

## **Meeting Agenda | Retirement Policy Committee**

Wednesday, May 18, 2016 | 9:30 a.m.

200 Arbor Lake Dr., Columbia, SC 29223 | Second Floor Conference Room

- I. Call to Order
- II. Adoption of Proposed Agenda
- III. Approval of Meeting Minutes- March 16, 2016
- IV. Actuarial Valuations and Experience Study Recommendations
  1. 0.5 Percent Contribution Rate Increase
  2. Experience Study Recommendations
  3. Actuarial Projected Employer and Employee Rates
- V. Defined Contribution Quarterly Reports
  1. Deferred Compensation Performance Report
  2. Deferred Compensation Plan Activity Report
  3. State ORP Performance Report
- VI. Old Business/Director's Report
- VII. Adjournment

### **Notice of Public Meeting**

This notice is given to meet the requirements of the S.C. Freedom of Information Act and the Americans with Disabilities Act. Furthermore, this facility is accessible to individuals with disabilities, and special accommodations will be provided if requested in advance.

**PUBLIC EMPLOYEE BENEFIT AUTHORITY AGENDA ITEM  
RETIREMENT POLICY COMMITTEE MEETING**

**Meeting Date: May 19, 2016**

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**1. Subject:**

Contribution Rates for the South Carolina Retirement System (SCRS) and South Carolina Police Officers' Retirement System (PORS) for Fiscal Year 2016-2017

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**2. Summary:**

In the 2016-2017 State budget, the General Assembly is expected to provide for an increase in SCRS and PORS contribution rates in the amount of 0.5% for both employee and employer contribution rates, effective July 1, 2016.

**Background Information:**

For the fiscal year ended June 30, 2015, the investment return on the assets of SCRS and PORS significantly underperformed the assumed rate of investment return of 7.5%, producing a return of approximately 1.6%. Based upon recent reporting and statements from the South Carolina Retirement System Investment Commission, the systems' investment return for the current fiscal year will again significantly underperform the assumed rate of return, and the Commission expects that returns will continue to fall below the assumed rate of return in the near term.

Because the investment underperformance for the year ended June 30, 2015, is unlikely to be offset by near-term investment gains, the underperformance will likely have to be made up for with increases in employee and employer contribution rates to maintain the funding of the systems on an actuarially sound basis. PEBA's actuaries have calculated that, based upon the July 1, 2015 actuarial valuations of SCRS and PORS, an increase in both employee and employer contribution rates of 0.5% for SCRS and PORS, effective July 1, 2016, would offset the investment underperformance for the systems during the fiscal year ended June 30, 2015.

In order to offset the investment underperformance for the fiscal year ended June 30, 2015, the Governor's 2016-2017 executive budget and the versions of the general appropriations bill, H. 5001, passed by the House of Representatives on March 23, 2016, and passed by the Senate on May 4, 2016, provide for an increase in SCRS and PORS employee and employer contribution rates in the amount of 0.5% effective July 1, 2016. This mandated contribution rate increase is included not only in line item appropriations, but also in a Part I.B proviso that directs the appropriated funds to be used for SCRS and PORS contribution rate increases. See H. 5001, Part I.B, Section 106.2; see also Hampton v. Haley, 403 S.C. 395, 743 S.E.2d 258 (2013) (holding that the General Assembly's appropriation in the budget act for employer premium increases for the State Health Plan was a mandate that the rates be increased as

provided in the budget that could not be reduced or changed by the Budget and Control Board).

### **3. What is the Committee asked to do?**

Recommend that the Board adopt contribution rate increases for SCRS and PORS employee and employer contribution rates in the amount of 0.5% effective July 1, 2016, as provided for by the 2016-2017 general appropriations bill.

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### **4. Supporting Documents:**

- (a) List those attached:

**PUBLIC EMPLOYEE BENEFIT AUTHORITY AGENDA ITEM  
RETIREMENT COMMITTEE MEETING**

**Meeting Date: May 19, 2016**

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**1. Subject:**

2016 Actuarial Experience Study for the South Carolina Retirement Systems

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**2. Summary:**

At least once every five years, PEBA's actuary is required to perform an experience study of the South Carolina Retirement Systems. The results of this study are then used to set actuarial assumptions and methodologies for future valuations of the systems performed by the actuary.

**Background Information:**

On February 12, 2016, PEBA's actuaries at GRS delivered the 2016 Actuarial Experience Study for the period ended June 30, 2015, for the South Carolina Retirement Systems. In the experience study, GRS recommends the adoption of a set of economic assumptions, demographic assumptions, and actuarial methods and policies for use in future valuations of the South Carolina Retirement Systems. With the exception of the assumed rate of return on the systems' investments, these recommended actuarial assumptions and methodologies may be adopted by the PEBA Board, subject to approval by the State Fiscal Accountability Authority (SFAA). Under current law, the assumed rate of return on the systems' investments is set by the General Assembly pursuant to Section 9-16-335 of the Code of Laws. Because the actuaries develop the actuarial assumptions and methods recommended in the experience study as a consistent, comprehensive set of assumptions to be adopted as a cohesive whole, PEBA first forwarded the experience study to the General Assembly so that it could review and, if appropriate, take action on the actuaries' recommended adjustment to the assumed rate of return prior to any action by PEBA on the other assumptions.

As part of that review by the General Assembly, there is pending legislation that would change how the assumed rate of investment return is established. However, none of that legislation has been enacted to date. While the assumed rate of return legislation has been pending at the General Assembly, the co-trustees of the retirement systems at SFAA have requested that PEBA take action on the other actuarial assumptions and methods recommended by the experience study and submit those actions to SFAA for review.

In addition to the adoption of these recommended assumptions and methods, the PEBA Board may be required to take additional action in the future regarding the assumed rate of return on the systems' investments or other methods of valuing the

systems' assets, depending upon how the General Assembly's review of the assumed rate of return is resolved.

### **3. What is the Committee asked to do?**

Recommend that the Board adopt the actuarial assumptions and methodologies recommended by GRS in the 2016 Actuarial Experience Study of the South Carolina Retirement Systems, with the exception of the recommended assumed rate of return for the systems' investments, to be effective for the actuarial valuations of the systems as of July 1, 2016.

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### **4. Supporting Documents:**

- (a) List those attached:

South Carolina Retirement Systems 2016 Actuarial Experience Study for the Period Ending June 30, 2015.

## Summary of 2016 actuarial experience study

### South Carolina Retirement System (SCRS)

#### Assumption changes

	Previous assumption as used in July 1, 2015, valuation	Recommended assumption for use in July 1, 2016, valuation
Inflation	2.75%	2.25%
Investment return	7.50%	7.25%
Salary increases	3.50%	3.00%
Payroll growth rate	3.50%	3.00%
Mortality	Variation of RP 2000 mortality tables with scale AA improvement assumption	System specific mortality table developed using our data with AA improvement assumption
Retirement		Increase assumed rates of retirement for members who retire with reduced benefits
Termination/withdrawal		Decrease assumed rate of member terminations
Refund of member contributions		Increase and make explicit the assumed number of members who elect a refund
Disability		No change
Asset valuation method	Recognize 20% of difference between market value and actuarial value of assets	Each year's gain/loss is recognized over a closed 5-year period at 20% per year

#### Fiscal impact of assumption changes

	Impact on employer contribution rate	Impact on UAAL (\$ millions)	Impact on funded ratio
Inflation	No direct impact	No direct impact	No direct impact
Investment return	0.56%	\$1,270	-1.8%
Salary increases	-0.33%	-\$403	0.6%
Payroll growth rate	0.30%	\$0	0.0%
Mortality	0.31%	\$760	-1.0%
Retirement	0.05%	\$88	-0.1%
Termination/withdrawal	0.14%	\$96	-0.2%
Refund of member contributions	0.14%	-\$171	0.3%
Disability	0.02%	-\$1	0.0%
Asset valuation method	No direct impact	No direct impact	No direct impact
<b>Total impact</b>	<b>1.19%</b>	<b>\$1,639</b>	<b>-2.2%</b>

*Note: The fiscal impact of assumption changes, if approved, would first be incorporated into the July 1, 2016, actuarial valuation which sets the contribution rates for the fiscal year beginning July 1, 2018.*

July 1, 2015, valuation (current assumptions)	11.09%	\$16,753	62.0%
<b>Results of recommended assumptions</b>	<b>12.28%</b>	<b>\$18,392</b>	<b>59.8%</b>

### SCRS projected rates

Based on July 1, 2015, valuation and 2016 experience study

Note: The fiscal impact of assumption changes, if approved, would first be incorporated into the July 1, 2016 actuarial valuation, which sets the contribution rates for the fiscal year beginning July 1, 2018

**Current assumptions**  
(assumes 7.5% each future year)

July 1,	Employer contribution rate	Member contribution rate	Total employer contributions (\$ millions)	Unfunded liability (\$ millions)	Funded ratio	Funding period
2015	11.06%	8.16%	\$1,047	\$16,753	62%	30
2016	11.06%	8.16%	\$1,071	\$17,486	61%	30
2017	11.09%	8.19%	\$1,104	\$18,321	61%	30
2018	11.09%	8.19%	\$1,145	\$19,242	60%	30
2019	11.19%	8.29%	\$1,189	\$20,247	59%	30
2020	11.30%	8.40%	\$1,240	\$20,536	59%	29
2021	11.41%	8.51%	\$1,295	\$20,780	60%	28
2022	11.54%	8.64%	\$1,335	\$20,969	60%	27
Future numbers at selected intervals						
2025	11.54%	8.64%	\$1,462	\$21,338	63%	24
2030	11.54%	8.64%	\$1,697	\$21,080	67%	18
2035	11.54%	8.64%	\$1,980	\$19,153	73%	13
2040	11.54%	8.64%	\$2,326	\$14,555	81%	7
2045	11.54%	8.64%	\$2,752	\$5,743	93%	2

**Recommended assumptions**  
(assumes 7.25% each future year)

July 1,	Employer contribution rate	Member contribution rate	Total employer contributions (\$ millions)	Unfunded liability (\$ millions)	Funded ratio	Funding period
2015	11.06%	8.16%	\$1,047	\$16,753	62%	30
2016	11.06%	8.16%	\$1,061	\$19,112	59%	30
2017	11.09%	8.19%	\$1,089	\$20,086	58%	30
2018	12.43%	9.53%	\$1,259	\$21,083	57%	30
2019	12.56%	9.66%	\$1,304	\$21,821	57%	29
2020	12.63%	9.73%	\$1,350	\$22,528	56%	29
2021	12.68%	9.78%	\$1,394	\$22,713	57%	28
2022	12.68%	9.78%	\$1,433	\$22,853	58%	27
Future numbers at selected intervals						
2025	12.68%	9.78%	\$1,554	\$23,045	60%	23
2030	12.68%	9.78%	\$1,772	\$22,381	65%	18
2035	12.68%	9.78%	\$2,028	\$19,916	71%	12
2040	12.68%	9.78%	\$2,336	\$14,666	80%	7
2045	12.68%	9.78%	\$2,706	\$5,156	94%	2

**Recommended assumptions**  
(assumes -6% return for FY16 and 7.25% each future year)

July 1,	Employer contribution rate	Member contribution rate	Total employer contributions (\$ millions)	Unfunded liability (\$ millions)	Funded ratio	Funding period
2015	11.06%	8.16%	\$1,047	\$16,753	62%	30
2016	11.06%	8.16%	\$1,061	\$19,763	58%	30
2017	11.09%	8.19%	\$1,089	\$21,626	55%	30
2018	12.62%	9.72%	\$1,279	\$23,527	52%	30
2019	13.02%	10.12%	\$1,355	\$25,150	50%	30
2020	13.34%	10.44%	\$1,430	\$26,700	48%	30
2021	13.63%	10.73%	\$1,505	\$27,032	49%	29
2022	13.84%	10.94%	\$1,573	\$27,273	50%	27
Future numbers at selected intervals						
2025	13.84%	10.94%	\$1,706	\$27,614	52%	24
2030	13.84%	10.94%	\$1,948	\$27,112	58%	19
2035	13.84%	10.94%	\$2,231	\$24,633	65%	13
2040	13.84%	10.94%	\$2,572	\$19,076	75%	8
2045	13.84%	10.94%	\$2,980	\$8,783	89%	2

## Summary of 2016 actuarial experience study

### Police Officers Retirement System (PORS)

#### Assumption changes

	Previous assumption as used in July 1, 2015, valuation	Recommended assumption for use in July 1, 2016, valuation
Inflation	2.75%	2.25%
Investment return	7.50%	7.25%
Salary increases	3.50%	3.00%
Payroll growth rate	3.50%	3.00%
Mortality	Variation of RP 2000 mortality tables with scale AA improvement assumption	System specific mortality table developed using our data with AA improvement assumption
Retirement		Modification to retirement rates at certain services and ages, but no significant overall change
Termination/withdrawal		No change
Refund of member contributions		No change
Disability		Increase in the rate of disability retirements
Asset valuation method	Recognize 20% of difference between market value and actuarial value of assets	Each year's gain/loss is recognized over a closed 5-year period at 20% per year

Note: The fiscal impact of assumption changes, if approved, would first be incorporated into the July 1, 2016, actuarial valuation which sets the contribution rates for the fiscal year beginning

#### Fiscal impact of assumption changes

	Impact on employer contribution rate	Impact on UAAL (\$ millions)	Impact on funded ratio
Inflation	No direct impact	No direct impact	No direct impact
Investment return	0.77%	\$193	-2.0%
Salary increases	-0.34%	-\$72	0.8%
Payroll growth rate	0.26%	\$0	0.0%
Mortality	0.43%	\$133	-1.4%
Retirement	-0.07%	-\$18	0.2%
Termination/withdrawal	0.00%	\$0	0.0%
Refund of member contributions	0.13%	-\$18	0.1%
Disability	0.08%	\$3	-0.1%
Asset valuation method	No direct impact	No direct impact	No direct impact
<b>Total impact</b>	<b>1.26%</b>	<b>\$221</b>	<b>-2.4%</b>
July 1, 2015, valuation (current assumptions)	13.53%	\$1,895	69.2%



Serving those who serve South Carolina

July 1, 2016, actuarial valuation which sets the contribution rates for the fiscal year beginning July 1, 2018.

<b>Results of recommended assumptions</b>	<b>14.79%</b>	<b>\$2,116</b>	<b>66.8%</b>
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Actual employer rate currently in effect is 13.74% with a 27-year funding period.

### PORS projected rates

Based on July 1, 2015, valuation and 2016 experience study

Note: The fiscal impact of assumption changes, if approved, would first be incorporated into the July 1, 2016 actuarial valuation, which sets the contribution rates for the fiscal year beginning July 1, 2018

**Current assumptions**  
(assumes 7.5% each future year)

July 1,	Employer contribution rate	Member contribution rate	Total employer contributions (\$ millions)	Unfunded liability (\$ millions)	Funded ratio	Funding period
2015	13.74%	8.74%	\$169	\$1,895	69%	27
2016	13.74%	8.74%	\$172	\$1,988	69%	28
2017	13.74%	8.74%	\$177	\$2,092	69%	28
2018	13.74%	8.74%	\$182	\$2,206	68%	29
2019	13.74%	8.74%	\$188	\$2,332	68%	30
2020	13.74%	8.74%	\$193	\$2,364	69%	28
2021	13.74%	8.74%	\$199	\$2,394	69%	27
2022	13.74%	8.74%	\$206	\$2,422	70%	26
Future numbers at selected intervals						
2025	13.74%	8.74%	\$226	\$2,476	73%	22
2030	13.74%	8.74%	\$265	\$2,443	77%	16
2035	13.74%	8.74%	\$312	\$2,176	82%	10
2040	13.74%	8.74%	\$369	\$1,535	89%	5
2045	13.00%	8.00%	\$416	\$404	98%	0

**Recommended assumptions**  
(assumes 7.25% each future year)

July 1,	Employer contribution rate	Member contribution rate	Total employer contributions (\$ millions)	Unfunded liability (\$ millions)	Funded ratio	Funding period
2015	13.74%	8.74%	\$169	\$1,895	69%	27
2016	13.74%	8.74%	\$171	\$2,199	67%	30
2017	13.74%	8.74%	\$176	\$2,326	66%	30
2018	14.86%	9.86%	\$195	\$2,455	66%	30
2019	14.95%	9.95%	\$201	\$2,554	66%	30
2020	14.95%	9.95%	\$207	\$2,649	66%	30
2021	14.95%	9.95%	\$212	\$2,676	67%	28
2022	14.95%	9.95%	\$218	\$2,701	68%	27
Future numbers at selected intervals						
2025	14.95%	9.95%	\$238	\$2,746	70%	23
2030	14.95%	9.95%	\$274	\$2,691	75%	17
2035	14.95%	9.95%	\$316	\$2,396	81%	11
2040	14.95%	9.95%	\$368	\$1,732	88%	6
2045	13.00%	8.00%	\$372	\$617	96%	1

**Recommended assumptions**  
(assumes -6% return for FY16 and 7.25% each future year)

July 1,	Employer contribution rate	Member contribution rate	Total employer contributions (\$ millions)	Unfunded liability (\$ millions)	Funded ratio	Funding period
2015	13.74%	8.74%	\$169	\$1,895	69%	27
2016	13.74%	8.74%	\$171	\$2,303	65%	30
2017	13.74%	8.74%	\$176	\$2,573	63%	30
2018	15.10%	10.10%	\$198	\$2,846	60%	30
2019	15.54%	10.54%	\$209	\$3,086	59%	30
2020	15.83%	10.83%	\$219	\$3,315	57%	30
2021	16.12%	11.12%	\$229	\$3,365	58%	29
2022	16.38%	11.38%	\$239	\$3,405	59%	27
Future numbers at selected intervals						
2025	16.38%	11.38%	\$260	\$3,472	63%	24
2030	16.38%	11.38%	\$300	\$3,433	68%	18
2035	16.38%	11.38%	\$347	\$3,118	75%	12
2040	16.38%	11.38%	\$403	\$2,374	83%	7
2045	16.38%	11.38%	\$469	\$969	94%	3

## Summary of 2016 actuarial experience study

### General Assembly Retirement System (GARS)

#### Assumption changes

	Previous assumption as used in July 1, 2015, valuation	Recommended assumption for use in July 1, 2016, valuation
Inflation	2.75%	2.25%
Investment return	7.50%	7.25%
Salary increases	None assumed	None assumed
Payroll growth rate	None assumed	None assumed
Mortality	Variation of RP 2000 mortality tables with scale AA improvement assumption	Same as general employees
Retirement		Increase over current assumption
Termination/withdrawal	No terminations assumed	No terminations assumed
Refund of member contributions	None assumed	None assumed
Disability		Same as general employees
Asset valuation method	Recognize 20% of difference between market value and actuarial value of assets	5-year with bases

*Note: The fiscal impact of assumption changes, if approved, would first be incorporated into the July 1, 2016, actuarial valuation which sets the contribution rates for the fiscal year beginning July 1, 2018.*

#### Fiscal impact of assumption changes

	Impact on employer contribution rate (\$ thousands)	Impact on UAAL (\$ thousands)	Impact on funded ratio
Inflation	No direct impact	No direct impact	No direct impact
Investment return	\$233	\$1,715	-1.1%
Salary increases	N/A	N/A	N/A
Payroll growth rate	N/A	N/A	N/A
Mortality	\$475	\$2,990	-2.0%
Retirement	\$61	\$267	-0.1%
Termination/withdrawal	\$0	\$0	0.0%
Refund of member contributions	\$0	\$0	0.0%
Disability	\$1	\$1	0.0%
Asset valuation method	No direct impact	No direct impact	No direct impact
<b>Total impact</b>	<b>\$769</b>	<b>\$4,973</b>	<b>-3.2%</b>
July 1, 2015, valuation (current assumptions)	\$4,777	\$37,196	50.1%
<b>Results of recommended assumptions</b>	<b>\$5,546</b>	<b>\$42,169</b>	<b>46.9%</b>

## Summary of 2016 actuarial experience study

### Judges and Solicitors Retirement System (JSRS)

#### Assumption changes

	Previous assumption as used in July 1, 2015, valuation	Recommended assumption for use in July 1, 2016, valuation
Inflation	2.75%	2.25%
Investment return	7.50%	7.25%
Salary increases	3.00%	2.75%
Payroll growth rate	3.00%	2.75%
Mortality	Variation of RP 2000 mortality tables with white collar adjustment scale AA improvement assumption	Same as public school employees
Retirement		Slight increase over current assumption
Termination/withdrawal	No terminations assumed	No terminations assumed
Refund of member contributions	None assumed	None assumed
Disability		Same as public school employees
Asset valuation method	Recognize 20% of difference between market value and actuarial value of assets	5-year with bases

Note: The fiscal impact of assumption changes, if approved, would first be incorporated into the July 1, 2016, actuarial valuation which sets the contribution rates for the fiscal year beginning July 1, 2018.

#### Fiscal impact of assumption changes

	Impact on employer contribution rate	Impact on UAAL (\$ thousands)	Impact on funded ratio
Inflation	No direct impact	No direct impact	No direct impact
Investment return	3.39%	\$7,031	-1.4%
Salary increases	-3.34%	-\$7,211	1.5%
Payroll growth rate	0.89%	\$0	0.0%
Mortality	3.80%	\$10,754	-2.3%
Retirement	0.98%	\$1,939	-0.4%
Termination/withdrawal	0.00%	\$0	0.0%
Refund of member contributions	0.00%	\$0	0.0%
Disability	0.46%	\$122	0.0%
Asset valuation method	No direct impact	No direct impact	No direct impact
<b>Total impact</b>	<b>6.18%</b>	<b>\$12,635</b>	<b>-2.6%</b>
July 1, 2015, valuation (current assumptions)	46.22%	\$111,692	58.6%
<b>Results of recommended assumptions</b>	<b>52.40%</b>	<b>\$124,327</b>	<b>56.0%</b>

Actual employer rate currently in effect is 47.97% with a 27-year funding period.

## Summary of 2016 actuarial experience study

### South Carolina National Guard Plan (SCNG)

#### Assumption changes

	Previous assumption as used in July 1, 2015, valuation	Recommended assumption for use in July 1, 2016, valuation
Inflation	2.75%	2.25%
Investment return	7.50%	7.25%
Salary increases	None assumed	None assumed
Payroll growth rate	None assumed	None assumed
Mortality	Variation of RP 2000 mortality tables with scale AA improvement assumption	Same as Police Officers Retirement System (PORS)
Retirement		No change
Termination/withdrawal		Reduce from current assumption
Refund of member contributions	N/A	N/A
Disability	No disability coverage	No disability coverage
Asset valuation method	Recognize 20% of difference between market value and actuarial value of assets	5-year with bases

Note: The fiscal impact of assumption changes, if approved, would first be incorporated into the July 1, 2016, actuarial valuation which sets the contribution rates for the following fiscal year.

#### Fiscal impact of assumption changes

	Impact on employer contribution rate (\$ thousands)	Impact on UAAL (\$ thousands)	Impact on funded ratio
Inflation	No direct impact	No direct impact	No direct impact
Investment return	\$19	\$967	-0.6%
Salary increases	\$0	\$0	0.0%
Payroll growth rate	\$0	\$0	0.0%
Mortality	\$164	\$1,511	-1.0%
Retirement	\$131	\$673	-0.4%
Termination/withdrawal	\$0	\$0	0.0%
Refund of member contributions	\$0	\$0	0.0%
Disability	-\$31	-\$74	0.0%
Asset valuation method	No direct impact	No direct impact	No direct impact
<b>Total impact</b>	<b>\$284</b>	<b>\$3,077</b>	<b>-2.0%</b>
July 1, 2015, valuation (current assumptions)	\$4,509	\$36,414	41.4%
<b>Results of recommended assumptions</b>	<b>\$4,793</b>	<b>\$39,491</b>	<b>39.4%</b>

**PUBLIC EMPLOYEE BENEFIT AUTHORITY AGENDA ITEM**  
**Retirement Policy Committee**

**Meeting Date:** May 18, 2016

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**1. Subject:** Actuarial Projected Employer and Employee Rates

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**2. Summary:** Discussion related to actuarial projected SCRS and PORS employer and employee rates based on assumptions recommended by GRS.

**3. What is Committee asked to do?** Receive as information

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**4. Supporting Documents:**

- (a) Attached: 1. SCRS Projections  
2. PORS Projections

## South Carolina Retirement System (SCRS)

### SCRS Exhibit 1.

**Projection Based on Assumptions Recommended by GRS, Including a 7.25% Investment Return Assumption**

**Projection Assumes the Plan will earn 7.25% Each Year after July 1, 2015**

**Reflects 11.56% Employer / 8.66% Member Contribution Rates Effective July 1, 2016**

July 1, (1)	Contribution Rate		Contributions		Actuarial Accrued Liability (6)	Actuarial Value of Assets (7)	Market Value of Assets (8)	Unfunded Liability (9)	Funded Ratio AVA / AAL (10)	Funding Period (years) (11)
	Employer (2)	Member (3)	Employer (4)	Member (5)						
2015	11.06%	8.16%	\$ 1,045	\$ 716	\$ 44,119	\$ 27,366	\$ 25,132	\$ 16,753	62%	30
2016	11.56%	8.66%	1,111	768	46,862	27,750	25,833	19,112	59%	30
2017	11.56%	8.66%	1,089	742	48,060	28,073	26,635	19,988	58%	30
2018	12.45%	9.55%	1,261	883	49,282	28,407	27,448	20,876	58%	30
2019	12.50%	9.60%	1,297	906	50,525	28,930	28,451	21,595	57%	30
2020	12.56%	9.66%	1,342	935	51,784	29,485	29,485	22,299	57%	29
2021	12.61%	9.71%	1,386	964	53,052	30,570	30,570	22,482	58%	28
2022	12.61%	9.71%	1,425	988	54,324	31,703	31,703	22,621	58%	27
2023	12.61%	9.71%	1,464	1,012	55,592	32,868	32,868	22,724	59%	26
2024	12.61%	9.71%	1,504	1,036	56,856	34,067	34,067	22,789	60%	25
2025	12.61%	9.71%	1,545	1,060	58,111	35,300	35,300	22,811	61%	23
2026	12.61%	9.71%	1,586	1,085	59,354	36,565	36,565	22,789	62%	22
2027	12.61%	9.71%	1,628	1,109	60,579	37,863	37,863	22,717	63%	21
2028	12.61%	9.71%	1,671	1,135	61,784	39,193	39,193	22,590	63%	20
2029	12.61%	9.71%	1,716	1,161	62,965	40,560	40,560	22,406	64%	19
2030	12.61%	9.71%	1,762	1,188	64,125	41,968	41,968	22,156	65%	18
2031	12.61%	9.71%	1,809	1,216	65,264	43,428	43,428	21,837	67%	17
2032	12.61%	9.71%	1,859	1,244	66,386	44,946	44,946	21,440	68%	16
2033	12.61%	9.71%	1,909	1,274	67,489	46,529	46,529	20,960	69%	14
2034	12.61%	9.71%	1,962	1,304	68,573	48,185	48,185	20,388	70%	13
2035	12.61%	9.71%	2,016	1,335	69,642	49,925	49,925	19,717	72%	12
2036	12.61%	9.71%	2,073	1,368	70,700	51,763	51,763	18,937	73%	11
2037	12.61%	9.71%	2,131	1,402	71,754	53,715	53,715	18,039	75%	10
2038	12.61%	9.71%	2,193	1,437	72,815	55,803	55,803	17,012	77%	9
2039	12.61%	9.71%	2,256	1,473	73,888	58,045	58,045	15,843	79%	8
2040	12.61%	9.71%	2,322	1,511	74,982	60,461	60,461	14,521	81%	7
2041	12.61%	9.71%	2,391	1,551	76,112	63,078	63,078	13,034	83%	6
2042	12.61%	9.71%	2,462	1,592	77,292	65,927	65,927	11,365	85%	5
2043	12.61%	9.71%	2,536	1,634	78,534	69,034	69,034	9,500	88%	3
2044	12.61%	9.71%	2,612	1,677	79,845	72,425	72,425	7,420	91%	3
2045	12.61%	9.71%	2,689	1,727	81,230	76,121	76,121	5,109	94%	2

Projection based on the July 1, 2015 census and asset information, using the actuarial assumptions recommended by GRS, including a 7.25% discount rate.

## South Carolina Retirement System (SCRS)

### SCRS Exhibit 2.

**Projection Based on Assumptions Recommended by GRS, Including a 7.25% Investment Return Assumption**

**Projected 0.00% Return for FY 2016 and 7.25% Each Year Thereafter**

**Reflects 11.56% Employer / 8.66% Member Contribution Rates Effective July 1, 2016**

July 1, (1)	Contribution Rate		Contributions		Actuarial Accrued Liability (6)	Actuarial Value of Assets (7)	Market Value of Assets (8)	Unfunded Liability (9)	Funded Ratio AVA / AAL (10)	Funding Period (years) (11)
	Employer (2)	Member (3)	Employer (4)	Member (5)						
2015	11.06%	8.16%	\$ 1,045	\$ 716	\$ 44,119	\$ 27,366	\$ 25,132	\$ 16,753	62%	30
2016	11.56%	8.66%	1,111	768	46,862	27,394	24,050	19,468	58%	30
2017	11.56%	8.66%	1,226	861	48,060	27,230	24,723	20,830	57%	30
2018	12.40%	9.50%	1,255	878	49,282	26,347	24,676	22,935	53%	30
2019	12.73%	9.83%	1,323	928	50,525	26,303	25,467	24,223	52%	30
2020	13.16%	10.26%	1,410	993	51,784	26,334	26,334	25,450	51%	30
2021	13.37%	10.47%	1,475	1,039	53,052	27,321	27,321	25,731	51%	28
2022	13.50%	10.60%	1,532	1,078	54,324	28,388	28,388	25,936	52%	27
2023	13.50%	10.60%	1,575	1,105	55,592	29,518	29,518	26,074	53%	26
2024	13.50%	10.60%	1,618	1,131	56,856	30,684	30,684	26,172	54%	25
2025	13.50%	10.60%	1,661	1,157	58,111	31,888	31,888	26,223	55%	24
2026	13.50%	10.60%	1,706	1,184	59,354	33,127	33,127	26,226	56%	23
2027	13.50%	10.60%	1,751	1,211	60,579	34,404	34,404	26,176	57%	22
2028	13.50%	10.60%	1,798	1,239	61,784	35,717	35,717	26,067	58%	21
2029	13.50%	10.60%	1,846	1,267	62,965	37,071	37,071	25,895	59%	19
2030	13.50%	10.60%	1,896	1,297	64,125	38,472	38,472	25,652	60%	18
2031	13.50%	10.60%	1,948	1,327	65,264	39,930	39,930	25,334	61%	17
2032	13.50%	10.60%	2,001	1,358	66,386	41,454	41,454	24,932	62%	16
2033	13.50%	10.60%	2,056	1,390	67,489	43,049	43,049	24,439	64%	15
2034	13.50%	10.60%	2,112	1,423	68,573	44,726	44,726	23,847	65%	14
2035	13.50%	10.60%	2,171	1,458	69,642	46,496	46,496	23,147	67%	13
2036	13.50%	10.60%	2,233	1,493	70,700	48,373	48,373	22,328	68%	12
2037	13.50%	10.60%	2,296	1,530	71,754	50,375	50,375	21,379	70%	11
2038	13.50%	10.60%	2,363	1,569	72,815	52,524	52,524	20,290	72%	10
2039	13.50%	10.60%	2,431	1,608	73,888	54,841	54,841	19,047	74%	8
2040	13.50%	10.60%	2,503	1,650	74,982	57,346	57,346	17,636	76%	7
2041	13.50%	10.60%	2,577	1,693	76,112	60,068	60,068	16,044	79%	6
2042	13.50%	10.60%	2,654	1,737	77,292	63,039	63,039	14,253	82%	5
2043	13.50%	10.60%	2,734	1,784	78,534	66,287	66,287	12,247	84%	4
2044	13.50%	10.60%	2,816	1,831	79,845	69,840	69,840	10,005	87%	3
2045	13.50%	10.60%	2,900	1,885	81,230	73,719	73,719	7,511	91%	3

Projection based on the July 1, 2015 census and asset information, using the actuarial assumptions recommended by GRS, including a 7.25% discount rate.

## South Carolina Retirement System (SCRS)

### SCRS Exhibit 3.

**Projection Based on Assumptions Recommended by GRS, Including a 7.25% Investment Return Assumption  
Projected 0.00% Return for FY 2016, 4.00% for FY 2017 Through FY 2021 and 7.25% Each Year Thereafter  
Reflects 11.56% Employer / 8.66% Member Contribution Rates Effective July 1, 2016**

July 1, (1)	Contribution Rate		Contributions		Actuarial Accrued Liability (6)	Actuarial Value of Assets (7)	Market Value of Assets (8)	Unfunded Liability (9)	Funded Ratio AVA / AAL (10)	Funding Period (years) (11)
	Employer (2)	Member (3)	Employer (4)	Member (5)						
2015	11.06%	8.16%	\$ 1,045	\$ 716	\$ 44,119	\$ 27,336	\$ 25,132	\$ 16,783	62%	30
2016	11.56%	8.66%	1,111	768	46,862	27,394	24,050	19,468	58%	30
2017	11.56%	8.66%	1,226	861	48,060	27,077	23,958	20,983	56%	30
2018	12.40%	9.50%	1,255	878	49,282	25,836	23,105	23,446	52%	30
2019	12.78%	9.88%	1,328	932	50,525	25,227	23,048	25,298	50%	30
2020	13.30%	10.40%	1,426	1,007	51,784	24,497	23,016	27,287	47%	30
2021	13.67%	10.77%	1,510	1,069	53,052	24,530	23,059	28,521	46%	30
2022	13.99%	11.09%	1,591	1,128	54,324	24,765	23,884	29,558	46%	30
2023	14.12%	11.22%	1,652	1,169	55,592	25,241	24,800	30,351	45%	29
2024	14.16%	11.26%	1,702	1,201	56,856	25,918	25,771	30,938	46%	29
2025	14.16%	11.26%	1,748	1,229	58,111	26,779	26,779	31,332	46%	28
2026	14.16%	11.26%	1,795	1,258	59,354	27,813	27,813	31,541	47%	27
2027	14.16%	11.26%	1,843	1,287	60,579	28,872	28,872	31,707	48%	26
2028	14.16%	11.26%	1,892	1,316	61,784	29,958	29,958	31,826	48%	25
2029	14.16%	11.26%	1,943	1,346	62,965	31,072	31,072	31,894	49%	24
2030	14.16%	11.26%	1,996	1,378	64,125	32,220	32,220	31,904	50%	23
2031	14.16%	11.26%	2,051	1,410	65,264	33,412	33,412	31,852	51%	22
2032	14.16%	11.26%	2,107	1,443	66,386	34,655	34,655	31,731	52%	21
2033	14.16%	11.26%	2,164	1,477	67,489	35,955	35,955	31,534	53%	19
2034	14.16%	11.26%	2,224	1,512	68,573	37,319	37,319	31,254	54%	18
2035	14.16%	11.26%	2,287	1,548	69,642	38,760	38,760	30,882	56%	17
2036	14.16%	11.26%	2,351	1,586	70,700	40,289	40,289	30,411	57%	16
2037	14.16%	11.26%	2,419	1,625	71,754	41,925	41,925	29,829	58%	15
2038	14.16%	11.26%	2,489	1,666	72,815	43,687	43,687	29,127	60%	14
2039	14.16%	11.26%	2,561	1,708	73,888	45,595	45,595	28,293	62%	13
2040	14.16%	11.26%	2,637	1,752	74,982	47,668	47,668	27,314	64%	12
2041	14.16%	11.26%	2,715	1,798	76,112	49,934	49,934	26,178	66%	11
2042	14.16%	11.26%	2,797	1,846	77,292	52,422	52,422	24,870	68%	10
2043	14.16%	11.26%	2,881	1,895	78,534	55,160	55,160	23,374	70%	9
2044	14.16%	11.26%	2,968	1,945	79,845	58,174	58,174	21,671	73%	7
2045	14.16%	11.26%	3,056	2,002	81,230	61,482	61,482	19,748	76%	6

Projection based on the July 1, 2015 census and asset information, using the actuarial assumptions recommended by GRS, including a 7.25% discount rate.

## South Carolina Retirement System (SCRS)

### SCRS Exhibit 4.

**Projection Based on Assumptions Recommended by GRS, with a 7.00% Investment Return Assumption**

**Projection Assumes the Plan will earn 7.00% Each Year after July 1, 2015**

**Reflects 11.56% Employer / 8.66% Member Contribution Rates Effective July 1, 2016**

July 1, (1)	Contribution Rate		Contributions		Actuarial Accrued Liability (6)	Actuarial Value of Assets (7)	Market Value of Assets (8)	Unfunded Liability (9)	Funded Ratio AVA / AAL (10)	Funding Period (years) (11)
	Employer (2)	Member (3)	Employer (4)	Member (5)						
2015	11.06%	8.16%	\$ 1,045	\$ 716	\$ 44,119	\$ 27,336	\$ 25,132	\$ 16,783	62%	30
2016	11.56%	8.66%	1,111	768	48,154	27,750	25,833	20,404	58%	30
2017	11.56%	8.66%	1,261	890	49,376	28,010	26,572	21,367	57%	30
2018	12.73%	9.83%	1,291	908	50,623	27,589	26,631	23,034	54%	30
2019	12.99%	10.09%	1,351	952	51,890	28,046	27,567	23,844	54%	30
2020	13.25%	10.35%	1,420	1,002	53,174	28,573	28,573	24,601	54%	29
2021	13.31%	10.41%	1,468	1,033	54,467	29,673	29,673	24,795	54%	28
2022	13.31%	10.41%	1,509	1,059	55,764	30,824	30,824	24,940	55%	27
2023	13.31%	10.41%	1,551	1,085	57,058	32,011	32,011	25,047	56%	26
2024	13.31%	10.41%	1,594	1,111	58,347	33,235	33,235	25,112	57%	25
2025	13.31%	10.41%	1,636	1,137	59,628	34,496	34,496	25,131	58%	24
2026	13.31%	10.41%	1,680	1,163	60,895	35,793	35,793	25,102	59%	22
2027	13.31%	10.41%	1,725	1,189	62,147	37,127	37,127	25,020	60%	21
2028	13.31%	10.41%	1,771	1,217	63,377	38,497	38,497	24,880	61%	20
2029	13.31%	10.41%	1,818	1,245	64,584	39,907	39,907	24,677	62%	19
2030	13.31%	10.41%	1,868	1,274	65,769	41,363	41,363	24,406	63%	18
2031	13.31%	10.41%	1,918	1,304	66,936	42,876	42,876	24,060	64%	17
2032	13.31%	10.41%	1,971	1,334	68,084	44,453	44,453	23,631	65%	16
2033	13.31%	10.41%	2,024	1,365	69,215	46,100	46,100	23,114	67%	15
2034	13.31%	10.41%	2,080	1,398	70,327	47,827	47,827	22,501	68%	14
2035	13.31%	10.41%	2,138	1,431	71,426	49,644	49,644	21,781	70%	12
2036	13.31%	10.41%	2,198	1,466	72,514	51,566	51,566	20,948	71%	11
2037	13.31%	10.41%	2,261	1,503	73,600	53,611	53,611	19,989	73%	10
2038	13.31%	10.41%	2,326	1,541	74,693	55,798	55,798	18,894	75%	9
2039	13.31%	10.41%	2,394	1,579	75,800	58,148	58,148	17,652	77%	8
2040	13.31%	10.41%	2,464	1,620	76,930	60,681	60,681	16,248	79%	7
2041	13.31%	10.41%	2,537	1,662	78,097	63,426	63,426	14,671	81%	6
2042	13.31%	10.41%	2,613	1,706	79,316	66,411	66,411	12,905	84%	5
2043	13.31%	10.41%	2,692	1,752	80,598	69,665	69,665	10,933	86%	4
2044	13.31%	10.41%	2,773	1,798	81,952	73,214	73,214	8,738	89%	3
2045	13.31%	10.41%	2,855	1,851	83,381	77,077	77,077	6,304	92%	2

Projection based on the July 1, 2015 census and asset information, using the actuarial assumptions recommended by GRS, with a 7.00% discount rate.

## Police Officers Retirement System (PORS)

### PORS Exhibit 1.

**Projection Based on Assumptions Recommended by GRS, Including a 7.25% Investment Return Assumption**

**Projection Assumes the Plan will earn 7.25% Each Year after July 1, 2015**

**Reflects 14.24% Employer / 9.24% Member Contribution Rates Effective July 1, 2016**

July 1, (1)	Contribution Rate		Contributions		Actuarial Accrued Liability (6)	Actuarial Value of Assets (7)	Market Value of Assets (8)	Unfunded Liability (9)	Funded Ratio AVA / AAL (10)	Funding Period (years) (11)
	Employer (2)	Member (3)	Employer (4)	Member (5)						
2015	13.74%	8.74%	\$ 169	\$ 108	\$ 6,162	\$ 4,267	\$ 3,972	\$ 1,895	69%	27
2016	14.24%	9.24%	178	115	6,639	4,440	4,179	2,199	67%	30
2017	14.24%	9.24%	182	118	6,912	4,599	4,403	2,313	67%	30
2018	14.80%	9.80%	194	129	7,192	4,765	4,634	2,428	66%	30
2019	14.85%	9.85%	200	133	7,478	4,951	4,886	2,526	66%	30
2020	14.86%	9.86%	206	136	7,767	5,145	5,145	2,622	66%	30
2021	14.87%	9.87%	211	140	8,062	5,412	5,412	2,650	67%	28
2022	14.89%	9.89%	217	144	8,363	5,688	5,688	2,675	68%	27
2023	14.89%	9.89%	224	149	8,668	5,973	5,973	2,695	69%	26
2024	14.89%	9.89%	230	153	8,975	6,265	6,265	2,710	70%	24
2025	14.89%	9.89%	237	157	9,285	6,565	6,565	2,720	71%	23
2026	14.89%	9.89%	244	162	9,598	6,874	6,874	2,724	72%	22
2027	14.89%	9.89%	251	166	9,914	7,193	7,193	2,721	73%	20
2028	14.89%	9.89%	258	171	10,233	7,522	7,522	2,711	74%	19
2029	14.89%	9.89%	265	176	10,555	7,862	7,862	2,693	74%	18
2030	14.89%	9.89%	273	181	10,881	8,215	8,215	2,667	75%	17
2031	14.89%	9.89%	281	187	11,211	8,580	8,580	2,631	77%	16
2032	14.89%	9.89%	289	192	11,542	8,958	8,958	2,585	78%	15
2033	14.89%	9.89%	297	198	11,876	9,349	9,349	2,527	79%	13
2034	14.89%	9.89%	306	203	12,212	9,754	9,754	2,458	80%	12
2035	14.89%	9.89%	315	209	12,551	10,175	10,175	2,376	81%	11
2036	14.89%	9.89%	325	216	12,893	10,615	10,615	2,279	82%	10
2037	14.89%	9.89%	334	222	13,240	11,074	11,074	2,166	84%	9
2038	14.89%	9.89%	344	229	13,593	11,557	11,557	2,036	85%	8
2039	14.89%	9.89%	355	236	13,956	12,067	12,067	1,888	86%	7
2040	14.89%	9.89%	366	243	14,329	12,610	12,610	1,720	88%	6
2041	14.89%	9.89%	377	250	14,713	13,184	13,184	1,529	90%	5
2042	14.89%	9.89%	389	258	15,106	13,792	13,792	1,314	91%	6
2043	14.89%	9.89%	401	267	15,514	14,440	14,440	1,074	93%	3
2044	13.00%	8.00%	361	222	15,936	15,131	15,131	805	95%	2
2045	13.00%	8.00%	372	229	16,372	15,757	15,757	614	96%	1

Projection based on the July 1, 2015 census and asset information, using the actuarial assumptions recommended by GRS, including a 7.25% discount rate.

**Police Officers Retirement System (PORS)**

**PORS Exhibit 2.**

**Projection Based on Assumptions Recommended by GRS, Including a 7.25% Investment Return Assumption**

**Projected 0.00% Return FY 2016 and 7.25% Each Year Thereafter**

**Reflects 14.24% Employer / 9.24% Member Contribution Rates Effective July 1, 2016**

July 1, (1)	Contribution Rate		Contributions		Actuarial Accrued Liability (6)	Actuarial Value of Assets (7)	Market Value of Assets (8)	Unfunded Liability (9)	Funded Ratio AVA / AAL (10)	Funding Period (years) (11)
	Employer (2)	Member (3)	Employer (4)	Member (5)						
2015	13.74%	8.74%	\$ 169	\$ 108	\$ 6,162	\$ 4,267	\$ 3,972	\$ 1,895	69%	27
2016	14.24%	9.24%	178	115	6,639	4,383	3,894	2,256	66%	30
2017	14.24%	9.24%	182	118	6,912	4,464	4,097	2,448	65%	30
2018	14.93%	9.93%	196	130	7,192	4,551	4,306	2,642	63%	30
2019	15.17%	10.17%	204	137	7,478	4,660	4,538	2,818	62%	30
2020	15.36%	10.36%	212	143	7,767	4,781	4,781	2,987	62%	30
2021	15.53%	10.53%	221	150	8,062	5,035	5,035	3,027	62%	29
2022	15.67%	10.67%	229	156	8,363	5,303	5,303	3,059	63%	27
2023	15.67%	10.67%	235	160	8,668	5,584	5,584	3,084	64%	26
2024	15.67%	10.67%	242	165	8,975	5,872	5,872	3,103	65%	25
2025	15.67%	10.67%	249	170	9,285	6,169	6,169	3,116	66%	23
2026	15.67%	10.67%	256	175	9,598	6,475	6,475	3,123	67%	22
2027	15.67%	10.67%	264	180	9,914	6,791	6,791	3,123	69%	21
2028	15.67%	10.67%	271	185	10,233	7,118	7,118	3,115	70%	20
2029	15.67%	10.67%	279	190	10,555	7,457	7,457	3,098	71%	19
2030	15.67%	10.67%	287	196	10,881	7,809	7,809	3,072	72%	17
2031	15.67%	10.67%	296	201	11,211	8,175	8,175	3,036	73%	16
2032	15.67%	10.67%	304	207	11,542	8,554	8,554	2,989	74%	15
2033	15.67%	10.67%	313	213	11,876	8,947	8,947	2,929	75%	14
2034	15.67%	10.67%	322	219	12,212	9,355	9,355	2,857	77%	13
2035	15.67%	10.67%	332	226	12,551	9,781	9,781	2,770	78%	12
2036	15.67%	10.67%	342	233	12,893	10,226	10,226	2,668	79%	11
2037	15.67%	10.67%	352	239	13,240	10,692	10,692	2,548	81%	10
2038	15.67%	10.67%	362	247	13,593	11,183	11,183	2,410	82%	9
2039	15.67%	10.67%	374	254	13,956	11,705	11,705	2,251	84%	8
2040	15.67%	10.67%	385	262	14,329	12,259	12,259	2,070	86%	6
2041	15.67%	10.67%	397	270	14,713	12,848	12,848	1,865	87%	5
2042	15.67%	10.67%	409	279	15,106	13,472	13,472	1,634	89%	4
2043	15.67%	10.67%	422	288	15,514	14,139	14,139	1,375	91%	6
2044	15.67%	10.67%	435	297	15,936	14,852	14,852	1,084	93%	2
2045	13.00%	8.00%	372	229	16,372	15,612	15,612	760	95%	2

Projection based on the July 1, 2015 census and asset information, using the actuarial assumptions recommended by GRS, including a 7.25% discount rate.

## Police Officers Retirement System (PORS)

### PORS Exhibit 3.

**Projection Based on Assumptions Recommended by GRS, Including a 7.25% Investment Return Assumption  
Projected 0.00% Return FY 2016, 4.00% for FY2017 Through FY 2021 and 7.25% Each Year Thereafter  
Reflects 14.24% Employer / 9.24% Member Contribution Rates Effective July 1, 2016**

July 1, (1)	Contribution Rate		Contributions		Actuarial Accrued Liability (6)	Actuarial Value of Assets (7)	Market Value of Assets (8)	Unfunded Liability (9)	Funded Ratio AVA / AAL (10)	Funding Period (years) (11)
	Employer (2)	Member (3)	Employer (4)	Member (5)						
2015	13.74%	8.74%	\$ 169	\$ 108	\$ 6,162	\$ 4,267	\$ 3,972	\$ 1,895	69%	27
2016	14.24%	9.24%	178	115	6,639	4,383	3,894	2,256	66%	30
2017	14.24%	9.24%	182	118	6,912	4,439	3,972	2,473	64%	30
2018	14.93%	9.93%	196	130	7,192	4,466	4,044	2,726	62%	30
2019	15.24%	10.24%	205	138	7,478	4,480	4,126	2,998	60%	30
2020	15.55%	10.55%	215	146	7,767	4,469	4,209	3,298	58%	30
2021	15.93%	10.93%	226	155	8,062	4,558	4,292	3,504	57%	30
2022	16.36%	11.36%	239	166	8,363	4,678	4,518	3,685	56%	30
2023	16.55%	11.55%	249	174	8,668	4,843	4,763	3,825	56%	30
2024	16.64%	11.64%	257	180	8,975	5,045	5,018	3,930	56%	30
2025	16.65%	11.65%	265	185	9,285	5,284	5,284	4,001	57%	29
2026	16.65%	11.65%	272	191	9,598	5,559	5,559	4,039	58%	27
2027	16.65%	11.65%	280	196	9,914	5,841	5,841	4,072	59%	26
2028	16.65%	11.65%	288	202	10,233	6,134	6,134	4,099	60%	25
2029	16.65%	11.65%	297	208	10,555	6,437	6,437	4,118	61%	24
2030	16.65%	11.65%	305	214	10,881	6,751	6,751	4,130	62%	23
2031	16.65%	11.65%	314	220	11,211	7,077	7,077	4,134	63%	21
2032	16.65%	11.65%	323	226	11,542	7,415	7,415	4,128	64%	20
2033	16.65%	11.65%	333	233	11,876	7,765	7,765	4,111	65%	19
2034	16.65%	11.65%	342	239	12,212	8,128	8,128	4,084	67%	18
2035	16.65%	11.65%	352	247	12,551	8,506	8,506	4,044	68%	17
2036	16.65%	11.65%	363	254	12,893	8,902	8,902	3,991	69%	16
2037	16.65%	11.65%	374	261	13,240	9,317	9,317	3,923	70%	15
2038	16.65%	11.65%	385	269	13,593	9,754	9,754	3,839	72%	14
2039	16.65%	11.65%	397	278	13,956	10,218	10,218	3,737	73%	13
2040	16.65%	11.65%	409	286	14,329	10,713	10,713	3,616	75%	12
2041	16.65%	11.65%	422	295	14,713	11,240	11,240	3,473	76%	10
2042	16.65%	11.65%	435	304	15,106	11,799	11,799	3,307	78%	9
2043	16.65%	11.65%	449	314	15,514	12,398	12,398	3,116	80%	8
2044	16.65%	11.65%	463	324	15,936	13,040	13,040	2,897	82%	7
2045	16.65%	11.65%	477	334	16,372	13,724	13,724	2,647	84%	6

Projection based on the July 1, 2015 census and asset information, using the actuarial assumptions recommended by GRS, including a 7.25% discount rate.

## Police Officers Retirement System (PORS)

### PORS Exhibit 4.

**Projection Based on Assumptions Recommended by GRS, with a 7.00% Investment Return Assumption**

**Projection Assumes the Plan will earn 7.00% Each Year after July 1, 2015**

**Reflects 14.24% Employer / 9.24% Member Contribution Rates Effective July 1, 2016**

July 1, (1)	Contribution Rate		Contributions		Actuarial Accrued Liability (6)	Actuarial Value of Assets (7)	Market Value of Assets (8)	Unfunded Liability (9)	Funded Ratio AVA / AAL (10)	Funding Period (years) (11)
	Employer (2)	Member (3)	Employer (4)	Member (5)						
2015	13.74%	8.74%	\$ 169	\$ 108	\$ 6,162	\$ 4,267	\$ 3,972	\$ 1,895	69%	27
2016	14.24%	9.24%	178	115	6,845	4,422	4,169	2,423	65%	30
2017	14.24%	9.24%	182	118	7,124	4,571	4,382	2,553	64%	30
2018	15.51%	10.51%	204	138	7,411	4,727	4,601	2,684	64%	30
2019	15.66%	10.66%	211	144	7,704	4,921	4,858	2,782	64%	29
2020	15.66%	10.66%	217	147	8,001	5,126	5,126	2,874	64%	29
2021	15.66%	10.66%	223	151	8,303	5,402	5,402	2,901	65%	28
2022	15.66%	10.66%	229	156	8,610	5,687	5,687	2,923	66%	26
2023	15.66%	10.66%	235	160	8,923	5,981	5,981	2,942	67%	25
2024	15.66%	10.66%	242	165	9,237	6,283	6,283	2,954	68%	24
2025	15.66%	10.66%	249	170	9,554	6,594	6,594	2,961	69%	22
2026	15.66%	10.66%	256	174	9,874	6,914	6,914	2,960	70%	21
2027	15.66%	10.66%	264	179	10,197	7,244	7,244	2,953	71%	20
2028	15.66%	10.66%	271	185	10,523	7,586	7,586	2,937	72%	19
2029	15.66%	10.66%	279	190	10,853	7,940	7,940	2,913	73%	18
2030	15.66%	10.66%	287	195	11,186	8,307	8,307	2,879	74%	17
2031	15.66%	10.66%	295	201	11,523	8,688	8,688	2,835	75%	15
2032	15.66%	10.66%	304	207	11,862	9,082	9,082	2,780	77%	14
2033	15.66%	10.66%	313	213	12,203	9,491	9,491	2,712	78%	13
2034	15.66%	10.66%	322	219	12,546	9,915	9,915	2,631	79%	12
2035	15.66%	10.66%	331	226	12,892	10,356	10,356	2,536	80%	11
2036	15.66%	10.66%	341	232	13,243	10,817	10,817	2,426	82%	10
2037	15.66%	10.66%	351	239	13,597	11,299	11,299	2,298	83%	9
2038	15.66%	10.66%	362	247	13,958	11,806	11,806	2,152	85%	8
2039	15.66%	10.66%	374	254	14,328	12,343	12,343	1,985	86%	7
2040	15.66%	10.66%	385	262	14,710	12,913	12,913	1,797	88%	6
2041	15.66%	10.66%	397	270	15,102	13,517	13,517	1,585	90%	4
2042	15.66%	10.66%	409	278	15,505	14,157	14,157	1,347	91%	6
2043	15.66%	10.66%	422	287	15,921	14,839	14,839	1,082	93%	3
2044	13.00%	8.00%	361	222	16,353	15,567	15,567	787	95%	2
2045	13.00%	8.00%	372	229	16,799	16,187	16,187	611	96%	1

Projection based on the July 1, 2015 census and asset information, using the actuarial assumptions recommended by GRS, including a 7.00% discount rate.

**PUBLIC EMPLOYEE BENEFIT AUTHORITY AGENDA ITEM**  
**Retirement Policy Committee**

**Meeting Date:** May 18, 2016

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**1. Subject:** South Carolina Deferred Compensation Program

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**2. Summary:** Paul Staples from Summit Strategies Group will present the SC Deferred Compensation Program (SCDCP) reports for the quarter ending March 31, 2016.

**3. What is Committee asked to do?** Receive as information

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**4. Supporting Documents:**

- (a) Attached:   1. Q1 2016 SCDCP Performance Summary  
                  2. Q1 2016 SCDCP Plan Activity Summary



***Summit Strategies Group***

*8182 Maryland Avenue, 6th Floor*

*St. Louis, Missouri 63105*

*314.727.7211*

**PEBA 1Q 2016 Performance Summary**

**State of South Carolina  
Deferred Compensation Program**

*May 18, 2016*

## ECONOMIC & CAPITAL MARKETS HIGHLIGHTS

### ECONOMIC

- Fears of a US recession receded during the quarter as the economy proved steady. A postponement of rate hikes by a more cautious Fed, a recovery in oil prices, and a global ramp up of central bank stimulus measures all contributed to an improving global economic outlook by quarter end.
  - US labor markets continued to improve with unemployment at 5.0%.
  - Core CPI (ex food and energy) accelerated during the quarter rising 2.2% y-o-y; Headline CPI also rose by 0.9% y-o-y.
  - Q4 US GDP growth was revised upward, from 1.0% to 1.4%.
  - Hourly wages rose by 2.3% y-o-y, reflecting a healing labor market.
  - Oil prices rebounded during the quarter, appreciating 3.5%.
  - The US Dollar Index fell 4.1% against foreign currencies.
- Another key concern weighing on markets, the impact of a slowing Chinese economy on global growth, also waned by quarter end. New economic data released in March pointed to a stabilizing economy, buffered by a recovery in the property market and a fresh round of bank stimulus.

### CAPITAL MARKETS

- The beginning of the quarter was marked by historic market volatility and a rotation of asset class and industry sector performance from 2015.
  - The S&P 500 fell 10.5% in the first six weeks, but finished the quarter up 1.4% (first quarter since 1933 that the market recovered from a 10% dip).
  - After lagging for years, emerging markets posted the highest return among equities (+5.7%) on higher commodity prices and central bank stimulus.
  - For the first time in a year, value stocks outperformed growth peers.
  - Healthcare, last year's leading domestic industry sector, posted the quarter's lowest return while defensive sectors, including utilities, led.
  - Virtually all inflation-linked assets rebounded: gold (+16.1%), REITs (+5.8%), TIPS (+4.5%), oil (+3.5%), and commodities (+0.4%).
- Market volatility helped fixed income as all sectors posted positive returns.
  - Non-US bonds led all sectors, driven in part by a depreciating US dollar.
  - Yields on the 10-year Treasury fell by 50 bps to 1.8%.

### MARKET PERFORMANCE

	<u>Quarter</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>
S&P 500	1.35	1.78	11.82	11.58
Russell 1000 Index	1.17	0.50	11.52	11.35
Russell 1000 Value Index	1.64	-1.54	9.38	10.25
Russell 1000 Growth Index	0.74	2.52	13.61	12.38
Russell 2000 Index	-1.52	-9.76	6.84	7.20
Russell 2000 Value Index	1.70	-7.72	5.73	6.67
Russell 2000 Growth Index	-4.68	-11.84	7.91	7.70
Russell 3000 Index	0.97	-0.34	11.15	11.01
MSCI EAFE Index (Net)	-3.01	-8.27	2.23	2.29
MSCI Emerging Markets (Net)	5.71	-12.03	-4.50	-4.13
Barclays Aggregate	3.03	1.96	2.50	3.78
Barclays US Treasury	3.20	2.39	2.13	3.59
Barclays U.S. TIPS	4.46	1.51	-0.71	3.02
Barclays U.S. Corporate	3.97	0.92	3.03	5.17
Barclays U.S. High Yield	3.35	-3.69	1.84	4.93
Barclays U.S. Mortgage	1.98	2.43	2.70	3.24
Barclays Global Aggregate	5.90	4.57	0.87	1.81
NAREIT-All REIT Composite	5.75	3.91	8.80	11.03

### LOOKING AHEAD

- Elevated market volatility likely to continue.
- “Brexit” – referendum on possible UK exit from the European Union on June 23rd may increase market volatility.
- Focus on timing of Fed interest rate hikes.
- Value-based investing appears to be making a comeback.
- Accelerating inflation a tailwind to inflation sensitive assets, including commodities, energy, and TIPS.
- US economy sturdy amid consumer outlook and tailwinds to consumption (labor market, home prices, and lower fuel costs).

## DEFINED CONTRIBUTION MARKET NEWS

### Participant and Sponsor Behavior

- A study issued by the Employee Benefit Research Institute reinforces the close relationship between participation in a retirement plan and understanding the need to save for retirement. Among the findings:
  - 46% of respondents without a retirement plan indicated they would need to save less than \$250,000 to live comfortably in retirement compared to 49% of workers with a plan that cited (*a more realistic*) \$250,000 to \$1 million.
  - 67% of respondents without a plan indicated they had less than \$1,000 in household savings compared to 9% for workers with a retirement plan.
- Fidelity Investments reports their year-end corporate and tax exempt average participant balances were \$87,900 and \$51,900, respectively. Median balances were less than half the average.
  - The average account balance of continuously active participants grew at an approximate CAGR of 13.5% over the trailing ten-year period ending 12/31/15 (includes participant and market activity).
- Research by Voya Investment Management indicates only 15% of target-date users correctly use those funds by allocating all their assets to a single vintage (e.g., 2020).

### Industry, Legal and Regulatory Updates

- Following a five month comment period, 4 days of public hearings and over 3,000 comments, on April 6, 2016, The US Department of Labor released the final Fiduciary Rule.
  - While largely the same as the proposed rule, the final version contains language that was softened in response to industry criticism that participants would be negatively impacted by the reclassification of certain education and information as investment advice.
  - Summit will soon be issuing a white paper addressing how the rule may impact the service model between the recordkeeper, managed accounts provider, sponsor and participant.
- Participants in Chevron Corporation's \$19 billion 401(k) plan filed suit for alleged breach of fiduciary duty by offering higher cost mutual fund share classes, failing to offer lower cost commingled trusts or separate accounts, and not issuing an RFP for recordkeeping services within the last 6 years to determine the reasonableness of fees.
- Participants in the \$5.1 billion Anthem 401(k) plan filed suit alleging breach of fiduciary duty for unreasonable recordkeeping expenses and higher cost options.

FUND MONITOR 3/31/2016

Investment Options											
Criteria	Dodge & Cox Stock	T. Rowe Price Growth Stock	T. Rowe Price Mid Cap Value	Victory Munder Mid Cap Growth <sup>9</sup>	American Beacon Small Cap Value	AB Small Cap Growth	American Funds New Perspective	Fidelity Diversified International	American Funds EuroPacific Growth	PIMCO Total Return Instl	BlackRock Inflation Protected Bnd
<b>Performance<sup>1</sup></b>											
3 year	Pass	Pass	Pass	Fail	Pass	Fail	Pass	Pass	Pass	Fail	Fail
5 year	Fail	Fail	Fail	Fail	Pass	Fail	Pass	Pass	Pass	Fail	Fail
<b>Universe Ranking<sup>2</sup></b>											
3 year	Pass	Pass	Pass	Fail	Pass	Fail	Pass	Pass	Pass	Fail	Pass
5 year	Pass	Pass	Pass	Pass	Pass	Fail	Pass	Pass	Pass	Fail	Pass
<b>Risk Adjusted Performance<sup>3</sup></b>											
3 year	Fail	Fail	Pass	Fail	Pass	Fail	Pass	Pass	Pass	Fail	Fail
5 year	Fail	Fail	Fail	Fail	Pass	Fail	Pass	Pass	Pass	Fail	Fail
<b>Morningstar Overall Rating<sup>4</sup></b>											
Overall	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
<b>Consistency of Style<sup>5</sup></b>											
Style Box Rating	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
<b>Grade</b>	5/8	5/8	6/8	3/8	8/8	2/8	8/8	8/8	8/8	2/8	4/8
<b>Overall Pass/Fail<sup>6</sup></b>	Pass	Pass	Pass	Fail	Pass	Fail	Pass	Pass	Pass	Fail	Fail
<b>Watchlist?<sup>7</sup></b>	No	No	No	Yes	No	Yes	No	No	No	Yes	Yes
<b>Fund Review?<sup>8</sup></b>	No	No	No	No	No	No	No	No	No	No	Yes
<b>Cumulative Quarters Failed</b>	Zero	Zero	Zero	Three	Zero	One	Zero	Zero	Zero	Three	Five

<sup>1</sup>Performance must meet or exceed that of its benchmark.

<sup>2</sup>The fund must rank in the top half of its peer universe (=> 50th percentile).

<sup>3</sup>The Sharpe Ratio must meet or exceed that of its benchmark.

<sup>4</sup>The fund must have a Overall Morningstar Rating of => 3 stars.

<sup>5</sup>The fund must maintain its Morningstar or Lipper Category style for 4 of the last 6 quarters.

<sup>6</sup>The Fund is measured against the 8 criteria listed above. At the end of each quarter, each fund must meet or exceed 5 of the 8 criteria in order to receive a passing grade. If less than 5 criteria receive a passing grade, the fund will receive a failing grade.

<sup>7</sup>If the fund received a failing grade, the fund will be placed on the Watch List and monitored for possible future action.

<sup>8</sup>If for a period of 4 consecutive quarters, the fund has received a failing grade, the fund will be placed under formal fund review.

<sup>9</sup>A hybrid was created with the Y shareclass due to lack of longer term performance.

State of South Carolina Deferred Compensation Program

FUND MONITOR 3/31/2016

Investment Option															
Criteria	Vanguard Instl Index	TIAA-CREF Small Cap Blend	PIMCO All Asset	SSgA 2060	SSgA 2055	SSgA 2050	SSgA 2045	SSgA 2040	SSgA 2035	SSgA 2030	SSgA 2025	SSgA 2020	SSgA 2015	SSgA Income	Stable Value
<b>Performance<sup>1</sup></b>															
<b>3 year (within 50 bps) *</b>	Pass	Pass	Fail	N/A	Pass	Pass									
<b>5 year (within 50 bps) *</b>	Pass	Pass	Fail	N/A	N/A	Pass	Pass								
<b>Performance (Secondary)<sup>2</sup></b>															
<b>3 year (within 50 bps) *</b>	N/A	N/A	Fail	N/A	N/A										
<b>5 year (within 50 bps) *</b>	N/A	N/A	Fail	N/A	N/A										
<b>Universe Ranking<sup>3</sup></b>															
<b>3 year</b>	N/A	N/A	N/A	N/A	Fail	Pass	Fail	Fail	N/A						
<b>5 year</b>	N/A	N/A	N/A	N/A	N/A	Pass	N/A								
<b>Risk Level (std deviation)<sup>4</sup></b>															
<b>3 year</b>	Pass	Pass	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>5 year</b>	Pass	Pass	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

<sup>1</sup>Performance must meet or exceed that of its benchmark.

<sup>2</sup>Performance must meet or exceed that of its secondary benchmark.

<sup>3</sup>The fund must rank in the top half of its peer universe (=> 50th percentile).

<sup>4</sup>Standard Deviation must be within 50bps = Standard Deviation of the Benchmark

\*This additional bps measure (50 bps) is due to the management fees of the mutual funds and small amounts of tracking error.

\*The Stable Value fund needs to outpace its benchmark over the 3 year period. The Index Fund and Age Based Funds need to replicate the benchmark over the periods measured.

\*The GTAA Fund needs to outpace its benchmark over the 3 year and 5 year period.

South Carolina Deferred Compensation Program



## State of South Carolina

For the Period From January 1, 2016 to March 31, 2016

Administered by:



# Plan Review Summary

South Carolina Deferred Compensation Program  
Empower Retirement  
First Quarter 2016



## Executive Summary

The attached reports detail the progress we have experienced during the first quarter of 2016. A few of the items of note in the report include:

- Plan Assets grew by \$12.38 million (0.3 %) as of March 31, 2016.
- Incoming rollovers to the plan have increased to \$10,947,967.26 in 1Q2016 from \$7,071,956.07 in 4Q2015.
- South Carolina Stable Value Fund remains healthy with a market to book ratio of 101.7% (Market Value \$1,186.86 mm/Book Value \$1,166.52 mm).
- Increase in diversification: number of participants utilizing Managed Accounts or Advice Services increased from 12,621 to 13,356 in the 1st quarter 2016 (total increase of 735 users).
- Contributions increased to \$49.82 million as of 03/31/2016 from \$44.69 million as of 12/31/2015.
- Total number of participants invested 100% in Target Date Funds increased from 5,265 to 5,399 (total increase of 134 participants).
- One new employer joined the plan; Spartanburg Housing Authority
- Enrollments increased to 1,172 in 1Q2016 in comparison to 1,104 in 4Q2015 (total increase of 68 new enrollments).
- 725 total participating employers as of 3/31/2016; 85 state agencies, 640 non-state agencies.
- 3 employer Plan Service Center (PSC) webinars were held with 56 attendees in 1Q2016.
- As of 3/31/2016 58% of employers are 100% compliant with the Business Transformation Project.

# Plan Service Center (PSC) Webinars

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<b>Plan Service Center Webinar</b>	<b>Attendees</b>
1 <sup>st</sup> Quarter 2015	89
2 <sup>nd</sup> Quarter 2015	155
3 <sup>rd</sup> Quarter 2015	19
4 <sup>th</sup> Quarter 2015	40
Total 2015	303

<b>Plan Service Center Webinar</b>	<b>Attendees</b>
1 <sup>st</sup> Quarter 2016	56
2 <sup>nd</sup> Quarter 2016	
3 <sup>rd</sup> Quarter 2016	
4 <sup>th</sup> Quarter 2016	
Total 2016	

# Retirement Income Control Panel (RICP) Usage

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**Measurement Period 01/31/2016 – 03/31/2016**

**Total number of users to visit [www.southcarolinadcp.com](http://www.southcarolinadcp.com)**

32,120 (32.9% of total participants)

**Total number of users to RICP**

2,036(2.1% of total participants, 6.3% of all website users)

68.2% of RICP visitors were return visitors, 31.8% were new visitors

**Average session duration**

Total website: 5 minutes, 18 seconds

RICP tool: 16 minutes, 30 second

## Plan Statistics Summary

	401(k) Plan (pre-tax)	401(k) Plan (Roth)	457(b) Plan (pre-tax)	457(b) Plan (Roth)	Totals
<b>Plan Assets <sup>1</sup></b>	\$2,721.05	\$33.95	\$903.63	\$3.60	<b>\$3,662.23</b>
<b>Contributions <sup>1</sup></b>	\$37.53	\$1.70	\$10.09	\$0.50	<b>\$49.82</b>
<b>Distributions <sup>1</sup></b>	\$41.95	-	\$16.09	-	<b>\$58.04</b>
<b>Participant Accounts</b>	71,796	3,721	22,479	792	<b>98,788</b>
Active Employers	597		436		
Inactive Employers	128		289		
<b>Total Employers</b>	<b>725</b>		<b>725</b>		

<sup>1</sup> Dollars (in millions)

# Communications Review

COMPLETED Marketing Projects	Completion or Target Date
4Q Newsletter	Completed 1Q2016 (1/20/2016)
Jan. PSC pop-up message on Business Transformation Project	Completed 1Q2016 (1/26/2016)
Web banner recommendation and removal	Completed 1Q2016 (2/17/2016)
Feb. PSC pop-up message on Business Transformation Project	Completed 1Q2016 (2/19/2016)
March PSC pop-up message on Business Transformation Project	Completed 1Q2016 (3/15/2016)
2016 contribution limits posted on all webpages	Completed 1Q2016 (3/2/2016)
Business Transformation Project email template	Completed 1Q2016 (3/21/2016)
Q1 Increasing Contributions web banner & flier	Completed 1Q2016 (3/23/2016)
2Q2016 Stable Value Fund tile update	Completed 1Q2016 (3/30/2016)
Q1 pre-login website mini-survey	Completed 1Q2016 (3/30/2016)
Short Tailored Participant Surveys (web, local office, seminars)	1Q2016 Data Compiled (1/22/2016)

# Administrators Report – 1<sup>st</sup> Quarter 2016

Project	Strategic Initiative	Project Status	Comments
2015 Excess Contributions	NO	Complete	□ Completion of 2015 Excess Contributions

## Communication and Education Second Quarter Educational Campaigns-

Retirement Readiness Seminars: Getting Ready to Retire, Approaching Retirement, Fundamentals of Investing, Enrollment, and Investment Advisory Services.

### Second Quarter Local Office Activity-

Local Office	1 <sup>st</sup> Quarter 2015	2 <sup>nd</sup> Quarter 2015	3 <sup>rd</sup> Quarter 2015	4 <sup>th</sup> Quarter 2015	Year- To- Date
1) Group Meetings	357				357
2) Individual Appointments	1,843				1,843
New Employers	1				1
New Enrollments	1,172				1,172
Managed Accounts	790				790
100% Stable Value Fund	82				82
100% Target Date Fund	64				64
Walk-In Center: Phone Volume	2,886				2,886
Walk-In Center Visitors	341				341

#### Field Campaigns:

- Build out Service Model components through annual planning meetings with Political Subdivision Key Contacts.
- Express the value of RICP during all Key Contact meetings, Group Seminars, and Individual Meetings.
- Blast email communication through employers to encourage increase savings rates and RPC/Employee interaction.

#### Employer Outreach Program:

Meetings with Employers: 290

3 Employer Plan Service Center (PSC) webinars- 56

As of today we have 85 state agencies and 640 non-state agencies, for a total of 725.

**PUBLIC EMPLOYEE BENEFIT AUTHORITY AGENDA ITEM**  
**Retirement Policy Committee**

**Meeting Date:** May 18, 2016

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**1. Subject:** South Carolina Optional Retirement Program

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**2. Summary:** Paul Staples from Summit Strategies Group will present the State Optional Retirement Program (State ORP) report for the quarter ending March 31, 2016.

**3. What is Committee asked to do?** Receive as information

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**4. Supporting Documents:**

(a) Attached: 1. Q1 2016 Performance Summary



***Summit Strategies Group***

*8182 Maryland Avenue, 6th Floor*

*St. Louis, Missouri 63105*

*314.727.7211*

**PEBA 1Q 2016 Performance Summary**

**South Carolina  
Optional Retirement Program**

*May 18, 2016*

### ECONOMIC & CAPITAL MARKETS HIGHLIGHTS

#### ECONOMIC

- Fears of a US recession receded during the quarter as the economy proved steady. A postponement of rate hikes by a more cautious Fed, a recovery in oil prices, and a global ramp up of central bank stimulus measures all contributed to an improving global economic outlook by quarter end.
  - US labor markets continued to improve with unemployment at 5.0%.
  - Core CPI (ex food and energy) accelerated during the quarter rising 2.2% y-o-y; Headline CPI also rose by 0.9% y-o-y.
  - Q4 US GDP growth was revised upward, from 1.0% to 1.4%.
  - Hourly wages rose by 2.3% y-o-y, reflecting a healing labor market.
  - Oil prices rebounded during the quarter, appreciating 3.5%.
  - The US Dollar Index fell 4.1% against foreign currencies.
- Another key concern weighing on markets, the impact of a slowing Chinese economy on global growth, also waned by quarter end. New economic data released in March pointed to a stabilizing economy, buffered by a recovery in the property market and a fresh round of bank stimulus.

#### CAPITAL MARKETS

- The beginning of the quarter was marked by historic market volatility and a rotation of asset class and industry sector performance from 2015.
  - The S&P 500 fell 10.5% in the first six weeks, but finished the quarter up 1.4% (first quarter since 1933 that the market recovered from a 10% dip).
  - After lagging for years, emerging markets posted the highest return among equities (+5.7%) on higher commodity prices and central bank stimulus.
  - For the first time in a year, value stocks outperformed growth peers.
  - Healthcare, last year's leading domestic industry sector, posted the quarter's lowest return while defensive sectors, including utilities, led.
  - Virtually all inflation-linked assets rebounded: gold (+16.1%), REITs (+5.8%), TIPS (+4.5%), oil (+3.5%), and commodities (+0.4%).
- Market volatility helped fixed income as all sectors posted positive returns.
  - Non-US bonds led all sectors, driven in part by a depreciating US dollar.
  - Yields on the 10-year Treasury fell by 50 bps to 1.8%.

#### MARKET PERFORMANCE

	Quarter	1 Year	3 Year	5 Year
S&P 500	1.35	1.78	11.82	11.58
Russell 1000 Index	1.17	0.50	11.52	11.35
Russell 1000 Value Index	1.64	-1.54	9.38	10.25
Russell 1000 Growth Index	0.74	2.52	13.61	12.38
Russell 2000 Index	-1.52	-9.76	6.84	7.20
Russell 2000 Value Index	1.70	-7.72	5.73	6.67
Russell 2000 Growth Index	-4.68	-11.84	7.91	7.70
Russell 3000 Index	0.97	-0.34	11.15	11.01
MSCI EAFE Index (Net)	-3.01	-8.27	2.23	2.29
MSCI Emerging Markets (Net)	5.71	-12.03	-4.50	-4.13
Barclays Aggregate	3.03	1.96	2.50	3.78
Barclays US Treasury	3.20	2.39	2.13	3.59
Barclays U.S. TIPS	4.46	1.51	-0.71	3.02
Barclays U.S. Corporate	3.97	0.92	3.03	5.17
Barclays U.S. High Yield	3.35	-3.69	1.84	4.93
Barclays U.S. Mortgage	1.98	2.43	2.70	3.24
Barclays Global Aggregate	5.90	4.57	0.87	1.81
NAREIT-All REIT Composite	5.75	3.91	8.80	11.03

#### LOOKING AHEAD

- Elevated market volatility likely to continue.
- “Brexit” – referendum on possible UK exit from the European Union on June 23rd may increase market volatility.
- Focus on timing of Fed interest rate hikes.
- Value-based investing appears to be making a comeback.
- Accelerating inflation a tailwind to inflation sensitive assets, including commodities, energy, and TIPS.
- US economy sturdy amid consumer outlook and tailwinds to consumption (labor market, home prices, and lower fuel costs).

## DEFINED CONTRIBUTION MARKET NEWS

### Participant and Sponsor Behavior

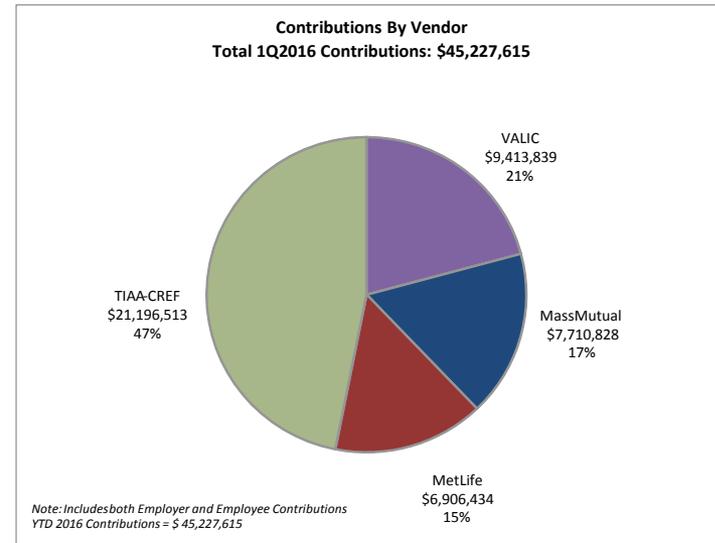
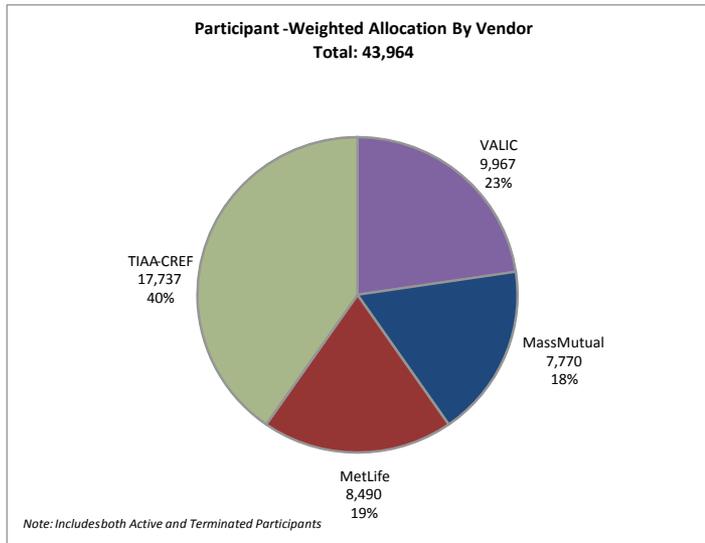
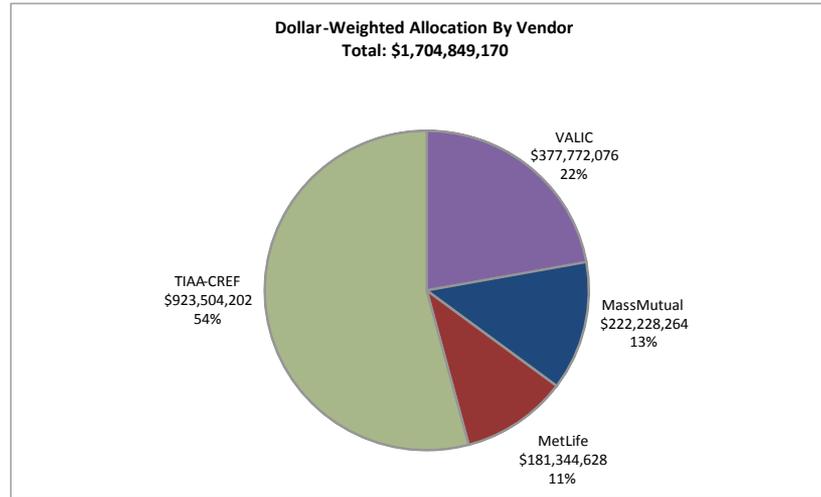
- A study issued by the Employee Benefit Research Institute reinforces the close relationship between participation in a retirement plan and understanding the need to save for retirement. Among the findings:
  - 46% of respondents without a retirement plan indicated they would need to save less than \$250,000 to live comfortably in retirement compared to 49% of workers with a plan that cited (*a more realistic*) \$250,000 to \$1 million.
  - 67% of respondents without a plan indicated they had less than \$1,000 in household savings compared to 9% for workers with a retirement plan.
- Fidelity Investments reports their year-end corporate and tax exempt average participant balances were \$87,900 and \$51,900, respectively. Median balances were less than half the average.
  - The average account balance of continuously active participants grew at an approximate CAGR of 13.5% over the trailing ten-year period ending 12/31/15 (includes participant and market activity).
- Research by Voya Investment Management indicates only 15% of target-date users correctly use those funds by allocating all their assets to a single vintage (e.g., 2020).

### Industry, Legal and Regulatory Updates

- Following a five month comment period, 4 days of public hearings and over 3,000 comments, on April 6, 2016, The US Department of Labor released the final Fiduciary Rule.
  - While largely the same as the proposed rule, the final version contains language that was softened in response to industry criticism that participants would be negatively impacted by the reclassification of certain education and information as investment advice.
  - Summit will soon be issuing a white paper addressing how the rule may impact the service model between the recordkeeper, managed accounts provider, sponsor and participant.
- Participants in Chevron Corporation's \$19 billion 401(k) plan filed suit for alleged breach of fiduciary duty by offering higher cost mutual fund share classes, failing to offer lower cost commingled trusts or separate accounts, and not issuing an RFP for recordkeeping services within the last 6 years to determine the reasonableness of fees.
- Participants in the \$5.1 billion Anthem 401(k) plan filed suit alleging breach of fiduciary duty for unreasonable recordkeeping expenses and higher cost options.

TOTAL PLAN ALLOCATION

South Carolina ORP Total Plan Allocation  
As of March 31, 2016



LINE-UP COMPARISON

South Carolina ORP Fund Line-Up Comparison  
As Of March 31, 2016

Asset Class		MassMutual	MetLife	TIAA-CREF	VALIC
Domestic Equity	Large Core	SSgA S&P 500 Index CIT [P] / Columbia Contrarian Core A (LCCAX)	SSgA S&P 500 Index N (SVSPX) [P] / JPMorgan Disciplined Equity A (JDEAX)	CREF Equity Index Annuity	Vanguard Instl Index Inst (VINIX) [P] / Amer Funds Fundamental Invs R6 (RFNGX)
	Large Value	Hartford Dividend and Growth HLS IA (HIADX)	American Funds Fundamental Invs A (ANCFX)	Vanguard Windsor II Adm (VWNAX)	Amer Funds American Mutual R6 (RMFGX)
	Large Growth	Highland Premier Growth Equity A (HPEAX)	Franklin DynaTech A (FKDNX)	Prudential Jennison Growth Z (PJFZX)	MFS Mass Inv Growth Stock R5 (MIGNX)
	Mid/SMID	Munder Mid-Cap Core Growth Y (MGOYX)	Columbia Mid Cap Index A (NTIAX) [P]	Vanguard Mid Cap Index Inst (VMCIX) [P]	Vanguard Mid Cap Index Inst (VMCIX) [P]
	Small Core	-	Delaware Small Cap Core (DCCIX)	TIAA-CREF Small Cap Index Ret (TRBIX) (P)	Vanguard Small Cap Index Inst (VSCIX) [P]
	Small Value	-	-	-	-
	Small Growth	Baron Small Cap Retail (BSCFX)	-	-	-
International Equity	Large Core	American Funds EuroPacific Gr R5 (RERFX)	American Funds EuroPacific Gr A (AEPGX)	American Funds EuroPacific Gr R5 (RERFX) / CREF Stock Annuity	-
	Large Value	-	-	-	-
	Large Growth	-	-	-	Oppenheimer Intl Growth I (OIGIX)
	Emerging	-	-	-	Vanguard Emg Mkts Stock Index Adm (VEMAX) [P]
Fixed Income	Core	-	-	Dreyfus Bond Market Index Inv (DBMIX) [P]	Vanguard Interm Invest Grade Adm (VFIDX) [P]
	Core Plus	PIMCO Total Return A (PTTAX)	PIMCO Total Return Admin (PTRAX)	-	-
Inflation Hedge	TIPS / Real Assets	PIMCO Real Return Admin (PARRX)	-	CREF Inflation-Linked Bond Annuity	PIMCO Real Return Inst (PRRIX)
Target Date / Balanced	Multi-Asset Class	SSgA Dow Jones Target CIT [P] / Oakmark Equity & Income I (OAKBX)	American Funds Trgt Date Retire R6 / Invesco Equity and Income A (ACEIX)	TIAA-CREF Lifecycle Retire	Vanguard Target Retire Inv [P] / Amer Funds American Balanced R6 (RLBGX)
Cash & Equivalents	Money Market / Stable Value	General Fixed Interest Account	SSgA Money Market N (SSMXX) / MetLife Gold Track Select	CREF Money Market Annuity / TIAA Traditional Annuity	VALIC Fixed Interest
Other	Industry Sector / Socially Responsible	DWS RREEF Real Estate Secs A (RRRAX)	Cohen & Steers Realty Shares (CSRSX)	CREF Real Estate Securities Fund Instl (TIREX) / CREF Social Choice Annuity	Vanguard Health Care Adm (VGHAX)

[P] = Passive Index Fund.  
CIT = Commingled investment trust.

## SUMMARY

### Action Items

- None
- All funds on the watch list were replaced no later than 4/11/2016 .

#### MassMutual

- Six funds are on the Watch List this quarter. They were all replaced on 4/11/2016.
  - Highland Premier Growth Equity has been on the Watch List three non-consecutive quarters in the past twelve quarters.
  - The Munder MidCap Growth Fund has been on the Watch List two non-consecutive quarters in the past twelve quarters.
  - The Baron Small Cap Fund has been on the Watch List ten non-consecutive quarters in the past twelve quarters.
  - The SSgA Target Date Funds have been on the Watch List for four consecutive quarters.
  - The PIMCO Total Return Fund has been on the Watch List five consecutive quarters.
  - The PIMCO Real Return Fund has been on the Watch List three consecutive quarters.
- One fund was removed from the Watch List this quarter.
  - The DWS Real Estate Fund.

#### MetLife

- Two funds are on the Watch List this quarter. They were both replaced on 4/1/2016.
  - The Franklin Dyna Tech Fund has been on the Watch List two non-consecutive quarters in the past twelve quarters.
  - The PIMCO Total Return Fund has been on the Watch List for five consecutive quarters.

#### TIAA-CREF

- No funds are on the Watch List this quarter.
- Only four funds were replaced on April 5, 2016. The incumbent funds remained, or were switched to a cheaper share class.

#### VALIC

- One fund is on the Watch List this quarter. It was replaced on 4/1/2016.
  - The PIMCO Real Return Fund has been on the Watch List two consecutive quarters.
- The MFS Mass Investor Growth Stock Fund was removed from the Watch List during the quarters.

**APPENDIX**

FUND MONITOR - MASSMUTUAL

Fund	Primary Benchmarks		Secondary Benchmarks		Other	# of Quarters on Watch List for		
	Excess Performance <sup>1</sup>	Peer Universe Rank <sup>2</sup>	Information Ratio Rank <sup>3</sup>	Sharpe Ratio Rank <sup>4</sup>		Status	Trailing 12 Quarters <sup>5</sup>	Change
<b>US Equity: Large Cap</b>								
SSgA S&P 500 Index CIT (P)	-	-	-	-	Pass	Good		
Columbia Contrarian Core A (LCCAX)	Pass	Pass	Pass	Pass	-	Good		
Hartford Dividend & Growth HLS IA (HIADX)	Pass	Pass	Pass	Pass	-	Good		
Highland Premier Growth Equity A (HPEAX)	Fail	Fail	Pass	Fail	-	Watch List	3	Down
<b>US Equity: Non-Large Cap</b>								
Munder Midcap Core Growth Y (MGOYX)	Fail	Fail	Fail	Fail	-	Watch List	2	Down
Baron Small Cap Retail (BSCFX)	Fail	Fail	Fail	Fail	-	Watch List	10	
<b>International Equity</b>								
Amer Funds EuroPacific Growth R5 (RERFX)	Pass	Pass	Pass	Pass	-	Good	1	
<b>Balanced Funds</b>								
Oakmark Equity and Income I (OAKBX)	Fail	Pass	Pass	Fail	-	Good		
SSgA DJ Target Strat Target-Date Suite	-	-	-	-	Fail	Watch List	4	
<b>Sector Fund</b>								
DWS RREEF Real Estate Secs A (RRRAX)	Fail	Pass	Pass	Pass	-	Good	7	Up
<b>Fixed Income</b>								
PIMCO Total Return A (PTTAX)	Fail	Fail	Fail	Fail	-	Watch List	5	
PIMCO Real Return Admin (PARRX)	Fail	Fail	Fail	Fail	-	Watch List	3	
<b>Stable Value</b>								
General Fixed Interest Account	-	-	-	-	Pass	Good		

Source: Lipper

**Methodology**

(P) Passive Funds

Other:

For Passive funds, Other is defined as tracking error commensurate with the asset class (domestic equity & fixed income less than or equal to .50%, International equity less than or equal to 2.00%).

For Insurance or Stable Value products, Other is defined as insurer's credit quality and competitiveness of rate of return.

For Target-Date funds, Other is defined as two out of the three one, three, and five-year peer ranks place the entire suite of funds in the top half of its applicable peer universe.

**Active Funds**

<sup>1</sup>Fund performance exceeds the return of the independent benchmark for at least two of the most recent one, three, and five-year trailing periods.

<sup>2</sup>Fund performance places it in the top half of its applicable peer universe for at least two of the most recent one, three, and five-year trailing periods.

<sup>3</sup>Information ratio places the fund in the top half of its applicable peer universe for at least two of the most recent one, three, and five-year trailing periods.

<sup>4</sup>Sharpe ratio places the fund in the top half of its applicable peer universe for at least two of the most recent one, three, and five-year trailing periods.

<sup>5</sup>Number represents the number of quarters (consecutive or non-consecutive) the fund has been on the watch list over the previous trailing 12 quarters.

FUND MONITOR - METLIFE

Fund	Primary Benchmarks		Secondary Benchmarks		Other	# of Quarters on Watch List for		
	Excess Performance <sup>1</sup>	Peer Universe Rank <sup>2</sup>	Information Ratio Rank <sup>3</sup>	Sharpe Ratio Rank <sup>4</sup>		Status	Trailing 12 Quarters <sup>5</sup>	Change
<b>US Equity: Large Cap</b>								
SSgA S&P 500 Index N (SVSPX) (P)	-	-	-	-	Pass	Good		
JPMorgan Disciplined Equity A (JDEAX)	Fail	Pass	Pass	Fail	-	Good		
Amer Funds Fundamental Investors A (ANCFX)	Pass	Pass	Pass	Pass	-	Good	4	
Franklin Dyna Tech A (FKDNX)	Fail	Fail	Pass	Fail	-	Watch List	2	Down
<b>US Equity: Non-Large Cap</b>								
Columbia Mid Cap Index A (NTIAX) (P)	-	-	-	-	Pass	Good		
Delaware Small Cap Core I (DCCIX)	Pass	Pass	Pass	Pass	-	Good		
<b>International Equity</b>								
Amer Funds EuroPacific Growth A (AEPGX)	Pass	Pass	Pass	Pass	-	Good	1	
<b>Balanced Funds</b>								
Invesco Equity and Income A (ACEIX)	Fail	Pass	Pass	Pass	-	Good		
American Funds Target-Date Suite	-	-	-	-	Pass	Good		
<b>Sector Fund</b>								
Cohen & Steers Realty Shares (CSRSX)	Fail	Pass	Pass	Pass	-	Good	2	
<b>Fixed Income</b>								
PIMCO Total Return Admin (PTRAX)	Fail	Fail	Fail	Fail	-	Watch List	5	
<b>Money Market/Stable Value</b>								
SSgA Money Market N (SSMXX)	-	-	-	-	-	-		
Metlife Gold Track Select	-	-	-	-	Pass	Good		

Source: Lipper

**Methodology**

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**Active Funds**

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<sup>2</sup>Fund performance places it in the top half of its applicable peer universe for at least two of the most recent one, three, and five-year trailing periods.

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<sup>5</sup>Number represents the number of quarters (consecutive or non-consecutive) the fund has been on the watch list over the previous trailing 12 quarters.

FUND MONITOR - TIAA-CREF

Fund	Primary Benchmarks		Secondary Benchmarks		Other	# of Quarters on Watch List for		
	Excess Performance <sup>1</sup>	Peer Universe Rank <sup>2</sup>	Information Ratio Rank <sup>3</sup>	Sharpe Ratio Rank <sup>4</sup>		Status	Trailing 12 Quarters <sup>5</sup>	Change
<b>US Equity: Multi Cap</b>								
CREF Equity Index Annuity (P)	-	-	-	-	Pass	Good		
<b>US Equity: Large Cap</b>								
Vanguard Windsor II Adm (VWNAX)	Fail	Pass	Fail	Pass	-	Good	1	
Prudential Jennison Growth Z (PJFZX)	Fail	Pass	Pass	Pass	-	Good		
<b>US Equity: Non-Large Cap</b>								
Vanguard Mid Cap Index Inst (VMCIX) (P)	-	-	-	-	Pass	Good		
TIAA-CREF Small Cap Index Ret (TRBIX) (P)	-	-	-	-	Pass	Good		
<b>International Equity</b>								
CREF Stock Annuity	Fail	Pass	Fail	Pass	-	Good		
Amer Funds EuroPacific Growth R5 (RERFX)	Pass	Pass	Pass	Pass	-	Good	1	
<b>Balanced Funds</b>								
CREF Social Choice Annuity	Fail	Pass	Fail	Pass		Good		
TIAA-CREF Lifecycle Target-Date Suite	-	-	-	-	Pass	Good		
<b>Sector Fund</b>								
CREF Real Estate Securities Inst (TIREX)	Fail	Pass	Pass	Pass	-	Good		
<b>Fixed Income</b>								
Dreyfus Bond Market Index Inv (DBMIX) (P)	-	-	-	-	Pass	Good		
CREF Inflation-Linked Bond Annuity	Fail	Pass	Fail	Pass	-	Good	1	
<b>Money Market/Stable Value</b>								
CREF Money Market Annuity	-	-	-	-	-	-		
TIAA Traditional Annuity	-	-	-	-	Pass	Good		

Source: Lipper

**Methodology**

**(P) Passive Funds**

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For Target-Date funds, Other is defined as two out of the three one, three, and five-year peer ranks place the entire suite of funds in the top half of its applicable peer universe.

**Active Funds**

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<sup>5</sup>Number represents the number of quarters (consecutive or non-consecutive) the fund has been on the watch list over the previous trailing 12 quarters.

FUND MONITOR - VALIC

Fund	Primary Benchmarks		Secondary Benchmarks		Other	Status	# of Quarters on Watch List for Trailing 12 Quarters <sup>5</sup>	Change
	Excess Performance <sup>1</sup>	Peer Universe Rank <sup>2</sup>	Information Ratio Rank <sup>3</sup>	Sharpe Ratio Rank <sup>4</sup>				
<b>US Equity: Large Cap</b>								
Vanguard Institutional Index Inst (VINIX) (P)	-	-	-	-	Pass	Good		
Amer Funds Fundamental Investors R6 (RFNGX)	Fail	Pass	Pass	Pass	-	Good	2	
Amer Funds American Mutual R6 (RMFGX)	Pass	Pass	Pass	Pass	-	Good	6	
MFS Mass Investors Growth Stock R5 (MIGNX)	Fail	Pass	Pass	Fail	-	Good	5	Up
<b>US Equity: Non-Large Cap</b>								
Vanguard Mid Cap Index Inst (VMCIX) (P)	-	-	-	-	Pass	Good		
Vanguard Small Cap Index Inst (VSCIX) (P)	-	-	-	-	Pass	Good		
<b>International Equity</b>								
Oppenheimer International Growth I (OIGIX)	Pass	Pass	Pass	Pass	-	Good		
Vanguard Emerging Mkts Stock Index Adm (VEMAX) (P)	-	-	-	-	Pass	Good		
<b>Balanced Funds</b>								
Amer Funds American Balanced R6 (RLBGX)	Pass	Pass	Pass	Pass	-	Good		
Vanguard Retirement Target-Date Suite (P)	-	-	-	-	Pass	Good		
<b>Sector Fund</b>								
Vanguard Health Care Adm (VGHAX)	Pass	Pass	Pass	Pass	-	Good	1	
<b>Fixed Income</b>								
Vanguard Inter Term Invest Grade Adm (VFIDX)	Fail	Pass	Pass	Pass	-	Good		
PIMCO Real Return Inst (PRRIX)	Fail	Fail	Pass	Pass	-	Watch List	2	
<b>Stable Value</b>								
VALIC Fixed Interest Option	-	-	-	-	Pass	Good		

Source: Lipper

Methodology

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Active Funds

<sup>1</sup>Fund performance exceeds the return of the independent benchmark for at least two of the most recent one, three, and five-year trailing periods.

<sup>2</sup>Fund performance places it in the top half of its applicable peer universe for at least two of the most recent one, three, and five-year trailing periods.

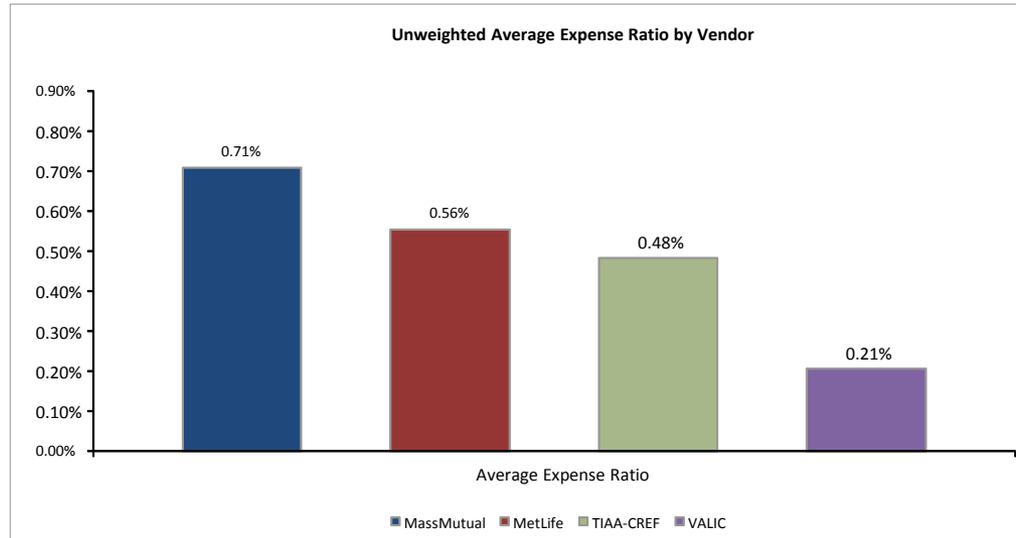
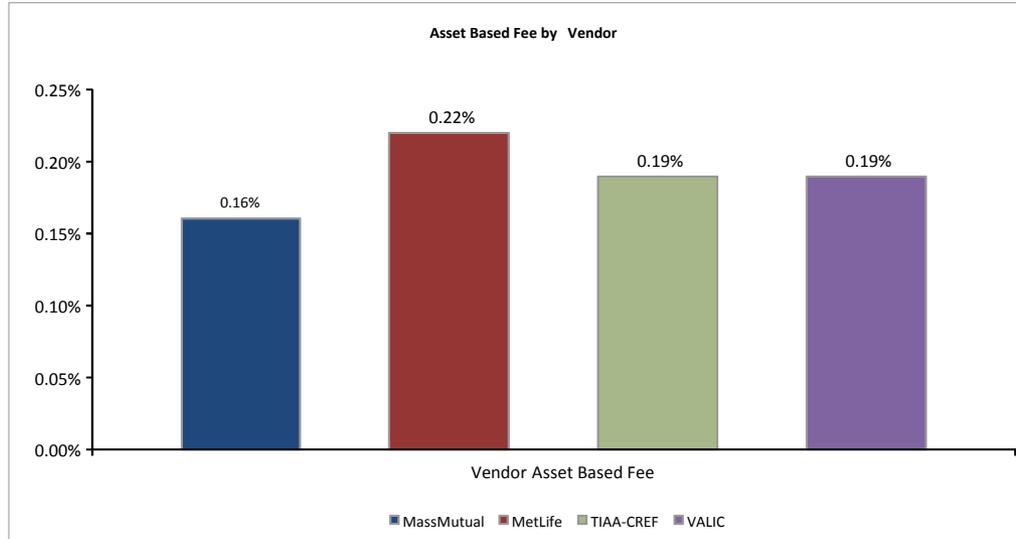
<sup>3</sup>Information ratio places the fund in the top half of its applicable peer universe for at least two of the most recent one, three, and five-year trailing periods.

<sup>4</sup>Sharpe ratio places the fund in the top half of its applicable peer universe for at least two of the most recent one, three, and five-year trailing periods.

<sup>5</sup>Number represents the number of quarters (consecutive or non-consecutive) the fund has been on the watch list over the previous trailing 12 quarters.

VENDOR FEE COMPARISON

Vendor Fee Comparison  
As of March 31, 2016



Notes:

Each vendor's asset based fee was changed when the ORP moved to a zero revenue share fee structure. MassMutual's 16 bps charge was previously 19 bps; MetLife's 22bps charge was 41; VALIC's 19 bps was 23 bps and TIAA-CREF's new 19 bps charge was formerly 27 bps.

All vendor unweighted average expense ratios do not include fixed interest funds which do not have an explicit expense ratios.

VENDOR MORNINGSTAR RATINGS

MassMutual					
Fund Name	Ticker	Three-Year	Five-Year	Ten-Year	Overall
American Funds Europacific Growth R5	RERFX	4	3	4	4
Baron Small Cap Retail	BSCFX	2	3	4	3
Columbia Contrarian Core A	LCCAX	3	3	5	4
Deutsche Real Estate Securities A	RRRAX	2	2	3	3
Hartford Dividend and Growth HLS IA	HIADX	4	4	5	5
Highland Premier Growth Equity A	HPEAX	2	3	3	3
Munder Mid-Cap Core Growth Y	MGOYX	3	4	3	3
Oakmark Equity & Income I	OAKBX	4	3	4	4
PIMCO Real Return Admin	PARRX	2	3	4	3
PIMCO Total Return A	PTTAX	1	1	4	3
SSgA Dow Jones Target 2015 Fund Class C -	-	2	2	3	3
SSgA Dow Jones Target 2025 Fund Class C -	-	3	3	3	3
SSgA Dow Jones Target 2035 Fund Class C -	-	3	3	3	3
SSgA Dow Jones Target 2045 Fund Class C -	-	3	3	3	3
SSgA Dow Jones Target Today Fund Class C-	-	2	2	4	3
SSgA S&P 500 Index Fund Class A	-	4	4	4	4

TIAA-CREF					
Fund Name	Ticker	Three-Year	Five-Year	Ten-Year	Overall
American Funds Europacific Growth R5	RERFX	4	3	4	4
CREF Equity Index	-	3	3	3	3
CREF Inflation-Linked Bond	-	3	4	3	3
CREF Money Market	-	-	-	-	-
CREF Real Estate Securities	TIREX	4	4	3	4
CREF Social Choice	-	4	4	4	4
CREF Stock	-	2	2	2	2
Dreyfus Bond Market Index Inv	DBMIX	3	3	3	3
Prudential Jennison Growth Z	PIFZX	4	4	4	4
TIAA-CREF Lifecycle 2010 Retire	TCLEX	4	4	4	4
TIAA-CREF Lifecycle 2015 Retire	TCLIX	4	4	3	4
TIAA-CREF Lifecycle 2020 Retire	TCLTX	4	4	4	4
TIAA-CREF Lifecycle 2025 Retire	TCLFX	4	4	3	4
TIAA-CREF Lifecycle 2030 Retire	TCLNX	4	4	3	4
TIAA-CREF Lifecycle 2035 Retire	TCLRX	4	4	3	4
TIAA-CREF Lifecycle 2040 Retire	TCLOX	4	4	4	4
TIAA-CREF Lifecycle 2045 Retire	TTFRX	4	4	-	4
TIAA-CREF Lifecycle 2050 Retire	TLFRX	4	4	-	4
TIAA-CREF Lifecycle 2055 Retire	TTRLX	3	3	-	3
TIAA-CREF Lifecycle Retire Inc Retire	TLIRX	4	5	-	5
TIAA-CREF Small-Cap Blend Idx Retire	TRBIX	3	3	3	3
Vanguard Mid Cap Index I	VMCIX	4	4	4	4
Vanguard Windsor™ II Admiral™	VWNAX	3	4	4	4

MetLife					
Fund Name	Ticker	Three-Year	Five-Year	Ten-Year	Overall
American Funds 2010 Trgt Date Ret R6	RFTTX	5	5	-	5
American Funds 2015 Trgt Date Ret R6	RFJTX	5	5	-	5
American Funds 2020 Trgt Date Ret R6	RRCTX	5	5	-	5
American Funds 2025 Trgt Date Ret R6	RFDTX	5	5	-	5
American Funds 2030 Trgt Date Ret R6	RFETX	5	5	-	5
American Funds 2035 Trgt Date Ret R6	RFFTX	5	5	-	5
American Funds 2040 Trgt Date Ret R6	RFGTK	5	5	-	5
American Funds 2045 Trgt Date Ret R6	RFHTX	5	5	-	5
American Funds 2050 Trgt Date Ret R6	RFITX	5	5	-	5
American Funds 2055 Trgt Date Ret R6	RFKTX	5	5	-	5
American Funds 2060 Trgt Date Ret R6	RFUTX	-	-	-	-
American Funds Europacific Growth A	AEPGX	2	2	3	2
American Funds Fundamental Invs A	ANCFX	3	2	3	3
Cohen & Steers Realty Shares	CSRSX	4	3	4	4
Columbia Mid Cap Index A	NTIAX	3	4	4	4
Delaware Small Cap Core	DCCIX	5	4	3	4
Franklin DynaTech A	FKDNX	2	2	3	3
Invesco Equity and Income A	ACEIX	3	3	3	3
JPMorgan Disciplined Equity A	JDEAX	2	3	3	3
PIMCO Total Return Admin	PTRAX	2	3	5	4
SSgA Money Market N	SSMXX	-	-	-	-
SSgA S&P 500 Index N	SVSPX	4	4	4	4

VALIC					
Fund Name	Ticker	Three-Year	Five-Year	Ten-Year	Overall
American Funds American Balanced R6	RLBGX	5	5	5	5
American Funds American Mutual R6	RMFGX	4	4	5	4
American Funds Fundamental Invs R6	RFNGX	4	3	4	3
MFS® Massachusetts Investors Gr Stk RSMIGNX	-	3	4	4	3
Oppenheimer International Growth I	OIGIX	4	5	5	4
PIMCO Real Return Instl	PRRIX	3	4	5	4
Vanguard Emerging Mkts Stock Idx AdmVEMAX	-	3	3	3	3
Vanguard Health Care Adm	VGHAX	5	5	4	5
Vanguard Institutional Index I	VINIX	5	5	4	5
Vanguard Inter-M Term Invest-Grde AdmVFIDX	-	4	3	4	4
Vanguard Mid Cap Index I	VMCIX	4	4	4	4
Vanguard Small Cap Index I	VSCIX	4	4	4	4
Vanguard Target Retirement 2010 Inv	VTENX	4	4	-	4
Vanguard Target Retirement 2015 Inv	VTXVX	5	5	4	5
Vanguard Target Retirement 2020 Inv	VTWNX	5	5	-	5
Vanguard Target Retirement 2025 Inv	VTTVX	5	5	4	5
Vanguard Target Retirement 2030 Inv	VTHRX	5	4	-	4
Vanguard Target Retirement 2035 Inv	VTTHX	5	4	4	4
Vanguard Target Retirement 2040 Inv	VFORX	4	4	-	4
Vanguard Target Retirement 2045 Inv	VTIVX	4	4	4	4
Vanguard Target Retirement 2050 Inv	VFIFX	4	4	-	4
Vanguard Target Retirement 2055 Inv	VFFVX	4	4	-	4
Vanguard Target Retirement 2060 Inv	VTTSX	-	-	-	-
Vanguard Target Retirement Income InvVTINX	-	4	4	4	4

FUND LINE-UP STATISTICS - MASSMUTUAL

Fund	Ticker	Expense Ratio*	5-Year Sharpe Ratio <sup>1</sup>	5-Year Standard Deviation	Total Return			Total Return Percentile Rank <sup>2</sup>	
					1 Year	3 Year	5 Year	5 Year Lipper Peer Group	5 Year Morningstar Peer Group
<b>Domestic Equity</b>									
SSgA S&P 500 Index Class A	N/A	0.03%	0.94	12.22%	1.80%	11.80%	11.56%	14	11
Columbia Contrarian Core A	LCCAX	1.09%	0.93	13.02%	2.13%	12.25%	11.93%	8	6
Hartford Dividend & Growth HLS IA	HIADX	0.67%	0.85	12.10%	0.13%	10.38%	10.10%	19	23
Highland Premier Growth Equity A	HPEAX	1.13%	0.82	14.26%	-3.86%	11.21%	11.25%	34	25
Munder Mid-Cap Core Growth Y	MGOYX	1.07%	0.65	14.29%	-8.84%	8.08%	8.72%	33	32
Baron Small Cap Retail	BSCFX	1.30%	0.47	15.71%	-12.85%	4.64%	6.36%	58	55
<b>International Equity</b>									
Amer Funds EuroPacific Growth R5	RERFX	0.53%	0.25	14.48%	-8.32%	3.57%	2.73%	19	51
<b>Balanced</b>									
Oakmark Equity and Income I	OAKBX	0.75%	0.65	9.54%	-4.73%	6.35%	6.01%	31	48
<b>Target Date</b>									
SSgA Dow Jones Target 2045 Class C	N/A	0.45%	0.55	12.22%	-4.51%	5.97%	6.17%	54	52
SSgA Dow Jones Target 2035 Class C	N/A	0.45%	0.58	10.57%	-2.90%	5.55%	5.82%	59	56
SSgA Dow Jones Target 2025 Class C	N/A	0.45%	0.69	7.42%	-0.58%	4.46%	5.01%	71	71
SSgA Dow Jones Target 2015 Class C	N/A	0.45%	0.83	4.56%	0.94%	2.99%	3.79%	78	81
SSgA Dow Jones Target Today Class C	N/A	0.45%	0.86	3.20%	0.71%	1.82%	2.81%	80	76
<b>Specialty</b>									
DWS RREEF Real Estate Securities A	RRRAX	0.98%	0.73	16.41%	4.36%	10.36%	11.12%	44	45
<b>Fixed Income</b>									
PIMCO Total Return A	PTTAX	0.85%	0.88	3.68%	-0.07%	1.14%	3.26%	76	69
PIMCO Real Return Admin	PARRX	0.70%	0.44	5.66%	-0.55%	-1.89%	2.39%	26	25
<b>Stable Value</b>									
General Fixed Interest	N/A	-	-	-	3.00%	3.00%	3.01%	-	-

\*Expense ratios above do not reflect additional record keeping fees other than what is already included in the fund's expense ratio.

<sup>1</sup>Higher number is better

<sup>2</sup>Lower number is better

FUND LINE-UP STATISTICS - METLIFE

Fund	Ticker	Expense Ratio*	5-Year Sharpe Ratio <sup>1</sup>	5-Year Standard Deviation	Total Return			Total Return Percentile Rank <sup>2</sup>	
					1 Year	3 Year	5 Year	5 Year Lipper Peer Group	5 Year Morningstar Peer Group
<b>Domestic Equity</b>									
SSgA S&P 500 Index N	SVSPX	0.16%	0.94	12.22%	1.67%	11.65%	11.44%	15	11
JPMorgan Disciplined Equity A	JDEAX	0.85%	0.86	12.76%	-4.75%	10.30%	10.70%	32	32
Amer Funds Fundamental Investors A	ANCFX	0.60%	0.79	12.91%	2.25%	11.05%	9.92%	24	51
Franklin DynaTech A	FKDNX	0.89%	0.71	15.11%	-3.30%	12.00%	10.12%	61	50
Columbia Mid Cap Index A	NTIAX	0.45%	0.67	14.47%	-4.03%	8.95%	9.04%	27	32
Delaware Small Cap Core I	DCCIX	1.02%	0.66	16.26%	-7.35%	9.61%	9.92%	10	6
<b>International Equity</b>									
Amer Funds EuroPacific Growth A	AEPGX	0.83%	0.23	14.47%	-8.60%	3.27%	2.42%	26	57
<b>Balanced</b>									
Invesco Equity and Income A	ACEIX	0.80%	0.76	9.52%	-3.37%	6.38%	7.04%	14	26
<b>Target Date</b>									
American Funds 2060 TD Retire R6	RFUTX	0.47%	-	-	-1.21%	-	-		
American Funds 2055 TD Retire R6	RFKTX	0.47%	0.77	11.23%	-1.18%	8.42%	8.40%	1	1
American Funds 2050 TD Retire R6	RFITX	0.44%	0.77	11.21%	-1.11%	8.44%	8.43%	1	1
American Funds 2045 TD Retire R6	RFHTX	0.44%	0.78	11.16%	-1.16%	8.46%	8.42%	1	1
American Funds 2040 TD Retire R6	RFCTX	0.42%	0.78	11.11%	-1.14%	8.44%	8.41%	1	1
American Funds 2035 TD Retire R6	RFFTX	0.42%	0.79	10.89%	-0.99%	8.34%	8.36%	1	1
American Funds 2030 TD Retire R6	RFETX	0.41%	0.82	10.54%	-0.56%	8.37%	8.42%	1	1
American Funds 2025 TD Retire R6	RFDTX	0.40%	0.86	9.54%	0.32%	7.99%	8.14%	1	1
American Funds 2020 TD Retire R6	RRCTX	0.37%	0.94	7.90%	0.79%	7.07%	7.41%	1	1
American Funds 2015 TD Retire R6	RFJTX	0.36%	0.99	6.84%	0.88%	6.30%	6.84%	1	1
American Funds 2010 TD Retire R6	RFTTX	0.36%	1.05	6.03%	0.93%	5.53%	6.41%	1	1
<b>Specialty</b>									
Cohen & Steers Realty Shares	CSRSX	0.96%	0.72	16.27%	3.60%	10.75%	10.96%	49	50
<b>Fixed Income</b>									
PIMCO Total Return Admin	PTRAX	0.71%	0.91	3.68%	0.06%	1.28%	3.41%	71	61
<b>Money Market/Stable Value</b>									
SSgA Money Market N	SSMXX	0.38%	-	-	0.05%	0.02%	0.01%	44	N/A
Metlife Gold Track Select	N/A	-	-	-	3.00%	3.00%	3.00%	-	-

\*Expense ratios above do not reflect additional record keeping fees other than what is already included in the fund's expense ratio.

<sup>1</sup>Higher number is better

<sup>2</sup>Lower number is better

FUND LINE-UP STATISTICS - TIAA-CREF

Fund	Ticker	Expense Ratio*	5-Year Sharpe Ratio <sup>1</sup>	5-Year Standard Deviation	Total Return			Total Return Percentile Rank <sup>2</sup>	
					1 Year	3 Year	5 Year	5 Year Lipper Peer Group	5 Year Morningstar Peer Group
<b>Domestic Equity</b>									
CREF Equity Index Annuity	N/A	0.255%	0.86	12.64%	-0.54%	10.80%	10.64%	26	34
Vanguard Windsor II Adm	VWNAX	0.26%	0.81	12.38%	-2.87%	8.58%	9.75%	29	31
Prudential Jennison Growth Z	PJFZX	0.75%	0.85	14.56%	-0.62%	14.05%	12.05%	19	11
Vanguard Mid Cap Index Instl	VMCIX	0.07%	0.75	14.04%	-4.26%	10.80%	10.05%	13	12
TIAA-CREF Small Cap Index Ret	TRBIX	0.31%	0.49	16.64%	-9.71%	6.84%	7.15%	56	51
<b>International Equity</b>									
CREF Stock Annuity	N/A	0.38%	0.59	13.40%	-3.34%	7.62%	7.39%	21	87
Amer Funds EuroPacific Growth A	RERFX	0.53%	0.25	14.48%	-8.32%	3.57%	2.73%	19	51
<b>Balanced</b>									
CREF Social Choice Annuity	N/A	0.315%	0.87	7.63%	-1.04%	5.62%	6.62%	20	34
<b>Target Date</b>									
TIAA-CREF Lifecycle 2055 Ret	TTRLX	0.69%	-	-	-3.84%	6.74%	-	-	-
TIAA-CREF Lifecycle 2050 Ret	TLFRX	0.69%	0.59	12.64%	-3.87%	6.74%	6.97%	22	22
TIAA-CREF Lifecycle 2045 Ret	TTFRX	0.69%	0.59	12.63%	-3.93%	6.70%	6.95%	26	23
TIAA-CREF Lifecycle 2040 Ret	TCLOX	0.69%	0.59	12.62%	-3.99%	6.70%	6.95%	18	18
TIAA-CREF Lifecycle 2035 Ret	TCLRX	0.68%	0.60	12.03%	-3.43%	6.56%	6.81%	24	19
TIAA-CREF Lifecycle 2030 Ret	TCLNX	0.67%	0.63	11.03%	-2.84%	6.22%	6.63%	15	14
TIAA-CREF Lifecycle 2025 Ret	TCLFX	0.66%	0.67	9.92%	-2.40%	5.80%	6.37%	22	19
TIAA-CREF Lifecycle 2020 Ret	TCLTX	0.64%	0.70	8.85%	-1.83%	5.31%	6.06%	13	12
TIAA-CREF Lifecycle 2015 Ret	TCLIX	0.63%	0.74	7.84%	-1.37%	4.82%	5.73%	18	17
TIAA-CREF Lifecycle 2010 Ret	TCLEX	0.62%	0.79	6.97%	-1.09%	4.43%	5.48%	14	14
TIAA-CREF Lifecycle Income Ret	TLIRX	0.61%	0.85	6.06%	-0.95%	3.95%	5.18%	9	8
<b>Specialty</b>									
CREF Real Estate Securities Inst	TIREX	0.52%	0.76	15.58%	3.76%	10.74%	11.25%	38	37
<b>Fixed Income</b>									
Dreyfus Bond Market Index Inv	DBMIX	0.40%	1.15	2.79%	1.44%	2.00%	3.29%	9	67
CREF Inflation-Linked Bond Annuity	N/A	0.275%	0.52	5.00%	0.81%	-1.13%	2.57%	19	16
<b>Monet Market/Stable Value</b>									
CREF Money Market Annuity	N/A	0.27%	-	-	0.02%	0.01%	0.00%	80	N/A
TIAA Traditional Annuity	N/A	0.55%	-	-	3.85%	3.63%	3.49%	-	-

\*Expense ratios above do not reflect additional record keeping fees other than what is already included in the fund's expense ratio.

<sup>1</sup>Higher number is better

<sup>2</sup>Lower number is better

FUND LINE-UP STATISTICS - VALIC

Fund	Ticker	Expense Ratio*	5-Year Sharpe Ratio <sup>1</sup>	5-Year Standard Deviation	Total Return			Total Return Percentile Rank <sup>2</sup>	
					1 Year	3 Year	5 Year	5 Year Lipper Peer Group	5 Year Morningstar Peer Group
<b>Domestic Equity</b>									
Vanguard Institutional Index Inst	VINIX	0.04%	0.95	12.22%	1.77%	11.79%	11.55%	14	9
Amer Funds Fundamental Investors R6	RFNGX	0.31%	0.82	12.91%	2.55%	11.39%	10.26%	44	44
Amer Funds American Mutual R6	RMFGX	0.30%	1.04	10.12%	0.90%	9.78%	10.56%	10	15
MFS Massachusetts Inv Growth Stock R5	MIGNX	0.38%	0.93	12.68%	2.06%	11.74%	11.69%	25	17
Vanguard Mid Cap Index Inst	VMCIX	0.07%	0.75	14.04%	-4.26%	10.80%	10.05%	13	12
Vanguard Small Cap Index Inst	VSCIX	0.07%	0.61	15.72%	-7.13%	8.52%	8.81%	25	21
<b>International Equity</b>									
Oppenheimer International Growth I	OIGIX	0.70%	0.47	14.71%	0.60%	4.99%	6.02%	1	5
Vanguard Emg Mkts Stock Index Admiral	VEMAX	0.15%	-0.13	19.02%	-12.67%	-4.63%	-4.16%	53	54
<b>Balanced</b>									
Amer Funds American Balanced R6	RLBGX	0.29%	1.12	8.44%	3.03%	9.01%	9.57%	1	2
<b>Target Date</b>									
Vanguard Target Retire 2060 Inv	VTTSX	0.16%	-	-	-3.22%	7.05%	-	-	-
Vanguard Target Retire 2055 Inv	VFFVX	0.16%	0.65	11.78%	-3.25%	7.05%	7.28%	22	18
Vanguard Target Retire 2050 Inv	VFIFX	0.16%	0.65	11.79%	-3.10%	7.09%	7.26%	14	14
Vanguard Target Retire 2045 Inv	VTIVX	0.16%	0.65	11.80%	-3.14%	7.10%	7.27%	16	14
Vanguard Target Retire 2040 Inv	VFORX	0.16%	0.65	11.77%	-3.07%	7.11%	7.28%	9	9
Vanguard Target Retire 2035 Inv	VTTHX	0.15%	0.67	11.20%	-2.50%	7.00%	7.14%	15	13
Vanguard Target Retire 2030 Inv	VTHRX	0.15%	0.70	10.18%	-2.01%	6.68%	6.93%	10	9
Vanguard Target Retire 2025 Inv	VTTVX	0.15%	0.75	9.18%	-1.53%	6.33%	6.70%	11	10
Vanguard Target Retire 2020 Inv	VTWNX	0.14%	0.80	8.19%	-1.12%	5.98%	6.45%	6	6
Vanguard Target Retire 2015 Inv	VTXVX	0.14%	0.86	7.03%	-0.59%	5.29%	6.02%	9	9
Vanguard Target Retire 2010 Inv	VTENX	0.14%	0.97	5.55%	0.14%	4.42%	5.45%	17	16
Vanguard Target Retire Income Inv	VTINX	0.14%	1.14	4.27%	0.41%	3.64%	4.95%	10	10
<b>Specialty</b>									
Vanguard Health Care Adm	VGHAX	0.29%	1.48	11.64%	-6.29%	18.26%	17.91%	30	28
<b>Fixed Income</b>									
Vanguard Interm Invest Grade Adm	VFIDX	0.10%	1.37	3.63%	2.90%	3.12%	5.09%	1	37
PIMCO Real Return Inst	PRRIX	0.45%	0.48	5.66%	-0.38%	-1.67%	2.63%	15	11
<b>Stable Value</b>									
VALIC Fixed Interest	N/A	-	-	-	3.00%	3.00%	3.04%	-	-

\*Expense ratios above do not reflect additional record keeping fees other than what is already included in the fund's expense ratio.

<sup>1</sup>Higher number is better

<sup>2</sup>Lower number is better