

State Police Retirement System

GASB Statements No. 68 Accounting and Financial
Reporting for Pensions as of June 30, 2017





May 8, 2018

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, 2017

Dear Members of the Board:

This report contains information for the **State Police Retirement System (SPRS)** in connection with the Governmental Accounting Standards Board (GASB) Statement No. 68, "Accounting and Financial Reporting for Pensions." This information can be used by the State of Kentucky for fiscal years ending between (and including) June 30, 2017 and June 30, 2018, with the financial reporting and disclosure requirements of GASB Statement Nos. 68.

The liability calculations presented in this report were performed for the purpose of satisfying the requirements of GASB Statement Nos. 67 and 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 KRS and the State of Kentucky only in its entirety and only with the permission of KRS and the State.

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, 2016. The total pension liability was rolled-forward from the valuation date to the plan's fiscal year end, June 30, 2017, using generally accepted actuarial principles. Gabriel Roeder Smith and Company (GRS) did not conduct the June 30, 2016 actuarial valuation; however, GRS did replicate the prior actuary's valuation results on the same assumptions, methods, and data as of that date. The roll-forward is based on the results of our replication.

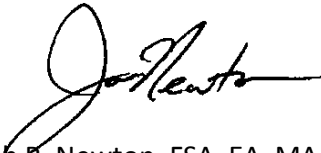
There was no legislation enacted during the 2017 legislative session that had a material change in benefit provisions for KERS. However, subsequent to the actuarial valuation date, but prior to the measurement date, the KRS Board of Trustees adopted updated actuarial assumptions which will be used in performing the actuarial valuation as of June 30, 2017. Specifically, the Total Pension Liability as of June 30, 2017 is determined using a 2.30% price inflation assumption and a 5.25% assumed rate of return. It is our opinion that this procedure is reasonable, appropriate, and complies with applicable requirements under GASB Statement No. 67 and No. 68.

This report is based upon information furnished by KRS, 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.

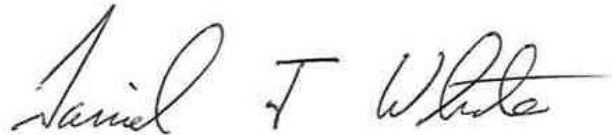
This report complements the GASB 67 accounting valuation report as of June 30, 2017, which was provided to KRS for plan accounting purposes, and should be considered together as a complete report for the measurement period that ended June 30, 2017. Please see the GASB 67 accounting valuation report as of June 30, 2017 for additional discussion of the actuarial valuation, including the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

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



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SECTION 1

EXECUTIVE SUMMARY

Executive Summary

Summary of Principal Results

Actuarial Valuation Date	June 30, 2016
Measurement Date	June 30, 2017
Membership Information	
Number of	
- Inactive employees or beneficiaries currently receiving benefits	1,515
- Inactive employees entitled to but not yet receiving benefits	455
- Active employees	908
- Total	<u>2,878</u>
Covered Payroll	\$ 54,065,181
Net Pension Liability	
Total Pension Liability	\$ 943,271,296
Plan Fiduciary Net Position	<u>255,736,583</u>
Net Pension Liability	\$ 687,534,713
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	27.1%
Net Pension Liability as a Percentage of Covered Payroll	1,271.7%
Pension Expense and Deferred Outflows/(Inflows) of Resources	
GASB 68 Pension Expense	\$ 117,505,861
Deferred Outflows of Resources	145,317,328
Deferred Inflow of Resources	13,806,152
Development of the Single Discount Rate	
Single Discount Rate	5.25%
Long-Term Expected Rate of Return	5.25%
Long-Term Municipal Bond Rate	N/A

Executive Summary

Summary of Change in Net Pension Liability

	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability (1) - (2)
	(1)	(2)	(3)
Balance at June 30, 2016	\$ 795,421,298	\$ 218,012,479	\$ 577,408,819
1. Service cost	8,297,052		8,297,052
2. Interest	51,768,532		51,768,532
3. Benefit changes	-		-
4. Assumption changes	136,601,977		136,601,977
5. Difference between expected and actual experience	8,142,618		8,142,618
6. Employer contributions		63,239,612	(63,239,612)
7. Member contributions		5,347,639	(5,347,639)
8. Net investment income		26,795,248	(26,795,248)
9. Benefit payments	(56,934,354)	(56,934,354)	-
10. Refund of member contributions	(25,827)	(25,827)	-
11. Administrative expense	-	(181,214)	181,214
12. Other changes	-	(517,000)	517,000
13. Net changes	\$ 147,849,998	\$ 37,724,104	\$ 110,125,894
Balance at June 30, 2017	\$ 943,271,296	\$ 255,736,583	\$ 687,534,713

Note: Employer contributions include a \$25 million appropriation to the Retirement System from the State's General Fund.

Report Purpose and Scope

Under GASB No. 68, employers must report the net pension liability, pension expense, and related deferred inflows and outflows of resources associated with providing retirement benefits to their employees (and former employees) in their basic financial statements. In addition, extensive note disclosures and related Required Supplementary Information are also required. The purpose of this report is to provide the employer with the actuarially calculated pension amounts.

Executive Summary

Actuarial information required to be reported or disclosed by GASB No. 68 are contained in this report. However, the following information is not included in this report because it is not actuarial in nature:

- Pension Plan Description - A description of the plan is provided by KRS, and also in the KRS Comprehensive Annual Financial Report (CAFR), both found on their website. The State can use the description information and provide their respective plan provisions in their disclosure.
- Pension Investment Disclosures Related to the Investment Return Assumption - Requires disclosures regarding asset allocation and expected rates of return which are also available in the KRS CAFR.

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 (NPL) is the difference between the total pension liability and the plan's fiduciary net position. In traditional actuarial terms, this is analogous to the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement). The pension expense recognized each fiscal year is equal to the change in the net pension liability from the beginning of the year to the end of the year, adjusted for deferred recognition of certain changes due to the liability and investment experience.

In addition, employers are responsible for allocating the pension amounts between the governmental activities and business-type activities columns of the government-wide financial statements and between individual proprietary funds.

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, 2016. The total pension liability was rolled-forward from the valuation date to the plan's fiscal year end, June 30, 2017, using generally accepted actuarial principles. Gabriel Roeder Smith and Company (GRS) did not conduct the June 30, 2016 actuarial valuation; however, GRS did replicate the prior actuary's valuation results on the same assumptions, methods, and data as of that date. The roll-forward is based on the results of our replication.

There was no legislation enacted during the 2017 legislative session that had a material change in benefit provisions for KERS, but the KRS Board of Trustees adopted updated inflation and investment return assumptions which will be used in performing the actuarial valuation as of June 30, 2017. As a result, the Total Pension Liability as of June 30, 2017 is determined using a 2.30% price inflation assumption and a 5.25% assumed rate of return. It is our opinion that this procedure is reasonable, appropriate, and complies with applicable requirements under GASB Statement No. 67 and No. 68.

Executive Summary

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 to the Retirement System 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, 2017.

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).

A single discount rate of 5.25% was used to measure the total pension liability as of June 30, 2017. This single discount rate was based on the expected rate of return on pension plan investments of 5.25%. Based on the stated assumptions and the projection of cash flows, the pension plan's fiduciary net position and future contributions were sufficient to finance the future benefit payments of the current plan members for all projection years. 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 for each fiscal year end assumed that the State will contribute the actuarially determined contribution determined in accordance with Kentucky State Code.

Summary of Membership Information

The following table provides a summary of the number of participants with a benefit in the plan as of the last actuarial valuation date, June 30, 2016.

Summary of Population Statistics	
Inactive Plan Members or Beneficiaries	
Currently Receiving Benefits	1,515
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	455
Active Plan Members	<u>908</u>
Total Plan Members	2,878

Executive Summary

Recognition of Deferred Outflows and Inflows of Resources

GASB 68 requires that *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 2017 fiscal year, the expected remaining service lives of all employees was 9,603 years, resulting in a 3.34 years (9,603 total expected remaining service period divided 2,878 plan members) average for the expected remaining service lives for purposes of recognizing the applicable deferred outflows and inflows of resources established in the 2017 fiscal year. Additionally, 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.

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

As of June 30, 2017, the Net Pension Liability is \$687,534,713. Below is a table providing the sensitivity of the Net Pension Liability to changes in the discount rate. In particular, the table shows the plan's Net Pension Liability if it were calculated using a single discount rate that is one-percentage point lower or one-percentage point higher than the single discount rate:

1% Decrease 4.25%	Current Single Rate Assumption 5.25%	1% Increase 6.25%
\$806,574,818	\$687,534,713	\$589,650,495

SECTION 2

ACCOUNTING EXHIBITS

Exhibit 1

Schedule of Pension Expense as of June 30, 2017

1. Service cost	\$ 8,297,052
2. Interest on the Total Pension Liability	51,768,532
3. Current period benefit changes	-
4. Member contributions	(5,347,639)
5. Projected earnings on plan investments	(15,084,691)
6. Administrative expense	181,214
7. Other changes in fiduciary net position	517,000
8. Recognition of outflows (inflow) of resources - liability experience	5,248,445
9. Recognition of outflows (inflow) of resources - assumption changes	71,192,156
10. Recognition of outflows (inflow) of resources - investment experience	<u>733,792</u>
12. Pension Expense	\$ 117,505,861

Exhibit 2

Outstanding Balance of Deferred Outflows and Inflows of Resources to be Recognized in Future Years

	Deferred Outflow of Resources	Deferred Inflow of Resources
	(1)	(2)
1. Differences between expected and actual liability experience	\$ 6,604,080	\$ -
2. Changes in assumptions	119,399,297	-
3. Differenced between projected and actual earnings on plan investments	19,313,951	13,806,152
4. Employer contributions subsequent to the measurement date ¹	Unknown	
5. Total	\$ 145,317,328	\$ 13,806,152

¹ Employer contributions to the Retirement System made after the measurement date and up to the fiscal year end should be reported as a deferred outflow of resources.

Exhibit 3

Summary of Deferred Outflows and Inflows of Resources Arising from Current and Prior Reporting Periods

Differences Between Expected and Actual Liability Experience

Year	Original Outflow/(Inflow)	Deferred Outflow/(Inflow) as of June 30, 2017	Original Recognition Period (Years)	Increase/(Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences Between Expected and Actual Liability Experience					Thereafter
				2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	
2013-2014	-	-	3.32	-	-	-	-	-	-
2014-2015	9,330,977	899,372	3.32	2,810,535	899,372	-	-	-	-
2015-2016	-	-	3.09	-	-	-	-	-	-
2016-2017	8,142,618	<u>5,704,708</u>	3.34	<u>2,437,910</u>	<u>2,437,910</u>	<u>2,437,910</u>	<u>828,888</u>	-	-
		6,604,080		5,248,445	3,337,282	2,437,910	828,888	-	-

Differences Between Projected and Actual Earnings on Pension Plan Investments

Year	Original Outflow/(Inflow)	Deferred Outflow/(Inflow) as of June 30, 2017	Original 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
				2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	
2013-2014	(22,188,538)	(4,437,706)	5.00	(4,437,708)	(4,437,706)	-	-	-	-
2014-2015	16,134,410	6,453,764	5.00	3,226,882	3,226,882	3,226,882	-	-	-
2015-2016	21,433,645	12,860,187	5.00	4,286,729	4,286,729	4,286,729	4,286,729	-	-
2016-2017	(11,710,557)	<u>(9,368,446)</u>	5.00	<u>(2,342,111)</u>	<u>(2,342,111)</u>	<u>(2,342,111)</u>	<u>(2,342,111)</u>	<u>(2,342,113)</u>	-
		5,507,799		733,792	733,794	5,171,500	1,944,618	(2,342,113)	-

Effects of Changes of Assumptions

Year	Original Outflow/(Inflow)	Deferred Outflow/(Inflow) as of June 30, 2017	Original Recognition Period (Years)	Increase/(Decrease) in Pension Expense Arising from the Recognition of the Effects of Changes of Assumptions					Thereafter
				2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	
2013-2014	-	-	3.32	-	-	-	-	-	-
2014-2015	40,200,657	3,874,761	3.32	12,108,632	3,874,761	-	-	-	-
2015-2016	56,190,811	19,821,355	3.09	18,184,728	18,184,728	1,636,627	-	-	-
2016-2017	136,601,977	<u>95,703,181</u>	3.34	<u>40,898,796</u>	<u>40,898,796</u>	<u>40,898,796</u>	<u>13,905,589</u>	-	-
		119,399,297		71,192,156	62,958,285	42,535,423	13,905,589	-	-

Exhibit 4

Summary of Deferred Outflows and Inflows of Resources Arising from Current and Prior Reporting Periods

Period	Amount
(1)	(2)
1. Fiscal Year + 1	\$ 67,029,361
2. Fiscal Year + 2	50,144,833
3. Fiscal Year + 3	16,679,095
4. Fiscal Year + 4	(2,342,113)
5. Fiscal Year + 5	-
6. Thereafter	-
7. Total	\$ 131,511,176

Exhibit 5

Schedule of Changes in the Employers' Net Pension Liability

	2017	2016	2015	2014
Total pension liability				
1. Service Cost	\$ 8,297,052	8,401,685	7,695,435	7,141,935
2. Interest (on the Total Pension Liability)	51,768,532	52,951,274	50,661,229	50,390,898
3. Benefit Changes	-	-	-	-
4. Difference between expected and actual experience	8,142,618	-	9,330,978	-
5. Changes of assumptions	136,601,977	56,190,811	40,200,657	-
6. Benefit payments	(56,934,354)	(56,267,681)	(54,765,255)	(53,025,585)
7. Refund of member contributions	(25,827)	(11,237)	(85,000)	(213,540)
8. Net change in total pension liability	\$ 147,849,998	\$ 61,264,852	\$ 53,038,044	\$ 4,293,708
9. Total pension liability – beginning	\$ 795,421,298	734,156,446	681,118,402	676,824,694
10. Total pension liability – ending	\$ 943,271,296	\$ 795,421,298	\$ 734,156,446	\$ 681,118,402
Plan fiduciary net position				
1. Contributions – employer	\$ 63,239,612	\$ 25,822,003	\$ 31,989,753	\$ 20,279,448
2. Contributions – member	5,347,639	5,262,749	5,244,508	5,075,173
3. Net investment income	26,795,248	(3,843,029)	3,425,666	40,373,917
4. Benefit payments	(56,934,354)	(56,267,681)	(54,765,255)	(53,025,585)
5. Refund of member contributions	(25,827)	(11,237)	(85,000)	(213,540)
6. Administrative Expense	(181,214)	(177,909)	(201,108)	(214,953)
7. Other	(517,000)	4	644,756	-
8. Net change in plan fiduciary net position	\$ 37,724,104	\$ (29,215,100)	\$ (13,746,680)	\$ 12,274,460
9. Plan fiduciary net position – beginning	\$ 218,012,479	247,227,579	260,974,259	248,699,799
10. Plan fiduciary net position – ending	\$ 255,736,583	\$ 218,012,479	\$ 247,227,579	\$ 260,974,259
Net pension liability	\$ 687,534,713	\$ 577,408,819	\$ 486,928,867	\$ 420,144,143
Plan fiduciary net position as a percentage of the total pension liability	27.1%	27.4%	33.7%	38.3%
Covered-employee payroll	\$ 54,065,181	\$ 46,684,796	\$ 45,764,515	\$ 44,615,885
Net pension liability as a percentage of covered employee payroll	1,271.7%	1,236.8%	1,064.0%	941.7%

Note: The employer contribution for FY 2017 includes a \$25 million appropriation to the Retirement System from the State's General Fund.

Exhibit 6

Schedule of the Employers' Contributions for the Measurement Period Ending June 30, 2017 (in thousands)

Fiscal Year Ending	Actuarially Determined Contribution ¹	Total Employer Contributions ²	Contribution Deficiency (Excess)	Covered Employee Payroll ³	Actual Contributions as a Percentage of Covered Payroll
2017	\$ 35,937	\$ 63,240	\$ (27,303)	\$ 54,065	116.97%
2016	25,723	25,822	(99)	46,685	55.31%
2015	31,444	31,990	(546)	45,765	69.90%
2014	25,808	20,279	5,529	44,616	45.45%
2013	23,117	18,501	4,616	45,256	40.88%
2012	20,498	15,362	5,136	48,373	31.76%
2011	18,463	12,657	5,806	48,693	25.99%
2010	18,765	9,489	9,276	51,507	18.42%
2009	15,952	8,186	7,766	51,660	15.85%
2008	13,823	7,443	6,380	53,269	13.97%

Notes:

- ¹ Actuarially determined contribution rate for fiscal year ending 2017 is based on the contribution rate calculated with the the June 30, 2015 actuarial valuation.
- ² The actual contribution for FY 2017 includes a \$25 million in appropriation from the State's General Fund.
- ³ Based on derived compensation for fiscal year ending 2017 using the provided employer contribution information.

Notes to Schedule of Employers' Contributions

The actuarially determined contribution rates effective for fiscal year ending June 30, 2017 that are documented in the schedule on the previous pages are calculated based on the June 30, 2015 actuarial valuation. The principal actuarial methods and assumptions used to calculate these contribution rates are below:

Item	SPRS
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:	28 Years, Closed
Investment Return:	7.50%
Inflation:	3.25%
Salary Increases:	4.00%, average
Mortality:	RP-2000 Combined Mortality Table, projected to 2013 with Scale BB (set back 1 year for females)