

# Kentucky State Police Retirement System

GASB No. 74 Accounting Valuation Report  
As of June 30, 2019



December 9, 2019

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

**Re: GASB 74 Reporting – Actuarial Information – State Police Retirement System**

Dear Members of the Board:

This report provided herein contains certain information for the Kentucky State Police Retirement System (SPRS) 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, 2019. 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, 2018. The total OPEB liability was rolled-forward from the valuation date to the plan’s fiscal year ending June 30, 2019, 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 plan provision changes since June 30, 2018. However, 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 OPEB liability as of June 30, 2019 is determined using these updated assumptions. It is our opinion that this procedure is reasonable and appropriate, and complies with applicable requirements under GASB 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, 2018" and the "2018 Actuarial Experience Study for the Period Ending June 30, 2018" for additional discussion of the nature of the actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions. These reports should be considered together as a complete report for KRS's fiscal year ending June 30, 2019.

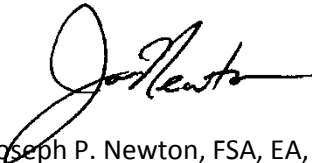
A Single discount rate of 5.76% was used to measure the total OPEB liability as of June 30, 2019. The single discount rate is based on the expected rate of return on OPEB plan investments of 6.25% and a municipal bond rate of 3.13%, as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 28, 2019. Based on the stated assumptions and the projection of cash flows as of each fiscal year ending, the plan's fiduciary net position and future contributions were projected to be sufficient to finance the future benefit payments of the current plan members. Therefore, the long-term expected rate of return on insurance plan investments was applied to all periods of the projected benefit payments paid from the retirement 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. The projection of cash flows used to determine the single discount rate assumes that the funds receive the required employer contributions each future year, as determined by the current funding policy established in Statute.

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.

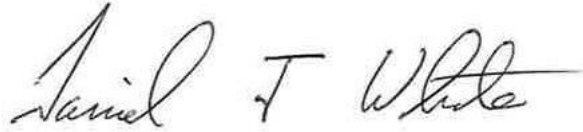
Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or 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

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**SECTION 1**

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## EXHIBIT 1

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

Year	Total OPEB Liability (1)	Plan Fiduciary Net Position (2)	Net OPEB Liability/(Asset) (3) = (1) - (2)	Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability (4) = (2) / (1)	Covered Employee Payroll <sup>1</sup> (5)	Net OPEB Liability as a Percentage of Covered Employee Payroll (6) = (3) / (5)
2019	\$ 312,553	\$ 201,206	\$ 111,347	64.38%	\$ 48,780	228.26%
2018	301,012	190,847	110,165	63.40%	50,064	220.05%
2017	313,234	178,838	134,396	57.09%	48,873	274.99%

Note:

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

## EXHIBIT 2

### Development of Single Discount Rate

	<u>SPRS</u>
Single Discount Rate	5.76%
Long-Term Expected Rate of Return	6.25%
Long-Term Municipal Bond Rate <sup>1</sup>	3.13%

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 28, 2019.



## EXHIBIT 3

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

Change in the Net OPEB Liability	2019	2018	2017
<b>Total OPEB liability</b>			
Service Cost	\$ 4,816	\$ 6,087	\$ 4,147
Interest on the total OPEB liability	17,724	18,432	17,993
Benefit Changes	0	34	0
Difference between actual and expected experience	(14,295)	(23,320)	(573)
Assumption Changes	16,483	(358)	57,312
Benefit Payments <sup>1</sup>	<u>(13,187)</u>	<u>(13,097)</u>	<u>(12,123)</u>
<b>Net Change in Total OPEB Liability</b>	<b>11,541</b>	<b>(12,222)</b>	<b>66,756</b>
<b>Total OPEB Liability - Beginning</b>	<b>\$ 301,012</b>	<b>\$ 313,234</b>	<b>\$ 246,478</b>
<b>Total OPEB Liability - Ending (a)</b>	<b>\$ <u>312,553</u></b>	<b>\$ <u>301,012</u></b>	<b>\$ <u>313,234</u></b>
<b>Plan Fiduciary Net Position</b>			
Contributions - Employer <sup>2</sup>	\$ 12,623	\$ 8,535	\$ 7,862
Contributions - Member	176	155	131
Benefit Payments <sup>1</sup>	(13,187)	(13,097)	(12,123)
OPEB Plan Net Investment Income	10,815	16,470	21,627
OPEB Plan Administrative Expense	(69)	(62)	(66)
Other	<u>1</u> <sup>4</sup>	<u>8</u> <sup>4</sup>	<u>0</u>
<b>Net Change in Plan Fiduciary Net Position</b>	<b>10,359</b>	<b>12,009</b>	<b>17,431</b>
<b>Plan Fiduciary Net Position - Beginning</b>	<b>\$ 190,847</b>	<b>\$ 178,838</b>	<b>\$ 161,407</b>
<b>Plan Fiduciary Net Position - Ending (b)</b>	<b>\$ <u>201,206</u></b>	<b>\$ <u>190,847</u></b>	<b>\$ <u>178,838</u></b>
<b>Net OPEB Liability - Ending (a) - (b)</b>	<b>111,347</b>	<b>110,165</b>	<b>134,396</b>
<b>Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability</b>	<b>64.38%</b>	<b>63.40%</b>	<b>57.09%</b>
<b>Covered Employee Payroll<sup>3</sup></b>	<b>\$ 48,780</b>	<b>\$ 50,064</b>	<b>\$ 48,873</b>
<b>Net OPEB Liability as a Percentage of Covered Employee Payroll</b>	<b>228.26%</b>	<b>220.05%</b>	<b>274.99%</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, Medicare Drug Reimbursements, and Humana Gain Share Payments.

<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 4

### Schedule of Employers' Contributions

(\$ 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
2019	\$ 13,283	\$ 13,288	\$ (5)	\$ 48,780	27.24%
2018	9,062	9,397	(335)	50,064	18.77%
2017	9,222	9,222	0	48,873	18.87%
2016	8,553	10,237	(1,684)	45,551	22.47%
2015	9,890	10,382	(492)	45,765	22.69%
2014	20,879	14,493	6,386	44,616	32.48%
2013	27,234	16,829	10,405	45,256	37.19%
2012	28,247	11,960	16,287	48,373	24.72%
2011	25,773	11,051	14,722	48,693	22.70%
2010	30,302	8,643	21,659	51,507	16.78%

Notes:

<sup>1</sup> Data for years prior to 2018 is 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 2019 is based on the contribution rate calculated with the June 30, 2017 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 FYE 2019

The actuarially determined contribution rate effective for fiscal year ending 2019 that are documented in the schedule on the previous pages was 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	SPRS
Determine by the Actuarial Valuation as of:	June 30, 2017
Actuarial Cost Method:	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
Amortization Method:	Level Percent of Pay
Amortization Period:	26 Years, Closed
Payroll Growth Rate:	0.00%
Investment Return:	6.25%
Inflation:	2.30%
Salary Increases:	3.05% to 15.55%, varies by service
Mortality:	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 7.25% at January 1, 2019 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 13 years.
Post-65	Initial trend starting at 5.10% at January 1, 2019 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 11 years.

## EXHIBIT 5

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

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

<b>1.00% Decrease, 4.76%</b>	<b>Current Discount Rate, 5.76%</b>	<b>1.00% Increase, 6.76%</b>
\$ 154,358	\$ 111,347	\$ 76,376

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

<b>1.00% Decrease</b>	<b>Current Healthcare Cost Trend Rate</b>	<b>1.00% Increase</b>
\$ 77,068	\$ 111,347	\$ 153,056

# 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 2016 through 2018. 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 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, 2019, 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	\$316.85	\$514.85
50	513.61	632.71
60	872.89	859.50
64	1,061.46	1,001.73

FOR THOSE ELIGIBLE FOR MEDICARE		
AGE	MALE	FEMALE
65	\$183.50	\$173.08
75	214.69	209.49
85	227.02	229.70

## 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