Gabriel Roeder Smith & Company
Consultants & Actuaries

POLICE OFFICERS RETIREMENT SYSTEM (PORS)

ACTUARIAL VALUATION REPORT

AS OF JULY 1, 2015

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November 20, 2015

Public Employee Benefit Authority
South Carolina Retirement System
P.O. Box 11960
Columbia, SC 29211-1960

Subject: Actuarial Valuation as of July 1, 2015

Dear Members of the Board:

This report describes the current actuarial condition of the Police Officers Retirement System (PORS), determines the calculated employer and member contribution rates, and analyzes changes in this system's financial condition. In addition, the report provides various summaries of the data. A separate report is issued with regard to valuation results determined in accordance with Governmental Accounting Standards Board (GASB) Statements No. 67 and 68. Results of this report should not be used for any other purpose without consultation with the undersigned. Valuations are prepared annually as of July 1, the first day of the plan year for PORS. This report was prepared at the request of the Board of Directors of the South Carolina Public Employee Benefit Authority (Board) and is intended for use by the Public Employee Benefit Authority (PEBA) staff and those designated or approved by the Board.

FINANCING OBJECTIVES AND FUNDING POLICY

The employer and member contribution rate is determined in accordance with Section 9-11-225 of the South Carolina Code. As specified by the Code, in the event the scheduled employer and member contribution rate is insufficient to maintain a thirty-year amortization period for financing the unfunded liability of the System, the Board shall increase the employer and member contribution rates in equal amounts, as necessary, to maintain a funding period that does not exceed thirty years. The contribution rate determined by a given actuarial valuation becomes effective twenty-four months after the valuation date. In other words, the contribution rate determined by this July 1, 2015 actuarial valuation will be used by the Board when certifying the employer and member contribution rates for the year beginning July 1, 2017 and ending June 30, 2018.

Since the employer and member contribution rates certified by the Board that are effective for the 2016 and 2017 fiscal years are sufficient to maintain a funding period that does not exceed 30 years as of this valuation date, there will not be a change in the contribution rates as a result of this valuation.

According to State code, the Board is not permitted to decrease the employer and member contribution rates until the funded ratio of the plan is at least 90%. Also, any change in the rates must maintain the 5.00% differential between the employer and member contribution rates.

If new legislation is enacted between the valuation date and the date the contribution rate become effective, the Board may adjust the calculated rate before certifying them, in order to reflect this new legislation. Such adjustments are based on information supplied by the actuary.

PROGRESS TOWARD REALIZATION OF FINANCING OBJECTIVES

The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) is a standard measure of a plan's funded status. In the absence of benefit improvements, it should increase over time, until it reaches at least 100%.

The funded ratio of the System slightly decreased from 69.5% to 69.2%. Absent favorable experience, we expect the funded ratio will remain relatively constant for the next several years then begin to gradually improve.

If the market value of assets had been used in the calculation instead of actuarial (smoothed) value of assets, the funded ratio for the System would have been 64.5%, compared to 67.5% in the prior year. The decrease in the funded ratio on a market value basis is due to unfavorable investment experience during the last fiscal year. Specifically, the market value of assets earned a 1.4% return on a dollar-weighted basis for the plan year ending June 30, 2015, net of expenses. The annual return on the market value for the same time period determined in accordance with GASB No. 67, net of expenses, was 1.59% as reported by the South Carolina PEBA in their 2015 Comprehensive Financial Annual Report.

ASSUMPTIONS AND METHODS

The actuarial assumptions used to perform this valuation remain unchanged from the prior valuation, including the use of a 7.50% investment return assumption. The investment return assumption is a prescribed assumption in Section 9-16-335 in South Carolina State Code. South Carolina State Code also requires that an experience analysis that reviews the economic and demographic assumptions be performed every five years. The next experience study will be conducted using the plan's experience for the five-year period ending June 30, 2015.

It is our opinion that the current assumptions are internally consistent and reasonably reflect anticipated future experience of the System.

The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods. The actuarial calculations are intended to provide information for rational decision making.

BENEFIT PROVISIONS

The benefit provisions reflected in this valuation are those which were in effect on July 1, 2015. There were no legislative changes enacted since the previous valuation that had a measurable effect on the current valuation.

DATA

Member data for retired, active and inactive members was supplied as of July 1, 2015, by the PEBA staff. The staff also supplied asset information as of July 1, 2015. We did not audit this data, but we did apply a number of tests to the data, and we concluded that it was reasonable and consistent with the prior year's data. GRS is not responsible for the accuracy or completeness of the information provided to us by PEBA.

CERTIFICATION

We certify that the information presented herein is accurate and fairly portrays the actuarial position of PORS as of July 1, 2015.

All of our work conforms with generally accepted actuarial principles and practices, and is in conformity with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of South Carolina Code of Laws and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board.

The undersigned are independent actuaries and consultants. Mr. Newton and Mr. White are Enrolled Actuaries and Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries. Both are experienced in performing valuations for large public retirement systems.

Sincerely,

Gabriel, Roeder, Smith & Co.

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

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

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SECTION A

EXECUTIVE SUMMARY

Executive Summary

(Dollar amounts expressed in thousands)

	Valuation Date:	
	July 1, 2015	July 1, 2014
Membership		
• Number of		
- Active members	26,575	26,697
- Retirees and beneficiaries	16,709	16,103
- Inactive members	14,149	13,185
- Total	57,433	55,985
• Projected payroll of active members	$1,105,703	$1,076,885
• Projected payroll for all active members, including working retirees	$1,232,695	$1,207,484
Contribution Rates[1]		
• Employer contribution rate	13.74%	13.74%
• Member	8.74%	8.74%
Assets		
• Market value	$3,971,825	$3,985,102
• Actuarial value	4,266,794	4,105,308
• Return on market value	1.4%	15.4%
• Return on actuarial value	5.7%	6.7%
• Ratio - actuarial value to market value	107.4%	103.0%
• External cash flow %	-1.8%	-2.1%
Actuarial Information		
• Normal cost %	14.16%	14.31%
• Actuarial accrued liability (AAL)	$6,162,095	$5,905,828
• Unfunded actuarial accrued liability (UAAL)	1,895,301	1,800,520
• Funded ratio	69.2%	69.5%
• Funding period (years)	27	27
Reconciliation of UAAL		
• Beginning of Year UAAL	$1,800,520	$1,741,715
- Interest on UAAL	135,039	130,629
- Amortization payment	(113,446)	(96,422)
- Assumption/method changes	0	0
- Asset experience	73,742	30,052
- Salary experience	1,883	(8,808)
- Other liability experience	(2,437)	3,354
- Legislative Changes	0	0
• End of Year UAAL	$1,895,301	$1,800,520

[1] The contribution rates determined by the 2015 valuation are established by Section 9-11-225 of the South Carolina Code and become effective for the fiscal year beginning July 1, 2017. The employer contribution rates shown above include the cost for both the accidental and incidental death benefits.

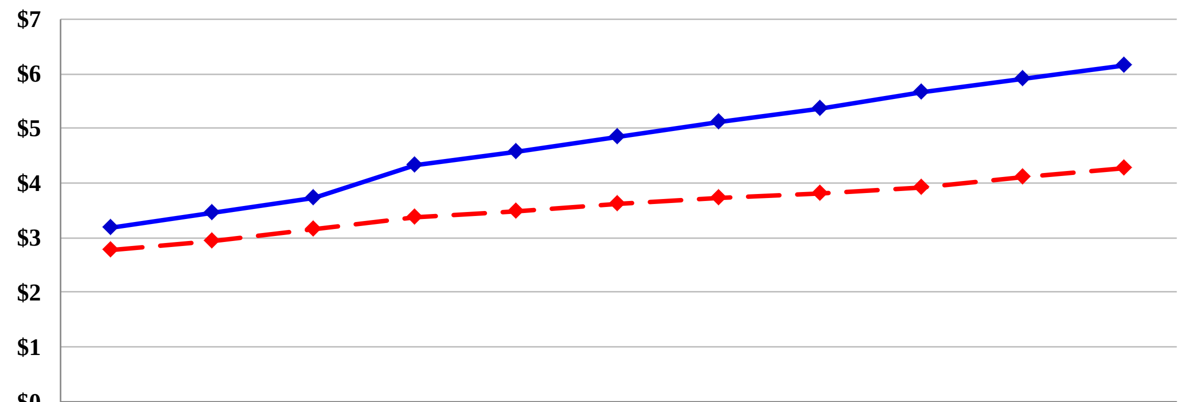
EXECUTIVE SUMMARY (CONTINUED)

The unfunded actuarial accrued liability increased by $0.095 billion since the prior year's valuation to $1.895 billion. The largest source of this increase is the $0.074 billion increase due to the recognition of investment losses that occurred in the prior fiscal years in the actuarial value of assets, followed by a $0.022 billion increase due to contributions to the plan attributable to financing the unfunded actuarial accrued liability being less than the interest cost on the unfunded liability.

There is $0.295 billion in deferred investment losses as of the valuation date. Absent favorable investment experience, those deferred losses will gradually be reflected in the actuarial value of assets over the next several years.

Below is a chart with the System's historical actuarial value of assets and actuarial accrued liability. The increased difference in the actuarial value of assets and the actuarial accrued liability over the last 10 years has generally been due to a combination of: (i) the actual investment experience being less than the System's expected investment return assumption, (ii) increases in the actuarial accrued liability due to cost of living adjustments provided to the retirees prior to the enactment of retirement reform legislation in 2012, and (iii) assumption changes recommended by the actuary and adopted by the Budget and Control Board in 2011.

Chart 1. - History of Actuarial Assets and Actuarial Accrued Liability
(Dollars in Billions)



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
AAL	3.2	3.5	3.7	4.3	4.6	4.9	5.1	5.4	5.7	5.9	6.2
AVA	2.8	2.9	3.2	3.4	3.5	3.6	3.7	3.8	3.9	4.1	4.3

Based on the current funding policy, we expect the funded ratio (on an actuarial value of asset basis) to remain relatively stable for the next three to five years then gradually improve.

The employer and member contribution rates that became effective on July 1, 2015 are sufficient to maintain a funding period that does not exceed 30 years. Therefore, the employer and member contribution rates for fiscal year 2018 will remain unchanged from those currently in effect.

We project that these contribution rates will continue to be sufficient to satisfy the 30-year funding requirement in future years. However, unfavorable investment or demographic experience could result in required increases in the employer and member contribution rates in future years.

SECTION B

DISCUSSION

Discussion

The results of the July 1, 2015 actuarial valuation of the Police Officers Retirement System are presented in this report. The primary purposes of the valuation report are to depict the current financial condition of the System, determine the annual required contribution, and analyze changes in the System's financial condition. In addition, the report provides various summaries of the data.

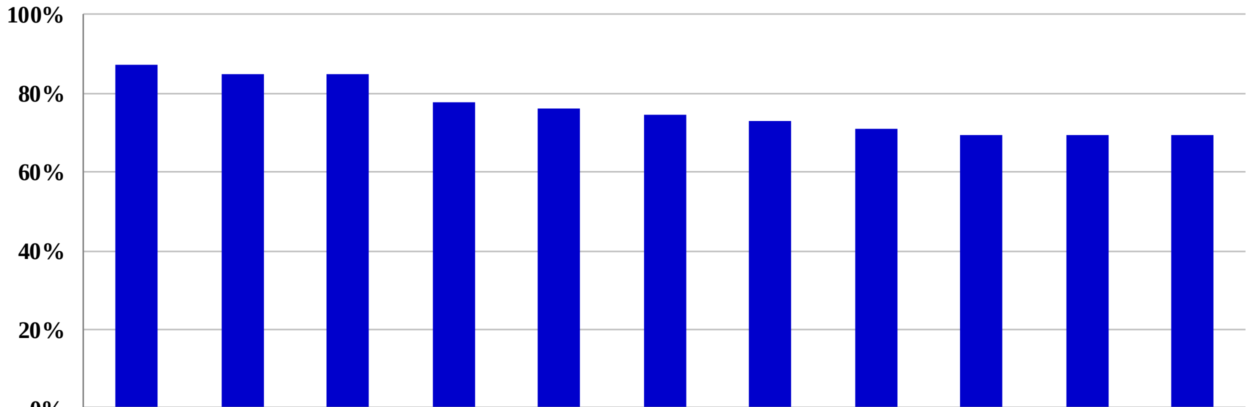
This section discusses the determination of the current funding requirements and the System's funded status, as well as changes in financial condition of the retirement system.

All of the actuarial and financial Tables referenced by the other sections of this Report appear in Section C. Section D provides member data and statistical information. Appendices A and B provide summaries of the principle actuarial assumptions and methods and plan provisions. Finally, Appendix C provides a glossary of technical terms that are used throughout this report.

Funding Progress

The funded ratio slightly decreased from 69.5% to 69.2% since the prior valuation. Chart 2 shown below, provides a 10-year history of the system's funded ratio. This gradual decline in the funded ratio over the last 10 years has generally been due to a combination of: (i) the actual investment experience being less than the System's expected investment return assumption, (ii) increases in the actuarial accrued liability due to providing cost of living adjustments to the retirees prior to the enactment of retirement reform legislation in 2012, and (iii) assumption changes recommended by the actuary and adopted by the Budget and Control Board in 2011. The funded status of the System is shown in Table 10, Schedule of Funding Progress.

Chart 2. - Funded Ratio
Actuarial Assets as a percentage of Actuarial Accrued Liabilities



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Funded Ratio	87.4%	84.7%	84.7%	77.9%	76.3%	74.5%	72.8%	71.1%	69.2%	69.5%	69.2%

It is expected that the funded ratio (on an actuarial value of asset basis) will be relatively constant for the next three to five years then gradually improve. Also, based on the current funding policy and contribution rates, we expect the dollar amount of the unfunded actuarial accrued liability, or the difference between the actuarial accrued liability and the actuarial value of assets, to gradually increase for the next seven to 10 years before beginning to decrease.

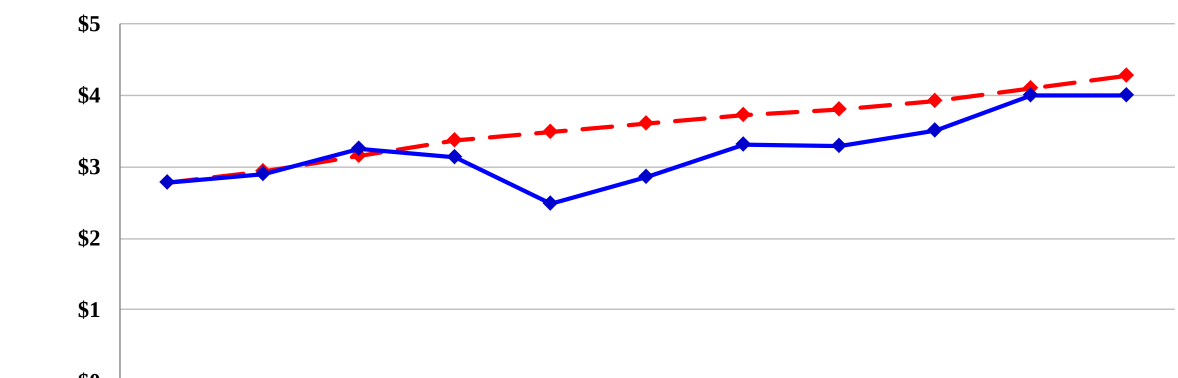
Asset Gains/ (Losses)

The actuarial value of assets ("AVA") is based on a smoothed market value of assets, using a systematic approach to phase-in actual investment return in excess of (or less than) the expected investment income. This is appropriate because it dampens the short-term volatility inherent in investment markets. The expected investment income is determined using the assumed annual investment return rate and the actuarial value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of administrative and investment expenses. The actuarial value of assets increased from $4.1 billion to $4.3 billion since the prior valuation. Table 8 shows the development of the actuarial value of assets.

The rate of return on the market value of assets during the prior plan year was 1.4% on a dollar-weighted basis; the return on an actuarial (smoothed) asset value was 5.7%, which is below the 7.50% expected annual return. The difference in the estimated return on market value and actuarial value illustrates the smoothing effect of the asset valuation method.

The market value of assets is less than the actuarial value of assets, which signifies that the retirement system is in a position of deferred losses. Therefore, unless the System experiences investment returns in excess of the assumed rate of return, the future recognition of these deferred losses is expected to increase the unfunded actuarial accrued liability over the next few years.

Chart 3. - History of Actuarial Value and Market Value of Assets
(Dollars in Billions)



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
AVA	2.8	2.9	3.2	3.4	3.5	3.6	3.7	3.8	3.9	4.1	4.3
MVA	2.8	2.9	3.3	3.1	2.5	2.9	3.3	3.3	3.5	4.0	4.0

Assets as of July 1,

Tables 6 and 7 provide asset information that was included in the annual financial statements of the System. Also, Table 9 shows the estimated yield on a market value basis and on the actuarial asset valuation method.

Actuarial Gains/ (Losses) and the Funding Period

The annual actuarial valuation is a snapshot analysis of the benefit liabilities, assets and funded position of the System as of the first day of the plan year. In any one fiscal year, the experience can be better or worse from that which is assumed or expected. The actuarial assumptions do not necessarily attempt to model what the experience will be for any one given fiscal year, but instead try to model the overall experience over many years. Therefore, as long as the actual experience of the retirement system is reasonably close to the current assumptions, the long-term funding requirements of the System will remain relatively consistent.

The unfunded actuarial accrued liability (UAAL) has increased from $1.8 billion in 2014 to $1.9 billion in 2015. The table below shows the source of the gains and losses and the impact of those gains and losses on the UAAL.

Reconciliation of UAAL
(Dollars in thousands)

• Beginning of Year UAAL	$1,800,520
- Interest on UAAL	135,039
- Amortization payment	(113,446)
- Assumption/method changes	0
- Asset experience	73,742
- Salary experience	1,883
- Other liability experience	(2,437)
- Legislative changes	0
• End of Year UAAL	$1,895,301

The System experienced a net $0.5 million gain due to liability experience. This net gain is approximately 0.1% of the total actuarial accrued liability.

Based on the valuation as of July 1, 2015, the funding period based on the contribution rates that became effective July 1, 2015 remain sufficient to satisfy the 30-year funding requirement in the State code. Therefore, those contribution rates will continue to remain in effect for fiscal year 2018. The following page provides a table reconciling the change in the funding period from the prior year's valuation based on the contribution rates that go into effect for fiscal years 2016 and 2017.

Change in Funding Period (Years) Based on the Employer and Member Contribution Rates in Effect for Fiscal Year 2017	
• Prior Year	27.2
- Expected experience	(1.0)
- Assumption and method changes	0.0
- Asset experience	1.3
- Demographic experience	(0.2)
- Legislative changes	0.0
- Total change	0.1
• Current Year Valuation	27.3

Since the current funding period remains relatively close to the maximum permitted 30 years, it is possible that near-term adverse experience, whether it investment or demographic related, will require an increase in future contribution rates.

Also, note that the current funding policy utilizes a level percentage of payroll amortization, which assumes that covered payroll will increase at the rate of 3.50% per year in the future (it does not assume an increase in active membership). As a result, the amortization payments will not be sufficient to cover all the interest charges on the UAAL until the funding period decreases to approximately 19 years. Therefore, stakeholders should expect the dollar amount of the unfunded actuarial accrued liability to gradually increase until the funding period decreases below 19 years.

Actuarial Assumptions and Methods

In determining costs and liabilities, actuaries use assumptions about the future, such as rates of salary increase, probabilities of retirement, termination, death and disability, and an annual investment return assumption. The actuarial assumptions and methods used to determine the results of the 2015 actuarial valuation are the same as those used for the prior year's valuation.

Appendix A includes a summary of the actuarial assumptions and methods used in this valuation. The investment return assumption is a prescribed assumption in Section 9-16-335 in South Carolina State Code.

It is our opinion that the assumptions are internally consistent, reasonable, and reflect anticipated future experience of the System.

Benefit Provisions

Appendix B of this report includes a summary of the benefit provisions for PORS. There were no legislative changes enacted since the previous valuation that had a measurable effect on the current valuation. Below is a summary of the retirement provisions for Class Two members, members hired prior to July 1, 2012, and Class Three members, member hired after June 30, 2012.

Summary of Retirement Provisions for:

Class Two Members (members hired prior to July 1, 2012)

- Average Final Compensation (AFC) is based on the highest twelve (12) consecutive quarters of compensation. The determination of a member's AFC also includes up to 45 days of unused annual leave paid at termination. Monthly benefits are based on one-twelfth of this amount.
- The retirement benefit is equal to 2.14% of the member's AFC times the member's credited service (years). Credited service may include up to 90 days of unused sick leave.
- Members are eligible to commence their retirement benefit after they have (i) 25 years of credited service or (ii) attained age 55 with 5 years of earned service.
- At each July 1 after their first full year of retirement, annuitants will receive an automatic post-retirement benefit adjustment equal to the lesser of 1.00% of their retirement benefit or $500 per annum.

Class Three Members (members hired after June 30, 2012)

- Average Final Compensation (AFC) is based on the highest twenty (20) consecutive quarters of compensation. The determination of a member's AFC also will not include unused annual leave paid at termination. Monthly benefits are based on one-twelfth of this amount.
- The retirement benefit is equal to 2.14% of the member's AFC times the member's credited service (years). Credited service will not include unused sick leave.
- Members are eligible to commence their retirement benefit after they have (i) 27 years of credited service or (ii) attained age 55 with 8 years of earned service.
- At each July 1 after their first full year of retirement, annuitants will receive an automatic post-retirement benefit adjustment equal to the lesser of 1.00% of their retirement benefit or $500 per annum.

SECTION C

ACTUARIAL TABLES

ACTUARIAL TABLES

TABLE NUMBER	PAGE	CONTENT OF TABLE

Summary of Cost Items

(Dollar amounts expressed in thousands)

		July 1, 2015 (1)	July 1, 2014 (2)
1.	Projected payroll of active members[1]	$ 1,105,703	$1,076,885
2.	Present value of future pay[1]	$ 8,496,444	$ 8,281,411
3.	Normal cost rate		
	a. Total normal cost rate	14.16%	14.31%
	b. Less: member contribution rate	-8.74%	-8.74%
	c. Employer normal cost rate	5.42%	5.57%
4.	Actuarial accrued liability for active members		
	a. Present value of future benefits	$ 3,529,892	$ 3,415,655
	b. Less: present value of future normal costs	1,156,730	1,138,687
	c. Actuarial accrued liability	$ 2,373,162	$ 2,276,968
5.	Total actuarial accrued liability for:		
	a. Retirees and beneficiaries	$ 3,624,713	$ 3,490,161
	b. Inactive members	164,220	138,699
	c. Active members (Item 4.c.)	2,373,162	2,276,968
	d. Total	$ 6,162,095	$ 5,905,828
6.	Actuarial value of assets	$ 4,266,794	$ 4,105,308
7.	Unfunded actuarial accrued liability (UAAL) (Item 5.d. - Item 6.)	$ 1,895,301	$ 1,800,520
8.	Annual Required Contribution Rate		
	a. Employer normal cost rate	5.42%	5.57%
	b. Employer contribution rate available to amortize the UAAL	8.32%	8.17%
	c. Total employer contribution rate	13.74%	13.74%
9.	Funding period based on the required employer contribution rate (years)	27	27
10.	Applicable statuorily required contribution rates[2]		
	a. Employer contribution rate	13.74%	13.74%
	b. Member contribution rate	8.74%	8.74%

[1] The projected payroll does not include payroll for working retirees.

[2] The applicable employer and member contribution rates are determined in accordance with Section 9-11-225 of the South Carolina Code. The contribution rate includes the cost of incidental death benefits.

Actuarial Present Value of Future Benefits

(Dollar amounts expressed in thousands)

			July 1, 2015 (1)	July 1, 2014 (2)
1.	Active members			
	a.	Service retirement	$ 2,852,329	$ 2,750,659
	b.	Deferred termination benefits and refunds	283,849	278,454
	c.	Survivor benefits	116,423	112,802
	d.	Disability benefits	277,291	273,740
	e.	Total	$ 3,529,892	$ 3,415,655
2.	Retired members			
	a.	Service retirement	$ 2,878,484	$ 2,775,801
	b.	Disability retirement	568,241	544,232
	c.	Beneficiaries	140,960	133,820
	d.	Incidental and accidental death benefits	37,028	36,308
	e.	Total	$ 3,624,713	$ 3,490,161
3.	Inactive members			
	a.	Vested terminations	$ 136,309	$ 113,464
	b.	Nonvested terminations	27,911	25,235
	c.	Total	$ 164,220	$ 138,699
4.	Total actuarial present value of future benefits		$ 7,318,825	$ 7,044,515

Analysis of Normal Cost

		July 1, 2015 (1)	July 1, 2014 (2)
1.	Total normal cost rate		
	a. Service retirement	8.34%	8.43%
	b. Deferred termination benefits and refunds	3.40%	3.42%
	c. Survivor benefits	0.49%	0.49%
	d. Disability benefits	1.93%	1.97%
	e. Total	14.16%	14.31%
2.	Less: member contribution rate	8.74%	8.74%
3.	Net employer normal cost rate	5.42%	5.57%

Note: The normal cost includes the cost of accidental and incidental death benefits.

Results of July 1, 2015 Valuation

(Dollar amounts expressed in thousands)

			July 1, 2015 (1)
1.	Actuarial Present Value of Future Benefits		
	a. Present retired members and beneficiaries	$	3,624,713
	b. Present active and inactive members		3,694,112
	c. Total actuarial present value	$	7,318,825
2.	Present Value of Future Normal Contributions		
	a. Member	$	724,747
	b. Employer		431,983
	c. Total future normal contributions	$	1,156,730
3.	Actuarial Liability	$	6,162,095
4.	Current Actuarial Value of Assets	$	4,266,794
5.	Unfunded Actuarial Liability	$	1,895,301
6.	Unfunded Actuarial Liability Rate in Effect for FY 2018		8.32%
7.	Unfunded Actuarial Liability Liquidation Period		27 years

Note: The employer contribution rate includes the cost of accidential and incidental death benefits.

Actuarial Balance Sheet
(Dollar amounts expressed in thousands)

		July 1, 2015	July 1, 2014
		(1)	(2)
1.	Assets		
	a. Current assets (actuarial value)		
	i. Employee annuity savings fund	$ 905,768	$ 850,383
	ii. Employer annuity accumulation fund	3,361,026	3,254,925
	iii. Total current assets	$ 4,266,794	$ 4,105,308
	b. Present value of future member contributions	$ 724,747	$ 702,264
	c. Present value of future employer contributions		
	i. Normal contributions	$ 431,983	$ 436,423
	ii. Accrued liability contributions	1,895,301	1,800,520
	iii. Total future employer contributions	$ 2,327,284	$ 2,236,943
	d. Total assets	$ 7,318,825	$ 7,044,515
2.	Liabilities		
	a. Employee annuity savings fund		
	i. Past member contributions	$ 905,768	$ 850,383
	ii. Present value of future member contributions	724,747	702,264
	iii. Total contributions to employee annuity savings fund	$ 1,630,515	$ 1,552,647
	b. Employer annuity accumulation fund		
	i. Benefits currently in payment	$ 3,624,713	$ 3,490,161
	ii. Benefits to be provided to other members	2,063,597	2,001,707
	iii. Total benefits payable from employer annuity accumulation fund	$ 5,688,310	$ 5,491,868
	c. Total liabilities	$ 7,318,825	$ 7,044,515

System Net Assets
Assets at Market or Fair Value
(Dollar amounts expressed in thousands)

Item (1)		July 1, 2015 (2)		July 1, 2014 (3)
1. Cash and cash equivalents (operating cash)	$	396,286	$	396,203
2. Receivables		90,227		139,713
3. Investments				
a. Short-term securities	$	103,494	$	111,015
b. Domestic fixed income		825,787		760,296
c. International fixed income		252,987		329,303
d. Domestic equities		272,185		335,854
e. International equities		692,419		506,108
f. Global tactical asset allocation		300,528		281,463
g. Alternative investments		1,212,502		1,229,369
h. Total investments	$	3,659,902	$	3,553,408
4. Securities lending cash collateral invested	$	9,479	$	9,648
5. Prepaid administrative expenses		409		313
6. Capital assets, net of accumulated depreciation		291		274
7. Total assets	$	4,156,594	$	4,099,559
8. Liabilities				
a. Due to other Systems	$	0	$	269
b. Accounts payable		161,881		94,518
c. Investment fees payable		1,144		1,235
d. Obligations under securities lending		9,479		9,648
e. Deferred retirement benefits		0		0
f. Due to Employee Insurance Program		1,788		1,011
g. Benefit payable		344		330
h. Other liabilities		10,133		7,446
i. Total liabilities	$	184,769	$	114,457
9. Total market value of assets available for benefits (Item 7. - Item 8.i.)	$	3,971,825	$	3,985,102
10. Asset allocation (investments)[1]				
a. Net invested cash		10.5%		13.6%
b. Domestic fixed income		20.8%		19.1%
c. International fixed income		6.4%		8.3%
d. Domestic equities		6.9%		8.4%
e. International equities		17.4%		12.7%
f. Global tactical asset allocation		7.6%		7.1%
g. Alternative investments		30.4%		30.8%
h. Total investments		100.0%		100.0%

[1] These asset allocations are calculated based on the dollar amounts shown in items 1. through 9. above and, due to cash flow and rebalancing timing, may be slightly different than the allocation percentages reported by the South Carolina Retirement System Investment Commission.

Reconciliation of System Net Assets

(Dollar amounts expressed in thousands)

		Year Ending	
		July 1, 2015	July 1, 2014
		(1)	(2)
1.	Value of assets at beginning of year	$ 3,985,102	$ 3,526,448
2.	Revenue for the year		
	a. Contributions		
	i. Member contributions	$ 106,854	$ 96,004
	ii. Employer contributions	166,473	155,634
	iii. Total	$ 273,327	$ 251,638
	b. Income		
	i. Interest, dividends, and other income	$ 45,879	$ 46,326
	ii. Investment expenses	(6,436)	(62,162)
	iii. Net	$ 39,443	$ (15,836)
	c. Net realized and unrealized gains (losses)	19,262	554,222
	d. Total revenue	$ 332,032	$ 790,024
3.	Expenditures for the year		
	a. Disbursements		
	i. Refunds	$ 17,453	$ 16,184
	ii. Regular annuity benefits	323,252	311,593
	iii. Other benefit payments	3,727	4,033
	iv. Transfers to other Systems	(1,061)	(2,260)
	v. Total	$ 343,371	$ 329,550
	b. Administrative expenses and depreciation	1,938	1,820
	c. Total expenditures	$ 345,309	$ 331,370
4.	Increase in net assets (Item 2.d.- Item 3.c.)	$ (13,277)	$ 458,654
5.	Value of assets at end of year (Item 1. + Item 4.)	$ 3,971,825	$ 3,985,102
6.	Net External Cash Flow		
	a. Dollar amount	$ (70,044)	$ (77,912)
	b. Percentage of market value	-1.8%	-2.1%

Development of Actuarial Value of Assets
(Dollar amounts expressed in thousands)

			July 1, 2015 (1)
1.	Actuarial value of assets at the prior valuation date	$	4,105,308
2.	Market value of assets at the prior valuation date	$	3,985,102
3.	Net external cash flow during the year		
	a. Contributions	$	273,327
	b. Disbursements		(343,371)
	c. Subtotal	$	(70,044)
4.	Expected net investment income at 7.50% earned on		
	a. Actuarial value of assets at the prior valuation date	$	307,898
	b. Contributions		10,250
	c. Disbursements		(12,876)
	d. Subtotal	$	305,272
5.	Expected actuarial value of assets, end of year (Item 1. + Item 3.c. + Item 4.d.)	$	4,340,536
6.	Market value of assets as of the current valuation date	$	3,971,825
7.	Difference between expected actuarial assets and market value of assets (Item 6. - Item 5.)	$	(368,711)
8.	Excess/(shortfall) recognized (20% of Item 7.)	$	(73,742)
9.	Actuarial value of plan assets, end of year (Item 5. + Item 8.)	$	4,266,794
10.	Asset gain (loss) for year (Item 9. - Item 5.)	$	(73,742)
11.	Asset gain (loss) as % of the actuarial value of assets		(1.73%)
12.	Ratio of AVA to MVA		107.4%

Estimation of Yields
(Dollar amounts expressed in thousands)

		Year Ending	
		July 1, 2015	July 1, 2014
		(1)	(2)
1.	Market value yield		
	a. Beginning of year market assets	$ 3,985,102	$ 3,526,448
	b. Contributions to fund during the year	273,327	251,638
	c. Disbursements	(343,371)	(329,550)
	d. Investment income (net of investment and administrative expenses)	56,767	536,566
	e. End of year market assets	$ 3,971,825	$ 3,985,102
	f. Estimated dollar weighted market value yield	1.4%	15.4%
2.	Actuarial value yield		
	a. Beginning of year actuarial assets	$ 4,105,308	$ 3,922,041
	b. Contributions to fund during the year	273,327	251,638
	c. Disbursements	(343,371)	(329,550)
	d. Investment income (net of investment and administrative expenses)	231,530	261,179
	e. End of year actuarial assets	$ 4,266,794	$ 4,105,308
	f. Estimated actuarial value yield	5.7%	6.7%

Schedule of Funding Progress
(Dollar amounts expressed in thousands)

July 1,	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL) (3) - (2)	Funded Ratio (2)/(3)	Annual Covered Payroll[1]	UAAL as % of Payroll (4)/(6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2001	$ 2,197,982	$ 2,324,257	$ 126,275	94.6%	$ 757,335	16.7%
2002	2,351,100	2,527,876	176,776	93.0%	757,393	23.3%
2003	2,511,369	2,744,849	233,480	91.5%	800,394	29.2%
2004	2,616,835	2,984,584	367,749	87.7%	822,448	44.7%
2005	2,774,606	3,173,930	399,324	87.4%	850,610	46.9%
2006	2,935,841	3,466,281	530,440	84.7%	931,815	56.9%
2007	3,160,240	3,730,544	570,304	84.7%	992,849	57.4%
2008	3,363,136	4,318,955	955,819	77.9%	1,060,747	90.1%
2009	3,482,220	4,564,111	1,081,891	76.3%	1,084,154	99.8%
2010	3,612,700	4,850,457	1,237,757	74.5%	1,076,467	115.0%
2011	3,728,241	5,122,501	1,394,260	72.8%	1,087,587	128.2%
2012	3,808,934	5,357,492	1,548,558	71.1%	1,019,241	151.9%
2013	3,922,041	5,663,756	1,741,715	69.2%	1,033,189	168.6%
2014	4,105,308	5,905,828	1,800,520	69.5%	1,076,885	167.2%
2015	4,266,794	6,162,095	1,895,301	69.2%	1,105,703	171.4%

[1] Covered payroll does not include payroll attributable to working retirees.

Summary of Principle Assumptions and Methods

Below is a summary of the principle economic assumptions, cost method, and the method for financing the unfunded actuarial accrued liability:

Valuation date:	July 1, 2015
Actuarial cost method:	Entry Age Normal
Amortization method:	Level percentage of payroll
Amortization period for contribution rate:	27-year open period[1]
Asset valuation method:	5-year smoothed market
Actuarial assumptions:	
Investment rate of return[2]	7.50%
Projected salary increases	4.00% to 10.00% (varies by service)
Inflation	2.75%
Post-retirement benefit adjustments[3]	0.00%
Mortality	RP-2000 Mortality Table with Blue Collar Adjustment, projected at Scale AA from the year 2000. Male and female rates are multiplied by 115%.

[1] The employer and member contribution rates are determined in accordance with Section 9-11-225 of the South Carolina Code.

[2] This is a prescribed assumption in Section 9-16-335 of South Carolina State Code.

[3] The benefit increase is the lesser of 1.00% or $500 annually.

Table 12

Solvency Test
(Dollar amounts expressed in thousands)

	Actuarial Accrued Liability				Portion of Aggregate Accrued Liabilities Covered by Assets		
July 1,	Active Member Contributions	Retirants & Beneficiaries	Active & Inactive Members (Employer Financed)	Valuation Assets	Active	Retirants	ER Financed
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2001	$ 464,217	$ 977,769	$ 882,271	$ 2,197,982	100.0%	100.0%	85.7%
2002	492,178	1,136,998	898,700	2,351,100	100.0%	100.0%	80.3%
2003	516,313	1,265,173	963,363	2,511,369	100.0%	100.0%	75.8%
2004	548,699	1,415,627	1,020,258	2,616,835	100.0%	100.0%	64.0%
2005	585,701	1,530,199	1,058,030	2,774,606	100.0%	100.0%	62.0%
2006	622,008	1,668,449	1,175,824	2,935,841	100.0%	100.0%	54.9%
2007	658,023	1,818,914	1,253,607	3,160,240	100.0%	100.0%	54.5%
2008	697,423	2,183,645	1,437,887	3,363,136	100.0%	100.0%	33.5%
2009	726,214	2,348,685	1,489,212	3,482,220	100.0%	100.0%	27.4%
2010	758,695	2,577,772	1,513,990	3,612,700	100.0%	100.0%	18.2%
2011	786,724	2,784,144	1,551,633	3,728,241	100.0%	100.0%	10.1%
2012	773,710	3,118,016	1,465,766	3,808,934	100.0%	97.3%	0.0%
2013	793,414	3,385,496	1,484,846	3,922,041	100.0%	92.4%	0.0%
2014	850,383	3,490,161	1,565,284	4,105,308	100.0%	93.3%	0.0%
2015	905,768	3,624,713	1,631,614	4,266,794	100.0%	92.7%	0.0%

SECTION D

MEMBERSHIP DATA

MEMBERSHIP TABLES

Summary of Membership Data

		July 1, 2015 (1)	July 1, 2014 (2)
1.	Active members		
a.	Males	19,914	20,027
b.	Females	6,661	6,670
c.	Total members	26,575	26,697
d.	Total annualized prior year pay	$ 1,053,009,549	$ 1,025,690,866
e.	Average pay	$ 39,624	$ 38,420
f.	Average age	39.4	39.5
g.	Average service	9.7	9.5
h.	Member contributions with interest	$ 801,795,864	$ 759,220,414
i.	Average contributions with interest	$ 30,171	$ 28,438
2.	Vested inactive members		
a.	Number	2,364	2,104
b.	Total annual deferred benefits	$ 18,916,899	$ 16,017,269
c.	Average annual deferred benefit	$ 8,002	$ 7,613
3.	Nonvested inactive members		
a.	Number	11,785	11,081
b.	Member contributions with interest	$ 27,911,054	$ 25,235,052
c.	Average refund due	$ 2,368	$ 2,279
4.	Service retirees		
a.	Number	12,941	12,485
b.	Total annual benefits	$ 265,095,859	$ 254,520,214
c.	Average annual benefit	$ 20,485	$ 20,386
d.	Average age at the valuation date	64.6	64.2
5.	Disabled retirees		
a.	Number	2,475	2,380
b.	Total annual benefits	$ 50,548,301	$ 48,179,102
c.	Average annual benefit	$ 20,424	$ 20,243
d.	Average age at the valuation date	54.5	54.1
6.	Beneficiaries		
a.	Number	1,293	1,238
b.	Total annual benefits	$ 15,684,378	$ 14,938,347
c.	Average annual benefit	$ 12,130	$ 12,067
d.	Average age at the valuation date	67.5	67.8

Summary of Contributing Membership Data
(Dollar amounts expressed in thousands)

		July 1, 2015 (1)		July 1, 2014 (2)
1. Active Members				
a. Number of State Employees		9,442		9,652
Total Annual Compensation	$	349,087	$	343,901
b. Number of Public School Employees		0		0
Total Annual Compensation	$	0	$	0
c. Number of Other Agency Employees		17,133		17,045
Total Annual Compensation	$	703,923	$	681,790
Total Number of Active Members		26,575		26,697
Total Annual Compensation	$	1,053,010	$	1,025,691
2. Rehired Retired Participants				
a. Number of State Employees		777		826
Total Annual Compensation	$	27,017	$	27,352
b. Number of Public School Employees		53		53
Total Annual Compensation	$	2,242	$	2,270
c. Number of Other Agency Employees		2,032		2,147
Total Annual Compensation	$	93,773	$	98,229
Total Number of Rehired Retired Members		2,862		3,026
Total Annual Compensation	$	123,032	$	127,851

Note: Total compensation is the annualized pay for the prior year.

Summary of Historical Active Membership

		Active Members		Covered Payroll[1]		Average Annual Pay			
July 1,	Number of Employers[2]	Number	Percent Increase /(Decrease)	Amount in Thousands	Percent Increase /(Decrease)	Amount	Percent Increase /(Decrease)	Average Age	Average Service
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2001	296	24,821	N/A	$ 757,335	N/A	$ 30,512	5.50%	N/A	N/A
2002	302	23,963	-3.5%	757,393	0.0%	31,607	3.59%	N/A	N/A
2003	314	23,871	-0.4%	800,394	5.7%	33,530	6.08%	N/A	N/A
2004	314	23,734	-0.6%	822,448	2.8%	34,653	3.35%	N/A	N/A
2005	314	23,795	0.3%	850,610	3.4%	35,747	3.16%	N/A	N/A
2006	314	24,813	4.3%	931,815	9.5%	37,554	5.05%	N/A	N/A
2007	313	25,645	3.4%	992,849	6.6%	38,715	3.09%	N/A	N/A
2008	313	26,427	3.0%	1,060,747	6.8%	40,139	3.68%	N/A	N/A
2009	318	26,598	0.6%	1,084,154	2.2%	40,761	1.55%	39.6	8.4
2010	322	26,568	-0.1%	1,076,467	-0.7%	40,517	-0.60%	39.8	8.7
2011	356	26,650	0.3%	1,087,587	1.0%	40,810	0.72%	39.8	9.6
2012	325	26,179	-1.8%	1,019,241	-6.3%	38,934	-4.60%	39.6	9.5
2013	356	26,194	0.1%	1,033,189	1.4%	39,444	1.31%	39.5	9.4
2014	310	26,697	1.9%	1,076,885	4.2%	40,337	2.27%	39.5	9.5
2015	312	26,575	-0.5%	1,105,703	2.7%	41,607	3.15%	39.4	9.7

[1] Covered payroll does not include payroll attributable to members in working retirees.

[2] Number of employers and agencies that cover employees earning benefits in PORS and that contributed to the system during the last fiscal year.

Distribution of Active Members by Age and by Years of Service

Attained Age	0 Count & Avg. Comp.	1 Count & Avg. Comp.	2 Count & Avg. Comp.	3 Count & Avg. Comp.	4 Count & Avg. Comp.	5-9 Count & Avg. Comp.	10-14 Count & Avg. Comp.	15-19 Count & Avg. Comp.	20-24 Count & Avg. Comp.	25-29 Count & Avg. Comp.	30-34 Count & Avg. Comp.	35 & Over Count & Avg. Comp.	Total Count & Avg. Comp.
	Years of Credited Service												
Under 20	32	3	0	0	0	0	0	0	0	0	0	0	35
	$11,824	$17,992	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$12,353
20-24	711	479	212	80	44	17	0	0	0	0	0	0	1,543
	$13,910	$31,720	$32,918	$32,321	$35,954	$30,080	$0	$0	$0	$0	$0	$0	$23,812
25-29	745	788	751	553	483	943	28	0	0	0	0	0	4,291
	$14,891	$32,964	$35,433	$36,800	$37,303	$39,157	$42,284	$0	$0	$0	$0	$0	$32,663
30-34	356	355	305	311	312	1,900	679	18	0	0	0	0	4,236
	$15,389	$34,543	$35,533	$37,804	$37,717	$41,029	$43,565	$44,400	$0	$0	$0	$0	$37,875
35-39	208	200	220	171	178	1,051	1,137	579	28	0	0	0	3,772
	$15,494	$33,060	$35,202	$35,705	$38,205	$40,442	$45,278	$47,736	$48,765	$0	$0	$0	$40,688
40-44	190	164	145	124	145	753	712	1,247	520	18	0	0	4,018
	$16,680	$34,264	$36,619	$38,186	$37,256	$40,120	$44,014	$49,232	$52,778	$58,002	$0	$0	$43,719
45-49	152	120	117	109	101	565	494	685	943	248	7	0	3,541
	$15,856	$32,667	$37,154	$35,722	$38,351	$39,678	$43,323	$47,350	$52,815	$59,339	$51,033	$0	$45,065
50-54	95	89	86	80	70	457	321	420	467	316	74	3	2,478
	$15,532	$39,798	$34,573	$37,969	$34,963	$38,922	$41,659	$45,899	$50,056	$58,204	$66,691	$63,481	$44,716
55-59	51	48	59	55	50	299	224	254	219	179	71	31	1,540
	$15,212	$34,729	$38,954	$37,125	$37,547	$37,594	$42,164	$44,843	$48,476	$50,352	$66,001	$74,130	$43,733
60-64	29	22	42	42	27	200	107	133	96	83	35	20	836
	$18,140	$36,980	$36,807	$34,603	$36,641	$39,337	$41,597	$43,941	$48,629	$47,369	$50,971	$61,534	$41,992
65 & Over	10	6	6	8	16	58	39	47	34	30	13	18	285
	$15,922	$34,314	$42,814	$27,301	$39,405	$44,341	$45,508	$47,514	$49,824	$44,957	$69,539	$72,339	$46,665
Total	2,579	2,274	1,943	1,533	1,426	6,243	3,741	3,383	2,307	874	200	72	26,575
	$14,959	$33,362	$35,462	$36,646	$37,439	$40,044	$43,846	$47,594	$51,569	$55,430	$63,332	$69,740	$39,625

Schedule of Annuitants by Type of Benefit

Type of Benefit/ Form of Payment	Number		Annual Benefits Amount		Average Monthly Benefit
(1)	(2)		(3)		(4)
Service :					
Maximum & QDRO	7,915	$	159,097,583	$	1,675
100% J&S	2,459		47,023,694		1,594
50% J&S	1,616		40,550,552		2,091
Level Income	951		18,424,030		1,614
Subtotal:	12,941	$	265,095,859		1,707
Disability:					
Maximum	2,009	$	42,572,394	$	1,766
100% J&S	249		3,477,313		1,164
50% J&S	217		4,498,594		1,728
Subtotal:	2,475	$	50,548,301		1,702
Beneficiaries:	1,293	$	15,684,378	$	1,011
Total:	16,709	$	331,328,538	$	1,652

Distribution of Annuitants by Monthly Benefit

Monthly Benefit Amount	Number of Annuitants	Female	Male	Average Service
(1)	(2)	(3)	(4)	(5)
Under $200	842	377	465	2.30
$ 200 - 399	1,166	485	681	7.18
400 - 599	1,238	522	716	9.15
600 - 799	1,212	535	677	11.56
800 - 999	1,164	461	703	13.49
1,000 - 1,199	1,097	380	717	15.30
1,200 - 1,399	1,025	336	689	17.20
1,400 - 1,599	1,037	310	727	19.50
1,600 - 1,799	1,053	258	795	20.85
1,800 - 1,999	1,078	207	871	21.86
2,000 - 2,199	1,046	217	829	22.76
2,200 - 2,399	911	153	758	23.51
2,400 - 2,599	762	105	657	23.90
2,600 - 2,799	704	98	606	24.83
2,800 - 2,999	510	66	444	25.88
3,000 - 3,199	389	50	339	26.21
3,200 - 3,399	290	42	248	26.80
3,400 - 3,599	255	25	230	27.45
3,600 - 3,799	207	18	189	27.88
3,800 - 3,999	157	15	142	28.63
4,000 & Over	566	50	516	31.27
Total	16,709	4,710	11,999	17.87

Schedule of Retirants Added to And Removed from Rolls

(Dollar amounts except average allowance expressed in thousands)

Year Ending June 30,	Added to Rolls		Removed from Rolls		Rolls End of the Year		% Increase in Annual Benefit	Average Annual Benefit
	Number	Annual Benefits	Number	Annual Benefits	Number	Annual Benefits		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2001	989	$ 17,235	341	$ 3,986	6,970	$ 102,395	14.9%	$ 14,691
2002	956	17,378	220	2,639	7,706	117,134	14.4%	15,200
2003	947	18,614	226	2,733	8,427	133,015	13.6%	15,784
2004	894	16,256	265	2,923	9,056	146,348	10.0%	16,114
2005	778	12,576	173	2,147	9,661	160,756	9.8%	16,640
2006	678	16,880	205	2,691	10,134	174,945	8.8%	17,263
2007	772	16,474	205	2,745	10,701	188,674	7.8%	17,631
2008	779	17,458	194	2,691	11,286	203,441	7.8%	18,026
2009	931	17,937	267	3,879	11,950	217,499	6.9%	18,201
2010	943	21,877	327	5,000	12,566	234,376	7.8%	18,652
2011	1,042	22,580	250	2,970	13,358	253,986	8.4%	19,014
2012	1,566	34,086	271	4,143	14,653	283,929	11.8%	19,377
2013	1,278	27,584	314	5,106	15,617	306,407	7.9%	19,620
2014	818	16,881	332	5,650	16,103	317,638	3.7%	19,725
2015	968	19,767	362	6,076	16,709	331,329	4.3%	19,829

Annual benefits added to rolls includes the benefit adjustments for continuing retirees.

APPENDIX A

ACTUARIAL ASSUMPTIONS AND METHODS

Summary of Actuarial Methods and Assumptions

The following presents a summary of the actuarial assumptions and methods used in the valuation of the South Carolina Police Officers Retirement System.

Investment Rate of Return

Assumed annual rate of 7.50% net of investment and administrative expenses composed of a 2.75% inflation component and a 4.75% real rate of return, net of investment and administration expenses.

This is a prescribed assumption in Section 9-16-335 of the South Carolina State Code.

Rates of Annual Salary Increase

Rates of annual salary increase are assumed to vary for the first 11 years of service to include anticipated merit and promotional increases. The assumed annual rate of increase is 4.00% for all members with 12 or more years of service.

The 4.00% rate of increase is composed of a 2.75% inflation component and a 1.25% real rate of wage increase (productivity) component.

Active Male & Female Salary Increase Rate		
	PORS	
Years of Service	Annual Promotional/Longevity Rates of Increase	Total Annual Rate of Increase Including 4.00% Wage Inflation
0	6.00%	10.00%
1	5.00%	9.00%
2	2.00%	6.00%
3	1.00%	5.00%
4	0.75%	4.75%
5	0.50%	4.50%
6	0.25%	4.25%
7	0.25%	4.25%
8	0.25%	4.25%
9	0.25%	4.25%
10	0.25%	4.25%
11	0.25%	4.25%
12	0.00%	4.00%
13	0.00%	4.00%
14	0.00%	4.00%
15	0.00%	4.00%
16	0.00%	4.00%
17	0.00%	4.00%
18	0.00%	4.00%
19	0.00%	4.00%
20+	0.00%	4.00%

Active Member Decrement Rates

a. Assumed rates of Service Retirement are shown in the following tables. The first table is for members who attain age 55 before attaining 25 years of service (27 years of service for Class Three. The second table is based on service and is for members who attain 25 years of service before age 55.

Annual Age Based Retirement Rates		
Age	PORS	
	Male	Female
55	20%	20%
56	14%	14%
57*	50%	50%
58	12%	12%
59	12%	12%
60	12%	12%
61	12%	12%
62	35%	35%
63	25%	25%
64	25%	25%
65	30%	30%
66	30%	30%
67	30%	30%
68	30%	30%
69	30%	30%
70	100%	100%
71	100%	100%
72	100%	100%
73	100%	100%
74	100%	100%
75	100%	100%

* Age first eligible to concurrently commence benefits and continue employment.

Annual Service Based Retirement Rates*			
Years of Service		PORS	
Class Two	Class Three	Male	Female
25	27	18%	18%
26	28	13%	13%
27	29	11%	11%
28	30	11%	11%
29	31	11%	11%
30	32	11%	11%
31	33	11%	11%
32	34	11%	11%
33	35	11%	11%
34	36	11%	11%
35	37	11%	11%
36	38	11%	11%
37	39	11%	11%
38	40	11%	11%
39	41	11%	11%
40	42	100%	100%

* Retirement rate is 50% at age 57, the first age the member is eligible to concurrently commence benefits and continue employment.

b. Assumed rates of disability are shown in the following table. 25% of disabilities are assumed to be duty-related.

Disability Rates		
Age	PORS	
	Males	Females
25	0.1376%	0.1376%
30	0.1835%	0.1835%
35	0.3441%	0.3441%
40	0.4588%	0.4588%
45	0.6882%	0.6882%
50	0.8603%	0.8603%
55	0.0000%	0.0000%
60	0.0000%	0.0000%
64	0.0000%	0.0000%

c. Active Member Mortality

Rates of active member mortality are based upon a client specific table with applicable multipliers to match the experience.

Active Mortality Rates (Multiplier Applied)		
Age	PORS	
	Males	Females
25	0.0338%	0.0186%
30	0.0653%	0.0264%
35	0.0978%	0.0467%
40	0.1234%	0.0790%
45	0.1614%	0.1248%
50	0.2171%	0.1767%
55	0.3776%	0.2516%
60	0.7443%	0.4454%
64	1.2430%	0.8222%
Multiplier	90%	90%

d. Rates of Withdrawal

Rate of withdrawal for active members prior to eligibility for retirement are based upon actual experience from 2002 through 2010. Rates are developed for each employee group and differ by gender and service. Sample rates are shown in the tables below.

Annual Withdrawal Rate		
Years of Service	PORS	
	Male	Female
0	0.2500	0.2500
1	0.1800	0.1800
2	0.1400	0.1400
3	0.1200	0.1200
4	0.1070	0.1070
5	0.0954	0.0954
6	0.0850	0.0850
7	0.0758	0.0758
8	0.0675	0.0675
9	0.0602	0.0602
10	0.0537	0.0537
11	0.0478	0.0478
12	0.0426	0.0426
13	0.0380	0.0380
14	0.0339	0.0339
15	0.0302	0.0302
16	0.0269	0.0269
17	0.0240	0.0240
18	0.0214	0.0214
19	0.0191	0.0191
20	0.0170	0.0170
21	0.0151	0.0151
22	0.0135	0.0135
23	0.0120	0.0120

e. Post Retirement Mortality

Healthy retirees and beneficiaries – This valuation assumes fully generational mortality. The base mortality table is 115% of the RP-2000 Mortality Table with Blue Collar Adjustment. Future mortality improvements are assumed each year using Scale AA. The following are sample rates:

Nondisabled Annuitant Mortality Rates Before Projection (Multiplier Applied)		
Age	**PORS**	
	Males	**Females**
50	0.2774%	0.2257%
55	0.4825%	0.3214%
60	0.9511%	0.5691%
65	1.7870%	1.1958%
70	3.0772%	2.1429%
75	4.9601%	3.5521%
80	8.1129%	5.6296%
85	13.2339%	9.5565%
90	20.9021%	15.7189%
Multiplier	115%	115%

Life Expectancy for an Age 65 Retiree in Years				
	Year of Retirement			
Member	**2015**	**2020**	**2025**	**2030**
Male	17.8	18.2	18.6	19.0
Female	19.7	19.9	20.1	20.4

A separate table of mortality rates is used for disabled retirees based on the RP-2000 Disabled Retiree Mortality Table. The following are sample rates:

Disabled Annuitant Mortality Rates (Multiplier Applied)		
Age	**PORS**	
	Males	**Females**
50	1.7385%	0.6921%
55	2.1265%	0.9926%
60	2.5225%	1.3103%
65	3.0104%	1.6816%
70	3.7550%	2.2581%
75	4.9240%	3.1338%
80	6.5623%	4.3387%
85	8.4962%	6.0122%
90	11.0045%	8.4029%
Multiplier	60%	60%

Asset Valuation Method

The actuarial value of assets is determined as the expected value of plan assets as of the valuation date plus 20% of the difference between the market value and the expected actuarial value of assets, based upon the assumed valuation rate of return.

Expected earnings are determined using the assumed investment rate of return and the beginning of year actuarial value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of administrative and investment expenses.

Actuarial Cost Method

The Entry Age Normal actuarial cost method allocates the plan's actuarial present value of future benefits to various periods based upon service. The portion of the present value of future benefits allocated to years of service prior to the valuation date is the actuarial accrued liability, and the portion allocated to years following the valuation date is the present value of future normal costs. The normal cost is determined for each active member as the level percent of payroll necessary to fully fund the expected benefits to be earned over the career of each individual active member. The normal cost is partially funded with active member contributions with the remainder funded by employer contributions.

An unfunded accrued liability exists in the amount equal to the excess of accrued liability over valuation assets. The amortization period of the System is the number of years required to fully amortize the unfunded accrued liability, on an actuarial value of asset basis, with the expected amount of employer contributions in excess of the employers' portion of the normal cost.

The calculation of the amortization period takes into account scheduled increases to contribution rates applicable to future years and payroll growth. Also, the calculation of the amortization period reflects additional contributions the System receives with respect to return to work retirees. These contributions are assumed to grow at the same payroll growth rate as for active employees. It is assumed that amortization payments are made monthly at the end of the month.

Note, the principle financial measurement calculations in this actuarial valuation, which include the unfunded actuarial accrued liability, funded ratio, contributions rates, and funding period, are based on an actuarial value of assets (smoothed value) basis. The actuarial value of assets is a calculated asset value which may be greater than or less than the market value of assets and is used to dampen some of the volatility in the market value of assets. As a result, many of these measures would be different if they were determined on a market value of asset basis.

Unused Annual Leave

To account for the effect of unused annual leave in Annual Final Compensation (AFC) of Class Two members, the AFC for Class Two members is increased 3.75% at their projected date of termination or retirement.

Unused Sick Leave

To account for the effect of unused sick leave on credited service for Class Two members, the service of active Class Two members who retire is increased 3 months.

Future Post-Retirement Benefit Adjustments

Benefits are assumed to increase by the lesser of 1.00% annually or $500 beginning on the July 1st following the receipt of 12 monthly benefit payments. The $500 limit in the annual increase is not indexed to escalate in future years.

Payroll Growth Rate

The total annual payroll of active members (also applies to rehired retiree participants) is assumed to increase at an annual rate of 3.50%.

Other Assumptions

1. Valuation payroll (used for determining the amortization contribution rate): Prior fiscal year payroll projected forward one year using the overall payroll growth rate. This was determined separately for active employees and return to work employees by dividing the actual member contributions received during the prior fiscal year by the applicable member contribution rate for that fiscal year, and then projecting forward at 3.50%.
2. Individual salaries used to project benefits: Actual salaries from the past fiscal year are used to determine the final average salary as of the valuation date. For future salaries, the salary from the last fiscal year is projected forward with one year's salary scale.
3. Pay increase timing: Beginning of (fiscal) year. This is equivalent to assuming that reported salaries represent amounts paid to members during the year ended on the valuation date.
4. Percent married: 100% of male and 100% of female employees are assumed to be married.
5. Age difference: Males are assumed to be four years older than their spouses.
6. Percent electing annuity on death (when eligible): All of the spouses of vested, married participants are assumed to elect an immediate life annuity.
7. Inactive Population: All non-vested members are assumed to take an immediate refund. Vested members are assumed to take a deferred retirement benefit.
8. There will be no recoveries once disabled.
9. Decrement timing: Decrements of all types are assumed to occur mid-year.
10. Eligibility testing: Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
11. Decrement relativity: Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.

12. Incidence of Contributions: Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.
13. Benefit Service: All members are assumed to accrue 1 year of eligibility service each year.

Participant Data

Participant data was securely supplied in electronic text files. There were separate files for (i) active and inactive members, and (ii) members and beneficiaries receiving benefits.

The data for active members included birth date, gender, service with the current city and total vesting service, salary, and employee contribution account balances. For retired members and beneficiaries, the data included date of birth, gender, spouse's date of birth (where applicable), amount of monthly benefit, date of retirement, and form of payment code.

Salary supplied for the current year was based on the annualized earnings for the year preceding the valuation date.

Assumptions were made to correct for missing or inconsistent data. These had no material impact on the results presented.

APPENDIX B

BENEFIT PROVISIONS

SUMMARY OF BENEFIT PROVISIONS FOR SOUTH CAROLINA POLICE OFFICERS RETIREMENT SYSTEM (PORS)

Effective Date: July 1, 1962.

Administration: The South Carolina Retirement System, organizationally aligned as a Division of the South Carolina Public Employee Benefit Authority, is responsible for the general administrative operations and day to day management of the Plan.

Type of Plan: This is a qualified governmental defined benefit retirement plan. Under GASB No. 27 and 67, it is considered to be a cost-sharing multiple-employer plan.

Eligibility: This System covers police officers and firefighters employed by the state, and any participating political subdivision, agency, or department of the state. With the exception for magistrates and probate judges, eligible public safety employees must earn at least $2,000 per year and devote at least 1,600 hours per year, unless exempted by statute.

Employee Contributions: Members are contributing 8.41% and 8.74% of earnable compensation for FY 2015 and 2016, respectively. The member contribution rate in effect after FY 2016 is projected to remain 8.74% of pay each year thereafter. In the event that these contribution rates are insufficient to maintain a 30-year amortization period, the Board shall increase the employer and member contribution rates by an equal amount (i.e. maintain at least a 5.00% differential between the employer and member rates) as necessary to maintain a 30-year funding period. The employer and member contribution rates may not decrease until the plan attains a 90% funded ratio. These contributions are "picked-up" under Section 414(h) of the Internal Revenue Code. Contributions are credited with interest at the rate of 4.0% per annum while the member is active. Members do not earn interest on their employee contribution account balance while they are inactive.

Average Final Compensation (AFC): The monthly average of the member's highest twelve (12) consecutive quarters of earnable compensation (20 consecutive quarters for Class Three members, members who are hired after June 30, 2012). Earnable compensation is the compensation that would be payable to a member if the member worked a full, normal working time, which includes gross salary, overtime, sick pay, and deferrals. The calculation of a Class Two member's AFC also includes up to 45 days pay for unused annual leave paid at termination.

Members joining the System after January 1, 1996, have their compensation limited in accordance with IRC Section 401(a)(17) for determining benefits.

Service Retirement:

a. Eligibility: A Class Two member may retire with an unreduced benefit at age 55 or after 25 years of creditable service, if earlier. The member must also have a minimum of 5 years of "earned" service to qualify for retirement. Class Three members may retire with an unreduced benefit at age 55 or after 27 years of creditable service, if earlier. Class Three members must also have a minimum of 8 years of "earned" service to qualify for retirement.

b. Monthly Benefit: 2.14% times Average Final Compensation (AFC) times years of creditable service. Class Two members will receive service credit for up to 90 days of unused sick leave where twenty days of sick leave constitutes one month of service credit.

c. Payment Form: Maximum retirement allowance (Option A) and survivor allowances under Options B and C.

Disability Retirement:

a. Eligibility: Member must have five or more years of earned service (8 years for Class Three members), unless the disability is due to performing his or her job duties.

b. Monthly Benefit:

   The monthly benefit is equal to the member's service retirement benefit that would have been payable based on the member's AFC determined as of the date of his disability and a projected credited service amount that assumes the member continued employment to age 55, not to exceed their current service or 25 years. However, a member must receive a disability retirement allowance equal to at least 15% of his AFC.

c. Payment Form: Maximum retirement allowance (Option A) and survivor allowances under Options B and C.

d. Death while Disabled: A disabled member is treated as a retired member for purposes of determining a death benefit.

***Vesting and Refunds*:**

a. Eligibility: All members who are not vested are eligible for a refund when they terminate service. Class Two members are vested after five years of earned service. Class Three members are vested after eight years of earned service. Vested members may also elect to receive a refund in lieu of the deferred termination benefit described below.

b. Amount: The refund benefit is the accumulated value of the member's contributions plus interest credited by the fund. Members do not earn interest on their employee contribution account balance while they are inactive.

Deferred Termination Benefit:

a. Eligibility: Member must be vested (5 years of earned service) and must elect to leave his/her contributions on deposit.

b. Monthly Benefit: Same as the unreduced or reduced service retirement benefit, based on service and AFC at termination, and commencing once the member is eligible.

c. Payment Form: Maximum retirement allowance (Option A) and survivor allowances under Options B and C.

d. Death Benefit: The beneficiary of an inactive member who dies is entitled to receive the amount of the member's accumulated contributions (with interest). In accordance with administrative policy, if the member met service eligibility requirements at their time of death, the beneficiary is eligible for a monthly survivor annuity benefit.

Death while an Active Member:

Members who die while actively employed will receive the regular death benefit described below. If the member was an employee of an employer participating in the Accidental Death Benefit Program and/or the Preretirement Death Benefit Program, then the beneficiary will receive additional death benefits.

Regular Death Benefit:

a. Refund: In the event of the death of an active member (duty or non-duty related), a refund of the member's accumulated contributions (with interest), subject to a minimum refund of $1,000, is paid to the beneficiary of a deceased member.

b. Beneficiary Annuity: If the deceased member (i) has 5 or more years of earned service and (ii) attained age 55 or accumulated 15 or more years of creditable service, the beneficiary may elect to receive, in lieu of the accumulated contributions, a monthly benefit for life of the beneficiary determined under "Option B" described under the Optional Forms of Benefit. For purposes of the benefit calculation, a member under the age of 55 is assumed to be 55 years of age.

Accidental Death Benefit Program:

The statutory beneficiary (i.e. surviving spouse, child, or parent of the member) of an active employee of an employer participating in the Accidental Death Benefit Program who dies as a result of a duty related event is entitled to the following beneficiary annuity.

a. Beneficiary Annuity: In the event a member dies as a result of a duty related event, a monthly benefit is provided for the duration of the beneficiary's lifetime equal to 50% of the member's compensation at the time of death.

Optional Forms of Benefit: The System permits members to elect from three forms of benefit at retirement. In each case the benefit amount is adjusted to be actuarially equivalent to the "Option A" form. The optional forms are:

a. Option A (Maximum Retirement Allowance): A life annuity. Upon the member's death, any remaining member contributions will be paid to the member's designated beneficiary.

b. Option B (100% Joint & Survivor with Pop-up): A reduced annuity payable as long as either the member or his/her beneficiary is living. In the event the member's designated beneficiary predeceases the member, then the member shall receive a retirement allowance equal to the maximum retirement allowance (Option A), plus any applicable benefit adjustments that would have been granted.

c. Option C (50% Joint & Survivor with Pop-up): A reduced annuity payable during the member's life, and continues after the member's death at 50% of the rate paid to the member for the life of the member's designated beneficiary. In the event the member's designated beneficiary predeceases the member, then the member shall receive a retirement allowance equal to the maximum retirement allowance (Option A), plus any applicable benefit adjustments that would have been granted.

Incidental Death Benefit:

a. Active Employees: The beneficiary (or estate) of an active employee of an employer participating in the Preretirement Death Benefit Program who completes at least one full year of membership service, will receive a death benefit equal to the member's annual earnable compensation at the time of death.

The one full year membership requirement is waived for members whose death is a result of an injury arising out of and in the course of performing his duties.

For purposes of determining eligibility for incidental death benefits, active employees include those members who are actively reemployed and contributing as a working retiree with a participating employer.

b. Post Employment: The beneficiary (or estate) of a retiree, both current and future, will receive a one-time payment upon the retiree's death if the employer was participating in the Preretirement Death Benefit Program at the time of the retired member's death. The amount of the one-time payment is based on the retiree's years of credited service at retirement.

Years of Service Credit	Death Benefit
10 or more, but less than 20	$2,000
20 or more, but less than 25	$4,000
25 or more	$6,000

Postretirement Benefit Increases: Benefits paid to retired members or surviving spouses are increased annually in an amount equal to the lesser of 1.00% of the pension benefit or $500 beginning on the July 1st following the receipt of 12 monthly benefit payments. The $500 limit in the annual increase is not indexed to escalate in future years.

APPENDIX C

GLOSSARY

GLOSSARY

Actuarial Accrued Liability (AAL): That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of Future Plan Benefits which is not provided for by future Normal Costs. It is equal to the Actuarial Present Value of Future Plan Benefits minus the actuarial present value of future Normal Costs.

Actuarial Assumptions: Assumptions as to future experience under the Fund. These include assumptions about the occurrence of future events affecting costs or liabilities, such as:

- mortality, withdrawal, disablement, and retirement;
- future increases in salary;
- future rates of investment earnings and future investment and administrative expenses;
- characteristics of members not specified in the data, such as marital status;
- characteristics of future members;
- future elections made by members; and
- other relevant items.

Actuarial Cost Method or ***Funding Method:*** A procedure for allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability. These items are used to determine the ADC.

Actuarial Gain or ***Actuarial Loss:*** A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., the Fund's assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results that produce actuarial liabilities which are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.

Actuarially Equivalent: Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.

Actuarial Present Value (APV): The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. For purposes of this standard, each such amount or series of amounts is:

a. adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.)

b. multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination of employment, etc.) on which the payment is conditioned, and

c. discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Present Value of Future Plan Benefits: The Actuarial Present Value of those benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive, nonretired members either entitled to a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.

Actuarial Valuation: The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial valuation for a governmental retirement system typically also includes calculations that provide the financial information of the plan, such as the funded ratio, unfunded actuarial accrued liability and the ADC.

Actuarial Value of Assets or ***Valuation Assets:*** The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly actuaries use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the ADC.

Actuarially Determined: Values which have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.

Actuarially Determined Contribution (ADC): The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation. The ADC consists of the Employer Normal Cost and the Amortization Payment.

Amortization Method: A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.

Amortization Payment: That portion of the pension plan contribution or ADC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Closed Amortization Period: A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc. See Funding Period and Open Amortization Period.

Decrements: Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or termination.

Defined Benefit Plan: A retirement plan that is not a Defined Contribution Plan. Typically a defined benefit plan is one in which benefits are defined by a formula applied to the member's compensation and/or years of service.

Defined Contribution Plan: A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, and the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.

Employer Normal Cost: The portion of the Normal Cost to be paid by the employers. This is equal to the Normal Cost less expected member contributions.

Experience Study: A periodic review and analysis of the actual experience of the Fund which may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.

Funded Ratio: The ratio of the actuarial value of assets (AVA) to the actuarial accrued liability (AAL). Plans sometimes calculate a market funded ratio, using the market value of assets (MVA), rather than the AVA, although GASB 25 reporting requires the use of the AVA.

Funding Period or ***Amortization Period:*** The term "Funding Period" is used two ways. In the first sense, it is the period used in calculating the Amortization Payment as a component of the ADC. This funding period is chosen by the Board of Trustees. In the second sense, it is a calculated item: the number of years in the future that will theoretically be required to amortize (i.e., pay off or eliminate) the Unfunded Actuarial Accrued Liability, based on the statutory employer contribution rate, and assuming no future actuarial gains or losses.

GASB: Governmental Accounting Standards Board.

GASB 67 and ***GASB 68***: Governmental Accounting Standards Board Statements No. 67 and No. 68. These are the governmental accounting standards that set the accounting and reporting rules for public retirement systems and the employers that sponsor, participate in, or contribute to them. Statement No. 67 sets the accounting rules for the financial reporting of the retirement systems, while Statement No. 68 sets the rules for the employers that sponsor, participate in, or contribute to public retirement systems.

Normal Cost: That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method. Any payment in respect of an Unfunded Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits which are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated. Under the entry age normal cost method, the Normal Cost is intended to be the level cost (when expressed as a percentage of pay) needed to fund the benefits of a member from hire until ultimate termination, death, disability or retirement.

Open Amortization Period: An open amortization period is one which is used to determine the Amortization Payment but may not decrease by exactly one year in the subsequent year's actuarial valuation. In some instances, if the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In other instances, such as the case with the South Carolina Retirement System (SCRS) and Police Officers Retirement System (PORS), the amortization period denotes the expected number of years until the plan attains a 100% funded ratio (on an actuarial value of asset basis), based on the contribution rate that is in effect. In this instance, the amortization period may "float" from year to year, meaning it could increase, decrease, or remain relatively unchanged from the amortization period in the prior year's valuation.

Unfunded Actuarial Accrued Liability: The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus.

Valuation Date or Actuarial Valuation Date: The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date.