



Kentucky Retirement Systems

Public Pension Oversight Board

September 25, 2017



Economic Assumptions








PENSION + INSURANCE	FY2016	FY2017 NEW ASSUMPTIONS	FY2016	FY2017 NEW ASSUMPTIONS	FY2016	FY2017 NEW ASSUMPTIONS
	INFLATION	3.25%	2.30%	3.25%	2.30%	3.25%
INTEREST	6.75%	5.25% (Pen) 6.25% (Ins)	7.50%	6.25%	7.50%	6.25%
PAYROLL GROWTH	4.00%	0.00%	4.00%	0.00%	4.00%	2.00%

- These are the assumptions being used for the FY17 valuations (estimated completion 11/1/2017).
- The 2017 valuations will be used to set the FY19 contribution rates.

Estimated Annual Required Contribution

(in \$ millions)






	FY17 Employer Contributions (Actuals)	FY18 Estimated Employer Contributions	FY19 Estimated Employer Contributions	FY19 vs FY18 Increase	FY20 Estimated Payment Increase	FY20 vs FY19 Increase
 KERS Non-Hazardous	\$772.9	\$787.5	\$1,338.1	\$550.6	\$1,338.1	-
Contribution Rates	48.59%	49.47%	84.06%	34.59%	84.06%	-
 KERS Hazardous	\$40.9	\$40.7	\$70.6	\$30.0	\$70.6	-
Contribution Rates	23.82%	23.70%	41.12%	17.42%	41.12%	-
 CERS Non-Hazardous	\$461.60	\$474.00	\$713.20	\$239.20	\$713.20	-
Contribution Rates	18.68%	19.18%	28.86%	9.68%	28.86%	-
 CERS Hazardous	\$172.70	\$175.40	\$281.70	\$106.30	\$281.70	-
Contribution Rates	31.06%	31.55%	50.67%	19.12%	50.67%	-
 SPRS	\$43.5	\$44.5	\$75.2	\$30.7	\$75.2	-
Contribution Rates	89.21%	91.24%	154.10%	62.86%	154.10%	-
Total Employer Contributions	\$1,491.6	\$1,522.1	\$2,478.8	\$956.8	\$2,478.8	-

- The estimates for FY18 are based on FY17 salaries as reported and approved contribution rates.
- The FY19 & FY20 estimates are based on FY17 salaries as reported and GRS estimated contribution rates based on new economic assumptions and FY16 valuations.



Pension- Investment Update 6/30/17






Annual Rates of Return

	Market Value (in \$millions)	1 Year	3 Years	5 Years	10 Years	20 Years
 KERS Non-Hazardous	\$2,092.8	12.1%	4.5%	7.8%	4.8%	6.4%
<i>Plan Index</i>		11.9	4.8	8.0	5.2	6.6
 KERS Hazardous	\$605.9	13.4	4.9	8.1	4.9	6.5
<i>Plan Index</i>		13.6	4.8	8.1	5.2	6.6
 CERS Non-Hazardous	\$6,739.1	13.8	4.9	8.1	4.9	6.5
<i>Plan Index</i>		13.6	4.8	8.1	5.2	6.6
 CERS Hazardous	\$2,227.7	13.7	4.9	8.1	4.9	6.5
<i>Plan Index</i>		13.6	4.8	8.1	5.2	6.6
 SPRS	\$256.4	12.5	4.1	4.7	4.7	6.4
<i>Plan Index</i>		13.6	4.6	8.0	5.1	6.6
Total Pension Fund	\$11,921.9	13.5	4.8	8.1	4.9	6.5
<i>Plan Index</i>		13.3	5.1	8.2	5.3	6.6

Pension Fund Unfunded Liability

(in \$millions)



	FY2013	FY2014	FY2015	FY2016	FY2016 with Revised Economic Assumptions
 KERS Non-Hazardous	\$8,750.5	\$9,126.2	\$10,008.7	\$11,112.4	\$13,332.9
<i>Funded Ratio</i>	23.2%	21.0%	19.0%	16.0%	14.0%
 KERS Hazardous	\$278.3	\$289.0	\$338.7	\$377.2	\$493.7
<i>Funded Ratio</i>	64.5%	64.6%	62.2%	59.7%	55.0%
 CERS Non-Hazardous	\$3,741.8	\$3,655.4	\$4,265.5	\$4,541.1	\$5,791.1
<i>Funded Ratio</i>	60.1%	62.6%	60.3%	59.0%	54.0%
 CERS Hazardous	\$1,322.5	\$1,321.2	\$1,516.5	\$1,565.3	\$2,219.8
<i>Funded Ratio</i>	57.7%	59.8%	58.0%	57.7%	50.0%
 SPRS	\$409.8	\$438.4	\$485.8	\$540.6	\$682.0
<i>Funded Ratio</i>	37.1%	35.6%	33.8%	30.3%	28.0%



Estimated Unfunded Accrued Liability Pension Fund




(in \$millions)

	FY2017	FY2018	FY2019	FY2020
KERS NON-HAZARDOUS KERS Non-Hazardous	\$13,333	\$13,451	\$13,229	\$12,963
<i>Change in Unfunded Liability</i>		0.9%	(1.7%)	(2.0%)
KERS HAZARDOUS KERS Hazardous	\$494	\$498	\$499	\$492
<i>Change in Unfunded Liability</i>		0.8%	0.2%	(1.4%)
CERS NON-HAZARDOUS CERS Non-Hazardous	\$5,791	\$5,965	\$6,051	\$6,050
<i>Change in Unfunded Liability</i>		3.0%	1.4%	0.0%
CERS HAZARDOUS CERS Hazardous	\$2,220	\$2,284	\$2,309	\$2,306
<i>Change in Unfunded Liability</i>		2.9%	1.1%	(0.1%)
SPRS SPRS	\$682	\$682	\$675	\$663
<i>Change in Unfunded Liability</i>		0.0%	(1.0%)	(1.8%)

Note: The above estimates are based on June 30, 2016 Census Data and June 30, 2017 Preliminary Asset Information





CASH FLOW – Pension Fund (KERS Non-Haz, CERS Non-Haz & SPRS) (in \$millions)

						
	FY16	FY17	FY16	FY17	FY16	FY17
Contributions						
<i>Member Contributions</i>	\$106.5	\$105.7	\$141.7	\$159.9	\$5.3	\$5.4
<i>Employer Contributions/Appropriations</i>	513.1	703.9	284.1	333.6	25.8	63.2
<i>Employer Cessation Contributions</i>		53.2				
<i>Investment Income (Net of Expenses)</i>	27.5	50.9	75.9	137.7	2.8	5.5
Total Cash Inflows	647.1	913.7	501.7	631.2	33.9	74.2
<i>Benefit Payments/Refunds</i>	935.4	960.3	665.0	701.9	56.4	57.0
<i>Administrative Expenses</i>	11.0	11.0	19.4	19.7	-	-
Total Cash Outflows	946.4	971.3	684.4	721.6	56.4	57.0
NET Cash Flow Before Asset Gain/(Losses)	(299.3)	(57.6)	(182.7)	(90.4)	(22.5)	17.1
<i>Realized/Unrealized Gain/(Loss)</i>	(48.2)	170.1	(116.7)	688.1	(6.7)	21.3
Change in Net Plan Assets	(\$347.5)	\$112.5	(\$299.4)	\$597.8	(\$29.2)	\$38.4
<i>Beginning of Period</i>	\$2,327.8	\$1,980.3	\$6,440.8	\$6,141.4	\$247.2	\$218.0
<i>End of Period</i>	\$1,980.3	\$2,092.8	\$6,141.4	\$6,739.1	\$218.0	\$256.4








CASH FLOW – Pension Fund (KERS-Haz and CERS-Haz) (in \$millions)

				
	FY16	FY17	FY16	FY17
Contributions				
<i>Member Contributions</i>	\$15.7	\$18.3	\$53.0	\$61.8
<i>Employer Contributions</i>	23.8	53.0	105.7	116.0
<i>Investment Income (Net of Expenses)</i>	6.4	12.0	24.3	44.8
Contribution Inflow	45.9	83.3	183.0	222.6
<i>Benefit Payments/Refunds</i>	61.5	63.3	216.3	229.3
<i>Administrative Expenses</i>	0.9	0.9	1.4	1.4
Contribution Outflow	62.4	64.2	217.7	230.7
Net Contributions	(16.5)	19.1	(34.7)	(8.1)
<i>Realized/Unrealized Gain/(Loss)</i>	(8.0)	58.9	(33.3)	225.6
Change in Net Plan Assets	(\$24.5)	\$78.0	(\$68.0)	\$217.5
<i>Beginning of Period</i>	\$552.5	\$527.9	\$2,078.2	\$2,010.2
<i>End of Period</i>	\$527.9	\$605.9	\$2,010.2	\$2,227.7



Insurance - Investment Update 6/30/17

Rates of Return

	Market Value (in \$millions)	1 Year	3 Years	5 Years	10 Years	20 Years
 KERS Non-Hazardous	\$781.4	13.8%	4.7%	7.7%	3.7%	5.8%
<i>Plan Index</i>		13.9	5.0	8.2	4.2	6.1
 KERS Hazardous	\$484.4	13.8	4.9	7.9	3.8	5.8
<i>Plan Index</i>		13.8	5.0	8.2	4.2	6.1
 CERS Non-Hazardous	\$2,160.5	13.7	5.0	8.0	3.8	5.8
<i>Plan Index</i>		13.6	5.1	8.2	4.3	6.1
 CERS Hazardous	\$1,179.3	13.7	5.1	8.0	3.8	5.8
<i>Plan Index</i>		13.6	5.1	8.2	4.3	6.1
 SPRS	\$178.2	13.7	5.0	8.0	3.8	5.8
<i>Plan Index</i>		13.6	5.1	8.3	4.3	6.1






Insurance Fund Unfunded Liability

(in \$millions)

	FY2013	FY2014	FY2015	FY2016	FY2016 with Revised Economic Assumptions
KERS NON-HAZARDOUS KERS Non-Hazardous	\$1,631.2	\$1,605.5	\$1,718.7	\$1,713.4	\$2,001.6
<i>Funded Ratio</i>	23.3%	27.9%	28.8%	30.3%	29.0%
KERS HAZARDOUS KERS Hazardous	\$14.7	(\$22.4)	(\$76.7)	(\$95.4)	(\$47.6)
<i>Funded Ratio</i>	96.2%	105.6%	120.4%	125.2%	111.0%
CERS NON-HAZARDOUS CERS Non-Hazardous	\$815.6	\$785.7	\$910.4	\$908.3	\$1,304.3
<i>Funded Ratio</i>	66.6%	70.0%	68.7%	69.6%	63.0%
CERS HAZARDOUS CERS Hazardous	\$544.6	\$496.1	\$416.3	\$423.0	\$680.4
<i>Funded Ratio</i>	62.1%	66.8%	72.3%	72.9%	64.0%
SPRS SPRS	\$86.0	\$78.7	\$87.1	\$84.5	\$117.6
<i>Funded Ratio</i>	61.3%	66.4%	65.8%	67.2%	61.0%





CASH FLOW – Insurance Fund (KERS Non-Haz, CERS Non-Haz & SPRS) (in \$millions)

						
	FY16	FY17	FY16	FY17	FY16	FY17
Contributions						
<i>Employer Contributions</i>	\$131.9	\$133.0	\$108.3	\$117.3	\$10.2	\$9.2
<i>Insurance Premiums</i>	.2	.3	.6	.7	-	-
<i>Retired Reemployed Healthcare</i>	3.9	3.8	3.6	3.4	-	
<i>Employer Cessation</i>		15.6				
<i>Investment Income (Net of Expenses)</i>	9.0	15.6	21.6	42.0	1.8	3.5
Contribution Inflow	145.0	168.3	134.1	163.4	12.0	12.7
<i>Healthcare Premiums</i>	128.6	129.6	122.7	128.2	13.9	13.5
<i>Administrative Expenses</i>	0.8	0.9	0.8	0.8	-	-
Contribution Outflow	129.4	130.6	123.5	129.0	13.9	13.5
Net Contributions	15.6	37.8	10.6	34.4	(1.9)	(0.8)
<i>Realized/Unrealized Gain/(Loss)</i>	(12.9)	75.3	(23.0)	217.6	(1.9)	18.0
Change in Net Position	\$2.7	\$113.1	(\$12.4)	\$252.0	(3.8)	17.2
<i>Beginning of Period</i>	\$665.6	\$668.3	\$1,920.9	\$1,908.5	\$164.7	\$160.9
<i>Ending of Period</i>	\$668.3	\$781.4	\$1,908.5	\$2,160.5	\$160.9	\$178.1



CASH FLOW – Insurance Fund (KERS-Haz and CERS-Haz) (in \$millions)

				
	FY16	FY17	FY16	FY17
Contributions				
<i>Employer Contributions</i>	\$15.9	\$4.7	\$66.7	\$50.7
<i>Insurance Premiums</i>	-	-	(0.1)	(0.3)
<i>Retired Reemployed Healthcare</i>	0.8	0.8	0.9	0.8
<i>Investment Income (Net of Expenses)</i>	5.3	9.8	11.6	23.0
Contribution Inflow	22.0	15.4	79.1	74.2
<i>Healthcare Premiums</i>	17.5	17.6	68.6	70.5
<i>Administrative Expenses</i>	-	0.1	0.3	0.4
Contribution Outflow	17.5	17.7	68.9	70.9
Net Contributions	4.5	(2.3)	10.2	3.3
<i>Realized/Unrealized Gain/(Loss)</i>	(6.2)	49.4	(10.5)	119.9
Change in Net Position	(\$1.7)	\$47.1	(\$0.3)	\$123.2
<i>Beginning of Period</i>	\$439.1	\$437.4	\$1,056.4	\$1,056.1
<i>End of Period</i>	\$437.4	\$484.4	\$1,056.1	\$1,179.3