

ACTUARIAL VALUATION REPORT
as of
JUNE 30, 2003

New York State
Teachers' Retirement System
Office of the Actuary
July 12, 2004

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

Actuarial Valuation Report as of June 30, 2003

TABLE OF CONTENTS

A.	INTRODUCTION.....	1
B.	EMPLOYER CONTRIBUTION RATE.....	1
C.	GAIN/LOSS IN THE EMPLOYER CONTRIBUTION RATE.....	3
D.	CONTRIBUTION RATE HISTORY.....	5
E.	CONTRIBUTION RATE INCREASE.....	5
F.	MEMBER DATA.....	6
G.	FUNDED STATUS.....	7
H.	ACTUARIAL EXPERIENCE.....	7
I.	NEW LEGISLATION.....	8
J.	FUTURE EXPECTATIONS.....	8
K.	CERTIFICATION.....	10

APPENDICES

1.	DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS.....	11
2.	COMPARISON OF MARKET VALUE TO ACTUARIAL VALUE OF ASSETS.....	12
3.	THE ACTUARY'S VALUATION BALANCE SHEET.....	13
4.	FUNDING PROGRESS.....	14
5.	EMPLOYER CONTRIBUTION RATE.....	15
6.	MEMBER RECONCILIATION.....	29
7.	DISTRIBUTION OF ACTIVE MEMBERS.....	30
8.	HISTORICAL MEMBER STATISTICS.....	33
9.	RETIREMENT STATISTICS.....	34
10.	1999 – 2003 EXPERIENCE STUDY.....	36
11.	HISTORY OF THE EMPLOYER CONTRIBUTION RATE.....	47
12.	HISTORY OF THE MEMBER CONTRIBUTION RATE.....	48
13.	ACTUARIAL COST AND ASSET VALUATION METHODS.....	49
14.	PRESENT ACTUARIAL ASSUMPTIONS.....	50
15.	SUMMARY OF BENEFIT PROVISIONS.....	68

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

Actuarial Valuation Report as of June 30, 2003

A. INTRODUCTION

This report presents the results of the annual actuarial valuation of assets and liabilities of the New York State Teachers' Retirement System as of June 30, 2003. The purpose of this report is to summarize the determination of the Employer Contribution Rate which will be applied to member salaries earned during the fiscal year ending June 30, 2005 and to review the funded status of the Retirement System.

B. EMPLOYER CONTRIBUTION RATE

The Employer Contribution Rate to be applied to member salaries for the fiscal year ending June 30, 2005 and collected in the fiscal year ending June 30, 2006 consists of four components. These components may be described as follows:

The **Normal Rate** represents the annual cost of accruing active member benefits. This component includes the cost of benefits accruing to active members on account of retirement, withdrawal, disability and death, except for benefits funded by the group life insurance rate.

The **Expense Rate** represents the administrative cost of the Retirement System and is set during the budget process.

The **Group Life Rate** is a one-year term rate and represents the cost of the first \$50,000 of member death benefits.

The **Excess Benefit Plan Rate** is a one-year term rate and represents the cost of benefit payments in excess of the Internal Revenue Code Section 415 limits.

The actuarially computed Employer Contribution Rate to be applied to the member salaries for the fiscal year ending June 30, 2005 is **5.63%**. The Employer Contribution Rates determined by the actuarial valuations as of June 30, 2003 and June 30, 2002 and the changes between the two are summarized below:

	As of <u>6/30/2003</u>	As of <u>6/30/2002</u>	<u>Change</u>
Normal Rate	5.24%	2.13%	+3.11%
Expense Rate	0.25	0.25	0.00
Group Life Rate	0.13	0.13	0.00
Excess Benefit Plan Rate	<u>0.01</u>	<u>0.01</u>	<u>0.00</u>
Employer Contribution Rate	5.63%	2.52%	+3.11%

As in prior years, the actual employer contributions made by participating employers during the fiscal year ending June 30, 2003 were equal to the employer contributions determined in accordance with the annual actuarial valuation. Additional payments are made by certain participating employers as required by statute for participation in early retirement incentives, Section 803 of Article 18 of the Retirement and Social Security Law, and Chapter 175 of the Laws of 1990.

C. GAIN/LOSS IN THE EMPLOYER CONTRIBUTION RATE

Compared with the prior year, the Employer Contribution Rate increased from 2.52% to 5.63%.

NORMAL RATE

The change in the Employer Contribution Rate is due entirely to the increase in the Normal Rate of 311 basis points. This change may be broken down as follows:

<u>Salary/</u>	This gain is due to salary and service data coming in	-0.03
<u>Service:</u>	slightly lower than expected.	
<u>Net</u>	The investment return on the <u>actuarial</u> value of assets	+1.52
<u>Investment</u>	was approximately 5.5%, which was less than the 8.0%	
<u>Loss:</u>	expected.	
<u>New Entrants:</u>	New Entrants join the Retirement System with no	+0.50
	accumulated assets, did not participate in the very	
	favorable investment experience during the 1990s, and	
	enter with a higher average Normal Contribution Rate	
	of approximately 11.5%. Because of this, New	
	Entrants exert upward pressure on the Employer	
	Contribution Rate.	
<u>Withdrawal:</u>	Fewer members withdrew than expected.	+0.32
<u>Mortality:</u>	Members are living longer than expected and receive	+0.34
	benefits for a longer period.	
<u>Retirement:</u>	There were more retirements at younger ages than	+0.46
	expected.	
<u>TOTAL CHANGE IN THE NORMAL RATE:</u>		+3.11%

OTHER COMPONENTS

The **Expense Rate** is set during the budget process and is unchanged from the previous year.

The **Group Life Insurance Rate** is unchanged from the previous year. Although the number of active member deaths has generally declined over the past few years, this rate is being held constant in anticipation of rising payouts in the future due to Tier 2, 3 and 4 post-retirement death benefits and the inactive death benefit.

The **Excess Benefit Plan Rate** is unchanged from the previous year. This rate represents the retirement benefits paid in excess of the Internal Revenue Code Section 415 limits. These payments are made exclusively from the Excess Benefit Plan. This fund was established in accordance with the Excess Benefit Plan which received final IRS approval in August 2001. The rate remains at 1 basis point in order to replenish the fund and ensure that the fund balance does not go below zero.

D. CONTRIBUTION RATE HISTORY

The following chart summarizes the Employer Contribution Rate for the last 15 years:

<u>Salary Year</u>	<u>Employer Contribution Rate</u>
1990-1991	6.84%
1991-1992	6.64
1992-1993	8.00
1993-1994	8.41
1994-1995	7.24
1995-1996	6.37
1996-1997	3.57
1997-1998	1.25
1998-1999	1.42
1999-2000	1.43
2000-2001	0.43
2001-2002	0.36
2002-2003	0.36
2003-2004	2.52
2004-2005	5.63

E. CONTRIBUTION RATE INCREASE

The Employer Contribution Rate has increased this year from 2.52% to 5.63%. This represents a 123% increase. The Normal Rate component equals 5.24%, an increase of 146% over the prior year's Normal Rate of 2.13%. The Normal Rate is greater than zero for the second consecutive year, after a Normal Rate equal to zero for the prior six years. The primary reason for this additional increase is that the recent investment returns have been substantially lower than expected. In addition, New Entrants continue to put upward pressure on the Normal Rate.

Last year a separate reserve was created, a "Provision for Adverse Market Deviation", in order to dampen the volatility of the Employer Contribution Rate as a

result of capital market fluctuations. This reserve continues to exist, although it has decreased sharply. As the Employer Contribution Rate continues to increase, the dampening of the volatility of the Employer Contribution Rate will greatly assist participating employers, especially school districts, with budgeting for required employer contributions.

It is important to note that the plan's New Entrant Normal Rate is approximately 11.5% of pay. This means the cost for each new member, if each year the actuarial assumptions are exactly realized, would be approximately 11.5% of pay. As the returns in the capital markets have decreased dramatically, the Normal Rate is increasing toward this 11.5% rate. If the returns in the capital markets continue to be below expectations and actuarial losses, as a result, continue to accrue, the Normal Rate will increase beyond the New Entrant Normal Rate of 11.5% of pay.

F. MEMBER DATA

The member data for the valuation was determined as of June 30, 2003. Compared with the previous year, the total number of members increased from 353,692 to 365,555, the number of active members increased from 242,834 to 247,247, the number of retired members increased from 106,544 to 113,851 and the number of beneficiaries receiving monthly benefits increased from 4,314 to 4,457.

The number of retirements increased from 7,344 during the 2001-2002 fiscal year to 10,173 during the 2002-2003 fiscal year. The 10,173 retirements represents a record high number of retirements in a fiscal year, and an increase of 28% over the prior record of 7,946 set two years earlier. This record is largely due to the large number of retirements under the early retirement incentive, Chapter 69 of the Laws of 2002. The higher number of retirements in recent years in general, however, is a trend which is expected to continue due to the increasing percentage of active members who are attaining retirement-eligible ages each year as the Baby Boom generation ages. Benefit improvements recently enacted, such as the Article 19 benefit enhancement (Chapter 126 of the Laws of 2000), military service credit (Chapter 548 of the Laws of 2000), and Tier Equity (Chapter 553 of the Laws of 2000), are an additional incentive to

retire. Finally, the retirement incentive programs enacted by the State Legislature in recent years have induced some members to retire. They have produced the following retirement totals:

<u>Fiscal Year</u>	<u>Incentive</u>	<u>Number of Retirements under the Incentive</u>	<u>Total Number of Retirements</u>
1995-1996	Chapter 12	1,661	6,267
1996-1997	Chapter 30	2,506	6,452
1997-1998	Chapter 41	1,612	5,303
1998-1999	Chapter 47	1,692	6,111
1999-2000	Chapter 70	1,212	6,658
2000-2001	Chapter 86	1,720	7,946
2002-2003	Chapter 69	2,980	10,173

G. FUNDED STATUS

The actuarial value of assets and liabilities were determined as of June 30, 2003. When compared with the previous year, the actuarial value of assets increased from \$71.4 billion to \$71.8 billion and the accrued pension benefit liability, as defined by the Retirement System's actuarial funding method, increased from \$71.7 billion to \$72.2 billion.

The funded status decreased over the prior year to 99.4% from 99.6%.

H. ACTUARIAL EXPERIENCE

Each year the Retirement System completes an experience study in order to regularly monitor the reasonableness and appropriateness of the actuarial assumptions used in the actuarial valuation. These assumptions are used to estimate the probability a member will cease teaching by retirement, withdrawal, disability, or death. In addition, the assumptions are used to estimate future salary increases, future investment earnings, and the probability of death for retired members and beneficiaries. A summary of the results of the most recent experience study is contained in Appendix 10. The current actuarial assumptions were adopted by the Retirement Board on October 25, 2000, effective with the actuarial valuation of the Retirement System's

assets and liabilities as of June 30, 2000.

The Retirement Board annually reviews the asset allocation policy to determine if historical investment experience, recent developments and/or future expectations require any changes in the policy. The current asset allocation policy as approved by the Retirement Board in July 2003 continues to produce a long-term expected annual investment rate of return of 8.0%. Therefore, the valuation rate of interest 8.0% is reasonable and appropriate.

I. NEW LEGISLATION

During the 2003 Legislative Session the following benefit improvements were enacted:

1) De Minimus Lump Sum:

Chapter 167 of the Laws of 2003 allows the Retirement System to offer retiring members a one-time actuarially equivalent lump sum in lieu of a monthly retirement benefit for annual benefits of \$2,400 or less. The prior annual benefit threshold had been \$1,000. This chapter also provided a one-time window in which current retired members or beneficiaries with an annual benefit of \$2,400 or less could elect to receive a one-time actuarially equivalent lump sum instead of receiving future monthly benefits.

2) Retirement Incentive:

There was no early retirement incentive enacted during the 2003 Legislative Session. Incentives had been offered in seven of the past eight years.

J. FUTURE EXPECTATIONS

The Normal Rate is greater than zero for the second consecutive year, after a

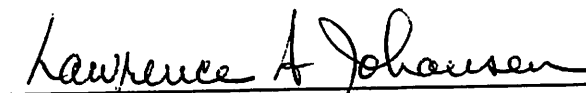
Normal Rate equal to zero for the prior six years. Prior to recent experience, many years of favorable investment returns, which generated large investment gains, drove the Employer Contribution Rate down to historically low levels. Unfortunately, the decline in the capital markets in recent years has led to a sharp reduction in assets and an increase in the Employer Contribution Rate.

The market value rate of return on assets for the fiscal year ending June 30, 2003 was 4.0%. This is the fourth consecutive year our market value rate of return is less than the assumed actuarial valuation rate of return of 8.0%. The five-year market value rate of return is 2.2% as of June 30, 2003. This is significantly less than the valuation rate of return of 8.0%. The continued actuarial losses on account of investment returns and the upward pressure of New Entrants on the Normal Rate will very likely continue to increase the Normal Rate over the next several years. If the returns in the capital markets continue to be below expectations and actuarial losses, as a result, continue to accrue, the Normal Rate will increase beyond the New Entrant Normal Rate of 11.5% of pay.

K. CERTIFICATION

This actuarial valuation relies on member data provided by the participating employers to the Retirement System's administrative staff. The administrative and actuarial staffs review this data for reasonability as well as reconcile it against prior data. In addition, the valuation relies on financial data provided by the Retirement System's Finance Department. All data is reviewed by the Retirement System's independent auditors as part of the annual audit.

The benefits recognized in this actuarial valuation are prescribed by New York State statute (Article 11 of the Education Law and Articles 11, 14, 15, 18, 19, and 20 of the Retirement and Social Security Law), and are summarized in Appendix 15. All benefits are included in the actuarial valuation. The actuarial methods, calculations, and actuarial assumptions are in accordance with standards of practice prescribed by the Actuarial Standards Board and generally accepted actuarial principles and procedures. The assumptions used in determining the liabilities and costs are internally consistent and reasonably related to actual and anticipated future experience of the Retirement System. I meet the qualification standards of the American Academy of Actuaries.



Lawrence A. Johansen; M.A.A.A., E.A., A.S.A., F.C.A., M.S.P.A.
Actuary

New York State
Teachers' Retirement System
Office of the Actuary
July 12, 2004

APPENDIX 1

DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS

From June 30, 2002 to June 30, 2003

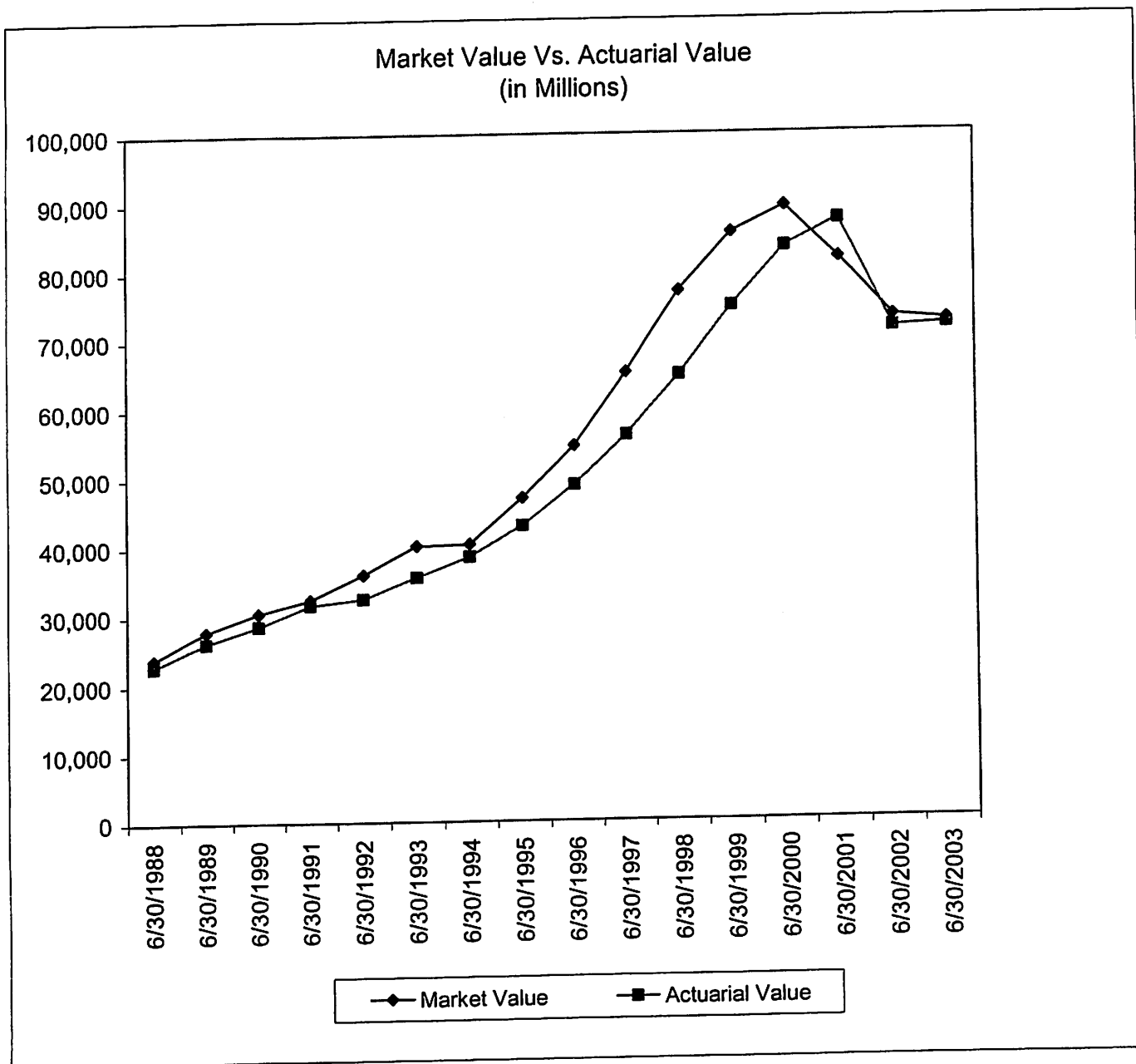
	<u>Actuarial Value (in thousands)</u>
1. Actuarial Value of Assets as of June 30, 2002	\$71,342,264
2. Contributions and Transfers	
Employer contributions	70,661
Member contributions	121,718
Net transfer of reserves in/out	<u>12,716</u>
Subtotal	205,095
3. Net Investment Income/(Loss)	3,818,228
4. Distributions	
Benefit payments	3,603,115
Return of member contributions	<u>23,515</u>
Subtotal	3,626,630
5. Actuarial Value of Assets as of June 30, 2003	<u>\$71,738,957*</u>
6. Market Value of Assets as of June 30, 2003	\$72,391,520

*Actuarial value of assets used in determining the Normal Rate, and excludes net asset value of Group Life Insurance Fund.

APPENDIX 2

COMPARISON OF MARKET VALUE TO ACTUARIAL VALUE OF ASSETS

	<u>Market Value</u>	<u>Actuarial Value</u>		<u>Market Value</u>	<u>Actuarial Value</u>
6/30/1988	\$23,865.3	\$22,854.7	6/30/1996	\$54,567.5	\$48,865.4
6/30/1989	27,799.4	26,151.3	6/30/1997	65,152.4	56,085.3
6/30/1990	30,435.7	28,552.7	6/30/1998	76,980.5	64,778.9
6/30/1991	32,367.7	31,577.3	6/30/1999	85,514.4	74,721.1
6/30/1992	35,940.9	32,432.3	6/30/2000	89,247.3	83,421.8
6/30/1993	40,094.6	35,527.1	6/30/2001	81,664.2	87,295.3
6/30/1994	40,291.5	38,464.9	6/30/2002	73,041.2	71,374.4
6/30/1995	46,999.1	42,984.8	6/30/2003	72,391.5	71,780.4



APPENDIX 3

THE ACTUARY'S VALUATION BALANCE SHEET

as of June 30, 2003
(in Thousands)

Since the liabilities of a retirement system consist largely of obligations on account of benefits which have not yet matured, an annual statement of its receipts and disbursements or of its income and expenditures is not sufficient to indicate its true financial position. These statements give a clear picture of the current transactions of a retirement system and show what the present assets are, but since these present assets are held for the payment of future benefits coming due over a longer period of time, we have no basis for judging the financial solvency of the system unless we determine by actuarial valuation what these future benefits are likely to amount to and whether the present assets, together with the prospective assets, will be sufficient to cover their costs.

The following balance sheet furnishes this comparison. It presents the results of the annual actuarial valuation of the present and prospective assets and liabilities of the retirement system, which was prepared by the Actuary as of June 30, 2003.

ASSETS

Present Assets of System for Valuation Purposes*	\$71,780,390
Present Value of Prospective Contributions to Pension Accumulation Fund	
from Employer Contributions	6,067,309
from Member Contributions	<u>608,271</u>
TOTAL ASSETS	<u>\$78,455,970</u>

LIABILITIES

Present Value of Future Benefits to:	
Retired Members and Beneficiaries	\$34,212,049
Active Members	44,173,380
Member Contributions Accumulated to Date in the Annuity Savings Fund	60,559
Benefits Due and Unpaid	<u>9,982</u>
TOTAL LIABILITIES	<u>\$78,455,970</u>

*Differs from the assets presented in the Retirement System's financial statements because the actuarial value of assets is not at market value.

APPENDIX 4

FUNDING PROGRESS

The Actuary's Valuation Balance Sheet provides a point-in-time comparison, as determined by actuarial valuation, between the present value of projected future benefits and the present assets as well as prospective contributions. In order to effectively assess the funding progress of a retirement system, it is necessary to compare the actuarial value of assets and the accrued pension benefit liabilities calculated in a manner consistent with the Retirement System's funding method over a period of time.

The Retirement System's funding method has allowed the accumulation of assets sufficient for the funding of its liabilities in a systematic and reasonable manner.

**Analysis of Funding Progress in Conformity with
the Retirement System's Funding Method
(in Millions)**

<u>Fiscal Year</u>	<u>Actuarial Value of Assets</u>	<u>Accrued Pension Benefit Liability</u>	<u>Percentage Funded</u>
1985	\$15,154.5	\$16,996.6	89.2%
1986	17,177.1	18,991.6	90.4
1987	20,613.4	22,348.7	92.2
1988	22,854.7	24,610.4	92.9
1989	26,151.3	27,763.3	94.2
1990	28,552.7	30,405.9	93.9
1991	31,577.3	33,336.9	94.7
1992	32,432.3	34,158.3	94.9
1993	35,527.1	37,230.3	95.4
1994	38,464.9	40,004.1	96.2
1995	42,984.8	44,258.2	97.1
1996	48,865.4	47,995.8	101.8
1997	56,085.3	50,868.0	110.3
1998	64,778.9	53,961.5	120.0
1999	74,721.1	65,636.7	113.8
2000	83,421.8	67,201.9	124.1
2001	87,295.3	69,817.0	125.0
2002	71,374.4	71,693.4	99.6
2003	71,780.4	72,209.4	99.4

APPENDIX 5

EMPLOYER CONTRIBUTION RATE

2003 Valuation
8.00% Interest

Normal Rate		5.24 %
Group Life Rate		0.13
Excess Benefit Plan Rate		0.01
Expense Rate		<u>0.25</u>
Computed Contribution Rate as of June 30, 2003	=	5.63 %

Normal Rate

2003 Valuation ~ 8.00% Interest

Liabilities

L1	Active Tier 1	
	Service Pension	\$12,333,117,203
	Disability Pension	5,977,845
	Vested Pension	61,370,531
	Active Death over \$50,000	51,504,594
	Death Benefit After 10-Yr Withdrawal over \$50,000	10,137
	Annuity Savings Fund	60,558,856
	COLA	332,202,861
	Total	<u>\$12,844,742,027</u>
L2	Active Tier 2	
	Service Pension	\$5,354,570,105
	Post Retired Death over \$50,000	3,968,039
	Disability Pension	14,820,554
	Post Disabled Death over \$50,000	173,662
	Vested Pension	129,715,619
	Active Death over \$50,000	20,987,066
	Death Benefit After 10-Yr Withdrawal over \$50,000	49,771
	COLA	139,487,812
	Total	<u>\$5,663,772,628</u>
L3	Active Tier 3	
	Service Pension	\$5,191,921,519
	Post Retired Death over \$50,000	6,136,537
	Disability Pension	26,260,368
	Post Disabled Death over \$50,000	502,394
	Refund on Active Death	6,611,490
	Active Death over \$50,000	31,033,595
	Refund on Quit	617,398
	Vested Pension	194,510,154
	Death Benefit After 10-Yr Withdrawal over \$50,000	190,265
	Refund on Death after Vested Withdrawal	127,543
	COLA	140,296,661
	Total	<u>\$5,598,207,924</u>
L4	Active Tier 4	
	Service Pension	\$17,164,604,660
	Post Retired Death over \$50,000	41,351,861
	Disability Pension	139,148,082
	Post Disabled Death over \$50,000	3,963,737
	Refund on Active Death	22,820,488
	Active Death over \$50,000	197,685,288
	Refund on Quit	144,774,599
	Vested Pension	1,094,155,878
	Death Benefit After 10-Yr Withdrawal over \$50,000	3,128,885
	Refund on Death after Vested Withdrawal	2,039,999
	COLA	454,637,715
	Total	<u>\$19,268,311,192</u>

Normal Rate

2003 Valuation
8.00% Interest

Liabilities (continued)

L5	Retirees	
	Retired Pension	\$29,837,498,604
	Retired Annuity	230,749,502
	Disability Pension	219,027,761
	Disability Annuity	1,851,376
	Beneficiary Pension	330,528,461
	Beneficiary Annuity	9,213,776
	DBA Pension	9,496,959
	DBA Annuity	1,090,741
	Escalation	4,306,666
	Post Retired Death over \$50,000	506,762
	COLA	2,095,262,765
	Catch-Up & Prior §532 Supp	1,443,580,686
	Total	<u>\$34,183,114,059</u>
L6	Vesteds	
	Inactive Vested	\$140,373,864
	Death Benefit After 10-Yr Withdrawal over \$50,000	128,201
	Active Vested	377,661,315
	Death Benefit After 10-Yr Withdrawal over \$50,000	1,328,198
	COLA	13,798,480
	Total	<u>\$533,290,058</u>
L7	TIAA	
	Service Pension	\$4,167,678
	Disability Pension	109,961
	Vested Pension	216,917
	Active Death over \$50,000	6,580
	COLA	335,968
	Total	<u>\$4,837,104</u>
L8	Miscellaneous	
	Incurred Death but not Paid	\$3,379,062
	Unclaimed Non-Member Funds	3,902,490
	Total	<u>\$7,281,552</u>
	Total Liabilities	<u><u>\$78,103,556,544</u></u>

Normal Rate

2003 Valuation
8.00% Interest

Assets for Valuation

		\$69,775,791,003	
Current Total Assets		1,044,214	
Less:	Left with Organization to Accrue Interest	13,703,731	
	Expenses Due and Accrued	130,267,229	
	Other Liabilities	10,131,363	
	Expense Fund	10,131,363	
	Sub-total		\$69,620,644,466
Plus:	Adjustment for 5 Year Averaging of Equities		9,713,477,428
Less:	Provision for Adverse Market Deviation		7,553,731,488
	Assets for Valuation Purposes		\$71,780,390,406
Less:	Group Life Insurance Fund Net Asset Value		\$41,433,772
	Assets for Normal Rate Valuation Purposes		\$71,738,956,634

Receivables

R1 Assets receivable from Normal Rate in 2003-2004 fiscal year (2002-2003 paybase)(2001 Normal Rate)(1.0800) ^{-7/24}			\$0
(11,427,089,463) (0.0000)(1.0800) ^{-7/24}			
R2 Assets receivable from Normal Rate in 2004-2005 fiscal year (2003-2004 paybase)(2002 Normal Rate)(1.0800) ^{-1 7/24}			\$229,234,255
(11,887,000,000) (0.0213)(1.0800) ^{-1 7/24}			
R3 Assets receivable from the amortization of the 1987 Normal Rate due to the enactment of Chapter 175 of the Laws of 1990			\$20,280,698
R4 Assets receivable from the amortization of Article 18			\$2,481,303
R5 Present Value of Future Member Contributions (Tier 3 Present Value of Future Employee Contributions)(1.0800) ^{-7/24}			\$0
(0) (1.0800) ^{-7/24}			
(Tier 4 Present Value of Future Employee Contributions)(1.0800) ^{-7/24}			
(622,079,564) (1.0800) ^{-7/24}		\$608,271,319	\$608,271,319

Normal Rate

2003 Valuation
8.00% Interest

Receivables (continued)

R6 Assets receivable from Retirement Incentive Payments		
Chapter 47 of the Laws of 1998		
Receivable in 2003-2004		
(9,059,350) (1.0800) - 7/24	<u>\$8,858,260</u>	\$8,858,260
Chapter 70 of the Laws of 1999		
Receivable in 2003-2004		
(7,772,688) (1.0800) - 7/24	\$7,600,158	
Receivable in 2004-2005		
(6,929,161) (1.0800) - 1 7/24	<u>\$6,273,477</u>	\$13,873,635
Chapter 86 of the Laws of 2000		
Receivable in 2003-2004		
(19,858,406) (1.0800) - 7/24	\$19,417,611	
Receivable in 2004-2005		
(16,811,224) (1.0800) - 1 7/24	\$15,220,432	
Receivable in 2005-2006		
(16,811,224) (1.0800) - 2 7/24	<u>\$14,092,993</u>	\$48,731,036
Chapter 69 of the Laws of 2002		
Receivable in 2003-2004		
(88,072,913) (1.0800) - 7/24	\$86,117,966	
Receivable in 2004-2005		
(25,687,686) (1.0800) - 1 7/24	\$23,256,943	
Receivable in 2005-2006		
(25,687,686) (1.0800) - 2 7/24	\$21,534,207	
Receivable in 2006-2007		
(25,687,686) (1.0800) - 3 7/24	\$19,939,080	
Receivable in 2007-2008		
(25,687,686) (1.0800) - 4 7/24	<u>\$18,462,111</u>	<u>\$169,310,307</u>
		\$1,101,040,813

Normal Rate

2003 Valuation
8.00% Interest

Present Value of Future Salaries

	<u>Total PVFS</u>	
Tier 1	\$4,478,170,298	
Tier 2	4,230,038,740	
Tier 3	8,427,883,700	
Tier 4	<u>85,565,811,362</u>	
	\$102,701,904,100	$\times (1.0800)^{-7/24}$
		= \$100,422,239,013

Normal Rate

$$\frac{\text{Total Liabilities - (Assets + Receivables)}}{\text{Present Value of Future Salaries}}$$

<u>\$5,263,559,097</u>	=	5.2414%
\$100,422,239,013		5.24%

Group Life Insurance Fund

2003 Valuation
8.00% Interest

A) Calculation of June 30, 2003 Balance

Actuarial Value as of July 1, 2002		\$72,804,619
Interest	[72,804,619 x .08]	\$5,824,370
October 15, 2002 actual premium	\$14,754,559	
October 15, 2002 deferred premium	<u>(\$14,285,700)</u>	
Premium Gain/(Loss)		\$468,859
Interest	[468,859 x (1.08 ^{8.5/12} - 1)]	\$26,269
Death Benefits paid in 2002-2003		(\$8,501,617)
Interest	[(8,501,617) x (1.08 ⁻⁵ - 1)]	(\$333,523)
October 15, 2005 deferred premium [from B]		\$16,048,500
Interest discount	[16,048,500 x (1.08 ^{-(2 + 3.5/12)} - 1)]	<u>(\$2,594,905)</u>
Actuarial Value as of June 30, 2003		\$83,742,572

B) Calculation of Required Premium, GLIF Rate and Deferred Premium

Death benefits	[8,501,617 x 1.08 ^{2+9.5/12}]	\$10,539,245
Interest	[(5,824,370) x 1.08 ^{2+3.5/12}]	(\$6,947,764)
Premium Loss/(Gain)	[(468,859) x 1.08 ³]	(\$590,627)
Adjustment to the GLIF reserve		<u>\$13,047,646</u>
Total required premium		\$16,048,500
GLIF Rate	= $\frac{\text{Required premium}}{\text{Estimated 2004-2005 paybase}}$	
	= $\frac{\$16,048,500}{\$12,345,000,000}$	
	= 0.13%	
October 15, 2005 deferred premium	[\$12,345,000,000 x 0.0013]	\$16,048,500

C) Summary of Deferred Premiums

	<u>Deferred Premium</u>	<u>Present Value as of 6/30/2003</u>
Due October 15, 2003	\$15,099,500	\$14,764,338
Due October 15, 2004	\$15,563,600	\$14,090,867
Due October 15, 2005	\$16,048,500	<u>\$13,453,595</u>
		\$42,308,800

D) GLIF Net Asset Value (A - C)

\$83,742,572 - \$42,308,800 = \$41,433,772

APPENDIX 5 (Cont'd.)

Excess Benefit Plan Fund*
2003 Valuation

Balance as of July 1, 2003		\$791,000
less	Accrual Final Adjustment for the 2003 Fiscal Year	\$32,000
plus	Employer contribution (paid 10/15/2003) [0 X \$11,427,089,463 (6/30/2001 ECR rate of .0% times '02-'03 paybase)]	\$0
less	Annual Estimated Payments	<u>\$360,000</u>
Expected Balance as of June 30, 2004		\$399,000
plus	Employer contribution (payable 10/15/2004) [0.0001 X \$11,887,000,000 (6/30/2002 ECR rate of .01% times est'd. '03-'04 paybase)]	\$1,188,700
less	Annual Estimated Payments (\$360,000 X 1.5)	<u>\$540,000</u>
Expected Balance as of June 30, 2005		\$1,047,700

	=	$\frac{\text{Anticipated Excess Benefits Paid in 2005-2006}}{2004-2005 \text{ Salary}}$	=	$\frac{\$360,000 \times 1.5 \times 1.5}{\$12,345,000,000}$
Rate	=	$\frac{\$810,000}{\$12,345,000,000}$	=	0.00656%

round up to 0.01%

* Fund is in a zero-interest checking account

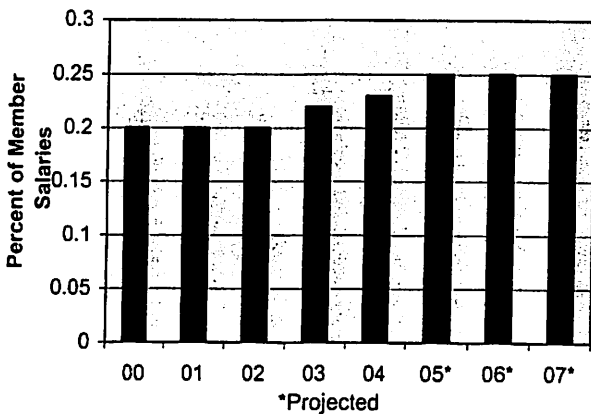
Administrative Employer Contribution Rate

The administrative employer contribution rate (Rate) is adopted annually by the Retirement Board as part of the overall employer contribution rate in an amount necessary to defray estimated expenses (exclusive of investment operations) for the following fiscal year. The projected 2005-06 member-related expenses have been calculated by increasing the 2004-05 member-related expenses by an estimated 9% based on the System's five-year plan. The projected member salary base is actuarially determined. It has been estimated at \$12,345,000,000 for 2004-05, and is expected to increase approximately 3% - 4% annually for the next three years.

The Rate remained at 0.20% for a seven-year period from 1995-96 through 2001-02. Current economic conditions and projects set forth in the System's business plan necessitated an annual increase in the rate through 2004-05. The proposed rate for 2004-05 and future collections is 0.25%.

Proposed 2005-06 Administrative Employer Contribution Rate: 0.25%

Administrative Employer Contribution Rate
2000-2007



Based on the calculation as shown, the Rate for 2005-06 will be set at 0.25%.

Budgeted 2004-05 Member-Related Expenses \$28,166,648
 $\times 1.09$
 Projected 2005-06 Member-Related Expenses \$30,701,646

Projected 2005-06
Member-Related Expenses = $\frac{\$ 30,701,646}{\$12,345,000,000}$ = 0.25%
 Projected 2004-05
 Member Salary Base

APPENDIX 5 (Cont'd.)

Asset Valuation Worksheet

<u>Date</u>	<u>Market Value of Stocks</u>	<u>Book Value of Stocks</u>	<u>Ratio of Market to Book (1 year)</u>	<u>Ratio of Market to Book (5-year)</u>	<u>Actuarial Value of Stocks</u>	<u>Market Value less Actuarial Value of Stocks</u>
6/30/67	193,622,030	174,113,382	1.1120			
6/30/68	254,183,357	215,432,574	1.1799			
6/30/69	290,440,708	260,486,967	1.1150			
6/30/70	323,557,079	377,646,664	0.8568			
6/30/71	671,384,087	557,998,577	1.2032			
6/30/72	941,919,694	742,546,482	1.2685	1.1520	855,413,547	86,506,147
6/30/73	1,046,419,062	916,049,587	1.1423	1.1468	1,050,525,666	(4,106,604)
6/30/74	1,098,202,008	1,171,497,464	0.9374	1.0838	1,269,668,951	(171,466,943)
6/30/75	1,547,893,276	1,476,678,524	1.0482	1.0907	1,610,613,266	(62,719,990)
6/30/76	1,689,457,649	1,505,122,306	1.1225	1.0881	1,637,723,581	51,734,068
6/30/77	1,857,675,150	1,866,225,472	0.9954	1.0438	1,947,966,148	(90,290,998)
6/30/78	1,947,456,862	2,074,089,082	0.9389	1.0058	2,086,118,799	(138,661,937)
6/30/79	2,163,424,739	2,197,671,694	0.9844	1.0094	2,218,329,808	(54,905,069)
6/30/80	2,500,532,983	2,432,004,801	1.0282	1.0083	2,452,190,441	48,342,542
6/30/81	3,147,812,912	2,858,116,465	1.1014	1.0165	2,905,275,387	242,537,525
6/30/82	2,688,241,092	3,103,527,864	0.8662	0.9828	3,050,147,185	(361,906,093)
6/30/83	4,715,183,799	3,707,199,355	1.2719	1.0641	3,944,830,834	770,352,965
6/30/84	4,769,110,738	4,662,925,508	1.0228	1.0631	4,957,156,108	(188,045,370)
6/30/85	6,467,778,562	5,314,047,373	1.2171	1.1090	5,893,278,537	574,500,025
6/30/86	8,963,298,931	6,172,606,434	1.4521	1.2022	7,420,707,455	1,542,591,476
6/30/87	11,835,709,857	7,637,352,575	1.5497	1.3367	10,208,849,187	1,626,860,670
6/30/88	11,363,688,597	8,803,305,570	1.2908	1.3317	11,723,362,028	(359,673,431)
6/30/89	14,305,310,920	10,366,553,683	1.3799	1.3824	14,330,723,811	(25,412,891)
6/30/90	16,636,940,344	11,594,113,081	1.4349	1.4157	16,413,785,889	223,154,455
6/30/91	17,781,736,078	12,294,776,273	1.4463	1.4187	17,442,599,099	339,136,979
6/30/92	20,567,343,426	13,488,493,286	1.5248	1.4263	19,238,637,974	1,328,705,452
6/30/93	24,156,413,259	15,057,722,635	1.6043	1.4880	22,405,891,281	1,750,521,978
6/30/94	24,261,470,427	16,036,657,117	1.5129	1.5102	24,218,559,578	42,910,849
6/30/95	33,893,020,765	22,721,906,674	*	*	32,127,452,426	1,765,568,339
6/30/96	40,549,224,315	24,915,695,917	*	*	36,526,249,444	4,022,974,871
6/30/97	50,533,580,007	27,386,455,151	*	*	42,856,615,770	7,676,964,237
6/30/98	60,286,117,262	29,309,696,097	*	*	49,810,326,055	10,475,791,207
6/30/99	68,503,291,853	31,557,801,910	*	*	58,632,335,505	9,870,956,348
6/30/00	69,534,264,698	32,316,817,116	*	*	63,712,463,653	5,821,801,045
6/30/01	58,032,437,700	32,366,074,049	*	*	65,118,183,908	(7,085,746,208)
6/30/02	49,458,132,096	32,632,394,594	*	*	62,721,988,613	(13,263,856,517)
6/30/03	52,366,372,088	34,016,251,418	*	*	62,079,849,516	(9,713,477,428)

Method changed to compute separate adjustments for Domestic Equity, International Equity, Real Estate, Global Fixed Income, and Alternative Investments.

APPENDIX 5 (Cont'd.)

ACTUARIAL VALUE OF ASSETS
Domestic Equity

	<u>MARKET VALUE</u>	<u>BOOK VALUE</u>	<u>MV/BV</u> <u>1 Yr.</u>	<u>5 Yr.</u>	<u>ACTUARIAL</u> <u>VALUE</u>	<u>ADJUSTMENT TO</u> <u>ADMITTED ASSETS</u>
1991	17,781,736,078	12,294,776,273	1.4463			
1992	20,567,343,426	13,488,493,286	1.5248			
1993	24,156,413,259	15,057,722,635	1.6043			
1994	24,261,470,427	16,036,657,117	1.5129			
1995	27,708,449,455	16,639,109,212	1.6653	1.5571	25,908,756,954	1,799,692,501
1996	32,407,921,562	17,610,836,894	1.8402	1.6377	28,841,267,581	3,566,653,981
1997	40,505,759,373	19,194,162,406	2.1103	1.7630	33,839,308,322	6,666,451,051
1998	49,456,228,457	20,673,780,017	2.3922	1.9338	39,978,955,797	9,477,272,660
1999	56,241,849,881	22,099,879,745	2.5449	2.1443	47,388,772,137	8,853,077,744
2000	54,798,012,497	22,110,078,683	2.4784	2.2953	50,749,263,601	4,048,748,896
2001	46,680,552,985	22,273,232,404	2.0958	2.3289	51,872,130,946	(5,191,577,961)
2002	38,817,973,890	21,968,628,079	1.7670	2.2542	49,521,681,416	(10,703,707,526)
2003	41,368,456,373	23,127,578,078	1.7887	2.1322	49,312,621,978	(7,944,165,605)

APPENDIX 5 (Cont'd.)

**ACTUARIAL VALUE OF ASSETS
International Equity**

	<u>MARKET VALUE</u>	<u>BOOK VALUE</u>	MV/BV		<u>ACTUARIAL</u>	<u>ADJUSTMENT TO</u>
			<u>1 Yr.</u>	<u>5 Yr.</u>	<u>VALUE</u>	<u>ADMITTED ASSETS</u>
1991	243,389,702	250,000,000	0.9736			
1992	265,538,141	250,000,000	1.0622			
1993	296,250,027	250,000,000	1.1850			
1994	2,075,382,282	1,930,000,000	1.0753			
1995	4,112,963,293	3,930,000,000	1.0466	1.0580	4,157,940,000	(44,976,707)
1996	4,856,575,588	3,930,000,000	1.2358	1.1280	4,433,040,000	423,535,588
1997	6,039,080,989	4,330,000,000	1.3947	1.2095	5,237,135,000	801,945,989
1998	6,535,358,854	4,460,000,000	1.4653	1.2712	5,669,552,000	865,806,854
1999	7,677,410,137	4,960,000,000	1.5479	1.3522	6,706,912,000	970,498,137
2000	9,060,403,809	5,010,000,000	1.8085	1.5059	7,544,559,000	1,515,844,809
2001	6,730,333,328	6,037,303,542	1.1148	1.4535	8,775,220,698	(2,044,887,370)
2002	5,826,091,451	6,126,110,193	0.9510	1.3473	8,253,708,263	(2,427,616,812)
2003	5,752,950,708	5,893,690,621	0.9761	1.2505	7,370,060,122	(1,617,109,414)

APPENDIX 5 (Cont'd.)

ACTUARIAL VALUE OF ASSETS
Real Estate

	<u>MARKET VALUE</u>	<u>BOOK VALUE</u>	<u>MV/BV</u>		<u>ACTUARIAL</u>	<u>ADJUSTMENT TO</u>
			<u>1 Yr.</u>	<u>5 Yr.</u>	<u>VALUE</u>	<u>ADMITTED ASSETS</u>
1991	839,712,737	871,702,091	0.9633			
1992	1,001,942,240	1,068,540,480	0.9377			
1993	957,213,026	1,080,353,367	0.8860			
1994	992,296,569	1,115,593,881	0.8895			
1995	1,167,286,469	1,258,087,385	0.9278	0.9192	1,156,433,924	10,852,545
1996	1,578,800,939	1,680,718,149	0.9394	0.9185	1,543,739,620	35,061,319
1997	2,171,825,120	2,025,792,115	1.0721	0.9591	1,942,937,217	228,887,903
1998	2,382,344,041	2,242,961,628	1.0621	0.9963	2,234,662,670	147,681,371
1999	2,524,773,067	2,349,333,673	1.0747	1.0281	2,415,349,949	109,423,118
2000	3,005,363,738	2,594,872,894	1.1582	1.0706	2,778,070,920	227,292,818
2001	3,553,453,286	3,028,639,042	1.1733	1.1141	3,374,206,757	179,246,529
2002	3,493,798,066	3,170,967,587	1.1018	1.1175	3,543,556,278	(49,758,212)
2003	3,586,040,650	3,256,171,065	1.1013	1.1225	3,655,052,020	(69,011,370)

APPENDIX 5 (Cont'd.)

ACTUARIAL VALUE OF ASSETS
Alternative Investments

	<u>MARKET VALUE</u>	<u>BOOK VALUE</u>	MV/BV		<u>ACTUARIAL</u>	<u>ADJUSTMENT TO</u>
			<u>1 Yr.</u>	<u>5 Yr.</u>	<u>VALUE</u>	<u>ADMITTED ASSETS</u>
1999	415,342,943	368,654,909	1.1266	1.1266	415,342,943	(0)
2000	653,612,843	605,623,810	1.0792	1.0972	664,490,444	(10,877,601)
2001	1,068,098,101	1,026,899,061	1.0401	1.0679	1,096,625,507	(28,527,406)
2002	1,320,268,689	1,366,688,735	0.9660	1.0266	1,403,042,655	(82,773,966)
2003	1,658,924,357	1,738,811,654	0.9541	1.0019	1,742,115,396	(83,191,039)

APPENDIX 6

MEMBER RECONCILIATION

ACTIVE MEMBERS:

	<u>Men</u>	<u>Women</u>	<u>Total</u>
July 1, 2002.....	62,780	180,054	242,834
Changes During Year:			
Added.....	4,758	13,538	18,296
Withdrawn.....	894	2,658	3,552
Retired.....	3,729	6,444	10,173
Died.....	61	97	158
Total Membership July 1, 2003.....	62,854	184,393	247,247

MEMBERS RETIRED FOR:

	<u>Service</u>			<u>Vesting</u>			<u>Disability</u>			<u>Total</u>		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
July 1, 2002.....	38,515	59,670	98,185	2,749	3,719	6,468	580	1,311	1,891	41,844	64,700	106,544
Changes During Year:												
Retired.....	3,475	5,941	9,416	216	383	599	38	120	158 *	3,729	6,444	10,173
Died.....	900	1,660	2,560	38	47	85	45	85	130	983	1,792	2,775
Lump Sum.....	26	53	79	2	6	8	0	0	0	28	59	87
Restored to Active Membership....	0	0	0	0	0	0	0	4	4	0	4	4
July 1, 2003.....	41,064	63,898	104,962	2,925	4,049	6,974	573	1,342	1,915 **	44,562	69,289	113,851

BENEFICIARIES OF DECEASED:

	<u>Service Annuitants</u>			<u>Disability Annuitants</u>			<u>Active Members</u>			<u>Total</u>		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
July 1, 2002.....	715	2,931	3,646	71	171	242	72	354	426	858	3,456	4,314
Changes During Year:												
Added.....	91	268	359	4	11	15	0	0	0	95	279	374
Died.....	69	141	210	1	5	6	3	12	15	73	158	231
July 1, 2003.....	737	3,058	3,795	74	177	251	69	342	411	880	3,577	4,457

SUMMARY

	<u>Men</u>	<u>Women</u>	<u>Total</u>
Active Members.....	62,854	184,393	247,247
Retired Members.....	44,562	69,289	113,851
Beneficiaries.....	880	3,577	4,457
Total.....	108,296	257,259	365,555

*Includes 9 males and 9 females retired for disability who receive a service benefit.

**Includes 50 males and 67 females retired for disability who receive a service benefit.

APPENDIX 7

DISTRIBUTION OF ACTIVE MEMBERS

Distribution by Age as of June 30, 2003

<u>Age</u>	<u>Males</u>	<u>Females</u>	<u>Total Members</u>
15-19	8	17	25
20-24	1,908	5,951	7,859
25-29	8,341	23,646	31,987
30-34	9,339	26,423	35,762
35-39	7,678	21,927	29,605
40-44	6,735	22,219	28,954
45-49	7,072	24,717	31,789
50-54	11,071	32,965	44,036
55-59	8,233	19,461	27,694
60-64	1,876	5,637	7,513
65-69	401	1,069	1,470
70-74	122	267	389
75-79	45	73	118
80-84	22	18	40
85 or older	<u>3</u>	<u>3</u>	<u>6</u>
Total	62,854	184,393	247,247

Average Male age is 42 years 5 months

Average Female age is 42 years 3 months

APPENDIX 7 (Cont'd.)

Distribution of Active Members by Age and New York State Service as of June 30, 2003

Males

Age	<u>Less Than 10 Years New York State Service</u>	<u>10 or more Years New York State Service</u>	<u>Total New York State Service</u>
15-19	8	0	8
20-24	1,908	0	1,908
25-29	8,341	0	8,341
30-34	8,847	492	9,339
35-39	5,058	2,620	7,678
40-44	3,230	3,505	6,735
45-49	2,634	4,438	7,072
50-54	2,068	9,003	11,071
55-59	1,241	6,992	8,233
60-64	584	1,292	1,876
65-69	188	213	401
70-74	72	50	122
75-79	25	20	45
80-84	12	10	22
85 or older	<u>0</u>	<u>3</u>	<u>3</u>
Total	34,216	28,638	62,854

Females

	<u>Less Than 10 Years New York State Service</u>	<u>10 or more Years New York State Service</u>	<u>Total New York State Service</u>
15-19	17	0	17
20-24	5,951	0	5,951
25-29	23,645	1	23,646
30-34	25,037	1,386	26,423
35-39	14,570	7,357	21,927
40-44	12,307	9,912	22,219
45-49	11,762	12,955	24,717
50-54	8,682	24,283	32,965
55-59	3,717	15,744	19,461
60-64	1,158	4,479	5,637
65-69	299	770	1,069
70-74	102	165	267
75-79	29	44	73
80-84	9	9	18
85 or older	<u>2</u>	<u>1</u>	<u>3</u>
Total	107,287	77,106	184,393

APPENDIX 7 (Cont'd.)

Distribution of Active Members by Total Service as of June 30, 2003

<u>Service</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
0-4	22,458	68,751	91,209
5-9	11,355	36,757	48,112
10-14	6,702	23,587	30,289
15-19	5,434	20,545	25,979
20-24	3,894	13,477	17,371
25-29	4,875	11,672	16,547
30-34	6,537	8,352	14,889
35 or more	<u>1,599</u>	<u>1,252</u>	<u>2,851</u>
Total	62,854	184,393	247,247

Median Male has 8 Years of Total Service

Median Female has 7 Years of Total Service

APPENDIX 8
HISTORICAL MEMBER STATISTICS

Members and Annuitants 1925-2003

<u>As of June 30</u>	<u>Members</u>	<u>Retirees</u>
1925	29,057	1,815
1930	39,663	2,732
1935	45,031	3,919
1940	48,193	4,771
1945	52,359	5,637
1950	56,504	6,374
1955	71,273	7,897
1960	99,555	10,796
1965	129,543	16,043
1970	186,914	22,700
1975	227,038	35,252
1980	203,330	46,812
1985	178,516	57,366
1990	195,194	69,127
1995	199,398	82,459
2000	224,986	100,839
2003	247,247	118,308

Number of Active Members By Tier

<u>As of June 30</u>	<u>Tier I</u>	<u>Tier II</u>	<u>Tier III</u>	<u>Tier IV</u>	<u>Total</u>
1985	106,602	22,082	36,705	13,127	178,516
1986	101,060	20,736	34,691	22,761	179,248
1987	96,334	19,878	32,906	33,137	182,255
1988	92,858	19,809	32,095	43,171	187,933
1989	88,984	19,092	30,720	52,957	191,753
1990	85,103	18,590	29,422	62,079	195,194
1991	81,010	18,224	28,348	67,723	195,305
1992	74,872	17,801	27,495	72,205	192,373
1993	70,180	17,448	26,788	78,475	192,891
1994	67,423	17,212	26,121	84,935	195,691
1995	64,093	17,012	25,206	93,087	199,398
1996	58,850	16,596	24,546	100,926	200,918
1997	53,502	16,186	23,861	110,167	203,716
1998	49,266	15,860	23,302	120,652	209,080
1999	50,859	15,776	20,726	128,906	216,267
2000	47,234	15,700	20,159	141,893	224,986
2001	41,169	15,472	19,914	157,795	234,350
2002	35,601	15,121	19,674	172,438	242,834
2003	28,327	14,463	19,083	185,374	247,247

APPENDIX 9

RETIREMENT STATISTICS

RETIREMENT STATISTICS 2002-03 RETIREES RETIRED FOR:

	Service	Disability	Vesting
Number Retired.....	9,434	140	599
Age at Retirement:			
Average.....	57 yrs., 5 mos.	51 yrs., 11 mos.	55 yrs., 4 mos.
Median.....	55 yrs., 10 mos.	52 yrs., 4 mos.	55 yrs., 0 mos.
Years of Service:			
Average.....	31 yrs., 1 mo.	19 yrs., 2 mos.	13 yrs., 4 mos.
Median.....	34 yrs., 0 mos.	18 yrs., 2 mos.	12 yrs., 2 mos.
*Benefit:			
Average.....	\$47,365.30	\$22,906.94	\$6,046.59
Median.....	\$49,665.84	\$21,390.00	\$3,379.08
Final Average Salary:			
Average.....	\$73,196.83	\$59,838.12	\$26,803.72
Median.....	\$73,146.67	\$59,522.32	\$23,134.81
**Benefit as % of FAS:			
Average.....	61.15%	36.55%	19.11%
Median.....	68.00%	33.33%	14.94%

2002-03 RETIREES RETIRED FOR SERVICE WITH:

	Less Than 20 Yrs. N.Y.	Between 20 Yrs. N.Y. and 35 Yrs. Total	35 Yrs. Total or More
Number Retired.....	1,065	4,299	4,070
Age at Retirement:			
Average.....	59 yrs., 5 mos.	57 yrs., 5 mos.	56 yrs., 11 mos.
Median.....	58 yrs., 0 mos.	55 yrs., 8 mos.	55 yrs., 9 mos.
Years of Service:			
Average.....	12 yrs., 6 mos.	30 yrs., 0 mos.	37 yrs., 1 mo.
Median.....	12 yrs., 8 mos.	31 yrs., 4 mos.	36 yrs., 5 mos.
*Benefit			
Average.....	\$7,733.38	\$44,327.94	\$60,944.09
Median.....	\$5,556.36	\$44,425.08	\$58,334.28
Final Average Salary:			
Average.....	\$37,174.27	\$73,434.65	\$82,371.67
Median.....	\$34,149.30	\$72,291.67	\$78,469.06
**Benefit as % of FAS:			
Average.....	18.73%	59.49%	73.99%
Median.....	17.99%	62.44%	73.11%

*The maximum, even though the member may have chosen an option.

**The average and median of individual benefits as percentages of final average salary.

APPENDIX 9 (Cont'd.)

RETIREMENT STATISTICS ALL RETIREES AS OF JUNE 30, 2003 RETIRED FOR:

	Service	Disability	Vesting
Number Retired.....	105,079	1,798	6,974
Age at Retirement:			
Average.....	58 yrs., 6 mos.	48 yrs., 8 mos.	55 yrs., 8 mos.
Median.....	57 yrs., 5 mos.	49 yrs., 6 mos.	55 yrs., 0 mos.
Years of Service:			
Average.....	28 yrs., 5 mos.	19 yrs., 2 mos.	14 yrs., 6 mos.
Median.....	30 yrs., 2 mos.	18 yrs., 8 mos.	14 yrs., 0 mos.
*Benefit:			
Average.....	\$30,991.04	\$14,915.12	\$5,663.42
Median.....	\$29,059.08	\$12,905.40	\$3,600.84
Final Average Salary:			
Average.....	\$51,784.46	\$39,398.93	\$21,689.45
Median.....	\$51,730.49	\$37,717.69	\$19,280.00
**Benefit as % of FAS:			
Average.....	55.79%	36.57%	23.53%
Median.....	60.00%	33.96%	19.91%

ALL RETIREES AS OF JUNE 30, 2003 RETIRED FOR SERVICE WITH:

	Less Than 20 Yrs. N.Y.	Between 20 Yrs. N.Y. and 35 Yrs. Total	35 Yrs. Total or More
Number Retired.....	14,976	67,479	22,624
Age at Retirement:			
Average.....	59 yrs., 7 mos.	58 yrs., 1 mo.	59 yrs., 1 mo.
Median.....	58 yrs., 8 mos.	56 yrs., 8 mos.	58 yrs., 7 mos.
Years of Service:			
Average.....	15 yrs., 0 mos.	28 yrs., 6 mos.	37 yrs., 3 mos.
Median.....	15 yrs., 3 mos.	29 yrs., 5 mos.	36 yrs., 7 mos.
*Benefit:			
Average.....	\$7,071.31	\$30,316.82	\$48,835.69
Median.....	\$5,744.76	\$28,797.60	\$49,498.44
Final Average Salary:			
Average.....	\$28,566.17	\$52,120.98	\$66,150.15
Median.....	\$23,611.27	\$51,899.32	\$67,144.20
**Benefit as % of FAS:			
Average.....	24.14%	56.82%	73.68%
Median.....	23.51%	58.37%	73.11%

*The maximum, even though the member may have chosen an option.

**The average and median of individual benefits as percentages of final average salary.

APPENDIX 10

1999 – 2003 EXPERIENCE STUDY

NUMBER OF SERVICE RETIREMENTS
TIER 1 AND TIERS 2,3,4 AT LEAST AGE 62 OR WITH 30 YEARS OF SERVICE
EXPOSURE BASED ON ACTIVE TEACHERS
ASSUMPTIONS ADOPTED OCTOBER 2000 (T1,T234)

AGE	MALES				FEMALES			
	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
50	3,831	17	0.00	-	9,230	20	0.00	-
51	6,167	29	0.00	-	13,333	45	0.00	-
52	8,466	84	0.00	-	16,591	109	0.00	-
53	9,740	203	0.00	-	17,329	322	0.00	-
54	10,398	673	0.00	-	16,675	822	0.00	-
55	10,278	3,740	2,851.01	1.312	15,368	4,484	4,042.69	1.109
56	6,707	2,287	1,706.27	1.340	10,511	2,621	2,257.23	1.161
57	4,460	1,154	1,005.01	1.148	7,726	1,474	1,357.40	1.086
58	3,381	927	745.92	1.243	6,295	1,265	1,072.40	1.180
59	2,506	760	580.73	1.309	4,949	1,101	918.66	1.198
60	1,790	590	485.80	1.214	3,789	956	836.00	1.144
61	1,208	388	394.37	0.984	2,735	693	720.33	0.962
62	1,311	471	510.80	0.922	4,154	1,225	1,292.03	0.948
63	875	234	309.11	0.757	2,838	761	855.46	0.890
64	650	150	235.93	0.636	2,084	484	615.07	0.787
65	497	134	213.01	0.629	1,556	473	518.37	0.912
66	346	86	131.18	0.656	1,052	267	358.71	0.744
67	253	62	82.46	0.752	781	185	234.28	0.790
68	186	41	48.48	0.846	580	139	178.03	0.781
69	142	35	43.71	0.801	456	113	123.05	0.918
70	99	17	28.54	0.596	342	86	98.15	0.876
71	421	57	421.00	0.135	1,043	224	1,043.00	0.215
TOTAL	73,712	12,139	9,793.33	1.240	139,417	17,869	16,520.86	1.082

APPENDIX 10 (Cont'd.)

1999-2003 EXPERIENCE STUDY
 NUMBER OF SERVICE RETIREMENTS
 TIERS 2,3,4 LESS THAN AGE 62 AND WITH LESS THAN 30 YEARS OF SERVICE
 EXPOSURE BASED ON ACTIVE TEACHERS
 ASSUMPTIONS ADOPTED OCTOBER 2000 (T234)

AGE	MALES				FEMALES			
	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
50	7,292	1	0.00	-	20,576	13	0.00	-
51	6,558	5	0.00	-	17,387	17	0.00	-
52	5,276	8	0.00	-	13,593	19	0.00	-
53	4,214	10	0.00	-	10,905	23	0.00	-
54	3,277	32	0.00	-	9,054	75	0.00	-
55	2,523	148	104.98	1.410	7,754	416	509.94	0.816
56	1,839	99	70.18	1.411	6,343	300	340.54	0.881
57	1,400	76	47.32	1.606	5,329	268	234.07	1.145
58	1,125	56	37.23	1.504	4,569	262	194.59	1.346
59	926	51	32.19	1.584	3,872	258	179.68	1.436
60	720	51	29.31	1.740	3,168	274	174.74	1.568
61	584	48	28.60	1.678	2,544	248	167.51	1.481
62	0	0	0.00	0.000	0	0	0.00	0.000
63	0	0	0.00	0.000	0	0	0.00	0.000
64	0	0	0.00	0.000	0	0	0.00	0.000
65	0	0	0.00	0.000	0	0	0.00	0.000
66	0	0	0.00	0.000	0	0	0.00	0.000
67	0	0	0.00	0.000	0	0	0.00	0.000
68	0	0	0.00	0.000	0	0	0.00	0.000
69	0	0	0.00	0.000	0	0	0.00	0.000
70	0	0	0.00	0.000	0	0	0.00	0.000
71	0	0	0.00	0.000	0	0	0.00	0.000
TOTAL	35,734	585	349.81	1.672	105,094	2,173	1,801.07	1.207

1999-2003 EXPERIENCE STUDY
 NUMBER OF DEATHS AMONG ACTIVE MEMBERS
 EXPOSURE BASED ON ACTIVE TEACHERS
 ASSUMPTIONS ADOPTED OCTOBER 2000

CENTRAL AGE	MALES			FEMALES		
	<u>ACTUAL</u>	<u>EXPECTED</u>	<u>RATIO OF ACTUAL TO EXPECTED</u>	<u>ACTUAL</u>	<u>EXPECTED</u>	<u>RATIO OF ACTUAL TO EXPECTED</u>
20	0	0.09	0.000	0	0.18	0.000
25	4	6.25	0.640	5	14.37	0.348
30	11	14.26	0.771	17	23.92	0.711
35	8	14.72	0.543	13	22.45	0.579
40	10	14.87	0.672	24	30.81	0.779
45	23	30.71	0.749	58	64.30	0.902
50	63	74.93	0.841	87	120.23	0.724
55	62	87.59	0.708	90	115.32	0.780
60	27	24.04	1.123	33	47.66	0.692
65	7	6.39	1.095	20	13.04	1.534
70	7	1.96	3.571	17	3.27	5.199
TOTAL	222	275.81	0.805	364	455.55	0.799

APPENDIX 10 (Cont'd.)

1999-2003 EXPERIENCE STUDY
 NUMBER OF DISABILITY RETIREMENTS
 EXPOSURE BASED ON ACTIVE TEACHERS
 ASSUMPTIONS ADOPTED OCTOBER 2000

CENTRAL AGE	MALES			FEMALES		
	<u>ACTUAL</u>	<u>EXPECTED</u>	<u>RATIO OF ACTUAL TO EXPECTED</u>	<u>ACTUAL</u>	<u>EXPECTED</u>	<u>RATIO OF ACTUAL TO EXPECTED</u>
30	0	0.81	0.000	0	1.77	0.000
35	0	2.83	0.000	7	10.69	0.655
40	5	7.69	0.650	35	24.99	1.401
45	9	26.14	0.344	74	68.95	1.073
50	81	97.26	0.833	228	184.53	1.236
54	44	54.35	0.810	99	80.81	1.225
TOTAL	139	189.08	0.735	443	371.74	1.192

APPENDIX 10 (Cont'd.)

1999-2003 EXPERIENCE STUDY
 COMPARISON OF SALARY SCALE TO ACTUAL SALARY INCREASES
 ASSUMPTIONS ADOPTED OCTOBER 2000

MALES

CENTRAL <u>AGE</u>	<u>ACTUAL</u> <u>SALARIES</u>	<u>EXPECTED</u> <u>SALARIES</u>	<u>RATIO OF</u> <u>ACTUAL TO</u> <u>EXPECTED</u>
20	12,334,349	10,428,069	1.183
25	765,111,507	749,149,787	1.021
30	1,413,137,942	1,404,467,837	1.006
35	1,453,256,182	1,446,625,308	1.005
40	1,462,959,193	1,460,161,568	1.002
45	1,933,406,322	1,931,994,767	1.001
50	3,977,080,571	3,984,344,650	0.998
55	3,760,794,581	3,851,238,730	0.977
60	835,445,694	871,444,061	0.959
65	151,554,464	159,244,003	0.952
70	45,941,903	47,090,941	0.976
TOTAL	15,811,022,708	15,916,189,721	0.993

APPENDIX 10 (Cont'd.)

1999-2003 EXPERIENCE STUDY
 COMPARISON OF SALARY SCALE TO ACTUAL SALARY INCREASES
 ASSUMPTIONS ADOPTED OCTOBER 2000

FEMALES

<u>CENTRAL AGE</u>	<u>ACTUAL SALARIES</u>	<u>EXPECTED SALARIES</u>	<u>RATIO OF ACTUAL TO EXPECTED</u>
20	40,200,502	32,347,447	1.243
25	2,233,545,824	2,189,081,484	1.020
30	3,711,527,033	3,704,511,601	1.002
35	3,422,014,241	3,419,147,250	1.001
40	3,834,817,686	3,829,089,585	1.001
45	5,337,347,059	5,331,661,540	1.001
50	8,532,345,897	8,550,052,801	0.998
55	6,204,273,596	6,306,796,130	0.984
60	1,900,893,619	1,951,839,785	0.974
65	376,338,365	391,593,098	0.961
70	106,997,083	111,446,047	0.960
TOTAL	35,700,300,905	35,817,566,768	0.997

APPENDIX 10 (Cont'd.)

1999-2003 EXPERIENCE STUDY
 NUMBER OF WITHDRAWALS
 EXPOSURE BASED ON ACTIVE TEACHERS
 ASSUMPTIONS ADOPTED OCTOBER 2000

CENTRAL AGE	MALES			FEMALES		
	<u>ACTUAL</u>	<u>EXPECTED</u>	<u>RATIO OF ACTUAL TO EXPECTED</u>	<u>ACTUAL</u>	<u>EXPECTED</u>	<u>RATIO OF ACTUAL TO EXPECTED</u>
20	122	130.72	0.933	321	404.82	0.793
25	1,984	1,879.91	1.055	5,974	5,948.67	1.004
30	1,635	1,695.81	0.964	6,953	6,779.91	1.026
35	1,122	1,140.62	0.984	5,294	4,472.64	1.184
40	917	918.50	0.998	3,732	3,422.33	1.090
45	867	905.35	0.958	3,456	3,386.15	1.021
50	1,003	932.26	1.076	3,961	3,690.07	1.073
54	437	331.91	1.317	1,321	1,244.25	1.062
TOTAL	8,087	7,935.08	1.019	31,012	29,348.84	1.057

APPENDIX 10 (Cont'd.)

1999-2003 EXPERIENCE STUDY
 NUMBER OF DEATHS AMONG MEMBERS RETIRED FOR DISABILITY
 MORTALITY ADOPTED OCTOBER 2000

CENTRAL AGE	MALES			FEMALES		
	<u>ACTUAL</u>	<u>EXPECTED</u>	<u>RATIO OF ACTUAL TO EXPECTED</u>	<u>ACTUAL</u>	<u>EXPECTED</u>	<u>RATIO OF ACTUAL TO EXPECTED</u>
30	0	0.00	0.000	0	0.00	0.000
35	0	0.21	0.000	2	1.17	1.709
40	2	2.28	0.877	9	6.59	1.366
45	6	5.31	1.130	24	22.78	1.054
50	43	32.80	1.311	93	70.06	1.327
55	46	41.98	1.096	78	67.52	1.155
60	21	18.19	1.154	43	28.38	1.515
65	18	15.48	1.163	27	16.64	1.623
70	19	15.06	1.262	23	19.33	1.190
75	17	10.44	1.628	20	19.03	1.051
80	9	3.33	2.703	21	15.85	1.325
85	0	0.64	0.000	15	11.51	1.303
90	1	0.59	1.695	16	10.91	1.467
95	0	0.00	0.000	13	13.35	0.974
100	0	0.00	0.000	5	7.25	0.690
105	0	0.00	0.000	0	3.12	0.000
110	0	0.00	0.000	1	0.65	1.538
TOTAL	182	146.31	1.244	390	314.14	1.241

APPENDIX 10 (Cont'd.)

1999-2003 EXPERIENCE STUDY
 NUMBER OF DEATHS AMONG MEMBERS RETIRED FOR SERVICE
 MORTALITY ADOPTED OCTOBER 2000

CENTRAL AGE	MALES			FEMALES		
	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
55	122	115.06	1.060	114	137.32	0.830
60	243	283.60	0.857	231	295.01	0.783
65	430	458.91	0.937	380	415.59	0.914
70	673	709.56	0.948	525	626.28	0.838
75	832	856.32	0.972	796	845.40	0.942
80	761	809.31	0.940	1,155	1,201.66	0.961
85	626	627.91	0.997	1,730	1,661.66	1.041
90	428	403.23	1.061	2,021	1,948.24	1.037
95	169	145.29	1.163	1,228	1,237.39	0.992
100	26	26.99	0.963	277	299.50	0.925
105	0	1.08	0.000	34	39.04	0.871
110	0	0.00	0.000	0	1.65	0.000
TOTAL	4,310	4,437.26	0.971	8,491	8,708.74	0.975

APPENDIX 10 (Cont'd.)

1999-2003 EXPERIENCE STUDY
 NUMBER OF DEATHS AMONG BENEFICIARIES
 MORTALITY ADOPTED OCTOBER 2000

CENTRAL AGE	MALES			FEMALES		
	<u>ACTUAL</u>	<u>EXPECTED</u>	<u>RATIO OF ACTUAL TO EXPECTED</u>	<u>ACTUAL</u>	<u>EXPECTED</u>	<u>RATIO OF ACTUAL TO EXPECTED</u>
5	0	0.00	0.000	0	0.00	0.000
10	0	0.00	0.000	0	0.00	0.000
15	0	0.00	0.000	0	0.00	0.000
20	0	0.00	0.000	0	0.00	0.000
25	0	0.00	0.000	0	0.00	0.000
30	0	0.00	0.000	0	0.00	0.000
35	0	0.01	0.000	0	0.03	0.000
40	0	0.05	0.000	0	0.06	0.000
45	0	0.17	0.000	0	0.17	0.000
50	0	0.46	0.000	0	0.71	0.000
55	3	1.03	2.913	3	2.69	1.115
60	1	1.83	0.546	5	6.89	0.726
65	4	3.96	1.010	17	12.87	1.321
70	12	11.48	1.045	42	28.68	1.464
75	28	20.33	1.377	61	60.09	1.015
80	51	39.25	1.299	133	122.79	1.083
85	78	64.00	1.219	186	179.45	1.037
90	65	52.87	1.229	210	203.90	1.030
95	33	23.67	1.394	123	116.36	1.057
100	4	3.06	1.307	26	18.52	1.404
105	0	0.00	0.000	2	1.47	1.361
110	0	0.00	0.000	0	0.00	0.000
TOTAL	279	222.17	1.256	808	754.68	1.071

APPENDIX 10 (Cont'd.)

Investment Rate of Return¹
on
Market and Actuarial Value of Assets

as of June 30, 2003

Annualized rate of return over the last:

	<u>Based Upon Market Value of Assets</u>	<u>Based Upon Actuarial Value of Assets</u>
1 Year:	4.0%	5.5%
3 Years:	-2.9%	-1.2%
5 Years:	2.2%	5.6%
10 Years:	9.1%	10.1%

Annualized inflation over the last:

	<u>Inflation Assumption</u>		<u>COLA Benefit</u>	
	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected²</u>
1 Year:	3.0%	3.0%	1.6%	1.75%
3 Years:	2.5%	3.0%	1.4%	1.75%

¹ The interest rate for valuation purposes is a level 8.0%.

² The annual percentage for estimating COLA benefit payments is 1.75%. The COLA percentage is one-half of the increase in the CPI with a floor of 1.0% and a cap of 3.0%. Therefore this estimate of inflation for the COLA benefit is the result of analyzing available CPI data with percentages bounded between 2.0% and 6.0%, and reduced by 50%.

HISTORY OF THE EMPLOYER CONTRIBUTION RATE

<u>Salary Year</u>	<u>Employer Contribution Rate</u>	<u>Salary Year</u>	<u>Employer Contribution Rate</u>
1921-22	5.10 %	1961-62	18.55 %
1922-23	5.10	1962-63	19.55
1923-24	5.20	1963-64	21.13
1924-25	5.20	1964-65	17.67
1925-26	5.20	1965-66	17.70
1926-27	5.20	1966-67	17.72
1927-28	5.20	1967-68	18.50
1928-29	5.30	1968-69	18.80
1929-30	5.50	1969-70	18.60
1930-31	5.50	1970-71	18.80
1931-32	5.50	1971-72	18.80
1932-33	5.50	1972-73	18.80
1933-34	5.50	1973-74	18.80
1934-35	5.60	1974-75	18.80
1935-36	5.70	1975-76	19.40
1936-37	5.80	1976-77	19.40
1937-38	5.93	1977-78	20.40
1938-39	6.03	1978-79	21.40
1939-40	6.13	1979-80	22.49
1940-41	6.23	1980-81	23.49
1941-42	6.33	1981-82	23.49
1942-43	6.43	1982-83	23.49
1943-44	6.53	1983-84	22.90
1944-45	7.10	1984-85	22.80
1945-46	7.20	1985-86	21.40
1946-47	7.50	1986-87	18.80
1947-48	7.80	1987-88	16.83
1948-49	8.00	1988-89	14.79
1949-50	8.40	1989-90	6.87
1950-51	8.80	1990-91	6.84
1951-52	9.60	1991-92	6.64
1952-53	9.90	1992-93	8.00
1953-54	9.90	1993-94	8.41
1954-55	10.30	1994-95	7.24
1955-56	10.40	1995-96	6.37
1956-57	10.90	1996-97	3.57
1957-58	11.20	1997-98	1.25
1958-59	13.40	1998-99	1.42
1959-60	14.00	1999-00	1.43
1960-61	18.35	2000-01	0.43
		2001-02	0.36
		2002-03	0.36
		2003-04	2.52
		2004-05	5.63
		Average	10.99 %

APPENDIX 12

HISTORY OF THE MEMBER CONTRIBUTION RATE

<u>Year of Membership</u>	<u>Required Contribution</u>
1921	4%
1948	5% (new members - 1948 and after)
1948	Voluntary 4% <u>could</u> be contributed (all members eligible)
1951	If you elected special retirement allowance: 4% went to 6.5%, 5% went to 8% (all members eligible)
1957	If you elected 1/120th plan: 6.5% went to 9%, 8% went to 11% (all members eligible)
1970	0%
1976	3% (new members - 1976 and after)

As of August 1, 1921, when the Retirement System was established, members contributed 4% of salary. These contributions were used to fund a separate annuity, over and above the regular pension. New members on or after July 1, 1948 were required to contribute 5% of salary. Additional contributions, not in excess of 4% of salary, were permitted during the five-year period beginning July 1, 1948.

Under the provisions of a law passed in 1950, members could elect before July 1, 1951, or within one year of their date of membership, if later, to contribute towards a special service retirement allowance. If their rate of contribution was 4%, their new rate would be 6.5%. If their rate of contribution was 5%, their new rate would be 8%. In 1956, an amendment was passed which provided additional benefits for service in excess of 25 years, but not in excess of 35 years, for those members who elected to contribute an additional 2.5% or 3% of their salaries. This increased the rate of contribution to 9% or 11% depending on whether the member's normal rate of contribution was 6.5% or 8%.

Throughout the 1960's the advent of the "take-home pay" program effectively reduced the required contribution rate to zero for many members. As of July 1, 1970, all members were no longer required to make contributions, nor permitted to make voluntary contributions unless they had been making them previously.

The law that created Tier 3 in 1976 reinstated member contributions and required members who joined the System after July 26, 1976 contribute 3% of their annual salary. This money, however, helps pay the member's pension and does not fund a separate annuity as before. The 3% required contribution is still in place for all current and new members who join after July 26, 1976. Effective October 1, 2000, the 3% required contributions will cease upon the attainment of the earlier of 10 years of service credit or 10 years of membership.

ACTUARIAL COST AND ASSET VALUATION METHODS

1. Actuarial Cost Method

The cost method used to determine the liabilities and normal cost in this valuation is the Aggregate Cost Method.

Each year a normal rate percentage is developed as a level percentage of total member compensation. This percentage equals the portion of the actuarial present value of projected benefits which exceeds the actuarial value of assets divided by one percent of the present value of future compensation of the active members, as of the valuation date.

The cost of active member death benefits up to \$50,000, Retirement System administrative expenses, and benefits in excess of the IRC §415 limits are each determined using a one-year term cost method.

Each year, actuarial gains and losses will occur because actual experience will vary from the actuarial assumptions. All gains and losses are automatically amortized as part of the normal rate, over the future working lifetime of active members.

2. Asset Valuation Method

The actuarial value of equities (domestic equities, international equities, equity real estate, and alternative investments) is based upon a market-related value using a five-year moving average. The book value for each investment class is multiplied by the weighted average ratio (as of the valuation date and the preceding four years) of the market value to the book value.

Domestic fixed income (short-term and long-term), and mortgages are valued at book value.

PRESENT ACTUARIAL ASSUMPTIONS

Table of Contents

- I. Active Mortality Rates
- II. Disability Retirement Rates
- III. Withdrawal Rates
 - a) Males
 - b) Females
- IV. Retirement Rates
 - a) Tier 1 Members and Tiers 2, 3 and 4 Members at Least Age 62 or with 30 Years of Service
 - b) Tiers 2, 3 and 4 Members Less Than Age 62 and with Less than 30 Years of Service
- V. Service and Deferred Annuitant and Beneficiary Mortality Rates
- VI. Disabled Annuitant Mortality Rates
- VII. Salary Scale
- VIII. Valuation Interest Assumption

APPENDIX 14 (Cont'd.)

Mortality Rates
for Active Members

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	0.000075	20	0.000043
21	0.000123	21	0.000073
22	0.000141	22	0.000098
23	0.000205	23	0.000142
24	0.000215	24	0.000181
25	0.000236	25	0.000215
26	0.000317	26	0.000252
27	0.000359	27	0.000253
28	0.000375	28	0.000255
29	0.000403	29	0.000257
30	0.000428	30	0.000262
31	0.000465	31	0.000266
32	0.000499	32	0.000271
33	0.000501	33	0.000273
34	0.000502	34	0.000278
35	0.000503	35	0.000284
36	0.000504	36	0.000306
37	0.000506	37	0.000309
38	0.000509	38	0.000311
39	0.000514	39	0.000326
40	0.000518	40	0.000349
41	0.000576	41	0.000409
42	0.000645	42	0.000458
43	0.000743	43	0.000515
44	0.000847	44	0.000575
45	0.000968	45	0.000602
46	0.001072	46	0.000635
47	0.001147	47	0.000666
48	0.001206	48	0.000698
49	0.001273	49	0.000771
50	0.001326	50	0.000818
51	0.001376	51	0.000874
52	0.001443	52	0.000933
53	0.001551	53	0.000998
54	0.001592	54	0.001022

APPENDIX 14 (Cont'd.)

Mortality Rates
for Active Members

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
55	0.001614	55	0.001107
56	0.001631	56	0.001159
57	0.001635	57	0.001203
58	0.001683	58	0.001271
59	0.001753	59	0.001292
60	0.001771	60	0.001331
61	0.001894	61	0.001384
62	0.001987	62	0.001416
63	0.002105	63	0.001471
64	0.002311	64	0.001508
65	0.002494	65	0.001597
66	0.002823	66	0.001689
67	0.003270	67	0.001882
68	0.003972	68	0.002143
69	0.004725	69	0.002434
70	0.005544	70	0.002704

APPENDIX 14 (Cont'd.)

Disability Retirement Rates
for Active Members

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
30	0.000016	30	0.000018
31	0.000039	31	0.000031
32	0.000064	32	0.000049
33	0.000086	33	0.000074
34	0.000098	34	0.000105
35	0.000099	35	0.000138
36	0.000097	36	0.000173
37	0.000104	37	0.000204
38	0.000135	38	0.000235
39	0.000187	39	0.000266
40	0.000255	40	0.000299
41	0.000383	41	0.000332
42	0.000471	42	0.000371
43	0.000552	43	0.000427
44	0.000644	44	0.000509
45	0.000744	45	0.000602
46	0.000926	46	0.000705
47	0.001145	47	0.000905
48	0.001446	48	0.001079
49	0.001664	49	0.001174
50	0.001751	50	0.001283
51	0.001819	51	0.001347
52	0.001884	52	0.001401
53	0.001943	53	0.001488
54	0.001992	54	0.001508

APPENDIX 14 (Cont'd.)

Withdrawal Rates
for Active Members

Males

Age	10 or more Years of Service										
	0 Years of Service	1 Year of Service	2 Years of Service	3 Years of Service	4 Years of Service	5 Years of Service	6 Years of Service	7 Years of Service	8 Years of Service	9 Years of Service	10 or more Years of Service
20	0.218354	0.087974	0.061209	0.038791	0.028598	0.016826	0.019724	0.018589	0.007774	0.004411	0.007144
21	0.218354	0.087974	0.061209	0.038791	0.028598	0.016826	0.019724	0.018589	0.007774	0.004411	0.007144
22	0.218354	0.087974	0.061209	0.038791	0.028598	0.016826	0.019724	0.018589	0.007774	0.004411	0.007144
23	0.223103	0.087974	0.061209	0.038791	0.028598	0.016826	0.019724	0.018589	0.007774	0.004411	0.007144
24	0.227853	0.089299	0.061209	0.038791	0.028598	0.016826	0.019724	0.018589	0.007774	0.004411	0.007144
25	0.232602	0.090623	0.061404	0.038791	0.028598	0.016826	0.019724	0.018589	0.007774	0.004411	0.007144
26	0.237351	0.091948	0.061598	0.041434	0.028598	0.016826	0.019724	0.018589	0.007774	0.004411	0.007144
27	0.242100	0.093273	0.061793	0.044077	0.030471	0.016826	0.019724	0.018589	0.007774	0.004411	0.007144
28	0.246850	0.094598	0.061988	0.046720	0.032344	0.020154	0.019724	0.018589	0.007774	0.004411	0.007144
29	0.251599	0.095922	0.062183	0.049363	0.034217	0.023481	0.020206	0.018589	0.007774	0.004411	0.007144
30	0.256348	0.097247	0.062378	0.052005	0.036090	0.026809	0.020687	0.018807	0.007774	0.004411	0.007144
31	0.259400	0.098868	0.065616	0.054574	0.037963	0.030136	0.021168	0.019025	0.009427	0.004411	0.007144
32	0.262451	0.100490	0.068855	0.057143	0.039836	0.033463	0.021649	0.019243	0.011080	0.005291	0.007144
33	0.265502	0.102111	0.072094	0.059712	0.041709	0.036791	0.022131	0.019461	0.012733	0.006172	0.007306
34	0.268554	0.103732	0.075333	0.062280	0.043582	0.040118	0.022612	0.019679	0.014387	0.007052	0.007467
35	0.271605	0.105353	0.078571	0.064849	0.045455	0.043446	0.023093	0.019897	0.016040	0.007933	0.007629
36	0.276933	0.107699	0.075381	0.068507	0.043710	0.042485	0.023898	0.020735	0.016076	0.008813	0.007790
37	0.282261	0.110045	0.072191	0.072165	0.041965	0.041524	0.024703	0.021572	0.016112	0.009693	0.007952
38	0.287589	0.112392	0.069001	0.075822	0.040220	0.040563	0.025508	0.022409	0.016149	0.010574	0.008113
39	0.292917	0.114738	0.065811	0.079480	0.038475	0.039602	0.026314	0.023246	0.016185	0.011454	0.008274
40	0.298246	0.117084	0.062620	0.083138	0.036730	0.038642	0.027119	0.024084	0.016221	0.012335	0.008436
41	0.285359	0.120663	0.068464	0.084111	0.040162	0.038653	0.025819	0.025149	0.016968	0.012862	0.008401
42	0.272473	0.124242	0.074307	0.085083	0.043595	0.038665	0.024519	0.026215	0.017714	0.013390	0.008367
43	0.259586	0.127821	0.080150	0.086055	0.047027	0.038676	0.023219	0.027281	0.018460	0.013918	0.008332
44	0.246699	0.131400	0.085993	0.087028	0.050460	0.038688	0.021919	0.028346	0.019207	0.014446	0.008297
45	0.233813	0.134979	0.091837	0.088000	0.053892	0.038700	0.020619	0.029412	0.019953	0.014973	0.008263
46	0.240524	0.136377	0.091371	0.083782	0.056500	0.040504	0.026694	0.029967	0.021063	0.016334	0.007990
47	0.247235	0.137775	0.090906	0.079563	0.059107	0.042309	0.032770	0.030523	0.022172	0.017694	0.007717
48	0.253946	0.139173	0.090441	0.075345	0.061714	0.044113	0.038846	0.031078	0.023282	0.019055	0.007444
49	0.260657	0.140571	0.089976	0.071126	0.064322	0.045918	0.044922	0.031633	0.024391	0.020415	0.007171
50	0.267368	0.141969	0.089510	0.066908	0.066929	0.047722	0.050998	0.032189	0.025501	0.021776	0.006898
51	0.274080	0.143367	0.089045	0.062689	0.069537	0.049527	0.057074	0.032744	0.026610	0.023136	0.006625
52	0.280791	0.144765	0.088580	0.058471	0.072144	0.051331	0.063149	0.033300	0.027720	0.024496	0.006352
53	0.287502	0.146163	0.088115	0.054252	0.074751	0.053136	0.069225	0.033855	0.028830	0.025857	0.006078
54	0.294213	0.147561	0.087649	0.050034	0.077359	0.054940	0.075301	0.034411	0.029939	0.027217	0.005805

APPENDIX 14 (Cont'd.)

Withdrawal Rates
for Active Members

Females

<u>Age</u>	<u>0 Years of Service</u>	<u>1 Year of Service</u>	<u>2 Years of Service</u>	<u>3 Years of Service</u>	<u>4 Years of Service</u>	<u>5 Years of Service</u>	<u>6 Years of Service</u>	<u>7 Years of Service</u>	<u>8 Years of Service</u>	<u>9 Years of Service</u>	<u>10 or more Years of Service</u>
20	0.231046	0.085075	0.057926	0.044635	0.065672	0.054662	0.038258	0.045681	0.039018	0.040717	0.025987
21	0.231046	0.085075	0.057926	0.044635	0.065672	0.054662	0.038258	0.045681	0.039018	0.040717	0.025987
22	0.231046	0.085075	0.057926	0.044635	0.065672	0.054662	0.038258	0.045681	0.039018	0.040717	0.025987
23	0.232395	0.085075	0.057926	0.044635	0.065672	0.054662	0.038258	0.045681	0.039018	0.040717	0.025987
24	0.233744	0.090141	0.057926	0.044635	0.065672	0.054662	0.038258	0.045681	0.039018	0.040717	0.025987
25	0.235092	0.095208	0.062180	0.044635	0.065672	0.054662	0.038258	0.045681	0.039018	0.040717	0.025987
26	0.236441	0.100275	0.066434	0.051391	0.065672	0.054662	0.038258	0.045681	0.039018	0.040717	0.025987
27	0.237790	0.105341	0.070688	0.058147	0.066897	0.054662	0.038258	0.045681	0.039018	0.040717	0.025987
28	0.239139	0.110408	0.074941	0.064903	0.068122	0.056413	0.038258	0.045681	0.039018	0.040717	0.025987
29	0.240487	0.115475	0.079195	0.071659	0.069347	0.058163	0.043249	0.045681	0.039018	0.040717	0.025987
30	0.241836	0.120542	0.083449	0.078415	0.070572	0.059913	0.048241	0.047165	0.039018	0.040717	0.025987
31	0.237362	0.117221	0.082367	0.079831	0.071797	0.061663	0.053232	0.048648	0.041626	0.040717	0.025987
32	0.232887	0.113901	0.081285	0.081246	0.073022	0.063414	0.058223	0.050132	0.044234	0.040717	0.025987
33	0.228413	0.110581	0.080203	0.082662	0.074247	0.065164	0.063214	0.051616	0.046842	0.040717	0.025987
34	0.223938	0.107261	0.079121	0.084077	0.075472	0.066914	0.068205	0.053099	0.049451	0.040717	0.025987
35	0.219464	0.103941	0.078038	0.085493	0.076697	0.068665	0.073197	0.054583	0.052059	0.040717	0.025987
36	0.217543	0.100745	0.074466	0.078070	0.070748	0.063003	0.066416	0.050740	0.047217	0.037950	0.023969
37	0.215621	0.097548	0.070893	0.070647	0.064800	0.057342	0.059636	0.046897	0.042376	0.035182	0.021950
38	0.213700	0.094352	0.067320	0.063225	0.058851	0.051680	0.052856	0.043054	0.037535	0.032415	0.019932
39	0.211779	0.091155	0.063747	0.055802	0.052902	0.046019	0.046075	0.039211	0.032693	0.029648	0.017914
40	0.209858	0.087958	0.060174	0.048379	0.046953	0.040357	0.039295	0.035368	0.027852	0.026880	0.015896
41	0.209432	0.089486	0.061628	0.049664	0.043724	0.038635	0.037785	0.032795	0.025789	0.025670	0.014814
42	0.209006	0.091014	0.063082	0.050950	0.040495	0.036913	0.036275	0.030221	0.023726	0.024460	0.013732
43	0.208580	0.092542	0.064535	0.052235	0.037266	0.035191	0.034766	0.027648	0.021663	0.023250	0.012650
44	0.208154	0.094069	0.065989	0.053521	0.034036	0.033468	0.033256	0.025075	0.019600	0.022039	0.011568
45	0.207727	0.095597	0.067443	0.054806	0.030807	0.031746	0.031746	0.022502	0.017537	0.020829	0.010486
46	0.213134	0.099401	0.070512	0.057942	0.036194	0.035189	0.034277	0.024233	0.019206	0.020627	0.010962
47	0.218541	0.103205	0.073580	0.061078	0.041581	0.038632	0.036808	0.025965	0.020875	0.020425	0.011439
48	0.223948	0.107009	0.076649	0.064214	0.046968	0.042075	0.039339	0.027696	0.022544	0.020224	0.011915
49	0.229355	0.110813	0.079718	0.067350	0.052354	0.045518	0.041870	0.029428	0.024213	0.020022	0.012392
50	0.234762	0.114616	0.082787	0.070486	0.057741	0.048960	0.044401	0.031159	0.025882	0.019820	0.012868
51	0.240168	0.118420	0.085855	0.073622	0.063128	0.052403	0.046932	0.032890	0.027551	0.019618	0.013345
52	0.245575	0.122224	0.088924	0.076758	0.068515	0.055846	0.049463	0.034622	0.029220	0.019417	0.013821
53	0.250982	0.126028	0.091993	0.079894	0.073901	0.059289	0.051994	0.036353	0.030889	0.019215	0.014298
54	0.256389	0.129832	0.095062	0.083030	0.079288	0.062732	0.054525	0.038085	0.032558	0.019013	0.014774

APPENDIX 14 (Cont'd.)

Service Retirement Rates
For Tier 1 Members and Tiers 2, 3 and 4 Members
at Least Age 62 or with 30 Years of Service

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
55	0.277390	55	0.263059
56	0.254401	56	0.214749
57	0.225338	57	0.175693
58	0.220620	58	0.170357
59	0.231737	59	0.185625
60	0.271395	60	0.220638
61	0.326469	61	0.263375
62	0.389623	62	0.311033
63	0.353272	63	0.301430
64	0.362969	64	0.295139
65	0.428599	65	0.333144
66	0.379139	66	0.340981
67	0.325933	67	0.299974
68	0.260654	68	0.306956
69	0.307829	69	0.269845
70	0.288309	70	0.286982

APPENDIX 14 (Cont'd.)

Service Retirement Rates
 For Tiers 2, 3 and 4 Members Less Than Age 62
 and with Less Than 30 Years of Service

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
55	0.041608	55	0.065765
56	0.038160	56	0.053687
57	0.033801	57	0.043923
58	0.033093	58	0.042589
59	0.034761	59	0.046406
60	0.040709	60	0.055159
61	0.048970	61	0.065844

APPENDIX 14 (Cont'd.)

Mortality Rates for Service
and Deferred Annuity and Beneficiaries
(Also used in calculating the benefits pursuant to
subdivision b.3 of Section 512 of the Education Law)

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
1	0.000592	1	0.000163
2	0.000400	2	0.000153
3	0.000332	3	0.000137
4	0.000259	4	0.000130
5	0.000237	5	0.000131
6	0.000227	6	0.000138
7	0.000217	7	0.000148
8	0.000201	8	0.000164
9	0.000194	9	0.000189
10	0.000197	10	0.000216
11	0.000208	11	0.000242
12	0.000226	12	0.000262
13	0.000255	13	0.000273
14	0.000297	14	0.000280
15	0.000345	15	0.000284
16	0.000391	16	0.000286
17	0.000430	17	0.000289
18	0.000460	18	0.000292
19	0.000484	19	0.000291
20	0.000507	20	0.000291
21	0.000530	21	0.000294
22	0.000556	22	0.000302
23	0.000589	23	0.000314
24	0.000624	24	0.000331
25	0.000661	25	0.000351
26	0.000696	26	0.000373
27	0.000727	27	0.000397
28	0.000754	28	0.000422
29	0.000779	29	0.000449

APPENDIX 14 (Cont'd.)

Mortality Rates for Service
and Deferred Annuitants and Beneficiaries
(Also used in calculating the benefits pursuant to
subdivision b.3 of Section 512 of the Education Law)
(cont'd.)

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
30	0.000801	30	0.000478
31	0.000821	31	0.000512
32	0.000839	32	0.000551
33	0.000848	33	0.000598
34	0.000849	34	0.000652
35	0.000851	35	0.000709
36	0.000862	36	0.000768
37	0.000891	37	0.000825
38	0.000939	38	0.000877
39	0.000999	39	0.000923
40	0.001072	40	0.000973
41	0.001156	41	0.001033
42	0.001252	42	0.001112
43	0.001352	43	0.001206
44	0.001458	44	0.001310
45	0.001578	45	0.001428
46	0.001722	46	0.001568
47	0.001899	47	0.001734
48	0.002102	48	0.001907
49	0.002326	49	0.002084
50	0.002579	50	0.002294
51	0.002872	51	0.002563
52	0.003213	52	0.002919
53	0.003584	53	0.003359
54	0.003979	54	0.003684
55	0.004249	55	0.004010
56	0.004622	56	0.004277
57	0.005041	57	0.004568
58	0.005509	58	0.004788
59	0.006035	59	0.005040

APPENDIX 14 (Cont'd.)

Mortality Rates for Service
and Deferred Annuity and Beneficiaries
(Also used in calculating the benefits pursuant to
subdivision b.3 of Section 512 of the Education Law)
(cont'd.)

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
60	0.006624	60	0.005525
61	0.007284	61	0.005951
62	0.008025	62	0.006326
63	0.008855	63	0.006753
64	0.009785	64	0.007241
65	0.010827	65	0.007799
66	0.011994	66	0.008436
67	0.013301	67	0.009162
68	0.014766	68	0.009992
69	0.016405	69	0.010940
70	0.018241	70	0.012021
71	0.020296	71	0.013254
72	0.021659	72	0.014661
73	0.024232	73	0.016266
74	0.027108	74	0.018097
75	0.030325	75	0.020184
76	0.034855	76	0.022563
77	0.038869	77	0.024286
78	0.043351	78	0.027373
79	0.048351	79	0.031874
80	0.053926	80	0.035874
81	0.060138	81	0.040423
82	0.067991	82	0.045593
83	0.075683	83	0.051465
84	0.084231	84	0.058128
85	0.092780	85	0.065684
86	0.105082	86	0.075226
87	0.117383	87	0.085889
88	0.129685	88	0.098080
89	0.141986	89	0.110270

APPENDIX 14 (Cont'd.)

Mortality Rates for Service
and Deferred Annuitants and Beneficiaries
(Also used in calculating the benefits pursuant to
subdivision b.3 of Section 512 of the Education Law)
(cont'd.)

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
90	0.157604	90	0.122460
91	0.174969	91	0.137777
92	0.192333	92	0.153093
93	0.209698	93	0.172598
94	0.227062	94	0.194324
95	0.251313	95	0.209552
96	0.268147	96	0.246066
97	0.296333	97	0.275378
98	0.326497	98	0.307447
99	0.349224	99	0.342319
100	0.383158	100	0.359090
101	0.428148	101	0.379972
102	0.474607	102	0.405740
103	0.522250	103	0.434987
104	0.561346	104	0.476222
105	0.600828	105	0.519271
106	0.640199	106	0.563717
107	0.678897	107	0.609032
108	0.716331	108	0.654577

APPENDIX 14 (Cont'd.)

Mortality Rates for
Disabled Annuitants

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
30	0.056321	30	0.035627
31	0.058172	31	0.035903
32	0.065427	32	0.036328
33	0.074062	33	0.036541
34	0.083307	34	0.038122
35	0.090672	35	0.038534
36	0.098725	36	0.039257
37	0.109383	37	0.039530
38	0.117285	38	0.040041
39	0.126681	39	0.043912
40	0.130245	40	0.046104
41	0.127932	41	0.051781
42	0.121874	42	0.054207
43	0.114362	43	0.056972
44	0.102311	44	0.061436
45	0.091650	45	0.064048
46	0.087509	46	0.065229
47	0.084593	47	0.065088
48	0.083917	48	0.064054
49	0.082265	49	0.063633
50	0.082193	50	0.063152
51	0.078108	51	0.061897
52	0.075397	52	0.059182
53	0.068776	53	0.055024
54	0.061079	54	0.049622
55	0.053000	55	0.043853
56	0.044572	56	0.038636
57	0.041872	57	0.034622
58	0.035794	58	0.031779
59	0.032687	59	0.030053

APPENDIX 14 (Cont'd.)

Mortality Rates for
Disabled Annuitants
(cont'd.)

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
60	0.032348	60	0.029140
61	0.034663	61	0.027987
62	0.033735	62	0.026817
63	0.037751	63	0.025586
64	0.041133	64	0.024473
65	0.041424	65	0.023710
66	0.041441	66	0.023680
67	0.043452	67	0.025290
68	0.040911	68	0.027677
69	0.039711	69	0.030642
70	0.040789	70	0.034001
71	0.043847	71	0.037403
72	0.045181	72	0.039887
73	0.045327	73	0.041401
74	0.046903	74	0.042526
75	0.046658	75	0.044128
76	0.046855	76	0.046414
77	0.047869	77	0.048805
78	0.047351	78	0.051882
79	0.048351	79	0.056336
80	0.053926	80	0.062387
81	0.060138	81	0.069301
82	0.067991	82	0.076293
83	0.075683	83	0.078236
84	0.084231	84	0.080162
85	0.092780	85	0.081540
86	0.105082	86	0.083562
87	0.117383	87	0.085889
88	0.129685	88	0.098080
89	0.141986	89	0.110270

APPENDIX 14 (Cont'd.)

Mortality Rates for
Disabled Annuitants
(cont'd.)

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
90	0.157604	90	0.122460
91	0.174969	91	0.137777
92	0.192333	92	0.153093
93	0.209698	93	0.172598
94	0.227062	94	0.194324
95	0.251313	95	0.209552
96	0.268147	96	0.246066
97	0.296333	97	0.275378
98	0.326497	98	0.307447
99	0.349224	99	0.342319
100	0.383158	100	0.359090
101	0.428148	101	0.379972
102	0.474607	102	0.405740
103	0.522250	103	0.434987
104	0.561346	104	0.476222
105	0.600828	105	0.519271
106	0.640199	106	0.563717
107	0.678897	107	0.609032
108	0.716331	108	0.654577

APPENDIX 14 (Cont'd.)

Salary Scale

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	1.1363	20	1.1303
21	1.1352	21	1.1294
22	1.1329	22	1.1283
23	1.1295	23	1.1261
24	1.1250	24	1.1196
25	1.1153	25	1.1108
26	1.1094	26	1.1013
27	1.1031	27	1.0934
28	1.0980	28	1.0859
29	1.0922	29	1.0802
30	1.0861	30	1.0761
31	1.0811	31	1.0728
32	1.0771	32	1.0699
33	1.0741	33	1.0680
34	1.0717	34	1.0672
35	1.0700	35	1.0670
36	1.0681	36	1.0668
37	1.0658	37	1.0660
38	1.0634	38	1.0653
39	1.0618	39	1.0648
40	1.0606	40	1.0644
41	1.0598	41	1.0640
42	1.0583	42	1.0635
43	1.0561	43	1.0624
44	1.0536	44	1.0610
45	1.0516	45	1.0594
46	1.0503	46	1.0578
47	1.0491	47	1.0561
48	1.0476	48	1.0542
49	1.0463	49	1.0526

APPENDIX 14 (Cont'd.)

Salary Scale
(cont'd.)

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
50	1.0452	50	1.0517
51	1.0444	51	1.0512
52	1.0443	52	1.0507
53	1.0443	53	1.0500
54	1.0442	54	1.0497
55	1.0438	55	1.0499
56	1.0432	56	1.0502
57	1.0428	57	1.0500
58	1.0429	58	1.0494
59	1.0434	59	1.0487
60	1.0437	60	1.0482
61	1.0436	61	1.0479
62	1.0436	62	1.0477
63	1.0442	63	1.0478
64	1.0437	64	1.0480
65	1.0423	65	1.0482
66	1.0416	66	1.0489
67	1.0411	67	1.0495
68	1.0400	68	1.0469
69	1.0398	69	1.0438
70	1.0395	70	1.0428

APPENDIX 14 (Cont'd.)

Valuation Interest Assumption

The interest rate for valuation purposes is a level 8.0%.

The valuation rate of interest is made up of a 3.0%¹ annual inflation and a 5.0% real rate of return.

¹ The annual percentage for estimating COLA benefit payments is 1.75%. The COLA percentage is one-half of the increase in the CPI with a floor of 1.0% and a cap of 3.0%. Therefore this estimate of inflation for the COLA benefit is the result of analyzing available CPI data with percentages bounded between 2.0% and 6.0%, and reduced by 50%.

SUMMARY OF BENEFIT PROVISIONS

1. Membership

Membership is mandatory for all full-time New York State public school teachers, outside New York City, except those employed under the Comprehensive Employment and Training Act (CETA). Membership is optional for teachers employed on other than a full-time basis and for certain employees of the State University of New York and community colleges. Generally, the membership of any person credited with less than 5 years of service will terminate when seven years have elapsed since (s)he last rendered at least 20 days of credited service in a school year.

Tiers are determined by a member's most recent date of membership in the Retirement System as follows:

- Tier I: Membership prior to 7/1/73;
- Tier II: Membership 7/1/73 - 7/26/76;
- Tier III: Membership 7/27/76 - 8/31/83;
- Tier IV: Membership on or after 9/1/83.

Tier III members are entitled to receive the benefits of either Tier III or Tier IV, however, they may not mix the provisions of the two tiers.

2. Service Retirement

The service retirement benefits are payable for life generally as follows:

Tier I: If 20 or more years of NYS service: 2% of final average salary (FAS) per year of NYS service after July 1, 1959, plus 1.8% of FAS per year of NYS service prior to that date, plus 1% of FAS per year of out-of-state service. Out-of-state service is allowed only up to a maximum of 10 years, and only to the extent that it does not raise the total service credit to greater than 35 years. The provisions of Article 19 of the Retirement and Social Security Law, effective July 11, 2000 provides, to eligible members, additional service credit of one-twelfth of a year for each year of retirement credit as of the date of retirement or death, up to a maximum of two additional years. The maximum pension, as a result of Article 19, can be 79% of FAS.

If less than 20 years of NYS service, the above formula is used except the benefit is reduced by 5% for each year of service less than 20, subject to a maximum reduction of 50%.

Tier I members generally may retire at:

- Age 55 with 2 years of NYS service or
- Any age with 35 years of total service.

Tier II: Computed under the Tier I formula, but may be reduced for early retirement, as noted below.

Tier II members generally may retire at:

- Age 62 with 5 years of service,
- Age 55 with 30 years of service, or
- Age 55 with 5 years of service, with benefit reduced by 6% for each of the first 2 years under age 62 and 3% for each of the next 5 years.

Tier III: 1 2/3% of FAS per year of NYS service (if less than 20 years) or 2% of FAS per year of NYS service (if 20 to 30 years). There is no additional benefit for more than 30 years of service. At age 62 the benefit is reduced by 50% of the primary Social Security benefit accrued while in NYS public employment. A member may be eligible for automatic cost-of-living adjustments.

Tier III members generally may retire at:

- Age 62 with 5 years of service,
- Age 55 with 30 years of service, or
- Age 55 with 5 years of service, with benefit reduced by 1/15th for each of the first 2 years under age 62 and 1/30th for each of the next 5 years.

Tier IV: 1 2/3% of FAS per year of NYS service (if less than 20 years), or 2% of FAS per year of NYS service (if 20 to 30 years), plus 1 1/2% of FAS per year of NYS service in excess of 30 years.

Tier IV members generally may retire at:

- Age 62 with 5 years of service,
- Age 55 with 30 years of service, or
- Age 55 with 5 years of service, with benefit reduced by 6% for each of the first 2 years under age 62 and 3% for each of the next 5 years.

3. Disability Retirement

Generally a member with at least 10 years of service may qualify for a disability retirement benefit of the smaller of 1) 1 2/3% of FAS per year of projected service to age 60 or 2) 1/3 of FAS; but the benefit shall not be less than 1 2/3% of FAS per year of completed service.

4. Death Benefits

a) Active Service

The Tier I death benefit is generally equal to the greater of 1) 3 times annual salary after 36 years of service (proportionately reduced for less than 36 years) or 2) for members who are at least age 55 with 20 years of service, the pension reserve calculated under a prior, lower service retirement formula.

The death benefit for Tier II, III and IV members is generally equal to one of the following two options based on the member's election at entry: 1) 3 times annual salary after 3 years of service (proportionately reduced for service under 3 years) or 2) the greater of (1) above or the Tier I death benefit.

b) Not in Active Service

The death benefit for members of all tiers with at least ten years of service credit who die when not in active service is equal to one-half the active member death benefit.

5. Deferred Retirement

A member with at least 5 years of credited service who ceases teaching has a vested right to receive a deferred service retirement benefit. A member with at least five, but less than ten years of service credit, has the choice of receiving a refund of their member contributions with interest or a deferred service retirement benefit. A member with ten or more years of service credit will receive the deferred service retirement benefit.

6. Member Contributions

Tier III and IV members are required to contribute 3% of pay to provide a portion of their benefit. Such contributions cease upon the attainment of the earlier of 10 years of service credit or 10 years of membership effective October 1, 2000. Certain Tier I and II members may elect to contribute in order to receive an additional benefit.

7. Cost-of-Living Adjustment (COLA)

A permanent, annually-adjusted cost-of-living benefit is provided to both current and future retired members. This benefit was first paid commencing September 2001, and is increased every September thereafter, to retired members who meet one of the following eligibility criteria:

- Age 62 and retired for 5 years,
- Age 55 and retired for 10 years, or
- Retired for 5 years under a disability retirement.

The annual COLA percentage is equal to 50% of the increase in the annual CPI; not to exceed 3% nor be lower than 1%. It is applied to the first \$18,000 of annual benefit. Additionally, commencing September 2000, members retired before 1997 are eligible for a "Catch-Up" supplemental benefit upon satisfaction of the above eligibility criteria.