

***South Carolina Police Officers
Retirement System
(PORS)
Actuarial Valuation
as of July 1, 2006***



A MILLIMAN GLOBAL FIRM

Milliman
Consultants and Actuaries

April 2007

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April 6, 2007

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

Dear Members of the Board:

We are pleased to present the actuarial valuation report for the Police Officers Retirement System (PORS) as of July 1, 2006. The results of this report are applicable to Fiscal Year 2008.

Applicable Laws

The laws governing the operation of the Police Officers 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 Police Officers Retirement System as of July 1, 2006 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. The 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 have reviewed these assumptions and believe they remain reasonable and are in accordance with the applicable Actuarial Standards of Practice.

The results and conclusions of this report should not be interpreted as applying in future years beyond FY 2008. Differences between our projections and actual amounts depend on the extent to which future experience conforms exactly to the assumptions used in this analysis.

It is our understanding that as of the date of this report there is pending litigation concerning the contributions made by retirees returning to active employment. The outcome of this litigation is still unknown and any change to the current plan provisions is not considered in this valuation.

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, 2006 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.

I, Hassan Ghazi, am an associate actuary and I, Robert S. Dezube, am a principal and consulting actuary for Milliman. We are also 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, ASA
Associate Actuary

Robert S. Dezube, FSA
Principal and Consulting Actuary

Section I

Board Summary



SOUTH CAROLINA POLICE OFFICERS RETIREMENT SYSTEM

Actuarial Valuation as of July 1, 2006

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

This report presents the results of the July 1, 2006 actuarial valuation of the Police Officers Retirement System (PORS). The primary purposes of performing the annual actuarial valuation are to:

- 1) Determine whether the **contributions** to be paid into the Fund in Fiscal Year 2008 **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 employer contribution rate for the System is 10.70%, including a 0.20% contribution for group life benefits and a 0.20% contribution for accidental death benefits (duty-related). The 10.30% net contribution is used to pay the employer's portion of the normal cost and to amortize the unfunded actuarial liability. The Board sets the contribution rate based on the actuarial valuation of the plan. The amortization period for the unfunded actuarial liability varies, depending on the amount of the liability and the net contribution towards the liability after paying the normal cost contribution.

The July 1, 2006 valuation develops the contribution rates for FY 2008. The actuarially determined employer normal cost contribution rate increased from 7.12% for FY 2007 to 7.14% for FY 2008. As a result, the net contribution towards the unfunded actuarial liability decreased from 3.18% to 3.16%. The unfunded actuarial liability increased from \$399 million to \$530 million. The net result is that the amortization period for the unfunded actuarial liability increased from 15 years to 18 years. This result is a combination of many factors:

BOARD SUMMARY

- The plan granted a 3.5% COLA effective July 1, 2006. This increased the unfunded actuarial liability by \$57.4 million, and the amortization period by 2.6 years. Because future COLAs are not reflected in the System's valuation assumptions, 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 plan experienced a net actuarial loss on plan liabilities. The source of the loss is about equally split between higher than expected increases to active participant salaries and net demographic experience primarily related to mortality and turnover experience being different from expected. The total net loss increased the unfunded actuarial liability by \$55.2 million, and the amortization period by 2.4 years. The loss represents 1.6% of the actuarial liability. 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 our assumptions.
- The plan experienced an actuarial loss related to the expected return on plan assets. There was a loss of \$27.5 million due to the investment return on the actuarial value of assets being less than the 7.25% assumed rate of return. The loss increased the amortization period by 1.1 years.
- In calculating the amortization period, the payrolls of active members and rehired retirees are expected to grow at a constant rate of 4.0% per year. For FY 2006, the active member payroll grew nearly 10% and the rehired retiree payroll grew nearly 46%. The increase in contributions received and expected in the future due to the significant growth in payroll reduced the amortization period by 2.3 years. This reduction in the amortization period does not reflect the partially offsetting loss due to the greater than anticipated salary increases mentioned above.
- Other factors, such as the one-year decrease in the amortization period due to the prior year amortization payment and the increase in the normal cost rate, decreased the amortization period by 0.9 years.

As part of this valuation, we tested the adequacy of the 0.40% contribution rate to support the group life and accidental death funds (0.20% to each fund). There are separate funds for these benefits with assets at market value of \$23.2 million and \$28.2 million respectively as of July 1, 2006. The contribution rates are reasonable and will adequately fund the expected benefit payments for FY 2008.

The balance of this section presents summarized information regarding plan trends, details on the 2005/2006 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, 2006. 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.

The actuarial value of assets as of July 1, 2006 slightly exceeds the market value. The amount of this excess is \$38.8 million. This results from the asset smoothing technique deferring more investment losses than investment gains.

For the plan year ending July 1, 2006, the plan earned 4.9%¹ on a market value basis and 6.3% on an actuarial value basis. These returns resulted in the market value of assets being \$65.2 million less than expected and an investment loss of \$27.5 million on an actuarial value basis. 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, 2005 value	\$ 2,773,515	\$ 2,774,606
Employer Contributions	96,766	96,766
Member Contributions	67,394	67,394
Transfer of Assets	3,026	3,026
Benefit Payments and Expenses	(179,142)	(179,142)
Expected Investment Earnings (7.25%)	200,647	200,726
Expected Value July 1, 2006	2,962,206	2,963,376
Investment Gain (Loss)	(65,188)	(27,535)
July 1, 2006 value	\$ 2,897,018	\$ 2,935,841

¹ Differs from the CAFR report rate of return because assumes cash flow occurs mid-year.

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. During the plan year ending in 2006, the plan experienced an actuarial loss on liabilities of **\$55.2 million**, which is 0.9% of the total actuarial liability.

Liabilities (In Millions)	Total Value of Future Benefits	Actuarial Liability
July 1, 2005	\$ 4,071	\$ 3,174
July 1, 2006	\$ 4,440	\$ 3,466

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, 2005 and July 1, 2006 unfunded actuarial liability/(surplus) amounts, as well as the corresponding funded ratios for each (assets divided by liabilities).

In Millions	Unfunded Actuarial Liability	Funded Ratio
July 1, 2005 net unfunded / (surplus)	\$ 399	87.4%
July 1, 2006 net unfunded / (surplus)	\$ 530	84.7%

MEMBERSHIP

There are three types of plan members: (i) current active members; (ii) inactive members who retain a right to either a return of contributions or a deferred vested benefit; and (iii) 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, 2005 and 2006.

There was an overall increase in membership during the year.

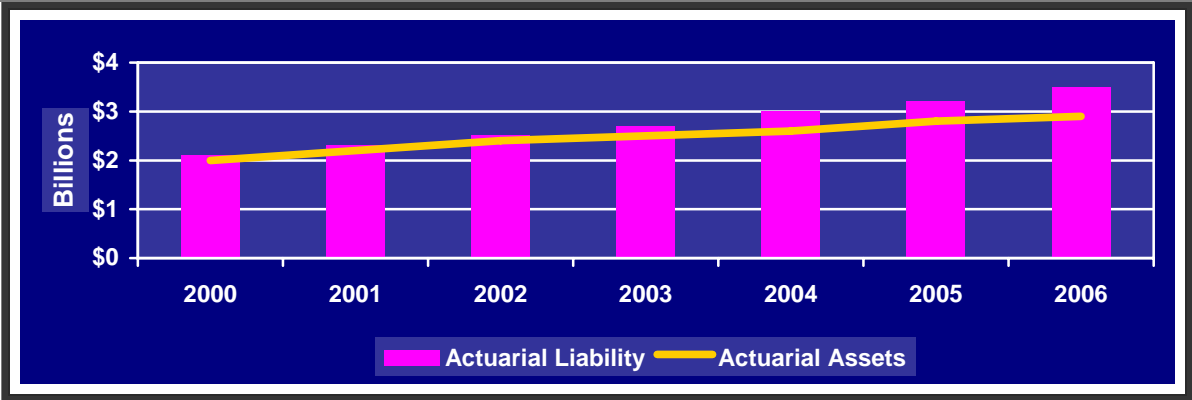
	7/1/2006	7/1/2005	Change
Active Members	24,813	23,795	4.3%
Inactive Members	10,464	10,207	2.5%
Retired Members and Beneficiaries	10,134	9,661	4.9%
Total Members	45,411	43,663	4.0%

Trends

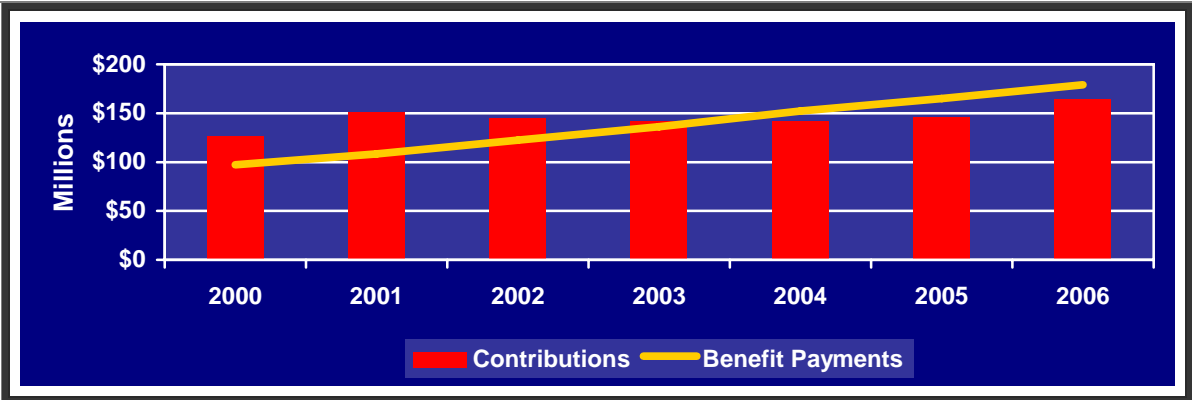
To truly understand the financial condition of the pension plan, a review of the trends over the last several years is helpful in evaluating the overall performance. Below, we present three charts that present trend information from past years through 2006.

The first graph shows an increase in both actuarial liability and actuarial assets. 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 have increased each year over the last four years, while the benefit payments have a slight upward trend over the seven years. As of the current valuation, the negative cash flow represents less than 1% 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 7 to 18 years over the seven-year period consistent with the information shown in the first graph.

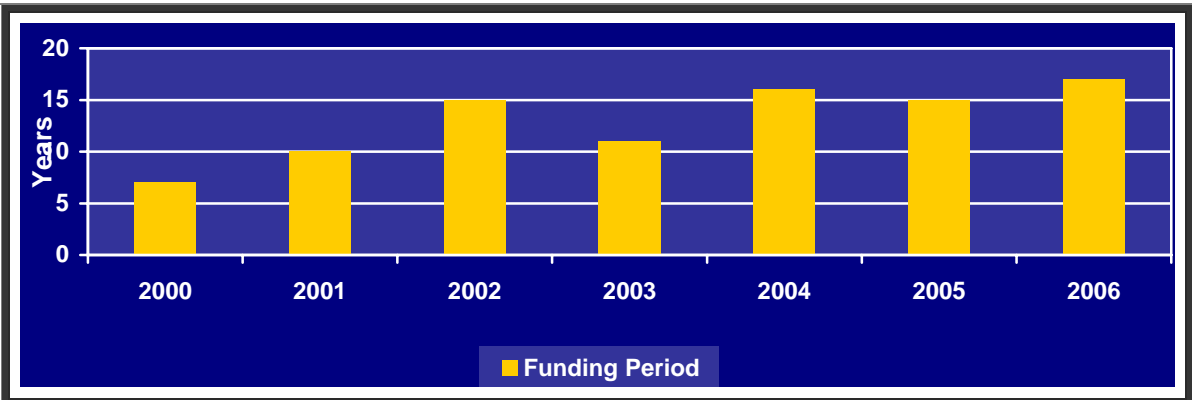
Assets and Liabilities



Cash Flows



Unfunded Actuarial Liability Funding Period



BOARD SUMMARY

PRINCIPAL RESULTS		
	July 1, 2006	July 1, 2005
Membership		
Number of:		
Active Members	24,813	23,795
Retirees and Beneficiaries	10,134	9,661
Inactive Members	<u>10,464</u>	<u>10,207</u>
Total	45,411	43,663
Payroll	\$ 932 million	\$ 851 million
Statutory Contribution Rate (Including Group Insurance)		
Member	6.50%	6.50%
Employer		
Retirement Contribution	10.30%	10.30%
Group Life Contribution	0.20%	0.20%
Accidental Death Contribution	<u>0.20%</u>	<u>0.20%</u>
Total	10.70%	10.70%
Assets		
Market Value	\$ 2.90 billion	\$ 2.77 billion
Actuarial Value	\$ 2.94 billion	\$ 2.77 billion
Return on Market Value	4.9%	6.6%
Return on Actuarial Value	6.3%	6.7%
Ratio of Actuarial to Market Value	101.3%	100.0%
Actuarial Information		
Employer Normal Cost %	7.14%	7.12%
Unfunded Actuarial Liability (UAL)	\$ 530 million	\$ 399 million
Funded Ratio	84.7%	87.4%
Amortization Period	18 years	15 years
Change in Unfunded Actuarial Liability (in millions)		
Beginning of Year Unfunded Actuarial Liability	\$ 399.3	\$ 367.7
Interest on Unfunded Actuarial Liability	28.9	26.7
Amortization Payment	(37.9)	(31.5)
Asset Experience	27.5	14.6
Salary Experience	28.4	3.0
Other Liability Experience	26.8	(30.5)
COLA	57.4	50.3
Benefit Changes	0.0	(1.0)
Assumption/Method Changes	0.0	0.0
Total Increase / (Decrease)	131.1	31.6
End of Year Unfunded Actuarial Liability	\$530.4	\$ 399.3

Section II

Assets

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 2006 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. Table II-2 shows the calculation of the Actuarial Value of Assets for the July 1, 2006 valuation.

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

PLAN YEAR ENDING JUNE 30,

Item	2006	2005	2004	2003
1. Market Value of Assets at Beginning of Year	\$ 2,773,515	\$ 2,619,169	\$ 2,420,469 ¹	\$2,236,350
2. Net External Cash Flow During the Year	(11,956)	(16,766)	(8,311)	5,063
3. Market Value of Assets at End of Year	2,897,018	2,773,515	2,619,169	2,461,222
4. Actual Investment Income During the Year Based on Market Value:	135,459	171,112	207,011	219,809
5. Assumed Earnings Rate	7.25%	7.25%	7.25%	7.25%
6. Expected Earnings for the Year				
a. Market Value of Assets, Beginning of Year: (5) x (1)	201,080	189,890	175,484	162,135
b. Net External Cash Flow: (5) x .5 x (2)	<u>(433)</u>	<u>(608)</u>	<u>(301)</u>	<u>184</u>
c. Total: (a) + (b)	200,647	189,282	175,183	162,319
7. Excess Investment Income for Year: (4) – (6)	(\$ 65,188)	(\$ 18,170)	\$ 31,828	\$57,490

All dollar amounts are in thousands.

¹ Beginning of year value adjusted to match July 1, 2004 CAFR.

TABLE II-2
DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

Item	Valuation as of July 1, 2006
1. Excess (Shortfall) of Investment Income for Current Year and Previous Three Years	
a. Current Year	\$ (65,188)
b. Current Year - 1	(18,170)
c. Current Year - 2	31,828
d. Current Year - 3	57,490
2. Deferral of Excess (Shortfall) of Investment Income for:	
a. Current Year (80% Deferral)	\$ (52,150)
b. Current Year - 1 (60% Deferral)	(10,902)
c. Current Year - 2 (40% Deferral)	12,731
d. Current Year - 3 (20% Deferral)	<u>11,498</u>
e. Total Deferred for Year	\$ (38,823)
3. Market Value of Plan Assets, End of Year	\$ 2,897,018
4. Preliminary Actuarial Value of Plan Assets, End of Year (Item 3 – Item 2.e.)	\$ 2,935,841
5. Actuarial Value of Assets Corridor	
a. 80% of Market Value of Assets, End of Year	\$ 2,317,614
b. 120% of Market Value of Assets, End of Year	\$ 3,476,422
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.)	\$ 2,935,841

All dollar amounts are in thousands

Section III

Valuation Results



SOUTH CAROLINA POLICE OFFICERS RETIREMENT SYSTEM

Actuarial Valuation as of July 1, 2006

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.

VALUATION RESULTS

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 it receives contributions from employees of 6.50% of pay and contributions from the employer of 10.30% of pay, after subtracting the 0.20% of pay contribution for pre-retirement death trust (group life) and 0.20% of pay contribution for accidental death benefit trust.

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, 2006 actuarial valuation results compared to similar results from the prior valuation. An employer contribution rate of 10.70% including the 0.20% contribution for pre-retirement death benefits and the 0.20% contribution for accidental death benefits is sufficient to fund the unfunded actuarial liability over 18 years. Changes from last year include:

- The number of active members increased 4.3% and payroll of active members increased by 9.5%.
- The number of retirees increased 4.9%. Retirees received a 3.5% COLA effective July 1, 2006. Including the COLA, the total benefit amount for retirees increased 8.8%.
- The funding period for the unfunded actuarial liability increased from 15 years to 18 years.

VALUATION RESULTS

TABLE III-1		
VALUATION BALANCE SHEET		
	JULY 1, 2006	JULY 1, 2005
Assets		
1. Current Assets (Actuarial Value)		
a. Employee Annuity Savings Fund	\$ 622,008	\$ 585,701
b. Employer Annuity Accumulation Fund	<u>2,313,833</u>	<u>2,188,905</u>
c. Total Current Assets	\$ 2,935,841	\$ 2,774,606
2. Present Value of Future Member Contributions	\$ 473,750	\$ 436,604
3. Present Value of Future Employer Contributions		
a. Normal Cost Contributions	\$ 499,696	\$ 460,051
b. Accrued Liability Contributions	<u>530,440</u>	<u>399,324</u>
c. Total Future Employer Contributions	\$ 1,030,136	\$ 859,375
4. Total Assets	<u>\$ 4,439,727</u>	<u>\$ 4,070,585</u>
Liabilities		
1. Employee Annuity Savings Fund		
a. Past Member Contributions	\$ 622,008	\$ 585,701
b. Present Value of Future Member Contributions	<u>473,750</u>	<u>436,604</u>
c. Total Contributions to Employee Annuity Savings Fund	\$ 1,095,758	\$ 1,022,305
2. Employer Annuity Accumulation Fund		
a. Benefits Currently in Payment	\$ 1,668,449	\$ 1,530,199
b. Benefits to be Paid to Current Active Members (included vested terminated members)	<u>1,675,520</u>	<u>1,518,081</u>
c. Total Benefits Payable from Employer Annuity Accumulation Fund	\$ 3,343,969	\$ 3,048,280
3. Total Liabilities	<u>\$ 4,439,727</u>	<u>\$ 4,070,585</u>

All dollar amounts are in thousands.

VALUATION RESULTS

TABLE III-2		
SUMMARY OF ACTUARIAL VALUATION RESULTS		
	JULY 1, 2006	JULY 1, 2005
Number of Active Members and Compensation		
Active Members		
Number	24,813	23,795
Compensation	\$ 931,815	\$ 850,610
Rehired Retired Members		
Number	1,829	1,221
Compensation	\$ 57,041	\$ 39,182
Number of Persons Receiving Benefits and Benefits		
Total Number Receiving Benefits	10,134	9,661
Total Amount of Benefits	\$ 174,945	\$ 160,756
Trust Fund Assets		
Market Value	\$ 2,897,018	\$ 2,773,515
Actuarial Value	\$ 2,935,841	\$ 2,774,606
Unfunded Actuarial liability (UAL)		
Amount	\$ 530,440	\$ 399,324
Remaining Years in Amortization Period	18	15
Required Contribution as a Percent of Compensation		
Normal Cost Contribution	7.14%	7.12%
UAAL Contribution	3.16%	3.18%
Pre-retirement Death Contribution	0.20%	0.20%
Accidental Death Contribution	<u>0.20%</u>	<u>0.20%</u>
Total	10.70%	10.70%

All dollar amounts are in thousands.

VALUATION RESULTS

TABLE III-3		
DETERMINATION AND AMORTIZATION OF UNFUNDED ACTUARIAL LIABILITY		
	JULY 1, 2006	JULY 1, 2005
1. Actuarial Present Value of Future Benefits		
a. Present Retired Members and Beneficiaries	\$ 1,668,449	\$ 1,530,199
b. Present Active and Inactive Members	<u>2,771,278</u>	<u>2,540,386</u>
c. Total Actuarial Present Value	\$ 4,439,727	\$ 4,070,585
2. Present Value of Future Normal Contributions		
a. Employees	\$ 473,750	\$ 436,604
b. Employer	<u>499,696</u>	<u>460,051</u>
c. Total Future Normal Contributions	\$ 973,446	\$ 896,655
3. Actuarial liability	\$ 3,466,281	\$ 3,173,930
4. Current Actuarial Value of Assets	\$ 2,935,841	\$ 2,774,606
5. Unfunded Actuarial liability	\$ 530,440	\$ 399,324
6. Unfunded Actuarial Liability Rate	3.16%	3.18%
7. Unfunded Actuarial Liability Liquidation Period	18 years	15 years

All dollar amounts are in thousands.

Section IV

Accounting Statement Information



SOUTH CAROLINA POLICE OFFICERS RETIREMENT SYSTEM

Actuarial Valuation as of July 1, 2006

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, 2006 are exhibited in Table IV-1 and compared with amounts as of July 1, 2005. Table IV-2 shows the schedule of funding progress as required by GASB Statement #25.

TABLE IV-1		
ACCOUNTING STATEMENT INFORMATION		
	July 1, 2006	July 1, 2005
1. Actuarial Liabilities for Retirees and Beneficiaries Currently Receiving Benefits and Terminated Employees Not Yet Receiving Benefits.	\$ 1,773,162	\$ 1,628,606
2. Actuarial Liabilities for Current Employees	<u>1,693,119</u>	<u>1,545,324</u>
3. Total Actuarial Liability (1 + 2)	\$ 3,466,281	\$ 3,173,930
4. Net Actuarial Assets Available for Benefits	\$ 2,935,841	\$ 2,774,606
5. Unfunded Actuarial Liability (3 – 4)	\$ 530,440	\$ 399,324

All dollar amounts are in thousands.

ACCOUNTING STATEMENT INFORMATION

TABLE IV-2

INFORMATION FOR COMPREHENSIVE ANNUAL FINANCIAL REPORT

Member and Payroll Information							
Actuarial Valuation Date	Number of Employers	Number of Active Members	Annual Payroll (in thousands)	Annual Average Pay	Percentage Increase in Average Pay		
July 1, 2006	314	24,813	\$ 931,815	\$ 37,554	5.05%		
July 1, 2005	314	23,795	850,610	35,747	3.16%		
July 1, 2004	314	23,734	822,448	34,653	3.35%		
July 1, 2003	314	23,871	800,394	33,530	6.08%		
July 1, 2002	302	23,963	757,393	31,607	3.59%		
July 1, 2001	296	24,821	757,335	30,512	5.50%		
July 1, 2000	297	24,782	716,749	28,922	4.82%		
July 1, 1999	307	23,127	638,086	27,591	4.11%		
July 1, 1998	301	22,883	606,426	26,501	2.83%		
July 1, 1997	297	21,829	562,553	25,771	4.31%		

Schedule of Retirants Added to and Removed from Rolls								
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 Payroll	Annual Allowances	Number	Annual Allowances (in thousands)		
July 1, 2006	678	\$ 16,880	205	\$ 2,691	10,134	\$ 174,945	8.8%	\$ 17,263
July 1, 2005	778	12,576	173	2,147	9,661	160,756	9.8%	16,640
July 1, 2004	894	16,256	265	2,923	9,056	146,348	10.8%	16,114
July 1, 2003	947	18,614	226	2,733	8,427	133,015	13.6%	15,784
July 1, 2002	956	17,378	220	2,639	7,706	117,134	14.4%	15,200
July 1, 2001	989	17,235	341	3,986	6,970	102,395	14.9%	14,691
July 1, 2000	549	9,979	152	1,581	6,322	89,146	10.4%	14,101
July 1, 1999	606	8,490	238	1,731	5,925	80,748	9.1%	13,628
July 1, 1998	492	6,924	154	1,085	5,557	73,989	8.6%	13,315
July 1, 1997	533	9,024	176	759	5,219	68,150	13.8%	13,058

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, 2006	\$ 2,935,841	\$ 3,466,281	84.7%	\$ 530,440	\$ 931,815	56.9%
July 1, 2005	2,774,606	3,173,930	87.4%	399,324	850,610	46.9%
July 1, 2004	2,616,835	2,984,584	87.7%	367,749	822,448	44.7%
July 1, 2003	2,511,369	2,744,849	91.5%	233,480	800,394	29.2%
July 1, 2002	2,351,100	2,527,876	93.0%	176,776	757,393	23.3%
July 1, 2001	2,197,982	2,324,257	94.6%	126,275	757,335	16.7%
July 1, 2000	2,008,554	2,095,991	95.8%	87,437	716,749	12.2%
July 1, 1999	1,844,517	1,898,237	97.2%	53,720	638,086	8.4%
July 1, 1998	1,684,641	1,733,578	97.2%	48,937	606,426	8.1%
July 1, 1997	1,512,390	1,570,816	96.3%	58,426	562,553	10.4%

Solvency Test

Valuation Date	Active Member Contributions	Retirants & Beneficiaries	Active Members (Employer Funded Portion)	Valuation Assets	Portion of Aggregate Accrued Liabilities Covered by Assets		
July 1, 2006	\$ 622,008	\$ 1,668,449	\$ 1,175,824	\$ 2,935,841	100.0%	100.0%	54.9%
July 1, 2005	585,701	1,530,199	1,058,030	2,774,606	100.0%	100.0%	62.0%
July 1, 2004	548,699	1,415,627	1,020,258	2,616,835	100.0%	100.0%	64.0%
July 1, 2003	516,313	1,265,173	963,363	2,511,369	100.0%	100.0%	75.8%
July 1, 2002	492,178	1,136,998	898,700	2,351,100	100.0%	100.0%	80.3%
July 1, 2001	464,217	977,769	882,271	2,197,982	100.0%	100.0%	85.7%
July 1, 2000	427,449	844,631	823,911	2,008,554	100.0%	100.0%	89.4%
July 1, 1999	389,456	783,042	725,739	1,844,517	100.0%	100.0%	92.6%
July 1, 1998	352,424	702,155	678,999	1,684,641	100.0%	100.0%	92.8%
July 1, 1997	314,217	645,356	611,243	1,512,390	100.0%	100.0%	90.4%

All dollar amounts are in thousands

ACCOUNTING STATEMENT INFORMATION

RETIRED MEMBERS AND BENEFICIARIES AS OF JULY 1, 2006		
Group	Number	Annual Retirement Allowances
Service Retirements:		
Employees:		
Men	6,451	\$ 123,512,084
Women	<u>1,170</u>	<u>14,387,251</u>
Total	7,621	\$ 137,899,335
Disability Retirements:		
Employees:		
Men	1,176	\$ 21,774,698
Women	<u>343</u>	<u>4,604,546</u>
Total	1,519	\$ 26,379,244
Beneficiaries of Deceased Retired Members and Active Members		
Men	34	\$ 271,400
Women	<u>960</u>	<u>10,395,426</u>
Total	994	\$ 10,666,826
Grand Total	10,134	\$ 174,945,405

Section V

Membership Information



SOUTH CAROLINA POLICE OFFICERS RETIREMENT SYSTEM

Actuarial Valuation as of July 1, 2006

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.

MEMBERSHIP INFORMATION

**TABLE V-1
NUMBER OF ANNUAL RETIREMENT ALLOWANCES
OF BENEFIT RECIPIENTS AS OF JULY 1, 2006**

		NUMBER	ANNUAL RETIREMENT ALLOWANCES
Retirement			
a.	Service Retirement		
	Life Annuity	4,255	\$ 73,283,860
	100% J & S	212	3,012,830
	100% Pop-up	799	12,283,142
	50% J & S	194	4,510,304
	50% Pop-up	840	19,155,564
	Level Income	<u>1,321</u>	<u>25,653,635</u>
	Total	7,621	\$137,899,335
b.	Disability Retirement		
	Life Annuity	1,218	\$21,871,566
	100% J & S	61	716,226
	100% Pop-up	106	1,338,464
	50% J & S	36	550,629
	50% Pop-up	<u>98</u>	<u>1,902,359</u>
	Total	1,519	\$ 26,379,244
Beneficiaries of Deceased Retired Members and Active Members			
c.	Total	994	\$ 10,666,826
Total			
GRAND TOTAL		10,134	\$ 174,945,405

MEMBERSHIP INFORMATION

TABLE V-2
DISTRIBUTION OF ACTIVE MEMBERS AND AVERAGE COMPENSATION
BY AGE GROUPS AND SERVICE GROUPS AS OF JULY 1, 2005
YEARS OF SERVICE

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 & Over	Total
Under 25	1,536	7							1,543
	\$ 28,344	\$ 29,823							\$ 28,351
25 - 29	2,750	631	2						3,383
	\$ 31,415	\$ 35,608	\$ 43,856						\$ 32,204
30 - 34	1,694	1,819	443	8					3,964
	\$ 32,185	\$ 37,241	\$ 40,416	\$ 43,484					\$ 35,447
35 - 39	1,364	1,204	1,277	473	16				4,334
	\$ 32,082	\$ 37,310	\$ 41,812	\$ 45,658	\$ 52,133				\$ 37,957
40 - 44	990	749	708	1,029	397	9			3,882
	\$ 32,596	\$ 36,506	\$ 40,462	\$ 45,864	\$ 50,662	\$ 56,332			\$ 40,204
45 - 49	703	639	467	590	573	127	2		3,101
	\$ 32,230	\$ 37,118	\$ 39,736	\$ 44,058	\$ 50,909	\$ 60,043	\$ 89,056		\$ 41,245
50 - 54	562	520	436	386	271	165	32		2,372
	\$ 33,547	\$ 38,350	\$ 40,018	\$ 43,710	\$ 50,271	\$ 59,813	\$ 68,215		\$ 41,649
55 - 59	335	363	248	260	153	49	52	8	1,468
	\$ 33,819	\$ 37,554	\$ 39,262	\$ 41,893	\$ 48,763	\$ 51,651	\$ 61,482	\$ 76,930	\$ 40,460
60 - 64	152	170	101	103	68	24	10	5	633
	\$ 34,074	\$ 40,286	\$ 39,399	\$ 43,490	\$ 50,103	\$ 53,178	\$ 63,620	\$ 91,762	\$ 41,493
65 & Over	25	35	31	18	12	8	1	3	133
	\$ 34,493	\$ 41,806	\$ 42,138	\$ 42,014	\$ 46,892	\$ 60,669	\$ 57,088	\$ 61,113	\$ 42,681
TOTAL	10,111	6,137	3,713	2,867	1,490	382	97	16	24,813
	\$ 31,586	\$ 37,199	\$ 40,684	\$ 44,692	\$ 50,451	\$ 58,362	\$ 64,447	\$ 78,599	\$ 37,554

	Prior Year	Current Year
Average Age	39.53 years	39.36 years
Average Service	8.22 years	8.31 years
Average Pay	\$ 35,747	\$ 37,554
Percent Female	25.5%	25.8%

MEMBERSHIP INFORMATION

TABLE V-3
DISTRIBUTION OF PARTICIPANTS RECEIVING BENEFITS
SERVICE RETIREMENT

Current Age Group	Number	Total Annual Benefit	Average Annual Benefit
Under 50	443	\$ 10,062,409	\$ 22,714
50 - 54	857	20,703,613	24,158
55 - 59	1,701	35,555,109	20,902
60 - 64	1,544	26,388,665	17,091
65 - 69	1,254	18,069,531	14,410
70 - 74	933	13,665,896	14,647
75 - 79	520	7,803,881	15,007
80 & Over	369	5,650,231	15,312
Total	7,621	\$ 137,899,335	\$ 18,095

DISABILITY RETIREMENT

Current Age Group	Number	Total Annual Benefit	Average Annual Benefit
Under 50	621	\$ 12,033,953	\$ 19,378
50 - 54	309	5,465,430	17,687
50 - 59	301	4,572,640	15,191
60 - 64	146	2,121,845	14,533
65 - 69	63	955,498	15,167
70 - 74	43	735,780	17,111
75 - 79	24	330,918	13,788
80 & Over	12	163,180	13,598
Total	1,519	\$ 26,379,244	\$17,366

BENEFICIARIES

Current Age Group	Number	Total Annual Benefit	Average Annual Benefit
Under 50	122	\$1,228,680	\$ 10,071
50 - 54	55	652,622	11,866
50 - 59	93	1,084,722	11,664
60 - 64	93	1,015,019	10,914
65 - 69	128	1,434,257	11,205
70 - 74	140	1,717,004	12,264
75 - 79	140	1,374,550	9,818
80 & Over	223	2,159,972	9,686
Total	994	\$ 10,666,826	\$ 10,731

Appendix A

Actuarial Assumptions and Methods

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:

Years of Service	ANNUAL INCREASE	Years of Service	General Employees
0	11.50%	8	4.75%
1	6.75%	9	4.75%
2	5.75%	10	4.75%
3	5.50%	11	4.75%
4	5.25%	12	4.50%
5	5.00%	13	4.50%
6	4.75%	14	4.50%
7	4.75%	15+	4.50%

3. Decrement Rates

a. Service Retirement, Mortality, and Disability

ANNUAL RATE OF			
Age	SERVICE RETIREMENT*	MORTALITY	DISABILITY
20		0.03%	0.12%
25		0.03%	0.14%
30		0.04%	0.18%
35		0.07%	0.35%
40		0.10%	0.46%
45	20.00%	0.14%	0.69%
50	20.00%	0.19%	0.86%
55	14.00%	0.27%	
60	15.00%	0.44%	
64	25.00%	0.63%	

* Plus an additional 22% for participants under age 55 in year they first become eligible for unreduced service retirement.

ACTUARIAL ASSUMPTIONS

All employees are assumed to retire at age 65. In addition, 25% of disabilities are assumed to be duty-related, and 5% of pre-retirement deaths are assumed to be accidental (duty-related).

b. Withdrawal rates

PROBABILITY OF DECREMENT DUE TO WITHDRAWAL											
Years of Service											
Age	0	1	2	3	4	5	6	7	8	9	10+
25	0.2494	0.1816	0.1342	0.1047	0.0885	0.0780	0.0715	0.0640	0.0545	0.0524	0.0618
30	0.2478	0.1822	0.1376	0.1107	0.0959	0.0876	0.0810	0.0732	0.0633	0.0545	0.0481
35	0.2450	0.1795	0.1359	0.1104	0.0967	0.0899	0.0837	0.0763	0.0665	0.0539	0.0381
40	0.2398	0.1739	0.1304	0.1055	0.0927	0.0868	0.0814	0.0747	0.0653	0.0510	0.0305
45	0.2312	0.1649	0.1212	0.0964	0.0845	0.0783	0.0738	0.0681	0.0595	0.0458	0.0256
50	0.2193	0.1532	0.1090	0.0839	0.0730	0.0646	0.0610	0.0564	0.0490	0.0382	0.0236
55	0.2050	0.1393	0.0944	0.0684	0.0587						
60	0.1871	0.1228	0.0773	0.0503	0.0419						

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

4. Mortality After Retirement

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

	HEALTHY		DISABLED
Age	Male	Female	All
50	0.39%	0.14%	2.30%
55	0.68%	0.22%	2.89%
60	1.23%	0.42%	3.62%
65	2.14%	0.82%	4.07%
70	3.35%	1.37%	4.43%
75	5.40%	2.19%	5.05%
80	8.87%	3.80%	6.77%
85	13.65%	6.56%	10.09%

5. Marriage Assumption

100% of all active members are assumed to be married, with female spouses being 4 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 investment return and actual net income (both based on market value) 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

Projected benefit method with level percentage entry age normal cost. Gains and losses are reflected in the period remaining to liquidate the unfunded actuarial liability. The resulting amortization period is based upon payments level as a percentage of payroll and the results are rounded to the nearest year. We completed a separate valuation of the accidental (duty-related) death benefit.

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 3.75%.

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.

10. Future Cost-of-living Increases

None assumed.

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.

ACTUARIAL ASSUMPTIONS

13. Changes from Prior Valuation

None.

14. Adoption Date

The current actuarial assumptions and methods were adopted by the State Budget and Control Board on April 20, 2004.

Appendix B

Summary of Plan Provisions



SOUTH CAROLINA POLICE OFFICERS RETIREMENT SYSTEM

Actuarial Valuation as of July 1, 2006

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.

SUMMARY OF PLAN PROVISIONS

1. Effective Date

July 1, 1962

2. Eligibility Requirements

All police officers or firefighters who work at least 1,600 hours as a police officer or firefighter and whose compensation is at least \$2,000 during the fiscal year.

3. Creditable Service

Creditable 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 55, or completion of 5 years of creditable service or completion of 25 years of creditable service.
- b. Benefit 2.14% of AFC times creditable service (Class II).

6. 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.

SUMMARY OF PLAN PROVISIONS

- b. Benefit Benefit equal to the amount of retirement benefit that would have been payable assuming continued employment and AFC at date of disability.

7. Death Benefits

- a. Death prior to age 55

- i) Prior to completion of 15 years of creditable service

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

- ii) After completion of 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 member terminated the day before death and elected payment to commence at age 55 under Option B described below.

- b. Death after 55

- Same as Item a(ii) above.

8. Accidental Death Benefit

If death occurs and is duty related, then a monthly annuity equal to 50% of the member's compensation at the time of death is paid to the statutory beneficiary until the beneficiary's death.

9. Member Contribution

6.5% of compensation

SUMMARY OF PLAN PROVISIONS

10. Vested Benefit upon Termination

- a. Eligibility 100% vesting upon completion of 5 years of creditable service and refund benefit declined.
- b. Benefit Accrued service retirement benefit as of date of termination payable as of age 55.

11. Refund Benefit

- a. Eligibility All nonvested members, and at members election, vested members.
- b. Benefit Return of employee contributions plus interest.

12. 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.

Options B and C are actuarially reduced.

13. Cost of Living Adjustment

Granted upon approval of State Budget and Control Board if funding objectives are met. The amount is the increase in the calendar year CPI not in excess of 4%.

14. Changes from Prior Valuation

None.