

# **ACTUARIAL VALUATION REPORT**

*as of*

***JUNE 30, 2006***

New York State  
Teachers' Retirement System  
Office of the Actuary  
July 12, 2007

# NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

## Actuarial Valuation Report as of June 30, 2006

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# NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

## Actuarial Valuation Report as of June 30, 2006

### 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, 2006. 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 July 1, 2007 to June 30, 2008 fiscal year 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 July 1, 2007 to June 30, 2008 fiscal year and collected in the fiscal year ending June 30, 2009 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, 2008 is **8.73%**. The Employer Contribution Rates determined by the actuarial valuations as of June 30, 2006 and June 30, 2005 and the changes between the two are summarized below:

	As of <u>6/30/2006</u>	As of <u>6/30/2005</u>	<u>Change</u>
Normal Rate	8.28%	8.21%	+0.07%
Expense Rate	0.32	0.25	+0.07
Group Life Rate	0.13	0.13	0.00
Excess Benefit Plan Rate	<u>0.00</u>	<u>0.01</u>	<u>-0.01</u>
Employer Contribution Rate	<b>8.73%</b>	<b>8.60%</b>	<b>+0.13%</b>

As in prior years, the actual employer contributions made by participating employers during the fiscal year ending June 30, 2006 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 and Section 803 of Article 18 of the Retirement and Social Security Law.

### C. GAIN/LOSS IN THE EMPLOYER CONTRIBUTION RATE

The Employer Contribution Rate of 8.73% represents a 13 basis point increase over the prior year's rate of 8.60%.

#### NORMAL RATE

The Normal Rate component of the Employer Contribution Rate has increased by 7 basis points over the prior year's rate. This change may be broken down as follows:

<b><u>New Assumptions:</u></b>	The new actuarial assumptions adopted by the Retirement Board on October 26, 2006 had the net effect of increasing the normal rate for the June 30, 2006 valuation.	+1.77
<b><u>Salary/ Service:</u></b>	This gain is due to salary and service data coming in lower than expected.	-0.19
<b><u>Net Investment Gain:</u></b>	The investment return on the <u>actuarial</u> value of assets was approximately 10.8%, which was greater than the 8.0% expected return.	-1.91
<b><u>New Entrants:</u></b>	New Entrants join the Retirement System with no accumulated assets, did not participate in prior favorable investment experience, and enter with a higher average Normal Contribution Rate of approximately 11.9%. Because of this, New Entrants exert upward pressure on the Employer Contribution Rate.	+0.10
<b><u>Withdrawal:</u></b>	Fewer members withdrew than expected.	+0.12
<b><u>Mortality:</u></b>	Members are living longer than expected and receive benefits for a longer period.	+0.38
<b><u>Retirement:</u></b>	There were less retirements at younger ages than expected.	<u>-0.20</u>
<b><u>TOTAL CHANGE IN THE NORMAL RATE:</u></b>		<b>+0.07%</b>

## **OTHER COMPONENTS**

The **Expense Rate** is set during the budget process and has increased from 0.25% to 0.32%. An explanation of the rate increase is provided in Appendix 5.

The **Group Life Insurance Rate** is unchanged from the previous year. Although the premiums collected have generally been more than sufficient to cover payments over the past several 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** has decreased from 0.01% to 0.00%. 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. It is anticipated that the fund balance is now sufficiently large to cover two years' worth of payments, allowing us to set this component equal to 0.00% in this year's Employer Contribution Rate.

### **D. REVISED ACTUARIAL ASSUMPTIONS**

At its meeting on October 26, 2006, the Retirement Board adopted revised actuarial assumptions to be effective with the June 30, 2006 actuarial valuation. Seven of the eight actuarial assumptions used for valuation purposes were revised, including rates of mortality (active, retiree, and disabled retiree), retirement, disability, withdrawal, and salary increase. The valuation rate of interest was not modified and remains at 8.0%.

The rates were revised based upon recent member experience, as well as anticipated future experience. The cost impact of the new actuarial assumptions on the June 30, 2006 valuation was to increase the employer contribution rate by 1.77% of pay. This increase was primarily due to improvements in retired member mortality.

## E. 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>
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
2005-2006	7.97
2006-2007	8.60
2007-2008	8.73

The complete Employer Contribution Rate history is presented in Appendix 11.

## F. EMPLOYER CONTRIBUTION RATE INCREASE

The Employer Contribution Rate has increased this year from 8.60% to 8.73%. This represents approximately a 1.5% increase. The Normal Rate component equals 8.28%, an increase of less than 1% over the prior year's Normal Rate of 8.21%. The Normal Rate is greater than zero for the fifth consecutive year, after being equal to zero for the prior six years. The net impact of implementing the new actuarial assumptions would have been an increase in the Normal Rate; however, primarily due to favorable experience during the fiscal year, especially the gain on investments, this increase was basically offset, leaving the Normal Rate very consistent with that of the prior year.

Four years ago 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. As the Employer Contribution Rate has increased, this dampening of the volatility in the Employer Contribution Rate has greatly assisted 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 **11.9%** of pay. This means the cost for each new member, if each year the actuarial assumptions are exactly realized, would be approximately 11.9% of pay. As the Retirement System’s membership continues to grow, and more and more New Entrants join, the Normal Rate is pulled toward this 11.9% rate. Additionally, if returns in the capital markets over a period of years are below expectations and actuarial losses accrue as a result, the Normal Rate could well increase beyond the New Entrant Normal Rate of 11.9% of pay. It is not a cap.

#### **G. MEMBER DATA**

The member data for the valuation was determined as of June 30, 2006. Compared with the previous year, the total number of members increased from 385,681 to 393,997; the number of active members increased from 260,356 to 264,410; the number of retired members increased from 120,831 to 124,954; and the number of beneficiaries receiving monthly benefits increased from 4,494 to 4,633.

The number of retirements increased from 7,182 during the 2004-2005 fiscal year to 7,281 during the 2005-2006 fiscal year. There was no early retirement incentive offered in the 2005-2006 fiscal year. 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. 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
2001-2002	None	N/A	7,344
2002-2003	Chapter 69	2,980	10,173
2003-2004	None	N/A	7,287
2004-2005	None	N/A	7,182
2005-2006	None	N/A	7,281

## **H. FUNDED STATUS**

As of June 30, 2006, the actuarial value of plan assets was equal to \$78.34 billion. The accrued pension benefit liability in accordance with the Entry Age Normal Cost Method was equal to \$76.35 billion. These two values produce a funded ratio of 102.6% as of June 30, 2006.

In accordance with the recently issued Governmental Accounting Standards Board (GASB) Statement No. 50 *Pension Disclosures*, the plan liabilities have been calculated in accordance with the Entry Age Normal Cost method, for purposes of this funded ratio calculation. The Retirement System is funded in accordance with the Aggregate Cost Method. GASB now requires that the Entry Age Normal Cost Method be used to calculate the accrued liability for purposes of presenting the funded ratio calculation.

## **I. 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 26, 2006, effective with the actuarial valuation of the Retirement System's assets and liabilities as of June 30, 2006.

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 2006 produces a long-term expected annual investment rate of return of 8.2%. Therefore, the valuation rate of interest of 8.0% remains reasonable and appropriate.

## **J. NEW LEGISLATION**

During the 2006 Legislative Session the following benefit improvements were enacted:

### **1) Permitted Investments:**

**Chapter 22 of the Laws of 2006** increased the percentage of pension fund assets that can be invested according to the prudent investor standard from 15% to 25%.

### **2) Earnings After Retirement Limit:**

**Chapter 74 of the Laws of 2006** increased the maximum post-retirement earnings limit under Section 212 of the Retirement and Social Security Law to \$30,000 for calendar year 2007 and thereafter. Retired members can earn up to \$30,000 in New York State public employment without loss of pension benefits.

**3) Annuity Death Benefit:**

**Chapter 652 of the Laws of 2006** allows Tier 2 members and the beneficiaries of such members to elect to receive death benefits in the form of an annuity.

**4) Service Credit for Ceased Membership:**

**Chapter 675 of the Laws of 2006** allows NYSTRS members to obtain credit for public service rendered after the member's date of membership in NYSTRS but credited during a membership in another public retirement system which was not timely transferred to NYSTRS.

**5) Retirement Incentive:**

There was no early retirement incentive enacted during the 2006 Legislative Session. Incentives had been offered in seven of the past eleven years.

**K. FUTURE EXPECTATIONS**

The market value rate of return on assets for the fiscal year ending June 30, 2006 was 11.8%. The five-year market value rate of return was 6.8% as of June 30, 2006. This is lower than the valuation assumption rate of return of 8.0%. Looking ahead, the market value rate of return on assets for the fiscal year ending June 30, 2007, while not yet finalized, should be in the "high teens", approximately 15% – 20%. This will raise our five-year market value rate of return to approximately 11% – 12%.

The actuarial liabilities as of June 30, 2007 are not yet known. Barring any major legislative changes, however, it is likely that the next employer contribution rate will represent a decrease from this year's rate.

## L. 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.

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Richard A. Young, A.S.A., E.A., M.A.A.A.  
Actuary

New York State  
Teachers' Retirement System  
Office of the Actuary  
July 12, 2007

APPENDIX 1

DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS

From June 30, 2005 to June 30, 2006

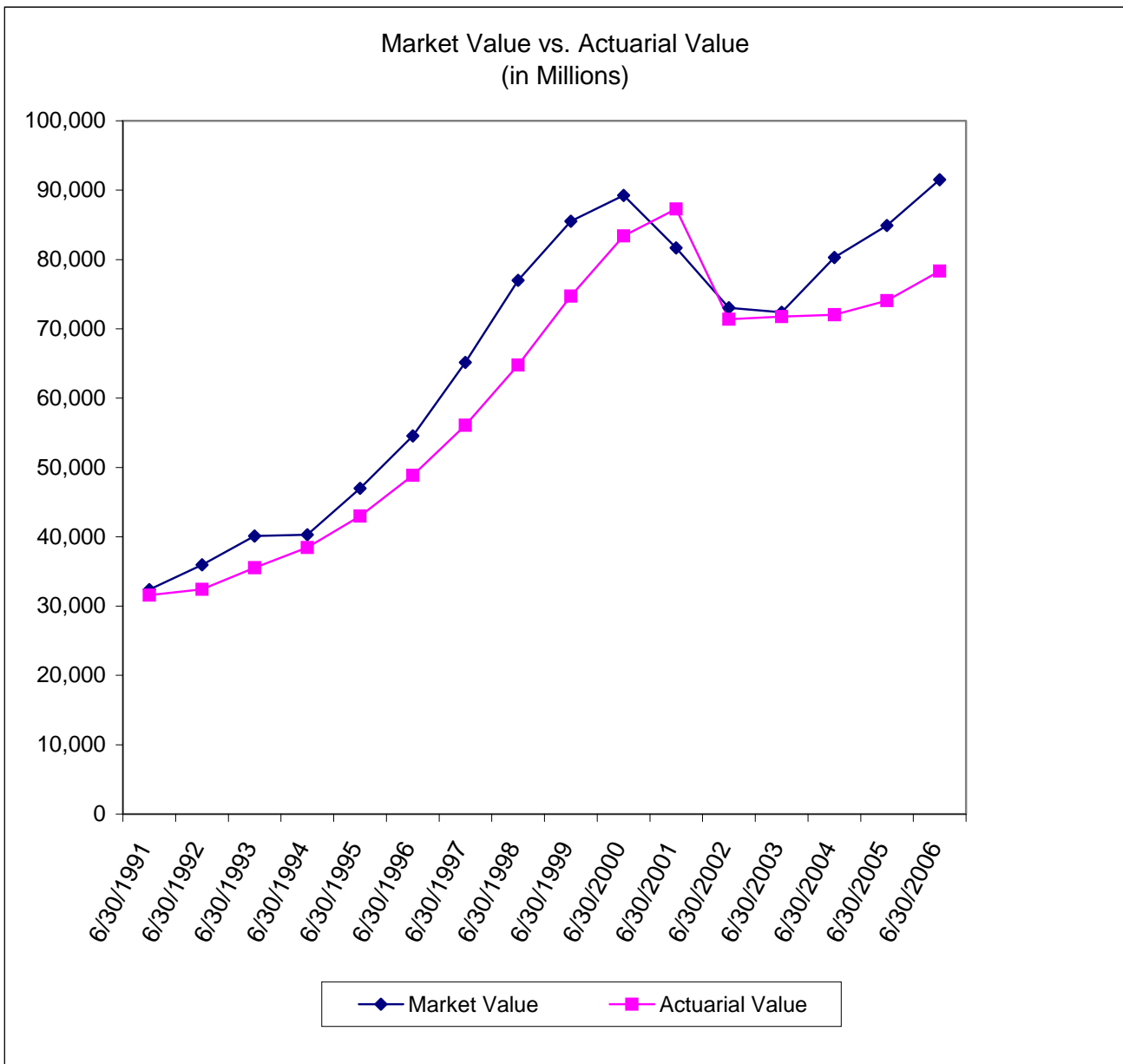
	Actuarial Value (in thousands)
1. Actuarial Value of Assets as of June 30, 2005	\$74,011,647
2. Contributions and Transfers	
Employer contributions	681,920
Member contributions	144,675
Net transfer of reserves in/out	<u>15,806</u>
Subtotal	842,401
3. Net Investment Income/(Loss)	7,839,709
4. Distributions	
Benefit payments	4,417,821
Return of member contributions	<u>15,600</u>
Subtotal	4,433,421
5. Actuarial Value of Assets as of June 30, 2006	<u>\$78,260,336*</u>
6. Market Value of Assets as of June 30, 2006	\$91,492,245

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

APPENDIX 2

COMPARISON OF MARKET VALUE TO ACTUARIAL VALUE OF ASSETS  
(in Millions)

Fiscal Year Ending	Market Value	Actuarial Value	Fiscal Year Ending	Market Value	Actuarial Value
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
6/30/1996	54,567.5	48,865.4	6/30/2004	80,276.2	72,044.4
6/30/1997	65,152.4	56,085.3	6/30/2005	84,908.5	74,074.3
6/30/1998	76,980.5	64,778.9	6/30/2006	91,492.2	78,335.8



APPENDIX 3

THE ACTUARY'S VALUATION BALANCE SHEET

as of June 30, 2006  
(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, 2006.

**ASSETS**

Present Assets of System for Valuation Purposes*	\$78,335,839
Present Value of Prospective Contributions to Pension Accumulation Fund	
from Employer Contributions	11,561,828
from Member Contributions	<u>626,650</u>
TOTAL ASSETS	<u>\$90,524,317</u>

**LIABILITIES**

Present Value of Future Benefits to:	
Retired Members and Beneficiaries	\$42,982,622
Active Members	47,497,325
Member Contributions Accumulated to Date in the Annuity Savings Fund	35,211
Benefits Due and Unpaid	<u>9,159</u>
TOTAL LIABILITIES	<u>\$90,524,317</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 over a period of time.

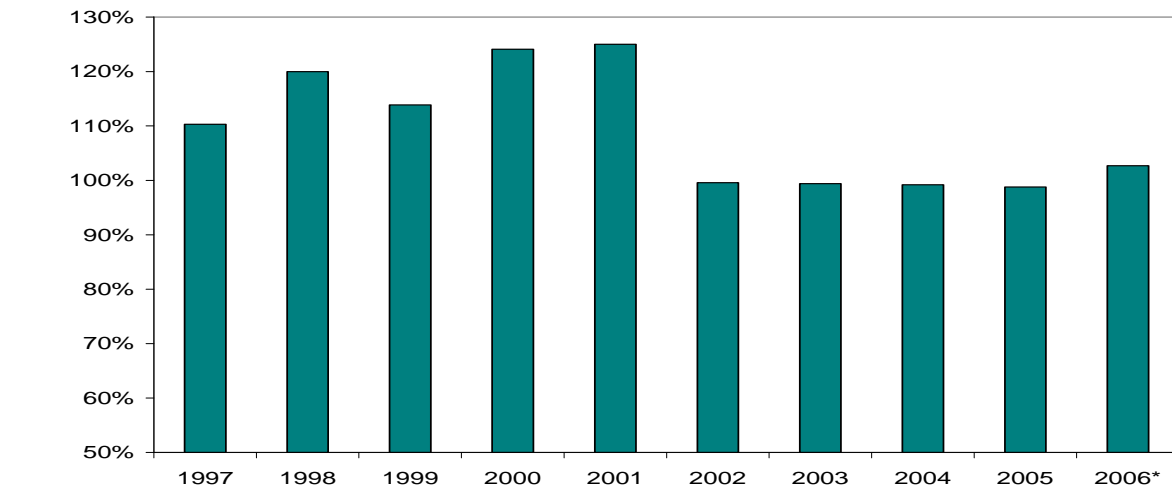
The Retirement System's funding method has allowed the accumulation of assets sufficient for the funding of its liabilities in a systematic and reasonable manner.

#### Analysis of Funding Progress

(in Millions)

Fiscal <u>Year</u>	Actuarial Value <u>of Assets</u>	Accrued Pension Benefit <u>Liability</u>	Percentage <u>Funded</u>
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
2004	72,044.4	72,604.9	99.2
2005	74,074.3	74,961.1	98.8
2006*	78,335.8	76,353.0*	102.6*

**Percent Funded**



\* Effective June 30, 2006, the Accrued Pension Benefit Liability is calculated under the Entry Age Normal Cost Method as required by Governmental Accounting Standards Board (GASB) Statement No. 50 – *Pension Disclosures*. NYSTRS is funded in accordance with the Aggregate Cost Method. GASB now requires that the Entry Age Normal Cost Method be used to calculate the accrued liability for purposes of presenting the funded percentage.



APPENDIX 5

**EMPLOYER CONTRIBUTION RATE**

2006 Valuation  
8.00% Interest

<b>Normal Rate</b>	8.28 %
<b>Group Life Rate</b>	0.13
<b>Excess Benefit Plan Rate</b>	0.00
<b>Expense Rate</b>	<u>0.32</u>
<b>Computed Contribution Rate as of June 30, 2006</b>	= <b>8.73 %</b>

# Normal Rate

2006 Valuation ~ 8.00% Interest

## Liabilities

### Active Tier 1

Service Pension	\$6,677,546,057
Disability Pension	204,600
Vested Pension	1,949,144
Active Death over \$50,000	21,406,702
Death Benefit After 10-Yr Withdrawal over \$50,000	301
Annuity Savings Fund	35,210,457
COLA	169,035,641
Total	<u>\$6,905,352,902</u>

### Active Tier 2

Service Pension	\$5,588,835,179
Post Retired Death over \$50,000	2,934,947
Disability Pension	3,725,953
Post Disabled Death over \$50,000	51,775
Vested Pension	34,264,899
Active Death over \$50,000	11,231,689
Death Benefit After 10-Yr Withdrawal over \$50,000	5,638
COLA	148,503,052
Total	<u>\$5,789,553,132</u>

### Active Tier 3

Service Pension	\$6,310,235,544
Post Retired Death over \$50,000	5,040,927
Disability Pension	20,532,438
Post Disabled Death over \$50,000	464,514
Refund on Active Death	4,204,869
Active Death over \$50,000	19,508,071
Refund on Quit	154,657
Vested Pension	156,569,433
Death Benefit After 10-Yr Withdrawal over \$50,000	73,423
Refund on Death after Vested Withdrawal	44,341
COLA	176,143,603
Total	<u>\$6,692,971,820</u>

### Active Tier 4

Service Pension	\$24,491,384,494
Post Retired Death over \$50,000	49,622,903
Disability Pension	180,729,548
Post Disabled Death over \$50,000	6,346,405
Refund on Active Death	19,415,300
Active Death over \$50,000	174,763,239
Refund on Quit	182,695,605
Vested Pension	1,520,894,839
Death Benefit After 10-Yr Withdrawal over \$50,000	3,126,073
Refund on Death after Vested Withdrawal	1,814,325
COLA	661,153,536
Total	<u>\$27,291,946,267</u>

# Normal Rate

2006 Valuation  
8.00% Interest

## Liabilities (continued)

### Retirees

Retired Pension	\$37,998,420,494
Retired Annuity	205,812,505
Disability Pension	246,475,367
Disability Annuity	1,461,758
Beneficiary Pension	434,443,551
Beneficiary Annuity	9,297,853
DBA Pension	7,532,754
DBA Annuity	684,604
Escalation	4,892,741
Post Retired Death over \$50,000	527,861
COLA	2,884,598,863
Catch-Up & Prior \$532 Supp	1,142,558,636
Total	<u>\$42,936,706,987</u>

### Vesteds

Inactive Vested	\$137,273,309
Death Benefit After 10-Yr Withdrawal over \$50,000	369,855
Active Vested	359,037,569
Death Benefit After 10-Yr Withdrawal over \$50,000	1,237,267
COLA	13,308,200
Total	<u>\$511,226,200</u>

### TIAA

Service Pension	\$4,066,705
Disability Pension	83,048
Vested Pension	146,259
Active Death over \$50,000	6,077
COLA	326,266
Total	<u>\$4,628,355</u>

### Miscellaneous

Incurred Death but not Paid	\$2,641,334
Unclaimed Non-Member Funds	4,539,676
Total	<u>\$7,181,010</u>

### Total Liabilities

\$90,139,566,673

# Normal Rate

2006 Valuation  
8.00% Interest

## Assets for Valuation

Current Total Assets	\$90,092,655,122	
Less: Left with Organization to Accrue Interest	603,265	
Expenses Due and Accrued	19,737,896	
Other Liabilities	99,803,580	
Expense Fund	16,577,531	
Sub-total		<u>\$89,955,932,850</u>
Less: Adjustment for 5 Year Averaging of Equities		6,895,093,869
Less: Provision for Adverse Market Deviation		<u>4,725,000,000</u>
<b>Assets for Valuation Purposes</b>		<b>\$78,335,838,981</b>
Less: Group Life Insurance Fund Net Asset Value		<u>\$75,502,778</u>
<b>Assets for Normal Rate Valuation Purposes</b>		<b>\$78,260,336,203</b>

## Receivables

Assets receivable from Normal Rate in 2006-2007 fiscal year (2005-2006 paybase)(2004 Normal Rate)(1.0800) <sup>-7/24</sup> (12,518,030,337) (0.0758)(1.0800) <sup>-7/24</sup>		\$927,804,789
Assets receivable from Normal Rate in 2007-2008 fiscal year (2006-2007 paybase)(2005 Normal Rate)(1.0800) <sup>-1 7/24</sup> (12,894,000,000) (0.0821)(1.0800) <sup>-1 7/24</sup>		\$958,425,747
Assets receivable from the amortization of Article 18		\$324,174
Present Value of Future Member Contributions (Tier 4 Present Value of Future Employee Contributions)(1.0800) <sup>-7/24</sup> (640,875,728) (1.0800) <sup>-7/24</sup>		\$626,650,266
Assets receivable from Retirement Incentive Payments Chapter 69 of the Laws of 2002 Receivable in 2006-2007 (23,889,505) (1.0800) - 7/24	\$23,359,232	
Receivable in 2007-2008 (23,889,506) (1.0800) - 1 7/24	<u>\$21,628,919</u>	
		<u>\$44,988,151</u>
		\$2,558,193,127

# Normal Rate

2006 Valuation  
8.00% Interest

Present Value of Future Salaries

	<u>Total PVFS</u>	
Tier 1	\$1,795,533,337	
Tier 2	2,337,795,637	
Tier 3	6,453,395,255	
Tier 4	<u>104,475,803,660</u>	
	\$115,062,527,889	$\times (1.0800)^{-7/24}$
		= \$112,508,495,128

Normal Rate

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

<u>\$9,321,037,343</u>	=	8.2847%
\$112,508,495,128	=	8.28% (rounded)

# Group Life Insurance Fund

2006 Valuation  
8.00% Interest

## A) Calculation of June 30, 2006 Balance

Actuarial Value as of July 1, 2005		\$107,440,514
Interest	[ 107,440,514 x .08 ]	\$8,595,241
October 15, 2005 actual premium	\$15,865,561	
October 15, 2005 deferred premium	<u>(\$16,048,500)</u>	
Premium Gain/(Loss)		(\$182,939)
Interest	[ (182,939) x (1.08 <sup>8.5/12</sup> - 1) ]	(\$10,250)
Death Benefits paid in 2005-2006		(\$8,594,626)
Interest	[ (8,594,626) x (1.08 <sup>.5</sup> - 1) ]	(\$337,171)
October 15, 2008 deferred premium [from B]		\$17,314,700
Interest discount	[ 17,314,700 x (1.08 <sup>-(2 + 3.5/12)</sup> - 1) ]	<u>(\$2,799,639)</u>
<b>Actuarial Value as of June 30, 2006</b>		<b>\$121,425,830</b>

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

Death benefits	[ 8,594,626 x 1.08 <sup>2+9.5/12</sup> ]	\$10,654,546
Interest	[ (8,595,241) x 1.08 <sup>2+3.5/12</sup> ]	(\$10,253,076)
Premium Loss/(Gain)	[ 182,939 x 1.08 <sup>3</sup> ]	\$230,450
Adjustment to the GLIF reserve		<u>\$16,682,780</u>
Total required premium		\$17,314,700
GLIF Rate	=	$\frac{\text{Required premium}}{\text{Estimated 2007-2008 paybase}}$
	=	$\frac{\$17,314,700}{\$13,319,000,000}$
	=	0.13%
October 15, 2008 deferred premium	[ 13,319,000,000 x 0.0013 ]	\$17,314,700

## C) Summary of Deferred Premiums

	<u>Deferred Premium</u>	<u>Present Value as of 6/30/2006</u>
Due October 15, 2006	\$16,528,200	\$16,161,325
Due October 15, 2007	\$16,840,200	\$15,246,666
Due October 15, 2008	\$17,314,700	<u>\$14,515,061</u>
		\$45,923,052

## D) GLIF Net Asset Value (A - C)

\$121,425,830 - \$45,923,052 = \$75,502,778

APPENDIX 5 (Cont'd.)

**Excess Benefit Plan Fund\***

2006 Valuation

<b>Balance as of July 1, 2006</b>	\$1,336,272
<b>less</b> Accrual Final Adjustment for the 2006 Fiscal Year	\$335,874
<b>plus</b> Employer contribution (paid 10/15/2006) [ 0.0001 X \$12,518,030,337 (6/30/2004 ECR rate of .01% times '05-'06 paybase) ]	\$1,251,803
<b>less</b> Annual Estimated Payments	<u>\$600,000</u>
<b>Expected Balance as of June 30, 2007</b>	\$1,652,201
<b>plus</b> Employer contribution (payable 10/15/2007) [ 0.0001 X \$12,894,000,000 (6/30/2005 ECR rate of .01% times est'd. '06-'07 paybase) ]	\$1,289,400
<b>less</b> Annual Estimated Payments (\$600,000 X 1.05)	<u>\$630,000</u>
<b>Expected Balance as of June 30, 2008</b>	\$2,311,601

	=	$\frac{\text{Anticipated Excess Benefits Paid in 2008-2009}}{2007-2008 \text{ Salary}}$	=	$\frac{\$600,000 \times 1.05 \times 1.05}{\$13,319,000,000}$
Rate	=	$\frac{\$661,500}{\$13,319,000,000}$	=	0.00497%
				round to 0.00%

\* Fund is in a zero-interest checking account

The Administrative Employer Contribution Rate (Rate) and Employer Contributions<sup>1</sup>

The administrative portion of the employer contribution rate is adopted annually by the Retirement Board in the amount necessary to defray member-related expenses for the following fiscal year. The first step in determining the rate is to divide the projected member-related expenses by the projected member salary base. Consideration is then given to the overall health of the fund balance.

The Rate remained at 0.20% for a seven-year period from 1995-96 through 2001-02 contributions. Economic conditions and projects set forth in the System's business plan necessitated an annual increase in the Rate through 2004-05 to 0.25% where it remains today. The 2.94% increase in employer contributions for 2007-08 reflects the projected growth in the member salary base, from \$12,518,030,337 in 2005-06 to \$12,894,000,000 in 2006-07.

**Employer Contributions to the Administrative Expense Fund**

Member Salary Base		Rate	Employer Contributions (Net of Billing Adjustments)		Increase in Contributions to the Administrative Fund
Year	Amount		Year Collected	Amount	Percent
2001-02	\$11,171,461,560	0.22 %	2002-03	\$24,594,501	16.11 %
2002-03	11,427,089,463	0.23	2003-04	26,304,495	6.95
2003-04	11,766,665,114	0.25	2004-05	29,417,836	11.84
2004-05	12,163,707,565	0.25	2005-06	30,454,517	3.52
2005-06	12,518,030,337	0.25	2006-07	31,313,133	2.82
2006-07	12,894,000,000 *	0.25	2007-08	32,235,000	2.94
2007-08	13,319,000,000 *	0.32 *	2008-09	42,620,800	32.22 **
2008-09	13,773,000,000 *	0.32 *	2009-10	44,073,600	3.41

\*Projected.

\*\*Increase in Administrative Fund collections.

Projected Member Salary Base

The member salary base is actuarially determined. It increases as new members join the System and as a result of pay increases members receive from their employers. Annual retirements and other forms of separation from service mitigate this increase. The member salary base is projected to increase 3.16% to 3.41% annually for the next several years. It has been estimated at \$13,319,000,000 for 2007-08.

Anticipating the Rate for 2008-09: 0.32%

Several factors have been considered in calculating the 2008-09 administrative rate. These include general price increases, an estimated 10% increase in health insurance premiums, planned capital asset purchases, and most significantly, the effect of GASB 45. Actual contributions to be made under GASB 45 have yet to be determined. In order to ensure adequate funding for 2008-09, a rough estimate of \$6,200,000 will be used. This approximates the funding necessary if no income is earned on contributions made under GASB 45. Based on these factors, the 2008-09 operating budget is estimated to be \$60,000,000.

<sup>1</sup> From the NYSTRS 2007-08 Operating Budget Report.



APPENDIX 5 (Cont'd.)

The Administrative Employer Contribution Rate (Rate) and Employer Contributions (Cont'd.)<sup>2</sup>

Calculation of Administrative Rate

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Estimated operating budget 2008-09 based on above	\$ 60,000,000
<u>Percentage allocated to member-related programs</u>	<u>0.71</u>
Projected 2008-09 Member-Related Expenses	\$ 42,600,000

$$\frac{\text{Projected 2008-09 Member-Related Expenses}}{\text{Projected 2007-08 Member Salary Base}} = \frac{\$ 42,600,000}{\$13,319,000,000} = 0.32\%$$

**Recommended Administrative Rate for 2008-09 Collections: = 0.32%**

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<sup>2</sup> From the NYSTRS 2007-08 Operating Budget Report.

APPENDIX 5 (Cont'd.)

**Asset Valuation Worksheet**

Date	Market Value of Stocks	Book Value of Stocks	Ratio of Market to Book (1 year)	Ratio of Market to Book (5 year)	Actuarial Value of Stocks	Market Value less Actuarial Value of Stocks
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)
6/30/04	61,922,956,181	35,327,475,477	*	*	61,550,904,413	372,051,768
6/30/05	67,616,439,502	38,873,175,281	*	*	64,495,763,151	3,120,676,351
6/30/06	72,490,112,205	39,055,417,458	*	*	65,595,018,336	6,895,093,869

\* Method changed to compute separate adjustments for Domestic Equity, International Equity, Real Estate, and Private Equity.

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)
2004	48,422,430,924	23,832,833,816	2.0318	2.0306	48,394,952,347	27,478,577
2005	51,716,160,621	25,726,928,622	2.0102	1.9414	49,946,259,227	1,769,901,394
2006	52,516,789,658	25,612,883,179	2.0504	1.9360	49,586,541,835	2,930,247,823

APPENDIX 5 (Cont'd.)

**ACTUARIAL VALUE OF ASSETS**

**International 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	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)
2004	7,556,572,509	6,084,576,976	1.2419	1.1981	7,289,931,675	266,640,834
2005	8,585,289,156	7,116,375,493	1.2064	1.1022	7,843,669,068	741,620,088
2006	10,867,368,877	7,125,431,619	1.5252	1.1930	8,500,639,921	2,366,728,956

APPENDIX 5 (Cont'd.)

**ACTUARIAL VALUE OF ASSETS**  
**Real Estate**

	<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	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)
2004	3,654,042,306	3,270,085,890	1.1174	1.1287	3,690,945,944	(36,903,638)
2005	4,225,043,629	3,525,388,252	1.1985	1.1391	4,015,769,758	209,273,871
2006	5,064,520,223	3,688,673,916	1.3730	1.1840	4,367,389,917	697,130,306

APPENDIX 5 (Cont'd.)

**ACTUARIAL VALUE OF ASSETS**  
**Private Equity**

	<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>
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)
2004	2,289,910,442	2,139,978,795	1.0701	1.0164	2,175,074,447	114,835,995
2005	3,089,946,096	2,504,482,914	1.2338	1.0741	2,690,065,098	399,880,998
2006	4,041,433,447	2,628,428,744	1.5376	1.1948	3,140,446,663	900,986,784

APPENDIX 6

MEMBER RECONCILIATION

**ACTIVE MEMBERS:**

	<b>Men</b>	<b>Women</b>	<b>Total</b>
July 1, 2005.....	64,403	195,953	<b>260,356</b>
Changes During Year:			
Added.....	3,461	11,398	<b>14,859</b>
Withdrawn.....	857	2,447	<b>3,304</b>
Retired.....	2,205	5,076	<b>7,281</b>
Died.....	55	165	<b>220</b>
Total Membership July 1, 2006.....	64,747	199,663	<b>264,410</b>

**MEMBERS RETIRED FOR:**

	<b>Service*</b>			<b>Disability</b>			<b>Total</b>		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
July 1, 2005.....	46,143	72,736	118,879	554	1,398	1,952	<b>46,697</b>	<b>74,134</b>	<b>120,831</b>
Changes During Year:									
Retired.....	2,173	4,958	7,131	32	118	150 **	<b>2,205</b>	<b>5,076</b>	<b>7,281</b>
Died.....	1,001	1,659	2,660	35	59	94	<b>1,036</b>	<b>1,718</b>	<b>2,754</b>
Lump Sum.....	110	293	403	0	0	0	<b>110</b>	<b>293</b>	<b>403</b>
Restored to Active Membership....	0	0	0	0	1	1	<b>0</b>	<b>1</b>	<b>1</b>
July 1, 2006.....	47,205	75,742	122,947	551	1,456	2,007 ***	<b>47,756</b>	<b>77,198</b>	<b>124,954</b>

**BENEFICIARIES OF DECEASED:**

	<b>Service Annuitants</b>			<b>Disability Annuitants</b>			<b>Active Members</b>			<b>Total</b>		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
July 1, 2005.....	781	3,190	3,971	86	182	268	33	222	255	<b>900</b>	<b>3,594</b>	<b>4,494</b>
Changes During Year:												
Added.....	107	289	396	0	5	5	0	0	0	<b>107</b>	<b>294</b>	<b>401</b>
Died.....	55	170	225	8	8	16	0	14	14	<b>63</b>	<b>192</b>	<b>255</b>
Lump Sum.....	1	2	3	0	0	0	0	4	4	<b>1</b>	<b>6</b>	<b>7</b>
July 1, 2006.....	832	3,307	4,139	78	179	257	33	204	237	<b>943</b>	<b>3,690</b>	<b>4,633</b>

**SUMMARY**

	<b>Men</b>	<b>Women</b>	<b>Total</b>
Active Members.....	64,747	199,663	<b>264,410</b>
Retired Members.....	47,756	77,198	<b>124,954</b>
Beneficiaries.....	943	3,690	<b>4,633</b>
Total.....	113,446	280,551	<b>393,997</b>

\*Also includes vested retirees.

\*\*Includes 1 woman retired for disability who receives a service benefit.

\*\*\*Includes 48 men and 65 women retired for disability who receive a service benefit.

APPENDIX 7

DISTRIBUTION OF ACTIVE MEMBERS

Distribution by Age as of June 30, 2006

<u>Age</u>	<u>Males</u>	<u>Females</u>	<u>Total Members</u>
15-19	12	25	37
20-24	1,523	5,289	6,812
25-29	8,611	25,577	34,188
30-34	9,940	27,483	37,423
35-39	9,739	27,560	37,299
40-44	7,803	24,780	32,583
45-49	7,168	25,991	33,159
50-54	8,255	29,294	37,549
55-59	8,299	24,229	32,528
60-64	2,644	7,520	10,164
65-69	523	1,459	1,982
70-74	145	344	489
75-79	61	93	154
80-84	20	15	35
85 or older	<u>4</u>	<u>4</u>	<u>8</u>
Total	64,747	199,663	264,410

*Average Male age is 42 years 1 month*

*Average Female age is 42 years 5 months*



APPENDIX 7 (Cont'd.)

Distribution of Active Members by Age and New York State Service as of June 30, 2006

Males

<u>Age</u>	<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	12	0	12
20-24	1,523	0	1,523
25-29	8,610	1	8,611
30-34	9,336	604	9,940
35-39	6,119	3,620	9,739
40-44	3,614	4,189	7,803
45-49	2,806	4,362	7,168
50-54	2,297	5,958	8,255
55-59	1,672	6,627	8,299
60-64	820	1,824	2,644
65-69	263	260	523
70-74	86	59	145
75-79	43	18	61
80-84	12	8	20
85 or older	<u>1</u>	<u>3</u>	<u>4</u>
Total	37,214	27,533	64,747

Females

<u>Age</u>	<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	25	0	25
20-24	5,289	0	5,289
25-29	25,577	0	25,577
30-34	25,975	1,508	27,483
35-39	18,777	8,783	27,560
40-44	13,505	11,275	24,780
45-49	13,083	12,908	25,991
50-54	9,833	19,461	29,294
55-59	5,048	19,181	24,229
60-64	1,662	5,858	7,520
65-69	412	1,047	1,459
70-74	121	223	344
75-79	34	59	93
80-84	10	5	15
85 or older	<u>2</u>	<u>2</u>	<u>4</u>
Total	119,353	80,310	199,663

APPENDIX 7 (Cont'd.)

Distribution of Active Members by Total Service as of June 30, 2006

<u>Service</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
0-4	21,878	68,078	89,956
5-9	14,827	48,974	63,801
10-14	8,516	27,155	35,671
15-19	5,478	20,432	25,910
20-24	4,366	15,530	19,896
25-29	3,678	10,607	14,285
30-34	4,168	7,074	11,242
35 or more	<u>1,836</u>	<u>1,813</u>	<u>3,649</u>
Total	64,747	199,663	264,410

*Median Male has 8 Years of Total Service*

*Median Female has 7 Years of Total Service*

APPENDIX 8  
HISTORICAL MEMBER STATISTICS

**Members and Annuitants 1925-2006**

<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
2005	260,356	125,325
2006	264,410	129,587

**Number of Active Members by Tier**

<u>As of June 30</u>	<u>Tier 1</u>	<u>Tier 2</u>	<u>Tier 3</u>	<u>Tier 4</u>	<u>Total</u>
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
2004	22,986	13,947	18,835	198,747	254,515
2005	17,901	13,210	18,535	210,710	260,356
2006	13,621	12,084	18,173	220,532	264,410

APPENDIX 9

RETIREMENT STATISTICS

**RETIREMENT STATISTICS 2005-06 RETIREES RETIRED FOR:**

	<b>Service*</b>	<b>Disability</b>
Number Retired.....	<b>7,132</b>	<b>149</b>
Age at Retirement:		
Average.....	58 yrs., 4 mos.	52 yrs., 8 mos.
Median.....	57 yrs., 1 mo.	53 yrs., 5 mos.
Years of Service:		
Average.....	28 yrs., 2 mos.	20 yrs., 3 mos.
Median.....	32 yrs., 0 mos.	19 yrs., 0 mos.
**Benefit:		
Average.....	\$43,914.18	\$25,711.27
Median.....	\$47,040.48	\$23,842.80
Final Average Salary:		
Average.....	\$71,840.12	\$64,066.65
Median.....	\$73,513.32	\$64,722.67
***Benefit as % of FAS:		
Average.....	55.11%	37.80%
Median.....	64.67%	33.33%

**2005-06 RETIREES RETIRED FOR SERVICE\* WITH:**

	<b>Less Than 20 Yrs. N.Y.</b>	<b>Between 20 Yrs. N.Y. and 35 Yrs. Total</b>	<b>35 Yrs. Total or More</b>
Number Retired.....	<b>1,394</b>	<b>3,580</b>	<b>2,158</b>
Age at Retirement:			
Average.....	59 yrs., 1 mo.	58 yrs., 2 mos.	58 yrs., 1 mo.
Median.....	57 yrs., 7 mos.	56 yrs., 7 mos.	57 yrs., 5 mos.
Years of Service:			
Average.....	11 yrs., 8 mos.	29 yrs., 3 mos.	37 yrs., 0 mos.
Median.....	11 yrs., 6 mos.	30 yrs., 6 mos.	36 yrs., 2 mos.
**Benefit			
Average.....	\$6,470.92	\$45,112.69	\$66,113.10
Median.....	\$4,157.16	\$45,536.04	\$62,331.84
Final Average Salary:			
Average.....	\$34,853.07	\$75,929.69	\$88,948.21
Median.....	\$27,293.40	\$74,543.87	\$84,536.11
***Benefit as % of FAS:			
Average.....	16.60%	58.58%	74.22%
Median.....	14.70%	62.22%	73.45%

\*Also includes vested retirees.

\*\*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, 2006 RETIRED FOR:**

	<b>Service*</b>	<b>Disability</b>
Number Retired.....	<b>123,060</b>	<b>1,894</b>
Age at Retirement:		
Average.....	58 yrs., 2 mos.	49 yrs., 0 mos.
Median.....	56 yrs., 10 mos.	49 yrs., 10 mos.
Years of Service:		
Average.....	28 yrs., 2 mos.	19 yrs., 1 mo.
Median.....	30 yrs., 2 mos.	18 yrs., 5 mos.
**Benefit:		
Average.....	\$33,365.99	\$16,214.03
Median.....	\$31,983.84	\$14,225.88
Final Average Salary:		
Average.....	\$55,728.22	\$43,082.04
Median.....	\$56,091.04	\$42,519.17
***Benefit as % of FAS:		
Average.....	55.01%	36.41%
Median.....	60.12%	33.60%

**ALL RETIREES AS OF JUNE 30, 2006 RETIRED FOR SERVICE\* WITH:**

	<b>Less Than 20 Yrs. N.Y.</b>	<b>Between 20 Yrs. N.Y. and 35 Yrs. Total</b>	<b>35 Yrs. Total or More</b>
Number Retired.....	<b>20,960</b>	<b>74,357</b>	<b>27,743</b>
Age at Retirement:			
Average.....	58 yrs., 5 mos.	57 yrs., 11 mos.	58 yrs., 8 mos.
Median.....	56 yrs., 6 mos.	56 yrs., 4 mos.	57 yrs., 11 mos.
Years of Service:			
Average.....	14 yrs., 5 mos.	28 yrs., 7 mos.	37 yrs., 1 mo.
Median.....	14 yrs., 7 mos.	29 yrs., 7 mos.	36 yrs., 5 mos.
**Benefit:			
Average.....	\$6,880.63	\$33,049.64	\$54,223.71
Median.....	\$5,266.68	\$31,714.32	\$53,373.96
Final Average Salary:			
Average.....	\$29,234.28	\$56,564.59	\$73,502.90
Median.....	\$23,832.45	\$56,366.28	\$72,730.50
***Benefit as % of FAS:			
Average.....	22.89%	57.08%	73.73%
Median.....	21.70%	58.98%	72.93%

\*Also includes vested retirees.

\*\*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

2002 – 2006 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 2006 (T1, T234)

AGE	MALES				FEMALES			
	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
50	205	3	0.00	N/A	591	1	0.00	N/A
51	958	7	0.00	N/A	2,841	5	0.00	N/A
52	2,886	27	0.00	N/A	6,810	30	0.00	N/A
53	5,160	92	0.00	N/A	11,109	158	0.00	N/A
54	7,472	443	0.00	N/A	14,882	615	0.00	N/A
55	8,838	3,453	3,325.57	1.038	16,545	5,363	5,079.10	1.056
56	6,087	2,050	1,876.49	1.092	11,658	3,224	2,913.54	1.107
57	4,393	1,051	1,163.30	0.903	8,520	1,555	1,626.36	0.956
58	3,576	916	923.08	0.992	6,992	1,318	1,331.46	0.990
59	2,612	738	734.39	1.005	5,627	1,166	1,141.04	1.022
60	1,821	524	546.69	0.958	4,324	1,058	1,011.09	1.046
61	1,277	367	382.96	0.958	3,300	765	790.11	0.968
62	1,577	450	592.52	0.759	5,245	1,392	1,583.75	0.879
63	1,013	239	322.26	0.742	3,521	849	1,051.90	0.807
64	716	139	211.06	0.659	2,355	474	671.62	0.706
65	502	116	162.12	0.716	1,713	461	556.94	0.828
66	384	89	105.47	0.844	1,168	259	344.18	0.753
67	303	51	85.58	0.596	852	169	211.24	0.800
68	230	48	63.10	0.761	662	133	188.13	0.707
69	165	26	39.51	0.658	503	109	139.93	0.779
70	128	22	23.94	0.919	380	64	97.53	0.656
71	504	60	504.00	0.119	1,188	239	1,188.00	0.201
TOTAL	50,807	10,911	11,062.04	0.986	110,786	19,407	19,925.92	0.974

APPENDIX 10 (Cont'd.)

2002-2006 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 2006 (T234)

AGE	MALES				FEMALES			
	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
50	7,793	0	0.00	N/A	25,879	4	0.00	N/A
51	7,953	3	0.00	N/A	25,297	11	0.00	N/A
52	7,099	2	0.00	N/A	22,809	5	0.00	N/A
53	5,992	4	0.00	N/A	19,157	9	0.00	N/A
54	5,088	49	0.00	N/A	15,758	99	0.00	N/A
55	4,023	262	378.44	0.692	12,500	621	959.34	0.647
56	3,055	164	235.45	0.697	9,737	418	608.37	0.687
57	2,381	109	157.63	0.691	7,837	334	374.00	0.893
58	1,870	95	120.68	0.787	6,425	280	305.87	0.915
59	1,422	68	99.95	0.680	5,211	295	264.17	1.117
60	1,112	67	83.46	0.803	4,239	317	247.80	1.279
61	878	66	65.83	1.003	3,446	301	206.27	1.459
62	0	0	0.00	N/A	0	0	0.00	N/A
63	0	0	0.00	N/A	0	0	0.00	N/A
64	0	0	0.00	N/A	0	0	0.00	N/A
65	0	0	0.00	N/A	0	0	0.00	N/A
66	0	0	0.00	N/A	0	0	0.00	N/A
67	0	0	0.00	N/A	0	0	0.00	N/A
68	0	0	0.00	N/A	0	0	0.00	N/A
69	0	0	0.00	N/A	0	0	0.00	N/A
70	0	0	0.00	N/A	0	0	0.00	N/A
71	0	0	0.00	N/A	0	0	0.00	N/A
TOTAL	48,666	889	1,141.44	0.779	158,295	2,694	2,965.82	0.908

APPENDIX 10 (Cont'd.)

2002-2006 EXPERIENCE STUDY  
 NUMBER OF DEATHS AMONG ACTIVE MEMBERS  
 EXPOSURE BASED ON ACTIVE TEACHERS  
 ASSUMPTIONS ADOPTED OCTOBER 2006

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	0.08	0.000	1	0.19	5.263
25	6	3.49	1.719	9	7.31	1.231
30	10	6.71	1.490	19	14.12	1.346
35	10	8.46	1.182	10	17.36	0.576
40	11	10.34	1.064	22	24.37	0.903
45	17	17.74	0.958	41	42.95	0.955
50	43	35.38	1.215	91	72.48	1.256
55	59	63.56	0.928	90	86.41	1.042
60	27	25.84	1.045	42	41.76	1.006
65	9	6.19	1.454	14	12.51	1.119
70	11	1.91	5.759	14	3.09	4.531
TOTAL	203	179.70	1.130	353	322.55	1.094



APPENDIX 10 (Cont'd.)

2002-2006 EXPERIENCE STUDY  
 NUMBER OF DISABILITY RETIREMENTS  
 EXPOSURE BASED ON ACTIVE TEACHERS  
 ASSUMPTIONS ADOPTED OCTOBER 2006

CENTRAL <u>AGE</u>	MALES			FEMALES		
	<u>ACTUAL</u>	<u>EXPECTED</u>	RATIO OF ACTUAL TO <u>EXPECTED</u>	<u>ACTUAL</u>	<u>EXPECTED</u>	RATIO OF ACTUAL TO <u>EXPECTED</u>
30	0	0.91	0.000	0	1.81	0.000
35	1	2.76	0.362	5	13.22	0.378
40	4	5.12	0.781	28	33.70	0.831
45	15	15.76	0.952	65	72.17	0.901
50	46	62.38	0.737	181	188.53	0.960
54	31	43.65	0.710	112	107.08	1.046
TOTAL	97	130.58	0.743	391	416.51	0.939

APPENDIX 10 (Cont'd.)

2002-2006 EXPERIENCE STUDY  
 COMPARISON OF SALARY SCALE TO ACTUAL SALARY INCREASES  
 ASSUMPTIONS ADOPTED OCTOBER 2006

<b>MALES</b>			
CENTRAL <u>AGE</u>	<u>ACTUAL SALARIES</u>	<u>EXPECTED SALARIES</u>	<u>RATIO OF ACTUAL TO EXPECTED</u>
20	15,916,350	13,724,577	1.160
25	1,012,056,510	997,634,839	1.014
30	1,826,371,262	1,833,317,485	0.996
35	2,076,418,810	2,084,170,059	0.996
40	1,868,291,498	1,875,299,243	0.996
45	1,918,457,720	1,927,112,319	0.996
50	2,937,147,308	2,948,290,703	0.996
55	3,815,793,641	3,867,741,470	0.987
60	1,109,271,683	1,132,804,254	0.979
65	179,258,986	183,405,124	0.977
70	58,325,847	59,755,465	0.976
TOTAL	16,817,309,615	16,923,255,538	0.994

APPENDIX 10 (Cont'd.)

2002-2006 EXPERIENCE STUDY  
 COMPARISON OF SALARY SCALE TO ACTUAL SALARY INCREASES  
 ASSUMPTIONS ADOPTED OCTOBER 2006

<b>FEMALES</b>			
CENTRAL <u>AGE</u>	<u>ACTUAL SALARIES</u>	<u>EXPECTED SALARIES</u>	<u>RATIO OF ACTUAL TO EXPECTED</u>
20	57,979,382	46,989,798	1.234
25	2,985,397,555	2,939,892,736	1.015
30	4,691,138,031	4,724,863,782	0.993
35	4,639,893,738	4,659,579,230	0.996
40	4,677,509,987	4,686,235,002	0.998
45	5,454,608,649	5,467,067,409	0.998
50	7,930,720,457	7,957,654,416	0.997
55	7,927,573,002	7,991,892,435	0.992
60	2,597,701,044	2,621,031,784	0.991
65	493,244,338	503,285,603	0.980
70	127,355,729	129,632,235	0.982
<b>TOTAL</b>	<b>41,583,121,912</b>	<b>41,728,124,430</b>	<b>0.997</b>

APPENDIX 10 (Cont'd.)

2002-2006 EXPERIENCE STUDY  
 NUMBER OF WITHDRAWALS  
 EXPOSURE BASED ON ACTIVE TEACHERS  
 ASSUMPTIONS ADOPTED OCTOBER 2006

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	185	217.56	0.850	497	651.55	0.763
25	2,539	2,486.55	1.021	7,808	7,746.48	1.008
30	1,904	1,789.41	1.064	8,029	7,833.86	1.025
35	1,374	1,287.91	1.067	6,681	6,403.66	1.043
40	1,104	1,042.92	1.059	4,290	4,357.50	0.985
45	1,019	996.57	1.023	3,747	3,843.31	0.975
50	1,067	1,059.40	1.007	3,677	3,803.95	0.967
54	476	469.84	1.013	1,364	1,398.56	0.975
TOTAL	9,668	9,350.16	1.034	36,093	36,038.87	1.002

APPENDIX 10 (Cont'd.)

2002-2006 EXPERIENCE STUDY  
 NUMBER OF DEATHS AMONG MEMBERS RETIRED FOR DISABILITY  
 MORTALITY ADOPTED OCTOBER 2006

CENTRAL AGE	MALES			FEMALES		
	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
30	0	0.00	N/A	0	0.04	0.000
35	0	0.08	0.000	1	0.67	1.493
40	1	1.13	0.885	8	6.06	1.320
45	7	4.19	1.671	22	24.26	0.907
50	17	18.00	0.944	71	68.38	1.038
55	42	40.91	1.027	91	104.01	0.875
60	31	23.34	1.328	52	48.80	1.066
65	17	13.52	1.257	23	19.53	1.178
70	22	13.28	1.657	22	18.72	1.175
75	15	12.17	1.233	20	19.98	1.001
80	7	7.14	0.980	15	14.55	1.031
85	2	1.77	1.130	13	10.95	1.187
90	1	0.55	1.818	10	7.95	1.258
95	0	0.00	N/A	12	8.62	1.392
100	0	0.00	N/A	5	4.50	1.111
105	0	0.00	N/A	1	1.93	0.518
110	0	0.00	N/A	1	0.56	1.786
TOTAL	162	136.08	1.190	367	359.51	1.021

APPENDIX 10 (Cont'd.)

2002-2006 EXPERIENCE STUDY  
 NUMBER OF DEATHS AMONG MEMBERS RETIRED FOR SERVICE  
 MORTALITY ADOPTED OCTOBER 2006

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>
55	103	97.71	1.054	118	117.45	1.005
60	255	274.52	0.929	288	282.20	1.021
65	403	380.58	1.059	359	353.76	1.015
70	637	619.26	1.029	545	518.00	1.052
75	862	829.15	1.040	836	814.64	1.026
80	967	926.27	1.044	1,088	1,096.81	0.992
85	762	715.87	1.064	1,691	1,558.80	1.085
90	460	449.03	1.024	1,980	1,757.76	1.126
95	183	169.37	1.080	1,375	1,261.92	1.090
100	42	33.18	1.266	400	360.04	1.111
105	2	1.86	1.075	39	34.35	1.135
110	0	0.00	N/A	1	1.77	0.565
TOTAL	4,676	4,496.80	1.0400	8,720	8,157.50	1.069

APPENDIX 10 (Cont'd.)

2002-2006 EXPERIENCE STUDY  
 NUMBER OF DEATHS AMONG BENEFICIARIES  
 MORTALITY ADOPTED OCTOBER 2006

CENTRAL AGE	MALES			FEMALES		
	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
5	0	0.00	N/A	0	0.00	N/A
10	0	0.00	N/A	0	0.00	N/A
15	0	0.00	N/A	0	0.00	N/A
20	0	0.00	N/A	0	0.00	N/A
25	0	0.00	N/A	0	0.00	N/A
30	0	0.00	N/A	0	0.00	N/A
35	0	0.00	N/A	0	0.01	0.000
40	0	0.04	0.000	1	0.05	20.000
45	0	0.12	0.000	0	0.09	0.000
50	0	0.30	0.000	0	0.37	0.000
55	1	0.94	1.064	0	1.74	0.000
60	3	1.68	1.786	6	4.87	1.232
65	7	3.47	2.017	13	10.34	1.257
70	12	9.91	1.211	36	22.81	1.578
75	18	20.49	0.878	59	53.98	1.093
80	38	34.62	1.098	114	115.28	0.989
85	76	62.95	1.207	223	188.58	1.183
90	80	63.61	1.258	201	208.42	0.964
95	44	29.13	1.510	146	134.26	1.087
100	8	5.80	1.379	32	27.31	1.172
105	0	0.00	N/A	1	1.23	0.813
110	0	0.00	N/A	0	0.00	N/A
TOTAL	287	233.06	1.231	832	769.34	1.081

APPENDIX 10 (Cont'd.)

Investment Rate of Return<sup>1</sup>  
on  
Market and Actuarial Value of Assets  
as of June 30, 2006

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:	11.8%	10.8%
3 Years:	12.8%	8.1%
5 Years:	6.8%	2.5%
10 Years:	9.0%	8.7%

Annualized inflation over the last:

	<u>Inflation Assumption</u>		<u>COLA Benefit</u>	
	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected<sup>2</sup></u>
1 Year:	3.36%	3.0%	1.7%	1.75%
3 Years:	2.75%	3.0%	1.4%	1.75%
5 Years:	2.55%	3.0%	1.4%	1.75%

<sup>1</sup> The interest rate for valuation purposes is a level 8.0%.

<sup>2</sup> 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%.



APPENDIX 11

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
		2005-06	7.97
		2006-07	8.60
		2007-08	8.73
		Average	10.90 %

## 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 to contribute 3% of their annual salary. This money, however, helps fund 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, however, in accordance with Chapter 126 of the Laws of 2000, the 3% required member contribution ceases 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 expected future working lifetime of active members.

2. Asset Valuation Method

The actuarial value of equities (domestic equities, international equities, real estate, and private equity) 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.

APPENDIX 14

PRESENT ACTUARIAL ASSUMPTIONS

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- I. Active Mortality Rates
- II. Disability Retirement Rates
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  - a) Males
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- V. Service and Deferred Annuitant and Beneficiary Mortality Rates
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## 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	0.000050	20	0.000042
21	0.000064	21	0.000061
22	0.000082	22	0.000063
23	0.000103	23	0.000072
24	0.000116	24	0.000074
25	0.000124	25	0.000083
26	0.000135	26	0.000098
27	0.000141	27	0.000109
28	0.000159	28	0.000113
29	0.000167	29	0.000125
30	0.000171	30	0.000140
31	0.000187	31	0.000150
32	0.000195	32	0.000151
33	0.000207	33	0.000166
34	0.000214	34	0.000171
35	0.000224	35	0.000184
36	0.000239	36	0.000193
37	0.000248	37	0.000201
38	0.000258	38	0.000210
39	0.000270	39	0.000244
40	0.000317	40	0.000269
41	0.000379	41	0.000288
42	0.000437	42	0.000310
43	0.000499	43	0.000343
44	0.000540	44	0.000391
45	0.000581	45	0.000425
46	0.000640	46	0.000441
47	0.000682	47	0.000465
48	0.000735	48	0.000489
49	0.000785	49	0.000525
50	0.000847	50	0.000549
51	0.000916	51	0.000570
52	0.001013	52	0.000594
53	0.001082	53	0.000616
54	0.001154	54	0.000637

## 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	0.001207	55	0.000684
56	0.001309	56	0.000723
57	0.001404	57	0.000789
58	0.001506	58	0.000825
59	0.001558	59	0.000880
60	0.001652	60	0.000969
61	0.001702	61	0.001043
62	0.001803	62	0.001108
63	0.001906	63	0.001174
64	0.002009	64	0.001261
65	0.002205	65	0.001362
66	0.002408	66	0.001462
67	0.002603	67	0.001609
68	0.003006	68	0.001810
69	0.003508	69	0.002000
70	0.005003	70	0.002305

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	0.000015	30	0.000015
31	0.000038	31	0.000025
32	0.000062	32	0.000046
33	0.000065	33	0.000072
34	0.000070	34	0.000099
35	0.000073	35	0.000133
36	0.000078	36	0.000178
37	0.000085	37	0.000229
38	0.000089	38	0.000279
39	0.000119	39	0.000319
40	0.000153	40	0.000361
41	0.000202	41	0.000406
42	0.000264	42	0.000459
43	0.000341	43	0.000522
44	0.000417	44	0.000591
45	0.000484	45	0.000663
46	0.000564	46	0.000767
47	0.000799	47	0.000914
48	0.001154	48	0.001113
49	0.001401	49	0.001272
50	0.001571	50	0.001436
51	0.001673	51	0.001564
52	0.001751	52	0.001663
53	0.001811	53	0.001739
54	0.001867	54	0.001777

APPENDIX 14 (Cont'd.)

Withdrawal Rates  
for Active Members

Males

Age	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	0.260517	0.101803	0.065606	0.037313	0.025162	0.020051	0.017520	0.014856	0.010593	0.003281	0.010398
21	0.260517	0.101803	0.065606	0.037313	0.025162	0.020051	0.017520	0.014856	0.010593	0.003281	0.010398
22	0.260517	0.101803	0.065606	0.037313	0.025162	0.020051	0.017520	0.014856	0.010593	0.003281	0.010398
23	0.262212	0.101803	0.065606	0.037313	0.025162	0.020051	0.017520	0.014856	0.010593	0.003281	0.010398
24	0.263908	0.103029	0.065606	0.037313	0.025162	0.020051	0.017520	0.014856	0.010593	0.003281	0.010398
25	0.265603	0.104254	0.065949	0.037313	0.025162	0.020051	0.017520	0.014856	0.010593	0.003281	0.010398
26	0.267299	0.105480	0.066291	0.038886	0.025162	0.020051	0.017520	0.014856	0.010593	0.003281	0.010398
27	0.268994	0.106706	0.066634	0.040459	0.026449	0.020051	0.017520	0.014856	0.010593	0.003281	0.010398
28	0.270690	0.107931	0.066976	0.042032	0.027735	0.020787	0.017520	0.014856	0.010593	0.003281	0.010398
29	0.272385	0.109157	0.067319	0.043605	0.029022	0.021523	0.018688	0.014856	0.010593	0.003281	0.010398
30	0.274081	0.110383	0.067661	0.045178	0.030309	0.022260	0.019856	0.014940	0.010593	0.003281	0.010398
31	0.271427	0.110812	0.068886	0.045112	0.031596	0.022996	0.021024	0.015025	0.011516	0.003281	0.010398
32	0.268773	0.111241	0.070112	0.045046	0.032882	0.023732	0.022191	0.015109	0.012439	0.005117	0.010398
33	0.266119	0.111670	0.071337	0.044979	0.034169	0.024468	0.023359	0.015194	0.013362	0.006954	0.010244
34	0.263465	0.112100	0.072562	0.044913	0.035456	0.025205	0.024527	0.015279	0.014285	0.008790	0.010090
35	0.260811	0.112529	0.073787	0.044847	0.036742	0.025941	0.025695	0.015363	0.015208	0.010627	0.009935
36	0.263803	0.115408	0.075717	0.046966	0.037348	0.028379	0.024681	0.017463	0.015639	0.012464	0.009781
37	0.266794	0.118287	0.077646	0.049086	0.037955	0.030816	0.023668	0.019563	0.016070	0.014300	0.009626
38	0.269786	0.121165	0.079575	0.051206	0.038561	0.033254	0.022654	0.021662	0.016501	0.016137	0.009472
39	0.272778	0.124044	0.081505	0.053326	0.039167	0.035692	0.021640	0.023762	0.016933	0.017973	0.009318
40	0.275770	0.126923	0.083434	0.055446	0.039773	0.038129	0.020626	0.025862	0.017364	0.019810	0.009163
41	0.273127	0.128411	0.083212	0.058174	0.041323	0.038680	0.024053	0.027373	0.019111	0.020298	0.008855
42	0.270485	0.129899	0.082990	0.060902	0.042873	0.039231	0.027479	0.028884	0.020858	0.020786	0.008546
43	0.267842	0.131388	0.082768	0.063631	0.044423	0.039782	0.030905	0.030394	0.022605	0.021275	0.008238
44	0.265200	0.132876	0.082546	0.066359	0.045973	0.040333	0.034331	0.031905	0.024352	0.021763	0.007929
45	0.262557	0.134364	0.082324	0.069088	0.047523	0.040884	0.037757	0.033416	0.026099	0.022251	0.007621
46	0.266854	0.135077	0.086828	0.069149	0.050506	0.045896	0.038026	0.034646	0.028790	0.025757	0.007882
47	0.271151	0.135791	0.091332	0.069211	0.053490	0.050909	0.038294	0.035877	0.031481	0.029263	0.008143
48	0.275448	0.136504	0.095837	0.069272	0.056473	0.055921	0.038563	0.037107	0.034173	0.032769	0.008404
49	0.279745	0.137218	0.100341	0.069334	0.059457	0.060934	0.038831	0.038338	0.036864	0.036275	0.008664
50	0.284043	0.137931	0.104845	0.069395	0.062440	0.065946	0.039100	0.039568	0.039555	0.039781	0.008925
51	0.288340	0.138644	0.109349	0.069456	0.065423	0.070958	0.039368	0.040799	0.042246	0.043286	0.009186
52	0.292637	0.139358	0.113853	0.069518	0.068407	0.075971	0.039636	0.042029	0.044937	0.046792	0.009447
53	0.296934	0.140071	0.118357	0.069579	0.071390	0.080983	0.039905	0.043260	0.047629	0.050298	0.009708
54	0.301231	0.140785	0.122861	0.069641	0.074374	0.085996	0.040173	0.044490	0.050320	0.053804	0.009969



APPENDIX 14 (Cont'd.)

Withdrawal Rates  
for Active Members

Females

Age	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	0.239474	0.101131	0.061054	0.046437	0.052638	0.052717	0.050623	0.051462	0.050984	0.054963	0.037037
21	0.239474	0.101131	0.061054	0.046437	0.052638	0.052717	0.050623	0.051462	0.050984	0.054963	0.037037
22	0.239474	0.101131	0.061054	0.046437	0.052638	0.052717	0.050623	0.051462	0.050984	0.054963	0.037037
23	0.245399	0.101131	0.061054	0.046437	0.052638	0.052717	0.050623	0.051462	0.050984	0.054963	0.037037
24	0.251323	0.103802	0.061054	0.046437	0.052638	0.052717	0.050623	0.051462	0.050984	0.054963	0.037037
25	0.257247	0.106473	0.066031	0.046437	0.052638	0.052717	0.050623	0.051462	0.050984	0.054963	0.037037
26	0.263171	0.109143	0.071008	0.051351	0.052638	0.052717	0.050623	0.051462	0.050984	0.054963	0.037037
27	0.269095	0.111814	0.075985	0.056266	0.054905	0.052717	0.050623	0.051462	0.050984	0.054963	0.037037
28	0.275019	0.114485	0.080962	0.061180	0.057172	0.055094	0.050623	0.051462	0.050984	0.054963	0.037037
29	0.280943	0.117155	0.085939	0.066094	0.059439	0.057471	0.053375	0.051462	0.050984	0.054963	0.037037
30	0.286867	0.119826	0.090916	0.071009	0.061705	0.059848	0.056127	0.053786	0.050984	0.054963	0.037037
31	0.280855	0.120841	0.091119	0.071390	0.063972	0.062225	0.058878	0.056111	0.053483	0.054963	0.037037
32	0.274843	0.121855	0.091322	0.071771	0.066239	0.064601	0.061630	0.058435	0.055983	0.054963	0.037037
33	0.268831	0.122870	0.091525	0.072152	0.068506	0.066978	0.064381	0.060760	0.058482	0.054963	0.037037
34	0.262819	0.123884	0.091728	0.072534	0.070772	0.069355	0.067133	0.063084	0.060981	0.054963	0.037037
35	0.256807	0.124899	0.091931	0.072915	0.073039	0.071732	0.069885	0.065409	0.063480	0.054963	0.037037
36	0.251402	0.119873	0.088700	0.069278	0.067732	0.065074	0.064350	0.060394	0.058585	0.051900	0.033579
37	0.245997	0.114846	0.085469	0.065641	0.062424	0.058416	0.058815	0.055378	0.053691	0.048837	0.030121
38	0.240593	0.109820	0.082239	0.062004	0.057117	0.051758	0.053281	0.050363	0.048796	0.045774	0.026664
39	0.235188	0.104794	0.079008	0.058366	0.051809	0.045101	0.047746	0.045348	0.043902	0.042712	0.023206
40	0.229784	0.099768	0.075777	0.054729	0.046502	0.038443	0.042211	0.040332	0.039007	0.039649	0.019748
41	0.230350	0.100167	0.075293	0.052637	0.045548	0.037934	0.039791	0.037762	0.035936	0.035894	0.018024
42	0.230916	0.100566	0.074809	0.050545	0.044594	0.037425	0.037370	0.035192	0.032865	0.032139	0.016299
43	0.231482	0.100966	0.074326	0.048454	0.043640	0.036917	0.034950	0.032622	0.029794	0.028383	0.014575
44	0.232048	0.101365	0.073842	0.046362	0.042686	0.036408	0.032530	0.030052	0.026723	0.024628	0.012851
45	0.232615	0.101764	0.073358	0.044270	0.041732	0.035900	0.030109	0.027482	0.023652	0.020873	0.011127
46	0.240807	0.105514	0.076273	0.048294	0.043248	0.037497	0.031159	0.029064	0.024572	0.022283	0.011271
47	0.249000	0.109263	0.079187	0.052318	0.044763	0.039094	0.032209	0.030646	0.025493	0.023692	0.011416
48	0.257193	0.113013	0.082102	0.056342	0.046278	0.040692	0.033260	0.032227	0.026414	0.025102	0.011560
49	0.265385	0.116763	0.085017	0.060366	0.047794	0.042289	0.034310	0.033809	0.027335	0.026512	0.011705
50	0.273578	0.120512	0.087931	0.064390	0.049309	0.043886	0.035360	0.035391	0.028256	0.027921	0.011849
51	0.281771	0.124262	0.090846	0.068414	0.050825	0.045484	0.036410	0.036972	0.029177	0.029331	0.011994
52	0.289964	0.128012	0.093761	0.072438	0.052340	0.047081	0.037460	0.038554	0.030097	0.030741	0.012139
53	0.298156	0.131761	0.096675	0.076462	0.053855	0.048679	0.038511	0.040135	0.031018	0.032151	0.012283
54	0.306349	0.135511	0.099590	0.080486	0.055371	0.050276	0.039561	0.041717	0.031939	0.033560	0.012428

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	0.376281	55	0.306987
56	0.308279	56	0.249918
57	0.264807	57	0.190887
58	0.258131	58	0.190426
59	0.281161	59	0.202779
60	0.300213	60	0.233832
61	0.299891	61	0.239428
62	0.375728	62	0.301954
63	0.318129	63	0.298751
64	0.294776	64	0.285191
65	0.322943	65	0.325128
66	0.274670	66	0.294672
67	0.282458	67	0.247931
68	0.274328	68	0.284185
69	0.239470	69	0.278190
70	0.187019	70	0.256669
71	1.000000	71	1.000000

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	0.094070	55	0.076747
56	0.077070	56	0.062480
57	0.066202	57	0.047722
58	0.064533	58	0.047607
59	0.070290	59	0.050695
60	0.075053	60	0.058458
61	0.074973	61	0.059857

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)

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
1	0.000637	1	0.000571
2	0.000430	2	0.000372
3	0.000357	3	0.000278
4	0.000278	4	0.000208
5	0.000255	5	0.000188
6	0.000244	6	0.000176
7	0.000234	7	0.000165
8	0.000216	8	0.000147
9	0.000209	9	0.000140
10	0.000212	10	0.000141
11	0.000219	11	0.000143
12	0.000228	12	0.000148
13	0.000240	13	0.000155
14	0.000254	14	0.000162
15	0.000269	15	0.000170
16	0.000284	16	0.000177
17	0.000301	17	0.000184
18	0.000316	18	0.000188
19	0.000331	19	0.000190
20	0.000345	20	0.000191
21	0.000357	21	0.000192
22	0.000366	22	0.000194
23	0.000373	23	0.000197
24	0.000376	24	0.000201
25	0.000376	25	0.000207
26	0.000378	26	0.000214
27	0.000382	27	0.000223
28	0.000393	28	0.000235
29	0.000412	29	0.000248

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>
30	0.000444	30	0.000264
31	0.000499	31	0.000307
32	0.000562	32	0.000350
33	0.000631	33	0.000394
34	0.000702	34	0.000435
35	0.000773	35	0.000475
36	0.000841	36	0.000514
37	0.000904	37	0.000554
38	0.000964	38	0.000598
39	0.001021	39	0.000648
40	0.001079	40	0.000706
41	0.001142	41	0.000774
42	0.001215	42	0.000852
43	0.001299	43	0.000937
44	0.001397	44	0.001029
45	0.001508	45	0.001124
46	0.001616	46	0.001223
47	0.001734	47	0.001326
48	0.001860	48	0.001434
49	0.001995	49	0.001550
50	0.002138	50	0.001676
51	0.002449	51	0.001852
52	0.002667	52	0.002018
53	0.002916	53	0.002207
54	0.003196	54	0.002424
55	0.003490	55	0.002660
56	0.003804	56	0.002900
57	0.004108	57	0.003132
58	0.004396	58	0.003352
59	0.004704	59	0.003554

## 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>
60	0.005082	60	0.003803
61	0.005591	61	0.004070
62	0.006149	62	0.004354
63	0.006824	63	0.004703
64	0.007708	64	0.005173
65	0.008710	65	0.005742
66	0.009844	66	0.006373
67	0.011123	67	0.007074
68	0.012239	68	0.007852
69	0.013464	69	0.008716
70	0.014946	70	0.009762
71	0.016590	71	0.010933
72	0.018414	72	0.012136
73	0.020256	73	0.013592
74	0.022484	74	0.015360
75	0.025182	75	0.017356
76	0.028708	76	0.019439
77	0.032724	77	0.021772
78	0.036657	78	0.024384
79	0.041239	79	0.027310
80	0.046187	80	0.030861
81	0.052192	81	0.035181
82	0.058455	82	0.040458
83	0.064885	83	0.046123
84	0.073320	84	0.053041
85	0.082118	85	0.060467
86	0.091973	86	0.068932
87	0.103929	87	0.079272
88	0.116400	88	0.090370
89	0.130369	89	0.102118

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	0.144709	90	0.114372
91	0.160627	91	0.126953
92	0.176690	92	0.142188
93	0.194359	93	0.159250
94	0.213795	94	0.178360
95	0.235174	95	0.196196
96	0.256340	96	0.213854
97	0.276847	97	0.233101
98	0.298995	98	0.251749
99	0.325904	99	0.274406
100	0.355236	100	0.299103
101	0.387207	101	0.329013
102	0.418183	102	0.361914
103	0.447456	103	0.398106
104	0.474304	104	0.433935
105	0.502762	105	0.468650
106	0.527900	106	0.501456
107	0.554295	107	0.531543
108	0.582010	108	0.558120
109	0.611110	109	0.586026
110	0.641666	110	0.615327

## 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	0.025310	30	0.035341
31	0.028145	31	0.036899
32	0.032542	32	0.038946
33	0.035000	33	0.039428
34	0.038165	34	0.040473
35	0.042432	35	0.041935
36	0.048006	36	0.042849
37	0.054112	37	0.042928
38	0.060124	38	0.043225
39	0.065006	39	0.044281
40	0.072142	40	0.045084
41	0.078563	41	0.050017
42	0.088195	42	0.052569
43	0.094091	43	0.057009
44	0.098659	44	0.061248
45	0.101034	45	0.065552
46	0.099347	46	0.068744
47	0.096113	47	0.071598
48	0.093684	48	0.073556
49	0.093042	49	0.075532
50	0.092882	50	0.076793
51	0.090847	51	0.076422
52	0.086215	52	0.073796
53	0.078395	53	0.069154
54	0.068565	54	0.063134
55	0.058441	55	0.056557
56	0.049080	56	0.050331
57	0.042276	57	0.045190
58	0.037908	58	0.041109
59	0.036513	59	0.038283



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	0.035343	60	0.036275
61	0.033208	61	0.034031
62	0.032877	62	0.031506
63	0.032076	63	0.028898
64	0.032520	64	0.026691
65	0.034208	65	0.025801
66	0.036150	66	0.026486
67	0.038988	67	0.028334
68	0.040047	68	0.030330
69	0.041535	69	0.032655
70	0.042186	70	0.033325
71	0.043699	71	0.034535
72	0.044923	72	0.035391
73	0.045511	73	0.037100
74	0.046988	74	0.039842
75	0.047350	75	0.041951
76	0.049896	76	0.043826
77	0.052758	77	0.045256
78	0.055654	78	0.047337
79	0.060161	79	0.049481
80	0.062129	80	0.051959
81	0.068638	81	0.054581
82	0.073036	82	0.058699
83	0.080164	83	0.061989
84	0.086903	84	0.063698
85	0.092528	85	0.069228
86	0.100695	86	0.076222
87	0.110949	87	0.081432
88	0.120296	88	0.094991
89	0.130369	89	0.102118

## 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	0.144709	90	0.114372
91	0.160627	91	0.126953
92	0.176690	92	0.142188
93	0.194359	93	0.159250
94	0.213795	94	0.178360
95	0.235174	95	0.196196
96	0.256340	96	0.213854
97	0.276847	97	0.233101
98	0.298995	98	0.251749
99	0.325904	99	0.274406
100	0.355236	100	0.299103
101	0.387207	101	0.329013
102	0.418183	102	0.361914
103	0.447456	103	0.398106
104	0.474304	104	0.433935
105	0.502762	105	0.468650
106	0.527900	106	0.501456
107	0.554295	107	0.531543
108	0.582010	108	0.558120
109	0.611110	109	0.586026
110	0.641666	110	0.615327

## 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	1.1265	20	1.1327
21	1.1245	21	1.1315
22	1.1223	22	1.1294
23	1.1204	23	1.1259
24	1.1176	24	1.1204
25	1.1130	25	1.1107
26	1.1064	26	1.1040
27	1.1019	27	1.0972
28	1.0972	28	1.0904
29	1.0928	29	1.0854
30	1.0889	30	1.0816
31	1.0855	31	1.0783
32	1.0827	32	1.0754
33	1.0802	33	1.0734
34	1.0777	34	1.0718
35	1.0751	35	1.0704
36	1.0728	36	1.0695
37	1.0706	37	1.0689
38	1.0686	38	1.0682
39	1.0666	39	1.0671
40	1.0645	40	1.0658
41	1.0626	41	1.0649
42	1.0608	42	1.0643
43	1.0592	43	1.0636
44	1.0578	44	1.0630
45	1.0565	45	1.0623
46	1.0552	46	1.0615
47	1.0534	47	1.0603
48	1.0521	48	1.0589
49	1.0511	49	1.0574

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	1.0502	50	1.0556
51	1.0490	51	1.0534
52	1.0492	52	1.0527
53	1.0472	53	1.0500
54	1.0457	54	1.0475
55	1.0432	55	1.0435
56	1.0411	56	1.0418
57	1.0398	57	1.0414
58	1.0395	58	1.0411
59	1.0386	59	1.0407
60	1.0369	60	1.0404
61	1.0363	61	1.0397
62	1.0361	62	1.0388
63	1.0360	63	1.0381
64	1.0358	64	1.0369
65	1.0357	65	1.0359
66	1.0355	66	1.0351
67	1.0354	67	1.0351
68	1.0353	68	1.0362
69	1.0351	69	1.0364
70	1.0347	70	1.0367

## 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%<sup>1</sup> annual inflation and a 5.0% real rate of return.

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<sup>1</sup> 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 1: Membership prior to 7/1/73;
- Tier 2: Membership 7/1/73 - 7/26/76;
- Tier 3: Membership 7/27/76 - 8/31/83;
- Tier 4: Membership on or after 9/1/83.

Tier 3 members are entitled to receive the benefits of either Tier 3 or Tier 4, 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 1: 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 of service 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 1 members generally may retire at:

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

Tier 2: Computed under the Tier 1 formula, but may be reduced for early retirement, as noted below.

Tier 2 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 3: 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 3 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 4: 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 4 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 1 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 2, 3, and 4 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 1 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 3 and 4 members are required to contribute 3% of pay to fund 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 1 and 2 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.