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Serving those who serve South Carolina

Senate Hearing

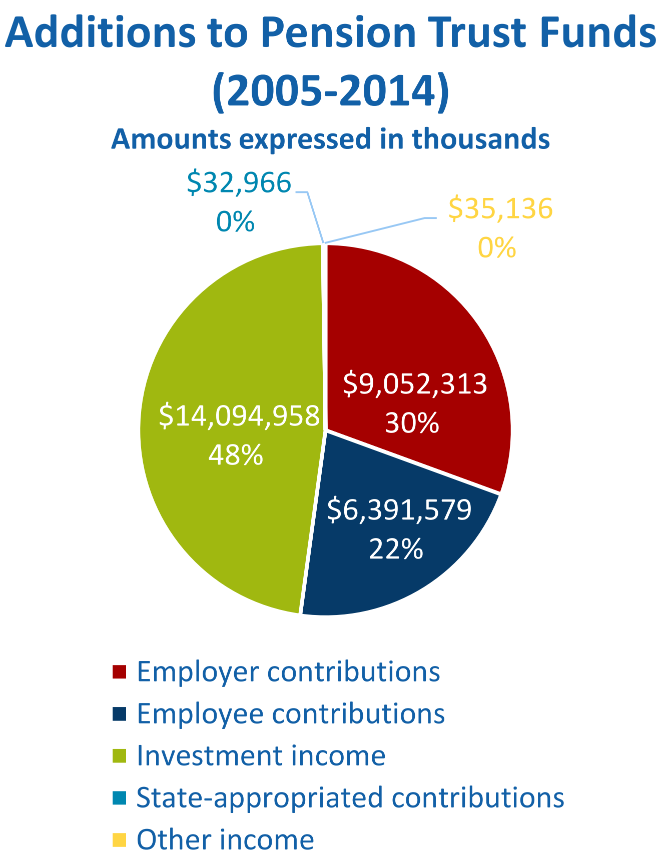
August 20, 2015

How the Systems are funded

- There are three sources of income to provide benefits in the Retirement Systems: investment income, employee contributions and employer contributions.
- If any source of funding is reduced, the other sources must be increased, or benefits reduced, to keep the Systems sound.

How the Systems are funded

- The investment return has a significant impact on revenue of the trust funds



2012 retirement reform summary

2012 retirement reform summary

- Senate Special Retirement Subcommittee met from March 2011 through June 2012
  - Heard extensive testimony from numerous groups, individuals and industry professionals
  - Conducted a comprehensive review of multiple options, constantly considering the financial impact on the Systems
- Reform has made positive changes to the Systems

2012 retirement reform summary

- No decrease in contribution rates may be made until the System is at least 90 percent funded
- Budget and Control Board decreased the rate from 8 percent to 7.5 percent prior to reform in 2012
  - As a result of the reform, the General Assembly set the 7.5 percent in statute

2012 retirement reform summary

- Created Class Three tier of membership in SCRS and PORS
  - Newly hired employees with membership dates on or after July 1, 2012
  - Increased average final compensation calculations from 12 quarters to 20 quarters of highest earnable compensation
  - Removed unused leave at retirement from benefit calculations

2012 retirement reform summary

- Changes effecting all members
  - Closed TERI program effective June 30, 2018
  - Changed cost of service purchase to be actuarially neutral
- Changes effecting SCRS and PORS retirees
  - Limited annual benefit adjustment, formally referred to as cost-of-living adjustment (COLA), to 1 percent up to a maximum of $500
- Closed GARS to newly elected officials

2012 retirement reform summary

- Added $10,000 earnings limit for SCRS and PORS return-to-work employees who retired on or after January 2, 2013
- Earnings limit does not apply to:
  - members who retire after age 62 (SCRS) or age 57 (PORS)
  - members who retired prior to January 2, 2013
  - members in elected and certain appointed positions
  - retired members who are certified teachers who are teaching in a critical academic need area or a geographic need area as defined by the State Board of Education
  - SCRS benefits for participants in the TERI Program during the period they participate in the Program

Financial impact of reform

As presented in 2012 – actuarial projected cost prior to the reform

South Carolina Retirement System (SCRS)

Exhibit 1. - Projected Cost of the Current Plan

July 1, (1)	Projected Payroll (2)	Employer Contr. Rate (3)	Member Contr. Rate (4)	Total Contr. (3) + (4) (5)	Employer Contributions (6)	Actuarial Accrued Liability (7)	Market Value of Assets (8)	Actuarial Value of Assets (9)	Unfunded Liability (10)	Funded Ratio AVA / AAL (11)	Funding Period (years) (12)
2011	$ 7,688	9.5%	6.5%	16.0%	$ 850	$ 40,016	$ 22,395	$ 25,605	$ 14,411	64%	30
2012	7,778	10.6%	6.5%	17.1%	962	41,400	23,133	25,721	15,679	62%	30
2013	7,949	12.2%	6.5%	18.7%	1,140	42,788	23,925	25,780	17,008	60%	30
2014	8,132	13.0%	6.5%	19.5%	1,244	44,172	24,846	25,842	18,329	59%	30
2015	8,334	13.6%	6.5%	20.1%	1,331	45,553	25,827	25,827	19,726	57%	30
2016	8,548	14.1%	6.5%	20.6%	1,421	46,932	26,855	26,855	20,077	57%	30
2017	8,774	14.7%	6.5%	21.2%	1,516	48,310	27,939	27,939	20,371	58%	30
2018	9,013	14.6%	6.5%	21.1%	1,549	49,688	29,088	29,088	20,600	59%	30
2019	9,265	14.5%	6.5%	21.0%	1,576	51,068	30,244	30,244	20,824	59%	30
2020	9,531	14.4%	6.5%	20.9%	1,605	52,453	31,404	31,404	21,049	60%	30
2021	9,808	14.2%	6.5%	20.7%	1,635	53,846	32,575	32,575	21,271	60%	30
2022	10,095	14.0%	6.5%	20.5%	1,662	55,296	33,756	33,756	21,540	61%	30
2023	10,393	13.8%	6.5%	20.3%	1,689	56,755	34,942	34,942	21,813	62%	30
2024	10,704	13.7%	6.5%	20.2%	1,720	58,221	36,132	36,132	22,090	62%	30
2025	11,026	13.5%	6.5%	20.0%	1,752	59,696	37,327	37,327	22,368	63%	30
2026	11,360	13.4%	6.5%	19.9%	1,783	61,175	38,528	38,528	22,647	63%	30
2027	11,708	13.2%	6.5%	19.7%	1,815	62,657	39,730	39,730	22,927	63%	30
2028	12,077	13.0%	6.5%	19.5%	1,850	64,146	40,936	40,936	23,210	64%	30
2029	12,466	12.9%	6.5%	19.4%	1,885	65,648	42,155	42,155	23,493	64%	30
2030	12,875	12.7%	6.5%	19.2%	1,922	67,171	43,395	43,395	23,776	65%	30
2031	13,305	12.5%	6.5%	19.0%	1,959	68,724	44,666	44,666	24,058	65%	30
2032	13,753	12.4%	6.5%	18.9%	1,996	70,315	45,975	45,975	24,340	65%	30
2033	14,217	12.2%	6.5%	18.7%	2,031	71,946	47,324	47,324	24,622	66%	30
2034	14,700	12.0%	6.5%	18.5%	2,068	73,621	48,715	48,715	24,907	66%	30
2035	15,204	11.8%	6.5%	18.3%	2,109	75,345	50,153	50,153	25,192	67%	30
2036	15,732	11.7%	6.5%	18.2%	2,148	77,126	51,649	51,649	25,477	67%	30
2037	16,287	11.5%	6.5%	18.0%	2,190	78,978	53,214	53,214	25,764	67%	30
2038	16,866	11.3%	6.5%	17.8%	2,230	80,921	54,871	54,871	26,050	68%	30
2039	17,475	11.1%	6.5%	17.6%	2,274	82,970	56,631	56,631	26,338	68%	30
2040	18,092	11.0%	6.5%	17.5%	2,316	85,131	58,506	58,506	26,625	69%	29
2041	18,728	10.8%	6.5%	17.3%	2,357	87,401	60,489	60,489	26,913	69%	27

Notes and Assumptions:

Projections are based on the preliminary actuarial valuation results as of July 1, 2011 and assume the plan earns 7.50% annually for all future years.

Projected contribution rates shown above are effective for the fiscal year and assumes the employer contribution rate will not decrease below 10.60% which was adopted by the Budget Control Board in November 2011 and is effective for FY 2012.

Projected contribution rates shown above are effective at the beginning of the fiscal year.

Employer contributions include employer contributions made on behalf of payroll attributable to ORP, TERI, and working retirees.

It is assumed retirees will receive a 1.00% automatic COLA and no additional ad hoc COLAs above the 1.00% automatic adjustment.

As presented in 2012 – actuarial projected cost after the reform

South Carolina Retirement System (SCRS)

Exhibit 2. - Projected Cost of H. 4967 as Enacted

July 1,	Projected Payroll	Employer Contr. Rate	Member Contr. Rate	Total Contr. (3) + (4)	Employer Contributions	Actuarial Accrued Liability	Market Value of Assets	Actuarial Value of Assets	Unfunded Liability	Funded Ratio AVA / AAL	Funding Period (years)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2011	$ 7,688	9.5%	6.5%	16.0%	$ 850	$ 38,012	$ 22,395	$ 25,605	$ 12,407	67%	25
2012	7,879	10.6%	7.0%	17.6%	968	39,241	23,153	25,741	13,499	66%	24
2013	8,146	10.6%	7.5%	18.1%	993	40,523	24,089	25,944	14,579	64%	26
2014	8,419	10.9%	8.0%	18.9%	1,050	41,859	25,116	26,113	15,746	62%	29
2015	8,703	10.9%	8.0%	18.9%	1,079	43,243	26,266	26,266	16,977	61%	30
2016	8,992	10.9%	8.0%	18.9%	1,108	44,668	27,462	27,462	17,206	61%	28
2017	9,291	11.2%	8.3%	19.4%	1,168	46,116	28,687	28,687	17,429	62%	27
2018	9,598	11.2%	8.3%	19.4%	1,201	47,581	29,994	29,994	17,587	63%	26
2019	9,917	11.2%	8.3%	19.4%	1,236	49,056	31,326	31,326	17,730	64%	25
2020	10,180	11.2%	8.3%	19.4%	1,272	50,548	32,692	32,692	17,855	65%	24
2021	10,452	11.2%	8.3%	19.4%	1,310	52,048	34,096	34,096	17,952	66%	23
2022	10,731	11.2%	8.3%	19.4%	1,349	53,552	35,535	35,535	18,017	66%	22
2023	11,019	11.2%	8.3%	19.4%	1,390	55,057	37,011	37,011	18,046	67%	21
2024	11,315	11.2%	8.3%	19.4%	1,432	56,561	38,524	38,524	18,036	68%	20
2025	11,622	11.2%	8.3%	19.4%	1,475	58,062	40,079	40,079	17,983	69%	19
2026	11,941	11.2%	8.3%	19.4%	1,520	59,560	41,679	41,679	17,881	70%	18
2027	12,271	11.2%	8.3%	19.4%	1,567	61,056	43,330	43,330	17,726	71%	17
2028	12,614	11.2%	8.3%	19.4%	1,616	62,548	45,037	45,037	17,511	72%	16
2029	12,966	11.2%	8.3%	19.4%	1,666	64,034	46,804	46,804	17,230	73%	15
2030	13,333	11.2%	8.3%	19.4%	1,719	65,515	48,637	48,637	16,878	74%	14
2031	13,712	11.2%	8.3%	19.4%	1,773	66,990	50,544	50,544	16,446	75%	13
2032	14,102	11.2%	8.3%	19.4%	1,829	68,461	52,534	52,534	15,927	77%	12
2033	14,505	11.2%	8.3%	19.4%	1,887	69,926	54,614	54,614	15,313	78%	11
2034	14,926	11.2%	8.3%	19.4%	1,948	71,388	56,795	56,795	14,594	80%	10
2035	15,364	11.2%	8.3%	19.4%	2,012	72,853	59,093	59,093	13,760	81%	9
2036	15,822	11.2%	8.3%	19.4%	2,078	74,327	61,527	61,527	12,800	83%	8
2037	16,297	11.2%	8.3%	19.4%	2,147	75,819	64,117	64,117	11,702	85%	7
2038	16,791	11.2%	8.3%	19.4%	2,218	77,337	66,883	66,883	10,454	86%	6
2039	17,302	11.2%	8.3%	19.4%	2,293	78,886	69,845	69,845	9,040	89%	5
2040	17,831	10.9%	8.0%	18.9%	2,309	80,472	73,024	73,024	7,447	91%	4
2041	18,377	10.9%	8.0%	18.9%	2,386	82,102	76,331	76,331	5,771	93%	3

Notes and Assumptions:

Projections are based on the preliminary actuarial valuation results as of July 1, 2011 and assume the plan earns 7.50% annually for all future years.

Projected contribution rates shown above are effective at the beginning of the fiscal year. All contribution rates are projected to satisfy the 30-year funding requirement.

The principle benefit changes that apply to all current and future members of SCRS include:

- Cost neutral service purchase
- 5-Year AFC for all employees hired after June 30, 2012.
- 8-year vesting for members hired after June 30, 2012.
- Eliminate sick/annual leave credit for members hired after June 30, 2012.
- Retirement eligibility for members hired after June 30, 2012 will be the Rule of 90 or age 60 (with 8 years of service).
- Retirees and beneficiaries will have their retirement allowances increase annually by the lesser of 1.00% and $500, regardless of actual investment performance.
- Restrictive return-to-work provisions for members retiring after January 1, 2013 under the age of 62 (based on a $10k earnings limit).
- Modified eligibility requirements for a disability benefit and to the calculation of the disability allowance.
- Contributions based on a funding policy that increases the member rate over a 3-year period to 8.00% beginning July 1, 2014 and maintains a 2.90% difference in the employer / member rate thereafter. Contribution rates are not permitted to decrease until the plan attains a 90% funded ratio.

Key takeaways

- Based on the reform, projected total contribution rates (employer and member) went down
- Example
  - Prior to reform, total contribution rate in 2015 was predicted to be 20.1 percent
  - After reform, total contribution rate in 2015 was predicted to be 18.9 percent

Key takeaways

The actuarial projected cost after the reform show:

- Projected growth of unfunded liability was significantly reduced
- Projected funded ratio significantly increased
- Projected funding period decreased

July 1, 2041	Prior to reform	After reform enacted
Unfunded liability	$26.913 billion	$5.771 billion
Funded ratio	69%	93%
Funding period	27 years	3 years

Key takeaways

The actuarial projected cost after the reform show:

- The unfunded accrued liability was projected to increase before it was reduced

As presented in 2012 – actuarial projected cost after the reform

South Carolina Retirement System (SCRS)

Exhibit 2. - Projected Cost of H. 4967 as Enacted

July 1,	Projected Payroll	Employer Contr. Rate	Member Contr. Rate	Total Contr. (3) + (4)	Employer Contributions	Actuarial Accrued Liability	Market Value of Assets	Actuarial Value of Assets	Unfunded Liability	Funded Ratio AVA / AAL	Funding Period (years)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2011	$ 7,688	9.5%	6.5%	16.0%	$ 850	$ 38,012	$ 22,395	$ 25,605	$ 12,407	67%	25
2012	7,879	10.6%	7.0%	17.6%	968	39,241	23,153	25,741	13,499	66%	24
2013	8,146	10.6%	7.5%	18.1%	993	40,523	24,089	25,944	14,579	64%	26
2014	8,419	10.9%	8.0%	18.9%	1,050	41,859	25,116	26,113	15,746	62%	29
2015	8,703	10.9%	8.0%	18.9%	1,079	43,243	26,266	26,266	16,977	61%	30
2016	8,992	10.9%	8.0%	18.9%	1,108	44,668	27,462	27,462	17,206	61%	28
2017	9,291	11.2%	8.3%	19.4%	1,168	46,116	28,687	28,687	17,429	62%	27
2018	9,598	11.2%	8.3%	19.4%	1,201	47,581	29,994	29,994	17,587	63%	26
2019	9,917	11.2%	8.3%	19.4%	1,236	49,056	31,326	31,326	17,730	64%	25
2020	10,180	11.2%	8.3%	19.4%	1,272	50,548	32,692	32,692	17,855	65%	24
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2022	10,731	11.2%	8.3%	19.4%	1,349	53,552	35,535	35,535	18,017	66%	22
2023	11,019	11.2%	8.3%	19.4%	1,390	55,057	37,011	37,011	18,046	67%	21
2024	11,315	11.2%	8.3%	19.4%	1,432	56,561	38,524	38,524	18,036	68%	20
2025	11,622	11.2%	8.3%	19.4%	1,475	58,062	40,079	40,079	17,983	69%	19
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2030	13,333	11.2%	8.3%	19.4%	1,719	65,515	48,637	48,637	16,878	74%	14
2031	13,712	11.2%	8.3%	19.4%	1,773	66,990	50,544	50,544	16,446	75%	13
2032	14,102	11.2%	8.3%	19.4%	1,829	68,461	52,534	52,534	15,927	77%	12
2033	14,505	11.2%	8.3%	19.4%	1,887	69,926	54,614	54,614	15,313	78%	11
2034	14,926	11.2%	8.3%	19.4%	1,948	71,388	56,795	56,795	14,594	80%	10
2035	15,364	11.2%	8.3%	19.4%	2,012	72,853	59,093	59,093	13,760	81%	9
2036	15,822	11.2%	8.3%	19.4%	2,078	74,327	61,527	61,527	12,800	83%	8
2037	16,297	11.2%	8.3%	19.4%	2,147	75,819	64,117	64,117	11,702	85%	7
2038	16,791	11.2%	8.3%	19.4%	2,218	77,337	66,883	66,883	10,454	86%	6
2039	17,302	11.2%	8.3%	19.4%	2,293	78,886	69,845	69,845	9,040	89%	5
2040	17,831	10.9%	8.0%	18.9%	2,309	80,472	73,024	73,024	7,447	91%	4
2041	18,377	10.9%	8.0%	18.9%	2,386	82,102	76,331	76,331	5,771	93%	3

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Key takeaways

The actuarial projected cost after the reform show:

- Total contribution rates were expected to increase

As presented in 2012 – actuarial projected cost after the reform

South Carolina Retirement System (SCRS)

Exhibit 2. - Projected Cost of H. 4967 as Enacted

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2026	11,941	11.2%	8.3%	19.4%	1,520	59,560	41,679	41,679	17,881	70%	18
2027	12,271	11.2%	8.3%	19.4%	1,567	61,056	43,330	43,330	17,726	71%	17
2028	12,614	11.2%	8.3%	19.4%	1,616	62,548	45,037	45,037	17,511	72%	16
2029	12,966	11.2%	8.3%	19.4%	1,666	64,034	46,804	46,804	17,230	73%	15
2030	13,333	11.2%	8.3%	19.4%	1,719	65,515	48,637	48,637	16,878	74%	14
2031	13,712	11.2%	8.3%	19.4%	1,773	66,990	50,544	50,544	16,446	75%	13
2032	14,102	11.2%	8.3%	19.4%	1,829	68,461	52,534	52,534	15,927	77%	12
2033	14,505	11.2%	8.3%	19.4%	1,887	69,926	54,614	54,614	15,313	78%	11
2034	14,926	11.2%	8.3%	19.4%	1,948	71,388	56,795	56,795	14,594	80%	10
2035	15,364	11.2%	8.3%	19.4%	2,012	72,853	59,093	59,093	13,760	81%	9
2036	15,822	11.2%	8.3%	19.4%	2,078	74,327	61,527	61,527	12,800	83%	8
2037	16,297	11.2%	8.3%	19.4%	2,147	75,819	64,117	64,117	11,702	85%	7
2038	16,791	11.2%	8.3%	19.4%	2,218	77,337	66,883	66,883	10,454	86%	6
2039	17,302	11.2%	8.3%	19.4%	2,293	78,886	69,845	69,845	9,040	89%	5
2040	17,831	10.9%	8.0%	18.9%	2,309	80,472	73,024	73,024	7,447	91%	4
2041	18,377	10.9%	8.0%	18.9%	2,386	82,102	76,331	76,331	5,771	93%	3

Notes and Assumptions:

Projections are based on the preliminary actuarial valuation results as of July 1, 2011 and assume the plan earns 7.50% annually for all future years.

Projected contribution rates shown above are effective at the beginning of the fiscal year. All contribution rates are projected to satisfy the 30-year funding requirement.

The principle benefit changes that apply to all current and future members of SCRS include:

- Cost neutral service purchase
- 5-Year AFC for all employees hired after June 30, 2012.
- 8-year vesting for members hired after June 30, 2012.
- Eliminate sick/annual leave credit for members hired after June 30, 2012.
- Retirement eligibility for members hired after June 30, 2012 will be the Rule of 90 or age 60 (with 8 years of service).
- Retirees and beneficiaries will have their retirement allowances increase annually by the lesser of 1.00% and $500, regardless of actual investment performance.
- Restrictive return-to-work provisions for members retiring after January 1, 2013 under the age of 62 (based on a $10k earnings limit).
- Modified eligibility requirements for a disability benefit and to the calculation of the disability allowance.
- Contributions based on a funding policy that increases the member rate over a 3-year period to 8.00% beginning July 1, 2014 and maintains a 2.90% difference in the employer / member rate thereafter. Contribution rates are not permitted to decrease until the plan attains a 90% funded ratio.

History of actual contribution rates

SCRS actual contribution rates

Fiscal Year	Employee	Employer	Death Benefit	Total
2016	8.16%	10.910%	0.15%	19.220%
2015	8.00%	10.750%	0.15%	18.900%
2014	7.50%	10.450%	0.15%	18.100%
2013	7.00%	10.450%	0.15%	17.600%
2012	6.50%	9.385%	0.15%	16.035%
2011	6.50%	9.240%	0.15%	15.890%
2010	6.50%	9.240%	0.15%	15.890%
2009	6.50%	9.240%	0.15%	15.890%
2008	6.50%	9.060%	0.15%	15.710%
2007	6.50%	8.050%	0.15%	14.700%

Actuary

Actuary's role

- PEBA's current external actuary, Gabriel Roeder Smith (GRS), makes assumptions about life expectancy, salary increases, employee turnover and many other things. One of the most important assumptions the actuary makes is the long-term rate of return on investments.
- The actuary conducts an annual valuation of the Systems to ensure they are prudently funded.
- June 2015 valuations should be available in December

Actuary's role

- The assumptions the actuaries use to calculate the funding of the Systems are reviewed and updated (if necessary) once every five years during an experience study as required by statute.
- An experience study will be conducted as soon as the June 30, 2015, valuations are completed. The study is expected to be finalized in early 2016.
- This extensive review will include recommendations on all assumptions, such as the assumed rate of return.

Actuary’s role

- The South Carolina General Assembly currently has the authority to set the assumed investment rate of return for the Systems.
- PEBA is responsible for making changes to all other assumptions based on the actuary’s recommendations. The State Fiscal Accountability Authority must approve any changes in assumptions.
- GRS makes assumptions about life expectancy, salary increases, employee turnover and many other things. One of the most important assumptions the actuary makes is the long-term rate of return on investments. The actuary looks at past experience and future expectations to select the assumptions used in the actuarial valuation.

Assumed rate of return

Investment consultant's role

- The Retirement System Investment Commission (RSIC) is responsible for investing the Systems' assets and hires an investment consultant to advise the RSIC about how to invest the assets.
- The current investment consultant, Hewitt Ennis Knupp (HEK), updates its capital market expectations (the consultant's assumptions about the investment rate of return) quarterly to reflect the constant change in financial markets. Capital market expectations are forward-facing analyses.
- It is useful for investment decision making for HEK to update its capital market expectations frequently because investment decisions are made on a daily basis.

Assumed rate of return

- The assumed rate of return is made up of two components – the *expected real rate of return* and the *expected rate of return due to inflation*.
- The current 7.5 percent assumed rate of return was recommended by GRS in 2011 following the last experience study, conducted in 2010. The Budget and Control adopted this rate in 2011 and the 7.5 percent rate was set in statute by the General Assembly in 2012.
- As of Q22015, HEK data for our current investment portfolio shows a median expected rate of return over the next 30 years of 6.6 percent.
- These projections do not include alpha.

Assumed rate of return

- As of Q12015, both GRS and HEK expect approximately the same *real rate of return* in the future.
- As of Q12015, GRS and HEK have different opinions on the *inflation assumption*.
  - GRS' inflation assumption is 2.75 percent.
  - HEK's inflation assumption is 2.1 percent.
  - The actuary's inflation assumption affects both the assets and the future growth of the liabilities, or money the Systems are expected to pay out over time.
  - The investment consultant's inflation assumption only affects the assets.

Assumed rate of return

- There will almost always be differences in the actuary and investment consultant's return assumptions because HEK updates its assumptions quarterly and GRS updates its assumptions every five years.

Assumed rate of return

- GRS' analysis will take into account HEK's projections, including its assumed inflation rate, as well as projections from other investment consulting firms.

South Carolina Public Employee Benefit Authority

Exhibit 1.
Valuation Interest Assumption Sensitivity Information

South Carolina Retirement System (SCRS)

		Pro Forma Illustration based on the 2014 Actuarial Valuation			
	Current Assumption	Alternative 1.	Alternative 2.	Alternative 3.	Alternative 4.
Item	7.50% Interest Rate 2.75% Inflation	7.25% Interest Rate 2.75% Inflation	7.25% Interest Rate 2.50% Inflation	7.00% Interest Rate 2.50% Inflation	6.75% Interest Rate 2.25% Inflation
(1)	(2)	(3)	(4)	(5)	(6)
1. Plan Assets					
a. Market Value of Assets	$25,739	$25,739	$25,739	$25,739	$25,739
b. Actuarial Value of Assets	26,911	26,911	26,911	26,911	26,911
2. Actuarial Accrued Liability					
a. Active Members	$14,032	$14,608	$14,385	$14,995	$15,400
b. Inactive Members	915	927	927	940	955
c. Retirees and Beneficiaries	27,943	28,521	28,521	29,123	29,749
d. Total Actuarial Accrued Liability	$42,890	$44,056	$43,833	$45,058	$46,104
3. Unfunded Actuarial Accrued Liability (2.d. - 1.b.)	$15,979	$17,145	$16,922	$18,147	$19,193
4. Funding Ratio (1.b. / 2.d.)	62.7%	61.1%	61.4%	59.7%	58.4%
5. Funding Period Based on Current Rates	30 Years	36 Years	35 Years	43 Years	56 Years
6. Contribution Rates Necessary to Maintain a 30-Year Funding Period					
a. Member Contribution Rate	8.16%	8.61%	8.58%	9.08%	9.56%
b. Employer Contribution Rate	11.06%	11.51%	11.48%	11.98%	12.46%
7. Projected Contributions for FY 2017					
a. Projected Member Contributions	$749	$791	$782	$828	$865
b. Projected Employer Contributions	1,090	1,137	1,125	1,177	1,218
c. Total Contributions	$1,839	$1,928	$1,907	$2,005	$2,083

$ in millions

Notes and assumptions:
- The cost and liabilities are determined using asset and census information used to prepared the actuarial valuation as of January 1, 2014.
- Alternative 1. assumes the real rate of return is decreased by 0.25% to 4.50%.
- Alternative 2. assumes the inflation assumption is decreased by 0.25% to 2.50%. The change in the inflation assumption also decreases the salary increase assumption and payroll growth rate by 0.25%.
- Alternative 3. assumes the real rate of return is decreased by 0.25% to 4.50% and the inflation assumption is decreased by 0.25% to 2.50%. The change in the inflation assumption also decreases the salary increase assumption and payroll growth rate by 0.25%.
- Alternative 4. assumes the real rate of return is decreased by 0.25% to 4.50% and the inflation assumption is decreased by 0.50% to 2.25%. The change in the inflation assumption also decreases the salary increase assumption and payroll growth rate by 0.50%.

South Carolina Public Employee Benefit Authority

Exhibit 2.
Valuation Interest Assumption Sensitivity Information

Police Officers Retirement System (PORS)

		Pro Forma Illustration based on the 2014 Actuarial Valuation			
Item	Current Assumption 7.50% Interest Rate 2.75% Inflation	Alternative 1. 7.25% Interest Rate 2.75% Inflation	Alternative 2. 7.25% Interest Rate 2.50% Inflation	Alternative 3. 7.00% Interest Rate 2.50% Inflation	Alternative 4. 6.75% Interest Rate 2.25% Inflation
(1)	(2)	(3)	(4)	(5)	(6)
1. Plan Assets					
a. Market Value of Assets	$3,985	$3,985	$3,985	$3,985	$3,985
b. Actuarial Value of Assets	4,105	4,105	4,105	4,105	4,105
2. Actuarial Accrued Liability					
a. Active Members	$2,277	$2,372	$2,338	$2,437	$2,505
b. Inactive Members	139	143	143	147	151
c. Retirees and Beneficiaries	3,490	3,568	3,568	3,649	3,734
d. Total Actuarial Accrued Liability	$5,906	$6,083	$6,049	$6,233	$6,390
3. Unfunded Actuarial Accrued Liability (2.d. - 1.b.)	$1,801	$1,978	$1,944	$2,128	$2,285
4. Funding Ratio (1.b. / 2.d.)	69.5%	67.5%	67.9%	65.9%	64.2%
5. Funding Period Based on Current Rates	27 Years	37 Years	35 Years	52 Years	101 Years
6. Contribution Rates Necessary to Maintain a 30-Year Funding Period					
a. Member Contribution Rate	8.74%	9.20%	9.09%	9.85%	10.48%
b. Employer Contribution Rate	13.74%	14.20%	14.09%	14.85%	15.48%
7. Projected Contributions for FY 2017					
a. Projected Member Contributions	$113	$119	$117	$127	$134
b. Projected Employer Contributions	178	184	181	191	197
c. Total Contributions	$291	$303	$298	$318	$331

$ in millions

Notes and assumptions:
- The cost and liabilities are determined using asset and census information used to prepared the actuarial valuation as of January 1, 2014.
- Alternative 1. assumes the real rate of return is decreased by 0.25% to 4.50%.
- Alternative 2. assumes the inflation assumption is decreased by 0.25% to 2.50%. The change in the inflation assumption also decreases the salary increase assumption and payroll growth rate by 0.25%.
- Alternative 3. assumes the real rate of return is decreased by 0.25% to 4.50% and the inflation assumption is decreased by 0.25% to 2.50%. The change in the inflation assumption also decreases the salary increase assumption and payroll growth rate by 0.25%.
- Alternative 4. assumes the real rate of return is decreased by 0.25% to 4.50% and the inflation assumption is decreased by 0.50% to 2.25%. The change in the inflation assumption also decreases the salary increase assumption and payroll growth rate by 0.50%.

Projection of Contribution Rates and Cost
Under Different Investment Return Scenarios for FY 2015
($ in millions)

South Carolina Retirement System

	7.50% Return (Baseline)		0.00% Return		2.00% Return		4.00% Return	
FY Ending June 30,	Applicable Employer Contribution Rate	Projected Employer Contributions	Applicable Employer Contribution Rate	Projected Employer Contributions	Applicable Employer Contribution Rate	Projected Employer Contributions	Applicable Employer Contribution Rate	Projected Employer Contributions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2015	10.90%	$ 1,002	10.90%	$ 1,002	10.90%	$ 1,002	10.90%	$ 1,002
2016	11.06%	1,040	11.06%	1,040	11.06%	1,040	11.06%	1,040
2017	11.06%	1,069	11.06%	1,069	11.06%	1,069	11.06%	1,069
2018	11.09%	1,098	11.14%	1,106	11.11%	1,103	11.09%	1,101
2019	11.12%	1,128	11.26%	1,150	11.20%	1,143	11.13%	1,136
2020	11.12%	1,163	11.40%	1,198	11.30%	1,186	11.20%	1,175
2021	11.12%	1,203	11.55%	1,253	11.41%	1,236	11.27%	1,220
2022	11.12%	1,240	11.70%	1,310	11.52%	1,288	11.34%	1,266

Police Officers Retirement System

	7.50% Return (Baseline)		0.00% Return		2.00% Return		4.00% Return	
FY Ending June 30,	Applicable Employer Contribution Rate	Projected Employer Contributions	Applicable Employer Contribution Rate	Projected Employer Contributions	Applicable Employer Contribution Rate	Projected Employer Contributions	Applicable Employer Contribution Rate	Projected Employer Contributions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2015	13.41%	$ 162	13.41%	$ 162	13.41%	$ 162	13.41%	$ 162
2016	13.74%	167	13.74%	167	13.74%	167	13.74%	167
2017	13.74%	171	13.74%	171	13.74%	171	13.74%	171
2018	13.74%	176	13.74%	176	13.74%	176	13.74%	176
2019	13.74%	181	13.74%	181	13.74%	181	13.74%	181
2020	13.74%	187	13.74%	187	13.74%	187	13.74%	187
2021	13.74%	192	13.80%	193	13.74%	192	13.74%	192
2022	13.74%	198	13.91%	200	13.74%	198	13.74%	198

Notes and Comments:

Projected employer contributions include the contributions made on the payroll of members who are in TERI and working retirees.

Projected costs are based on the July 1, 2014 actuarial valuation and assume the investment return for FY 2016 and beyond is 7.50% per annum.

PORS actual contribution rates

Fiscal Year	Employee	Employer	Death Benefit	Accidental Death	Total
2016	8.74%	13.340%	0.20%	0.20%	22.480%
2015	8.41%	13.001%	0.20%	0.20%	21.811%
2014	7.84%	12.440%	0.20%	0.20%	20.680%
2013	7.00%	11.900%	0.20%	0.20%	19.300%
2012	6.50%	11.363%	0.20%	0.20%	18.263%
2011	6.50%	11.130%	0.20%	0.20%	18.030%
2010	6.50%	10.650%	0.20%	0.20%	17.550%
2009	6.50%	10.650%	0.20%	0.20%	17.550%
2008	6.50%	10.300%	0.20%	0.20%	17.200%
2007	6.50%	10.300%	0.20%	0.20%	17.200%

Disclaimer

This presentation does not constitute a comprehensive or binding representation regarding the employee benefits offered by the South Carolina Public Employee Benefit Authority (PEBA). The terms and conditions of the retirement and insurance benefit plans offered by PEBA are set out in the applicable statutes and plan documents and are subject to change. Please contact PEBA for the most current information. The language used in this presentation does not create any contractual rights or entitlements for any person.

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July 2, 2012

William M. Blume Jr., CPA
Director
South Carolina Retirement Systems
PO Box 11960
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Re: Analysis of H. 4967 as Enacted and its Financial Impact on SCRS

Dear Bill:

Below is the actuarial analysis of H. 4967 as enacted and its financial impact on the South Carolina Retirement System (SCRS). The summary below provides the cost impact as of July 1, 2011. Additionally, enclosed are exhibits with projections of the benefit cost and liability under the prior and newly enacted plan designs.

Summary of Cost Impact

The fiscal impact was determined using the preliminary valuation results as of July 1, 2011. While these results have not been accepted or approved by the Budget and Control Board at the time this analysis was prepared, performing the cost analysis using the 2011 valuation provides a more current view of the financial condition of the retirement system.

The enactment of the legislation resulted in a \$2.004 billion decrease in the actuarial accrued liability (and corresponding unfunded actuarial accrued liability) as of July 1, 2011. The funded ratio of the plan as of that date also increased from 64.0% to 67.4%. The decrease in actuarial accrued liability as of the valuation date is driven by the return to work, TERI, and disability retirement provisions. The change in benefit provisions that apply to employees hired after June 30, 2012 does not impact the unfunded liability as of the valuation date, but will result in additional cost savings in future years.

The employer contribution rate under the current plan would have gradually increased in future years to an ultimate level of 14.7% in fiscal year 2018, when the extraordinary investment loss that occurred in 2008 becomes fully recognized in determining the contribution rate. However, the combination of benefit changes and increase in the member contribution rate is projected to result in the employer contribution rate to increase to an ultimate rate of 11.1% of pay.

Assuming all assumptions are met, including the 7.50% investment return assumption, and there are no future benefit improvements, the combination of benefit changes and increased contribution rates are projected to result in the retirement system attaining a 90% funded ratio in the year 2040 and a 100% funded ratio in the year 2044.

Provisions of Bill

Below is a summary of the changes that are in the pension reform bill.

Retiree Benefit Adjustments: Retirees and surviving annuitants would receive an annual increase in their pension benefit equal to the lesser of 1.00% or $500. The benefit increase is not contingent on the actual investment performance of the retirement system. Additionally, the $500 limit in the annual increase is not indexed to escalate in future years.

Retirement Eligibility: The eligibility for a normal retirement benefit for current members remains unchanged (i.e. 28 years of credited service). Employees hired after June 30, 2012 (i.e. Class Three members) will be eligible to receive a service retirement benefit after accruing at least 8 years of earned service and upon either: (1) reaching age 60 (with a reduction for retirement prior to age 65) or (2) the combination of the member's age and years of credited service equals or exceeds 90 (i.e. Rule of 90).

Average Final Compensation (AFC): The AFC for Class Three members will be determined using a twenty-quarter averaging period (i.e. five years). There is no change in the calculation of the AFC for members hired prior to July 1, 2012.

Sick and Annual Leave: Unused sick leave will be excluded in the member's credited service and unused annual leave will excluded in determining the member's average final compensation for calculation of pension benefits of Class Three members. Unused sick and annual leave will continue to be included in the calculation of retirement benefits for Class One and Class Two members.

Disability Benefits: Effective December 31, 2013, the eligibility for a disability retirement will be based upon the member's entitlement for Social Security disability benefits. The determination of the disability allowance will also be based on the member's credited service as of the date of retirement and no longer include an actuarial offset for a hypothetical balance of member contributions.

Service Purchase: Effective January 2, 2013, the cost of purchasing service credit, other than the reestablishment of withdrawn time and transfer service, will be determined on an actuarially neutral basis. However, the cost of purchasing one year of nonqualified service shall not be less than 35% of (a) the member's current salary or (b) highest historical fiscal year salary. The cost of purchasing other types of service shall not be less than 16% of pay.

Employer and Member Contributions: Effective July 1, 2012, the member contribution rate for all employees will increase by 0.50% each subsequent year until an 8.00% contribution rate is attained beginning July 1, 2014. The employer contribution rate will increase to 10.90% of pay beginning July 1, 2014. In the event these contribution rates are insufficient to maintain a 30-year amortization period, the board shall increase the member and employer contribution rates by an equal amount (i.e. maintain a 2.90% differential) as necessary to maintain a 30-year funding period. The employer and member contribution rates may not decrease until the plan attains a 90% funded ratio.

Please note the employer contribution rate and incremental difference between the member and employer rate quoted in the previous page includes contributions for the incidental death benefit plan. The employer contribution rate for employers that do not participate in the incidental death benefit plan will be appropriately adjusted.

Earnable Compensation: The definition of earnable compensation will be modified such that compensation attributable to overtime is not included in the member's compensation for purposes of determining their AFC unless that compensation is for overtime that is mandated by the employer.

Teacher and Employee Retention Incentive Program (TERI): TERI will be phased-out such that no members may participate in the program after June 30, 2018.

Return-to-Work Provisions: There is no change to the return-to-work provisions for those members who retire prior to January 2, 2013. Members who retire after January 1, 2013 and subsequently become employed by an employer that participates in the retirement system may earn up to $10,000 annually without affecting their retirement allowance. Retired members who earn in excess of $10,000 will have their retirement allowance suspended for the remainder of the calendar year. However, this earnings limitation will not apply to members who attained the age of 62 at the time of their initial retirement.

Vesting: Class Three members must attain 8 years earned service to be eligible for retirement benefits.

Interest in Member Account Balance: After June 30, 2012, inactive members of the System will no longer accrue future interest on their account balance attributable to their contributions.

Valuation Investment Return Assumption: The General Assembly will have the authorization to set and change the assumed rate of return on the System's investments for valuation purposes.

South Carolina Public Employee Benefit Authority: The South Carolina Public Employee Benefit Authority will be established as of July 1, 2012, and be responsible for the administration of the retirement systems.

Actuarial Analysis

The enclosed projections provide additional information about the expected liability and cost of the current and proposed plan designs. Exhibit 1. shows the projected cost for the current plan. Exhibit 2. provides the projected cost under the pension reform bill.

The increase in the member contribution rate will result in a greater portion of the retirement benefit being financed by the employees. The $500 limit on the annual increase in the retirement allowance will impact the long-service and high-wage earning retirees. Specifically, approximately 4% of the current retirees in SCRS are projected to be limited by the $500 threshold. This COLA design may have relevance for policy reasons; but it does not materially reduce the liability of the retirement system.

The change in benefits for new members (i.e. the change in vesting, AFC averaging period, removal of unused sick/annual leave, and retirement eligibility) does not impact the actuarial accrued liability or contribution rate as of the valuation date, but does change the long-term cost of the retirement system. These may also important for policy, HR, and workforce management reasons.

Basis of Calculations

GRS based the calculations and analysis in this letter on the member and financial data provided by SCRS used to perform the actuarial valuation as of July 1, 2011. The valuation results as of July 1, 2011 for the current plan in this analysis have not yet been accepted by the Budget Control Board. Except where noted otherwise, the actuarial assumptions and methods are based on those recommended in our Experience Study Report dated September 2011 and adopted by the Budget Control Board in November 2011. The calculation of the funding period is based on a 10.60% employer contribution rate, which is the effective employer contribution rate for FY 2013 (i.e. the fiscal year beginning July 1, 2012).

For purposes of this analysis, we adjusted the rate of retirement assumption for members impacted by the proposed legislation. It was assumed the change in the disability eligibility provisions would result in a 20% reduction in the number of members who receive a disability allowance. Those members who would not meet the qualification requirements are assumed to continue employment.

The projections assume no actuarial gains or losses will occur in the future, and that members will terminate, retire, become disabled, or die as predicted by the actuarial assumptions. The size of the active member population is assumed to remain constant, with each member who leaves the active population being replaced by a new member. These projections also do not reflect the actual investment experience of the retirement system after the measurement date of July 1, 2011.

General Comments

Our calculations are based upon assumptions regarding future events, which may or may not materialize. Depending on actual plan experience, actual results could deviate significantly from our projections.

We are not attorneys, and we cannot provide a legal opinion regarding the changes in this proposed legislation. Nothing in this letter should be construed as providing legal, investment or tax advice. It may be prudent to consult with the Retirement System's counsel before enacting any such changes. Finally, no statement in this letter is intended to be interpreted as a recommendation in favor of or in opposition to the changes studied herein.

We certify that the undersigned are members of the American Academy of Actuaries and that we meet all of the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. In addition, both of the undersigned are experienced in performing valuations for large public retirement systems. If you have any questions, or require any additional or clarifying information, please do not hesitate to contact either of us.

Sincerely,

Daniel J. White, FSA, MAAA, EA
Senior Consultant

Joseph P. Newton, FSA, MAAA, EA
Senior Consultant

Enclosure

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South Carolina Retirement System (SCRS)

Exhibit 1. - Projected Cost of the Current Plan

July 1,	Projected Payroll	Employer Contr. Rate	Member Contr. Rate	Total Contr. (3) + (4)	Employer Contributions	Actuarial Accrued Liability	Market Value of Assets	Actuarial Value of Assets	Unfunded Liability	Funded Ratio AVA / AAL	Funding Period (years)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2011	$ 7,688	9.5%	6.5%	16.0%	$ 850	$ 40,016	$ 22,395	$ 25,605	$ 14,411	64%	30
2012	7,778	10.6%	6.5%	17.1%	962	41,400	23,133	25,721	15,679	62%	30
2013	7,949	12.2%	6.5%	18.7%	1,140	42,788	23,925	25,780	17,008	60%	30
2014	8,132	13.0%	6.5%	19.5%	1,244	44,172	24,846	25,842	18,329	59%	30
2015	8,334	13.6%	6.5%	20.1%	1,331	45,553	25,827	25,827	19,726	57%	30
2016	8,548	14.1%	6.5%	20.6%	1,421	46,932	26,855	26,855	20,077	57%	30
2017	8,774	14.7%	6.5%	21.2%	1,516	48,310	27,939	27,939	20,371	58%	30
2018	9,013	14.6%	6.5%	21.1%	1,549	49,688	29,088	29,088	20,600	59%	30
2019	9,265	14.5%	6.5%	21.0%	1,576	51,068	30,244	30,244	20,824	59%	30
2020	9,531	14.4%	6.5%	20.9%	1,605	52,453	31,404	31,404	21,049	60%	30
2021	9,808	14.2%	6.5%	20.7%	1,635	53,846	32,575	32,575	21,271	60%	30
2022	10,095	14.0%	6.5%	20.5%	1,662	55,296	33,756	33,756	21,540	61%	30
2023	10,393	13.8%	6.5%	20.3%	1,689	56,755	34,942	34,942	21,813	62%	30
2024	10,704	13.7%	6.5%	20.2%	1,720	58,221	36,132	36,132	22,090	62%	30
2025	11,026	13.5%	6.5%	20.0%	1,752	59,696	37,327	37,327	22,368	63%	30
2026	11,360	13.4%	6.5%	19.9%	1,783	61,175	38,528	38,528	22,647	63%	30
2027	11,708	13.2%	6.5%	19.7%	1,815	62,657	39,730	39,730	22,927	63%	30
2028	12,077	13.0%	6.5%	19.5%	1,850	64,146	40,936	40,936	23,210	64%	30
2029	12,466	12.9%	6.5%	19.4%	1,885	65,648	42,155	42,155	23,493	64%	30
2030	12,875	12.7%	6.5%	19.2%	1,922	67,171	43,395	43,395	23,776	65%	30
2031	13,305	12.5%	6.5%	19.0%	1,959	68,724	44,666	44,666	24,058	65%	30
2032	13,753	12.4%	6.5%	18.9%	1,996	70,315	45,975	45,975	24,340	65%	30
2033	14,217	12.2%	6.5%	18.7%	2,031	71,946	47,324	47,324	24,622	66%	30
2034	14,700	12.0%	6.5%	18.5%	2,068	73,621	48,715	48,715	24,907	66%	30
2035	15,204	11.8%	6.5%	18.3%	2,109	75,345	50,153	50,153	25,192	67%	30
2036	15,732	11.7%	6.5%	18.2%	2,148	77,126	51,649	51,649	25,477	67%	30
2037	16,287	11.5%	6.5%	18.0%	2,190	78,978	53,214	53,214	25,764	67%	30
2038	16,866	11.3%	6.5%	17.8%	2,230	80,921	54,871	54,871	26,050	68%	30
2039	17,475	11.1%	6.5%	17.6%	2,274	82,970	56,631	56,631	26,338	68%	30
2040	18,092	11.0%	6.5%	17.5%	2,316	85,131	58,506	58,506	26,625	69%	29
2041	18,728	10.8%	6.5%	17.3%	2,357	87,401	60,489	60,489	26,913	69%	27

Notes and Assumptions:

Projections are based on the preliminary actuarial valuation results as of July 1, 2011 and assume the plan earns 7.50% annually for all future years.

Projected contribution rates shown above are effective for the fiscal year and assumes the employer contribution rate will not decrease below 10.60% which was adopted by the Budget Control Board in November 2011 and is effective for FY 2012.

Projected contribution rates shown above are effective at the beginning of the fiscal year.

Employer contributions include employer contributions made on behalf of payroll attributable to ORP, TERI, and working retirees.

It is assumed retirees will receive a 1.00% automatic COLA and no additional ad hoc COLAs above the 1.00% automatic adjustment.

South Carolina Retirement System (SCRS)

Exhibit 2. - Projected Cost of H. 4967 as Enacted

July 1,	Projected Payroll	Employer Contr. Rate	Member Contr. Rate	Total Contr. (3) + (4)	Employer Contributions	Actuarial Accrued Liability	Market Value of Assets	Actuarial Value of Assets	Unfunded Liability	Funded Ratio AVA / AAL	Funding Period (years)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2011	$ 7,688	9.5%	6.5%	16.0%	$ 850	$ 38,012	$ 22,395	$ 25,605	$ 12,407	67%	25
2012	7,879	10.6%	7.0%	17.6%	968	39,241	23,153	25,741	13,499	66%	24
2013	8,146	10.6%	7.5%	18.1%	993	40,523	24,089	25,944	14,579	64%	26
2014	8,419	10.9%	8.0%	18.9%	1,050	41,859	25,116	26,113	15,746	62%	29
2015	8,703	10.9%	8.0%	18.9%	1,079	43,243	26,266	26,266	16,977	61%	30
2016	8,992	10.9%	8.0%	18.9%	1,108	44,668	27,462	27,462	17,206	61%	28
2017	9,291	11.2%	8.3%	19.4%	1,168	46,116	28,687	28,687	17,429	62%	27
2018	9,598	11.2%	8.3%	19.4%	1,201	47,581	29,994	29,994	17,587	63%	26
2019	9,917	11.2%	8.3%	19.4%	1,236	49,056	31,326	31,326	17,730	64%	25
2020	10,180	11.2%	8.3%	19.4%	1,272	50,548	32,692	32,692	17,855	65%	24
2021	10,452	11.2%	8.3%	19.4%	1,310	52,048	34,096	34,096	17,952	66%	23
2022	10,731	11.2%	8.3%	19.4%	1,349	53,552	35,535	35,535	18,017	66%	22
2023	11,019	11.2%	8.3%	19.4%	1,390	55,057	37,011	37,011	18,046	67%	21
2024	11,315	11.2%	8.3%	19.4%	1,432	56,561	38,524	38,524	18,036	68%	20
2025	11,622	11.2%	8.3%	19.4%	1,475	58,062	40,079	40,079	17,983	69%	19
2026	11,941	11.2%	8.3%	19.4%	1,520	59,560	41,679	41,679	17,881	70%	18
2027	12,271	11.2%	8.3%	19.4%	1,567	61,056	43,330	43,330	17,726	71%	17
2028	12,614	11.2%	8.3%	19.4%	1,616	62,548	45,037	45,037	17,511	72%	16
2029	12,966	11.2%	8.3%	19.4%	1,666	64,034	46,804	46,804	17,230	73%	15
2030	13,333	11.2%	8.3%	19.4%	1,719	65,515	48,637	48,637	16,878	74%	14
2031	13,712	11.2%	8.3%	19.4%	1,773	66,990	50,544	50,544	16,446	75%	13
2032	14,102	11.2%	8.3%	19.4%	1,829	68,461	52,534	52,534	15,927	77%	12
2033	14,505	11.2%	8.3%	19.4%	1,887	69,926	54,614	54,614	15,313	78%	11
2034	14,926	11.2%	8.3%	19.4%	1,948	71,388	56,795	56,795	14,594	80%	10
2035	15,364	11.2%	8.3%	19.4%	2,012	72,853	59,093	59,093	13,760	81%	9
2036	15,822	11.2%	8.3%	19.4%	2,078	74,327	61,527	61,527	12,800	83%	8
2037	16,297	11.2%	8.3%	19.4%	2,147	75,819	64,117	64,117	11,702	85%	7
2038	16,791	11.2%	8.3%	19.4%	2,218	77,337	66,883	66,883	10,454	86%	6
2039	17,302	11.2%	8.3%	19.4%	2,293	78,886	69,845	69,845	9,040	89%	5
2040	17,831	10.9%	8.0%	18.9%	2,309	80,472	73,024	73,024	7,447	91%	4
2041	18,377	10.9%	8.0%	18.9%	2,386	82,102	76,331	76,331	5,771	93%	3

Notes and Assumptions:

Projections are based on the preliminary actuarial valuation results as of July 1, 2011 and assume the plan earns 7.50% annually for all future years.

Projected contribution rates shown above are effective at the beginning of the fiscal year. All contribution rates are projected to satisfy the 30-year funding requirement.

The principle benefit changes that apply to all current and future members of SCRS include:

- Cost neutral service purchase
- 5-Year AFC for all employees hired after June 30, 2012.
- 8-year vesting for members hired after June 30, 2012.
- Eliminate sick/annual leave credit for members hired after June 30, 2012.
- Retirement eligibility for members hired after June 30, 2012 will be the Rule of 90 or age 60 (with 8 years of service).
- Retirees and beneficiaries will have their retirement allowances increase annually by the lesser of 1.00% and $500, regardless of actual investment performance.
- Restrictive return-to-work provisions for members retiring after January 1, 2013 under the age of 62 (based on a $10k earnings limit).
- Modified eligibility requirements for a disability benefit and to the calculation of the disability allowance.
- Contributions based on a funding policy that increases the member rate over a 3-year period to 8.00% beginning July 1, 2014 and maintains a 2.90% difference in the employer / member rate thereafter. Contribution rates are not permitted to decrease until the plan attains a 90% funded ratio.

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July 2, 2012

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Director
South Carolina Retirement Systems
PO Box 11960
Columbia, SC 29211-1960

Re: Analysis of H. 4967 as Enacted and its Financial Impact on PORS

Dear Bill:

Below is the actuarial analysis of H. 4967 as enacted and its financial impact on the South Carolina Police Officers Retirement System (PORS). The summary below provides the cost impact as of July 1, 2011. Additionally, attached are exhibits with projections of the benefit cost and liability under the prior and newly enacted plan designs.

Summary of Cost Impact

The fiscal impact was determined using the preliminary valuation results as of July 1, 2011. While these results have not been accepted or approved by the Budget and Control Board at the time this analysis was prepared, performing the cost analysis using the 2011 valuation provides a more current view of the financial condition of the retirement system.

The enactment of the legislation resulted in a $298 million increase in the actuarial accrued liability (and corresponding unfunded actuarial accrued liability) as of July 1, 2011. The funded ratio of the plan as of that date also decreased from 77% to 73%. The increase in actuarial accrued liability as of the valuation date is driven by the benefit adjustment provision that provides the retirees an automatic 1.00% annual increase in their retirement allowance. The change in benefit provisions that apply to employees hired after June 30, 2012 does not impact the unfunded liability as of the valuation date, but will result in cost savings in future years.

Assuming all assumptions are met, including the 7.50% investment return assumption, and there are no future legislated benefit increases, the combination of benefit changes and increased contribution rates is projected to result in the retirement system attaining a 90% funded ratio in the year 2036 and a 100% funded ratio in the year 2043.

Note, the scheduled employer and member contribution rates in the proposed bill will not be sufficient to satisfy a 30-year amortization period as of the July 1, 2011 valuation date. As a result, Section 9-11-225(C) of the legislation will require the member and employer contribution rates to increase by 0.34% to 7.84% and 12.84%, respectively, to maintain a 30-year amortization period. These contribution rates would become effective for the 2013/2014 fiscal year (i.e. effective beginning July 1, 2013).

Provisions of Bill

Below is a summary of the changes that are in the pension reform bill.

Retiree Benefit Adjustments: Retirees and surviving annuitants would receive an annual increase in their pension benefit equal to the lesser of 1.00% or $500. The benefit increase is not contingent on the actual investment performance of the retirement system. Additionally, the $500 limit in the annual increase is not indexed to escalate in future years.

Retirement Eligibility: The eligibility for an unreduced retirement benefit for current members remains unchanged (i.e. 25 years of credited service). Employees hired after June 30, 2012 (Class Three members) will be eligible to retire with an unreduced benefit upon attaining: (1) age 55 with 8 or more years of earned service or (2) upon attaining 27 years of credited service.

Average Final Compensation (AFC): The AFC for Class Three members will be determined using a twenty-quarter averaging period (i.e. five years). There is no change in the calculation of the AFC for members hired prior to July 1, 2012.

Sick and Annual Leave: Unused sick leave will be excluded in the member's credited service and unused annual leave will excluded in determining the member's average final compensation for calculation of pension benefits of Class Three members. Unused sick and annual leave will continue to be included in the calculation of retirement benefits for Class One and Class Two members.

Disability Benefits: There is no change in the initial approval process for a disability retirement benefit. However, members who apply for a disability retirement benefit after December 31, 2013 must provide proof to the system that they are entitled to Social Security disability benefits after their third year of retirement in order to continue receiving their disability retirement allowance. The determination of the disability allowance will be based on the member's credited service projected to age 55 subject to a maximum of 25 years.

Service Purchase: Effective January 2, 2013, the cost of purchasing service credit, other than the reestablishment of withdrawn time and transfer service, will be determined on an actuarially neutral basis. However, the cost of purchasing one year of nonqualified service shall not be less than 35% of (a) the member's current salary or (b) highest historical fiscal year salary. The cost of purchasing other types (other than previously withdrawn service) of service shall not be less than 16% of pay.

Employer and Member Contributions: Effective July 1, 2012, the member contribution rate for all employees will increase by 0.50% each subsequent year until an 8.00% contribution rate is attained beginning July 1, 2014. The employer contribution rate will increase to 12.50% of pay beginning July 1, 2013, and to 13.00% of pay beginning July 1, 2014. In the event these contribution rates are insufficient to maintain a 30-year amortization period, the board shall increase the member and employer contribution rates by an equal amount (i.e. maintain a 5.00% differential) as necessary to maintain a 30-year funding period. The employer and member contribution rates may not decrease until the plan attains a 90% funded ratio.

Please note the employer contribution rate and incremental difference between the member and employer rate quoted in the previous page includes contributions for the incidental death benefit plan. The employer contribution rate for employers that do not participate in the incidental death benefit plan will be appropriately adjusted.

Return to Work Provisions: There is no change to the return-to-work provisions for those members who retire prior to January 2, 2013. Members who retire after January 2, 2013 and subsequently become employed by an employer that participates in the retirement system may earn up to $10,000 annually without affecting their retirement allowance. Retired members who earn in excess of $10,000 will have their retirement allowance suspended for the remainder of the calendar year. However, this earnings limitation will not apply to members who initially retired after attaining the age of 57.

Vesting: Class Three members must attain eight (8) years earned service to be eligible for retirement benefits.

Interest in Member Account Balance: After June 30, 2012, inactive members of the System will no longer accrue future interest on their account balance attributable to their contributions.

Valuation Investment Return Assumption: The General Assembly will have the authorization to set and change the assumed rate of return on the System's investments for valuation purposes.

South Carolina Public Employee Benefit Authority: The South Carolina Public Employee Benefit Authority will be established as of July 1, 2012, and be responsible for the administration of the retirement systems.

Actuarial Analysis

The enclosed projections provide additional information about the expected liability and cost of the current and proposed plan designs. Exhibit 1. shows the projected cost for the current plan. Exhibit 2. provides the projected cost under the pension reform bill.

The increase in the member contribution rate will result in a greater portion of the retirement benefit being financed by the employees. The $500 limit on the annual increase in the retirement allowance will impact the long-service and high-wage earning retirees. Specifically, less than 10% of the retirees in PORS are projected to be limited by the $500 threshold. This COLA design may have relevance for policy reasons; but it does not substantially impact on the liability of the retirement system.

The change in benefits for new members (i.e. the change in vesting, AFC averaging period, removal of unused sick/annual leave, and retirement eligibility) does not impact the actuarial accrued liability or contribution rate as of the valuation date, but does change the long-term cost of the retirement system. These may also important for policy, HR, and workforce management reasons.

Basis of Calculations

GRS based the calculations and analysis in this letter on the member and financial data provided by SCRS used to perform the actuarial valuation as of July 1, 2011. The valuation results as of July 1, 2011 for the current plan in this analysis have not yet been accepted by the Budget Control Board. Except where noted otherwise, the actuarial assumptions and methods are based on those recommended in our Experience Study Report dated September 2011 and adopted by the Budget Control Board in November 2011.

For purposes of this analysis, we adjusted the rate of retirement assumption for members impacted by the proposed legislation. It was assumed the change in the disability eligibility provisions would result in a 20% reduction in the number of members who receive a disability allowance. Those members who would not meet the qualification requirements are assumed to continue employment.

The projections assume no actuarial gains or losses will occur in the future, and that members will terminate, retire, become disabled, or die as predicted by the actuarial assumptions. The size of the active member population is assumed to remain constant, with each member who leaves the active population being replaced by a new member. These projections also do not reflect the actual investment experience of the retirement system after the measurement date of July 1, 2011.

General Comments

Our calculations are based upon assumptions regarding future events, which may or may not materialize. Depending on actual plan experience, actual results could deviate significantly from our projections.

We are not attorneys, and we cannot provide a legal opinion regarding the changes in this proposed legislation. Nothing in this letter should be construed as providing legal, investment or tax advice. It may be prudent to consult with the Retirement System's counsel before enacting any such changes. Finally, no statement in this letter is intended to be interpreted as a recommendation in favor of or in opposition to the changes studied herein.

We certify that the undersigned are members of the American Academy of Actuaries and that we meet all of the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. In addition, both of the undersigned are experienced in performing valuations for large public retirement systems. If you have any questions, or require any additional or clarifying information, please do not hesitate to contact either of us.

Sincerely,

Daniel J. White, FSA, MAAA, EA	Joseph P. Newton, FSA, MAAA, EA
Senior Consultant	Senior Consultant

Enclosure

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Police Officers Retirement System (PORS)

Exhibit 1. - Projected Cost of the Current Plan
Based on a Minimum Employer Contribution Rate of 12.30%

July 1,	Projected Payroll	Employer Contr. Rate	Member Contr. Rate	Total Contr. (3) + (4)	Employer Contributions	Actuarial Accrued Liability	Market Value of Assets	Actuarial Value of Assets	Unfunded Liability	Funded Ratio AVA / AAL	Funding Period (Years)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2011	$ 1,088	12.0%	6.5%	18.5%	$ 141	$ 4,825	$ 3,318	$ 3,728	$ 1,097	77%	22
2012	1,097	12.3%	6.5%	18.8%	146	5,050	3,509	3,840	1,209	76%	26
2013	1,124	12.3%	6.5%	18.8%	149	5,280	3,706	3,944	1,336	75%	30
2014	1,153	12.3%	6.5%	18.8%	152	5,515	3,908	4,036	1,479	73%	30
2015	1,184	12.3%	6.5%	18.8%	156	5,755	4,115	4,115	1,641	71%	30
2016	1,217	12.8%	6.5%	19.3%	166	6,001	4,326	4,326	1,675	72%	30
2017	1,251	13.3%	6.5%	19.8%	178	6,251	4,549	4,549	1,703	73%	30
2018	1,287	13.3%	6.5%	19.8%	182	6,508	4,785	4,785	1,723	74%	30
2019	1,325	13.2%	6.5%	19.7%	186	6,771	5,029	5,029	1,742	74%	30
2020	1,364	13.0%	6.5%	19.5%	189	7,038	5,278	5,278	1,761	75%	30
2021	1,404	12.9%	6.5%	19.4%	193	7,311	5,531	5,531	1,780	76%	30
2022	1,446	12.8%	6.5%	19.3%	196	7,592	5,789	5,789	1,803	76%	30
2023	1,490	12.6%	6.5%	19.1%	200	7,878	6,052	6,052	1,826	77%	30
2024	1,536	12.5%	6.5%	19.0%	204	8,169	6,320	6,320	1,849	77%	29
2025	1,584	12.3%	6.5%	18.8%	208	8,466	6,593	6,593	1,873	78%	28
2026	1,635	12.3%	6.5%	18.8%	214	8,767	6,870	6,870	1,897	78%	27
2027	1,687	12.3%	6.5%	18.8%	221	9,075	7,155	7,155	1,919	79%	26
2028	1,743	12.3%	6.5%	18.8%	228	9,389	7,450	7,450	1,939	79%	24
2029	1,801	12.3%	6.5%	18.8%	236	9,713	7,756	7,756	1,957	80%	23
2030	1,861	12.3%	6.5%	18.8%	244	10,045	8,075	8,075	1,971	80%	22
2031	1,924	12.3%	6.5%	18.8%	252	10,388	8,407	8,407	1,981	81%	21
2032	1,988	12.3%	6.5%	18.8%	261	10,739	8,752	8,752	1,987	81%	20
2033	2,056	12.3%	6.5%	18.8%	269	11,100	9,110	9,110	1,989	82%	19
2034	2,126	12.3%	6.5%	18.8%	279	11,470	9,484	9,484	1,986	83%	18
2035	2,199	12.3%	6.5%	18.8%	288	11,853	9,875	9,875	1,978	83%	17
2036	2,276	12.3%	6.5%	18.8%	298	12,248	10,285	10,285	1,963	84%	16
2037	2,355	12.3%	6.5%	18.8%	309	12,657	10,716	10,716	1,941	85%	14
2038	2,437	12.3%	6.5%	18.8%	319	13,081	11,168	11,168	1,912	85%	13
2039	2,522	12.3%	6.5%	18.8%	331	13,519	11,644	11,644	1,874	86%	12
2040	2,610	12.3%	6.5%	18.8%	342	13,972	12,144	12,144	1,828	87%	11
2041	2,701	12.3%	6.5%	18.8%	354	14,441	12,671	12,671	1,771	88%	10

Notes and Assumptions:

Projections are based on the preliminary actuarial valuation results as of July 1, 2011 and assume the plan earns 7.50% annually for all future years.

Projected contribution rates shown above are effective for the fiscal year and assumes the employer contribution rate will not decrease below 12.30% which was adopted by the Budget Control Board in November 2011 and is effective for FY 2012.

The current plan does not include an automatic COLA and it is assumed there will be no future ad hoc COLAs provided in future years.

Employer contributions include employer contributions made on behalf of working retirees.

Police Officers Retirement System (PORS)

Exhibit 2. - Projected Cost of H. 4967 as Enacted

July 1,	Projected Payroll	Employer Contr. Rate	Member Contr. Rate	Total Contr. (3) + (4)	Employer Contributions	Actuarial Accrued Liability	Market Value of Assets	Actuarial Value of Assets	Unfunded Liability	Funded Ratio AVA / AAL	Funding Period (Years)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2011	$ 1,088	12.0%	6.5%	18.5%	$ 141	$ 5,123	$ 3,318	$ 3,728	$ 1,394	73%	30
2012	1,106	12.3%	7.0%	19.3%	146	5,383	3,509	3,840	1,543	71%	30
2013	1,142	12.8%	7.8%	20.7%	156	5,651	3,714	3,952	1,699	70%	30
2014	1,180	13.1%	8.1%	21.2%	163	5,928	3,945	4,073	1,856	69%	30
2015	1,220	13.3%	8.3%	21.6%	171	6,216	4,190	4,190	2,026	67%	30
2016	1,261	13.6%	8.6%	22.1%	179	6,513	4,451	4,451	2,062	68%	29
2017	1,305	13.8%	8.8%	22.6%	187	6,818	4,728	4,728	2,090	69%	28
2018	1,351	13.8%	8.8%	22.6%	192	7,130	5,020	5,020	2,111	70%	27
2019	1,398	13.8%	8.8%	22.6%	198	7,449	5,320	5,320	2,129	71%	25
2020	1,448	13.8%	8.8%	22.6%	204	7,775	5,631	5,631	2,144	72%	24
2021	1,499	13.8%	8.8%	22.6%	211	8,109	5,953	5,953	2,155	73%	23
2022	1,545	13.8%	8.8%	22.6%	217	8,449	6,287	6,287	2,162	74%	22
2023	1,594	13.8%	8.8%	22.6%	224	8,797	6,633	6,633	2,164	75%	21
2024	1,644	13.8%	8.8%	22.6%	231	9,151	6,991	6,991	2,160	76%	19
2025	1,695	13.8%	8.8%	22.6%	238	9,510	7,361	7,361	2,149	77%	18
2026	1,748	13.8%	8.8%	22.6%	246	9,873	7,742	7,742	2,131	78%	17
2027	1,803	13.8%	8.8%	22.6%	253	10,241	8,136	8,136	2,105	79%	16
2028	1,860	13.8%	8.8%	22.6%	262	10,613	8,542	8,542	2,071	80%	15
2029	1,920	13.8%	8.8%	22.6%	270	10,989	8,963	8,963	2,026	82%	14
2030	1,983	13.8%	8.8%	22.6%	279	11,370	9,399	9,399	1,971	83%	13
2031	2,049	13.8%	8.8%	22.6%	288	11,758	9,853	9,853	1,904	84%	12
2032	2,117	13.8%	8.8%	22.6%	298	12,152	10,327	10,327	1,825	85%	10
2033	2,188	13.8%	8.8%	22.6%	308	12,553	10,822	10,822	1,731	86%	9
2034	2,262	13.8%	8.8%	22.6%	318	12,962	11,339	11,339	1,622	87%	10
2035	2,338	13.8%	8.8%	22.6%	329	13,378	11,881	11,881	1,497	89%	9
2036	2,419	13.0%	8.0%	21.0%	321	13,803	12,450	12,450	1,352	90%	7
2037	2,502	13.0%	8.0%	21.0%	332	14,238	13,010	13,010	1,228	91%	6
2038	2,590	13.0%	8.0%	21.0%	344	14,683	13,600	13,600	1,083	93%	5
2039	2,681	13.0%	8.0%	21.0%	356	15,143	14,224	14,224	919	94%	4
2040	2,776	13.0%	8.0%	21.0%	368	15,619	14,886	14,886	734	95%	3
2041	2,873	13.0%	8.0%	21.0%	381	16,112	15,587	15,587	525	97%	2

Notes and Assumptions:

Projections are based on the preliminary actuarial valuation results as of July 1, 2011 and assume the plan earns 7.50% annually for all future years.

Projected contribution rates shown above are effective for the fiscal year. All contribution rates are projected to satisfy the 30-year funding requirement.

The other principle benefit changes that apply to all current and future members of PORS include:

- Cost neutral service purchase.
- 5-Year AFC for all employees hired after June 30, 2012.
- 8-year vesting for members hired after June 30, 2012.
- Eliminate sick/annual leave credit for members hired after June 30, 2012.
- Retirement eligibility for members hired after June 30, 2012 will be age 55 (with 8 years of service) or 27 years of credited service.
- Retirees and beneficiaries will have their retirement allowances increase annually by the lesser of 1.00% and $500. The increase is not contingent on the plan's actual investment performance.
- Restrictive return-to-work provisions for members retiring after January 1, 2013 under the age of 57 (based on a $10k earnings limit).
- Modified disability retirement provisions.
- Contributions based on a funding policy that increases the member rate over a 3-year period to 8.00% beginning July 1, 2014 and maintains a 5.00% difference in the employer / member rate thereafter.