

# Kentucky Employees Retirement System

GASB Statements No. 68 Accounting and Financial  
Reporting for Pensions as of June 30, 2019





February 6, 2020

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

**Subject: GASB 68 Reporting Information for Measurement Period Ending June 30, 2019**

Dear Members of the Board:

This report contains information for the **Kentucky Employees Retirement System (KERS)** in connection with the Governmental Accounting Standards Board (GASB) Statement No. 68, "Accounting and Financial Reporting for Pensions." This information can be used by participating employers for financial reporting for fiscal years ending between (and including) June 30, 2019 and June 30, 2020. The information provided herein was prepared for the purpose of assisting the Kentucky Retirement Systems (KRS) and participating employers in compliance with the financial reporting and disclosure requirements of GASB Statement No. 68.

The liability calculations presented in this report were performed for the purpose of satisfying the requirements of GASB No. 68 and are not applicable for other purposes, such as determining the plans' funding requirements. The calculation of the plan's liability for other purposes may produce significantly different results. This report may be provided to parties other than the Board of Trustees of the Kentucky Retirement Systems only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The total pension liability, net pension liability, and sensitivity information shown in this report are based on an actuarial valuation performed as of June 30, 2018. The total pension liability was rolled-forward from the valuation date to the measurement date at June 30, 2019, using generally accepted actuarial principles.

The Board of Trustees has adopted new actuarial assumptions since June 30, 2018. These assumptions are documented in the report titled "Kentucky Retirement Systems 2018 Actuarial Experience Study for the Period Ending June 30, 2018". The Total Pension liability as of June 30, 2019 is determined using these updated assumptions. House Bill 1 passed during the 2019 Special Legislative Session and allows certain employers in the Non-Hazardous plan to elect to cease participating in the System as of June 30, 2020. Since each employer's election is unknown at this time and the legislation was enacted after the June 30, 2019 measurement date, we did not make any adjustments to the Total Pension Liability to reflect this legislation. There were no other plan provision changes and it is our opinion that these procedures are reasonable and appropriate, and comply with applicable requirements under GASB No. 68.

This report provides the Collective Pension Amounts under GASB Statement No. 68 which will be allocated to employers participating in the KERS Non-Hazardous and Hazardous Retirement Systems. The proportionate share of the Collective Pension Amounts for employers that participate in these cost-sharing multiple employer systems maintained by KRS are provided in an appendix to this report.

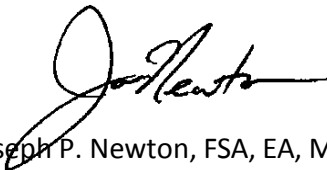
This report is based upon information furnished by the Retirement System, which includes benefit provisions, membership information, and financial data. We did not audit this data and information, but we did apply a number of tests and concluded that it was reasonable and consistent. GRS is not responsible for the accuracy or completeness of the information provided by the Retirement System. This report complements the GASB 67 accounting valuation report as of June 30, 2019, which was provided to KRS for plan accounting purposes, the "Actuarial Valuation Report as of June 30, 2018", which was provided for plan funding purposes, and the "2018 Actuarial Experience Study for the Period Ending June 30, 2018" which documents the assumptions used in this report. Together, these reports should be considered as a complete report for the measurement period that ended June 30, 2019. Please see the GASB 67 accounting valuation report as of June 30, 2019 for additional discussion of accounting information and the actuarial valuation report and experience study report for information regarding the nature of actuarial calculations, participant data, economic and demographic assumptions, and benefit provisions.

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 are considered as an OPEB asset. As a result, the reported fiduciary net positions as of June 30, 2017 and later are net of the 401(h) asset balance.


Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements; and changes in plan provisions or applicable law.

To the best of our knowledge, this report is complete and accurate and is in accordance with generally recognized actuarial practices and methods. Mr. Newton and Mr. White are Enrolled Actuaries. All three of the undersigned are independent actuaries and members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. They are also experienced in performing valuations for large public retirement systems.

Respectfully submitted,  
**Gabriel, Roeder, Smith & Company**

  
Joseph P. Newton, FSA, EA, MAAA  
Senior Consultant

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

  
Janie Shaw, ASA, MAAA  
Consultant

# Table of Contents

	<u>Page</u>
<b>Section 1</b> Discussion.....	2
<b>Section 2</b> Accounting Exhibits.....	7
<b>Section 3</b> Documentation of Support for Investment Return Assumption .....	17
<b>Appendix A</b> Collective Pension Amounts-KERS Non-Hazardous	
<b>Appendix B</b> Collective Pension Amounts-KERS Hazardous	

# SECTION 1



## DISCUSSION

# Discussion

## Accounting Standards

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 68 establishes standards of financial reporting for employers whose employees participate in a pension plan.

The following discussion provides a summary of the information that is required to be disclosed under GASB Statement No. 68. A number of the required disclosure items under this standard are provided in this report. However, certain information, such as notes regarding accounting policies and investments, are not included in this report. As a result, the employers are responsible for preparing and disclosing the non-actuarial information needed to comply with these accounting standards. Much of this additional information can be readily obtained from KRS's 2019 Comprehensive Annual Financial Report.

## Financial Reporting Overview

GASB 68 requires employers to recognize the net pension liability and the pension expense on their financial statements. The net pension liability is the total pension liability, less the amount of the plan's fiduciary net position. In actuarial terms, this is analogous to the accrued liability as measured using the individual entry age normal actuarial cost method less the market value of assets (not the smoothed actuarial value of assets used in the actuarial funding calculations based on the Board's adopted assumptions and methods).

## Timing of the Valuation

For the employer's financial reporting purposes, the net pension liability and pension expense should be measured as of the employer's "measurement date" which may not be earlier than the employer's prior fiscal year-end date. The total pension liability, net pension liability, and sensitivity information shown in this report are based on an actuarial valuation performed as of June 30, 2018. The total pension liability was rolled-forward from the valuation date to the measurement date at June 30, 2019, using generally accepted actuarial principles.

The Board of Trustees has adopted new actuarial assumptions since June 30, 2018. These assumptions are documented in the report titled "Kentucky Retirement Systems 2018 Actuarial Experience Study for the Period Ending June 30, 2018". The Total Pension liability as of June 30, 2019 is determined using these updated assumptions. House Bill 1 passed during the 2019 Special Legislative Session and allows certain employers in the Non-Hazardous plan to elect to cease participating in the System as of June 30, 2020. Since each employer's election is unknown at this time and the legislation was enacted after the June 30, 2019 measurement date, we did not make any adjustments to the Total Pension Liability to reflect this legislation. There were no other plan provision changes and it is our opinion that these procedures are reasonable and appropriate, and comply with applicable requirements under GASB No. 68.

## Employer Contributions after the Measurement Date and before the Employer's Fiscal Year End

Paragraph 57 of GASB No. 68 indicates that employer contributions made subsequent to the measurement date of the Net Pension Liability and prior to the end of the employer's reporting period can be reported by the employer as a deferred outflow of resources related to pensions. The information contained in this report does not incorporate any contributions made to the pension plan subsequent to June 30, 2019.

## Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a single discount rate that reflects (1) a long-term expected rate of return on pension plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the plan's projected fiduciary net position is not sufficient to pay benefits).

Single discount rates of 5.25% for the non-hazardous system and 6.25% for the hazardous system were used to measure the total pension liability for the fiscal year ending June 30, 2019. This single discount rate was based on the expected rate of return on pension plan investments for each system. Based on the stated assumptions and the projection of cash flows as of each fiscal year ending, the pension plan's fiduciary net position and future contributions were projected to be sufficient to finance all the future benefit payments of the current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of the projected benefit payments to determine the total pension liability for each system. The projection of cash flows used to determine the single discount rate assumes that the fund receives the entire actuarially determined contribution in all future years.

## Methodology for Proportionate Shares

The proportionate share of the Collective Pension Amounts for employers that participate in the KERS Non-Hazardous and Hazardous Retirement Systems are provided in an appendix to this report. The allocation of the employers' proportionate share of the Net Pension Liability and Pension Expense was determined using the employers' actual contributions for the fiscal year ending June 30, 2019 for the KERS Hazardous fund. This method is expected to be reflective of the employers' long-term contribution effort as well as be transparent to individual employers and their external auditors.

House Bill 265, passed during the 2018 legislative session, allowed certain employers within the KERS Non-Hazardous System to contribute less than the actuarially determined contribution in the 2018/2019 fiscal year. Because this is not expected to be an ongoing contribution reduction, determining the KERS Non-Hazardous employers' proportionate share based on the employers' actual contributions would not be reflective of the employers' long-term contribution effort. Instead, the proportionate share calculations for employers of the KERS Non-Hazardous System were based on the employers' covered payroll provided for fiscal year ending June 30, 2019, which would result in the same proportionate share allocation if all the participating employers contributed the same contribution rate. It is our opinion that this is reasonable and appropriate, and complies with applicable requirements under GASB No. 68.

## Non-Employer Contributions

During fiscal year ending June 30, 2019, the KERS Non-Hazardous Retirement fund received \$75.9 million from the General Fund Budget Surplus. Based on our interpretation of GASB 68, these are classified as non-employer contributions but are not considered to be a Special Funding Situation because the amount of the appropriations is not dependent or tied to the actuarially determined contributions for these systems.

Non-employer contributions will be allocated according to each employer's proportionate share contribution described previously. As discussed with KRS and KRS' external auditors, the pension expense presented in these calculations is net of applicable non-employer contributions made during the measurement period. As a result, the participating employers will not be required to separately disclose revenue attributable to these non-employer contributions in their financial statements.

## Summary of Population Statistics

The total pension liability described in this report is based on the plan membership as of June 30, 2018:

<b>Membership Status</b>	<b><u>Non-Hazardous</u></b> (1)	<b><u>Hazardous</u></b> (2)
Inactive plan members currently receiving benefits:	46,526	4,370
Inactive plan members entitled to but no yet receiving benefits:	50,435	5,727
Active plan members:	35,139	3,929
<b>Total plan members:</b>	<b>132,100</b>	<b>14,026</b>



## Recognition of Deferred Outflows and Inflows of Resources

According to paragraph 33 of GASB Statement No. 68, *differences between expected and actual experience and changes in assumptions* are recognized in pension expense using a systematic and rational method over a closed period equal to the average of the expected remaining service lives of all employees that are provided with pensions through the pension plan (active employees and inactive members) determined as of the beginning of the measurement period.

At the beginning of the 2019 measurement period, the expected remaining service lives of all employees was the following for each retirement system and the average of the expected remaining service lives for purposes of recognizing the applicable deferred outflows and inflows of resources established in the 2019 measurement period.

<b>Development of the Average Expected Remaining Service Life</b>	<b><u>Non-Hazardous</u></b>	<b><u>Hazardous</u></b>
	(1)	(2)
Total expected remaining service lives of all employees (years):	341,597	41,128
Total plan members:	132,100	14,026
Average expected remaining service life (years):	2.59	2.93

Differences between projected and actual earnings on pension plan investments should be recognized in pension expense using a systematic and rational method over a closed five-year period. For this purpose, the deferred outflows and inflows of resources are recognized in the pension expense as a level dollar amount over the closed period identified above.

## SECTION 2

---

### ACCOUNTING EXHIBITS

## Exhibit 1

### Schedule of the Employers' Net Pension Liability as of June 30, 2019 (\$ in thousands)

System	Total Pension Liability	Plan Fiduciary Net Position	Employers' Net Pension Liability (Asset)	Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	Covered Payroll <sup>1</sup>	Net Pension Liability as a Percentage of Covered Payroll
(1)	(2)	(3)	(4)	(5)	(6)	(7)
KERS Non-Hazardous System	\$ 16,356,674	\$ 2,233,672	\$ 14,123,002	13.66%	\$ 1,485,854	950.50%
KERS Hazardous System	\$ 1,227,226	\$ 680,932	\$ 546,294	55.49%	\$ 160,600	340.16%

Note:

<sup>1</sup> Based on derived compensation for fiscal year ending 2019 using the provided employer contribution information.

## Exhibit 2

### Schedule of Changes in the Employers' Net Pension Liability (\$ in thousands)

Change in the Net Pension Liability	Measurement Period	
	Ending June 30, 2019	
(1)	KERS Non-Hazardous (2)	KERS Hazardous (3)
<b>Total pension liability</b>		
Service Cost	\$ 184,988	\$ 27,117
Interest	793,163	69,657
Benefit Changes	-	-
Difference between actual and expected experience	70,529	1,395
Assumption Changes	700,464	50,658
Benefit Payments	(1,000,691)	(72,211)
<b>Net Change in Total Pension Liability</b>	<b>\$ 748,453</b>	<b>\$ 76,616</b>
<b>Total Pension Liability - Beginning</b>	<b>15,608,221</b>	<b>1,150,610</b>
<b>Total Pension Liability - Ending (a)</b>	<b>\$ 16,356,674</b>	<b>\$ 1,227,226</b>
<b>Plan Fiduciary Net Position<sup>1</sup></b>		
Contributions - Employer	\$ 1,035,462	\$ 55,259
Contributions - Member <sup>2</sup>	93,759	17,118
Refunds of contributions to members	(12,342)	(2,684)
Retirement benefits	(988,349)	(69,527)
Net Investment Income <sup>2</sup>	112,371	36,380
Administrative Expense	(11,712)	(1,103)
Other <sup>4</sup>	37	4
<b>Net Change in Plan Fiduciary Net Position</b>	<b>\$ 229,226</b>	<b>\$ 35,447</b>
<b>Plan Fiduciary Net Position - Beginning</b>	<b>2,004,446</b>	<b>645,485</b>
Prior Year Adjustment	-	-
<b>Plan Fiduciary Net Position - Ending (b)</b>	<b>\$ 2,233,672</b>	<b>\$ 680,932</b>
<b>Net Pension Liability - Ending (a) - (b)</b>	<b>14,123,002</b>	<b>546,294</b>
<b>Plan Fiduciary Net Position as a Percentage of the Total Pension Liability</b>	<b>13.66%</b>	<b>55.49%</b>
<b>Covered Payroll<sup>3</sup></b>	<b>\$ 1,485,854</b>	<b>\$ 160,600</b>
<b>Net Pension Liability as a Percentage of Covered Payroll</b>	<b>950.50%</b>	<b>340.16%</b>

Notes:

<sup>1</sup> Does not include 401(h) assets for fiscal year 2019

<sup>2</sup> Does not include 401(h) contributions and investment income on 401(h) contributions for fiscal year 2019

<sup>3</sup> Based on derived compensation using the provided employer contributions information for fiscal year 2019

<sup>4</sup> Northern Trust Settlement

## Exhibit 3

### Schedule of the Employers' Contributions for the Measurement Period Ending June 30, 2019 (\$ in thousands)

System (1)	Actuarially Determined Contribution <sup>1</sup> (2)	Total Employer Contributions <sup>2</sup> (3)	Contribution Deficiency (Excess) (4)	Covered Employee Payroll <sup>3</sup> (5)	Actual Contributions as a Percentage of Covered Payroll (6)
KERS Non-Hazardous System	\$ 1,055,402	\$ 1,035,462	\$ 19,940	\$ 1,485,854	69.69%
KERS Hazardous System	\$ 55,230	\$ 55,259	\$ (29)	\$ 160,600	34.41%

Note:

<sup>1</sup> Actuarially determined contribution rate for fiscal year ending 2019 is based on the contribution rate calculated with the June 30, 2017 actuarial valuation.

<sup>2</sup> Employer contributions for the non-hazardous System includes \$75,857,750 of Budget Surplus appropriations from the State.

<sup>3</sup> Based on derived compensation for fiscal year ending 2019 using the provided employer contribution information.

## Notes to Schedule of Employers' Contributions

The actuarially determined contribution rates effective for fiscal year ending 2019 that are documented in the schedule on the previous page are calculated as of June 30, 2017. Based on the June 30, 2017 actuarial valuation report, the actuarial methods and assumptions used to calculate these contribution rates are below:

Item	KERS Non-Hazardous	KERS Hazardous
Determined by the Actuarial Valuation as of:	June 30, 2017	June 30, 2017
Actuarial Cost Method:	Entry Age Normal	Entry Age Normal
Asset Valuation Method:	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized	20% of the difference between the market value of assets and the expected actuarial value of assets is recognized
Amortization Method:	Level Percent of Pay	Level Percent of Pay
Amortization Period:	26 Years, Closed	26 Years, Closed
Payroll Growth Rate:	0.00%	0.00%
Investment Return:	5.25%	6.25%
Inflation:	2.30%	2.30%
Salary Increases:	3.55% to 15.55%, varies by service	3.55% to 19.55%, varies by service
Mortality:	RP-2000 Combined Mortality Table, projected to 2013 with Scale BB (set back 1 year for females)	RP-2000 Combined Mortality Table, projected to 2013 with Scale BB (set back 1 year for females)

## Exhibit 4

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

System (1)	1.00% Decrease (4.25% for Non-Hazardous) (5.25% for Hazardous) (2)	Current Discount Rate (5.25% for Non-Hazardous) (6.25% for Hazardous) (3)	1.00% Increase (6.25% for Non-Hazardous) (7.25% for Hazardous) (4)
KERS Non-Hazardous System	\$ 16,190,148	\$ 14,123,002	\$ 12,414,694
KERS Hazardous System	\$ 704,415	\$ 546,294	\$ 416,396

## Exhibit 5

### Components of Aggregate Pension Expense (Measurement Date of June 30, 2019)

Component	KERS Non-Hazardous	KERS Hazardous
(1)	(2)	(3)
1. Total service cost:	\$ 184,987,711	\$ 27,116,670
2. Interest on total pension liability:	793,163,474	69,656,524
3. Current-period benefit changes:	0	0
4. Member contributions:	(93,759,421)	(17,117,760)
5. Projected earnings on plan investments:	(108,300,846)	(40,313,642)
6. Administrative expense:	11,712,305	1,103,083
7. Other:	(36,718)	(3,987)
8. Recognition of deferred outflows/ (inflows) due to liabilities: <sup>1</sup>	923,812,074	75,262,083
9. Recognition of deferred outflows/ (inflows) due to assets: <sup>2</sup>	37,694,303	6,975,706
<b>10. Total Aggregate Pension Expense:</b>	<b>\$ 1,749,272,882</b>	<b>\$ 122,678,677</b>

<sup>1</sup> Liability experience and assumption changes.

<sup>2</sup> Difference between projected and actual investment experience.



## Exhibit 6

### Summary of Collective Deferred Outflows and Inflows of Resources Arising from Current and Prior Reporting Periods for the KERS Non-Hazardous Retirement System

#### Differences Between Expected and Actual Liability Experience

Year	Original Outflow/(Inflow)	Deferred Outflow/(Inflow) as of June 30, 2019	Recognition Period (Years)	Increase/(Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences Between Expected and Actual Liability Experience					Thereafter
				2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	
2014-2015	\$ 30,957,685	\$ -	3.25	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2015-2016	-	-	2.82	-	-	-	-	-	-
2016-2017	(134,379,230)	-	2.79	(38,050,032)	-	-	-	-	-
2017-2018	153,564,272	40,232,706	2.71	56,665,783	40,232,706	-	-	-	-
2018-2019	70,528,545	43,297,447	2.59	27,231,098	27,231,098	16,066,349	-	-	-
		\$ 83,530,153		\$ 45,846,849	\$ 67,463,804	\$ 16,066,349	\$ -	\$ -	\$ -

#### Differences Between Projected and Actual Earnings on Pension Plan Investments

Year	Original Outflow/(Inflow)	Deferred Outflow/(Inflow) as of June 30, 2019	Recognition Period (Years)	Increase/(Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences Between Projected and Actual Earnings on Pension Plan Investments					Thereafter
				2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	
2014-2015	\$ 143,813,038	\$ -	5.00	\$ 28,762,606	\$ -	\$ -	\$ -	\$ -	\$ -
2015-2016	182,990,215	36,598,043	5.00	36,598,043	36,598,043	-	-	-	-
2016-2017	(92,188,870)	(36,875,548)	5.00	(18,437,774)	(18,437,774)	(18,437,774)	-	-	-
2017-2018	(42,072,569)	(25,243,541)	5.00	(8,414,514)	(8,414,514)	(8,414,514)	(8,414,513)	-	-
2018-2019	(4,070,292)	(3,256,234)	5.00	(814,058)	(814,058)	(814,058)	(814,058)	(814,060)	-
		\$ (28,777,280)		\$ 37,694,303	\$ 8,931,697	\$ (27,666,346)	\$ (9,228,571)	\$ (814,060)	\$ -

#### Effects of Changes of Assumptions

Year	Original Outflow/(Inflow)	Deferred Outflow/(Inflow) as of June 30, 2019	Recognition Period (Years)	Increase/(Decrease) in Pension Expense Arising from the Recognition of the Effects of Changes of Assumptions					Thereafter
				2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	
2014-2015	\$ 694,591,653	\$ -	3.25	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2015-2016	923,998,933	-	2.82	-	-	-	-	-	-
2016-2017	2,145,530,636	-	2.79	607,515,844	-	-	-	-	-
2017-2018	-	-	2.71	-	-	-	-	-	-
2018-2019	700,463,897	430,014,516	2.59	270,449,381	270,449,381	159,565,135	-	-	-
		\$ 430,014,516		\$ 877,965,225	\$ 270,449,381	\$ 159,565,135	\$ -	\$ -	\$ -

## Exhibit 7

### Summary of Collective Deferred Outflows and Inflows of Resources Arising from Current and Prior Reporting Periods for the KERS Hazardous Retirement System

#### Differences Between Expected and Actual Liability Experience

Year	Original Outflow/(Inflow)	Deferred Outflow/(Inflow) as of June 30, 2019	Recognition Period (Years)	Increase/(Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences Between Expected and Actual Liability Experience					Thereafter
				2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	
2014-2015	\$ 6,066,658	\$ -	3.28	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2015-2016	-	-	2.70	-	-	-	-	-	-
2016-2017	26,901,500	1,034,672	3.12	8,622,276	1,034,672	-	-	-	-
2017-2018	24,214,451	8,439,565	3.07	7,887,443	7,887,443	552,122	-	-	-
2018-2019	1,395,159	918,996	2.93	476,163	476,163	442,833	-	-	-
		\$ 10,393,233		\$ 16,985,882	\$ 9,398,278	\$ 994,955	\$ -	\$ -	\$ -

#### Differences Between Projected and Actual Earnings on Pension Plan Investments

Year	Original Outflow/(Inflow)	Deferred Outflow/(Inflow) as of June 30, 2019	Recognition Period (Years)	Increase/(Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences Between Projected and Actual Earnings on Pension Plan Investments					Thereafter
				2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	
2014-2015	\$ 34,127,131	\$ -	5.00	\$ 6,825,427	\$ -	\$ -	\$ -	\$ -	\$ -
2015-2016	42,227,810	8,445,562	5.00	8,445,562	8,445,562	-	-	-	-
2016-2017	(31,303,329)	(12,521,331)	5.00	(6,260,666)	(6,260,666)	(6,260,665)	-	-	-
2017-2018	(14,105,825)	(8,463,495)	5.00	(2,821,165)	(2,821,165)	(2,821,165)	(2,821,165)	-	-
2018-2019	3,932,738	3,146,190	5.00	786,548	786,548	786,548	786,548	786,546	-
		\$ (9,393,074)		\$ 6,975,706	\$ 150,279	\$ (8,295,282)	\$ (2,034,617)	\$ 786,546	\$ -

#### Effects of Changes of Assumptions

Year	Original Outflow/(Inflow)	Deferred Outflow/(Inflow) as of June 30, 2019	Recognition Period (Years)	Increase/(Decrease) in Pension Expense Arising from the Recognition of the Effects of Changes of Assumptions					Thereafter
				2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	
2014-2015	\$ 52,165,476	\$ -	3.28	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2015-2016	-	-	2.70	-	-	-	-	-	-
2016-2017	127,878,226	4,918,393	3.12	40,986,611	4,918,393	-	-	-	-
2017-2018	-	-	3.07	-	-	-	-	-	-
2018-2019	50,658,499	33,368,909	2.93	17,289,590	17,289,590	16,079,319	-	-	-
		\$ 38,287,302		\$ 58,276,201	\$ 22,207,983	\$ 16,079,319	\$ -	\$ -	\$ -

## Exhibit 8

### Statement of Collective Deferred Outflows and Inflows of Resources to be recognized in Future Pension Expense by Year

Period	KERS Non-Hazardous	KERS Hazardous
(1)	(2)	(3)
1. Fiscal Year + 1	\$ 346,844,882	\$ 31,756,540
2. Fiscal Year + 2	147,965,138	8,778,992
3. Fiscal Year + 3	(9,228,571)	(2,034,617)
4. Fiscal Year + 4	(814,060)	786,546
5. Fiscal Year + 5	-	-
6. Thereafter	-	-
<b>7. Total</b>	<b>\$ 484,767,389</b>	<b>\$ 39,287,461</b>

Note: The deferred outflow and inflow of resources that are projected to be recognized in future pension expense shown in the table above are for the established bases that are allocated in proportionate share to the participating employers in the System and do not include bases established for individual employers attributable to changes in proportionate shares and differences between employer contributions and the proportionate share of plan contributions.

## **SECTION 3**

---

### **DOCUMENTATION OF SUPPORT FOR INVESTMENT RETURN ASSUMPTION**

## Long-Term Expected Investment Return

The long-term expected rate of return was determined by using a building block method in which best estimate ranges of expected future real rates of returns are developed for each asset class. The ranges are 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 is summarized in the table below. The current long term inflation assumption is 2.30% per annum for both the non-hazardous and hazardous system.

Asset Class	Long-Term Expected Real Rate of Return	Non-Hazardous	Hazardous
		Target Allocation	Target Allocation
<b>Growth</b>		<b>53.50%</b>	<b>62.50%</b>
US Equity	4.30%	15.75%	18.75%
Non-US Equity	4.80%	15.75%	18.75%
Private Equity	6.65%	7.00%	10.00%
Specialty Credit/High Yield	2.60%	15.00%	15.00%
<b>Liquidity</b>		<b>23.50%</b>	<b>14.50%</b>
Core Bonds	1.35%	20.50%	13.50%
Cash	0.20%	3.00%	1.00%
<b>Diversifying Strategies</b>		<b>23.00%</b>	<b>23.00%</b>
Real Estate	4.85%	5.00%	5.00%
Opportunistic	2.97%	3.00%	3.00%
Real Return	4.10%	15.00%	15.00%

Source: Kentucky Retirement Systems

## **APPENDIX A**

---

### **COLLECTIVE PENSION AMOUNTS – KERS NON-HAZARDOUS RETIREMENT SYSTEM**

Appendix A: Collective Pension Amounts for KERS Non-Hazardous System

Participating Employer Code	Participating Employer Name	Net Pension Liability as of June 30, 2019										Pension Expense					Outstanding Balance of Deferred Outflows of Resources					Outstanding Balance of Deferred Inflows of Resources					Recognition of Existing Deferred Outflows (Inflows) of Resources for Future Measurement Period Ending June 30,				
		Actual Contributions	FY 18/19 Salary	2019 Proportionate Share	2018 Proportionate Share	Discount Rate 2.5%	Discount Rate Less 1.00%	Discount Rate Plus 1.00%	Proportionate Share of Aggregate Plan Pension Expense	Deferred Amounts from Changes in Proportion & Differences Between Employer Share & Plan Contributions	Gross Employer Pension Expense	Proportionate Share of Nonemployer Contributions	Net Employer Pension Expense	Liability Experience	Assumption Changes	Investment Experience	Change in Proportion & Differences Between Employer Share & Plan Contributions	Total Deferred Outflow of Resources	Liability Experience	Assumption Changes	Investment Experience	Change in Proportion & Differences Between Employer Share & Plan Contributions	Total Deferred Inflow of Resources	2020	2021	2022	2023	2024	Thereafter		
																														(3)	(4)
1430	EASTERN KY UNIV	6,460,150	15,577,726	1.077316%	1.450817%	152,149,362	174,419,053	133,745,483	18,845,197	(84,236,327)	(15,391,130)	(871,228)	(16,208,358)	899,884	4,632,615	394,277	-	5,926,776	-	-	704,299	41,170,755	41,875,054	(25,554,258)	(10,285,830)	(99,421)	(8,769)	-	-		
1433	KF FOUNDATION	743,955	1,811,873	0.123873%	0.112256%	2,166,877	2,055,222	15,378,544	521,954	2,688,831	(93,967)	2,594,864	103,471	53,672	45,335	648,704	1,330,182	-	-	-	80,982	113,719	194,701	723,919	424,003	(11,432)	(1,008)	-	-		
1434	KY BAR ASSOCIATION	-	-	0.000000%	0.153199%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
1435	CHILD WATCH ADVOCACY CTR	87,667	213,508	0.014597%	0.013213%	2,061,535	2,363,276	1,812,173	255,341	92,437	347,778	236,705	12,193	62,769	5,342	101,173	181,477	-	-	-	9,543	12,910,921	12,190,921	(7,881,654)	(4,509,267)	-	-	-	-		
1436	LAB LOTUS	324,547	790,421	0.054039%	0.039423%	7,631,929	8,748,994	6,708,776	945,290	2,108,243	(205,533)	(40,993)	(2,150,540)	45,139	232,376	19,777	1,227,902	1,524,784	-	-	-	35,328	1,029,065	465,818	(3,387)	(440)	-	-	-		
1437	SANCTUARY INC	258,042	628,451	0.042966%	0.040297%	6,068,089	6,969,259	5,334,097	751,593	530,928	1,282,521	(32,593)	1,249,379	35,890	184,760	15,725	357,661	594,036	-	-	-	28,089	95,336	123,425	28,199	(3,965)	(390)	-	-		
1438	O A S I V	258,536	629,654	0.043048%	0.040081%	6,079,670	6,969,535	5,344,277	753,027	6,001	759,028	(32,655)	1,276,373	35,958	185,113	15,755	140,530	377,356	-	-	-	28,143	71,601	99,744	166,093	115,842	(3,973)	(345)	-		
1439	BARRETT YOUTH CHILD ADVOC	41,640	101,712	0.006933%	0.011834%	979,148	1,122,463	860,713	121,277	(116,870)	4,402	(5,259)	85,850	2,791	29,813	2,337	47,198	85,339	-	-	-	4,532	404,140	408,672	(182,931)	(139,706)	(647)	(56)	-		
1440	MOREHEAD STATE UNIVERSITY	2,205,267	5,370,840	0.136719%	0.152987%	51,858,393	59,448,766	45,585,639	6,423,173	(12,767,312)	(6,344,139)	(278,543)	(6,622,682)	306,715	1,578,975	134,385	2,020,075	-	-	-	240,052	15,488,738	15,729,790	(9,125,497)	(4,547,343)	(33,886)	(2,989)	-	-		
1445	MURRAY STATE UNIV	4,990,354	12,153,969	0.830963%	0.889474%	117,353,109	134,529,767	103,158,161	14,535,338	(2,453,987)	(6,300,329)	(11,451,022)	694,082	5,473,145	304,106	961,683	5,533,016	-	-	-	440,022	6,476,051	7,019,278	(22,821,347)	(1,157,567)	(73,864)	(6,785)	-	-		
1450	NORTHERN KY UNIVERSITY	14,024,620	34,156,404	2.335187%	2.304209%	329,798,511	378,070,227	289,906,317	40,848,793	(6,147,352)	34,701,441	(17,714,240)	32,920,721	1,950,585	10,041,643	854,633	12,846,861	-	-	-	1,526,636	3,922,009	5,448,645	5,175,274	2,457,457	(215,504)	(19,011)	-	-		
1451	SILVERLEAF HEALTH CENTER	166,400	405,261	0.027707%	0.022533%	3,913,960	4,485,804	3,439,739	484,671	484,671	91,737	(2,018)	92,755	12,209	115,144	10,140	478,741	631,169	-	-	-	18,114	445,170	170,668	(62,557)	(2,262)	-	-	-		
1452	SPRINGHAVEN INC	186,702	464,646	0.040498%	0.040498%	4,484,477	5,140,858	3,942,038	555,447	353,675	909,122	(24,087)	885,355	26,523	185,543	11,621	481,961	686,648	-	-	-	20,759	200,157	220,157	(2,930)	(259)	-	-	-		
1453	SAFE HARBOR	290,255	706,905	0.048329%	0.043241%	6,825,506	7,824,537	5,999,897	845,406	738,738	1,584,144	(36,661)	1,547,483	40,369	207,822	17,687	441,982	707,860	-	-	-	31,595	499,336	181,784	(4,760)	(394)	-	-	-		
1454	D.O.V.E.S.	177,899	433,266	0.029621%	0.022775%	4,183,374	4,795,684	3,677,356	518,152	1,483,274	1,124,770	(22,470)	1,121,800	24,742	127,375	10,841	667,406	830,364	-	-	-	19,365	592,812	221,162	(4,234)	(241)	-	-	-		
1455	GATEWAY CHILD ADVOCACY	13,960	34,000	0.002324%	0.002609%	328,219	376,259	288,517	40,653	(72,470)	(81,817)	(1,763)	(33,580)	1,941	9,994	851	1,519	12,786	-	-	-	1,519	75,318	76,837	(54,582)	(9,237)	(214)	-	-		
1456	JUD'S PLACE FOR KIDS, INC.	136,589	332,657	0.022748%	0.019668%	3,211,994	3,682,125	2,827,474	397,837	3,211,994	781,933	(4,113)	3,793,146	18,997	97,798	8,223	394,561	519,699	-	-	-	14,668	401,474	105,640	(12,293)	(458)	-	-	-		
1457	KY RIVER CHILD ADVOCACY	40,045	97,527	0.006668%	0.005679%	941,722	1,079,559	827,812	116,642	(4,302)	112,340	(5,058)	107,282	5,570	23,783	2,440	65,518	102,201	-	-	-	26,361	30,720	37,973	34,178	(615)	-	-	-		
1458	BLUEGRASS RAPE CRISIS CTR	271,292	660,720	0.045172%	0.045288%	6,379,643	7,313,414	5,607,966	790,182	309,442	1,099,624	(34,266)	1,065,358	37,732	194,246	16,532	128,306	378,816	-	-	-	29,531	151,611	181,142	189,630	10,581	(4,169)	(368)	-	-	
1459	NURSING HOME OMBUDSMAN	96,649	235,384	0.016093%	0.016206%	2,272,815	2,605,480	1,997,897	281,510	11,946	293,456	(12,208)	281,248	13,443	69,202	5,890	88,535	-	-	-	10,521	58,781	69,302	15,999	4,850	(1,485)	(131)	-	-		
1459	WESTERN KENTUCKY UNIV	6,772,816	16,994,924	1.127780%	1.257898%	159,267,355	182,578,887	140,502,489	19,726,380	(14,875,770)	4,851,660	(855,400)	3,995,600	941,383	4,849,342	412,722	6,004,047	-	-	-	14,052,499	14,789,747	15,386,096	(5,386,096)	(3,086,251)	(104,072)	(8,181)	-	-		
1480	KDAP	188,540	459,182	0.013933%	0.028437%	4,333,634	5,082,573	3,897,345	517,986	921,135	(23,814)	897,321	26,223	134,994	11,489	284,813	457,519	-	-	-	20,523	36,889	51,366	(610,678)	273,465	(5,207)	(459)	-	-		
1481	KOVSA	338,887	825,347	0.056427%	0.048070%	7,969,186	9,135,615	7,005,239	987,062	636,198	1,623,260	(42,804)	1,580,456	47,134	242,644	20,651	60,937	915,366	-	-	-	36,889	273,465	(5,207)	(459)	-	-	-	-		
1482	KACAC	-	-	0.000000%	0.000000%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1483	PENNSVILLE CHILD ADOV CTR	61,957	150,894	0.010316%	0.010312%	1,456,929	1,670,176	1,280,700	180,455	141,113	(111,922)	(111,922)	8,617	44,360	3,775	27,666	84,418	-	-	-	6,744	22,419	29,163	49,347	6,945	(952)	(85)	-	-		
1483	PIFFALO CHILD ADVY INC	341,179	833,179	0.005691%	0.005691%	803,740	903,740	693,740	210,000	83,142	791,520	(8,174)	823,346	4,574	24,212	6,225	14,668	148,688	-	-	-	56,420	112,260	168,680	(40,742)	(1,260)	-	-	-		
1485	CUMBERLAND V C A CENTER	120,861	294,352	0.020124%	0.015011%	2,842,113	3,258,105	2,498,333	352,024	462,530	814,554	(15,266)	799,288	16,810	86,536	7,365	434,706	545,417	-	-	-	13,156	370,428	163,854	(1,857)	(164)	-	-	-		
1486	LAKE CUMBERLAND ADOV CTR	73,261	178,425	0.012198%	0.011643%	1,722,724	1,974,874	1,514,344	215,715	1,722,724	455,091	(5,253)	455,838	10,189	25,453	4,464	7,974	179,093	-	-	-	7,974	147,930	24,414	(1,216)	(99)	-	-	-		
1487	B.R.A.S.S.	292,766	713,021	0.048747%	0.047384%	6,884,540	7,892,211	6,051,791	852,718	330,172	1,182,890	(36,978)	1,145,912	40,718	209,619	17,840	198,486	466,663	-	-	-	31,869	367,300	72,391	(4,499)	(998)	-	-	-		
1488	WOMEN'S SHARE	88,500	215,538	0.014738%	0.014738%	2,081,166	2,385,780	1,829,429	256,351	617,706	1,110,654	(11,178)	1,101,476	12,309	63,367	5,393	76,17	147,3	-	-	-	91,035	100,669	1,473	(111,976)	(1,360)	-	-	-		
1489	BETHANY HOUSE ABUSE SHEL	199,570	486,025	0.032303%	0.030914%	4,693,074	5,329,886	4,125,403	588,283	214,219	795,502	(25,208)	770,294	27,757	142,894	12,162	167,807	289,628	-	-	-	21,724	242,055	90,178	(3,067)	(270)	-	-	-		
1490	HOPE HARBOR INC	132,079	321,674	0.021992%	0.024514%	3,105,931	3,560,537	2,730,239	384,700	317,583	702,283	(16,683)	685,600	18,370	94,569	8,049	299,780	420,768	-	-	-	14,377	220,011	234,388	237,686	(49,099)	(2,030)	-	-		
1491	CHILD ADOV CTR OF GRV RVR	60,257	146,752	0.010033%	0.010566%	1,416,961	1,624,358	1,245,566	175,505	43,168	218,673	(7,611)	211,062	8,381	43,143	3,672	10,367	65,563	-	-	-	6,559	64,403	70,962	4,662	(					







Appendix A: Collective Pension Amounts for KERS Non-Hazardous System

Participating Employer Code	Participating Employer Name	Actual Contributions	FY 18/19 Salary	Net Pension Liability as of June 30, 2019					Pension Expense					Outstanding Balance of Deferred Outflows of Resources					Outstanding Balance of Deferred Inflows of Resources					Recognition of Existing Deferred Outflows (Inflows) of Resources for Future Measurement Period Ending June 30,						
				2019 Proportionate Share	2018 Proportionate Share	Discount Rate 5.25%	Discount Rate Less 1.00% 4.25%	Discount Rate Plus 1.00% 6.25%	Proportionate Share of Aggregate Plan Pension Expense	Deferred Amounts from Changes in Proportion & Differences Between Employer Share & Plan Contributions	Gross Employer Pension Expense	Proportionate Share of Nonemployer Contributions	Net Employer Pension Expense	Liability Experience	Assumption Changes	Investment Experience	Change in Proportion & Differences Between Employer Share & Plan Contributions	Total Deferred Outflow of Resources	Liability Experience	Assumption Changes	Investment Experience	Change in Proportion & Differences Between Employer Share & Plan Contributions	Total Deferred Inflow of Resources	2020	2021	2022	2023	2024	Thereafter	
																														(5)
54500	J&PS DEPT OF SECRETARY	4,374,877	6,159,195	0.421089%	0.376418%	59,470,409	68,174,932	52,276,910	7,365,996	4,880,290	12,246,286	(319,429)	11,926,857	351,736	1,810,744	154,110	4,986,492	7,303,082	-	275,288	5,055,721	2,014,362	(38,860)	(3,429)	-	-	-	-	-	
54515	J&PS DEPT PUBLIC ADVOCACY	17,343,588	24,421,471	1.669634%	1.601530%	235,802,446	270,316,212	207,279,950	29,206,455	7,509,697	36,716,152	(1,266,547)	35,449,605	1,394,648	7,179,669	61,053	7,502,372	10,919,529	-	1,091,529	10,987,226	4,776,661	(154,083)	(13,529)	-	-	-	-	-	
54520	J&PS DEPT OF KY STATE POL	21,449,765	30,272,634	2.096664%	1.952784%	292,298,692	335,081,661	256,942,450	36,204,073	9,187,303	45,391,372	(1,370,001)	43,821,371	7,288,794	8,899,856	757,457	10,249,210	21,635,317	-	1,353,050	25,750	6,865,547	(191,000)	(16,848)	-	-	-	-	-	
54523	J&PS DEPT OF JUVENILE JUSTICE	31,661,414	44,667,253	3.055787%	2.982036%	431,286,404	494,412,629	379,118,207	53,419,068	4,320,058	57,739,126	(2,316,534)	55,422,592	2,550,833	13,131,727	1,117,626	7,140,790	23,940,976	-	1,996,423	74,193	2,070,616	15,008,774	7,188,267	(281,821)	(24,860)	-	-	-	
54525	DEPT OF CRIMINAL JUST TRN	4,664,202	6,568,225	0.449053%	0.421202%	63,419,765	72,702,344	55,748,555	7,855,162	1,576,433	9,331,595	(340,642)	9,090,953	375,095	2,930,993	164,345	2,546,916	5,017,340	-	293,570	3,212,928	1,555,947	(41,441)	(3,655)	-	-	-	-	-	
54527	J&PS DEPT OF CORRECTIONS	10,136,952	14,279,230	0.976235%	0.874153%	137,873,690	158,053,889	121,196,587	17,077,014	2,488,225	19,565,239	(740,550)	24,145,675	815,451	4,197,952	357,283	8,807,741	14,748,227	-	638,217	9,013,122	4,625,127	(90,993)	(7,946)	-	-	-	-	-	
55790	J&PS OFFICE OF THE SECRETARY	3,858,281	5,432,609	0.371414%	0.384928%	52,454,807	60,132,476	46,109,911	6,497,044	2,791,417	9,288,461	(281,746)	9,006,715	310,243	1,597,134	135,930	103,978	2,147,285	-	242,813	891,646	1,134,459	831,424	(34,276)	(3,023)	-	-	-	-	
55793	DEPT PERSONNEL ADMIN	1,218,085	1,715,186	0.117263%	0.120058%	16,561,056	18,985,053	14,557,842	2,051,250	(4,839,960)	(2,788,710)	(88,953)	(2,877,663)	97,950	504,248	42,916	-	645,114	-	76,662	1,061,621	1,138,282	(593,751)	112,359	(10,822)	(554)	-	-	-	
55794	DEPT FOR EMPLOYEE INS	1,646,133	2,317,601	0.115849%	0.150384%	22,377,756	25,653,127	19,670,958	2,771,705	462,986	3,234,691	(120,196)	3,114,495	132,353	681,354	57,989	717,038	1,588,734	-	103,587	244,920	348,507	755,619	500,520	(14,623)	(1,289)	-	-	-	
56102	OFFICE OF THE SECRETARY	2,574,424	3,630,680	0.248220%	0.232588%	35,056,116	40,187,185	30,815,753	4,342,045	5,618,863	9,960,908	(188,294)	9,772,614	207,339	1,627,382	90,844	5,308,204	6,673,769	-	162,275	5,095,950	1,440,471	(2,907)	(2,020)	-	-	-	-	-	
56106	DEPT OF WORKPLACE STANDARD	3,184,557	4,492,552	0.307144%	0.316656%	43,377,954	49,727,068	38,130,987	5,372,787	(1,393,448)	3,979,319	(232,993)	3,746,326	256,558	1,320,764	112,409	-	1,689,371	-	200,796	1,115,521	1,316,317	175,810	228,448	(28,345)	(2,499)	-	-	-	
56109	DEPT OF WORKERS CLAIMS	4,212,453	5,931,384	0.405514%	0.456186%	57,270,751	65,653,136	50,343,322	7,093,546	(3,485,789)	3,609,757	(307,614)	3,302,143	338,726	1,743,769	148,410	-	2,230,965	-	265,106	2,291,020	2,556,126	(54,630)	(29,866)	(37,423)	(3,020)	-	-	-	
56113	KY OSH REVIEW COMMISSION	162,081	228,187	0.015613%	0.000000%	2,203,330	2,525,825	1,936,816	272,904	(210,071)	62,833	(11,835)	50,998	13,032	67,087	5,710	5,057	90,886	-	10,189	37,167	47,366	20,124	24,960	(1,440)	(125)	-	-	-	
56114	WORKERS COMP FUNDING COMM	561,609	790,512	0.050454%	0.047411%	7,632,777	8,749,965	6,709,521	945,395	-	116,273	1,061,668	(40,997)	1,020,671	45,144	232,401	19,779	547,993	-	35,332	65,573	100,905	466,529	283,311	(4,988)	(440)	-	-	-	
56115	GEN ADM PROG SUPP S SERV	-	-	0.000000%	0.048908%	-	-	-	-	(7,305,511)	(7,305,511)	-	(7,305,511)	-	-	-	-	-	-	-	7,257,461	7,257,461	(5,817,524)	(1,439,936)	-	-	-	-	-	-
56116	OFF OF INSPCT GEN S SVCS	-	-	0.000000%	0.004213%	-	-	-	-	(544,810)	(544,810)	-	(544,810)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
57121	ENVIRONMENTAL QUALITY COMM	-	-	0.000000%	0.000000%	-	-	-	-	(135,207)	(135,207)	-	(135,207)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
57122	MINE SAFETY REV COMM	-	-	0.000000%	0.000000%	-	-	-	-	(80,497)	(80,497)	-	(80,497)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
57123	KY PUBLIC SUPP COMMISSION	2,592,681	3,650,199	0.249555%	0.250726%	35,244,658	40,403,323	30,981,489	4,365,398	(1,955,453)	2,409,945	(189,307)	2,220,638	208,544	1,073,123	91,332	28,606	1,401,515	-	163,147	1,017,368	1,180,515	(133,809)	379,869	(23,030)	(2,031)	-	-	-	
57124	KY STATE NATURE PRES COMM	11,320	28,485	0.001945%	0.042734%	274,692	314,898	241,466	34,023	(1,957,513)	(1,923,490)	(1,475)	(1,924,965)	1,625	8,364	712	5,742	16,443	-	1,272	3,240,830	3,242,102	(2,025,770)	(1,199,694)	(179)	(16)	-	-	-	
57125	OFFICE OF THE SECRETARY	1,502,972	2,115,967	0.144636%	0.134623%	20,430,759	23,421,154	17,939,469	2,530,521	(172,769)	2,359,752	(109,738)	2,250,014	120,837	622,072	52,844	986,652	1,946,505	-	94,574	1,168,667	535,793	(13,350)	(1,789)	-	-	-	-	-	
57127	DEPT FOR ENERGY DEV & IND	8,624	23,263	0.001590%	0.049652%	224,556	257,423	197,394	27,813	(2,263,522)	(2,236,709)	(1,206)	(2,236,915)	1,328	6,817	582	19,432	205,179	-	1,039	3,817,455	3,818,494	(2,198,968)	(1,414,187)	(347)	(13)	-	-	-	
57128	DEPT FOR NATURAL RESOUR	14,712,043	20,736,302	1.417689%	1.426579%	200,220,248	229,525,945	176,091,749	24,999,249	(5,785,615)	19,013,634	(1,075,427)	17,938,207	1,184,198	6,096,268	518,846	926,819	3,492,864	4,419,683	-	926,819	2,088,314	(130,832)	(1,447)	(11,542)	-	-	-	-	
57129	DEPT FOR ENVIRONM PROTECT	19,725,063	27,775,347	1.889930%	1.931903%	268,185,925	307,439,574	235,746,346	33,217,468	(2,896,969)	30,320,499	(1,440,486)	28,880,013	1,586,179	8,165,675	694,971	2,441,432	3,722,553	4,963,985	-	2,441,432	3,492,222	2,181,321	(175,244)	(15,459)	-	-	-	-	
57139	OFFICE OF ADMINISTRATIVE SERVICES	2,416,960	3,401,465	0.232550%	0.242728%	32,843,042	37,650,189	28,770,373	4,067,934	10,843,213	14,911,147	(176,407)	14,734,740	194,249	999,999	85,109	12,456,167	13,775,524	-	152,030	10,086,259	3,560,589	(21,461)	(1,893)	-	-	-	-	-	
57140	KY NATURE PRESERVE	451,380	635,479	0.044646%	0.000000%	5,315,880	7,033,972	5,393,088	759,889	2,181,319	2,943,088	(32,957)	2,908,131	36,291	186,384	1,238	3,408,297	3,707,312	-	2,840	2,332,009	1,351,243	(4,009)	(4,009)	-	-	-	-	-	
57141	OFFICE OF ENERGY POLICY	181,187	255,085	0.017440%	0.000000%	2,463,052	2,823,562	2,165,123	305,073	875,618	1,180,691	(13,230)	1,167,461	14,568	74,995	6,383	1,392,233	1,488,179	-	11,401	936,108	542,420	(1,609)	(141)	-	-	-	-	-	
58175	BRD OF CLMS & CRIME VICTI	-	-	0.000000%	0.000000%	-	-	-	-	(1,387,741)	(1,387,741)	-	(1,387,741)	-	-	-	-	-	-	-	280,656	280,656	(280,656)	-	-	-	-	-	-	
58300	KY BOARD OF TAX APPEALS	-	-	0.000000%	0.000000%	-	-	-	-	(371,335)	(371,335)	-	(371,335)	-	-	-	-	-	-	-	70,248	70,248	(70,248)	-	-	-	-	-	-	
58374	KY HORSE RACING AUTHORITY	1,407,497	1,981,553	0.135747%	0.122358%	19,132,296	21,933,441	16,818,682	2,369,810	(3,060,581)	2,957,623	(102,768)	2,854,855	113,162	583,558	49,581	632,507	1,377,808	-	88,567	985,167	316,679	(13,502)	(1,103)	-	-	-	-	-	
58671	KY CLAIMS COMMISSION	251,179	353,500	0.024174%	0.033772%	3,414,095	3,913,806	3,001,128	422,869	596,241	984,291	(13,388)	970,903	20,193	103,952	8,847	150,431	238,423	-	18,804	749,745	765,549	(282,248)	(2,231)	(196)	-	-	-	-	
58675	OFFICE OF THE SECRETARY	1,921,668	2,708,774	0.185192%	0.178667%	26,154,670	29,982,859	22,991,020	3,239,513	1,957,394	5,196,907	(140,482)	5,056,425	154,691	796,352	67,777	1,577,459	2,596,729	-	121,070	1,994,751	499,058	(17,091)	(1,589)	-	-	-	-	-	
58676	DEPT OF INSURANCE	2,920,160	4,111,238	0.281075%	0.																									

## **APPENDIX B**

---

### **COLLECTIVE PENSION AMOUNTS – KERS HAZARDOUS RETIREMENT SYSTEM**

Appendix B: Collective Pension Amounts for KERS Hazardous System

Participating Employer Code (1)	Participating Employer Name (2)	Actual Contributions (3)	Net Pension Liability as of June 30, 2019			Pension Expense						Outstanding Balance of Deferred Outflows of Resources					Outstanding Balance of Deferred Inflows of Resources					Recognition of Existing Deferred Outflows (Inflows) of Resources for Future Measurement Period Ending June 30,							
			2019 Proportionate Share (4)	2018 Proportionate Share (5)	Discount Rate 6.25% (6)	Discount Rate Less 1.00% 5.25% (7)	Discount Rate Plus 1.00% 7.25% (8)	Proportionate Share of Aggregate Plan Pension Expense (9)	Deferred Amounts from Changes in Proportion & Differences Between Employer Contrib. & Proportionate Share of Plan Contributions (10)	Gross Employer Pension Expense (11)	Proportionate Share of Nonemployer Contributions (12)	Net Employer Pension Expense (13)	Liability Experience (14)	Assumption Changes (15)	Investment Experience (16)	Change in Proportion & Differences Between Employer Contrib. & Proportionate Share of Plan Contributions (17)	Total Deferred Outflow of Resources (18)	Liability Experience (19)	Assumption Changes (20)	Investment Experience (21)	Change in Proportion & Differences Between Employer Contrib. & Proportionate Share of Plan Contributions (22)	Total Inflow of Resources (23)	2020 (24)	2021 (25)	2022 (26)	2023 (27)	2024 (28)	Thereafter (29)	
1430	EASTERN KY UNIV	393,578	0.723604%	0.627451%	3,953,000	5,097,173	3,013,055	887,708	729,704	1,617,412	-	1,617,412	75,206	277,048	83,878	346,294	782,426	-	-	151,847	13,382	165,229	431,412	194,817	(14,723)	5,691	-	-	
1440	MOREHEAD STATE UNIVERSITY	151,405	0.278362%	0.303269%	1,520,673	1,960,823	1,159,087	341,491	(51,447)	290,044	-	290,044	28,931	106,577	32,267	-	167,775	-	-	58,414	83,203	141,617	41,296	(11,664)	(5,664)	2,190	-	-	
1445	MURRAY STATE UNIV	217,297	0.399507%	0.411530%	2,182,480	2,814,186	1,663,529	490,110	(748)	489,362	-	489,362	41,522	152,960	46,310	32,149	272,941	-	-	83,836	38,485	122,321	136,306	19,301	(8,128)	3,141	-	-	
1450	NORTHERN KY UNIVERSITY	203,163	0.373520%	0.386465%	2,040,515	2,631,130	1,555,321	458,229	(34,309)	423,920	-	423,920	38,821	143,011	43,298	32,399	248,529	-	-	78,383	43,895	122,278	115,680	15,232	(7,600)	2,939	-	-	
1465	WESTERN KENTUCKY UNIV	377,822	0.694636%	0.628082%	3,794,750	4,893,118	2,892,433	852,170	(56,114)	796,056	-	796,056	72,195	265,957	80,520	228,034	646,706	-	-	145,768	22,876	168,644	332,231	154,501	(14,133)	5,463	-	-	
3801	KENTUCKY STATE UNIVERSITY	39,137	0.071955%	0.185883%	393,085	506,862	299,617	88,273	51,988	140,261	-	140,261	140,261	7,478	27,550	8,341	191,023	234,392	-	-	15,100	330,298	345,398	30,632	(140,739)	(1,464)	566	-	-
31030	UNIFIED PROSECUTORIAL SYS	-	0.000000%	0.000000%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,785	1,785	-	(1,785)	-	-	-	-	-
31040	ATTORNEY GENERALS OFFICE	273,479	0.502798%	0.501909%	2,746,752	3,541,783	2,093,628	616,826	(245,718)	371,108	-	371,108	52,257	192,508	58,283	-	303,048	-	-	105,511	85,552	191,063	78,373	39,886	(10,230)	3,955	-	-	
31095	DEPT MILITARY AFFAIRS	567,991	1.044266%	1.001079%	5,704,755	7,355,964	4,348,277	1,281,092	(86,222)	1,194,870	-	1,194,870	108,533	399,821	121,049	140,409	769,812	-	-	219,137	20,142	239,279	393,112	150,453	(21,247)	8,214	-	-	
35615	TRAN DEPT OF AVIATION	49,599	0.091189%	0.119801%	498,159	642,349	379,707	111,869	(54,554)	57,315	-	57,315	9,477	34,914	10,570	-	54,961	-	-	19,136	89,187	108,323	108,323	(32,496)	(1,855)	717	-	-	
39079	COMMONWEALTH OF TECHNOL	125,098	0.229995%	0.301816%	1,256,447	1,620,119	957,689	282,155	(248,198)	33,957	-	33,957	23,904	88,059	26,660	-	138,623	-	-	48,264	315,913	364,177	(135,410)	(87,274)	(4,680)	1,810	-	-	
50660	DEPT OF FISH & WILDLIFE	1,760,729	3.27147%	3.390093%	17,684,317	22,802,941	13,479,235	3,971,289	(332,040)	3,639,249	-	3,639,249	336,444	1,239,416	375,242	-	1,951,102	-	-	679,310	548,505	1,227,815	707,414	56,276	(65,864)	25,461	-	-	
50665	COMM KY HORSE PARK	111,051	0.204170%	0.187699%	1,115,367	1,438,204	850,155	250,473	(2,084)	248,389	-	248,389	21,220	78,171	23,667	46,526	169,584	-	-	42,845	23,132	65,977	67,284	38,870	(4,154)	1,606	-	-	
50670	DEPT OF PARKS	457,252	0.840670%	0.823791%	4,592,524	5,921,803	3,500,512	1,031,323	38,574	1,069,897	-	1,069,897	87,373	321,870	97,448	47,090	553,781	-	-	176,413	10,083	186,496	283,399	94,379	(17,104)	6,612	-	-	
53729	OFF HUMAN RESOURCE MANAGE	1,172,352	2.155401%	2.271598%	11,774,811	15,182,962	8,974,993	2,644,217	(246,168)	2,398,049	-	2,398,049	224,016	825,245	249,849	-	1,299,110	-	-	452,307	403,646	855,953	452,361	17,696	(43,854)	16,954	-	-	
54520	J&PS DEPT OF KY STATE POL	1,765,075	3.245138%	3.645344%	17,727,971	22,859,230	13,512,609	3,981,092	(1,149,255)	2,831,837	-	2,831,837	337,275	1,242,476	376,168	-	1,955,919	-	-	680,987	1,583,990	2,264,977	39,080	(307,636)	(66,026)	25,524	-	-	
54527	J&PS DEPT OF CORRECTIONS	46,115,031	84.783722%	84.078405%	463,167,792	597,229,033	353,035,623	104,011,549	1,116,344	105,127,893	-	105,127,893	8,811,769	32,461,401	9,827,919	2,723,926	53,825,015	-	-	17,791,716	93,676	17,885,392	28,727,678	8,270,106	(1,725,024)	666,864	-	-	
58676	DEPT OF INSURANCE	126,651	0.232851%	0.188241%	1,272,049	1,640,237	969,581	285,659	62,594	348,253	-	348,253	24,201	89,152	26,992	139,997	280,342	-	-	48,863	112,295	161,158	47,392	74,697	(4,738)	1,833	-	-	
58680	DEPT OF ALCOHOL & BEVERA	484,665	0.891069%	0.947544%	4,867,850	6,276,821	3,710,371	1,093,152	(70,755)	1,022,397	-	1,022,397	92,611	341,166	103,291	84,650	621,718	-	-	186,989	176,119	363,108	267,218	2,513	(18,130)	7,009	-	-	
<b>TOTAL</b>		<b>54,391,373</b>	<b>100.000000%</b>	<b>100.000000%</b>	<b>546,293,297</b>	<b>704,414,738</b>	<b>416,395,522</b>	<b>122,678,677</b>	<b>(593,283)</b>	<b>122,085,394</b>	<b>-</b>	<b>122,085,394</b>	<b>10,393,233</b>	<b>38,287,302</b>	<b>11,591,752</b>	<b>4,003,496</b>	<b>64,275,783</b>	<b>-</b>	<b>-</b>	<b>20,984,826</b>	<b>3,996,163</b>	<b>24,980,989</b>	<b>31,993,945</b>	<b>8,548,918</b>	<b>(2,034,618)</b>	<b>786,549</b>	<b>-</b>	<b>-</b>	