## South Carolina Retirement System (SCRS) Exhibit 1a

Projection based on assumptions recommended by GRS, with a 7.50% investment return assumption Assumes a -0.39% return for FY 2016 and 7.50% annual returns thereafter Contribution rate increases after July 1, 2016, will maintain a funding period that does not exceed 30 years (\$ in millions)

#### Projected contributions under current law

	Maintain a 2.90% difference in employer and member rate							Maintain a 9.00% member rate (2.90% difference ends)			
July 1	Employer	Member	Change in employer rate	Additional amount from General Fund	Unfunded liability	Funded ratio AVA/AAL	Funding period (years)	Employer	Member	Change in employer rate	Additional amount from General Fund
2015	11.06%	8.16%			\$ 16,783	62%	30	11.06%	8.16%		
2016	11.56%	8.66%	0.50%	\$16.7	18,174	60%	30	11.56%	8.66%	0.50%	\$16.7
2017	11.56%	8.66%	0.00%	0.0	19,498	58%	30	11.56%	8.66%	0.00%	0.0
2018	12.03%	9.13%	0.47%	15.7	20,838	57%	30	12.13%	9.00%	0.57%	19.2
2019	12.29%	9.39%	0.26%	8.7	22,100	55%	30	12.60%	9.00%	0.47%	15.6
2020	12.55%	9.65%	0.26%	8.7	23,315	54%	30	13.07%	9.00%	0.47%	15.6
2021	12.76%	9.86%	0.21%	7.0	23,587	54%	28	13.45%	9.00%	0.38%	12.6
2022	12.90%	10.00%	0.14%	4.7	23,786	55%	27	13.70%	9.00%	0.25%	8.4
2023	12.90%	10.00%	0.00%	0.0	23,919	56%	26	13.70%	9.00%	0.00%	0.0
2024	12.90%	10.00%	0.00%	0.0	24,013	57%	25	13.70%	9.00%	0.00%	0.0
2025	12.90%	10.00%	0.00%	0.0	24,064	58%	24	13.70%	9.00%	0.00%	0.0
2026	12.90%	10.00%	0.00%	0.0	24,070	58%	23	13.70%	9.00%	0.00%	0.0

#### Notes:

To calculate General Fund impact, January 2016 information from the Revenue and Fiscal Affairs Office was used.

Each .50% increase in the employer rate is estimated to increase General Fund requirements by \$16.7 million.

# South Carolina Retirement System (SCRS) Exhibit 2a

Projection with a 7.25% investment return assumption for all years

#### Assumes a -0.39% return for FY 2016 and 7.25% annual returns thereafter

Contribution rate increases after July 1, 2016, based on funding policy to increase the contribution rates in an orderly manner to attain a 20-year funding period

(\$ in millions)

July 1	Maintain a 9.00% member rate (2.90 difference ends)		Change in employer rate	Additional amount from General Fund	Unfunded liability	Funded ratio AVA/AAL	Funding period (years)
	Employer	Member					
2015	11.06%	8.16%			\$ 16,783	62%	30
2016	11.56%	8.66%	0.50%	\$16.7	19,402	59%	27
2017	12.56%	9.00%	1.00%	33.4	20,806	57%	25
2018	13.56%	9.00%	1.00%	33.4	22,093	55%	24
2019	14.56%	9.00%	1.00%	33.4	23,282	54%	22
2020	15.56%	9.00%	1.00%	33.4	24,355	53%	22
2021	16.56%	9.00%	1.00%	33.4	24,407	54%	21
2022	16.56%	9.00%	0.00%	0.0	24,287	55%	20
2023	16.56%	9.00%	0.00%	0.0	24,100	57%	19
2024	16.56%	9.00%	0.00%	0.0	23,841	58%	18
2025	16.56%	9.00%	0.00%	0.0	23,503	60%	17
2026	16.56%	9.00%	0.00%	0.0	23,081	61%	15

#### Notes:

To calculate General Fund impact, January 2016 information from the Revenue and Fiscal Affairs Office was used.

Each .50% increase in the employer rate is estimated to increase General Fund requirements by \$16.7 million.

# South Carolina Retirement System (SCRS) Exhibit 2b

## Projection with a 7.25% investment return assumption 2016 through 2018, 7.00% return assumption in 2019 and thereafter Assumes a -0.39% return for FY 2016 and 4.00% annual returns for FY 2017-2021 and 7.00% returns thereafter Contribution rate increases after July 1, 2016, based on funding policy to increase the contribution rates in an orderly manner to attain a 20-year funding period (\$ in millions)

July 1	Maintain a 9.00% member rate (2.90% difference ends)		Change in employer rate	Additional amount from General Fund	Unfunded liability	Funded ratio AVA/AAL	Funding period (years)
	Employer	Member					
2015	11.06%	8.16%			\$ 16,783	62%	30
2016	11.56%	8.66%	0.50%	\$ 16.7	19,402	59%	27
2017	12.56%	9.00%	1.00%	33.4	20,959	56%	25
2018	13.56%	9.00%	1.00%	33.4	22,605	54%	25
2019	14.56%	9.00%	1.00%	33.4	24,364	52%	24
2020	15.56%	9.00%	1.00%	33.4	26,224	49%	23
2021	16.56%	9.00%	1.00%	33.4	27,285	49%	21
2022	17.56%	9.00%	1.00%	33.4	28,095	48%	21
2023	18.56%	9.00%	1.00%	33.4	28,584	49%	20
2024	18.56%	9.00%	0.00%	0.0	28,733	49%	19
2025	18.56%	9.00%	0.00%	0.0	28,650	51%	18
2026	18.56%	9.00%	0.00%	0.0	28,330	52%	17

#### Notes:

To calculate General Fund impact, January 2016 information from the Revenue and Fiscal Affairs Office was used.

Each .50% increase in the employer rate is estimated to increase General Fund requirements by \$16.7 million.

# South Carolina Retirement System (SCRS) Exhibit 3a

## Projection with a 7.25% investment return assumption for 2016 through 2018, 7.00% return assumption in 2019 and thereafter Assumes a -0.39% return for FY 2016 and 7.25% annual return through FY 2018 and 7.00% returns thereafter Contribution rate increases after July 1, 2016, based on funding policy to increase the contribution rates in an orderly manner to attain a 20-year funding period (\$ in millions)

July 1	Maintain a 9.00% member rate (2.90 difference ends)		Change in employer rate	Additional amount from General Fund	Unfunded liability	Funded ratio AVA/AAL	Funding period (years)
	Employer	Member					
2015	11.06%	8.16%			\$ 16,783	62%	30
2016	11.56%	8.66%	0.50%	\$16.7	19,402	59%	22
2017	14.25%	9.00%	2.69%	89.8	20,806	57%	20
2018	15.25%	9.00%	1.00%	33.4	21,910	56%	19
2019	16.25%	9.00%	1.00%	33.4	24,313	53%	22
2020	17.25%	9.00%	1.00%	33.4	25,244	53%	22
2021	17.25%	9.00%	0.00%	33.4	25,139	54%	21
2022	17.25%	9.00%	0.00%	33.4	24,969	55%	20
2023	17.25%	9.00%	0.00%	33.4	24,728	57%	18
2024	17.25%	9.00%	0.00%	0.0	24,425	58%	17
2025	17.25%	9.00%	0.00%	0.0	24,039	60%	16
2026	17.25%	9.00%	0.00%	0.0	23,565	61%	15

### Notes:

To calculate General Fund impact, January 2016 information from the Revenue and Fiscal Affairs Office was used.

Each .50% increase in the employer rate is estimated to increase General Fund requirements by \$16.7 million.

# South Carolina Retirement System (SCRS) Exhibit 3b

## Projection with a 7.25% investment return assumption 2016 through 2018, 7.00% return assumption in 2019 and thereafter Assumes a -0.39% return for FY 2016 and 4.00% annual returns for FY 2017-2021, and 7.00% returns thereafter Contribution rate increases after July 1, 2016, based on funding policy to increase the contribution rates in an orderly manner to attain a 20-year funding period (\$ in millions)

July 1	Maintain a 9.00% member rate (2.90% difference ends)		Change in employer rate	Additional amount from General Fund	Unfunded liability	Funded ratio AVA/AAL	Funding period (years)
	Employer	Member					
2015	11.06%	8.16%			\$ 16,783	62%	30
2016	11.56%	8.66%	0.50%	\$ 16.7	19,402	59%	22
2017	14.25%	9.00%	2.69%	89.8	20,959	56%	21
2018	15.25%	9.00%	1.00%	33.4	22,422	54%	20
2019	16.25%	9.00%	1.00%	33.4	25,396	51%	21
2020	17.25%	9.00%	1.00%	33.4	27,102	49%	20
2021	18.25%	9.00%	1.00%	33.4	27,981	49%	19
2022	19.25%	9.00%	1.00%	33.4	28,589	49%	19
2023	20.25%	9.00%	1.00%	33.4	28,859	49%	18
2024	20.25%	9.00%	0.00%	0.0	28,779	51%	17
2025	20.25%	9.00%	0.00%	0.0	28,458	52%	16
2026	20.25%	9.00%	0.00%	0.0	27,886	54%	15

#### Notes:

To calculate General Fund impact, January 2016 information from the Revenue and Fiscal Affairs Office was used.

Each .50% increase in the employer rate is estimated to increase General Fund requirements by \$16.7 million.

# Police Officers Retirement System (PORS) Exhibit 1

## Projection based on assumptions recommended by GRS, with a 7.50% investment return assumption Assumes a -0.39% return for FY 2016 and 7.50% annual returns thereafter Contribution rate increases after July 1, 2016, will maintain a funding period that does not exceed 30 years (\$ in millions)

#### Projected contributions under current law

	Maintain a 5.00% difference in employer and member rate							memb	n a 9.75% per rate erence ends)		
July 1	Employer	Member	Change in employer rate	Additional amount from General Fund	Unfunded liability	Funded ratio AVA/AAL	Funding period (years)	Employer	Member	Change in employer rate	Additional amount from General Fund
2015	13.74%	8.74%			\$  1,895	69%	27	13.74%	8.74%		
2016	14.24%	9.24%	0.50%	\$1.6	2,093	68%	30	14.24%	9.24%	0.50%	\$ 1.6
2017	14.24%	9.24%	0.00%	0.0	2,276	66%	30	14.24%	9.24%	0.00%	0.0
2018	14.32%	9.32%	0.08%	0.3	2,459	65%	30	14.32%	9.32%	0.08%	0.3
2019	14.58%	9.58%	0.26%	0.9	2,641	64%	30	14.58%	9.58%	0.26%	0.9
2020	14.80%	9.80%	0.22%	0.7	2,815	63%	30	14.84%	9.75%	0.26%	0.9
2021	15.01%	10.01%	0.21%	0.7	2,857	64%	29	15.22%	9.75%	0.38%	1.2
2022	15.19%	10.19%	0.18%	0.6	2,890	65%	27	15.54%	9.75%	0.32%	1.1
2023	15.19%	10.19%	0.00%	0.0	2,915	66%	26	15.54%	9.75%	0.00%	0.0
2024	15.19%	10.19%	0.00%	0.0	2,935	67%	25	15.54%	9.75%	0.00%	0.0
2025	15.19%	10.19%	0.00%	0.0	2,948	68%	23	15.54%	9.75%	0.00%	0.0
2026	15.19%	10.19%	0.00%	0.0	2,956	69%	22	15.54%	9.75%	0.00%	0.0

#### Notes:

To calculate General Fund impact, January 2016 information from the Revenue and Fiscal Affairs Office was used.

Each .50% increase in the employer rate is estimated to increase General Fund requirements by \$1.6 million.

Projection based on the July 1, 2015, census and asset information, using the actuarial assumptions recommended by GRS, with a 7.50% discount rate. The projection assumes the market value of assets will earn 7.50% each year after FY 2016. This information is provided for stakeholders to understand the financial impact based on the illustrated assumptions and emerging investment experience for decision making purposes. This projection is not documentation of compliance with the 30-year funding requirement specified in Section 9-1-1085 of South Carolina State Code because it assumes the Retirement System will incur investment losses in the actuarial value of assets in subsequent actuarial valuations. The employer and member contribution rates under the alternative funding policy are based on the recently discussed analysis showing that due to the member refund feature that there is approximately a 20% greater efficiency in employer contributions than member contributions.

# Police Officers Retirement System (PORS) Exhibit 2a

Projection with a 7.25% investment return assumption for all years

#### Assumes a -0.39% return for FY 2016 and 7.25% annual returns thereafter

### Contribution rate increases after July 1, 2016, based on funding policy to increase the contribution rates in an orderly manner to attain a 20-year funding period

July 1	Maintain a 9.75% member rate (5.00 difference ends)		Change in employer rate	Additional amount from General Fund	Unfunded liability	Funded ratio AVA/AAL	Funding period (years)
	Employer	Member					
2015	13.74%	8.74%			\$ 1,895	69%	27
2016	14.24%	9.24%	0.50%	\$1.6	2,289	66%	25
2017	15.24%	9.75%	1.00%	3.3	2,488	64%	23
2018	16.24%	9.75%	1.00%	3.3	2,669	63%	22
2019	17.24%	9.75%	1.00%	3.3	2,835	62%	23
2020	18.24%	9.75%	1.00%	3.3	2,987	62%	24
2021	18.24%	9.75%	0.00%	0.0	2,995	63%	23
2022	18.24%	9.75%	0.00%	0.0	2,997	64%	21
2023	18.24%	9.75%	0.00%	0.0	2,993	66%	20
2024	18.24%	9.75%	0.00%	0.0	2,980	67%	19
2025	18.24%	9.75%	0.00%	0.0	2,959	68%	18
2026	18.24%	9.75%	0.00%	0.0	2,927	70%	17

### (\$ in millions)

#### Notes:

To calculate General Fund impact, January 2016 information from the Revenue and Fiscal Affairs Office was used.

Each .50% increase in the employer rate is estimated to increase General Fund requirements by \$1.6 million.

# Police Officers Retirement System (PORS) Exhibit 2b

## Projection with a 7.25% investment return assumption 2016 through 2018, 7.00% return assumption in 2019 and thereafter Assumes a -0.39% return for FY 2016 and 4.00% annual returns for FY 2017-2021 and 7.00% returns thereafter Contribution rate increases after July 1, 2016, based on funding policy to increase the contribution rates in an orderly manner to attain a 20-year funding period (\$ in millions)

July 1	Maintain a 9.75% member rate (5.00% difference ends)		Change in employer rate	Additional amount from General Fund	Unfunded liability	Funded ratio AVA/AAL	Funding period (years)
	Employer	Member					
2015	13.74%	8.74%			\$ 1,895	69%	27
2016	14.24%	9.24%	0.50%	\$ 1.6	2,289	66%	25
2017	15.24%	9.75%	1.00%	3.3	2,513	64%	25
2018	16.24%	9.75%	1.00%	3.3	2,753	62%	23
2019	17.24%	9.75%	1.00%	3.3	3,015	60%	23
2020	18.24%	9.75%	1.00%	3.3	3,300	58%	23
2021	19.24%	9.75%	1.00%	3.3	3,480	57%	24
2022	20.24%	9.75%	1.00%	3.3	3,628	57%	24
2023	20.24%	9.75%	0.00%	0.0	3,731	57%	24
2024	20.24%	9.75%	0.00%	0.0	3,801	58%	23
2025	20.24%	9.75%	0.00%	0.0	3,836	59%	22
2026	20.24%	9.75%	0.00%	0.0	3,836	60%	21

### Notes:

To calculate General Fund impact, January 2016 information from the Revenue and Fiscal Affairs Office was used.

Each .50% increase in the employer rate is estimated to increase General Fund requirements by \$1.6 million.

# Police Officers Retirement System (PORS) Exhibit 3a

### Projection with a 7.25% investment return assumption for 2016 through 2018, 7.00% return assumption in 2019 and thereafter Assumes a -0.39% return for FY 2016 and 7.25% annual return through FY 2018 and 7.00% returns thereafter Contribution rate increases after July 1, 2016, based on funding policy to increase the contribution rates in an orderly manner to attain a 20-year funding period (\$ in millions)

July 1	Maintain a 9.75% member rate (5.00 difference ends)		Change in employer rate	Additional amount from General Fund	Unfunded liability	Funded ratio AVA/AAL	Funding period (years)
	Employer	Member					
2015	13.74%	8.74%			\$ 1,895	69%	27
2016	14.24%	9.24%	0.50%	\$1.6	2,289	66%	21
2017	16.75%	9.75%	2.51%	8.3	2,488	64%	20
2018	17.75%	9.75%	1.00%	3.3	2,649	63%	18
2019	18.75%	9.75%	1.00%	3.3	3,031	61%	21
2020	19.75%	9.75%	1.00%	3.3	3,177	60%	22
2021	20.75%	9.75%	1.00%	3.3	3,180	62%	20
2022	20.75%	9.75%	0.00%	0.0	3,162	63%	19
2023	20.75%	9.75%	0.00%	0.0	3,164	65%	18
2024	20.75%	9.75%	0.00%	0.0	3,096	67%	17
2025	20.75%	9.75%	0.00%	0.0	3,046	68%	15
2026	20.75%	9.75%	0.00%	0.0	2,983	70%	14

#### Notes:

To calculate General Fund impact, January 2016 information from the Revenue and Fiscal Affairs Office was used.

Each .50% increase in the employer rate is estimated to increase General Fund requirements by \$1.6 million.

# Police Officers Retirement System (PORS) Exhibit 3b

## Projection with a 7.25% investment return assumption 2016 through 2018, 7.00% return assumption in 2019 and thereafter Assumes a -0.39% return for FY 2016 and 4.00% annual returns for FY 2017-2021, and 7.00% returns thereafter Contribution rate increases after July 1, 2016, based on funding policy to increase the contribution rates in an orderly manner to attain a 20-year funding period (\$ in millions)

July 1	Maintain a 9.75% member rate (5.00% difference ends)		Change in employer rate	Additional amount from General Fund	Unfunded liability	Funded ratio AVA/AAL	Funding period (years)
	Employer	Member					
2015	13.74%	8.74%			\$ 1,895	69%	27
2016	14.24%	9.24%	0.50%	\$ 1.6	2,289	66%	21
2017	16.75%	9.75%	2.51%	8.3	2,513	64%	19
2018	17.75%	9.75%	1.00%	3.3	2,733	62%	20
2019	18.75%	9.75%	1.00%	3.3	3,209	59%	23
2020	19.75%	9.75%	1.00%	3.3	3,483	57%	23
2021	20.75%	9.75%	1.00%	3.3	3,650	56%	21
2022	21.75%	9.75%	1.00%	3.3	3,782	56%	22
2023	22.75%	9.75%	1.00%	3.3	3,869	57%	21
2024	22.75%	9.75%	0.00%	0.0	3,907	58%	20
2025	22.75%	9.75%	0.00%	0.0	3,909	59%	19
2026	22.75%	9.75%	0.00%	0.0	3,874	60%	18

### Notes:

To calculate General Fund impact, January 2016 information from the Revenue and Fiscal Affairs Office was used.

Each .50% increase in the employer rate is estimated to increase General Fund requirements by \$1.6 million.