INSIDE THIS ISSUE

SPECIAL PENSION BRIEFING: State Retirement Systems Overview

LATEST PUBLICATIONS

A Report on the Financial Condition of the Illinois Municipal, Chicago, and Cook County Pension Funds of Illinois

SPECIAL PENSION BRIEFING

STATE RETIREMENT SYSTEMS OVERVIEW
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NOTE: On May 8, 2015 the Illinois Supreme Court unanimously ruled P.A. 98-0599 unconstitutional as a violation of the Pension Protection Clause of the Illinois Constitution. As a result, all of the State systems' actuaries prepared their FY 2015 actuarial reports without recognizing the changes set forth in P.A. 98-0599, and hence, the FY 2017 certified State contribution amounts shown in this briefing also do not recognize the impact of SB 1.

CGFA staff has reviewed the State-funded retirement systems' FY 2015 actuarial reports, which were issued prior to November 1st, pursuant to P.A. 97-0694, the State Actuary Law. Under the State Actuary Law, the systems must annually submit a proposed certification for the following fiscal year prior to November 1st of the current calendar year. The State Actuary then must issue a preliminary report concerning the systems' proposed certification by January 1st. The State Actuary's report must identify any recommended changes in actuarial assumptions based upon the review of the retirement systems' actuarial assumptions.

Using the actuarial (smoothed) value of assets, the total unfunded liabilities of the State systems totaled $112.9 billion on June 30, 2015, led by the Teachers' Retirement System (TRS), whose unfunded liabilities amounted to $62.7 billion. As the largest of the State systems, TRS accounts for approximately 56% of the total assets and liabilities of the five State systems combined. Table 1, on the following page, provides a summary of the financial condition of each of the five State retirement systems, showing their respective liabilities and assets as well as their accumulated unfunded liabilities and funded ratios.

TABLE 1

Summary of Financial Condition FY 2015			
State Retirement Systems Combined			
Assets at Actuarial Value / With Asset Smoothing (P.A. 96-0043)			
($ in Millions)			
System	Accrued Liability	Actuarial Assets	Unfunded Liability	Funded Ratio
TRS	$108,121.8	$45,435.2	$62,686.6	42.0%
SERS	$40,743.4	$14,741.7	$26,001.7	36.2%
SURS	$39,520.7	$17,097.3	$22,423.4	43.3%
JRS	$2,314.1	$804.2	$1,509.9	34.8%
GARS	$328.2	$52.6	$275.6	16.0%
TOTAL	**$191,028.2**	**$78,131.0**	**$112,897.2**	**40.9%**

A much more realistic valuation of the true financial position of the State retirement systems would be based upon the market value of the assets, as shown in Table 2 below. Based upon the market value of assets, the total unfunded liabilities of the State systems totaled $111.0 billion on June 30, 2015. The Teachers' Retirement System (TRS), whose unfunded liabilities amounted to $61.7 billion, again represents approximately 56% of the combined total unfunded balance. Table 2 provides a summary of the financial condition of each of the five State retirement systems, showing their respective liabilities and assets as well as their accumulated unfunded liabilities and funded ratios.
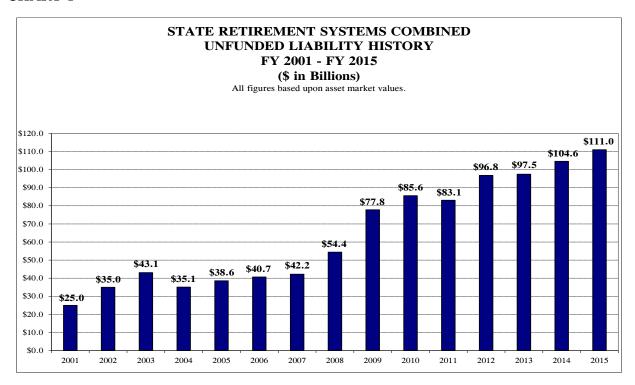
TABLE 2

Summary of Financial Condition FY 2015			
State Retirement Systems Combined			
Assets at Market Value / Without Asset Smoothing (P.A. 96-0043)			
($ in Millions)			
System	Accrued Liability	Market Assets	Unfunded Liability	Funded Ratio
TRS	$108,121.8	$46,406.9	$61,714.9	42.9%
SERS	$40,743.4	$15,258.9	$25,484.5	37.5%
SURS	$39,520.7	$17,426.2	$22,094.5	44.1%
JRS	$2,314.1	$833.9	$1,480.2	36.0%
GARS	$328.2	$54.6	$273.6	16.6%
TOTAL	**$191,028.2**	**$79,980.5**	**$111,047.7**	**41.9%**

The funded ratios for each of the five State retirement systems may be compared to the aggregate funded ratio of 41.9% for the five systems combined. Although the Judges' Retirement System and the General Assembly Retirement System have the poorest funded ratios, these two systems are much smaller and their unfunded liabilities are thus more manageable than the three larger systems. Chart 1 on the following page shows a 15-year history of the cumulative unfunded State pension liability and is based upon calculations performed by the retirement system actuaries using the market value of assets for all years, including FY 2015. The historic investment losses sustained by the systems in FY 2009 were the main reason for the significant jump in unfunded liabilities over FY 2008.

Asset smoothing was implemented as of the FY 2009 actuarial valuation reports of the state systems with the adoption of P.A. 96-0043. It is a technique that averages the annual fluctuation in investment performance over a period of 5 years. FY 2013 was the last fiscal year that investment losses from the 2008 financial crisis were "smoothed" in the retirement systems' annual actuarial valuations. With negative returns in the double-digits no longer being recognized, the actuarial value of assets in FY 2015, overall, reflects the cumulative effects of smoothing past gains despite the fact that FY 2015 experienced an investment loss. The investment gains of the last five years are now subject to smoothing. This has resulted in a cumulative market value of assets that is now higher than the actuarial (smoothed) value of assets, and therefore the funded ratio using the market value of assets is slightly higher than the funded ratio using the actuarial (smoothed) value of assets. This was not the case just 3 years earlier. Due to the funding policy being based on the actuarial value of assets pursuant to P.A. 96-0043, the FY 2017 contribution to the systems will be higher than would otherwise have been required if the market value of assets were used to determine annual State pension contributions.

CHART 1

STATE RETIREMENT SYSTEMS COMBINED
UNFUNDED LIABILITY HISTORY
FY 2001 - FY 2015
($ in Billions)
All figures based upon asset market values.

Year	Value
2001	$25.0
2002	$35.0
2003	$43.1
2004	$35.1
2005	$38.6
2006	$40.7
2007	$42.2
2008	$54.4
2009	$77.8
2010	$85.6
2011	$83.1
2012	$96.8
2013	$97.5
2014	$104.6
2015	$111.0

SURS, SERS, and JRS scaled back their respective investment return assumptions in FY 2010, and this change, along with actuarially insufficient contributions by the State, served to drive up the combined FY 2010 unfunded liability to $85.6 billion. The systems experienced exceptionally strong investment returns in FY 2011, which caused the unfunded liability to drop slightly to $83.1 billion. Three factors accounted for the significant spike in unfunded liabilities in FY 2012 – investment returns that fell far short of actuarial assumptions, TRS' assumed interest rate reduction from 8.5% to 8.0%, and actuarially insufficient contributions by the State. Strong investment returns in FY 2013 accounted for the relatively small growth in unfunded liability from FY 2012 to FY 2013 despite State contributions which continued to be actuarially insufficient.

In FY 2014, TRS voted to reduce its assumed investment rate of return from 8.0% to 7.5%, and SERS and SURS both reduced their respective rates of return from 7.75% to 7.25%. Although investment performance far exceeded actuarial expectations in FY 2014, the rate of return assumption changes helped contribute heavily to an increase in total accrued liability, and hence, the significant increase in unfunded liability of $7.1 billion, in FY 2014.

TRS adopted several actuarial recommendations in FY 2015 based on the three-year experience study including updating mortality rates and lowering the average salary increase assumption. Although lowering the average salary increase assumption significantly reduced unfunded liability, changes in the actuarial assumptions increased unfunded liability by $586.5 million. SURS updated mortality rates as well, which is one of the main factors that caused an increase in unfunded liability of $973 million. All five systems' assumed rates of investment return remained unchanged in FY 2015. Overall, the total unfunded liability increased by $6.4 billion

in FY 2015. Table 3 below shows a brief history of changes in the investment rate assumption for each of the State-funded systems.
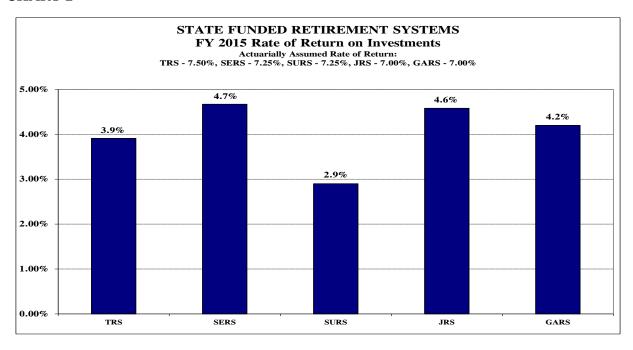
TABLE 3

Historical Change in Investment Rate Assumptions				
System	Prior to FY 10	FY 10	FY 12	FY 14 to Present
TRS	8.50%	8.50%	*8.00%*	*7.50%*
SERS	8.50%	*7.75%*	7.75%	*7.25%*
SURS	8.50%	*7.75%*	7.75%	*7.25%*
JRS	8.00%	*7.00%*	7.00%	7.00%
GARS	8.00%	*7.00%*	7.00%	7.00%

NOTE: The years associated with investment rate assumption changes above reflect the actuarial valuation year, not the fiscal year in which the State contribution was calculated using the new rate.
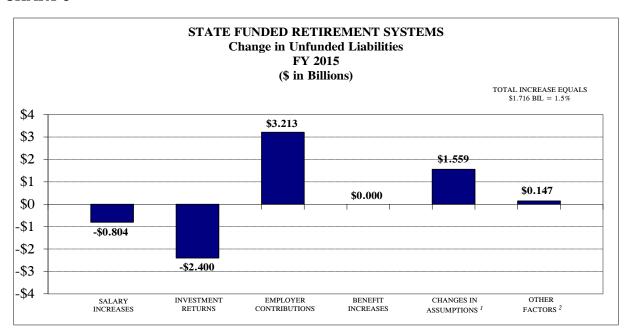
Chart 2 below shows market investment return rates experienced by each of the systems in FY 2015. All systems had lower market investment return rates than their actuarially assumed rates of return. However, all systems had actuarial investment gains because the rates of return based on the actuarial value of assets were higher than the assumed returns due to asset smoothing. Specifically the actuarial smoothing method resulted in a decrease in TRS' unfunded liability of $1.355 billion even with lower market value returns of 3.91%.

CHART 2

STATE FUNDED RETIREMENT SYSTEMS
FY 2015 Rate of Return on Investments
Actuarially Assumed Rate of Return:
TRS - 7.50%, SERS - 7.25%, SURS - 7.25%, JRS - 7.00%, GARS - 7.00%

TRS: 3.9%, SERS: 4.7%, SURS: 2.9%, JRS: 4.6%, GARS: 4.2%
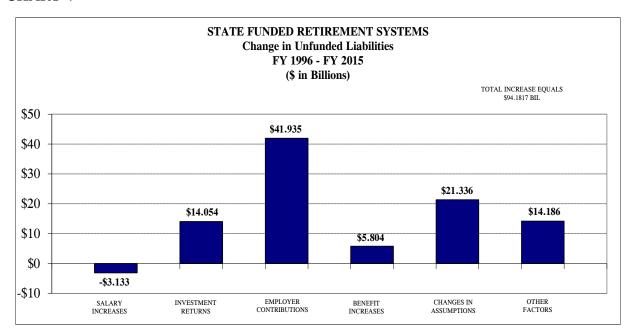
Charts 3 and 4 below show the factors that have caused the unfunded liability to change over a given period of time. Chart 3 outlines the growth in the unfunded liability for FY 2015 only, whereas Chart 4 shows the growth in unfunded liability since the enactment of P.A. 88-0593 in FY 1996, which created the 50-year funding policy that governs annual State contributions to the five State systems.

CHART 3

STATE FUNDED RETIREMENT SYSTEMS
Change in Unfunded Liabilities
FY 2015
($ in Billions)

TOTAL INCREASE EQUALS
$1.716 BIL = 1.5%

[1] One of the main factors in this category is mortality rate changes enacted by TRS and SURS.

[2] Other Factors include losses from retirements, terminations, and rates of mortality.

CHART 4

STATE FUNDED RETIREMENT SYSTEMS
Change in Unfunded Liabilities
FY 1996 - FY 2015
($ in Billions)

TOTAL INCREASE EQUALS
$94.1817 BIL

CHART 5

STATE FUNDED RETIREMENT SYSTEMS COMBINED
Funded Ratio
FY 2006 - FY 2015

Fiscal Year	Funded Ratio
2006	60.5%
2007	62.6%
2008	54.3%
2009	38.5%
2010	38.3%
2011	43.3%
2012	39.0%
2013	41.1%
2014	42.9%
2015	41.9%

The funded ratio at any single point in time is less important than the trend over time. In FY 2004, the State sold $10 billion in pension obligation bonds and used part of the proceeds to pay all of the contributions for FY 2004. The bond sale generated $7.3 billion to reduce unfunded liabilities of the state-funded retirement systems. In the wake of the bond sale, the funded ratio remained relatively stable from FY 2004 through 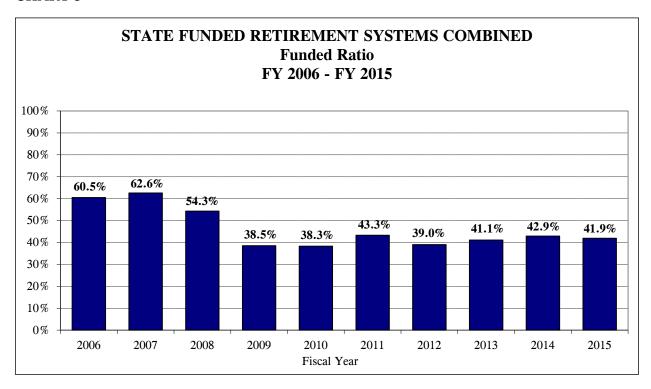FY 2007. In FY 2008 and FY 2009, the funded ratio fell significantly due to much lower than expected investment revenues and actuarially insufficient employer contributions. The funded ratio remained relatively stable in FY 2010 due in large part to higher-than-expected investment returns. FY 2011 also saw exceptionally strong investment returns, which caused the funding ratio to increase.

However, these gains were largely erased by poor investment returns in FY 2012. As was previously mentioned, actuarially insufficient State contributions and TRS' change in investment return assumption from 8.5% to 8.0% played a significant role in lowering the FY 2012 cumulative funded ratio of the five State systems to 39%. Higher-than-expected investment returns were the largest driver of the slight uptick in the funding ratio from FY 2012 to FY 2013. Despite the change in investment return assumptions, favorable investment returns by the systems and lower salary increases than assumed led to an increase in the funded ratio from 41.1% to 42.9% in FY 2014. In FY 2015, losses resulting from insufficient employer contributions and changes in assumptions such as mortality rates exceeded gains resulting from the actuarial investment income and lower-than-expected salary increases. Therefore, the FY 2015 funded ratio decreased to 41.9% from 42.9%.

TABLE 4

FY 2016 Pension Appropriation by Fund
($ in Millions)
Only TRS received an appropriation via P.A. 99-0005. The other systems received appropriations by exercising continuing appropriation authority via P.A. 88-0593.

System	GRF	Other State Funds	Total*
TRS	3,742.7	$0.0	$3,742.7
SURS	1,411.5	$190.0	$1,601.5
SERS	1,381.2	$743.7	$2,124.9
GARS	16.1	$0.0	$16.1
JRS	132.1	$0.0	$132.1
Total	**$6,683.6**	**$933.7**	**$7,617.3**

* SERS total FY 2016 appropriation includes a total of $80 million in 2003 Pension Obligation Bonds debt service. Of this amount, according to SERS, $52 million comes from GRF and $28 million comes from OSF.

FY 2017 Estimated Pension Appropriation by Fund
($ in Millions)

System	GRF	Other State Funds	Total*
TRS	3,986.6	$0.0	$3,986.6
SURS	1,481.4	$190.0	$1,671.4 [1]
SERS	1,363.3	$734.1	$2,097.4
GARS	21.7	$0.0	$21.7
JRS	131.3	$0.0	$131.3
Total	**$6,984.3**	**$924.1**	**$7,908.4**

* The amounts shown above in the "Total" column reflect the State systems' preliminary FY 2017 certification pursuant to P.A. 97-0694, the State Actuary Law. This chart is meant to be an estimate only insofar as the FY 2017 appropriation by fund is concerned. SERS 2017 estimated appropriation includes a total of $82.97 million in 2003 POB debt service. Of this amount, according to SERS, $53.93 millions comes from GRF and $29.04 million comes from OSF. The SERS "Other State Funds" amount is based upon an assumption that 65% of SERS' FY 2017 appropriation will come from GRF, while 35% will come from Other State Funds. The SURS "Other State Funds" amount assumes that SURS will receive an FY 2017 appropriation from the State Pension Fund in the same amount that SURS is expected to receive from the State Pension Fund in FY 2016. SURS' historical appropriation from the State Pension Fund varies from year to year.

Total FY 2016 Pension Appropriation: $ 7,617.3 Million
Total FY 2017 Pension Appropriation: $ 7,908.4 Million
Total Increase, FY 17 over FY 16: $ 291.1 Million

[1] *FY 2017 amount reflects the SURS revision dated Nov.20, 2015.*

The following pages include pension funding projections for the five State retirement systems based on the respective retirement system's FY 2015 actuarial valuations. These projections were generated by the retirement systems' respective actuaries.

FUNDING PROJECTIONS FOR THE STATE RETIREMENT SYSTEMS
All Five Systems Combined
Projections Based on the Retirement System's FY 2015 Actuarial Valuation
($ in Millions)

Fiscal Year	Annual Payroll	Total State Contribution*	State Contribution as a % of Payroll	Total Employee Contribution	Accrued Liabilities	Actuarial Value of Assets	Unfunded Liabilities	Funded Ratio
2016	19,957.4	7,534.9	37.8%	1,602.4	197,917.6	83,129.4	114,788.2	42.0%
2017	**20,033.2**	**7,908.5**	**39.5%**	**1,597.6**	**204,826.5**	**89,206.8**	**115,619.7**	**43.6%**
2018	20,593.6	8,013.8	38.9%	1,639.1	211,724.1	94,715.5	117,008.6	44.7%
2019	21,180.6	8,155.0	38.5%	1,681.9	218,600.5	98,920.1	119,680.5	45.3%
2020	21,784.8	8,326.0	38.2%	1,727.4	225,424.0	103,670.9	121,753.1	46.0%
2021	22,411.9	8,592.3	38.3%	1,774.6	232,194.2	108,511.3	123,682.9	46.7%
2022	23,062.4	8,831.8	38.3%	1,824.3	238,894.8	113,414.8	125,480.0	47.5%
2023	23,740.3	9,084.1	38.3%	1,877.7	248,515.3	118,398.9	130,116.4	47.6%
2024	24,443.5	9,329.6	38.2%	1,931.7	252,034.8	123,448.5	128,586.3	49.0%
2025	25,166.6	9,585.3	38.1%	1,988.2	258,441.1	128,582.0	129,859.1	49.8%
2026	25,916.3	9,875.3	38.1%	2,046.3	264,717.1	133,835.0	130,882.2	50.6%
2027	26,691.9	10,178.3	38.1%	2,107.2	270,835.0	139,218.9	131,616.1	51.4%
2028	27,487.0	10,471.7	38.1%	2,164.4	276,771.7	144,711.3	132,060.4	52.3%
2029	28,312.1	10,779.7	38.1%	2,227.5	282,508.1	150,343.7	132,164.4	53.2%
2030	29,165.7	11,077.1	38.0%	2,291.6	288,032.0	156,118.6	131,913.4	54.2%
2031	30,046.9	11,391.5	37.9%	2,360.6	293,387.1	162,136.3	131,250.8	55.3%
2032	30,950.1	11,744.7	37.9%	2,431.0	298,497.1	168,397.4	130,099.6	56.4%
2033	31,870.2	12,133.7	38.1%	2,499.7	303,342.4	174,953.0	128,389.4	57.7%
2034	32,800.8	13,232.1	40.3%	2,569.7	307,909.5	182,578.1	125,331.4	59.3%
2035	33,736.5	13,612.3	40.3%	2,639.2	312,178.5	190,601.4	121,577.1	61.1%
2036	34,674.6	13,993.7	40.4%	2,706.3	316,131.3	199,056.8	117,074.6	63.0%
2037	35,609.4	14,373.9	40.4%	2,775.8	319,764.0	207,999.4	111,764.7	65.0%
2038	36,535.7	14,751.6	40.4%	2,842.8	323,066.8	217,472.5	105,594.4	67.3%
2039	37,450.5	15,124.7	40.4%	2,904.8	326,040.1	227,522.9	98,517.2	69.8%
2040	38,354.1	15,493.9	40.4%	2,966.1	328,681.9	238,204.6	90,477.3	72.5%
2041	39,253.5	15,860.2	40.4%	3,023.7	331,013.5	249,590.6	81,423.0	75.4%
2042	40,147.8	16,226.1	40.4%	3,079.1	333,078.8	261,779.6	71,299.2	78.6%
2043	41,047.4	16,593.6	40.4%	3,134.4	334,937.0	274,897.5	60,039.6	82.1%
2044	41,953.7	16,962.2	40.4%	3,187.1	336,675.5	289,093.2	47,582.3	85.9%
2045	42,859.2	17,333.7	40.4%	3,245.9	338,367.8	304,530.4	33,837.4	90.0%

FUNDING PROJECTIONS FOR THE TEACHERS RETIREMENT SYSTEM								
Projections Based on the Retirement System's FY 2015 Actuarial Valuation								
Actuarially Assumed Rate of Return: 7.50%								
($ in Millions)								
Fiscal Year	Annual Payroll	Total State Contribution*	State Contribution as a % of Payroll	Total Employee Contribution	Accrued Liabilities	Actuarial Value of Assets	Unfunded Liabilities	Funded Ratio
2016	10,599.8	3,741.8	35.3%	1,041.8	112,058.4	48,134.1	63,924.3	43.0%
2017	**10,541.2**	**3,986.6**	**37.8%**	**1,034.3**	**116,053.6**	**51,567.8**	**64,485.8**	**44.4%**
2018	10,870.0	4,096.2	37.7%	1,066.5	120,100.7	54,735.3	65,365.3	45.6%
2019	11,209.1	4,178.0	37.3%	1,099.1	124,194.2	57,214.5	66,979.7	46.1%
2020	11,560.4	4,272.4	37.0%	1,134.2	128,327.6	60,066.3	68,261.3	46.8%
2021	11,925.9	4,418.6	37.1%	1,170.4	132,508.6	63,029.6	69,479.0	47.6%
2022	12,307.4	4,552.1	37.0%	1,208.8	136,736.0	66,099.1	70,636.9	48.3%
2023	12,706.8	4,694.3	36.9%	1,250.5	141,008.8	69,294.2	71,714.6	49.1%
2024	13,121.0	4,829.4	36.8%	1,292.4	145,320.5	72,605.8	72,714.6	50.0%
2025	13,547.9	4,972.1	36.7%	1,336.5	149,677.3	76,059.5	73,617.8	50.8%
2026	13,988.2	5,137.1	36.7%	1,380.9	154,056.3	79,665.4	74,390.8	51.7%
2027	14,441.4	5,308.7	36.8%	1,427.8	158,440.0	83,434.5	75,005.6	52.7%
2028	14,904.4	5,471.3	36.7%	1,470.9	162,803.7	87,334.1	75,469.6	53.6%
2029	15,379.6	5,641.0	36.7%	1,518.4	167,124.6	91,378.0	75,746.6	54.7%
2030	15,870.2	5,804.8	36.6%	1,566.7	171,391.4	95,566.1	75,825.4	55.8%
2031	16,374.4	5,976.9	36.5%	1,617.9	175,586.4	99,918.5	75,667.9	56.9%
2032	16,890.1	6,171.2	36.5%	1,670.8	179,687.7	104,458.3	75,229.4	58.1%
2033	17,411.9	6,384.7	36.7%	1,721.8	183,666.8	109,200.2	74,466.6	59.5%
2034	17,932.2	7,084.6	39.5%	1,772.7	187,497.8	114,660.8	72,837.0	61.2%
2035	18,447.9	7,288.4	39.5%	1,822.9	191,156.7	120,360.4	70,796.3	63.0%
2036	18,960.9	7,491.0	39.5%	1,870.5	194,623.5	126,306.8	68,316.7	64.9%
2037	19,465.7	7,690.5	39.5%	1,920.4	197,884.3	132,524.3	65,360.0	67.0%
2038	19,951.2	7,882.3	39.5%	1,966.5	200,918.1	139,017.1	61,901.0	69.2%
2039	20,413.7	8,065.0	39.5%	2,008.1	203,706.3	145,787.2	57,919.1	71.6%
2040	20,856.9	8,240.1	39.5%	2,047.9	206,226.3	152,842.2	53,384.1	74.1%
2041	21,282.7	8,408.3	39.5%	2,083.3	208,476.0	160,199.2	48,276.8	76.8%
2042	21,694.7	8,571.1	39.5%	2,116.1	210,467.1	167,896.6	42,570.4	79.8%
2043	22,100.9	8,731.6	39.5%	2,148.5	212,235.4	176,002.9	36,232.4	82.9%
2044	22,504.3	8,891.0	39.5%	2,177.3	213,845.9	184,608.5	29,237.4	86.3%
2045	22,905.0	9,049.3	39.5%	2,211.9	215,355.6	193,820.0	21,535.6	90.0%

* Pursuant to TRS' preliminary FY 2017 certification letter dated October 16, 2015, the FY 2017 required State Contribution includes $.8 million payable from the Guaranteed Minimum Annuity Reserve.

FUNDING PROJECTIONS FOR THE STATE EMPLOYEES' RETIREMENT SYSTEM
Projections Based on the Retirement System's FY 2015 Actuarial Valuation
Actuarially Assumed Rate of Return: 7.25%
($ in Millions)

Fiscal Year	Annual Payroll	Total State Contribution	State Contribution as a % of Payroll	Total Employee Contribution	Accrued Liabilities	Actuarial Value of Assets	Unfunded Liabilities	Funded Ratio
2016	4,660	2,045	43.9%	254	42,390	16,109	26,281.0	38.0%
2017	**4,706**	**2,097**	**44.6%**	**255**	**44,024**	**17,567**	**26,457.0**	**39.9%**
2018	4,830	2,057	42.6%	261	45,640	18,886	26,754.0	41.4%
2019	4,958	2,091	42.2%	267	47,233	19,943	27,290.0	42.2%
2020	5,087	2,130	41.9%	273	48,790	21,049	27,741.0	43.1%
2021	5,220	2,187	41.9%	279	50,305	22,143	28,162.0	44.0%
2022	5,356	2,241	41.8%	285	51,765	23,216	28,549.0	44.8%
2023	5,494	2,296	41.8%	291	56,163	24,263	31,900.0	43.2%
2024	5,639	2,350	41.7%	297	54,489	25,279	29,210.0	46.4%
2025	5,787	2,405	41.6%	303	55,732	26,260	29,472.0	47.1%
2026	5,943	2,470	41.6%	310	56,892	27,220	29,672.0	47.8%
2027	6,106	2,539	41.6%	317	57,960	28,156	29,804.0	48.6%
2028	6,273	2,605	41.5%	324	58,938	29,072	29,866.0	49.3%
2029	6,454	2,678	41.5%	332	59,831	29,982	29,849.0	50.1%
2030	6,644	2,751	41.4%	340	60,642	30,892	29,750.0	50.9%
2031	6,842	2,829	41.3%	350	61,373	31,814	29,559.0	51.8%
2032	7,044	2,914	41.4%	359	62,022	32,762	29,260.0	52.8%
2033	7,249	3,006	41.5%	368	62,593	33,751	28,842.0	53.9%
2034	7,459	3,319	44.5%	378	63,094	35,026	28,068.0	55.5%
2035	7,673	3,414	44.5%	388	63,526	36,388	27,138.0	57.3%
2036	7,887	3,509	44.5%	398	63,888	37,849	26,039.0	59.2%
2037	8,099	3,603	44.5%	408	64,186	39,423	24,763.0	61.4%
2038	8,314	3,699	44.5%	419	64,428	41,132	23,296.0	63.8%
2039	8,532	3,796	44.5%	429	64,625	42,999	21,626.0	66.5%
2040	8,751	3,894	44.5%	440	64,788	45,046	19,742.0	69.5%
2041	8,973	3,992	44.5%	451	64,927	47,300	17,627.0	72.9%
2042	9,196	4,092	44.5%	462	65,057	49,789	15,268.0	76.5%
2043	9,423	4,193	44.5%	473	65,190	52,542	12,648.0	80.6%
2044	9,652	4,294	44.5%	485	65,337	55,588	9,749.0	85.1%
2045	9,881	4,396	44.5%	497	65,504	58,953	6,551.0	90.0%

* Pursuant to P.A. 93-0589, the FY 2017 State Contribution includes $83 million for debt service for the 2003 Pension Obligation Bonds authorized by P.A. 93-0002. State contribution amounts shown for FY 2018 - 2045 do not include projected debt service as these amounts are not known until the annual SERS preliminary certification letters are issued purusant to P.A. 97-0694 (State Actuary Law).

FUNDING PROJECTIONS FOR THE STATE UNIVERSITIES RETIREMENT SYSTEM
Projections Based on the Retirement System's FY 2015 Actuarial Valuation
Actuarially Assumed Rate of Return: 7.25%
($ in Millions)

Fiscal Year	Annual Payroll*	Total State Contribution**	State Contribution as a % of Payroll	Total Employee Contribution	Accrued Liabilities	Actuarial Value of Assets	Unfunded Liabilities	Funded Ratio
2016	4,520.0	1,600.0	35.4%	290.5	40,745.9	17,955.8	22,790.1	44.1%
2017	**4,610.0**	**1,671.4**	**36.3%**	**292.7**	**41,949.0**	**19,057.8**	**22,891.2**	**45.4%**
2018	4,716.5	1,707.4	36.2%	295.9	43,112.6	20,008.7	23,103.8	46.4%
2019	4,835.3	1,733.5	35.9%	300.0	44,237.0	20,625.0	23,611.9	46.6%
2020	4,958.0	1,771.1	35.7%	304.4	45,311.2	21,367.0	23,944.2	47.2%
2021	5,085.6	1,832.8	36.0%	309.2	46,333.9	22,103.2	24,230.7	47.7%
2022	5,217.6	1,884.1	36.1%	314.4	47,302.5	22,822.3	24,480.3	48.2%
2023	5,356.7	1,938.1	36.2%	319.9	48,215.4	23,526.8	24,688.6	48.8%
2024	5,499.4	1,993.3	36.2%	325.8	49,067.7	24,215.9	24,851.8	49.4%
2025	5,645.9	2,050.0	36.3%	331.8	49,852.6	24,886.6	24,965.9	49.9%
2026	5,797.6	2,108.6	36.4%	338.2	50,575.8	25,549.5	25,026.3	50.5%
2027	5,954.9	2,169.2	36.4%	344.9	51,236.0	26,208.4	25,027.6	51.2%
2028	6,117.7	2,232.0	36.5%	351.9	51,832.7	26,868.8	24,963.9	51.8%
2029	6,284.2	2,295.3	36.5%	359.2	52,364.1	27,533.8	24,830.3	52.6%
2030	6,454.3	2,354.3	36.5%	366.5	52,826.0	28,199.8	24,626.2	53.4%
2031	6,630.1	2,416.8	36.5%	374.1	53,276.9	28,934.1	24,342.8	54.3%
2032	6,812.0	2,487.8	36.5%	381.7	53,664.3	29,698.3	23,965.9	55.3%
2033	7,001.6	2,567.7	36.7%	389.8	53,992.3	30,512.0	23,480.3	56.5%
2034	7,197.8	2,648.4	36.8%	398.0	54,264.7	31,386.6	22,878.2	57.8%
2035	7,399.3	2,726.3	36.8%	406.5	54,483.6	32,328.8	22,154.8	59.3%
2036	7,605.7	2,806.0	36.9%	415.1	54,650.9	33,351.6	21,299.4	61.0%
2037	7,818.4	2,888.3	36.9%	424.0	54,770.1	34,469.9	20,300.2	62.9%
2038	8,038.6	2,973.5	37.0%	433.0	54,843.6	35,699.2	19,144.5	65.1%
2039	8,267.1	3,061.9	37.0%	442.5	54,878.3	37,059.5	17,818.8	67.5%
2040	8,502.2	3,152.8	37.1%	452.2	54,883.2	38,573.3	16,309.9	70.3%
2041	8,747.4	3,247.5	37.1%	462.5	54,871.0	40,267.9	14,603.1	73.4%
2042	9,000.0	3,344.9	37.2%	473.2	54,857.9	42,173.6	12,684.3	76.9%
2043	9,259.3	3,445.0	37.2%	484.2	54,854.8	44,317.0	10,537.8	80.8%
2044	9,525.9	3,547.2	37.2%	495.3	54,872.2	46,725.6	8,146.6	85.2%
2045	9,793.8	3,651.6	37.3%	506.5	54,920.2	49,428.2	5,492.0	90.0%

* Payroll projections include SMP payroll - 30% of new SURS members are assumed to enter SMP

** State Contribution Only - Includes Self-Managed Plan (SMP) Contributions - Excludes Estimated $47.5 Million In Federal Funds in all years shown

			FUNDING PROJECTIONS FOR THE JUDGES' RETIREMENT SYSTEM					
			Projections Based on the Retirement System's FY 2015 Actuarial Valuation					
			Actuarially Assumed Rate of Return: 7.0%					
			($ in Millions)					

Fiscal Year	Annual Payroll	Total State Contribution	State Contribution as a % of Payroll	Total Employee Contribution	Accrued Liabilities	Actuarial Value of Assets	Unfunded Liabilities	Funded Ratio
2016	164.93	132.06	80.1%	14.63	2,392.36	879.56	1,512.80	36.8%
2017	**164.82**	**131.33**	**79.7%**	**14.37**	**2,466.62**	**959.07**	**1,507.55**	**38.9%**
2018	165.94	131.38	79.2%	14.38	2,535.81	1,027.14	1,508.67	40.5%
2019	166.92	130.66	78.3%	14.43	2,600.07	1,077.43	1,522.64	41.4%
2020	168.04	130.75	77.8%	14.46	2,658.38	1,126.82	1,531.56	42.4%
2021	169.01	131.85	78.0%	14.62	2,709.76	1,172.12	1,537.64	43.3%
2022	169.94	132.58	78.0%	14.77	2,754.88	1,213.13	1,541.75	44.0%
2023	171.22	133.58	78.0%	14.93	2,792.90	1,249.68	1,543.22	44.7%
2024	172.62	134.67	78.0%	15.23	2,824.25	1,282.08	1,542.17	45.4%
2025	174.21	135.91	78.0%	15.51	2,848.30	1,310.17	1,538.13	46.0%
2026	175.92	137.24	78.0%	15.87	2,865.15	1,334.31	1,530.84	46.6%
2027	177.84	138.74	78.0%	16.10	2,874.69	1,354.47	1,520.22	47.1%
2028	179.96	140.40	78.0%	16.16	2,877.02	1,370.82	1,506.20	47.6%
2029	182.36	142.27	78.0%	16.50	2,872.79	1,384.40	1,488.39	48.2%
2030	185.10	143.65	77.6%	16.98	2,862.16	1,395.18	1,466.98	48.7%
2031	188.09	145.24	77.2%	17.27	2,845.86	1,403.87	1,441.99	49.3%
2032	191.47	147.75	77.2%	17.99	2,823.99	1,412.20	1,411.79	50.0%
2033	195.03	150.99	77.4%	18.75	2,797.29	1,421.77	1,375.52	50.8%
2034	198.97	155.22	78.0%	19.53	2,766.50	1,434.63	1,331.87	51.9%
2035	203.23	158.55	78.0%	20.35	2,732.49	1,451.05	1,281.44	53.1%
2036	207.86	162.16	78.0%	21.13	2,696.03	1,472.41	1,223.62	54.6%
2037	212.79	166.01	78.0%	21.94	2,657.63	1,500.00	1,157.63	56.4%
2038	218.02	170.09	78.0%	22.75	2,618.10	1,535.30	1,082.80	58.6%
2039	223.55	174.40	78.0%	23.56	2,578.33	1,579.96	998.37	61.3%
2040	229.41	178.97	78.0%	24.37	2,538.92	1,635.50	903.42	64.4%
2041	235.50	183.73	78.0%	25.20	2,500.70	1,703.59	797.11	68.1%
2042	241.95	188.75	78.0%	26.03	2,464.30	1,785.91	678.39	72.5%
2043	248.62	193.96	78.0%	26.88	2,430.46	1,884.19	546.27	77.5%
2044	255.61	199.34	78.0%	27.74	2,399.87	2,000.23	399.64	83.3%
2045	262.88	205.08	78.0%	28.62	2,373.01	2,135.74	237.27	90.0%

FUNDING PROJECTIONS FOR THE GENERAL ASSEMBLY RETIREMENT SYSTEM
Projections Based on the Retirement System's FY 2015 Actuarial Valuation
Actuarially Assumed Rate of Return: 7.0%
($ in Millions)

Fiscal Year	Annual Payroll	Total State Contribution	State Contribution as a % of Payroll	Total Employee Contribution	Accrued Liabilities	Actuarial Value of Assets	Unfunded Liabilities	Funded Ratio
2016	12.69	16.07	126.6%	1.46	330.92	50.88	280.04	15.4%
2017	**11.14**	**21.72**	**195.0%**	**1.28**	**333.26**	**55.08**	**278.18**	**16.5%**
2018	11.21	21.81	194.6%	1.29	335.05	58.30	276.75	17.4%
2019	11.27	21.79	193.3%	1.30	336.26	60.09	276.17	17.9%
2020	11.32	21.83	192.8%	1.30	336.91	61.78	275.13	18.3%
2021	11.45	22.11	193.1%	1.32	336.97	63.38	273.59	18.8%
2022	11.39	22.00	193.2%	1.31	336.38	64.36	272.02	19.1%
2023	11.51	22.22	193.0%	1.32	335.23	65.23	270.00	19.5%
2024	11.53	22.26	193.1%	1.33	333.39	65.66	267.73	19.7%
2025	11.53	22.26	193.1%	1.33	330.92	65.72	265.20	19.9%
2026	11.63	22.46	193.1%	1.34	327.90	65.69	262.21	20.0%
2027	11.71	22.62	193.2%	1.35	324.35	65.57	258.78	20.2%
2028	11.90	22.98	193.1%	1.37	320.30	65.61	254.69	20.5%
2029	11.96	23.10	193.1%	1.38	315.60	65.52	250.08	20.8%
2030	12.14	23.31	192.0%	1.40	310.46	65.56	244.90	21.1%
2031	12.33	23.53	190.8%	1.42	304.96	65.87	239.09	21.6%
2032	12.50	23.82	190.6%	1.44	299.15	66.63	232.52	22.3%
2033	12.69	24.24	191.0%	1.46	292.98	67.98	225.00	23.2%
2034	12.85	24.82	193.2%	1.48	286.45	70.14	216.31	24.5%
2035	13.03	25.15	193.0%	1.50	279.74	73.11	206.63	26.1%
2036	13.20	25.49	193.1%	1.52	272.93	77.02	195.91	28.2%
2037	13.52	26.11	193.1%	1.55	266.00	82.22	183.78	30.9%
2038	13.85	26.74	193.1%	1.59	259.04	88.91	170.13	34.3%
2039	14.18	27.38	193.1%	1.63	252.19	97.32	154.87	38.6%
2040	14.51	28.02	193.1%	1.67	245.44	107.57	137.87	43.8%
2041	14.85	28.68	193.1%	1.71	238.90	119.91	118.99	50.2%
2042	15.19	29.34	193.2%	1.75	232.55	134.44	98.11	57.8%
2043	15.54	30.01	193.1%	1.79	226.42	151.34	75.08	66.8%
2044	15.90	30.69	193.0%	1.83	220.59	170.84	49.75	77.4%
2045	16.46	31.79	193.1%	1.89	214.99	193.48	21.51	90.0%