

# Kentucky Employees Retirement System

GASB No. 74 Accounting Valuation Report  
As of June 30, 2018



November 19, 2018

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

**Re: GASB 74 Reporting – Actuarial Information – Kentucky Employees’ Retirement System**

Dear Members of the Board:

This report provided herein contains certain information for the Kentucky Employees’ Retirement System (KERS) in connection with the Governmental Accounting Standards Board (GASB) Statement No. 74, “Financial Reporting for Postemployment Benefit Plans Other than Pension Plans” for the fiscal year ending June 30, 2018. A separate report will be provided at a later date with additional accounting information determined in accordance with GASB Statement No. 75, “Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions”.

The liability calculations presented in this report were performed for the purpose of satisfying the requirements of GASB No. 74 and are not applicable for other purposes, such as determining the plans’ funding requirements. The plan’s liability for other purposes may produce significantly different results. This report may be provided to parties other than the Board of Trustees of the 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 OPEB liability, net OPEB liability, and sensitivity information shown in this report are based on an actuarial valuation date of June 30, 2017. The total OPEB liability was rolled-forward from the valuation date to the plan’s fiscal year ending June 30, 2018 using generally accepted actuarial principles. GASB 74 requires Kentucky Retirement Systems to disclose a 10-year history of certain information in the Required Supplementary Information within their comprehensive annual financial report. The exhibits provided in this report include the applicable information for historical years that were calculated in accordance with this accounting standard. Information disclosed for years prior to June 30, 2017 were prepared by KRS’s prior actuary.

There have been no changes in actuarial assumptions since June 30, 2017. However, during the 2018 legislative session, House Bill 185 was enacted, which updated the benefit provisions for active members who die in the line of duty. The system shall now pay 100% of the insurance premium for spouses and children of all active members who die in the line of duty. The Total OPEB liability as of June 30, 2018 is determined using these updated benefit provisions. It is our opinion that this procedure is reasonable, appropriate, and complies with applicable requirements under GASB Statement No. 74.

The fully-insured premiums KRS 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 74 requires that the liability associated with this implicit subsidy be included in the calculation of the Total OPEB Liability.

This report is based upon information, furnished to us 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. Please see the "Actuarial Valuation Report as of June 30, 2017" for additional discussion of the nature of actuarial calculation and more information related to participant data, economic and demographic assumptions, and benefit provisions. These two reports should be considered together as a complete report for KRS's fiscal year ending June 30, 2018.

A single discount rate of 5.86% for the non-hazardous system and 5.88% for hazardous system was used to measure the total OPEB liability as of June 30, 2017. The single discount rate is based on the expected rate of return on OPEB plan investments of 6.25% and a municipal bond rate of 3.62%, as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 30, 2018. Future contributions are projected in accordance with the Board's current funding policy, which includes the requirement that each participating employer in the System contribute the actuarially determined contribution rate, which is determined using a closed funding period (25 years as of June 30, 2018) and the actuarial assumptions and methods adopted by the Board of Trustees. These projected contributions are determined without regard to the enactment of SB 151 in 2018, which is currently being reviewed by the State Supreme Court. Current assets, future contributions, and investment earnings are projected to be sufficient to pay the projected benefit payments from the retirement system. However, the cost associated with the implicit employer subsidy is not currently being included in the calculation of the System's actuarial determined contributions, and it is our understanding that any cost associated with the implicit subsidy will not be paid out of the System's trust. Therefore, the municipal bond rate was applied to future expected benefit payments associated with the implicit subsidy.

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 OPEB asset. As a result, the reported fiduciary net position includes these 401(h) assets. Additionally, these member contributions and associated investment income are included in the reconciliation of the fiduciary net position.

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, Mr. White, and Mr. Riazi are Enrolled Actuaries. All of the undersigned are independent actuaries and consultants 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. This communication shall not be construed to provide tax advice, legal advice or investment advice.

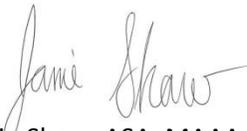
Sincerely,



Joseph P. Newton, FSA, EA, MAAA  
Pension Market Leader and Actuary



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



Janie Shaw, ASA, MAAA  
Consultant and Actuary



Mehdi Riazi, FSA, EA, MAAA  
Consultant and Actuary

# Table of Contents

			Page
	<b>COVER LETTER</b>		
<b>SECTION 1</b>	<b>SUPPORTING EXHIBITS</b>		
	EXHIBIT 1	— SCHEDULE OF EMPLOYERS' NET OPEB LIABILITY	2
	EXHIBIT 2	— DEVELOPMENT OF THE SINGLE DISCOUNT RATE	4
	EXHIBIT 3	— SCHEDULE OF CHANGES IN EMPLOYERS' NET OPEB LIABILITY	5
	EXHIBIT 4	— SCHEDULE OF EMPLOYERS' CONTRIBUTIONS	7
	EXHIBIT 5	— SENSITIVITY OF THE NET OPEB LIABILITY TO CHANGES IN THE DISCOUNT RATE AND HEALTHCARE TREND RATE	10
<b>APPENDIX 1</b>	<b>DEVELOPMENT OF BASELINE CLAIMS COST</b>		

**SECTION 1**

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## EXHIBIT 1a

### Schedule of the Employers' Net OPEB Liability – KERS Non-Hazardous Plan (\$ in thousands)

Year	Total OPEB Liability (1)	Plan Fiduciary Net Position (2)	Net OPEB Liability/(Asset) (1) - (2)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability (2) / (1)	Covered Employee Payroll <sup>1</sup> (3)	Net OPEB Liability as a Percentage of Covered Employee Payroll [(1) - (2)] / (3)
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%

Note:

<sup>1</sup> Based on derived compensation using the provided employer contribution information.

## EXHIBIT 1b

### Schedule of the Employers' Net OPEB Liability – KERS Hazardous Plan (\$ in thousands)

Year	Total OPEB Liability (1)	Plan Fiduciary Net Position (2)	Net OPEB Liability/(Asset) (1) - (2)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability (2) / (1)	Covered Employee Payroll <sup>1</sup> (3)	Net OPEB Liability as a Percentage of Covered Employee Payroll [(1) - (2)] / (3)
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%

Note:

<sup>1</sup> Based on derived compensation using the provided employer contribution information.

## EXHIBIT 2

### Development of Single Discount Rate

	<u>KERS Non-Hazardous</u>	<u>KERS Hazardous</u>
Single Discount Rate	5.86%	5.88%
Long-Term Expected Rate of Return	6.25%	6.25%
Long-Term Municipal Bond Rate <sup>1</sup>	3.62%	3.62%

Notes:

<sup>1</sup> 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, 2018.

## EXHIBIT 3a

### Schedule of the Employers' Net OPEB Liability – KERS Non-Hazardous Plan (\$ in thousands)

Change in the Net OPEB Liability	2018	2017
<b>Total OPEB liability</b>		
Service Cost	\$ 66,360	\$ 46,992
Interest on the total OPEB liability	191,178	192,911
Benefit Changes	1,865	0
Difference between actual and expected experience	(191,147)	(3,921)
Assumption Changes	(11,235)	414,835
Benefit Payments <sup>1</sup>	(148,236)	(139,601)
<b>Net Change in Total OPEB Liability</b>	<b>(91,215)</b>	<b>511,216</b>
<b>Total OPEB Liability - Beginning</b>	<b>\$ 3,353,332</b>	<b>\$ 2,842,116</b>
<b>Total OPEB Liability - Ending (a)</b>	<b>\$ 3,262,117</b>	<b>\$ 3,353,332</b>
<b>Plan Fiduciary Net Position</b>		
Contributions - Employer <sup>2</sup>	\$ 152,985	\$ 162,636
Contributions - Member	5,786	5,156
Benefit Payments <sup>1</sup>	(148,236)	(139,601)
OPEB Plan Net Investment Income	64,028	94,239
OPEB Plan Administrative Expense	(760)	(861)
Other	32 <sup>4</sup>	0
<b>Net Change in Plan Fiduciary Net Position</b>	<b>73,835</b>	<b>121,569</b>
<b>Plan Fiduciary Net Position - Beginning</b>	<b>\$ 817,370</b>	<b>\$ 695,801</b>
<b>Plan Fiduciary Net Position - Ending (b)</b>	<b>\$ 891,205</b>	<b>\$ 817,370</b>
<b>Net OPEB Liability - Ending (a) - (b)</b>	<b>2,370,912</b>	<b>2,535,962</b>
<b>Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability</b>	<b>27.32%</b>	<b>24.37%</b>
<b>Covered Employee Payroll<sup>3</sup></b>	<b>\$ 1,573,898</b>	<b>\$ 1,593,097</b>
<b>Net OPEB Liability as a Percentage of Covered Employee Payroll</b>	<b>150.64%</b>	<b>159.18%</b>

Notes:

<sup>1</sup> Includes expected benefits due to the implicit subsidy for members under age 65.

<sup>1</sup> Benefit payments are also offset by insurance premiums received from retirees and by Medicare Drug Reimbursements.

<sup>2</sup> Includes expected benefits due to the implicit subsidy for members under age 65.

<sup>3</sup> Based on derived compensation using the provided employer contribution information.

<sup>4</sup> Northern Trust Settlement

## EXHIBIT 3b

### Schedule of the Employers' Net OPEB Liability – KERS Hazardous Plan (\$ in thousands)

Change in the Net OPEB Liability	2018	2017
<b>Total OPEB liability</b>		
Service Cost	\$ 12,893	\$ 8,002
Interest on the total OPEB liability	28,500	27,591
Benefit Changes	167	0
Difference between actual and expected experience	(31,240)	(1,029)
Assumption Changes	(581)	89,401
Benefit Payments <sup>1</sup>	(18,704)	(16,618)
<b>Net Change in Total OPEB Liability</b>	<b>(8,965)</b>	<b>107,347</b>
<b>Total OPEB Liability - Beginning</b>	<b>\$ 494,869</b>	<b>\$ 387,522</b>
<b>Total OPEB Liability - Ending (a)</b>	<b>\$ 485,904</b>	<b>\$ 494,869</b>
<b>Plan Fiduciary Net Position</b>		
Contributions - Employer <sup>2</sup>	\$ 5,165	\$ 4,579
Contributions - Member	909	811
Benefit Payments <sup>1</sup>	(18,704)	(16,618)
OPEB Plan Net Investment Income	42,950	59,614
OPEB Plan Administrative Expense	(104)	(105)
Other	18 <sup>4</sup>	0
<b>Net Change in Plan Fiduciary Net Position</b>	<b>30,234</b>	<b>48,281</b>
<b>Plan Fiduciary Net Position - Beginning</b>	<b>\$ 488,838</b>	<b>\$ 440,557</b>
<b>Plan Fiduciary Net Position - Ending (b)</b>	<b>\$ 519,072</b>	<b>\$ 488,838</b>
<b>Net OPEB Liability - Ending (a) - (b)</b>	<b>(33,168)</b>	<b>6,031</b>
<b>Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability</b>	<b>106.83%</b>	<b>98.78%</b>
<b>Covered Employee Payroll<sup>3</sup></b>	<b>\$ 190,317</b>	<b>\$ 171,087</b>
<b>Net OPEB Liability as a Percentage of Covered Employee Payroll</b>	<b>-17.43%</b>	<b>3.53%</b>

Notes:

<sup>1</sup> Includes expected benefits due to the implicit subsidy for members under age 65.

<sup>1</sup> Benefit payments are also offset by insurance premiums received from retirees and by Medicare Drug Reimbursements.

<sup>2</sup> Includes expected benefits due to the implicit subsidy for members under age 65.

<sup>3</sup> Based on derived compensation using the provided employer contribution information.

<sup>4</sup> Northern Trust Settlement

## EXHIBIT 4a

### Schedule of Employers' Contributions – KERS Non-Hazardous Plan (\$ in thousands)

Fiscal Year Ending <sup>1</sup>	Actuarially Determined Contribution <sup>2</sup>	Total Employer Contributions <sup>3</sup>	Contribution Deficiency (Excess)	Covered Employee Payroll <sup>4</sup>	Actual Contributions as a Percentage of Covered Payroll
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%
2011	294,898	129,336	165,562	1,731,633	7.47%
2010	376,556	102,528	274,028	1,815,146	5.65%
2009	362,707	82,711	279,996	1,754,413	4.71%

Notes:

<sup>1</sup> Data for years prior to 2018 are based on contribution data provided in the 2017 CAFR, based on calculations provided by the prior actuary.

<sup>2</sup> Actuarially determined contribution for fiscal year ending 2018 is based on the contribution rate calculated with the the June 30, 2016 actuarial valuation.

<sup>3</sup> Employer contributions do not include the expected implicit subsidy included in exhibit 3.

<sup>4</sup> Based on derived compensation using the provided employer contribution information.

## EXHIBIT 4b

### Schedule of Employers' Contributions – KERS Hazardous Plan (\$ in thousands)

Fiscal Year Ending <sup>1</sup>	Actuarially Determined Contribution <sup>2</sup>	Total Employer Contributions <sup>3</sup>	Contribution Deficiency (Excess)	Covered Employee Payroll <sup>4</sup>	Actual Contributions as a Percentage of Covered Payroll
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%
2011	29,585	19,953	9,632	133,054	15.00%
2010	35,045	22,241	12,804	143,558	15.49%
2009	34,670	20,993	13,677	146,044	14.37%

Notes:

<sup>1</sup> Data for years prior to 2018 are based on contribution data provided in the 2017 CAFR, based on calculations provided by the prior actuary.

<sup>2</sup> Actuarially determined contribution for fiscal year ending 2018 is based on the contribution rate calculated with the the June 30, 2016 actuarial valuation.

<sup>3</sup> Employer contributions do not include the expected implicit subsidy included in exhibit 3.

<sup>4</sup> Based on derived compensation using the provided employer contribution information.

## Notes to Schedule of Employers' Contributions for FY 2018

The actuarially determined contribution rates effective for fiscal year ending 2018 that are documented in the schedule on the previous pages are calculated as of June 30, 2016. Based on the June 30, 2016 actuarial valuation report (produced by the prior actuary), the actuarial methods and assumptions used to calculate these contribution rates are below:

Item	KERS Non-Hazardous	KERS Hazardous
Determine by the Actuarial Valuation as of:	June 30, 2016	June 30, 2016
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:	27 Years, Closed	27 Years, Closed
Payroll Growth Rate:	4.00%	4.00%
Investment Return:	7.50%	7.50%
Inflation:	3.25%	3.25%
Salary Increases:	4.00%, average	4.00%, average
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)
Healthcare Trend Rates:		
Pre-65	Initial trend starting at 7.50% and gradually decreasing to an ultimate trend rate of 5.00% over a period of 5 years.	Initial trend starting at 7.50% and gradually decreasing to an ultimate trend rate of 5.00% over a period of 5 years.
Post-65	Initial trend starting at 5.50% and gradually decreasing to an ultimate trend rate of 5.00% over a period of 2 years.	Initial trend starting at 5.50% and gradually decreasing to an ultimate trend rate of 5.00% over a period of 2 years.

## EXHIBIT 5a

### Sensitivity of the Net OPEB Liability to Changes in the Discount Rate and Healthcare Trend Rate KERS Non-Hazardous Plan (\$ in thousands)

**Table 1. Sensitivity of the Net OPEB Liability to Changes in the Discount Rate**

1.00% Decrease, 4.86%	Current Discount Rate, 5.86%	1.00% Increase, 6.86%
\$ 2,781,765	\$ 2,370,912	\$ 2,028,977

**Table 2. Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rate**

1.00% Decrease	Current Healthcare Cost Trend Rate	1.00% Increase
\$ 2,015,770	\$ 2,370,912	\$ 2,798,022

## EXHIBIT 5b

### Sensitivity of the Net OPEB Liability to Changes in the Discount Rate and Healthcare Trend Rate KERS Hazardous Plan (\$ in thousands)

**Table 1. Sensitivity of the Net OPEB Liability to Changes in the Discount Rate**

1.00% Decrease, 4.88%	Current Discount Rate, 5.88%	1.00% Increase, 6.88%
\$ 33,379	\$ (33,168)	\$ (86,528)

**Table 2. Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rate**

1.00% Decrease	Current Healthcare Cost Trend Rate	1.00% Increase
\$ (85,174)	\$ (33,168)	\$ 31,172

# APPENDIX 1

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# Appendix 1

## Development of Baseline Claims Cost

For non-Medicare retirees, the initial per capita costs were developed using retiree claims experience for calendar years 2015 through 2017. It is our understanding that no plan changes occurred over this time period; therefore, no adjustments were applied to the claims for plan changes. The claims were projected on an incurred claim basis, adjusted for prescription drug rebates, and loaded for administrative expense. The per capita costs shown in the table below also include a small adjustment for HRA contributions for retirees on the CDHP plans. An inherent assumption in this methodology is that the projected future retirees will have a similar distribution by plan type as the current retirees. The fully-insured premiums KRS pays the Kentucky Employees' Health Plan are blended rates based on the combined experience of active and retired members. Because the average cost of providing health care benefits to retirees under age 65 is higher than the average cost of providing health care benefits to active employees, there is an implicit employer subsidy for the non-Medicare eligible retirees. For Medicare retirees, the initial per capita costs were estimated based on the plan premiums effective January 1, 2018, and are used for both current and future retirees. An inherent assumption in this methodology is that the projected future retirees will have a similar distribution by plan type as the current retirees.

Age graded and sex distinct premiums are utilized by this valuation. These costs are appropriate for the unique age and sex distribution currently existing. Over the future years covered by this valuation, the age and sex distribution will most likely change. Therefore, our process "distributes" the average premium over all age/sex combinations and assigns a unique premium for each combination. The age/sex specific costs more accurately reflect the health care utilization and cost at that age.

FOR THOSE NOT ELIGIBLE FOR MEDICARE		
AGE	MALE	FEMALE
40	\$301.81	\$490.41
50	489.22	602.68
60	831.46	818.70
64	1,011.08	954.18

FOR THOSE ELIGIBLE FOR MEDICARE		
AGE	MALE	FEMALE
65	\$208.66	\$196.81
75	244.13	238.22
85	258.16	261.20

## Appendix 1

Mehdi Riazi is a Member of the American Academy of Actuaries (MAAA) and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.



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Mehdi Riazi, FSA, EA, MAAA