

***South Carolina Retirement System  
(SCRS)  
Actuarial Valuation  
as of July 1, 2007***



**May 2008**

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### ***SOUTH CAROLINA RETIREMENT SYSTEM***

Actuarial Valuation as of July 1, 2007

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May 29, 2008

State Budget and Control Board  
South Carolina Retirement System  
P.O. Box 11960  
Columbia, SC 29211-1960

Dear Members of the Board:

We are pleased to present the actuarial valuation report for the South Carolina Retirement System (SCRS) as of July 1, 2007. The results of this report are applicable to Fiscal Year 2009.

### **Applicable Laws**

The laws governing the operation of the South Carolina Retirement System provide that actuarial valuations of the assets and liabilities of the System shall be made annually. We have conducted our annual actuarial valuation of the South Carolina Retirement System as of July 1, 2007 and the results of the valuation are contained in the following report.

### **Funding Objective**

A funding objective of the System is that contribution rates as a percentage of payroll will remain relatively level over time. As these contribution rates are set by the Board, the valuation is used to determine the sufficiency of the contributions to maintain or improve the measures of the System's funding progress (i.e. *funded ratio*, *funding period*) and provide for the complete funding of all actuarial liabilities within 30 years.

### **Funding Methodology**

The entry age normal actuarial cost method is used to determine the System's normal cost, the cost of the current year's benefit accrual. The normal cost is developed as a level percentage of the active member payroll. Additionally, the method determines the actuarial liability, the value of benefits already earned by active and retired members due to past service. A smoothing technique is utilized to produce a market-related actuarial value of assets with the goal of dampening the impact of investment return volatility. The *funded ratio* is the actuarial value of assets as a percentage of the actuarial liability.

An unfunded actuarial liability exists to the extent the System's actuarial liability exceeds its actuarial value of assets. The contribution amount in excess of the System's normal cost is the level percentage of payroll available to amortize an unfunded actuarial liability. The System's *funding period* or *amortization period* is the resulting number of years necessary to fully amortize an unfunded actuarial liability with the available

contributions. The calculated amortization period assumes future growth in payroll and is rounded to the nearest year.

### **Assumptions**

Actuarial assumptions are necessary to estimate the future economic and demographic experience of the System. Due to behavior changes since the adoption of Act 153 (Senate Bill 618), the rates of TERI election and retirement at first eligibility were analyzed and new assumptions were developed in 2006. The other actuarial assumptions were recommended by the prior actuary and adopted by the State Budget and Control Board based on a review of the System's experience completed during Fiscal Year 2004. We are completing our analysis of the experience and trends of the System over the period from July 1, 2002 to June 30, 2007. Our report of recommendations for changes to the current assumptions and methods will be considered by the Board for use in the July 1, 2008 actuarial valuation. The current assumptions and methods are shown in Appendix A.

The results and conclusions of this report should not be interpreted as applying in future years beyond FY 2009. Differences between our projections and actual amounts depend on the extent to which future experience conforms exactly to the assumptions used in this analysis.

### **Data Reliance**

In preparing the valuation, we, as the actuary, relied on data provided by the System. In fulfillment of the scope of our assignment, we performed a limited review of the data for consistency and reasonableness and did not find material defects in the census data. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete.

### **Third Party Recipients**

Milliman's work product was prepared exclusively for the South Carolina Retirement Systems for a specific and limited purpose. It is a complex technical analysis that assumes a high level of knowledge concerning the Systems' operations, and uses Systems' data, which Milliman has not audited. It is not for the use or benefit of any third party for any purpose. Any third party recipient of Milliman's work product who desires professional guidance should not rely upon Milliman's work product, but should engage qualified professionals for advice appropriate to its own specific needs. Any distribution of this report must be provided in its entirety including this cover letter, unless prior written consent is obtained from Milliman.

**Certification**

Based on the results of the July 1, 2007 valuation, we believe that the valuation appropriately reflects the System's long term obligations and the current schedule of contributions are sufficient to fund the liabilities of the System over a reasonable time frame, and based on these criteria, the System may be deemed actuarially sound.

We are members of the American Academy of Actuaries and meet their Qualification Standards to render the actuarial opinion contained herein.

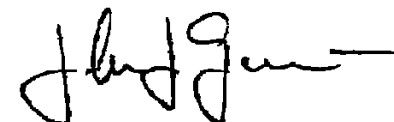
We hereby certify that, to the best of our knowledge, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the applicable Guides to Professional Conduct, Amplifying Opinions, and Supporting Recommendations and Interpretations of the American Academy of Actuaries.

Respectfully submitted,

Milliman, Inc.



Hassan Ghazi, FSA  
Consulting Actuary



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Principal and Consulting Actuary

# Section I

## Board Summary



### ***SOUTH CAROLINA RETIREMENT SYSTEM***

Actuarial Valuation as of July 1, 2007

This report was prepared solely for the South Carolina Retirement Systems for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

# BOARD SUMMARY

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This report presents the results of the July 1, 2007 actuarial valuation of the South Carolina Retirement System (SCRS). The primary purposes of performing the annual actuarial valuation are to:

- 1) Determine whether the **contributions** to be paid by the State in Fiscal Year 2009 **are adequate** to amortize the unfunded actuarial liability over no more than 30 years;
- 2) **Measure and disclose**, as of the valuation date, the financial condition of the plan;
- 3) **Indicate trends** in the financial progress of the plan;
- 4) **Provide specific information** and documentation required by the Government Accounting Standards Board (GASB).

In this section of the report, we present a summary of the above information in the form of:

- The actuary's comments;
- The prior year's experience of the plan's assets, liabilities, and membership;
- A series of graphs which highlight key trends experienced by the plan; and
- A summary of all the principal results from this year's valuation, compared to the prior year's, in a single table, intended for quick reference purposes.

## Actuary's Comments

The current employer contribution rate for the System is 9.21%, including a 0.15% contribution for the Group Life Fund. The 9.06% net employer contribution is used to pay the employer's portion of the normal cost and to amortize the unfunded actuarial liability (UAL). Additional funding for the July 1, 2007 ad hoc COLA increased the July 1, 2008 net employer contribution rate by 0.18% of payroll to a total of 9.24% of payroll. We have taken into account this increase in determining the expected future amortization amounts and the resulting amortization period.

The actuarially determined employer normal cost contribution rate decreased from 4.14% for FY 2008 to 4.12% for FY 2009. Primarily due to the scheduled employer contribution rate increases that took effect as of July 1, 2007, the net contribution towards the UAL increased from 3.91% to 4.94%. The unfunded actuarial liability

## BOARD SUMMARY

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increased from \$9.7 billion to \$10.2 billion. The resulting amortization period decreased from 30 years to 29 years. We note the following:

- The plan granted a 2.4% COLA effective July 1, 2007. Of this COLA, 1.4% was in the form of an ad hoc COLA. The ad hoc portion of the COLA increased the UAL by \$267 million, and the amortization period by 1.3 years. Because future ad hoc COLAs (in excess of the currently guaranteed COLA) are not reflected in the System's valuation assumptions until approved, every time an ad hoc COLA is granted, the unfunded actuarial liability is increased which, absent contribution increases, in turn increases the amortization period. The Board approved a 0.18% increase in the contribution rate effective July 1, 2008 which offsets the increase in the amortization period such that net effect of the ad hoc COLA on the amortization period is 0 years.
- The plan experienced an actuarial gain on plan assets of \$296 million as a result of investment return on the actuarial value of assets being greater than the assumed rate. The gain decreased the amortization period by 1.4 years. Additionally, a modification to the smoothing method to include the expected return on TERI accounts decreased the UAL by \$48 million and the amortization period by 0.2 years.
- The plan experienced a net actuarial loss of \$287 million on plan liabilities due to non-investment related experience. The most significant sources of this loss were higher than expected increases in active participant salaries and termination and retirement experience different than assumed. These three sources accounted for \$229 million of the loss. The net loss represents less than 1% of the actuarial liability and increased the amortization period by 1.6 years. This type of activity is normal in the course of plan experience. The plan will experience actuarial gains and losses over time because future experience will not exactly match the assumptions.
- Other factors, such as actual contributions exceeding the expected amount and the one-year decrease in the amortization period due to the prior year amortization payment, decreased the amortization period by 1.1 years.

As part of this valuation, we tested the adequacy of the 0.15% contribution rate to fund the Group Life Insurance benefits. There is a separate fund for these benefits with assets at market value of \$131 million as of July 1, 2007. The 0.15% contribution rate is reasonable and, together with assets on hand, remains adequate to fund the expected benefit payments for FY 2009.

The balance of this section presents summarized information regarding plan trends, details on the 2006/2007 experience, and tables presenting a summary of the principal results.



## Prior Year Experience

### ASSETS

The Plan has two measures of plan assets: (i) the market value and (ii) the actuarial value. The market value is a snapshot of the asset value as of July 1, 2007. The actuarial value is a smoothed asset value that recognizes 20% of the difference between the expected investment return and actual investment return each year for five years. The expected investment return equals the prior year's actuarial value of assets adjusted with contributions, and payments using investment earnings of 7.25%. This method is intended to dampen the effect that fluctuations in market value have on funding requirements.

For the plan year ending July 1, 2007, the plan earned 13.6%<sup>1</sup> on a market value basis and 8.8% on an actuarial value basis. These returns resulted in an actuarial gain to the fund of \$1,339 million on a market value basis and actuarial gain to the fund of \$296 million on an actuarial value basis. The market value of assets as of July 1, 2007 exceeds the actuarial value by \$871 million. This results from the asset smoothing technique deferring more investment gains than investment losses.

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<sup>1</sup> May differ from the CAFR report rate of return because assumes cash flow occurs mid-year.

## BOARD SUMMARY

The specific changes between the prior year's amounts and this year's are presented below.

Item (In Thousands)	Market Value	Actuarial Value
July 1, 2006 value	\$ 22,132,638	\$ 22,293,446
Value of TERI Accounts as July 1, 2006	670,527	670,527
Employer Contributions	633,821	633,821
Member Contributions	505,122	505,122
Transfer of Assets	(1,745)	(1,745)
Benefit Payments	(1,824,404)	(1,824,404)
Net TERI Cash Flow	(28,777)	(28,777)
Expected Investment Earnings (7.25%)	<u>1,627,275</u>	<u>1,638,934</u>
Expected Value as of July 1, 2007 (including TERI accounts)	23,714,457	23,886,924
Value of TERI Accounts as of July 1, 2007	<u>(641,750)</u>	<u>(641,750)</u>
Expected Value as of July 1, 2007	23,072,707	23,245,174
July 1, 2007 Actual Value	24,412,197	23,541,438
Investment <span style="color: green;">Gain</span> ( <span style="color: red;">Loss</span> )	<span style="color: green;">1,339,490</span>	<span style="color: green;">296,264</span>

### LIABILITIES

Two different measures of liabilities are calculated for this plan: a total value of future benefits and an actuarial liability. Section III of this report describes the development of each. The actuarial liability is used to determine the adequacy of the State's contribution rate and the Government Accounting Standards Board (GASB) disclosures. Plan experience is measured by changes in the actuarial liability. For the plan year ending in 2007, the actuarial liability increased due to an ad hoc COLA and net actuarial losses from experience. Net actuarial losses were primarily due to salary increase and termination and retirement experience. This increase was partially offset by a decrease in the actuarial liability due to the recommended change in assumptions.

Liabilities (In Millions)	Total Value of Future Benefits	Actuarial Liability
July 1, 2006	\$ 37,374	\$ 32,019
July 1, 2007	\$ 39,371	\$ 33,767

## **UNFUNDED LIABILITIES AND FUNDED RATIOS**

The difference between the actuarial liability and the actuarial value of assets is the unfunded actuarial liability. Here we show the July 1, 2006 and July 1, 2007 unfunded actuarial liability/(surplus) amounts, as well as the corresponding funded ratios (actuarial assets divided by liabilities).

In Millions	Unfunded Actuarial Liability	Funded Ratio
July 1, 2006 net unfunded / (surplus)	\$ 9,725	69.6%
July 1, 2007 net unfunded / (surplus)	\$ 10,225	69.7%

## **MEMBERSHIP**

There are four types of plan members: (i) current active members; (ii) inactive members who retain a right to either a refund of contributions or a deferred vested benefit; (iii) TERI participants; and (iv) retired members and beneficiaries in pay status. In Section V we present details on membership statistics. Below, we compare totals in each group between July 1, 2006 and 2007.

There was an overall increase in membership during the year.

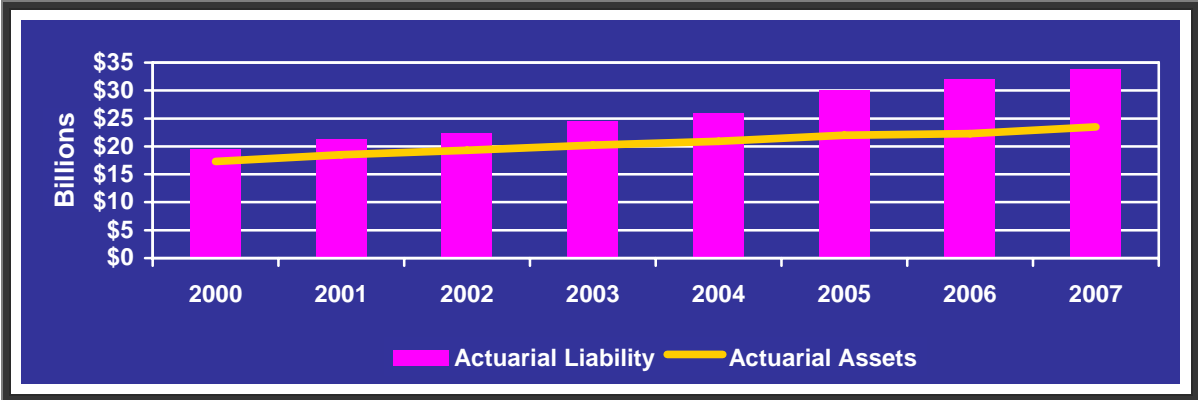
	7/1/2007	7/1/2006	Change
Active Members	187,968	184,282	2.0%
Inactive Members	153,477	151,510	1.3%
TERI Participants	8,753	9,704	(9.8)%
Retired Members and Beneficiaries	92,144	87,501	5.3%
<b>Total Members</b>	<b>442,342</b>	<b>432,997</b>	<b>2.2%</b>

## Trends

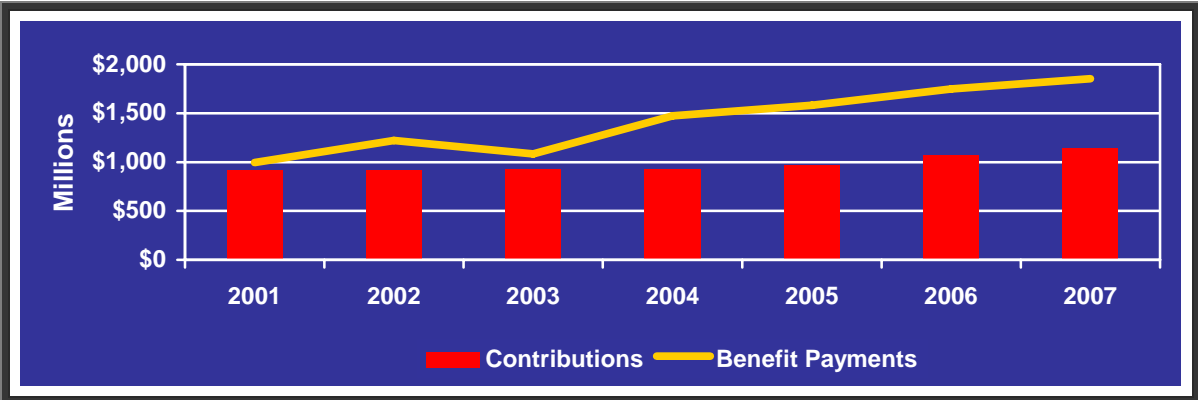
To understand the financial condition of the pension plan, a review of the prior year's funded status is helpful in seeing the big picture and general trend evolving. Below, we present three charts that present trend information from 2000 through 2007.

The first graph shows the growth in both actuarial liability and actuarial assets. As can be seen, the gap between actuarial liability and actuarial assets increases in each of these years resulting in the increases in the unfunded actuarial liability. The second graph shows that contributions are fairly level, while the benefit payments have a slight upward trend over the seven years. As of the current valuation, the negative cash flow represents about 3% of the market value of assets. This degree of negative cash flow is common to mature retirement systems and we would expect the negative cash flow as a percent of market value of assets to slightly increase over time. The third graph shows that trend in the amortization period for unfunded actuarial liability has increased from 16 to 30 years over the seven-year period through 2006 and decreased to 29 years for 2007.

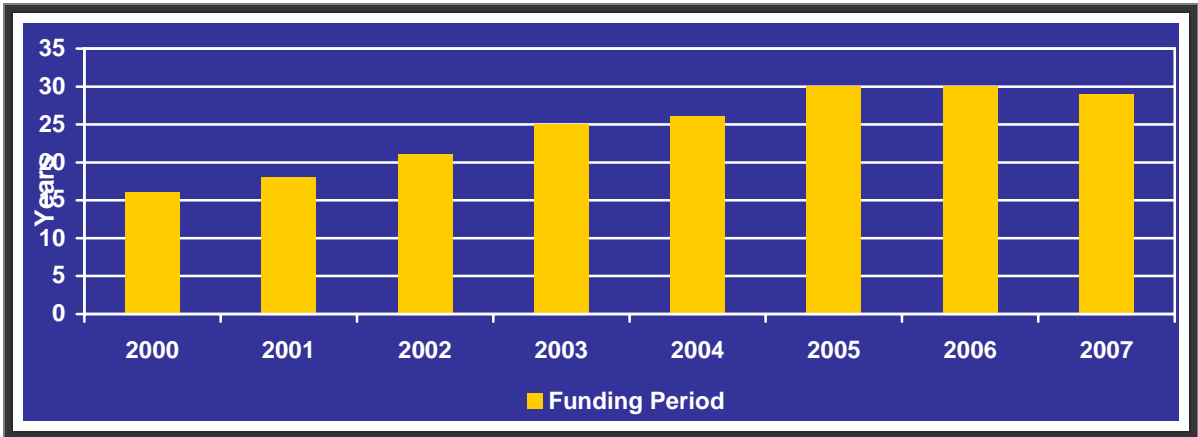
Assets and Liabilities



Cash Flows



Unfunded Actuarial Liability Amortization period



# BOARD SUMMARY

<b>PRINCIPAL RESULTS</b>		
	<b>July 1, 2007</b>	<b>July 1, 2006</b>
<b>Membership</b>		
Number of:		
Active Members	187,968	184,282
TERI Members	8,753	9,704
Retirees and Beneficiaries	92,144	87,501
Inactive Members	<u>153,477</u>	<u>151,510</u>
Total	442,342	432,997
Payroll (excludes ORP & TERI members)	\$ 7.1 billion	\$ 6.7 billion
<b>Statutory Contribution Rate (Including Group Insurance)</b>		
Member	6.50%	6.50%
Employer		
Retirement Contribution	9.06%	8.05%
Group Life Insurance Contribution	<u>0.15%</u>	<u>0.15%</u>
Total	9.21%	8.20%
<b>Assets</b>		
Market Value	\$ 24.4 billion	\$ 22.1 billion
Actuarial Value	\$ 23.5 billion	\$ 22.3 billion
Return on Market Value	13.6%	5.2%
Return on Actuarial Value	8.9%	6.4%
Ratio of Actuarial to Market Value	96.4%	100.7%
<b>Actuarial Information</b>		
Employer Normal Cost %	4.12%	4.14%
Unfunded Actuarial Liability (UAL)	\$ 10.2 billion	\$ 9.7 billion
Funded Ratio	69.7%	69.6%
Amortization Period	29 years	30 years
<b>Change in Unfunded Actuarial Liability (in millions)</b>		
Beginning of Year Unfunded Actuarial Liability	\$ 9,725	\$ 8,592
Interest on Unfunded Actuarial Liability	705	623
Amortization Payment	(415)	(333)
Asset Experience	(296)	190
Salary Experience	77	145
Other Liability Experience	210	227
COLA (ad hoc)	267	457
Benefit Changes	0	0
Assumption/Method Changes	(48)	(176)
Total Increase / (Decrease)	\$ 500	\$ 1,133
End of Year Unfunded Actuarial Liability	\$ 10,225	\$ 9,725



## SOUTH CAROLINA RETIREMENT SYSTEM

Actuarial Valuation as of July 1, 2007

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# Section II

## Assets



### ***SOUTH CAROLINA RETIREMENT SYSTEM***

Actuarial Valuation as of July 1, 2007

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Pension plan assets and the decisions the Board may make with respect to future deployment of those assets play a key role in the financial operation of the plan. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely affect benefit levels, negotiated contributions, and the ultimate security of participants' benefits.

In this section we present:

- Statement of the **changes** in market value during the year; and
- Development of the **Actuarial Value of Assets**.

## **Changes in Market Value:**

The components of asset change are:

- Contributions
- Benefit Payments
- Expenses
- Investment Income (realized and unrealized)

The first three components represent the net external cash flow during the year. The specific changes during 2007 and the three prior years are presented in Table II-1.

## **Actuarial Value of Assets:**

The Actuarial Value of Assets represents a "smoothed" value developed by the actuary to reduce, or eliminate, erratic results which could develop from short term ups and downs in the Market Value of Assets. For this plan, the Actuarial Value has been calculated by recognizing 20% of the difference between expected investment return and actual investment return each year for five years. For this and future valuations, we recommend a minor modification to the smoothing technique that will recognize the expected return on the total of TERI account balances in calculating the amount of excess investment income. Since TERI accounts do not receive interest credits and because the assets behind these accounts remain invested with the assets of the trust, we recommend that a more consistent measure of the expected market return should include the expected return on these accounts. Table II-2 shows the calculation of the Actuarial Value of Assets for the July 1, 2007 valuation.



**TABLE II-I**  
**CALCULATION OF EXCESS INVESTMENT INCOME**  
**FOR ACTUARIAL VALUE OF ASSETS**

**PLAN YEAR ENDING JUNE 30,**

Item	2007*	2006	2005	2004
1. Market Value of Assets at Beginning of Year	\$ 22,132,638	\$ 21,704,133	\$ 20,850,129	\$ 19,665,571
2. Value of TERI Accounts at Beginning of Year	670,527	N/A	N/A	N/A
3. Net External Cash Flow During the Year	(715,983)	(684,860)	(620,633)	(552,095)
4. Market Value of Assets at End of Year	24,412,197	22,132,638	21,704,133	20,850,129
5. Value of TERI Accounts at End of Year	641,750	N/A	N/A	N/A
6. Actual Investment Income During the Year Based on Market Value:	2,966,765	1,113,365	1,474,637	1,736,653
7. Assumed Earnings Rate	7.25%	7.25%	7.25%	7.25%
8. Expected Earnings for the Year				
a. Market Value of Assets, Beginning of Year: (7) x [(1) + (2)]	1,653,229	1,573,550	1,511,634	1,425,754
b. Net External Cash Flow: (7) x .5 x (3)	<u>(25,954)</u>	<u>(24,826)</u>	<u>(22,498)</u>	<u>(20,013)</u>
c. Total: (a) + (b)	1,627,275	1,548,724	1,489,136	1,405,741
9. Excess Investment Income for Year: (6) – (8)	\$ 1,339,490	\$ (435,359)	\$ (14,499)	\$ 330,912

All dollar amounts in thousands

\*2007 values include earnings and cash flow attributable to TERI accounts



**TABLE II-2**  
**DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS**

Item	Valuation as of July 1, 2007
1. Excess (Shortfall) of Investment Income for Current Year and Previous Three Years	
a. Current Year	\$ 1,339,490
b. Current Year - 1	(435,359)
c. Current Year - 2	(14,499)
d. Current Year - 3	330,912
2. Deferral of Excess (Shortfall) of Investment Income for:	
a. Current Year (80% Deferral)	\$ 1,071,592
b. Current Year - 1 (60% Deferral)	(261,215)
c. Current Year - 2 (40% Deferral)	(5,800)
d. Current Year - 3 (20% Deferral)	<u>66,182</u>
e. Total Deferred for Year	\$ 870,759
3. Market Value of Plan Assets, End of Year	\$ 24,412,197
4. Preliminary Actuarial Value of Plan Assets, End of Year (Item 3 – Item 2.e.)	\$ 23,541,438
5. Actuarial Value of Assets Corridor	
a. 80% of Market Value of Assets, End of Year	\$ 19,529,758
b. 120% of Market Value of Assets, End of Year	\$ 29,294,636
6. Final Actuarial Value of Plan Assets, End of Year (Item 4, But Not Less Than Item 5.a., or Greater Than Item 5.b.)	\$ 23,541,438

All dollar amounts in thousands

# Section III

## Valuation Results



### ***SOUTH CAROLINA RETIREMENT SYSTEM***

Actuarial Valuation as of July 1, 2007

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# VALUATION RESULTS

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In this section we present the principal valuation results. A pension plan is in actuarial balance if the assets on hand plus future employer and employee contributions are equal to the total value of future plan benefits. The System has assets on hand in the employee fund and the employer fund. Currently the System receives contributions from employees of 6.50% of pay and contributions from the employer of 9.06% of payroll.

The employer contribution is used to pay the normal cost and to fund the unfunded portion of the actuarial liability. The normal cost is the regular ongoing cost of the plan. The unfunded actuarial liability represents costs allocated to prior years that have not been paid by prior employer or employee contributions. A financing objective of the Board is to require sufficient contributions to fund the unfunded actuarial liability over no more than 30 years.

## Valuation Balance Sheet

Table III-1 demonstrates that the System is in actuarial balance. The assets of the System together with future employer and employee contributions are sufficient to fund all liabilities of the System.

## Summary of Actuarial Valuation Results

Table III-2 is a summary of the July 1, 2007 actuarial valuation results compared to similar results from the prior valuation. A net employer contribution rate of 9.06% (9.21% less the 0.15% contribution to the Group Life Fund) is sufficient to fund the unfunded actuarial liability over 29 years.

## Determination and Amortization of Unfunded Liability

In Table III-3 we show the determination of the unfunded actuarial liability and the contribution to amortize the liability. We determined the portion of the employer contribution for active members by taking the total employer contribution rate and subtracting the contribution to the Group Life Fund and the normal cost contribution. We determined the employer contribution for ORP members by taking the total employer contribution rate and subtracting the contribution to the Group Life Fund and the 5% contribution to the ORP. The contribution for reemployed retirees and TERI participants is the sum of the net employer contribution rate (i.e. the total employer rate less the Group Life Fund contribution) and the employee contribution rate (except for participants entering TERI before 7/1/2005 who do not contribute).

# VALUATION RESULTS

<b>TABLE III-1</b>		
<b>VALUATION BALANCE SHEET</b>		
	<b>JULY 1, 2007</b>	<b>JULY 1, 2006</b>
<b>Assets</b>		
1. Current Assets (Actuarial Value)		
a. Employee Annuity Savings Fund	\$ 5,464,756	\$ 5,229,175
b. Employer Annuity Accumulation Fund	<u>18,076,682</u>	<u>17,064,271</u>
c. Total Current Assets	\$ 23,541,438	\$ 22,293,446
2. Present Value of Future Member Contributions	\$ 3,466,636	\$ 3,313,857
3. Present Value of Future Employer Contributions		
a. Normal Cost Contributions	\$ 2,137,670	\$ 2,041,508
b. Accrued Liability Contributions <sup>1</sup>	<u>10,225,240</u>	<u>9,725,073</u>
c. Total Future Employer Contributions	\$ 12,362,910	\$ 11,766,581
4. Total Assets	<u>\$ 39,370,984</u>	<u>\$ 37,373,884</u>
<b>Liabilities</b>		
1. Employee Annuity Savings Fund		
a. Past Member Contributions	\$ 5,464,756	\$ 5,229,175
b. Present Value of Future Member Contributions <sup>2</sup>	<u>\$ 3,624,231</u>	<u>\$ 3,457,552</u>
c. Total Contributions to Employee Annuity Savings Fund	\$ 9,088,987	\$ 8,686,727
2. Employer Annuity Accumulation Fund		
a. Benefits Currently in Payment (including TERI)	\$ 19,084,672	\$ 17,800,254
b. Benefits to be Paid to Current Active Members (includes vested terminated members)	<u>11,197,325</u>	<u>10,886,903</u>
c. Total Benefits Payable from Employer Annuity Accumulation Fund	\$ 30,281,997	\$ 28,687,157
3. Total Liabilities	<u>\$ 39,370,984</u>	<u>\$ 37,373,884</u>

All dollar amounts are in thousands.

<sup>1</sup> \$157,595 paid by future employee contributions as of July 1, 2007 and \$143,695 as of July 1, 2006

<sup>2</sup> Including future employee contributions towards accrued liability

# VALUATION RESULTS

<b>TABLE III-2</b>		
<b>SUMMARY OF ACTUARIAL VALUATION RESULTS</b>		
	<b>JULY 1, 2007</b>	<b>JULY 1, 2006</b>
<b>Number of Active Members and Compensation</b>		
Active Members		
1. Number of State Employees	53,971	53,360
2. Compensation of State Employees	\$ 2,235,667	\$ 2,135,447
3. Number of Public School Employees	83,356	81,578
4. Compensation of Public School Employees	\$ 3,075,431	\$ 2,918,377
5. Number of Other Agency Employees	50,641	49,344
6. Compensation of Other Agency Employees	\$ 1,782,083	\$ 1,679,555
Total Number	187,968	184,282
Total Compensation	\$ 7,093,181	\$ 6,733,379
Active TERI Participants		
Number	8,753	9,704
Total Compensation	\$ 490,734	\$ 534,792
Rehired Retired Members		
Number	12,547	11,917
Total Compensation	\$ 417,481	\$ 410,499
ORP Members		
Number	16,137	13,596
Total Compensation	\$ 744,618	\$ 643,247
<b>Number of Persons Receiving Benefits and Benefits (Including TERI Members)</b>		
Total Number Receiving Benefits	100,897	97,205
Total Amount of Benefits	\$ 1,806,420	\$ 1,704,589
<b>Trust Fund Assets</b>		
Market Value	\$ 24,412,197	\$ 22,132,638
Actuarial Value	\$23,541,438	\$ 22,293,446
<b>Unfunded Actuarial liability (UAL)</b>		
Amount	\$ 10,225,240	\$ 9,725,073
Remaining Years in Amortization Period	29	30
<b>Required Contribution as a Percent of Compensation</b>		
Normal Cost Contribution	4.12%	4.14%
UAL Contribution	4.94%	3.91%
Group Life Insurance Contribution	<u>0.15%</u>	<u>0.15%</u>
Total	9.21%	8.20%

All dollar amounts are in thousands.

# VALUATION RESULTS

<b>TABLE III-3</b>		
<b>DETERMINATION AND AMORTIZATION OF UNFUNDED ACTUARIAL LIABILITY</b>		
	<b>JULY 1, 2007</b>	<b>JULY 1, 2006</b>
1. Actuarial Present Value of Future Benefits		
a. Present Retired Members and Beneficiaries	\$ 19,084,672	\$ 17,800,254
b. Present Active and Inactive Members	<u>20,286,312</u>	<u>19,573,630</u>
c. Total Actuarial Present Value	\$ 39,370,984	\$ 37,373,884
2. Present Value of Future Normal Contributions		
a. Employees	\$ 3,604,304	\$ 3,313,857
b. Employer	<u>2,000,002</u>	<u>2,041,508</u>
c. Total Future Normal Contributions	\$ 5,604,306	\$ 5,355,365
3. Actuarial Liability	\$ 33,766,678	\$ 32,018,519
4. Current Actuarial Value of Assets	\$ 23,541,438	\$ 22,293,446
5. Unfunded Actuarial Liability	\$ 10,225,240	\$ 9,725,073
6. Unfunded Actuarial Liability Rates		
a. Active Members	4.94%	3.91%
b. TERI Members (including employee contributions) <sup>1</sup>	15.56%	14.55%
c. ORP Members	4.06%	3.05%
d. Reemployed Members (including employee contributions)	15.56%	14.55%
7. Unfunded Actuarial Liability Liquidation Period	29 years	30 years

All dollar amounts are in thousands.

<sup>1</sup> TERI participants who entered TERI before July 1, 2005 do not make employee contributions

# Section IV

## Accounting Statement Information



### ***SOUTH CAROLINA RETIREMENT SYSTEM***

Actuarial Valuation as of July 1, 2007

This report was prepared solely for the South Carolina Retirement Systems for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.



## ACCOUNTING STATEMENT INFORMATION

**Statement No. 25 of the Governmental Standards Board (GASB)** establishes standards for disclosure of pension information by public employee retirement systems (PERS) and governmental employers in notes to financial statements and supplementary information.

The GASB Statement #25 actuarial liability is the same as the actuarial liability amount calculated for funding purposes. The GASB Statement #25 liability is compared to the actuarial value of assets to determine the funded ratio. The actuarial liability is determined assuming that the employer is on going and participants continue to terminate employment, retire, etc., in accordance with the actuarial assumptions. Liabilities are discounted at the assumed valuation interest rate of 7.25% per annum.

GASB Statement #25 requires the actuarial liability be compared with the actuarial value of assets for funding purposes. The relevant amounts as of July 1, 2007 are exhibited in Table IV-1 and compared with the July 1, 2006 amounts. Table IV-2 shows the schedule of funding progress as required by GASB Statement #25.

<b>TABLE IV-1</b>		
<b>ACCOUNTING STATEMENT INFORMATION</b>		
	July 1, 2007	July 1, 2006
1. Actuarial Liabilities for Retirees and Beneficiaries Currently Receiving Benefits and Terminated Employees Not Yet Receiving Benefits	\$ 19,729,835	\$ 18,625,983
2. Actuarial Liabilities for Current Employees	<u>14,036,843</u>	<u>13,392,536</u>
3. Total Actuarial Liability (1 + 2)	\$ 33,766,678	\$ 32,018,519
4. Net Actuarial Assets Available for Benefits	23,541,438	22,293,446
5. Unfunded Actuarial Liability (3 – 4)	\$ 10,225,240	\$ 9,725,073

All dollar amounts are in thousands.

# ACCOUNTING STATEMENT INFORMATION

## TABLE IV-2

INFORMATION FOR COMPREHENSIVE ANNUAL FINANCIAL REPORT

Member and Payroll Information <sup>1</sup>								
Actuarial Valuation Date	Number of Employers	Number of Active Members	Annual Payroll (in thousands)	Annual Average Pay	Percentage Increase in Average Pay			
July 1, 2007	777	187,968	\$ 7,093,181	\$ 37,736	3.28%			
July 1, 2006	763	184,282	6,733,379	36,538	4.06%			
July 1, 2005	768	181,022	6,356,489	35,114	3.30%			
July 1, 2004	763	181,827	6,180,599	33,992	1.06%			
July 1, 2003	763	185,538	6,240,768	33,636	3.50%			
July 1, 2002	746	189,166	6,147,712	32,499	3.42%			
July 1, 2001	739	191,494	6,017,537	31,424	5.15%			
July 1, 2000	729	196,825	5,881,847	29,884	5.49%			
July 1, 1999	726	193,213	5,473,759	28,330	3.83%			
July 1, 1998	720	190,259	5,191,048	27,284	2.78%			

Schedule of Retirants Added to and Removed from Rolls <sup>2</sup>								
Year Ended	Added to Rolls		Removed from Rolls		Rolls End of the Year		%Increase in Annual Allowances	Average Annual Allowances
	Number	Annual Allowances (in thousands)	Number	Annual Allowances (in thousands)	Number	Annual Allowances (in thousands)		
July 1, 2007	5,944	\$ 130,286	2,252	\$ 28,455	100,897	\$ 1,806,420	6.0%	\$ 17,904
July 1, 2006	4,621	118,271	2,083	24,099	97,205	1,704,589	5.8%	17,536
July 1, 2005	7,203	167,748	2,143	23,537	94,667	1,610,417	9.8%	17,011
July 1, 2004	7,319	151,477	2,132	22,656	89,607	1,466,206	9.6%	16,363
July 1, 2003	7,866	163,867	2,510	27,662	84,420	1,337,385	11.3%	15,842
July 1, 2002	7,344	140,077	2,334	24,531	79,064	1,201,180	10.6%	15,193
July 1, 2001	12,523	284,739	2,474	23,735	74,054	1,085,634	31.7%	14,660
July 1, 2000	4,772	93,459	1,830	17,139	64,005	824,630	10.2%	12,884
July 1, 1999	4,961	68,522	2,436	12,175	61,063	748,310	8.1%	12,255
July 1, 1998	4,580	61,751	2,169	13,592	58,538	691,963	7.5%	11,321

<sup>1</sup> Does not include TERI participants.

<sup>2</sup> Includes TERI participants.



# ACCOUNTING STATEMENT INFORMATION

## TABLE IV-2 (CONT.)

INFORMATION FOR COMPREHENSIVE ANNUAL FINANCIAL REPORT

### Schedule of Funding Progress

Actuarial Valuation Date	Valuation Assets	Actuarial Liability (AL)	Actuarial Assets as a % of Actuarial Liabilities	Unfunded AL (UAL)	Annual Active Member Payroll	UAL as a % of Active Member Payroll
July 1, 2007	\$ 23,541,438	\$ 33,766,678	69.7%	\$ 10,225,240	\$ 7,093,181	144.2%
July 1, 2006	22,293,446	32,018,519	69.6%	9,725,073	6,733,379	144.4%
July 1, 2005	21,625,510	30,217,471	71.6%	8,591,961	6,356,489	135.2%
July 1, 2004	20,862,659	25,977,852	80.3%	5,115,193	6,180,599	82.8%
July 1, 2003	20,197,936	24,398,931	82.8%	4,200,995	6,240,768	67.3%
July 1, 2002	19,298,174	22,446,574	86.0%	3,148,400	6,147,712	51.2%
July 1, 2001	18,486,773	21,162,147	87.4%	2,675,374	6,017,537	44.5%
July 1, 2000	17,286,108	19,414,972	89.0%	2,128,864	5,881,847	36.2%
July 1, 1999	16,120,513	16,298,438	98.9%	177,925	5,473,759	3.3%
July 1, 1998	14,946,070	15,952,345	93.7%	1,006,275	5,191,048	19.4%

### Solvency Test

Valuation Date	(1) Active Member Contributions	(2) Retirants & Beneficiaries	(3) Active Members (Employer Funded Portion)	Valuation Assets	Portion of Aggregate Accrued Liabilities Covered by Assets		
					(1)	(2)	(3)
July 1, 2007	\$ 5,464,756	\$ 19,084,672	\$ 9,217,250	\$ 23,541,438	100%	94.7%	0.0%
July 1, 2006	5,229,175	17,800,254	8,989,090	22,293,446	100%	95.9%	0.0%
July 1, 2005	4,915,423	16,891,954	8,410,094	21,625,510	100%	98.9%	0.0%
July 1, 2004	4,750,077	14,184,765	7,043,010	20,862,659	100%	100.0%	27.4%
July 1, 2003	4,627,360	13,240,368	6,531,203	20,197,936	100%	100.0%	35.7%
July 1, 2002	4,512,402	11,600,395	6,333,777	19,298,174	100%	100.0%	50.3%
July 1, 2001	4,339,747	10,367,913	6,454,487	18,486,773	100%	100.0%	58.6%
July 1, 2000	4,563,513	7,484,050	7,367,149	17,286,108	100%	100.0%	71.1%
July 1, 1999	4,278,861	6,944,021	5,075,556	16,120,513	100%	100.0%	96.5%
July 1, 1998	3,972,263	6,305,903	5,674,179	14,946,070	100%	100.0%	82.3%

All dollar amounts are in thousands.



# ACCOUNTING STATEMENT INFORMATION

## RETIRED MEMBERS AND BENEFICIARIES AS OF JULY 1, 2007

Group	Number	Annual Retirement Allowances
<b>Service Retirements:</b>		
Employees:		
Men	19,365	\$ 436,658
Women	<u>22,552</u>	<u>354,218</u>
Total	41,917	\$ 790,876
Teachers:		
Men	7,922	\$ 193,264
Women	<u>32,909</u>	<u>613,625</u>
Total	40,831	\$ 806,889
<b>Disability Retirements:</b>		
Employees:		
Men	2,987	\$ 37,467
Women	<u>3,588</u>	<u>41,025</u>
Total	6,575	\$ 78,492
Teachers:		
Men	863	\$ 11,871
Women	<u>3,509</u>	<u>43,859</u>
Total	4,372	\$ 55,730
<b>Beneficiaries of Deceased Retired Members and Active Members</b>		
Men	1,996	\$ 14,679
Women	<u>5,206</u>	<u>59,754</u>
Total	7,202	\$ 74,433
 Grand Total	 <u>100,897</u>	 \$ <u>1,806,420</u>

All dollar amounts are in thousands.  
Includes TERI participants.



# Section V

## Membership Information



### ***SOUTH CAROLINA RETIREMENT SYSTEM***

Actuarial Valuation as of July 1, 2007

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# MEMBERSHIP INFORMATION

**TABLE V-1**  
**NUMBER OF ANNUAL RETIREMENT ALLOWANCES**  
**OF BENEFIT RECIPIENTS AS OF JULY 1, 2007**

		NUMBER	ANNUAL RETIREMENT ALLOWANCES
<b>Service Retirement (Including TERI Participants)</b>			
a.	Employees		
	Life Annuity	27,274	\$ 461,033,824
	10 Year Certain and Life	477	7,812,906
	100% J & S	1,384	28,410,210
	100% Pop-up	4,830	101,029,587
	50% J & S	887	25,141,493
	50% Pop-up	4,056	108,125,855
	Level Off	<u>3,009</u>	<u>59,322,219</u>
	Total Employees	41,917	\$ 790,876,094
b.	Teachers		
	Life Annuity	28,703	\$ 535,232,729
	10 Year Certain and Life	536	9,394,972
	100% J & S	488	8,316,334
	100% Pop-up	2,763	55,858,900
	50% J & S	364	9,252,054
	50% Pop-up	2,715	67,656,989
	Level Off	<u>5,262</u>	<u>121,176,661</u>
	Total Teachers	40,831	\$ 806,888,639
c.	Total		
	Life Annuity	55,977	\$ 996,266,553
	10 Year Certain and Life	1,013	17,207,878
	100% J & S	1,872	36,726,544
	100% Pop-up	7,593	156,888,487
	50% J & S	1,251	34,393,547
	50% Pop-up	6,771	175,782,844
	Level Off	<u>8,271</u>	<u>180,498,880</u>
	Total	82,748	\$ 1,597,764,733

# MEMBERSHIP INFORMATION

**TABLE V-1  
NUMBER OF ANNUAL RETIREMENT ALLOWANCES  
OF BENEFIT RECIPIENTS AS OF JULY 1, 2007**

			NUMBER	ANNUAL RETIREMENT ALLOWANCES
<b>Disability Retirement</b>				
a.	Employees			
	Life Annuity		5,158	\$ 62,133,195
	10 Year Certain and Life		146	1,661,138
	100% J & S		323	3,019,264
	100% Pop-up		447	4,431,939
	50% J & S		122	1,682,931
	50% Pop-up		379	5,563,440
	Level Off		<u>0</u>	<u>0</u>
	Total Employees		6,575	\$ 78,491,907
b.	Teachers			
	Life Annuity		3,745	\$ 48,159,249
	10 Year Certain and Life		88	1,111,203
	100% J & S		133	1,172,387
	100% Pop-up		190	1,904,376
	50% J & S		47	664,521
	50% Pop-up		169	2,718,273
	Level Off		<u>0</u>	<u>0</u>
	Total Teachers		4,372	\$ 55,730,009
c.	Total			
	Life Annuity		8,903	\$ 110,292,444
	10 Year Certain and Life		234	2,772,341
	100% J & S		456	4,191,651
	100% Pop-up		637	6,336,315
	50% J & S		169	2,347,452
	50% Pop-up		548	8,281,713
	Level Off		<u>0</u>	<u>0</u>
	Total		10,947	\$ 134,221,916
<b>Beneficiaries of Deceased Retired Members and Active Members</b>				
a.	Employees		4,996	\$ 53,122,956
b.	Teachers		<u>2,206</u>	<u>21,309,903</u>
c.	Total		7,202	\$ 74,432,859
<b>Total of Table V-1 (pp V-1 &amp; V-2)</b>				
<b>GRAND TOTAL</b>			100,897	\$1,806,419,508

# MEMBERSHIP INFORMATION

**TABLE V-2**  
**DISTRIBUTION OF ACTIVE MEMBERS AND AVERAGE COMPENSATION**  
**BY AGE GROUPS AND SERVICE GROUPS AS OF JULY 1, 2007**  
**YEARS OF SERVICE**

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 & Over	Total
Under 25	6,081	40							6,121
	\$24,783	\$26,165							\$24,792
25 - 29	12,506	2,829	30						15,365
	\$30,397	\$35,375	\$39,806						\$31,332
30 - 34	8,753	7,796	1,888	22					18,459
	\$30,771	\$39,232	\$43,362	\$36,557					\$35,639
35 - 39	8,557	6,840	6,164	1,774	41				23,376
	\$30,600	\$37,627	\$45,410	\$46,987	\$41,205				\$37,823
40 - 44	7,848	6,253	4,399	4,869	1,974	54			25,397
	\$29,256	\$35,782	\$41,288	\$48,105	\$49,140	\$42,025			\$38,133
45 - 49	7,283	6,363	4,559	4,268	5,138	2,129	22		29,762
	\$29,438	\$34,631	\$39,456	\$45,007	\$52,518	\$53,207	\$57,335		\$40,021
50 - 54	6,333	5,874	4,750	4,315	3,919	4,003	376	4	29,574
	\$30,824	\$35,367	\$38,849	\$43,621	\$50,414	\$54,974	\$58,764	\$56,394	\$41,106
55 - 59	4,952	4,603	3,889	3,761	3,168	2,239	437	58	23,107
	\$30,462	\$35,593	\$39,678	\$41,773	\$48,298	\$55,386	\$63,525	\$63,388	\$40,445
60 - 64	2,705	2,716	2,059	1,950	1,619	1,066	160	73	12,348
	\$29,079	\$34,414	\$39,299	\$41,254	\$46,940	\$52,401	\$70,633	\$73,634	\$39,036
65 & Over	1,423	1,355	701	420	293	162	60	45	4,459
	\$18,343	\$24,787	\$32,238	\$37,422	\$46,058	\$50,438	\$60,851	\$64,094	\$28,303
<b>TOTAL</b>	<b>66,441</b>	<b>44,669</b>	<b>28,439</b>	<b>21,379</b>	<b>16,152</b>	<b>9,653</b>	<b>1,055</b>	<b>180</b>	<b>187,968</b>
	\$29,452	\$35,977	\$41,029	\$44,528	\$50,062	\$54,247	\$62,625	\$67,564	\$37,736

	Prior Year	Current Year
Average Age	44.58 Years	44.67 Years
Average Service	9.89 Years	9.83 Years
Average Pay	\$ 36,538	\$ 37,736
Percent Female	69.5%	69.6%





# MEMBERSHIP INFORMATION

<b>TABLE V-3</b>			
<b>DISTRIBUTION OF PARTICIPANTS RECEIVING BENEFITS AS OF JULY 1, 2007</b>			
<b>SERVICE RETIREMENT<sup>1</sup></b>			
<b>Current Age Group</b>	<b>Number</b>	<b>Total Annual Benefit</b>	<b>Average Annual Benefit</b>
Under 50	625	\$ 11,230,012	\$ 17,968
50 - 54	5,396	135,508,028	25,113
55 - 59	11,959	325,207,922	27,194
60 - 64	15,575	352,380,060	22,625
65 - 69	15,180	267,660,295	17,632
70 - 74	11,867	186,774,652	15,739
75 - 79	9,490	144,912,269	15,270
80 & Over	<u>12,656</u>	<u>174,091,495</u>	<u>13,756</u>
Total	82,748	\$1,597,764,733	\$19,309
<b>DISABILITY RETIREMENT</b>			
<b>Current Age Group</b>	<b>Number</b>	<b>Total Annual Benefit</b>	<b>Average Annual Benefit</b>
Under 50	1,326	\$ 14,696,430	\$ 11,083
50 - 54	1,417	18,443,516	13,016
55 - 59	2,213	29,953,058	13,535
60 - 64	2,347	29,897,390	12,739
65 - 69	1,596	16,671,137	11,699
70 - 74	959	10,217,357	10,654
75 - 79	528	5,786,987	10,960
80 & Over	<u>561</u>	<u>6,556,041</u>	<u>11,686</u>
Total	10,947	\$134,221,916	\$12,261
<b>BENEFICIARIES</b>			
<b>Current Age Group</b>	<b>Number</b>	<b>Total Annual Benefit</b>	<b>Average Annual Benefit</b>
Under 50	1,148	\$ 7,487,737	\$ 6,522
50 - 54	396	3,719,677	9,393
55 - 59	549	5,711,283	10,403
60 - 64	709	7,474,128	10,542
65 - 69	733	8,459,263	11,541
70 - 74	802	9,021,911	11,249
75 - 79	932	11,294,842	12,119
80 & Over	<u>1,933</u>	<u>21,264,018</u>	<u>11,001</u>
Total	7,202	\$74,432,859	\$10,335

<sup>1</sup> Includes TERI participants.

# Appendix A

## Actuarial Assumptions and Methods



***SOUTH CAROLINA RETIREMENT SYSTEM***  
Actuarial Valuation as of July 1, 2007

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# ACTUARIAL ASSUMPTIONS

## 1. Investment Rate of Return

7.25% per annum, compounded annually, composed of an assumed 3.00% inflation rate and a 4.25% real rate of return, net of investment and administrative expenses.

## 2. Salary Increases

Salary increases are assumed in accordance with the following representative rates:

ANNUAL INCREASE		ANNUAL INCREASE			
Years of Service	General Employees	Teachers	Years of Service	General Employees	Teachers
0	8.00%	8.00%	8	4.50%	4.75%
1	5.75%	8.00%	9	4.50%	4.75%
2	5.00%	5.50%	10	4.25%	4.75%
3	4.75%	5.25%	11	4.25%	4.50%
4	4.50%	5.00%	12	4.25%	4.40%
5	4.50%	5.00%	13	4.25%	4.40%
6	4.50%	5.00%	14	4.25%	4.40%
7	4.50%	4.75%	15+	4.00%	4.00%

# ACTUARIAL ASSUMPTIONS

## Decrement Rates

### a. Service Retirement

ANNUAL RATES OF					
		UNREDUCED SERVICE RETIREMENT*		REDUCED SERVICE RETIREMENT	
Employees	Age	Male	Female	Male	Female
	50	12%	14%		
	55	15%	18%	5%	10%
	60	20%	20%	5%	11%
	61	20%	20%	15%	15%
	62	30%	35%	27%	28%
	63	30%	30%	16%	20%
	64	30%	35%	22%	20%
	65	40%	40%		
	66	20%	25%		
	67	20%	25%		
	68	20%	25%		
	69	20%	25%		
	70	100%	100%		
Teachers	Age	Male	Female	Male	Female
	50	14%	15%		
	55	18%	25%	6%	9%
	60	25%	25%	14%	15%
	61	30%	40%	18%	20%
	62	20%	35%	25%	25%
	63	20%	25%	28%	20%
	64	35%	30%	28%	30%
	65	45%	40%		
	66	23%	23%		
	67	23%	23%		
	68	23%	23%		
	69	23%	23%		
	70	100%	100%		

- Plus the following percentage in year when first become eligible for unreduced service retirement before age 65.

Gender	General Employees	Teachers
Male	30%	30%
Female	30%	30%

## ACTUARIAL ASSUMPTIONS

b. Valuation of Teachers and Employees Retention Incentive (TERI)

We assumed 40% of all members elect TERI coverage prior to age 60 and 60% elect between age 60 and 65 when first eligible for an unreduced retirement benefit. We assume members in the TERI are exposed to adjusted retirement rates during TERI coverage and we assume 100% terminate employment at the end of the TERI period (5 years). The retirement rate is adjusted by the following schedule based on number of years since entering TERI:

YEARS SINCE ENTERING TERI PROGRAM	MULTIPLE OF UNREDUCED RETIREMENT TABLE
0.00 – 0.99	50%
1.00 – 1.99	65%
2.00 – 2.99	80%
3.00 – 3.99	90%
4.00 – 4.99	100%
5.00	All members assumed to retire immediately

c. In-service Mortality and Disability

IN SERVICE MORTALITY AND DISABILITY ANNUAL RATES OF:								
MORTALITY					DISABILITY			
Age	Employees		Teachers		Employees		Teachers	
	Male	Female	Male	Female	Male	Female	Male	Female
25	0.04%	0.01%	0.03%	0.01%	0.06%	0.05%	0.04%	0.05%
30	0.04%	0.02%	0.03%	0.01%	0.12%	0.07%	0.06%	0.07%
35	0.08%	0.03%	0.06%	0.03%	0.17%	0.15%	0.08%	0.07%
40	0.11%	0.05%	0.08%	0.04%	0.29%	0.19%	0.16%	0.13%
45	0.15%	0.07%	0.11%	0.06%	0.40%	0.27%	0.26%	0.26%
50	0.21%	0.11%	0.16%	0.09%	0.58%	0.46%	0.42%	0.42%
55	0.30%	0.16%	0.23%	0.14%	0.92%	0.74%	0.68%	0.68%
60	0.49%	0.26%	0.37%	0.22%	1.15%	1.12%	1.05%	1.05%
64	0.70%	0.35%	0.53%	0.30%	1.44%	1.56%	1.31%	1.31%

# ACTUARIAL ASSUMPTIONS

## d. Withdrawal Rates

PROBABILITY OF DECREMENT DUE TO WITHDRAWAL											
Years of Service – Male Teachers											
Age	0	1	2	3	4	5	6	7	8	9	10+
25	0.2964	0.2029	0.1384	0.0973	0.0721	0.0578	0.0513	0.0508	0.0518	0.0538	0.0560
30	0.2721	0.1922	0.1356	0.0990	0.0776	0.0662	0.0607	0.0577	0.0538	0.0477	0.0387
35	0.2531	0.1823	0.1316	0.0990	0.0805	0.0708	0.0657	0.0611	0.0540	0.0429	0.0273
40	0.2371	0.1730	0.1271	0.0979	0.0817	0.0730	0.0679	0.0619	0.0529	0.0390	0.0199
45	0.2239	0.1649	0.1228	0.0960	0.0811	0.0726	0.0669	0.0600	0.0503	0.0359	0.0167
50	0.2135	0.1587	0.1192	0.0936	0.0787	0.0698	0.0628	0.0553	0.0460	0.0335	0.0174
55	0.2063	0.1549	0.1168	0.0908	0.0742	0.0645	0.0557	0.0479	0.0401	0.0317	0.0222
60	0.1996	0.1518	0.1143	0.0865	0.0669	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Years of Service – Female Teachers											
Age	0	1	2	3	4	5	6	7	8	9	10+
25	0.2299	0.1608	0.1209	0.1006	0.0892	0.0841	0.0827	0.0802	0.0731	0.0660	0.0601
30	0.2269	0.1664	0.1260	0.1015	0.0878	0.0802	0.0751	0.0696	0.0618	0.0527	0.0426
35	0.2171	0.1597	0.1208	0.0966	0.0830	0.0748	0.0682	0.0615	0.0536	0.0434	0.0303
40	0.2045	0.1477	0.1106	0.0885	0.0759	0.0683	0.0616	0.0551	0.0475	0.0368	0.0215
45	0.1930	0.1361	0.1001	0.0798	0.0685	0.0619	0.0561	0.0504	0.0435	0.0329	0.0163
50	0.1866	0.1296	0.0937	0.0738	0.0633	0.0570	0.0523	0.0478	0.0417	0.0317	0.0154
55	0.1879	0.1308	0.0935	0.0727	0.0626	0.0543	0.0509	0.0474	0.0420	0.0331	0.0190
60	0.1948	0.1379	0.0986	0.0758	0.0660	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Years of Service – Male Employees											
Age	0	1	2	3	4	5	6	7	8	9	10+
25	0.3288	0.2466	0.1902	0.1554	0.1345	0.1166	0.0963	0.0783	0.0650	0.0595	0.0662
30	0.2939	0.2211	0.1726	0.1425	0.1236	0.1089	0.0951	0.0821	0.0704	0.0603	0.0530
35	0.2678	0.1997	0.1553	0.1285	0.1122	0.1010	0.0916	0.0822	0.0716	0.0586	0.0424
40	0.2456	0.1804	0.1384	0.1140	0.1002	0.0922	0.0861	0.0791	0.0695	0.0549	0.0335
45	0.2257	0.1636	0.1233	0.1003	0.0882	0.0825	0.0781	0.0727	0.0639	0.0493	0.0266
50	0.2082	0.1501	0.1115	0.0891	0.0774	0.0717	0.0675	0.0626	0.0547	0.0419	0.0224
55	0.1942	0.1410	0.1041	0.0814	0.0691	0.0600	0.0543	0.0488	0.0419	0.0328	0.0212
60	0.1827	0.1351	0.1002	0.0770	0.0632	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Years of Service – Female Employees											
Age	0	1	2	3	4	5	6	7	8	9	10+
25	0.2981	0.2459	0.2060	0.1772	0.1560	0.1385	0.1248	0.1159	0.1094	0.1030	0.0940
30	0.2710	0.2236	0.1864	0.1591	0.1395	0.1253	0.1145	0.1059	0.0970	0.0853	0.0688
35	0.2506	0.2015	0.1657	0.1410	0.1244	0.1130	0.1042	0.0958	0.0857	0.0712	0.0505
40	0.2329	0.1803	0.1451	0.1233	0.1101	0.1010	0.0935	0.0854	0.0748	0.0592	0.0367
45	0.2172	0.1622	0.1275	0.1080	0.0972	0.0894	0.0825	0.0746	0.0644	0.0493	0.0276
50	0.2041	0.1493	0.1151	0.0966	0.0864	0.0787	0.0715	0.0637	0.0543	0.0414	0.0234
55	0.1946	0.1429	0.1091	0.0895	0.0778	0.0688	0.0605	0.0526	0.0445	0.0353	0.0240
60	0.1873	0.1412	0.1079	0.0855	0.0701	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Note: No probability of withdrawal is applied to members eligible to retire.



# ACTUARIAL ASSUMPTIONS

## 4. Mortality After Retirement

For healthy retirees and beneficiaries, the UP-94 Mortality Table rates, with the female rates set back one year. A separate table of mortality rates is used for disabled retirees. The following are sample rates:

Age	HEALTHY		DISABLED	
	Male	Female	Male	Female
50	0.28%	0.14%	3.06%	2.31%
55	0.48%	0.22%	3.86%	2.66%
60	0.86%	0.42%	4.82%	2.98%
65	1.56%	0.82%	5.42%	3.33%
70	2.55%	1.37%	5.91%	3.70%
75	4.00%	2.19%	6.74%	4.43%
80	6.67%	3.80%	9.02%	6.71%
85	10.46%	6.56%	13.45%	10.15%

## 5. Marriage Assumption

100% of all active members are assumed to be married, with female spouses being 3 years younger.

## 6. Asset Valuation Method

The actuarial value of assets is equal to the market value of assets less a five-year phase in of the excess (shortfall) between expected market investment return (including the return on TERI balances) and actual net investment income with the resulting value not being less than 80% or more than 120% of the market value of assets.

## 7. Cost Methods

### a. Normal Retirement, Termination, Death and Disability Benefits

The contribution rate is set by statute for both employees and for the employers. The funding period is determined, as described below, using the Entry Age Normal actuarial cost method.

The Entry Age Normal actuarial cost method assigns the plan's total unfunded liabilities (the actuarial present value of future benefits less the actuarial value of assets) to various periods. The unfunded actuarial liability is assigned to years prior to the valuation, and the normal cost is assigned to the year following the valuation.

# ACTUARIAL ASSUMPTIONS

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The remaining costs are the normal costs for future years. Then each year's contribution is composed of (i) that year's normal cost, plus (ii) a payment used to reduce the unfunded actuarial liability.

The normal cost is the level (as a percentage of pay) contribution required to fund the benefits for all current members. Part of the normal cost is paid from the employees' own contributions. The employers pay the balance from their contributions. The method used for this valuation sets the present value of future normal costs that are to be paid by the employees as 6.50% of their present value of future earnings.

The actuarial liability is the difference between the total present value of future benefits and the actuarial present value of future normal costs. The unfunded actuarial liability is the excess of the actuarial liability over the actuarial value of assets.

The balance of the employers' contributions – the remainder after paying their share of the normal cost – is used to reduce the unfunded actuarial liability. The calculation of the amortization period takes into account increases to contribution rates applicable to future years, payroll growth, and the results are rounded to the nearest year. Also, the calculation of the amortization period reflects additional contributions the System receives with respect to post 7/1/2005 TERI participants, ORP participants and return to work retirees. These contributions are assumed to grow at the same payroll growth rate as for active SCRS employees.

It is assumed that amortization payments are made monthly at the end of the month.

## b. Group Life Insurance Benefit

One-year term cost method.

## 8. **Unused Annual Leave**

To account for the effect of unused annual leave on Annual Final Compensation, liabilities for active members are increased 2.14%.

## 9. **Unused Sick Leave**

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



# ACTUARIAL ASSUMPTIONS

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## 10. Future Cost-of-living Increases

Benefits are assumed to increase 1% annually beginning on the July 1<sup>st</sup> next following receipt of 12 monthly payments.

## 11. Administrative and Investment Expenses

The investment return assumption represents the expected return net of all administrative and investment expenses.

## 12. Payroll Growth Rate

4.00% per annum.

## 13. Recommended Changes from Prior Valuation

1. Recognize the expected return on the total of TERI account balances when calculating the amount of market value gains and losses to defer in the determination of the actuarial value of assets.

# Appendix B

## Summary of Plan Provisions



***SOUTH CAROLINA RETIREMENT SYSTEM***

Actuarial Valuation as of July 1, 2007

This report was prepared solely for the South Carolina Retirement Systems for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

## 1. Effective Date

July 1, 1945

## 2. Eligibility Requirements

All full-time, part-time, or temporary personnel who fill a permanent position as a public school employee, public higher education personnel, state employees, and city, county and other local public employees of participating employers must join as a condition of employment as of the effective date of employment, unless they elect to participate in one of the Optional Retirement Plans (ORP).

Employees in non-permanent positions may choose to join.

## 3. Creditable Service

The sum of “prior service” and “membership service.” Prior service means service rendered prior to membership for which credit is allowed. Membership service means service during which contributions have been made. This is counted in years, months, and days.

There are a number of different types of services that may be purchased by an employee under special rules, such as military service.

## 4. Average Final Compensation (AFC)

The total of the highest 12 consecutive quarters of compensation earned divided by 3. Compensation generally includes gross salary or wages, overtime, sick pay, wage deferrals, and termination pay for unused annual leave. The unused annual leave is added to the sum of the highest 12 consecutive quarters prior to dividing by 3. For members who joined the system on or after January 1, 1996, compensation for benefit and contribution purposes is limited in accordance with IRS Code Section 401(a)17.

## 5. Normal Retirement

- a. Eligibility     Attainment of age 65 with 5 years of creditable service, or completion of 28 years of creditable service.
- b. Benefit        1.82% of AFC times creditable service.

## 6. Early Retirement

- a. Eligibility Attainment of age 60 with 5 years of creditable service, or attainment of age 55 with 25 years of creditable service.
- b. Benefit Benefit accrued to date of retirement, reduced 5% for each year prior to 65 (for age 60 eligibility), or 4% for each year prior to 28 years (for age 55 with 25 years eligibility).

## 7. Teachers and Employees Retention Incentive (TERI)

Upon meeting retirement eligibility, a member can elect to enter the TERI for a maximum of five (5) years, after which employment will cease. The retirement benefits will be accumulated in TERI accounts and will be paid to the members upon the earlier of actual retirement or the end of participation period. The amount credited to the TERI account is based upon the calculation and form of benefit selected by the member at TERI entry. COLAs are credited to the TERI account. No interest is credited to the TERI account. Employee contributions (for those entering TERI on and after 7/1/2005) and employer contributions continue during TERI participation.

## 8. Disability Retirement

- a. Eligibility Disability prior to normal retirement age with at least 5 years of creditable service. The service requirement is waived for job related disability.
- b. Benefit Benefit equal to the amount that would have been payable at age 65 assuming continued employment and AFC at date of disability, less the equivalent benefit that would have been provided by the employee contributions that would have been made until age 65.

## 9. Death Benefits

- a. Death prior to age 60 or 15 years of creditable service

Refund of employee contributions with interest plus Group Life Insurance in a lump sum equal to annual earnable compensation at time of death. Group Life Insurance payable only to those whose employer participates and with at least 1 year of creditable service, unless death is job related.

- b. Death after age 60 or with 15 years of creditable service
-

Same as above. However, instead of the refund of employee contributions with interest, the beneficiary may elect to receive an annuity equal to the amount that would have been payable had the employee retired the day before death under Option B described below.

### 10. Employee Contributions

6.50% of earnable compensation effective July 1, 2007.

### 11. Vested Benefit Upon Termination

- a. Eligibility 100% vesting upon completion of 5 years of creditable service.
- b. Benefit Accrued benefit as of date of termination payable as of age 60.

### 12. Termination Benefit

- a. Eligibility Elect return of accumulated employee contributions.
- b. Benefit Return of employee contributions plus interest.

### 13. Optional Forms of Retirement Income

- Option A Monthly life annuity with guaranteed return of employee contributions plus interest. (This is the normal form of payment).
- Option B Monthly life annuity with 100% of reduced benefit continued to beneficiary upon death, reverting to maximum option if beneficiary predeceases retiree.
- Option C Monthly life annuity with 50% of reduced benefit continued to beneficiary upon death, reverting to maximum option if beneficiary predeceases retiree.

## 14. Cost of Living Adjustment

Beginning the July 1<sup>st</sup> following one year of receiving benefits, the monthly benefit amount will increase by the calendar year change in CPI but not to exceed 1%. Additional ad hoc COLAs may be paid as approved by the State Budget and Control Board and based upon the financial condition of the System.

## 15. Changes from Prior Valuation

None.