

***South Carolina Police Officers  
Retirement System  
(PORS)  
Actuarial Valuation  
as of July 1, 2005***



A MILLIMAN GLOBAL FIRM

**Milliman**

*Consultants and Actuaries*

**March 2006**

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March 13, 2006

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, 2005. The results of this report are applicable to Fiscal Year 2007.

**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 second annual actuarial valuation of the Police Officers Retirement System as of July 1, 2005 and the results of the valuation are contained in the following report.

**Funding Objective**

A funding objective of the System is that contribution rates will remain relatively level over time as a percentage of payroll. 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's 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 2007. 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, 2005 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**

## BOARD SUMMARY

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This report presents the results of the July 1, 2005 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 2007 **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, 2005 valuation develops the contribution rates for FY 2007. The actuarially determined employer normal cost contribution rate decreased from 7.19% for FY 2006 to 7.12% for FY 2007. As a result, the net contribution towards the unfunded actuarial liability increased from 3.11% to 3.18%. The unfunded actuarial liability increased from \$368 million to \$399 million. The net result is that the amortization period for the unfunded actuarial liability decreased from 16 years to 15 years. This result is a combination of many factors:

## BOARD SUMMARY

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- The plan granted a 3.4% COLA effective July 1, 2005. This increased the unfunded actuarial liability by \$50.3 million, and the amortization period by 2.3 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 was amended through legislation to require employee contributions from reemployed retirees. Additionally, the Board acted to change the crediting rate on employee contribution account balances from 6% to 4% per annum. The combined effect of these changes decreased the unfunded actuarial liability by \$1.0 million and decreased the amortization period by 1.3 years.
- The plan experienced a net actuarial gain on plan liabilities. The gain is primarily attributable to demographic experience such as terminations, retirements, incidences of disability and deaths being different from expected and was partially offset by a loss due to higher than expected increases to participant salaries. The net gain decreased the unfunded actuarial liability by \$27.5 million, and the amortization period by 1.7 years. The gain represents 0.9% 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. When a plan experiences alternating gains and losses that are small compared to the total actuarial liability, the plan's actuarial assumptions are considered reasonable.
- The plan experienced an actuarial loss on plan assets. There was a loss of \$14.6 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 0.8 years.
- Other factors, such as actual contributions exceeding the expected amount and the one-year decrease in the amortization period due to the passing of time, decreased the amortization period by 1.4 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 \$22.1 million and \$26.3 million respectively as of July 1, 2005.

The contribution rates are reasonable and will adequately fund the expected benefit payments for FY 2007. The balance of this section presents summarized information regarding plan trends, details on the 2004/2005 experience, and tables presenting a summary of the principal results.

## BOARD SUMMARY

### 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, 2005. 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, 2005 slightly exceeds the market value. The amount of this excess is \$1.1 million. This results from the asset smoothing technique deferring more investment losses than investment gains.

For the plan year ending July 1, 2005, the plan earned 6.6%<sup>1</sup> on a market value basis and 6.7% on an actuarial value basis. These returns resulted in the market value of assets being \$18.2 million less than expected and an investment loss of \$14.6 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, 2004 value	\$ 2,619,169	\$ 2,616,835
Employer Contributions	87,347	87,347
Member Contributions	58,802	58,802
Transfer of Assets	2,067	2,067
Benefit Payments and Expenses	(164,982)	(164,982)
Expected Investment Earnings (7.25%)	189,282	189,113
Expected Value July 1, 2005	2,791,685	2,789,182
Investment Gain (Loss)	(18,170)	(14,576)
July 1, 2005 value	\$ 2,773,515	\$ 2,774,606

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

## BOARD SUMMARY

### 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 2005, the plan experienced an actuarial gain on liabilities of **\$27.5 million**, which is 0.9% of the total actuarial liability.

Liabilities (In Millions)	Total Value of Future Benefits	Actuarial Liability
July 1, 2004	\$ 3,863	\$ 2,985
July 1, 2005	\$ 4,071	\$ 3,174

### 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, 2004 and July 1, 2005 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, 2004 net unfunded / (surplus)	\$ 368	87.7%
July 1, 2005 net unfunded / (surplus)	\$ 399	87.4%

## BOARD SUMMARY

### 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, 2004 and 2005.

There was an overall increase in membership during the year.

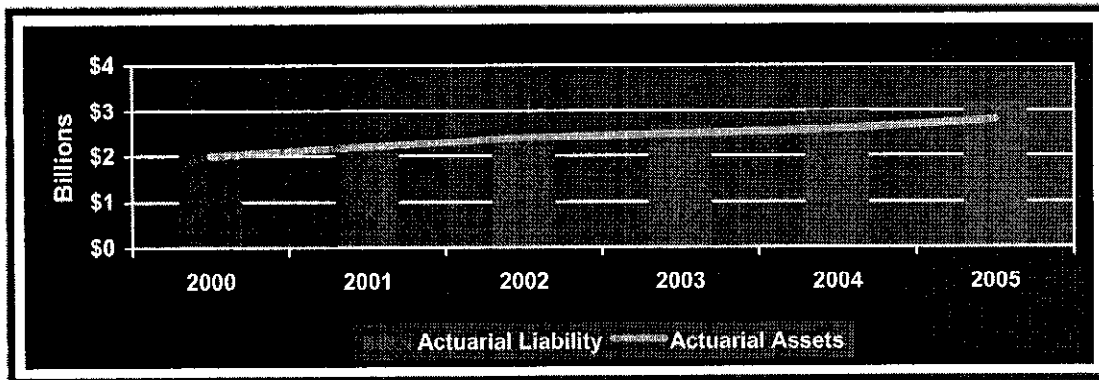
	7/1/2005	7/1/2004	Change
Active Members	23,795	23,734	0.3%
Inactive Members	10,207	9,597	6.4%
Retired Members and Beneficiaries	9,661	9,056	6.7%
Total Members	43,663	42,387	3.0%

### Trends

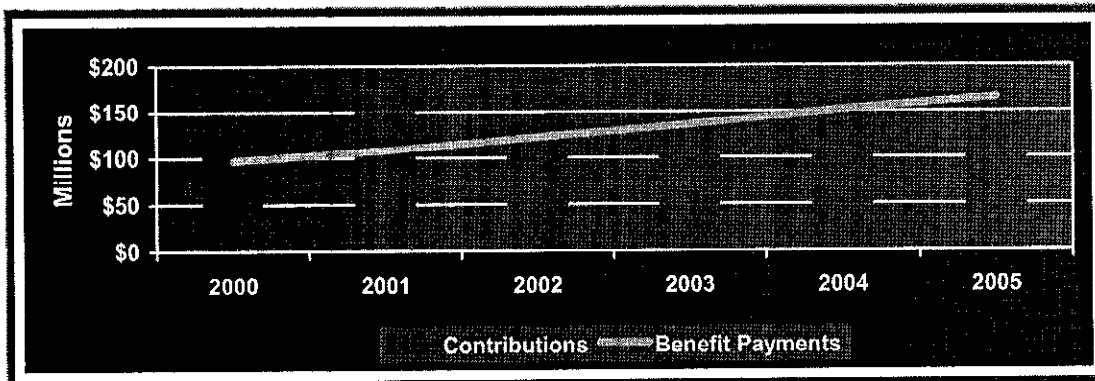
To truly understand the financial condition of the pension plan, a review of the prior years' funded status is helpful in seeing the big picture and general trend evolving. Below, we present three charts that present trend information from past years through 2005.

The first graph shows an increase 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 five 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 15 years over the five-year period consistent with the information shown in the first graph.

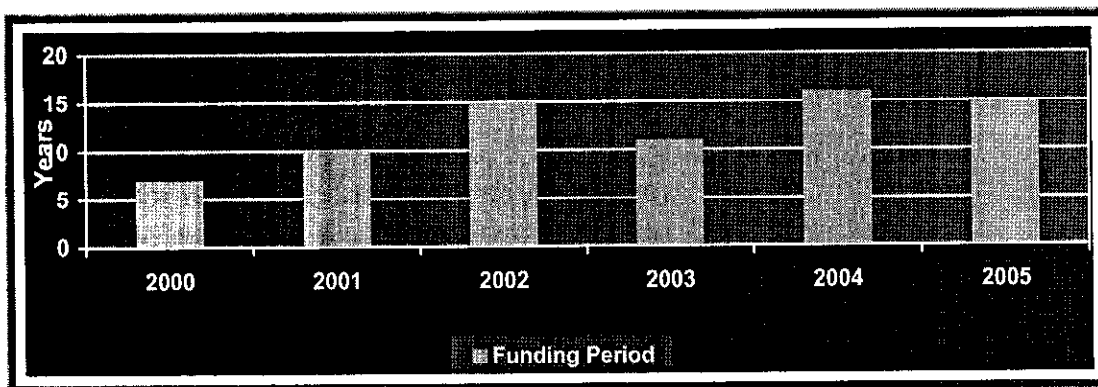
## Assets and Liabilities



## Cash Flows



## Unfunded Actuarial Liability Funding Period





## BOARD SUMMARY

PRINCIPAL RESULTS		
	July 1, 2005	July 1, 2004
<b>Membership</b>		
Number of:		
Active Members	23,795	23,734
Retirees and Beneficiaries	9,661	9,056
Inactive Members	10,207	9,597
Total	42,663	42,387
Payroll	\$ 851 million	\$ 822 million
<b>Statutory Contribution Rate (Including Group Insurance)</b>		
Member	6.50%	6.50%
Employer		
Retirement Contribution	10.30%	10.30%
Group Life Contribution	0.20%	0.20%
Accidental Death Contribution	0.20%	0.20%
Total	10.70%	10.70%
<b>Assets</b>		
Market Value	\$ 2.77 billion	\$ 2.62 billion
Actuarial Value	\$ 2.77 billion	\$ 2.62 billion
Return on Market Value	6.6%	8.6%
Return on Actuarial Value	6.7%	4.5%
Ratio of Actuarial to Market Value	100.0%	99.9%
<b>Actuarial Information</b>		
Employer Normal Cost %	7.12%	7.19%
Unfunded Actuarial Liability (UAL)	\$ 399 million	\$ 368 million
Funded Ratio	87.4%	87.7%
Funding Period	15 years	16 years
<b>Change in Unfunded Actuarial Liability (in millions)</b>		
Beginning of Year Unfunded Actuarial Liability	\$ 367.7	\$ 233.5
Interest on Unfunded Actuarial Liability	26.7	16.9
Amortization Payment	(31.5)	(28.4)
Asset Experience	14.6	68.0
Salary Experience	3.0	(19.0)
Other Liability Experience	(30.5)	50.9
COLA	50.3	20.2
Benefit Changes	(1.0)	0.0
Assumption/Method Changes	0.0	25.6
Total Increase / (Decrease)	31.6	134.2
End of Year Unfunded Actuarial Liability	\$ 399.3	\$ 367.7

## **Section II**

### **Assets**

## ASSETS

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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 2005 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, 2005 valuation.

# ASSETS

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

PLAN YEAR ENDING JUNE 30,

Item	2005	2004	2003	2002
1. Market Value of Assets at Beginning of Year	\$ 2,619,169	\$ 2,420,469 <sup>1</sup>	\$2,236,350	\$2,197,795
2. Net External Cash Flow During the Year	(16,766)	(8,311)	5,063	21,667
3. Market Value of Assets at End of Year	2,773,515	2,619,169	2,461,222	2,236,350
4. Actual Investment Income During the Year Based on Market Value:	171,112	207,011	219,809	16,888
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:	189,890	175,484	162,135	159,340
(5) x (1)	(608)	(301)	184	786
b. Net External Cash Flow: (5) x .5 x (2)				
c. Total: (a) + (b)	189,282	175,183	162,319	160,126
7. Excess Investment Income for Year: (4) - (6)	(\$ 18,170)	\$ 31,828	\$ 57,490	(\$ 143,238)

All dollar amounts are in thousands.

<sup>1</sup> 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, 2005
1. Excess (Shortfall) of Investment Income for Current Year and Previous Three Years	
a. Current Year	\$ (18,170)
b. Current Year - 1	31,828
c. Current Year - 2	57,490
d. Current Year - 3	(143,238)
2. Deferral of Excess (Shortfall) of Investment Income for:	
a. Current Year (80% Deferral)	\$ (14,536)
b. Current Year - 1 (60% Deferral)	19,097
c. Current Year - 2 (40% Deferral)	22,996
d. Current Year - 3 (20% Deferral)	<u>(28,648)</u>
e. Total Deferred for Year	\$ (1,091)
3. Market Value of Plan Assets, End of Year	\$ 2,773,515
4. Preliminary Actuarial Value of Plan Assets, End of Year (Item 3 - Item 2.e.)	\$ 2,774,606
5. Actuarial Value of Assets Corridor	
a. 80% of Market Value of Assets, End of Year	\$ 2,218,812
b. 120% of Market Value of Assets, End of Year	\$ 3,328,218
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.)	\$ 2,774,606

All dollar amounts are in thousands

# **Section III**

## **Valuation Results**

## 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 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 and 0.20% of pay contribution for accidental death.

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, 2005 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 and the 0.20% contribution for accidental death is sufficient to fund the unfunded actuarial liability over 15 years. Changes from last year include:

- The number of active members increased 0.3% and payroll of active members increased by 3.4%.
- The number of retirees increased 6.7%. Retirees received a 3.4% COLA effective July 1, 2005. Including the COLA, the total benefit amount for retirees increased 9.8%
- The funding period for the unfunded actuarial liability decreased from 16 years to 15 years.

# VALUATION RESULTS

TABLE III-1		
VALUATION BALANCE SHEET		
	JULY 1, 2005	JULY 1, 2004
<b>Assets</b>		
1. Current Assets (Actuarial Value)		
a. Employee Annuity Savings Fund	\$ 585,701	\$ 548,699
b. Employer Annuity Accumulation Fund	<u>2,188,905</u>	<u>2,068,136</u>
c. Total Current Assets	\$ 2,774,606	\$ 2,616,835
2. Present Value of Future Member Contributions	\$ 436,604	\$ 425,174
3. Present Value of Future Employer Contributions		
a. Normal Cost Contributions	\$ 460,051	\$ 453,461
b. Accrued Liability Contributions	<u>399,324</u>	<u>367,749</u>
c. Total Future Employer Contributions	\$ 859,375	\$ 821,210
4. Total Assets	<u>\$ 4,070,585</u>	<u>\$ 3,863,219</u>
<b>Liabilities</b>		
1. Employee Annuity Savings Fund		
a. Past Member Contributions	\$ 585,701	\$ 548,699
b. Present Value of Future Member Contributions	<u>436,604</u>	<u>425,174</u>
c. Total Contributions to Employee Annuity Savings Fund	\$ 1,022,305	\$ 973,873
2. Employer Annuity Accumulation Fund		
a. Benefits Currently in Payment	\$ 1,530,199	\$ 1,415,627
b. Benefits to be Paid to Current Active Members (included vested terminated members)	<u>1,518,081</u>	<u>1,473,719</u>
c. Total Benefits Payable from Employer Annuity Accumulation Fund	\$ 3,048,280	\$ 2,889,346
3. Total Liabilities	<u>\$ 4,070,585</u>	<u>\$ 3,863,219</u>

All dollar amounts are in thousands.



# VALUATION RESULTS

TABLE III-2		
SUMMARY OF ACTUARIAL VALUATION RESULTS		
	JULY 1, 2005	JULY 1, 2004
<b>Number of Active Members and Compensation</b>		
Active Members		
Number	23,795	23,734
Compensation	\$ 850,610	\$ 822,448
Rehired Retired Members		
Number	1,221	1,038
Compensation	\$ 39,182	\$ 31,773
<b>Number of Persons Receiving Benefits and Benefits</b>		
Total Number Receiving Benefits	9,661	9,056
Total Amount of Benefits	\$ 160,756	\$ 146,348
<b>Trust Fund Assets</b>		
Market Value	\$ 2,773,515	\$ 2,619,169
Actuarial Value	\$ 2,774,606	\$ 2,616,835
<b>Unfunded Actuarial liability (UAL)</b>		
Amount	\$ 399,324	\$ 367,749
Remaining Years in Amortization Period	15	16
<b>Required Contribution as a Percent of Compensation</b>		
Normal Cost Contribution	7.12%	7.19%
UAAL Contribution	3.18%	3.11%
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, 2005	JULY 1, 2004
1. Actuarial Present Value of Future Benefits		
a. Present Retired Members and Beneficiaries	\$ 1,530,199	\$ 1,415,627
b. Present Active and Inactive Members	<u>2,540,386</u>	<u>2,447,592</u>
c. Total Actuarial Present Value	\$ 4,070,585	\$ 3,863,219
2. Present Value of Future Normal Contributions		
a. Employees	\$ 436,604	\$ 425,174
b. Employer	<u>460,051</u>	<u>453,461</u>
c. Total Future Normal Contributions	\$ 896,655	\$ 878,635
3. Actuarial liability	\$ 3,173,930	\$ 2,984,584
4. Current Actuarial Value of Assets	\$ 2,774,606	\$ 2,616,835
5. Unfunded Actuarial liability	\$ 399,324	\$ 367,749
6. Unfunded Actuarial Liability Rate	3.18%	3.11%
7. Unfunded Actuarial Liability Liquidation Period	15 years	16 years

All dollar amounts are in thousands.

# **Section IV**

## **Accounting Statement Information**

## 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, 2005 are exhibited in Table IV-1 and compared with amounts as of July 1, 2004. Table IV-2 shows the schedule of funding progress as required by GASB Statement #25.

TABLE IV-1 ACCOUNTING STATEMENT INFORMATION		
	July 1, 2005	July 1, 2004
1. Actuarial Liabilities for Retirees and Beneficiaries Currently Receiving Benefits and Terminated Employees Not Yet Receiving Benefits.	\$ 1,628,606	\$ 1,518,381
2. Actuarial Liabilities for Current Employees	<u>1,545,324</u>	<u>1,466,203</u>
3. Total Actuarial Liability (1 + 2)	\$ 3,173,930	\$ 2,984,584
4. Net Actuarial Assets Available for Benefits	\$ 2,774,606	\$ 2,616,835
5. Unfunded Actuarial Liability (3 - 4)	\$ 399,324	\$ 367,749

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, 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%
July 1, 1996	291	20,461	505,516	24,706	2.20%

## Schedule of Retirees 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	Number Payroll	Annual Allowances	Number	Annual Allowances		
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
July 1, 1996	415	5,866	100	791	4,862	59,885	9.3%	12,317

# 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, 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%
July 1, 1996	1,367,549	1,427,785	95.8%	60,236	505,516	11.9%

## Solvency Test

Valuation Date	Active Member Contributions	Retirees & Beneficiaries	Active Members (Employer Funded Portion)	Valuation Assets	Portion of Aggregate Accrued Liabilities Covered by Assets
July 1, 2005	\$ 585,701	\$ 1,530,199	\$ 1,058,030	\$ 2,774,606	100.0%
July 1, 2004	548,699	1,415,627	1,020,258	2,616,835	100.0%
July 1, 2003	516,313	1,265,173	963,363	2,511,369	100.0%
July 1, 2002	492,178	1,136,998	898,700	2,351,100	100.0%
July 1, 2001	464,217	977,769	882,271	2,197,982	100.0%
July 1, 2000	427,449	844,631	823,911	2,008,554	100.0%
July 1, 1999	389,456	783,042	725,739	1,844,517	100.0%
July 1, 1998	352,424	702,155	678,999	1,684,641	100.0%
July 1, 1997	314,217	645,356	611,243	1,512,390	100.0%
July 1, 1996	284,655	565,405	577,726	1,367,549	100.0%

All dollar amounts are in thousands

## ACCOUNTING STATEMENT INFORMATION

<b>RETIRED MEMBERS AND BENEFICIARIES</b> <b>AS OF JULY 1, 2005</b>		
<b>Group</b>	<b>Number</b>	<b>Annual Retirement Allowances</b>
<b>Service Retirements:</b>		
Employees:		
Men	6,164	\$ 113,832,511
Women	<u>1,086</u>	<u>12,774,314</u>
Total	7,252	\$ 126,606,825
<b>Disability Retirements:</b>		
Employees:		
Men	1,132	\$ 20,218,981
Women	<u>305</u>	<u>3,885,207</u>
Total	1,437	\$ 24,104,188
<b>Beneficiaries of Deceased Retired Members and Active Members</b>		
Men	30	\$ 244,876
Women	<u>942</u>	<u>9,799,754</u>
Total	972	\$ 10,044,630
Grand Total	9,661	\$ 160,755,643

# **Section V**

## **Membership Information**



## MEMBERSHIP INFORMATION

TABLE V-1 NUMBER OF ANNUAL RETIREMENT ALLOWANCES OF BENEFIT RECIPIENTS AS OF JULY 1, 2005		
	NUMBER	ANNUAL RETIREMENT ALLOWANCES
<b>Retirement</b>		
a. Service Retirement		
Life Annuity	3,994	\$ 65,719,731
100% J & S	228	3,071,952
100% Pop-up	685	9,895,015
50% J & S	203	4,594,310
50% Pop-up	782	17,323,459
Level Income	<u>1,360</u>	<u>26,002,358</u>
Total	7,252	\$126,606,825
b. Disability Retirement		
Life Annuity	1,144	\$19,851,838
100% J & S	66	751,498
100% Pop-up	95	1,183,722
50% J & S	42	613,674
50% Pop-up	<u>90</u>	<u>1,703,456</u>
Total	1,437	\$ 24,104,188
<b>Beneficiaries of Deceased Retired Members and Active Members</b>		
c. Total	972	\$ 10,044,630
<b>Total</b>		
<b>GRAND TOTAL</b>	<b>9,661</b>	<b>\$ 160,755,643</b>

# 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	1,350 \$ 26,586	11 \$ 30,183							1,361 \$ 26,714
25 - 29	2,531 \$ 30,147	681 \$ 34,062	6 \$ 36,771						3,218 \$ 30,988
30 - 34	1,671 \$ 30,841	1,840 \$ 35,355	496 \$ 39,101	5 \$ 39,071	9 \$ 50,573				4,012 \$ 33,943
35 - 39	1,225 \$ 30,515	1,117 \$ 35,499	1,251 \$ 39,529	447 \$ 43,334	334 \$ 47,792				4,049 \$ 36,135
40 - 44	932 \$ 30,443	759 \$ 34,351	682 \$ 39,080	1,047 \$ 43,589	499 \$ 49,402	11 \$ 57,910			3,765 \$ 38,070
45 - 49	660 \$ 31,202	667 \$ 34,742	490 \$ 38,999	585 \$ 40,795	141 \$ 46,023	152 \$ 56,396			3,042 \$ 39,232
50 - 54	520 \$ 32,742	527 \$ 34,620	408 \$ 39,292	376 \$ 41,024	230 \$ 46,328	105 \$ 52,817	36 \$ 64,329		2,249 \$ 39,235
55 - 59	343 \$ 32,703	343 \$ 34,853	258 \$ 37,736	263 \$ 40,402	105 \$ 46,328	52 \$ 52,817	53 \$ 58,272	5 \$ 77,460	1,422 \$ 38,411
60 - 64	143 \$ 33,251	136 \$ 37,089	90 \$ 37,740	98 \$ 40,467	50 \$ 44,224	19 \$ 49,788	5 \$ 56,015	6 \$ 81,245	547 \$ 38,549
65 & Over	28 \$ 28,432	34 \$ 43,044	27 \$ 42,843	18 \$ 40,428	9 \$ 51,986	8 \$ 55,865	2 \$ 52,613	4 \$ 64,909	130 \$ 41,721
TOTAL	9,403 \$ 30,204	6,115 \$ 35,026	3,708 \$ 39,145	2,839 \$ 42,202	1,236 \$ 47,895	383 \$ 55,714	96 \$ 60,308	15 \$ 75,627	23,795 \$ 35,747

	Prior Year	Current Year
Average Age	39.22 years	39.53 years
Average Service	8.23 years	8.22 years
Average Pay	\$ 34,653	\$ 35,747
Percent Female	25.0%	25.5%

# MEMBERSHIP INFORMATION

**TABLE V-3**  
**DISTRIBUTION OF PARTICIPANTS RECEIVING BENEFITS**  
**SERVICE RETIREMENT**

Current Age Group	Number	Total Annual Benefit	Average Annual Benefit
Under 50	1,195	\$ 26,960,657	\$ 22,561
50 - 54	1,553	31,927,660	20,559
55 - 59	1,468	24,615,701	16,768
60 - 64	1,230	17,133,140	13,929
65 - 69	886	12,687,058	14,319
70 - 74	534	7,641,079	14,309
75 - 79	257	4,064,350	15,815
80 & Over	129	1,577,179	12,226
Total	7,252	\$ 126,606,825	\$ 17,458

## DISABILITY RETIREMENT

Current Age Group	Number	Total Annual Benefit	Average Annual Benefit
Under 50	567	\$ 10,641,752	\$ 18,769
50 - 54	299	5,183,369	17,336
55 - 59	277	4,000,330	14,442
60 - 64	151	2,142,046	14,186
65 - 69	68	1,083,836	15,939
70 - 74	41	600,566	14,648
75 - 79	21	290,171	13,818
80 & Over	13	162,118	12,471
Total	1,437	\$ 24,104,188	\$16,774

## BENEFICIARIES

Current Age Group	Number	Total Annual Benefit	Average Annual Benefit
Under 50	120	\$1,167,322	\$ 9,728
50 - 54	55	642,067	11,674
55 - 59	86	932,228	10,840
60 - 64	95	965,316	10,161
65 - 69	128	1,414,380	11,050
70 - 74	139	1,646,310	11,844
75 - 79	141	1,339,377	9,499
80 & Over	208	1,937,631	9,316
Total	972	\$ 10,044,630	\$ 10,334

# **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:

Age	HEALTHY		DISABLED
	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.

## ACTUARIAL ASSUMPTIONS

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### 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**

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### **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**

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## SUMMARY OF PLAN PROVISIONS

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### 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, 1997, 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

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- 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. Active Group Life Insurance only payable to those with at least 1 year of creditable service, unless death is job related, and employer participates.

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**

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### **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**

- Rehired retirees continue to contribute at the same rate as employees.
- Beginning 7/1/2005, the interest on employee contributions is credited at 4% per annum which is a reduction from the 6% rate credited in prior years.