

Kentucky Employees Retirement System

GASB No. 67 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 67 Reporting – Actuarial Information

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. 67, “Financial Reporting for 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. 68, “Accounting and Financial Reporting for Pensions”.

The liability calculations presented in this report were performed for the purpose of satisfying the requirements of GASB No. 67 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.

The total pension liability, net pension liability, and sensitivity information shown in this report are based on an actuarial valuation date of June 30, 2017. The total pension liability was rolled-forward from the valuation date to the plan’s fiscal year ending June 30, 2018 using generally accepted actuarial principles. GASB 67 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. Benefits paid to the spouses of deceased members have been increased from 25% of the member’s final rate of pay to 75% of the member’s average pay. If the member does not have a surviving spouse, benefits paid to surviving dependent children have been increased from 10% of the member’s final pay rate to 50% of average pay for one child, 65% of average pay for two children, or 75% of average pay for three children. The Total Pension 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. 67.

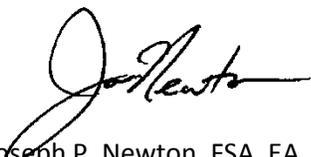
This report is based upon information, furnished to us by the Retirement System, which includes benefit provisions, membership information, and financial data. We did not audit this data and information, but we did apply a number of tests and concluded that it was reasonable and consistent. GRS is not 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.

Single discount rates of 5.25% for the non-hazardous and 6.25% for the hazardous system were used to measure the total pension liability for the fiscal year ending June 30, 2018. 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 State contributes the actuarially determined contribution rate in all future years (determined without regard to enactment of SB 151 in 2018, which is currently being reviewed by the State Supreme Court).

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 positions as of June 30, 2017 and later are net of the 401(h) asset balance.

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 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 system. 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

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SECTION 1

EXHIBIT 1a

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

Fiscal Year Ending June 30,	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 Employee Payroll ¹	Net Pension Liability as a Percentage of Covered Employee Payroll
(1)	(2)	(1) - (2)	(2) / (1)	(3)	[(1) - (2)] / (3)	
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%

Note:

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

EXHIBIT 1b

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

Fiscal Year Ending June 30,	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 Employee Payroll ¹	Net Pension Liability as a Percentage of Covered Employee Payroll
(1)	(2)	(1) - (2)	(2) / (1)	(3)	[(1) - (2)] / (3)	
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%

Note:

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

EXHIBIT 2a

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

Change in the Net Pension Liability	2018	2017	2016	2015	2014
Total pension liability					
Service Cost	\$ 195,681	\$ 143,858	\$ 139,631	\$ 143,847	\$ 133,361
Interest	785,123	870,725	891,897	859,509	853,653
Benefit Changes	9,624	0	0	0	0
Difference between actual and expected experience	153,565	(134,379)	0	30,958	0
Assumption Changes	0	2,145,530	923,999	694,592	0
Benefit Payments	(980,978)	(960,309)	(935,419)	(919,343)	(903,564)
Net Change in Total Pension Liability	\$ 163,015	\$ 2,065,425	\$ 1,020,108	\$ 809,563	\$ 83,450
Total Pension Liability - Beginning	\$ 15,445,206	\$ 13,379,781	\$ 12,359,673	\$ 11,550,110	\$ 11,466,660
Total Pension Liability - Ending (a)	\$ 15,608,221	\$ 15,445,206	\$ 13,379,781	\$ 12,359,673	\$ 11,550,110
Plan Fiduciary Net Position					
Contributions - Employer	\$ 689,143	\$ 757,121	\$ 513,084	\$ 521,691	\$ 296,836
Contributions - Member ²	104,972	100,543	106,495	104,606	97,487
Refunds of contributions to members	(13,603)	(11,819)	(12,130)	(13,552)	(13,627)
Retirement benefits	(967,375)	(948,490)	(923,288)	(905,791)	(889,937)
Net Investment Income ²	144,881	220,985	(20,663)	44,570	337,923
Administrative Expense	(10,692)	(10,957)	(10,989)	(10,474)	(11,145)
Other	301 ⁴	(30,805)	0	8,442	0
Net Change in Plan Fiduciary Net Position	\$ (52,373)	\$ 76,578	\$ (347,491)	\$ (250,508)	\$ (182,463)
Plan Fiduciary Net Position - Beginning	\$ 2,056,870	\$ 1,980,292	\$ 2,327,783	\$ 2,578,291	\$ 2,760,754
Prior Year Adjustment	(51)	-	-	-	-
Plan Fiduciary Net Position - Ending¹ (b)	\$ 2,004,446	\$ 2,056,870	\$ 1,980,292	\$ 2,327,783	\$ 2,578,291
Net Pension Liability - Ending (a) - (b)	\$ 13,603,775	\$ 13,388,336	\$ 11,399,489	\$ 10,031,890	\$ 8,971,819
Plan Fiduciary Net Position as a Percentage	12.84%	13.32%	14.80%	18.83%	22.32%
Covered Employee Payroll³	\$ 1,509,955	\$ 1,602,396	\$ 1,631,025	\$ 1,544,234	\$ 1,577,496
Net Pension Liability as a Percentage of Covered Employee Payroll	900.94%	835.52%	698.92%	649.64%	568.74%

Notes:

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

² Does not include 401(h) contributions 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 Northern Trust Settlement

EXHIBIT 2b

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

Change in the Net Pension Liability	2018	2017	2016	2015	2014
Total pension liability					
Service Cost	\$ 28,641	\$ 21,081	\$ 20,751	\$ 18,729	\$ 16,880
Interest	66,536	66,589	64,851	61,005	59,594
Benefit Changes	705	0	0	0	0
Difference between actual and expected experience	24,215	26,902	0	6,067	0
Assumption Changes	0	127,878	0	52,165	0
Benefit Payments	(68,117)	(63,338)	(61,518)	(59,383)	(57,151)
Net Change in Total Pension Liability	\$ 51,980	\$ 179,112	\$ 24,084	\$ 78,583	\$ 19,323
Total Pension Liability - Beginning	\$ 1,098,630	\$ 919,517	\$ 895,433	\$ 816,850	\$ 797,527
Total Pension Liability - Ending (a)	\$ 1,150,610	\$ 1,098,630	\$ 919,517	\$ 895,433	\$ 816,850
Plan Fiduciary Net Position¹					
Contributions - Employer	\$ 43,661	\$ 52,974	\$ 23,759	\$ 28,536	\$ 11,670
Contributions - Member ²	17,891	17,524	15,739	13,207	12,546
Refunds of contributions to members	(2,501)	(2,106)	(2,211)	(2,610)	(2,830)
Retirement benefits	(65,616)	(61,231)	(59,306)	(56,773)	(54,320)
Net Investment Income ²	51,467	70,994	(1,653)	8,701	80,724
Administrative Expense	(975)	(919)	(916)	(844)	(897)
Other	33 ⁴	(3,586)	0	767	0
Net Change in Plan Fiduciary Net Position	\$ 43,960	\$ 73,650	\$ (24,588)	\$ (9,016)	\$ 46,893
Plan Fiduciary Net Position - Beginning	\$ 601,529	\$ 527,879	\$ 552,468	\$ 561,484	\$ 514,591
Prior Year Adjustment	(4)	-	-	-	-
Plan Fiduciary Net Position - Ending (b)	\$ 645,485	\$ 601,529	\$ 527,879	\$ 552,468	\$ 561,484
Net Pension Liability - Ending (a) - (b)	\$ 505,125	\$ 497,101	\$ 391,638	\$ 342,965	\$ 255,366
Plan Fiduciary Net Position as a Percentage	56.10%	54.75%	57.41%	61.70%	68.74%
Covered Employee Payroll³	\$ 152,936	\$ 178,511	\$ 158,828	\$ 128,680	\$ 129,076
Net Pension Liability as a Percentage of Covered Employee Payroll	330.29%	278.47%	246.58%	266.53%	197.84%

Notes:

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

² Does not include 401(h) contributions 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 Northern Trust Settlement

EXHIBIT 3a

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

Fiscal Year Ending	Actuarially Determined Contribution ¹	Total Employer Contributions	Contribution Deficiency (Excess)	Covered Employee Payroll ²	Actual Contributions as a Percentage of Covered Payroll
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%
2011	381,915	193,754	188,161	1,731,633	11.19%
2010	348,495	144,051	204,444	1,815,146	7.94%
2009	294,495	112,383	182,112	1,754,413	6.41%

Notes:

¹ Actuarially determined contribution rate for fiscal year ending 2018 is based on the contribution rate calculated with the the June 30, 2016 actuarial valuation.

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

EXHIBIT 3b

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

Fiscal Year Ending	Actuarially Determined Contribution ¹	Total Employer Contributions	Contribution Deficiency (Excess)	Covered Employee Payroll ²	Actual Contributions as a Percentage of Covered Payroll
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%
2011	20,605	19,141	1,464	133,054	14.39%
2010	17,815	17,658	157	143,558	12.30%
2009	15,708	15,843	(135)	146,044	10.85%

Notes:

¹ Actuarially determined contribution rate for fiscal year ending 2018 is based on the contribution rate calculated with the the June 30, 2016 actuarial valuation.

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

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
Determined 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
Investment Return:	6.75%	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)

EXHIBIT 4

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

Table 1. Sensitivity of the Net Pension Liability to Changes in the Discount Rate for KERS (Non-Hazardous)

1.00% Decrease (4.25%)	Current Discount Rate (5.25%)	1.00% Increase (6.25%)
\$ 15,497,813	\$ 13,603,775	\$ 12,026,279

Table 2. Sensitivity of the Net Pension Liability to Changes in the Discount Rate for KERS (Hazardous)

1.00% Decrease (5.25%)	Current Discount Rate (6.25%)	1.00% Increase (7.25%)
\$ 646,326	\$ 505,125	\$ 387,876