

**REPORT ON THE SIXTIETH ANNUAL VALUATION
OF THE TEACHERS' AND STATE EMPLOYEES'
RETIREMENT SYSTEM OF NORTH CAROLINA
PREPARED AS OF DECEMBER 31, 2002**

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September 26, 2003

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Retirement System of North Carolina
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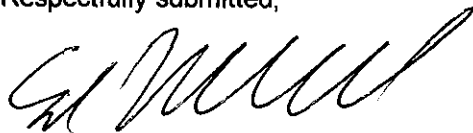
We submit herewith our report on the sixtieth annual valuation of the Teachers' and State Employees' Retirement System of North Carolina prepared as of December 31, 2002. The report has been prepared in accordance with North Carolina General Statute 135-6(o).

The system was amended effective July 1, 2003 to provide a 1.28% increase in the benefit to beneficiaries on the roll as of July 1, 2002 and to provide a prorated portion of a 1.28% increase for beneficiaries who retired after July 1, 2002 but before June 30, 2003. The cost of this amendment was covered by gains which developed during the 2001 valuation year.

The Appropriations Act of 2003 sets contributions at 2.05% of payroll effective for the fiscal year ending June 30, 2005. The valuation has been prepared in accordance with the parameters of Statement Nos. 25 and 27 of the Governmental Accounting Standards Board. The annual required contribution (ARC) under GASB for the 2004-2005 fiscal year is 1.64% of payroll which will liquidate the unfunded accrued liability within a 9-year period. On this basis, there is a preliminary reserve from undistributed gains equivalent to 0.41% of payroll. However, the System is owed 1.05% of employer contributions, the unpaid portion of the amount escrowed during the 2000/2001 fiscal year. Assuming that the undistributed gains are used to apply towards the amount owed to the System, there are no remaining undistributed gains to be used for benefit improvements.

The Table of Contents, which immediately follows, outlines the material contained in the report.

Respectfully submitted,



Edward A. Macdonald
Principal, Consulting Actuary

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**REPORT ON THE SIXTIETH ANNUAL VALUATION OF THE
TEACHERS' AND STATE EMPLOYEES' RETIREMENT SYSTEM OF NORTH CAROLINA
PREPARED AS OF DECEMBER 31, 2002**

SECTION I - SUMMARY OF PRINCIPAL RESULTS

1. This report, prepared as of December 31, 2002, presents the results of the sixtieth actuarial valuation of the system. For convenience of reference, the principal results of the valuation and a comparison with the preceding year's results are summarized below. The current valuation reflects the benefit increases granted to beneficiaries as of July 1, 2003 and amendments to the system effective through July 1, 2003.

**TABLE I
SUMMARY OF PRINCIPAL RESULTS**

VALUATION DATE	12/31/02	12/31/01
Active members included in valuation		
Number	296,377	297,252
Annual compensation	\$ 9,734,447,779	\$ 9,494,602,568
Beneficiaries		
Number	118,129	112,482
Annual allowances	\$ 2,004,346,901	\$ 1,825,374,227
Assets		
Actuarial value	\$ 43,226,837,217	\$ 42,104,086,026
Market value	40,584,635,407	44,082,657,056
Unfunded accrued liability	\$ (3,362,853,828)	\$ (4,390,422,826)
CONTRIBUTIONS FOR FISCAL YEAR ENDING	June 30, 2005	June 30, 2004
<u>Appropriations Act</u>		
Employer contribution rate		
Normal	6.81%	6.77%
Accrued liability	<u>(4.76)</u>	<u>(6.77)</u>
Total	2.05%	0.00%
Liquidation period	11 years	10 years
<u>GASB 25/27</u>		
Annual required contribution (ARC) of employer		
Normal	6.81%	6.77%
Accrued liability	<u>(5.17)</u>	<u>(6.77)</u>
Total	1.64%	0.00%
Liquidation period	9 years	10 years
Preliminary undistributed gains	0.41%	0.16%
Estimated adjustment for required Employer contributions not made	<u>(1.05%)</u>	<u>(1.17%)</u>
Reserve from undistributed gains	N/A	N/A

2. The valuation balance sheet showing the results of the valuation is given in Section III.
3. Comments on the valuation results are given in Section IV, comments on the experience and actuarial gains during the valuation year are given in Section V and the rates of contribution payable by employers are given in Section VI.
4. Schedule B of this report outlines the full set of actuarial assumptions and methods employed. There have been no changes since the previous valuation. Schedule A of this report presents the development of the actuarial value of assets.
5. Schedule C gives a summary of the benefit and contribution provisions of the system.

SECTION II - MEMBERSHIP DATA

Data regarding the membership of the system for use as a basis for the valuation were furnished by the system's office. The following tables summarize the membership of the system as of December 31, 2002 upon which the valuation was based. Detailed tabulations of the data are given in Schedule D.

TABLE II

**THE NUMBER AND ANNUAL COMPENSATION OF ACTIVE MEMBERS
INCLUDED IN THE VALUATION AS OF DECEMBER 31, 2002**

GROUP	NUMBER	ANNUAL COMPENSATION
Teachers	134,480	\$ 4,725,740,903
Employees	159,265	4,897,374,535
Law Enforcement Officers	<u>2,632</u>	<u>111,332,341</u>
Total	296,377	\$ 9,734,447,779

There are, in addition, 54,899 inactive members and 3,611 members who were excluded from the table because of insufficient data. The results of the valuation were adjusted to take these members into account.

TABLE III

**THE NUMBER AND ANNUAL RETIREMENT ALLOWANCES OF BENEFICIARIES
AND SURVIVORS ON THE ROLL AS OF DECEMBER 31, 2002**

GROUP	NUMBER	ANNUAL RETIREMENT ALLOWANCES
<u>Beneficiaries Receiving Service Retirement Allowances</u>		
Teachers	49,145	\$ 1,077,877,397
Employees	50,896	680,040,262
Law Enforcement Officers	<u>1,605</u>	<u>40,785,994</u>
Total	101,646	\$ 1,798,703,653
<u>Beneficiaries Receiving Disability Retirement Allowances</u>		
Teachers	3,178	\$ 59,475,354
Employees	3,033	38,783,873
Law Enforcement Officers	<u>158</u>	<u>3,361,893</u>
Total	6,369	\$ 101,621,120
<u>Benefits to Survivors of Deceased Beneficiaries</u>		
Teachers	3,036	\$ 40,764,438
Employees	6,845	59,493,891
Law Enforcement Officers	<u>233</u>	<u>3,763,799</u>
Total	10,114	\$ 104,022,128
Grand Total	<u>118,129</u>	<u>\$ 2,004,346,901</u>

SECTION III - VALUATION BALANCE SHEET

The following valuation balance sheet shows the assets and liabilities of the retirement system as of the current valuation date of December 31, 2002 and, for comparison purposes, as of the immediately previous valuation date of December 31, 2001. The items shown in the balance sheet are present values actuarially determined as of the relevant valuation date. The development of the actuarial value of assets is presented in Schedule A.

TABLE IV
VALUATION BALANCE SHEET
SHOWING THE ASSETS AND LIABILITIES OF THE
TEACHERS' AND STATE EMPLOYEES'
RETIREMENT SYSTEM OF NORTH CAROLINA

	DECEMBER 31, 2002	DECEMBER 31, 2001
ASSETS		
Current actuarial value of assets:		
Annuity Savings Fund	\$ 6,767,321,423	\$ 6,421,852,841
Pension Accumulation Fund	<u>36,459,515,794</u>	<u>35,682,233,185</u>
Total current assets	\$ 43,226,837,217	\$ 42,104,086,026
Future member contributions to Annuity Savings Fund	\$ 5,727,430,260	\$ 5,527,713,120
Prospective contributions to Pension Accumulation Fund:		
Normal contributions	\$ 6,405,176,174	\$ 6,144,974,418
Unfunded accrued liability contributions	(3,362,853,828)	(4,390,422,826)
Undistributed gain contributions	<u>269,001,016</u>	<u>98,550,093</u>
Total prospective contributions	\$ 3,311,323,362	\$ 1,853,101,685
Total Assets	<u>\$ 52,265,590,839</u>	<u>\$ 49,484,900,831</u>
LIABILITIES		
Annuity Savings Fund:		
Past member contributions	\$ 6,767,321,423	\$ 6,421,852,841
Future member contributions	<u>5,727,430,260</u>	<u>5,527,713,120</u>
Total contributions to Annuity Savings Fund	\$ 12,494,751,683	\$ 11,949,565,961
Pension Accumulation Fund:		
Benefits currently in payment	\$ 17,993,715,435	\$ 16,308,089,907
Benefits to be paid to current active members	21,273,364,500	20,792,144,356
Reserve for increases in retirement allowances effective July 1, 2003 (July 1, 2002 for December 31, 2001 figure)	234,758,205	336,550,514
Reserve from undistributed gains	<u>269,001,016</u>	<u>98,550,093</u>
Total benefits payable from Pension Accumulation Fund	\$ 39,770,839,156	\$ 37,535,334,870
Total Liabilities	<u>\$ 52,265,590,839</u>	<u>\$ 49,484,900,831</u>

SECTION IV - COMMENTS ON VALUATION

The valuation balance sheet gives the following information with respect to the funds of the system as of December 31, 2002.

Annuity Savings Fund

The Annuity Savings Fund is the fund to which are credited contributions made by members together with interest thereon. When a member retires, the amount of his accumulated contributions is transferred from the Annuity Savings Fund to the Pension Accumulation Fund. The assets credited to the Annuity Savings Fund on December 31, 2002, which represent the accumulated contributions of members to that date, amounted to \$6,767,321,423. The balance sheet also shows that the future contributions by members have a present value of \$5,727,430,260. The present value of both past and future contributions of members is therefore equal to \$12,494,751,683. The liabilities of this fund are also shown to be equal to \$12,494,751,683.

Pension Accumulation Fund

The Pension Accumulation Fund is the fund to which the contributions made by employers are credited and from which are paid all benefits on account of beneficiaries and their survivors.

The current market related actuarial value of assets creditable to the Pension Accumulation Fund on December 31, 2002, amounted to \$36,459,515,794. The liabilities on account of active members amounted to \$21,273,364,500. In addition, the balance sheet indicates liabilities of \$17,993,715,435 on account of all benefits payable to beneficiaries and survivors as of December 31, 2002. The balance sheet also shows a reserve of \$234,758,205 to provide for the increases in retirement allowances effective July 1, 2003, and a reserve from undistributed gains of \$269,001,016. The total liabilities of the Pension Accumulation Fund, therefore, amounted to \$39,770,839,156. The difference between these liabilities and the current assets credited to this fund is \$3,311,323,362 which represents the present value of future contributions to be made by the employers. Of this amount, \$6,405,176,174 represents the present value of prospective normal contributions by the employers, \$(3,362,853,828) represents the present value of prospective accrued liability contributions by employers and the balance of \$269,001,016 represents the present value of prospective contributions on account of undistributed actuarial gains.

The retirement act provides that the contributions of employers shall consist of a normal contribution and an accrued liability contribution. G.S. 135-8(d)(2) of the retirement act provides that the normal contribution rate is to be determined as the uniform percentage of the earnable compensation of the average new entrant throughout his entire period of active service and is to be determined after each valuation. The valuation indicates that the uniform normal percentage contribution rate should be set at 6.81% of compensation.

The present valuation indicates that if the employer contribution rate is set at 2.05% of payroll in accordance with the Appropriations Act of 2003, the accrued liability rate would be equal to (4.76%) of payroll effective July 1, 2004. The required employer contribution is 1.64% which will liquidate the unfunded accrued liability within a 9-year period.

SECTION V - COMMENTS ON EXPERIENCE AND GAINS

The unfunded accrued liability has increased to \$(3,363) million from \$(4,390) million since the prior valuation. The significant items which affected the unfunded accrued liability were; amendments effective July 1, 2003 which increased the unfunded accrued liability by \$235 million and the 2002 adjustment towards market value of assets which increased the unfunded accrued liability by \$661 million.

The valuation results indicates that there is a preliminary reserve from undistributed gains equivalent to 0.41% of payroll. However, the System is owed 1.05% of employer contributions, the unpaid portion of the amount escrowed during the 2000/2001 fiscal year. Assuming the undistributed gains are used to apply towards the amount owed to the System, there are no remaining undistributed gains to provide for benefit improvements. Each 1.0% increase in retirement allowances as of July 1, 2004 to beneficiaries on the retirement roll on July 1, 2003 and a prorated portion of each 1.0% increase as of July 1, 2004 for beneficiaries who retired after July 1, 2003 but before June 30, 2004 is equivalent to 0.31% of payroll. The cost of each 0.01% increase in the defined benefit formula with a corresponding increase in retirement allowances to all current benefit recipients is 0.41% of payroll.

SECTION VI - RATES OF PAYMENT TO PENSION ACCUMULATION FUND

The valuation balance sheet gives the basis for determining the percentage rates for contributions to be made by employers to the Pension Accumulation Fund and the Death Benefit Fund under the provisions of the retirement act. The following table shows the rates of contribution payable by employers as determined from the Appropriations Act and the present valuation for the 2004/2005 fiscal year.

TABLE V**RATES OF CONTRIBUTION PAYABLE BY EMPLOYERS
FOR THE 2004/2005 FISCAL YEAR
BASED ON THE APPROPRIATIONS ACT
AND THE VALUATION AS OF DECEMBER 31, 2002**

CONTRIBUTION	RATE
Normal	6.81%
Actuarial Accrued Liability	<u>(4.76)</u>
Total	2.05%

SECTION VII - ACCOUNTING INFORMATION

1. Statement Nos. 25 and 27 of the Governmental Accounting Standards Board (GASB) set forth certain items of information to be disclosed in the financial statements of the System and the employer. One such item is a distribution of the number of employees by type of membership, as follows:

**NUMBER OF ACTIVE AND RETIRED PARTICIPANTS
AS OF DECEMBER 31, 2002**

GROUP	NUMBER
Retired participants and beneficiaries currently receiving benefits	118,129
Terminated participants and beneficiaries entitled to benefits but not yet receiving benefits	58,510
Active Participants	<u>296,377</u>
Total	473,016

2. Another such item is the schedule of funding progress as shown below.

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b - a) / c)
12/31/97	\$27,765,057,295	\$28,071,156,226	\$306,098,931	98.9%	\$7,373,712,592	4.15%
12/31/98	31,847,438,198	30,354,221,675	(1,493,216,523)	104.9	7,994,825,684	(18.68)
12/31/99*	36,119,259,376	32,787,108,267	(3,332,142,109)	110.2	8,437,649,280	(39.49)
12/31/00*	39,773,747,165	35,248,769,986	(4,524,977,179)	112.8	9,001,353,605	(50.27)
12/31/01	42,104,086,026	37,713,663,200	(4,390,422,826)	111.6	9,494,602,568	(46.24)
12/31/02	43,226,837,217	39,863,983,389	(3,362,853,828)	108.4	9,734,447,779	(34.55)

* These numbers have been revised since the previous valuation to reflect the requirements enacted by the legislature.

3. Following is the calculation of the annual pension cost and net pension obligation for the fiscal year ending June 30, 2003.

Annual Pension Cost and Net Pension Obligation for Fiscal Year Ending 6/30/2003

(a) Employer annual required contribution	\$ 0
(b) Interest on net pension obligation	8,067,000
(c) Adjustment to annual required contribution	<u>(16,665,000)</u>
(d) Annual pension cost: (a) + (b) + (c)	\$ (8,598,000)
(e) Employer contributions made for fiscal year ending 6/30/2003	<u>0</u>
(f) Increase (decrease) in net pension obligation: (d) - (e)	\$ (8,598,000)
(g) Net pension obligation beginning of fiscal year	<u>111,273,000</u>
(h) Net pension obligation end of fiscal year: (f) + (g)	\$102,675,000

TREND INFORMATION

<u>Year Ending</u>	<u>Annual Pension Cost (APC)</u>	<u>Percentage of APC Contributed</u>	<u>Net Pension Obligation</u>
June 30, 2001	\$513,907,000	59.5%	\$208,363,000
June 30, 2002	179,903,000	154.0	111,273,000
June 30, 2003	(8,598,000)	0.0	102,675,000

4. The annual required contribution (ARC) of the employer as a percentage of payroll, determined in accordance with the parameters of GASB 25/27, is shown below. The accrued liability rate is based on amortization of the unfunded actuarial accrued liability of \$(3,362,853,828) over a 9-year period from the valuation date.

**2004/2005 FISCAL YEAR
ANNUAL REQUIRED CONTRIBUTION (ARC)
BASED ON THE VALUATION AS OF DECEMBER 31, 2002**

<u>ANNUAL REQUIRED CONTRIBUTION (ARC)</u>	<u>RATE</u>
Normal	6.81%
Accrued liability	<u>(5.17)</u>
Total	1.64%

5. Additional information as of December 31, 2002 follows.

Valuation date	12/31/02
Actuarial cost method	Entry age
Amortization method	Level dollar open
Remaining amortization period	9 years
Asset valuation method	5-year smoothed market
Actuarial assumptions:	
Investment rate of return*	7.25%
Projected salary increases*	5.45-12.08%
*Includes inflation at	3.75%
Cost-of-living adjustments	N/A

*3.5 Real Rate of Return
3.75 Inflation*

SCHEDULE A**DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS
FOR THE YEAR ENDING DECEMBER 31, 2002**

1.	Actuarial Value of Assets as of December 31, 2001	\$ 42,104,086,026
2.	2002 Net Cash Flow	
	a. Contributions	779,300,044
	b. Disbursements	<u>2,004,144,043</u>
	c. Net Cash Flow: (a) - (b)	(1,224,843,999)
3.	Expected Investment Return: [(1) x .0725] + [(2)c x .03625]	3,008,145,642
4.	Expected Actuarial Value of Assets as of December 31, 2002: (1) + (2)c + (3)	43,887,387,669
5.	Market Value of Assets as of December 31, 2002	40,584,635,407
6.	Excess of Market Value over Expected Actuarial Value of Assets: (5) - (4)	(3,302,752,262)
7.	20% Adjustment towards Market Value: (6) x .20	(660,550,452)
8.	Actuarial Value of Assets as of December 31, 2002: (4) + (7)	43,226,837,217
9.	Rate of investment return on actuarial value	5.66%
10.	Rate of investment return on market value	(5.21%)

SCHEDULE B**STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS**

Assumptions are based on the experience investigation prepared as of December 31, 1999 and adopted by the Board of Trustees on December 14, 2000.

INTEREST RATE: 7.25% per annum, compounded annually.

SEPARATIONS FROM ACTIVE SERVICE: Representative values of the assumed rates of separation from active service are as follows:

GENERAL EMPLOYEES

Annual Rates of

Age	Withdrawal* and Vesting		Death		Disability		Service Retirement**	
	Male	Female	Male	Female	Male	Female	Male	Female
25	.0800	.0800	.0005	.0003	.0001	.0001		
30	.0800	.0789	.0006	.0003	.0004	.0004		
35	.0637	.0653	.0009	.0005	.0010	.0010		
40	.0435	.0451	.0012	.0007	.0029	.0018		
45	.0350	.0363	.0022	.0010	.0049	.0033		
50	.0450	.0350	.0039	.0017	.0084	.0050	.3000	.3000
55	.0450	.0350	.0061	.0025	.0144	.0088	.3000	.3500
60			.0092	.0042	.0240	.0138	.2000	.2000
65			.0156	.0071			.5000	.5000
69			.0248	.0109			.2500	.2500

TEACHERS

Annual Rates of

Age	Withdrawal* and Vesting		Death		Disability		Service Retirement**	
	Male	Female	Male	Female	Male	Female	Male	Female
25	.0500	.0600	.0004	.0002	.0001	.0002		
30	.0500	.0600	.0005	.0003	.0001	.0003		
35	.0500	.0415	.0007	.0004	.0003	.0006		
40	.0316	.0275	.0009	.0006	.0007	.0010		
45	.0222	.0220	.0014	.0008	.0014	.0018		
50	.0350	.0300	.0025	.0014	.0023	.0032	.2500	.3000
55	.0350	.0300	.0043	.0021	.0047	.0055	.3000	.4000
60			.0066	.0034	.0077	.0102	.2000	.2000
65			.0101	.0058			.4000	.4000
69			.0156	.0087			.2000	.2000

* Higher rates of withdrawal are used during the first 3 years of membership in the system.

** An additional 20% of general employees and an additional 30% of teachers are assumed to retire in the year when first eligible for unreduced service retirement. Special rates are used for early service retirement.

LAW ENFORCEMENT OFFICERS

Annual Rates of

Age	Withdrawal and Vesting	Death		Disability		Service Retirement*
		Ordinary	Accidental	Ordinary	Accidental	
25	.0769	.00040	.00004	.0032	.0001	
30	.0547	.00051	.00006	.0040	.0003	
35	.0336	.00071	.00008	.0052	.0008	
40	.0223	.00102	.00011	.0068	.0011	
45	.0151	.00174	.00019	.0100	.0010	
50	.0200	.00316	.00035	.0168	.0008	.1500
55		.00509	.00057			.2000
60		.00755	.00084			.1500
65		.01248	.00139			.7500
69		.02001	.00222			.1500

* An additional 40% are assumed to retire in the year when first eligible for unreduced service retirement. Special rates are used for early service retirement.

SALARY INCREASES: Representative values of the assumed annual rates of salary increases are as follows:

Age	Annual Rate of Salary Increase	
	Teachers and General Employees	Law Enforcement Officers
25	10.64%	8.62%
30	11.90	7.79
35	9.01	6.96
40	7.28	6.50
45	6.54	6.29
50	6.21	6.21
55	6.01	6.00
60	5.70	5.95
64	5.48	5.91
65	5.47	--
69	5.45	--

DEATH AFTER RETIREMENT: According to the 1983 Group Annuity Mortality Tables set forward one year. For male teachers the table is set back one year. Special mortality tables are used for the period after disability retirement.

ADMINISTRATIVE EXPENSES: 0.10% of payroll.

MARRIAGE ASSUMPTION: 100% married with the husband four years older than his wife.

VALUATION METHOD: Entry age normal cost method. Entry age is established on an individual basis.

ASSET VALUATION METHOD: Actuarial value, as developed in Schedule A. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected actuarial value of assets, based on the assumed valuation rate of return. The amount recognized each year is 20% of the difference between market value and expected actuarial value.

SCHEDULE C**SUMMARY OF MAIN BENEFIT AND CONTRIBUTION PROVISIONS**

A summary of the main benefit provisions of the Retirement System and of the sources of revenue from which benefits are paid is presented in the following digest. Items in parentheses in the text are the provisions applicable to law enforcement officers.

"Average final compensation" as used in the summary means the average annual compensation during the four consecutive years of membership service which afford the highest such average. "Membership service" means service represented by regular contributions. "Prior service" means service prior to July 1, 1941 for which credit is allowed. "Creditable service" means the sum of prior service plus membership service. Creditable service may also include certain special purchased service.

BENEFITS**Service Retirement Allowance****Condition for Allowance**

A service retirement allowance is payable to any member who retires from service after he has attained age 60 and completed 5 years of membership service (age 55 and 5 years of creditable service) or completed 30 years of creditable service.

Amount of Allowance

On service retirement on or after age 65 (55), or after age 60 and completion of 25 years of creditable service, or after completion of 30 years of creditable service, a member receives a retirement allowance equal to 1.82% of his average final compensation multiplied by the number of years of his creditable service.

If a member who is not a law enforcement officer has not attained age 65 or has not completed 25 or more years of creditable service at the time of his retirement, his allowance is reduced 1/4 of 1% for each month by which his age at retirement is less than age 65.

In no event will a member whose creditable service commenced on or before June 30, 1963 receive a smaller retirement allowance than he would have received under the benefit provisions of the system in effect on that date.

Early Service Retirement Allowance

Condition for Allowance

An early service retirement allowance is payable to any member who retires from service after he has attained age 50 and completed 20 (15) years of creditable service but prior to becoming eligible for a service retirement allowance.

Amount of Allowance

The member's early service retirement allowance is equal to 1.82% of his average final compensation multiplied by the number of years of his creditable service at his date of retirement reduced by the lesser of:

- (i) $5/12$ ($1/3$) of 1% for each month by which his age is less than 60 (55), plus $1/4$ of 1% for each month by which his age is less than 65.
- (ii) 5% times the difference between 30 years and his creditable service at retirement.

Deferred Service Retirement Allowance

Any member who separates from service prior to becoming eligible for a service retirement allowance or an early service retirement allowance after completing 5 or more years of membership service and who leaves his total accumulated contributions in the system may receive a deferred retirement allowance, beginning at age 60 (55), computed in the same way as a service retirement allowance, or, if the member has 20 or more years of service, at age 50 computed in the same way as an early service retirement allowance, on the basis of his creditable service and compensation to the date of separation.

Return of Contributions

Upon the withdrawal of a member without a retirement allowance and upon his request, his contributions are returned to him, together with accumulated regular interest thereon if he has at least 5 years of membership service.

Upon the death of a member before retirement, his contributions, together with the full accumulated regular interest thereon, are paid to his estate or to person(s) designated by the member unless the designated beneficiary, if eligible, elects the survivor's alternate benefit described below.

Survivor's Alternate Benefit

Upon the death of a member in service who has attained age 60(55) and has completed 5 years of membership (creditable) service or completed 20 years of creditable service, his designated beneficiary may elect to receive a benefit equal to that which would have been payable under the provisions of Option 2 had the member retired on the first day of the month following his death and elected such option, in lieu of the member's accumulated

contributions, provided the member had not instructed the Board of Trustees in writing that he did not wish the alternate benefit to apply.

Death After Retirement

Upon the death of a beneficiary who did not retire under an effective election of Option 2 or Option 3, an amount equal to the excess if any, of his accumulated contributions at retirement over the retirement allowance payments received is paid to a designated person or to the beneficiary's estate.

Upon the death of the survivor of a beneficiary who retired under an effective election of Option 2 or Option 3, an amount equal to the excess, if any, of the beneficiary's accumulated contributions at retirement over the total retirement allowance payments received is paid to such other person designated by the beneficiary or to the beneficiary's estate.

Optional Arrangements at Retirement

In lieu of the full retirement allowance, any member may elect to receive a reduced retirement allowance equal in value to the full allowance, with the provision that:

Option 1 - A member retiring prior to July 1, 1993, may elect that at his death within 10 years from his retirement date, an amount equal to his accumulated contributions at retirement, less 1/120 for each month he has received a retirement allowance, is paid to his estate, or to a person(s) designated by the member, or

Option 2 - At the death of the member his allowance shall be continued throughout the life of such other person as the member shall have designated at the time of his retirement, or

Option 3 - At the death of the member one-half of his allowance shall be continued throughout the life of such other person as the member shall have designated at the time of his retirement.

Option 4 - A member may elect to receive a retirement allowance in such amount that, together with his Social Security benefit, he will receive approximately the same income per annum before and after the earliest age at which he becomes eligible to receive the Social Security benefit.

Option 5 - A member retiring prior to July 1, 1993 may elect to receive a reduced retirement allowance under the provisions of Option 2 or Option 3 in conjunction with the provisions of Option 1.

Option 6 - A member may elect either Option 2 or Option 3 with the added provision that in the event the designated beneficiary predeceases the member, the retirement allowance payable to the member after the designated beneficiary's death shall be equal to the retirement allowance which would have been payable had the member not elected the option.

Post-Retirement Increases
in Allowances

Future increases in allowances may be granted if the Consumer Price Index rises, provided the liabilities on account of such increases do not increase the total employer rate of contribution.

CONTRIBUTIONS

REGULAR CONTRIBUTIONS

By Members

Each member contributes 6% of his compensation.

By Employers

Employers make annual contributions consisting of a normal contribution and an accrued liability contribution. The normal contribution covers the liability on account of current service and is determined by the actuary after each valuation.

The accrued liability contribution covers the liability on account of service rendered before the establishment of the retirement system and the liability on account of increases in benefits for service rendered prior to the effective date of any amendment.

SCHEDULE D

TABLE 1

**THE NUMBER AND ANNUAL COMPENSATION OF
ACTIVE MEMBERS DISTRIBUTED BY AGE
AS OF DECEMBER 31, 2002**

Age	Men		Women	
	Number	Amount	Number	Amount
16			1	\$ 14,859
17	1	\$ 46,950	1	5,391
18	7	46,952	3	46,926
19	37	327,778	26	205,593
20	103	1,044,401	115	1,164,650
21	179	2,462,192	288	3,525,931
22	402	5,839,083	844	10,592,405
23	716	11,591,717	2,247	34,259,900
24	1,140	22,141,435	3,362	67,033,549
25	1,409	31,686,318	3,847	85,609,899
26	1,513	36,328,299	4,057	95,526,563
27	1,623	40,312,869	4,046	100,360,907
28	1,819	48,124,156	4,380	112,723,407
29	1,930	53,277,180	4,258	111,960,842
30	2,029	57,400,530	4,418	119,184,075
31	2,177	64,619,571	4,686	128,918,613
32	2,490	75,262,598	5,230	145,169,921
33	2,375	75,734,299	5,071	141,117,021
34	2,276	73,922,565	4,878	136,873,990
35	2,228	71,888,303	4,675	130,843,451
36	2,169	72,608,446	4,617	129,734,474
37	2,284	75,944,427	4,574	127,682,347
38	2,322	78,971,795	4,860	136,616,491
39	2,428	83,186,374	5,195	147,113,755
40	2,548	88,259,390	5,222	150,860,302
41	2,498	87,387,297	5,598	163,047,842
42	2,548	90,131,661	5,931	173,900,086
43	2,573	93,540,590	5,920	180,862,620
44	2,671	96,767,325	6,050	184,362,829
45	2,653	99,442,723	6,475	207,870,867
46	2,838	106,471,647	6,725	225,007,307
47	2,817	107,214,157	6,778	232,030,643
48	2,909	115,297,756	6,918	244,814,404
49	3,050	122,959,682	7,286	264,568,433
50	3,166	131,506,651	7,431	281,291,488
51	3,087	133,555,768	7,108	273,280,290
52	2,938	125,258,017	6,681	256,716,794
53	2,732	119,065,592	6,097	228,377,734

TABLE 1
THE NUMBER AND ANNUAL COMPENSATION OF
ACTIVE MEMBERS DISTRIBUTED BY AGE
AS OF DECEMBER 31, 2002

CONTINUED

Age	Men		Women	
	Number	Amount	Number	Amount
54	2,745	\$ 119,394,238	5,732	\$ 213,682,036
55	2,632	114,067,803	5,448	198,855,144
56	2,678	118,611,899	5,646	205,865,434
57	1,844	77,978,584	3,822	136,872,981
58	1,779	77,457,978	3,510	125,461,640
59	1,656	71,189,439	3,226	114,099,498
60	1,593	68,734,246	2,972	102,641,840
61	1,209	51,540,907	2,027	67,846,196
62	941	38,150,186	1,641	54,243,427
63	672	30,051,071	1,020	33,123,647
64	568	25,257,251	787	26,507,793
65	399	18,250,019	593	19,071,637
66	268	11,389,686	350	10,721,304
67	204	8,731,441	239	7,057,034
68	170	7,256,223	229	6,888,380
69	145	6,481,619	134	4,000,686
70	95	3,743,557	120	3,138,080
71	84	3,478,120	79	1,911,970
72	72	3,377,535	66	2,009,699
73	55	2,043,047	44	1,018,146
74	45	1,616,778	33	852,626
75	31	1,188,774	26	718,353
76	28	1,014,789	20	579,659
77	11	377,079	10	240,470
78	16	608,947	16	301,208
79	3	101,826	8	137,556
80	13	410,911		
81	5	158,245	5	118,228
82	7	237,960	1	13,624
83	4	122,240	2	57,455
84	4	234,718	2	99,570
85	4	45,468	1	1,500
86			2	69,249
87			2	36,033
Total	92,665	\$ 3,362,929,078	203,712	\$ 6,371,518,701

TABLE 2

**THE NUMBER AND ANNUAL COMPENSATION OF
ACTIVE MEMBERS DISTRIBUTED BY SERVICE
AS OF DECEMBER 31, 2002**

Years of Service	Number	Men		Women	
		Number	Amount	Number	Amount
0	3,947		\$ 27,454,991	8,637	\$ 62,291,811
1	9,108		202,557,244	20,101	388,542,171
2	7,990		236,163,545	18,948	487,534,251
3	6,732		206,324,281	15,907	417,035,011
4	5,730		182,653,668	13,707	374,013,289
5	5,078		169,329,131	11,847	336,046,337
6	4,516		152,581,504	10,993	325,428,498
7	3,886		138,557,305	8,187	250,232,138
8	3,728		133,858,457	7,645	241,631,162
9	3,781		137,093,757	6,753	219,255,218
10	2,857		110,973,959	6,198	209,727,821
11	2,792		107,576,060	5,351	186,804,654
12	2,262		90,735,265	4,568	162,689,561
13	2,590		102,235,660	5,353	190,026,146
14	2,448		96,198,548	5,677	200,285,565
15	2,257		95,540,480	5,049	187,135,053
16	1,940		85,974,117	4,025	155,493,092
17	1,809		82,739,586	3,992	155,314,677
18	1,976		88,743,391	4,095	160,412,967
19	1,853		84,229,936	3,644	147,148,580
20	1,486		69,668,339	2,678	110,971,510
21	1,276		60,638,446	2,583	110,096,876
22	1,206		58,366,072	3,035	125,263,150
23	1,349		67,027,579	3,590	147,998,463
24	1,446		72,785,611	3,795	163,450,157
25	1,449		75,553,631	3,443	153,832,853
26	1,315		70,726,019	2,979	141,080,219
27	1,200		66,576,047	2,693	131,941,379
28	1,179		66,040,818	2,674	136,368,785
29	1,082		61,453,314	2,351	121,285,889
30	610		36,344,695	1,145	59,614,324
31	464		30,899,223	654	34,984,667
32	321		21,627,432	468	25,616,300
33	269		19,388,050	309	17,385,324
34	175		12,494,610	189	10,228,457
35	182		13,381,958	128	6,932,621
36	117		8,684,494	107	5,586,568
37	82		6,382,426	62	3,281,935
38	47		3,487,607	44	2,488,835

TABLE 2
THE NUMBER AND ANNUAL COMPENSATION OF
ACTIVE MEMBERS DISTRIBUTED BY SERVICE
AS OF DECEMBER 31, 2002

CONTINUED

Years of Service	Number	Men		Women	
			Amount	Number	Amount
39	43	\$	3,483,087	33	\$ 1,889,336
40	32		2,364,472	19	1,070,185
41	23		1,818,012	13	763,026
42	13		992,170	15	866,416
43	5		348,653	7	312,003
44	3		183,505	2	102,406
45	3		197,900	3	140,670
46	1		86,352	4	377,100
47	2		143,106	3	161,144
48	1		91,010	2	80,709
49	1		35,071		
50	1		34,390	3	117,528
51				2	115,164
52	2		104,094		
53				1	32,227
60				1	34,473
Total	92,665	\$	3,362,929,078	203,712	\$ 6,371,518,701

TABLE 3

**THE DISTRIBUTION OF THE NUMBER AND ANNUAL
RETIREMENT ALLOWANCES OF BENEFICIARIES AND
SURVIVORS BY AGE AS OF DECEMBER 31, 2002**

**SERVICE RETIREMENTS AND
DEPENDENTS OF DECEASED BENEFICIARIES**

Age	Men		Women	
	Number	Amount	Number	Amount
12	1	\$ 2,260		
14			1	\$ 2,939
15	1	3,750	1	3,405
16			1	20,485
17	1	16,069		
18	2	26,509	1	8,658
19	1	1,188	1	12,967
20	1	9,338	1	16,404
21			2	21,288
22	1	10,364	4	15,617
23	1	11,115	1	18,658
24	1	18,347	6	63,652
25	3	36,002	4	45,504
26	6	99,935	4	25,842
27	1	21,131	4	58,895
28	4	22,428	2	29,730
29	3	30,214	6	45,599
30	1	9,048	5	59,144
31	5	38,228	9	86,724
32	8	78,197	9	68,222
33	6	41,600	6	64,048
34	7	105,753	8	74,225
35	6	39,339	10	87,204
36	10	53,359	10	78,833
37	11	130,572	20	204,307
38	10	81,657	12	125,833
39	13	132,720	14	135,827
40	12	91,443	22	148,146
41	17	159,356	17	133,297
42	22	194,877	23	232,456
43	11	97,846	21	160,264
44	22	143,908	21	168,705
45	13	106,120	25	146,506
46	21	189,281	20	203,988
47	14	148,617	40	495,360
48	33	505,629	48	521,637

TABLE 3

**THE DISTRIBUTION OF THE NUMBER AND ANNUAL
RETIREMENT ALLOWANCES OF BENEFICIARIES AND
SURVIVORS BY AGE AS OF DECEMBER 31, 2002**

**SERVICE RETIREMENTS AND
DEPENDENTS OF DECEASED BENEFICIARIES**

CONTINUED

Age	Men		Women	
	Number	Amount	Number	Amount
49	59	\$ 1,109,011	83	\$ 1,224,276
50	106	2,281,169	156	2,788,196
51	209	4,461,950	356	7,437,496
52	337	8,241,233	614	14,444,267
53	514	13,479,682	980	24,147,909
54	663	18,524,206	1,250	31,497,504
55	875	25,243,304	1,473	37,124,238
56	1,167	33,395,623	1,777	44,897,703
57	875	25,206,324	1,331	32,860,272
58	903	27,045,157	1,369	33,245,828
59	922	26,997,280	1,624	39,366,599
60	1,090	32,007,800	1,971	45,562,325
61	1,103	29,945,053	2,169	44,699,800
62	1,220	30,157,655	2,356	43,814,732
63	1,350	29,308,846	2,612	41,648,044
64	1,472	30,520,613	2,591	40,176,567
65	1,491	29,610,382	2,800	40,583,586
66	1,526	30,570,517	2,877	41,231,144
67	1,582	31,821,853	2,928	40,788,017
68	1,513	29,470,314	2,875	39,925,516
69	1,452	28,904,769	2,555	33,959,706
70	1,419	27,675,376	2,555	34,171,323
71	1,418	27,718,826	2,540	33,033,339
72	1,407	28,018,969	2,513	32,955,096
73	1,352	26,578,243	2,361	30,572,580
74	1,241	23,947,733	2,361	28,875,112
75	1,142	21,491,447	2,301	27,635,688
76	1,083	19,723,253	2,141	25,588,127
77	1,000	18,195,610	2,053	23,015,291
78	944	16,623,745	1,958	20,916,066
79	800	13,323,643	1,781	18,901,622
80	766	12,926,950	1,617	17,137,040
81	673	12,510,031	1,658	17,261,371
82	707	11,252,793	1,527	16,010,120
83	522	7,753,885	1,420	13,766,082
84	455	6,734,065	1,206	11,704,010

TABLE 3

**THE DISTRIBUTION OF THE NUMBER AND ANNUAL
RETIREMENT ALLOWANCES OF BENEFICIARIES AND
SURVIVORS BY AGE AS OF DECEMBER 31, 2002**

**SERVICE RETIREMENTS AND
DEPENDENTS OF DECEASED BENEFICIARIES**

CONTINUED

Age	Men		Women	
	Number	Amount	Number	Amount
85	348	\$ 5,076,635	1,099	\$ 10,953,539
86	309	4,158,884	991	9,886,724
87	254	3,235,668	877	8,574,355
88	212	2,821,743	776	8,585,219
89	191	2,725,964	692	7,263,257
90	125	1,587,147	590	6,351,914
91	84	1,037,365	468	5,281,512
92	84	1,063,361	408	4,539,343
93	58	775,458	328	3,898,411
94	50	467,437	274	3,252,718
95	27	351,861	195	2,315,327
96	19	213,903	151	1,756,930
97	15	212,916	119	1,402,746
98	10	115,698	79	906,808
99	4	34,461	53	603,340
100	4	137,854	45	449,153
101			31	334,398
102	1	3,678	17	147,214
103	1	2,173	13	85,789
104			2	29,906
105			5	58,455
106			1	1,224
107	1	2,673	1	3,847
108	1	7,098		
110			1	15,984.24
111			1	11,219.88
Total	37,425	\$ 789,465,486	74,335	\$ 1,113,260,294
Maximum	9,209	\$ 188,642,994	31,298	\$ 453,968,511
Cash Refund	3,374	59,543,336	12,032	145,672,187
100% J&S	6,427	130,349,671	2,148	22,028,864
50% J&S	3,488	80,145,985	1,965	28,195,297
Soc Sec Level	6,588	159,561,491	13,216	283,182,097
Odd Surv	31	1,010,737	17	312,787
100% J&S Popup	3,884	84,087,295	2,212	34,416,883
50% J&S Popup	2,775	71,246,258	2,982	56,339,257
Beneficiaries	1,649	14,877,718	8,465	89,144,411

TABLE 4

**THE DISTRIBUTION OF THE NUMBER AND ANNUAL
RETIREMENT ALLOWANCES OF BENEFICIARIES AND
SURVIVORS BY AGE AS OF DECEMBER 31, 2002**

Age	Men		Women	
	Number	Amount	Number	Amount
38	1	\$ 7,125		
39			1	\$ 13,108
40	1	12,972		
41	3	40,966	3	36,987
42	2	21,559	11	147,203
43	3	35,504	8	86,343
44	5	68,015	14	185,170
45	19	307,094	11	191,642
46	19	313,440	23	320,979
47	32	619,820	42	759,615
48	37	711,999	49	1,017,470
49	41	786,190	58	1,072,143
50	36	694,825	86	1,743,759
51	49	1,187,996	104	2,386,256
52	50	1,041,103	121	2,833,409
53	69	1,444,022	122	2,915,831
54	61	1,227,418	133	2,999,347
55	93	1,960,852	133	2,987,322
56	104	2,424,679	160	3,236,798
57	72	1,528,087	116	2,393,859
58	75	1,361,230	136	2,563,854
59	63	1,149,266	147	2,641,627
60	71	1,503,245	163	3,024,245
61	84	1,521,477	144	2,432,859
62	78	1,405,057	128	1,900,585
63	96	1,636,311	119	1,682,690
64	67	1,078,705	132	1,805,287
65	61	959,486	138	1,941,426
66	62	1,068,333	86	1,156,702
67	73	1,090,575	112	1,431,738
68	63	982,696	93	1,299,058
69	59	830,219	92	1,143,818
70	57	904,512	84	947,073
71	51	767,857	82	956,962
72	43	634,204	71	835,070
73	60	827,883	78	905,352

TABLE 4

**THE DISTRIBUTION OF THE NUMBER AND ANNUAL
RETIREMENT ALLOWANCES OF BENEFICIARIES AND
SURVIVORS BY AGE AS OF DECEMBER 31, 2002**

DISABILITY RETIREMENTS

CONTINUED

Age	Men		Women	
	Number	Amount	Number	Amount
74	55	\$ 664,498	94	\$ 1,037,400
75	54	665,647	77	824,401
76	54	663,256	87	871,415
77	55	697,757	90	963,769
78	56	710,390	74	576,888
79	47	560,624	76	822,332
80	64	847,570	80	717,077
81	39	469,749	57	595,791
82	35	432,062	66	664,979
83	28	407,911	58	570,278
84	32	325,239	46	429,360
85	23	257,531	42	517,669
86	12	96,502	39	411,024
87	14	106,636	27	289,480
88	5	72,039	24	204,678
89	6	44,262	24	222,056
90	4	66,336	20	224,641
91	6	27,894	13	162,004
92	3	29,641	3	27,770
93	2	25,327	6	58,379
94			3	27,262
95			3	24,364
96			3	27,672
97			2	18,380
101			1	10,876
Total	2,354	\$ 39,325,591	4,015	\$ 62,295,530
Maximum	1,155	\$ 22,614,656	2,624	\$ 45,632,054
Cash Refund	409	5,870,283	975	11,187,227
100% J&S	229	2,461,439	98	958,367
50% J&S	302	4,121,601	118	1,354,921
Soc Sec Level	10	255,901	22	577,735
Odd Surv			2	28,713
100% J&S Popup	68	863,801	43	502,238
50% J&S Popup	181	3,137,911	133	2,054,275