

**ACTUARIAL VALUATION**

**South Carolina Police Officers  
Retirement System  
(PORS)**

**As of July 1, 2000**

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January 25, 2001

State Budget and Control Board  
South Carolina Police Officers Retirement System  
Columbia, South Carolina 29211

Gentlemen:

**Subject: July 1, 2000 Actuarial Valuation for PORS**

This report constitutes the July 1, 2000 actuarial valuation for the South Carolina Police Officers Retirement System (PORS). The report includes this commentary and a series of actuarial tables and summaries of the plan provisions and methods and assumptions.

#### **Basic Contribution Requirements**

Our valuation finds the PORS in good actuarial condition. The current plan benefits are adequately funded by the current contribution levels which consist of employee contributions of 6.5% and employer contributions of 10.30% for Class II members.

The employer contribution rates are also reasonably split between 8.43% for normal cost contributions and the remainder for amortization of the unfunded liability for Class II members. With these amortization payments, the current unfunded liability will be eliminated in 7 years. Based on the previous actuarial valuation, the unfunded liability was expected to be eliminated in 5 years.

Our determination of the System's liabilities do not reflect any changes to the calculation of Average Final Compensation as currently administered and contrary to the plaintiff's interpretation in the Kennedy court case.

We have also determined that the Group Life Insurance employer contribution of 0.20% and the accidental death benefit employer contribution of 0.20% are both reasonable and will adequately fund the expected benefit payments. The separate funds for these benefits have built sufficient reserves.

#### **Changes in System Benefits, Actuarial Assumptions and Methods**

This actuarial valuation reflects the current provisions of the System as outlined on Table X. The provisions have remained the same since the last actuarial valuation.



The actuarial assumptions and methods are outlined on Table IX. These assumptions and methods have remained the same as those employed in the July 1, 1999 actuarial report.

#### Valuation Data

This valuation was based on approximately 24,800 active members with a payroll of \$716.7 million. This represents an increase in the number of active members of about 7.2% and an increase of 12.3% in covered payroll since the previous year's valuation.

The number of people receiving benefits increased since the last valuation by about 6.7%. The annual benefits being paid increased by about 10.4%. This takes into account the 2.7% COLA that was effective July 1, 2000.

#### Valuation Assets

The market value of the PORS assets as of July 1, 2000 was \$2.01 billion. The comparable figure one-year before was \$1.89 billion. The market value rate of investment return on assets for the 1999/2000 year was 4.9%.

For purposes of the actuarial valuation, we are using an actuarial value of assets that phases-in investment return different than the assumed 7.25% rate over a 5-year period. This actuarial value as of July 1, 2000 was \$2.01 billion as compared to \$1.84 billion the previous year. The estimated rate of return on an actuarial value basis was 7.3%.

#### Unfunded Liability and Experience Factors

After recognizing the actuarial value of assets, the unfunded liability as of July 1, 2000 was \$87.4 million. There was an increase in unfunded liability of \$33.7 million. The factors causing the increase (in millions) are:

Required amortization payment	\$ (8.0)
Asset experience	(0.3)
Salary experience	43.1
Other experience	<u>(1.1)</u>
Net change	\$ 33.7



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### Governmental Accounting Standards Board (GASB) Calculations

Our report includes information that is required by GASB. As of the last valuation the funded ratio was 97.2%. The current value is 95.8%. In addition, the unfunded liability as a percentage of covered payroll has increased from 8.4% to 12.2%.

### Census Data and System Assets

The Retirement System staff provided the asset information and the member data for retired, active and inactive participants as of June 30, 2000. We have not subjected this data to any auditing procedures, but have examined the data for reasonableness and consistency with the prior year's data.

### Conclusions

In our opinion, the information contained in this actuarial report fairly represents the actuarial condition of the South Carolina Police Officers Retirement System.

We look forward to reviewing this report with the State Budget and Control Board and the Director and staff of the Retirement System.

Sincerely,

W. Michael Carter, FSA  
Vice President

John J. Garrett, Jr., ASA  
Actuary

Terry J. McFadden, FSA  
Actuary

Enclosure

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Table I

# South Carolina Police Officers Retirement System (PORS)

## Summary of Actuarial Valuation Results

	July 1, 2000 (1)	July 1, 1999 (2)
<b>1. <u>Number of Active Members and Compensation</u></b>		
a. Total number of active members	24,782	23,127
b. Total compensation	\$ 716,749	\$ 638,086
<b>2. <u>Number of Persons Receiving Benefits and Benefits</u></b>		
a. Total number receiving benefits	6,322	5,925
b. Total amount of benefits	\$ 89,146	\$ 80,749
<b>3. <u>Trust Fund Assets</u></b>		
a. Market value	\$ 2,009,860	\$1,890,526
b. Actuarial value	\$ 2,008,554	\$1,844,517
<b>4. <u>Unfunded Actuarial Accrued Liability (UAAL)</u></b>	\$ 87,437	\$ 53,720
<b>5. <u>Remaining Liquidation Period (Years)</u></b>	7	5
<b>6. <u>Required Contribution as a Percent of Compensation (Class II)</u></b>		
a. Normal cost contribution	8.43%	8.43%
b. UAAL contribution	1.87%	1.87%
c. Pre-retirement death contribution	0.20%	0.20%
d. Accidental death contribution	0.20%	0.20%
e. Total	10.70%	10.70%

All dollar amounts in thousands



Table II

# South Carolina Police Officers Retirement System (PORS)

## Determination and Amortization of Unfunded Liability

### 1. Actuarial Present Value of Future Benefits

a. Present retired members and beneficiaries	\$ 844,631
b. Present active and inactive members	<u>2,226,228</u>
c. Total actuarial present value	\$ 3,070,859

### 2. Present Value of Future Normal Cost Contributions

a. Employee at 6.50%	\$ 424,423
b. Employer at 8.43%	<u>550,445</u>
c. Total future normal cost contributions	\$ 974,868

### 3. Actuarial Accrued Liability (= 1.c. - 2.c.)

\$ 2,095,991

### 4. Current Actuarial Value of Assets

\$ 2,008,554

### 5. Unfunded Actuarial Accrued Liability (= 3. - 4.)

\$ 87,437

### 6. Unfunded Actuarial Accrued Liability Rates (Class II)

1.87%

### 7. Unfunded Actuarial Accrued Liability Liquidation Period

7 years

*All dollar amounts in thousands*



Table III

**South Carolina Police Officers Retirement System (PORS)**

**Development of Actuarial Value of Assets**

1. <b><u>Actuarial Value of Assets on July 1, 1999</u></b>	\$ 1,844,517
2. <b><u>1999/2000 Net Cash Flow</u></b>	
a. Contributions	124,087
b. Disbursements	<u>(95,153)</u>
c. Net Cash Flow	\$ 28,934
3. <b><u>Expected Investment Return</u></b> [1. x .0725] + [2.c. x .03625]	\$ 134,776
4. <b><u>Expected Actuarial Value of Assets on July 1, 2000</u></b> (1. + 2.c. + 3.)	\$ 2,008,227
5. <b><u>Market Value of Assets on July 1, 2000</u></b>	\$ 2,009,860
6. <b><u>Excess of Market Value over Expected Actuarial Value</u></b> (5. - 4.)	\$ 1,633
7. <b><u>20% Adjustment towards Market</u></b> (.20 x 6.)	\$ 327
8. <b><u>Actuarial Value of Assets on July 1, 2000</u></b> (4. + 7.)	<u>\$ 2,008,554</u>

*All dollar amounts in thousands*





Table IV

# South Carolina Police Officers Retirement System (PORS)

## Accounting Information

### 1. Number of Active and Retired Members as of July 1, 2000

<u>Group</u>	<u>Number</u>
Retiree and Beneficiaries Currently Receiving Benefits	6,322
Terminated Employees Entitled to Benefits But not yet Receiving Benefits	7,218
Active Members	<u>24,782</u>
Total	<u><u>38,322</u></u>

### 2. Schedule of Funding Progress

<u>Actuarial Valuation Date</u>	<u>Actuarial Value of Assets</u>	<u>Actuarial Accrued Liability (AAL)</u>	<u>Unfunded AAL (UAAL) (b - a)</u>	<u>Funded Ratio (a / b)</u>	<u>Covered Payroll (e)</u>	<u>UAAL as a Percentage of Covered Payroll (c / e)</u>
(a)	(b)	(c)	(d)	(e)	(f)	
07/01/2000	\$2,008,554	\$ 2,095,991	\$87,437	95.8%	\$ 716,749	12.2%
07/01/1999	1,844,517	1,898,237	53,720	97.2%	638,086	8.4%
07/01/1998	1,684,641	1,733,578	48,937	97.2%	606,426	8.1%
07/01/1997	1,512,390	1,570,816	58,426	96.3%	562,553	10.4%
07/01/1996	1,367,549	1,427,785	60,236	95.8%	505,516	11.9%
07/01/1995	1,236,610	1,299,119	62,509	95.2%	475,176	13.2%

*All dollar amounts in thousands*



Table IV  
(continued)

3. Assumptions and Methods

Valuation date	July 1, 2000
Actuarial cost method	Entry-Age-Normal
Amortization method	Level percent open
Remaining amortization period	7 years
Asset valuation method	5 year smoothed market
Actuarial assumptions	
Investment rate of return*	7.25%
Projected salary increases*	5.25% - 9.00%
*Including inflation at	3.75%
Cost-of-living adjustments	None



Table V

# South Carolina Police Officers Retirement System (PORS)

## Valuation Balance Sheet

	July 1, 2000 (1)	July 1, 1999 (2)
<b>1. <u>Assets</u></b>		
a. <u>Current Assets</u>		
i) Employee Annuity Savings Fund	\$ 427,449	\$ 389,456
ii) Employer Annuity Accumulation Fund	<u>1,581,105</u>	<u>1,455,061</u>
iii) Total Current Assets *	\$ 2,008,554	\$ 1,844,517
b. <u>Future Member Contributions to Employee Annuity Savings Fund</u>	\$ 424,423	\$ 380,511
c. <u>Prospective Contributions to Employer Annuity Accumulation Fund</u>		
i) Normal Contributions	\$ 550,445	\$ 493,494
ii) Accrued Liability Contributions	<u>87,437</u>	<u>53,720</u>
iii) Total Prospective Employer Contributions	\$ 637,882	\$ 547,214
d. <u>Total Assets</u>	<u>\$ 3,070,859</u>	<u>\$ 2,772,242</u>
<b>2. <u>Liabilities</u></b>		
a. <u>Employee Annuity Savings Fund</u>		
i) Past Member Contributions	\$ 427,449	\$ 389,456
ii) Future Member Contributions	<u>424,423</u>	<u>380,511</u>
iii) Total Contributions to Employee Annuity Savings Fund	\$ 851,872	\$ 769,967
b. <u>Employer Annuity Accumulation Fund</u>		
i) Benefits Currently in Payment	\$ 844,631	\$ 783,042
ii) Benefits to be Paid to Current Active Members	<u>1,374,356</u>	<u>1,219,233</u>
iii) Total Benefits Payable from Employer Annuity Accumulation Fund	\$ 2,218,987	\$ 2,002,275
c. <u>Total Liabilities</u>	<u>\$ 3,070,859</u>	<u>\$ 2,772,242</u>

All dollar amounts in thousands



Table VI

# South Carolina Police Officers Retirement System (PORS)

Number and Annual Retirement Allowances of Benefit Recipients as of July 1, 2000

	<u>Number</u> (1)	<u>Annual Retirement Allowances</u> (2)
<b>1. <u>Service Retirement</u></b>		
Life Annuity	1,962	\$ 23,478,468
100% J & S	289	3,364,296
100 % Pop-Up	262	3,291,108
50% J & S	243	4,492,980
50% Pop-Up	371	7,199,892
Level Off	<u>1,395</u>	<u>26,227,980</u>
	4,522	\$ 68,054,724
<b>2. <u>Disability Retirement</u></b>		
Life Annuity	771	\$ 11,274,033
100% J & S	90	864,479
100 % Pop-Up	38	425,063
50% J & S	50	660,924
50% Pop-Up	<u>60</u>	<u>1,032,755</u>
	1,009	\$ 14,257,254
<b>3. <u>Beneficiaries of Deceased Retired Members and Active Members</u></b>		
Total	791	\$ 6,833,976
<b>4. <u>Grand Total</u></b>	<u><u>6,322</u></u>	<u><u>\$ 89,145,954</u></u>



Table VII

## South Carolina Police Officers Retirement System (PORS)

Distribution of Active Members by Age Groups and Service Groups as of July 1, 2000

<u>Age Group</u>	<u>Years of Service</u>							<u>Total</u>
	<u>0-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30 &amp; Over</u>	
Under 25	1,468	8	.	.	.	.	.	1,476
25 - 29	3,287	865	21	.	.	.	.	4,173
30 - 34	2,074	1,720	718	7	.	.	.	4,519
35 - 39	1,319	949	1,256	451	12	.	.	3,987
40 - 44	1,137	631	777	650	295	13	.	3,503
45 - 49	850	564	543	333	442	208	6	2,946
50 - 54	619	449	506	249	224	265	71	2,383
55 - 59	320	220	276	146	96	89	52	1,199
60 - 64	101	106	113	56	40	30	30	476
65 & Up	<u>30</u>	<u>27</u>	<u>23</u>	<u>13</u>	<u>16</u>	<u>4</u>	<u>7</u>	<u>120</u>
Total	11,205	5,539	4,233	1,905	1,125	609	166	24,782

  

<u>Prior Year</u>		<u>Current Year</u>	
Average Age	38.21 years	38.45 years	
Average Service	7.67 years	7.45 years	
Average Pay	\$27,591	\$28,922	
Percent Female	23.3%	25.6%	

Table VIII

# South Carolina Police Officers Retirement System (PORS)

## Distribution of Participants Receiving Benefits

### 1. Service Retirement

<u>Current Age Group</u> (1)	<u>Number</u> (2)	<u>Total Annual Benefit</u> (3)	<u>Average Annual Benefit</u> (4)
Under 50	173	\$ 3,271,788	\$ 18,912
50 - 54	451	10,008,804	22,192
55 - 59	722	13,392,684	18,549
60 - 64	900	13,030,572	14,478
65 - 69	913	11,584,584	12,688
70 - 74	686	8,424,876	12,281
75 - 79	371	5,002,548	13,484
80 & Over	<u>306</u>	<u>3,338,868</u>	<u>10,911</u>
Total	4,522	\$ 68,054,724	\$ 15,050

### 2. Disability Retirement

<u>Current Age Group</u> (1)	<u>Number</u> (2)	<u>Total Annual Benefit</u> (3)	<u>Average Annual Benefit</u> (4)
Under 50	406	\$ 6,379,618	\$ 15,713
50 - 54	223	3,220,775	14,443
55 - 59	179	2,213,300	12,365
60 - 64	86	1,120,085	13,024
65 - 69	52	621,018	11,943
70 - 74	29	337,321	11,632
75 - 79	25	287,802	11,512
80 & Over	<u>9</u>	<u>77,335</u>	<u>8,593</u>
Total	1,009	\$ 14,257,254	\$ 14,130

### 3. Beneficiaries

<u>Current Age Group</u> (1)	<u>Number</u> (2)	<u>Total Annual Benefit</u> (3)	<u>Average Annual Benefit</u> (4)
Under 50	85	\$ 696,504	\$ 8,194
50 - 54	61	540,540	8,861
55 - 59	64	585,396	9,147
60 - 64	86	885,624	10,298
65 - 69	102	1,071,096	10,501
70 - 74	122	1,038,384	8,511
75 - 79	116	899,304	7,753
80 & Over	<u>155</u>	<u>1,117,128</u>	<u>7,207</u>
Total	791	\$ 6,833,976	\$ 8,640



Table IX

## South Carolina Police Officers Retirement System (PORS)

### Outline of Actuarial Assumptions and Methods

#### 1. Interest to be Earned by Fund

7.25% per annum, compounded annually, composed of an assumed 3.75% inflation rate and a 3.50% real rate of return.

#### 2. Salary Increases

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

<u>Age</u>	<u>Annual Increases</u>	<u>Age</u>	<u>Annual Increases</u>
20	9.00%	45	5.25%
25	8.00%	50	5.25%
30	6.85%	55	5.25%
35	6.10%	60 & Up	5.25%
40	5.75%		

#### 3. Decrement Rates

The following are representative values of the assumed annual rates of withdrawal, in-service mortality, disability and service retirement

<u>Age</u>	<u>Annual Rate of</u>				
	<u>Service Retirement*</u>	<u>Mortality</u>	<u>Disability</u>	<u>Withdrawal</u>	
				<u>Years of Service</u>	
				<u>0 - 4</u>	<u>5 or more</u>
20		0.05%	0.10%	13.00%	7.00%
25		0.07%	0.12%	12.00%	7.00%
30		0.08%	0.16%	11.00%	4.25%
35		0.10%	0.30%	10.00%	4.00%
40		0.14%	0.40%	9.50%	2.90%
45	10.00%	0.20%	0.60%	9.00%	2.80%
50	10.00%	0.32%	0.75%	8.00%	2.00%
55	10.00%	0.50%			
60	15.00%	0.71%			
64	25.00%	1.02%			

\*Plus an additional 15% in year when first become eligible for unreduced service retirement.

In addition, 25% of disabilities are assumed to be duty related, and 5% of pre-retirement deaths are assumed to be accidental.



**Table IX**  
**(continued)**

**4. Mortality After Retirement**

For healthy retirees and beneficiaries, the 1983 Group Annuity Mortality Table rates set forward two years. A separate table of mortality rates is used for disabled retirees. The following are sample rates for the retirees and beneficiaries:

<u>Age</u>	<u>Healthy</u>		<u>Disabled</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
50	0.48%	0.19%	2.46%	2.46%
55	0.71%	0.31%	2.80%	2.80%
60	1.11%	0.52%	3.32%	3.32%
65	1.98%	0.87%	4.17%	4.17%
70	3.34%	1.62%	5.48%	5.48%
75	5.48%	3.07%	7.52%	7.52%
80	8.93%	5.27%	10.65%	10.65%
85	13.39%	8.39%	15.36%	15.36%

**5. Marriage Assumption**

100% of all active members are assumed to be married, with female spouses being 4 years younger.

**6. Asset Valuation Method**

Actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected value of assets, based on the assumed investment rate of return. The amount recognized each year is 20% of the difference between market and expected value. The actuarial value of assets is limited to a range between 80% and 120% of market value.

**7. Cost Methods**

a. Normal Retirement, Termination, Death and Disability Benefits

Projected benefit with level percentage entry age normal cost and open-end unfunded actuarial accrued liability. Gains and losses are reflected in the period remaining to liquidate the unfunded actuarial accrued liability.

b. Group Life Insurance and Accidental Death Benefits

One-year term cost method.





**Table IX**  
**(continued)**

**8. Additional Assumptions and Methods**

There are certain other assumption made that have a relatively minor effect on liabilities. These assumptions are available upon request.

**9. Cost-of-Living Increases**

None assumed.

**10. Payroll Growth Rate**

5.25% per annum

**11. Changes from Prior Valuation**

None.



Table X

## South Carolina Police Officers Retirement System (PORS)

### Outline of Principal Plan Provisions

1. Effective Date

July 1, 1962.

2. Eligibility Requirements

A police officer or firefighter who works 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 service that may be purchased by an employee under special rules, including educational leave, medical leave, federal service, maternity leave, military leave, municipality service, non-member service, out-of-state service, transfer of service for one system to another, and others.

4. Average Final Compensation

The total of the highest 12 consecutive quarters of compensation earned divided by 3. Denoted AFC. 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 member who joined the system on or after January 1, 1997, compensation for benefit and contribution purposes is limited to \$160,000, subject to annual index.

5. Normal Retirement

a. Eligibility

Attainment of age 55 and the 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).



**Table X**  
**(continued)**

**6. Early Retirement**

- a. Eligibility Completion of 5 years of creditable service.
- b. Benefit Retirement benefit based upon creditable service and AFC as of date of early retirement, commencing at age 55.

**7. Disability Retirement**

- a. Eligibility Disability prior to normal retirement age with at least 5 years of creditable service. The service requirement is waived for duty related disability.
- b. Benefit Benefit equal to the amount of retirement benefit that would have been payable assuming continued employment to age 55 and AFC at date of disability.

**8. 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 only payable to those with at least 1 year of creditable service, unless death is job related and whose 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 retired the day before death and elected payment to commence at age 55 under option 1 described below.

b. Death after age 55

Same as Item a.(ii) above.

**9. 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.

**Table X**  
**(continued)**

**10. Member Contributions**

6.5% of compensation.

**11. Vested Benefit upon Termination**

- |                       |  |
|-----------------------|--|
| a. <u>Eligibility</u> | 100% vesting upon completion of 5 years of creditable service.                     |
| b. <u>Benefit</u>     | Accrued service retirement benefit as of date of termination payable as of age 55. |

**12. Termination Benefit**

- |                       |   |
|-----------------------|---|
| a. <u>Eligibility</u> | Elect return of accumulated employee contributions. |
| b. <u>Benefit</u>     | Return of employee contributions plus interest.     |

**13. Normal Form of Retirement Income**

Monthly life annuity with guaranteed return of employee contributions plus interest.

**14. Optional Forms of Retirement Income**

- |                       |  |
|-----------------------|--|
| a. <u>Option 1</u>    | Monthly life annuity with 100% of reduced benefit continued to beneficiary upon death. |
| b. <u>Option 1(a)</u> | Same as option 1 with revert to maximum option if beneficiary predeceases retiree.     |
| c. <u>Option 2</u>    | Monthly life annuity with 50% of reduced benefit continued to beneficiary upon death.  |
| d. <u>Option 2(a)</u> | Same as option 2 with revert to maximum option if beneficiary predeceases retiree.     |

**15. 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%.