the information to which they erroneously had access in any manner. The affected living members were notified of the disclosure of their information pursuant to the KPPA's internal Data Disclosure Notification Policy.

EXTERNAL DISCLOSURES/BREACHES IN THE 3rd QUARTER OF CALENDAR YEAR 2021

The KPPA was notified by an external vendor of three (3) incidents implicating HIPAA/HITECH during the 3rd Quarter of Calendar Year 2021. On one occasion, an unauthorized person was given access to the protected health information of two (2) members. On a separate occasion, a software coding error resulted in the protected health information of sixteen (16) members being mailed to the wrong person. Finally, on a different occasion, a subcontractor of the external vendor experienced a ransomware attack that compromised the protected health information of forty-seven (47) members.

Following all three (3) incidents, the external vendor notified the affected members in compliance with state and federal law. Additionally, the external vendor has taken steps to ensure that similar incidents do not occur again in the future.

RECOMMENDATION

This memorandum is provided for informational purposes only.

KENTUCKY PUBLIC PENSIONS AUTHORITY
David L. Eager, Executive Director
1260 Louisville Road • Frankfort, Kentucky 40601
kyret.ky.gov • Phone: 502-696-8800 • Fax: 502-696-8822

Kentucky Public Pensions Authority

MEMORANDUM

TO: Kristen Coffey, Director of Internal Audit Administration

FROM: Jillian Hall, Staff Attorney, Office of Legal Services
Michael Board, Executive Director, Office of Legal Services

DATE: October 18, 2021

SUBJECT: Anonymous Reports Received

The following chart provides updated information on anonymous tips received by the Kentucky Retirement Systems prior to April 1, 2021 and the Kentucky Public Pensions Authority on and after April 1, 2021.

To summarize the information contained in the chart below, since the Joint Audit Committee of the Board of Trustees of the Kentucky Retirement Systems and the Board of Trustees of the County Employees Retirement System on August 26, 2021, one (1) case has been added, two (2) cases have been closed, and two (2) cases have been opened and closed.

Additionally, the open cases can be summarized as follows:

- One (1) related to possible fraudulent disability payments;
- One (1) related to a participating employer allegedly improperly requiring employees to change pension plans; and
- One (1) related to three (3) members allegedly "working" fraudulent overtime that is known to be fraudulent by the participating employer.

Date Reported	Issue	Current Action	Status
Various	Possible fraudulent disability payments.	Member has been notified that his benefits will be terminated. A hearing is in progress. A second member reported in this complaint is still being investigated.	Hearing in progress
2/10/2020	KERS employees allegedly being forced to switch to either KTRS or an Optional Retirement plan.	Most of the requested information has been received by the KPPA. KPPA Office of Legal Services is requesting information not yet received and working with ERCE to	Pending

		process the information received.	
3/15/2021	Possible retire with prearranged rehire agreement (return to work as contractor).	Multiple requests have been made for information from employer, with only limited response. Member advised not to reemploy based on incomplete information provided by employer.	Closed
6/7/2021 & 6/11/2021	Possible retire with prearranged rehire.	Investigator and Office of Legal Services unable to substantiate tip received.	Closed
8/25/2021	Report of possible fraud regarding deceased member’s account	Auditor and Office of Legal Services unable to substantiate tip received.	Opened and closed since last meeting
9/21/2021	Alleged fraudulent overtime worked by three members	Investigator is in the process of attempting to verify tip.	Pending
10/4/2021	Possible continuation of work after retirement	Not a member of KRS or CERS. Likely a member of TRS. Auditor forwarded tip to TRS auditor.	Open and closed since last meeting

Kentucky Public Pensions Authority

Internal Audit Administration

Kentucky Public Pensions Authority

To: Members of the Joint Audit Committee

From: Kristen N. Coffey, CICA KNC
Division Director, Internal Audit Administration

Date: November 4, 2021

Subject: Fiscal Year 2022 Internal Audit Budget as of September 30, 2021

Account Number	Account Name	FYE 2022 Budget	FY 2022 Actual Expenditures	Remaining Budget	Percent Remaining
111	Salaries*	$ 209,000.00	$ 54,960.82	$ 154,039.18	73.70%
121	Employer Paid FICA	15,988.50	4,057.58	11,930.92	74.62%
122	Employer Paid Retirement	175,497.30	46,214.83	129,282.47	73.67%
123	Employer Paid Health Insurance*	41,000.00	9,840.13	31,159.87	76.00%
124	Employer Paid Life Insurance*	48.00	13.00	35.00	72.92%
125	Employer Paid HRA	-	-	-	-
133T	Tuition Assistance	2,500.00	-	2,500.00	100.00%
259T	Conference Expenses	1,500.00	1,700.00	(200.00)	-13.33%
361T	Travel - In State	500.00	-	500.00	100.00%
362T	Travel - Out State	450.00	-	450.00	100.00%
381T	Dues & Subscriptions	5,000.00	50.00	4,950.00	99.00%
399T	Miscellaneous	200.00	-	200.00	100.00%
	Total	**$ 451,683.80**	**$ 116,836.36**	**$ 334,847.44**	**74.13%**

* June 30 payroll is deferred to July 1. As a result, the 1st quarter includes one extra payroll and the 4th quarter

Conference Expenses
$1,700 - AGA Internal Controls and Fraud Prevention Seminar for Kristen, Jerry, Madeline, and Matt (1st quart

Dues and Subscriptions
$50 - AGA membership for Matthew (1st Quarter)

Kentucky Public Pensions Authority

Internal Audit Administration

To: Members of the Joint Audit Committee

From: Kristen N. Coffey, CICA KNC
Division Director, Internal Audit Administration

Date: November 4, 2021

Subject: Status of Current Projects

The Division of Internal Audit Administration is currently working on 18 projects: 4 Audit/Review and 14 Other Projects.
Internal Audit has completed 6 projects for the fiscal year: 2 Audits/Reviews and 4 Other Projects.
Internal Audit has 8 planned projects that have not yet been assigned to an auditor (3 investment related and 5 operational/benefit related).

In Process

Type	Name	Description	Status
Audits/ Reviews	2022-1 Plan Liquidity and Available Cash Balance	**Investment Retirement Specialist** will review the process for ensuring there is enough cash on had to meet daily investment activities. **Internal Auditor and Auditor** are assisting on this project.	Audit is in the fieldwork phase. This is a large project and may be presented in sections.
Audits/ Reviews	2022-2 Waived Employer Penalties	**Internal Auditor** will ensure the process for waiving employer penalties is documented and being followed.	Draft report issued 10/26/2021
Audits/ Reviews	Not yet started: KPPA Inventory	**Director and Auditor** will work with Assistant Director of Procurement and Office Services on establishing inventory procedures and completing an inventory assessment for KPPA.	Work will begin in late summer or fall of 2021.
Audits/ Reviews	Not yet started: Review of House Bill 8 Calculations (AUP)	**Director** will review the procedures to comply with House Bill 8 calculations. Will select a sample and recalculate the liability amount.	Work will begin in fall 2021 or spring 2022
Other Projects	2021 Audit Committee Charter Updates	**Director** will update the Audit Charter to reflect changes effective April 1, 2021.	Audit Committee Charter to be presented in November
Other Projects	Annual Comprehensive Financial Report	**IA staff** will review all non-investment sections of the ACFR.	Goal to Audit Committee:10/28/ 2021 (draft)
Other Projects	CERS Board Election Policy Update	**Director** will work on updates to the CERS Board Election Policy. This will start off matching the approved KRS Board Election Policy.	Sent to Executive Team:7/26/2021 Sent to CERS CEO: 8/9/ 2021 Goal Approval: December 2021 or February 2022
Other Projects	Review of Procurement Standard Operating Procedures	**Director** will review Procurement SOPs and provide feedback as needed.	Goal to complete: 12/31/2021
Other Projects	Process Documentation	**Director** will ensure all Internal Audit procedures are documented and saved to the KPPA Process Documentation SharePoint site. Twenty-one processes need to be documented. The following procedures still need to be added/update on the Process documentation site: 1. Audit Procedures: Audit Follow-up, Recommendation Implementation 2. Other Procedures: Risk Assessment, Audit Plan, and Anonymous Reports.	Completed as of 8/25/2021: 16 processes 1. Audit Procedures: Engagement Set-up, Planning Phase, Completing Process Matrix, Fieldwork Phase, Completion Phase, Reviewing Planning Phase, Reviewing Fieldwork Phase, Reviewing Process Matrix, Reviewing Completion Phase, Preparing and Reviewing the Audit Report, and Recording Time on Projects. 2. Other Procedures: Audit Committee Meetings, Trustee Elections, Project Status Tracking, Email Etiquette, and Miscellaneous.
Other Projects	Annual Audit Plan	**Director** will work with Audit Committee, all Boards, all Executive Management, and KPPA Directors to develop a new audit plan.	Initial discussions took place at the August Audit Committee meeting.
Other Projects	Trustee Application - DocuSign	Director will work with KPPA Division of Enterprise and Technology Services to determine if DocuSign can be used on the Trustee Application. If so, we will work on making this transition.	Goal to Complete: 3/31/2022
Other Projects	KERS 2022 Election	**All Internal Audit staff** will work with KRS Election team and Election Services Vendor to oversee the KERS 2022 election.	Six candidates placed on ballot. Currently accepting petitions for members to be added to the ballot.
Other Projects	Management Response to Findings	**Director** will create a project in Gravity to show all findings made to management and the status of the finding.	Goal to Present to Audit Committee: May 2022 Meeting
Other Projects	2022 Audit Committee Charter Updates	**Director** will update the Audit Charter for fiscal year 2022.	Will work on this as time allows.
Other Projects	2022 Internal Audit Charter Updates	**Director** will update the Internal Audit Charter for fiscal year 2022. This includes adding the COSO information.	Will work on this as time allows.
Other Projects	Risk Assessment	**IA staff** will work with Executive Management to develop a risk assessment for KPPA	Estimated completion date not yet known.

Type	Name	Description	Status
Other Projects	Training Videos	**Director** will record training videos that correspond to the Process Documentation. New auditors will be able to review these upon hire and the videos will be available as a reference to current staff. Ensure all Internal Audit procedures are documented and saved to the KPPA Process Documentation SharePoint site. Eighteen processes need to be documented.	Goal to Complete: 6/30/2022 Completed as of 7/26/2021: One video has been recorded.
Other Projects	QAR Self-Assessment	**All Internal Audit staff** will work to complete Self-Assessment as required by Internal Audit Standards.	There is no estimate for this item. This will be completed as time and staffing allow.

Completed

Type	Name	Description	Completed Dates
Audits/ Reviews	2021-3 System Access Review	Reviewed employee access to various IT systems and determine if the access was reasonable. Ensured proper policies were followed.	Completed By: Internal Auditor Final Report Issued: 9/9/2021 Presented to Audit Committee: 11/4/2021
Audits/ Reviews	2021-8 Investment Custodial Fee Payment Process	Reviewed the process for making payments to the Custodial Bank. Ensured payments follow agency process and ensured payments agree to contract with the custodial bank.	Completed By: Retirement Investment Specialist Final Report Issued: 7/29/2021 Presented to Audit Committee: 8/26/2021
Other Projects	Hiring a New Position	Hiring new Auditor I.	Completed By: IA Team Start Date: 7/16/2021
Other Projects	2021 Internal Audit Charter Updates	Made updates to the Internal Audit Charter to reflect changes effective April 1, 2021.	IA Charter Approval: 9/15/2021
Other Projects	Review of IT Governance Policies	Reviewed IT Governance policies and provide feedback as needed.	Completed By: Director Policies Approved: 9/30/2021
Other Projects	Review of Continuity of Operations Plan	Reviewed COOP and provided feedback as needed.	Completed By: Director Review Completed: 10/5/2021

Kentucky Public Pensions Authority

Internal Audit Administration

Kentucky Public Pensions Authority

To: Members of the Joint Audit Committee

From: Kristen N. Coffey, CICA KNC
Division Director, Internal Audit Administration

Date: November 4, 2021

Subject: Final Audit Report Released

Please find attached the final audit report entitled *Security Access Review*. The report is dated September 10, 2021. The findings noted by the Division of Internal Audit Administration are summarized below. The detailed findings and recommendations as well as management's responses are attached for your review. A separate management letter was not issued.

Audit Results

1. Seven of 271 employees had access greater than required for their current roles. As of the end of fieldwork, access for one of the seven employees had not yet been corrected.
2. Manual reviews were not completed timely.
3. Information pertaining to how to perform the manual reviews was not easily accessible to anyone other than the director assigned to complete the review.
4. Seven of 21 Security Access Reviews were not completed by the required deadline.
5. Seven of 21 Web Help Desk (WHD) tickets created to correct employee access were not completed timely.

Attachment

No action is required of the Committee.

Kentucky Public Pensions Authority

Security Access Review

As of August 19, 2021

September 10, 2021

Executive Summary

The following findings were noted during our audit of the Security Access Review process. The related recommendations can be found in the Audit Results section of the report.

1. Seven of 271 employees had access greater than required for their current roles. As of the end of fieldwork, access for one of the seven employees had not yet been corrected.
2. Manual reviews were not completed timely.
3. Information pertaining to how to perform the manual reviews was not easily accessible to anyone other than the director assigned to complete the review.
4. Seven of 21 Security Access Reviews were not completed by the required deadline.
5. Seven of 21 Web Help Desk (WHD) tickets created to correct employee access were not completed timely.

Commendations

We would like to thank Division of Enterprise and Technology Services (DETS) staff for their assistance on this audit. All staff were helpful in addressing questions and were knowledgeable of the processes reviewed. DETS staff took time to meet with us on multiple occasions and ensured all of our questions were addressed. We also spoke to management in the divisions of Accounting; Disability and Survivor Benefits; Employer Compliance, Education, and Reporting; Procurement and Office Services; Member Services; Quality Assurance; and Retiree Health Care. All divisions responded to questions quickly and were willing to make changes needed to security access levels, when needed.

Background

When an individual begins employment at Kentucky Public Pensions Authority (KPPA) or transfers to another division within KPPA, the Division of Human Resources creates a WHD informing DETS staff of the starting date. The new director creates a WHD requesting proper access for the individual. When an individual leaves employment with KPPA or transfers out of a division within KPPA, the Division of Human Resources creates a WHD ticket informing DETS staff of the individual's last day. The former director creates a WHD requesting that individual's access be removed. Due to certain system designs, access may not be immediately removed for employees transferring from some divisions within the Office of Benefits (see finding #1).

Security access reviews are conducted semiannually for KPPA internal programs. DETS staff sends an email to all directors with instructions on how to obtain the security access report. Directors are asked to review the access their employees have to six different programs. If changes are needed, the director creates a WHD ticket requesting the updates. Directors sign a certification indicating they have reviewed access. This certification lists the WHD ticket(s) created, if applicable. These reviews are to be completed within two weeks.

Security access reviews are conducted annually for external programs (these are known as manual reviews). There are fourteen external programs reviewed each year. DETS staff creates a WHD ticket requesting that the review be completed. This ticket is sent to the director responsible for the manual review. The director updates the WHD ticket once the manual review is completed. Since these are external programs, if changes are needed to access, the director works with the external vendor to correct access.

Objective

The objectives of our Security Access Review audit were to ensure internal controls were in place and operating effectively. We also ensured compliance with applicable state regulations and policies and procedures established by the Board of Trustees (Board) for the County Employees Retirement System (CERS) and Kentucky Retirement Systems (KRS) as well as KPPA, CERS and KRS management teams.

Scope and Sampling

For this audit, we reviewed 100% of the users listed on the February 2021 security access report. That report showed 271 users (employees and contractors). We also reviewed 100% of the manual reviews assigned for fiscal year 2021. There were 14 manual reviews assigned at the time of the audit.

Methodology

The following steps were performed to ensure the objectives of the Security Access Review audit were met.

1. Reviewed current KPPA policies and procedures to determine if they were accurate and properly reflected the actual processes being followed.
2. Reviewed the February 2021 security access report and tested for the following attributes:
    a. Report did not include inactive employees or contractors.
    b. Employees had appropriate access based on their job responsibilities.
        i. Transferred employees no longer had access related to their previous job duties.
    c. Employees in similar roles had similar access.
    d. Employees were not listed in multiple divisions.
    e. Directors completed the Security Access review by the required deadline.
    f. WHD tickets related to access updates were completed timely.
3. Reviewed the manual reviews assigned for fiscal year 2021 ensured they were completed timely.

This report is intended solely for use by DETS; the Joint Audit Committee; the CERS and KRS Boards; and the Executive Management teams for KPPA, CERS, and KRS. This report is not intended to be, and should not be, used by anyone other than the specified parties. All final reports are subject to Open Records Requests.

Audit Results

Item #1 **Employees have inappropriate level of access based on job duties.**

Condition	Seven of 271 employees reviewed had greater access than was needed for their current roles. a. Five had transferred from another division and had access based on their new role and prior role. b. One employee had additional access based on previously being a trainer during the START Project. c. One employee was granted additional access upon initial hiring. Note: Auditor reviewed the Security Access Report for August 2021 and found access was corrected for five of the above employees and one employee was no longer with KPPA. However, one employee (a transfer) still had greater access than needed for her current role; access changes were requested during the August Security Access Review.
Criteria	Access Control Policy Section 5 #1 states, "All data shall be classified in accordance with the Data Classification Policy, its access determined by the business owner, and access granted based on the Principle of Least Privilege."
Cause	1. For transferred employees, management did not immediately remove access because of fear that tasks or documents assigned to those individuals would become inaccessible. 2. For the employee that was a trainer, the employee's management changed and the new director did not realize the additional access needed to be removed. 3. For the additional access granted upon initial hiring, the employee was given access similar to those previously in the role; however, not all of the access was needed for the new employee.
Effect	Employees may be able to access sensitive data that is not needed for their job duties. This increases the risk of disclosures.
Recommendation	1. For employees that transfer to another KPPA division, DETS could set up a reminder to have the current and former directors perform a security access review for the transferred employee after a certain number of months (e.g. three months) to ensure the employee does not have unnecessary access based on his/her new role. 2. DETS staff should continue looking at the feasibility and cost efficiency of updating the system so that documents assigned to transferring or resigning employees can be reassigned to another employee. 3. DETS staff should provide guidance and/or training to KPPA division directors on how to correctly complete the Security Access Review, including how to verify that the granted access is appropriate. This could include providing tips on items to look for during reviews. For example, an employee who has more access than other employees in similar roles.
Management Response:	1. The Service Desk will set a three month reminder, if additional access is requested to be kept. A follow up email with both Directors will be sent. If access is needed for additional time, an exemption will be required. 2. DETS will continue to evaluate a system solution, but will remediate the risk using the process described in number 1. After three months DETS staff will also run a script and can update the meta data on case by case basis. 3. Training is being planned before next review in February 2022.
Implementation Date:	February 28, 2022

Item #2	**Completion of Manual Reviews**
Condition	1. Manual reviews, which are assigned separately from the Security Access Reviews, were not completed timely. a. Seven of 14 manual reviews were not completed within the two week deadline. It took an average of 67 days for these reviews to be completed. The review that took the longest to complete took 190 days; however, reviews of this item were being completed on a regular basis. b. As of the date of this report, two of the 14 manual reviews have still not been completed. As of the end of fieldwork, it has been 192 days since the reports were provided for review. i. One of the outstanding items is expected to be completed by the end of August 2021. ii. One outstanding item was the responsibility of an individual who retired on August 1, 2021. It is unknown when this will be completed. 2. Information pertaining to how to perform the manual reviews was not easily accessible by anyone other than the director assigned to complete the review.
Criteria	Access Control Policy Section 5 #1 states, "All data shall be classified in accordance with the Data Classification Policy, its access determined by the business owner, and access granted based on the Principle of Least Privilege."
Cause	1. DETS has not established a policy related to the manual reviews that provides a deadline for completing the reviews or provides a process for following-up with Divisions Directors for reviews that are not completed. 2. Division directors often have multiple tasks to complete and these reviews are not always given a priority. Back-ups have not been established who could perform the manual review in place of the division directors. 3. Division directors performing the manual reviews have not been asked to document how they complete the manual reviews.
Effect	Employees may have unneeded access, which increases the risk of disclosures. Since one of the manual reviews relates to badge access, there is a risk that unauthorized persons could have access to the building. Employees could have too little access making it harder for them to perform their job duties. If the individual responsible for performing the manual review leaves KPPA, the steps needed to complete the manual review may be unknown.
Recommendation	1. DETS staff should update policies related to manual reviews to include the following: a. Deadline for completing the manual reviews. b. Process for following-up with division directors who have not submitted the manual reviews by the established deadline. 2. DETS should work with the directors responsible for performing these reviews to ensure the process is documented and kept in a centralized location (for example, SharePoint). 3. DETS should work with Executive Management to determine if back-ups can be established to complete the manual reviews. 4. DETS staff should inform the appropriate Executive Director when a review is not completed by the deadline and follow-up efforts have been unsuccessful.
Management Response:	1a. Emphasize to directors to complete the review in a timely manner. This deadline is the same deadline; will review the documentation to ensure this is the case. 1b. DETS Director will send a reminder email. 2. Agree 3. Agree 4. Agree
Implementation Date:	February 28, 2022

Item #3	Completion of Security Access Reviews
Condition	Seven of 21 Security Access Reviews were not completed by the deadline. The average time for the seven reviews to be completed was 18 days. The review that took the longest to complete took 29 days; however, the director had requested an extension.
Criteria	Email provided to KPPA staff provides a deadline.
Cause	There is no established process for following up with division directors who have not submitted the Security Access Review by the deadline. There is no stated consequence for failing to complete the Security Access Review by the provided deadline.
Effect	Employees may have unneeded access, which increases the risk of disclosures. Employees could have too little access making it harder for them to perform their job duties.
Recommendation	1. DETS staff should update existing Security Access Review policies to include the following: a. Deadline for completing the Security Access Reviews. b. Process for following-up with division directors who have not submitted the Security Access Review by the established deadline. 2. DETS staff should continue to inform the appropriate Executive Director when a review is not completed by the deadline and follow-up efforts have been unsuccessful.
Management Response:	1a. Deadline is identified when each review kicks off. 1b. Will be documented in the initial information, then a reminder will be sent out three days before end of deadline. 2. This is the current process.
Implementation Date:	February 28, 2022

Item #4	WHD tickets not completed timely
Condition	Seven of 21 WHD tickets to adjust access were not completed within two weeks of the ticket creation date. The average time for the seven tickets to be completed was 21 days. The ticket that took the longest to complete took 32 days.
Criteria	DETS staff indicated that all WHD tickets submitted with Security Access Reviews should be completed within two weeks.
Cause	A policy has not been established that provides guidance on how quickly these type of WHD tickets must be addressed.
Effect	Employees may have unneeded access, which increases the risk of disclosures. Employees could have too little access making it harder for them to perform their job duties.
Recommendation	DETS staff should update existing Security Access Review policies to include the following: 1. Deadline for completing WHD tickets received in response to the Security Access Reviews. The standard practice of two weeks seems to be a reasonable deadline. 2. Process for following-up with DETS staff if these tickets are not completed by the established deadline.
Management Response:	1. Current Service Level Agreement is five days but agree the maximum time allowed should be two weeks. 2. Additional instructions have been added to the documentation to ensure that timely completion of tickets occur.
Implementation Date:	February 28, 2022

TONE at the TOP®

Providing senior management, boards of directors, and audit committees with concise information on governance-related topics.

Issue 105 | June 2021

Things to consider as Internal Audit and the Audit Committee begin work on the Risk Assessment.

Recognizing the Value of ***Independent*** Assurance

Internal audit offers directors a unique perspective on the effectiveness and efficiency of governance, risk management, and internal control processes, based on deep, first-hand knowledge of the organization. Often, that contribution goes well beyond simple compliance concerns.

When Cynthia Cooper suspected wrongdoing at WorldCom, the vice president of internal audit and her team worked many sleepless nights to review financials and root out entries that were being reversed by the CFO to improve the numbers. The team used its own program, developed by an IT staff member, to trace and review journal entries.[1] The company ultimately declared bankruptcy in 2002 after the $11 billion accounting fraud scheme was exposed.[2]

In 2018, a ransomware attack shut down various systems in the city of Atlanta's computer network. The attack might have been avoided had the city heeded warnings from its internal audit department about significant IT risk exposures, but the city's response did not come soon enough.[3]

Both examples provide shocking, real-world examples of risk management failures or vulnerabilities identified through objective assurance independent from management. But their headline-grabbing quality masks an important truth about the value of objective assurance.

"Internal audit is less about presenting audit results and more about engaging executives and board members in thoughtful consideration of current business challenges and in supporting the development of strategies to address the associated business risks," according to The Institute of Internal Auditors (IIA).[4] (See Figure 1: The Evolution of Internal Audit Activities, for more on the current scope and evolution of internal audit's role.)

It is challenging to find the right metrics to capture and do justice to the contributions made by independent, objective, and qualified assurance providers. Unfortunately, that value often becomes crystal clear when internal audit's insights are neglected, overridden, or ignored, as was the case at WorldCom and in Atlanta.

About The IIA

The Institute of Internal Auditors, Inc. is a global professional association with more than 200,000 members in more than 170 countries and territories. The IIA serves as the internal audit profession's chief advocate, international standard-setter, and principal researcher and educator.

The IIA

1035 Greenwood Blvd.
Suite 149
Lake Mary, FL 32746 USA

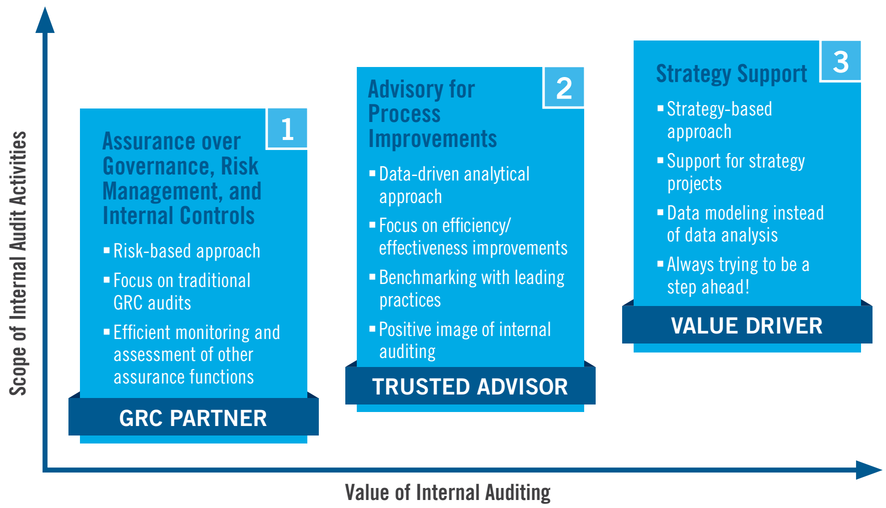
Complimentary Subscriptions

Visit www.theiia.org/Tone to sign up for your complimentary subscription.

Reader Feedback

Send questions/comments to Tone@theiia.org.

Figure 1: The Evolution of Internal Audit Activities



Source: Defining, Measuring, and Communicating the Value of Internal Audit, IIA.

To get a sense of the role that internal audit can and should play, it's useful to understand what happens when directors fail to make the most of its value. What's more, directors should seek out and embrace guidelines they can follow to ensure that the board, management, and internal audit are working together effectively.

Missed Opportunities

Boards that don't work proactively with their chief audit executive (CAE) may miss a number of opportunities to avoid common pitfalls that include:

Understanding the limits of negative assurance. Boards sometimes fail to understand all of the risks facing their organizations because they rely on "negative assurance," or the assumption that if nothing is brought to their attention, then nothing must be wrong.

Unfortunately, case law has established that board members can be held responsible for risk management failures of which they were unaware. According to the *Caremark* ruling, directors should act in good faith to assure that a company's compliance information and reporting system are adequate.

QUESTIONS FOR DIRECTORS

- Are internal audit activities aligned with the strategic objectives of the business?
- Does the CAE report directly to the audit committee, board of directors, or other appropriate governing authority, and administratively to the CEO? Are any changes needed in current reporting relationships?
- Does the board proactively seek out insights and updates from the CAE?
- Does the board receive a thorough assessment of governance processes, including risk management?
- Does the board rely on internal audit to provide strategic advice and be a catalyst for improvement?
- Has the board set expectations for the value and the level and depth of insights it expects to receive from internal audit?

A significant subsequent ruling, *Marchand v. Barnhill*, from 2019, affirmed that "ignorance about poor risk management is not a defense against board liability," particularly in an area that is deemed "mission critical."[5] That case stemmed from a listeria outbreak at an ice cream manufacturer and the plaintiff's allegation that the board did not properly monitor regulatory compliance risks related to food safety, a mission-critical concern for the company. In addition to cases involving regulatory risk, recent U.S. court decisions have also denied motions to dismiss cases related to board oversight of effective financial reporting, a concern for all organizations.[6]

"The *Marchand* case and its relevant *Caremark* implications are but one of a growing number of pressure points on boards relating to oversight duties," according to a 2019 *Internal Auditor* magazine article. "As the list of governance failures and scandals grows, regulators, investors, and the general public are demanding more oversight and more accountability."

The risk of insufficient information. The IIA's *OnRisk 2021* report, which surveyed directors, members of management, and internal auditors on key risk management issues, cited "board information"—or whether boards feel confident that they are receiving complete, timely, transparent, accurate, and relevant information—as one of 11 top risk areas expected to affect organizations this year.[7] Boards were advised to enhance communication to ensure they receive more transparent, complete, and timely information, particularly regarding key risks.

A crucial part of that effort will be the board's communications with internal audit. "A robust internal audit function can be an indispensable resource as companies face down established and emerging threats in areas such as new technology, geopolitics, cybersecurity, and disruptive innovation," the *OnRisk 2021* report said. It encouraged boards to establish expectations with management and the CAE about the level and clarity of the information directors want to receive and to speak up if the volume of detail is overwhelming and obscures key takeaways. CAEs can be called on to evaluate and objectively assess the information that the board has received.

Assuming management/CAE agreement. Boards may fail to proactively seek out additional input or information from internal audit because they assume that the CAE is essentially in accord with what they are hearing from management. That can be a serious misunderstanding. In evaluating the relevance of the risks identified in *OnRisk 2021*, The IIA found that while board members and CAEs were largely in agreement on the relevance of specific organizational risks, management generally saw those risks as less relevant.

"The gap between the relevance rankings by management and the board should not be easily dismissed," the report cautioned. It signals that "management is either overconfident when it comes to organizational governance risk or simply unaware of the level of concern from board members in this area."

A failure to challenge management. Another reason that risks may not be addressed is because the board doesn't go far enough in challenging management and the information it offers. In The IIA's 2020 *American Corporate Governance Index*, internal auditors gave board members a grade of only 68 when it came to seeking reassurance that the information presented to them was accurate and complete. One-third of internal auditors said board members would not object to the CEO putting off reporting bad news. When asked if board members offered opinions that disagreed with the CEO's, internal auditors also gave directors a middling grade of C on assertiveness.

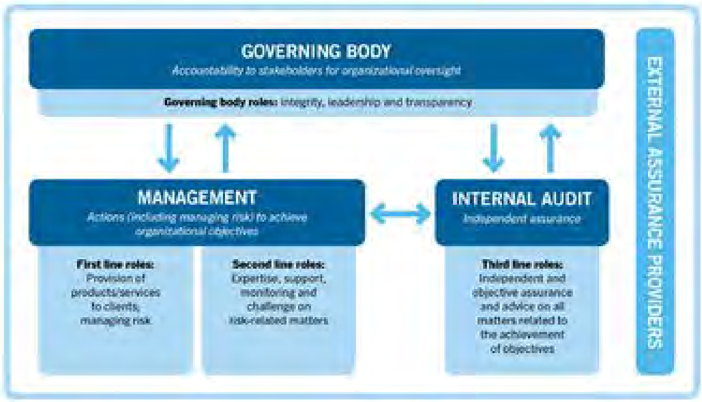
The Three Lines Model

Directors can take a step toward ensuring that organizations get the most value from internal audit by following the guidelines of The IIA's Three Lines Model, published in 2020. The model is designed to help organizations identify structures and processes that facilitate strong governance and risk management (see Figure 2). The model articulates the roles of the governing body, management, and internal audit:[8]

- Accountability by a governing body to stakeholders for organizational oversight through integrity, leadership, and transparency.
- Actions (including managing risk) by management to achieve the objectives of the organization through risk-based decision-making and application of resources.
- Assurance and advice by an independent internal audit function to provide clarity and confidence and to promote and facilitate continuous improvement through rigorous inquiry and insightful communication.[9]

"In clearly delineating roles to accomplish accountability, actions, and assurance, the model offers important guidance on assurance and the value of 'improvement through rigorous inquiry and insightful communication' that an independent internal audit function provides," according to the *OnRisk 2021* report. The report found, though, that, "leaders generally feel the level of assurance they are getting is satisfactory, regardless of where it comes from. However, this laissez-faire approach fails to address the value of an independent assurance assessment."

Figure 2: Three Lines Model



Putting the Value to Work

The complexities facing organizations and their governing bodies are only growing. As they face those challenges and the associated risks, directors can take advantage of the value of internal audit by using the information and insights it offers to enhance corporate governance, internal control, and risk management decisions.

Quick Poll Question

Who does the board rely on primarily for assurance on the effectiveness of risk management and internal control?

- ❑ Executive management
- ❑ External audit
- ❑ Internal audit
- ❑ Other
- ❑ Don't know

Visit www.theiia.org/Tone to answer the question and learn how others are responding.

[1] "Extraordinary Circumstances: An Interview with Cynthia Cooper," Dick Carozza, *Fraud Magazine*, March/April 2008.
[2] "Bernard Ebbers, ex-CEO convicted in WorldCom scandal, dies," CNBC, February 3, 2020.
[3] "What Happens When Internal Audit Is Ignored? It Happens Too Often," Richard Chambers, *Internal Auditor*, August 26, 2019.
[4] *Insight: Delivering Value to Stakeholders*, IIA Research Foundation, 2011.
[5] "Blue Bell Blues: Growing case law affirms board liability," Jim Pelletier, *Internal Auditor*, October 8, 2019.
[6] *2021 Governance Outlook: Projections on Emerging Board Matters*, National Association of Corporate Directors, 2020.
[7] *OnRisk 2021: A Guide to Understanding, Aligning, and Optimizing Risk*, IIA, 2020.
[8] *The IIA's Three Lines Model: An update of the Three Lines of Defense*, IIA, 2020.
[9] Ibid.

QUICK POLL RESULTS

Does your board (or equivalent) have a defined DEI strategy?

Source: Tone at the Top April 2021 survey.

TONE at the TOP®

Providing senior management, boards of directors, and audit committees with concise information on governance-related topics.

Issue 106 | August 2021

Confronting the Cybersecurity Monster

Cyber risk affects organizations of all sizes and in all industries, and it appears to be here to stay. One survey of global boards and executives ranked cyber threats as a top ten risk in 2021, and respondents expect them to be a major risk in 2030, as well. Indeed, global cybercrime is expected to jump 15% per year, with its annual impact predicted to hit $10.5 trillion by 2025, according to Cybersecurity Ventures. The cyber research company calls it the "greatest transfer of economic wealth in history."

Cybersecurity events may take the form of ransomware, attacks on remote work resources, supply chain attacks, phishing, or any number of other criminal practices. They can hobble a company, wipe out significant enterprise value, and subject it to liability or publicity that damages its reputation. The costs of a data breach are high and growing, averaging $4.24 million in 2021, up almost 10% in one year, based on IBM data.

What's more, the COVID-19 pandemic has only created new vulnerabilities that have yet to be fully understood or addressed.

Managing the Dangers

With so much at stake, there are a number of steps that boards can take to enhance their oversight of cyber risks. Throughout the process, internal audit can serve as a critical partner. Working in collaboration with the organization's cybersecurity experts, the internal audit team can provide objective verification that the organization's plans are being executed as intended and that they are adequate to the task. "They can tell the board whether there is a large exposure or a false sense of security," said Sandy Pundmann, CIA, a retired senior partner at Deloitte Risk and Financial Advisory.

There are various board strategies to help address cyber risk. Pundmann and others recommend that boards maintain a keen grasp of their organizations' cyber-risk profile, embrace their oversight role, and practice healthy skepticism to ensure they have a clear-eyed understanding of strengths, weaknesses, and vulnerabilities.

Establish oversight roles and schedule regular updates. While fewer than 10% of boards today have a dedicated cybersecurity committee led by a qualified board member, that number is expected to rise to 40% by 2025, according to a Gartner, Inc. survey. The expected increase may be driven by the expansion of digital business during the pandemic, and the embrace of remote work and its additional potential risks.

About The IIA

The Institute of Internal Auditors, Inc. is a global professional association with more than 200,000 members in more than 170 countries and territories. The IIA serves as the internal audit profession's chief advocate, international standard-setter, and principal researcher and educator.

The IIA

1035 Greenwood Blvd.
Suite 149
Lake Mary, FL 32746 USA

Complimentary Subscriptions

Visit www.theiia.org/Tone to sign up for your complimentary subscription.

Reader Feedback

Send questions/comments to Tone@theiia.org.

Today, responsibility for cybersecurity oversight may be difficult to pinpoint because it is often dispersed among management and various committees, Pundmann said. One committee should be assigned responsibility and should discuss the topic at every meeting, she added. Cybersecurity should also be on the full board's agenda a minimum of twice a year.

Recognize the threat level. Cybersecurity is more than an IT issue. "Whether it is in advance of or during an incident, you should not just leave [cybersecurity] to the chief information officer and the technical team," said John Noble, former director of the United Kingdom's National Cyber Security Centre, in a McKinsey podcast. "Leaders need to decide how to manage the tensions between usability, security, and cost, and that is very much where we need the board challenging and testing processes."

Dive deeper. Boards should be aware of whether their organizations are regularly evaluating and enhancing their cyber risk assessments. The internal audit team is often called upon to perform an initial assessment or project, perhaps an attack and penetration audit, but that's only a first step, Pundmann warned. Companies need a multifaceted strategy to prevent, detect, and respond to cyber events. The effort should include an assessment of the ongoing steps the company is taking to understand attacks, the effectiveness of the measures being undertaken, how incidents and responses are monitored, and the mechanics and success of the company's response. The full strategy assessment can start at the committee level, but it should be discussed by the full board, she said.

As a Deloitte publication noted, the first line against cyber risk is made up of business units and IT, which address risk in their daily decisions and operations. The organization's second line is information and technology risk management leadership, who take on governance and oversight. The internal audit function is increasingly the third line, conducting an independent review of security measures and performance.

Understand what sets this risk apart. Organizations and their boards are familiar with risks, but cybersecurity is different for a couple of reasons. First, it is highly specialized and the threats are ever-changing, putting them beyond the expertise of many board members. Second, internet use is pervasive across most organizations, so the risks and their impact are multifaceted and complex. "Enterprise access to the internet is fundamental to delivering value, and all those transactions that rely on access to the internet are inherently unsafe," said one participant in a panel discussion of the Cyber Risk Director Network. "That's not true of any other aspect of risk that boards deal with."

QUESTIONS FOR BOARD MEMBERS

» How often does the board receive updates on the organization's cybersecurity threats and the steps being taken to address and manage cyber risks?

» Is the organization tackling cybersecurity as an enterprise risk issue and not exclusively as an IT concern?

» Does the board take a proactive role in monitoring cyber risks or does it assume all is well unless told otherwise?

» Does the board have a dedicated cybersecurity committee? If not, does another committee, such as the audit committee, have oversight responsibility for cybersecurity?

Get a real-life example. In a tabletop exercise, *which can be run by internal audit, other management, or outside party,* the board and management can oversee a simulated attack to determine how the organization responds, how investors are notified, and how customers or business partners are affected. (Pundmann even worked with one board that requested that only the CIO and CEO were aware the situation was simulated, to make the exercise as realistic as possible.) Once the organization has assessed its response, the board can receive an update on changes that have been made or are under way.

Internal audit also can be a pivotal player in another valuable exercise: A maturity model visualization, which offers a high-level enterprise view of cyber risks and compares where the organization is to where it should be, all in a layperson's terms. Because it's not possible to monitor and address all risks, these exercises can also help clarify which targets are the most critical so that the organization can enhance prevention and detection in those areas, Pundmann said.

Don't let risks take you by surprise. As the embrace of technology expands, so do the risks associated with unfamiliar emerging technologies. Even a new ERP system can pose security challenges that should not be missed, Pundmann noted. Many companies mistakenly wait until there's trouble with a new system before planning how to deal with issues. "Make sure you have a security plan from the beginning for your cyber and control strategy," she said.

Organizations involved in mergers and acquisitions can also face new vulnerabilities. "If you are acquiring a company, ask what risks you are taking on as you connect your businesses," she advised. Companies working with supply chains or other third parties may also be exposed to risks from those sources. In addition, in the compliance arena, organizations should be aware of relevant regulations, such as the Securities and Exchange Commission rules on cybersecurity disclosures.

Leveraging Internal Audit Resources

Cyber threats can be daunting, but internal audit can provide a unique and independent perspective on the organization's risks and the best ways to address them. Boards that are proactive in their monitoring of cybersecurity issues and fully leverage the value that internal audit can offer should be in a better position to effectively address cybersecurity risks.

These are the types of risks that are addressed as a part of the Infrastructure and Application Security Assessment.

WHAT IS YOUR BOARD MISSING?

60% of organizations don't have a head of cybersecurity who sits on the board or at executive management level.

59% of organizations say that the relationship between cybersecurity and the lines of business is at best neutral, to mistrustful or nonexistent.

20% of boards are extremely confident that the cybersecurity risks and mitigation measures presented to them can protect the organization from major cyberattacks.

36% of organizations say cybersecurity is involved right from the planning stage of a new business initiative.

Source: *"The Risky Six: Key Questions to Expose Gaps in Board Understanding of Organizational Cyber Resiliency,"* IIA Global and EY, March 30, 2021.

[1] *Executive Perspectives on Top Risks for 2021 and 2030*, Protiviti and NC State University's ERM Initiative, 2021.
[2] *"Cybercrime to Cost the World $10.5 Trillion Annually by 2025,"* Steve Morgan, *Cybercrime Magazine*, November 13, 2020.
[3] *Cost of a Data Breach Report*, IBM, 2021.
[4] *"Gartner Predicts 40% of Boards Will Have a Dedicated Cybersecurity Committee by 2025,"* Gartner press release, January 28, 2021.
[5] *"Boards and Cybersecurity,"* McKinsey and Company podcast, February 2, 2021.
[6] *"Cybersecurity and the Role of Internal Audit: An Urgent Call to Action,"* Sandy Pundmann, Deloitte, 2017.
[7] *"Cybersecurity: An Evolving Governance Challenge,"* Harvard Law School Forum on Corporate Governance, March 15, 2020.
[8] *"Commission Statement and Guidance on Public Company Cybersecurity Disclosures,"* Release Nos. 33-10459; 34-82746, Securities and Exchange Commission, February 26, 2018.

Quick Poll Question

Does your board have a member with cybersecurity expertise?

- ❑ Yes
- ❑ No
- ❑ Don't know

Visit www.theiia.org/Tone to answer the question and learn how others are responding.