

**ACTUARIAL VALUATION REPORT**  
**as of**  
**JUNE 30, 2005**

New York State  
Teachers' Retirement System  
Office of the Actuary  
July 13, 2006

# NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

## Actuarial Valuation Report as of June 30, 2005

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# NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

## Actuarial Valuation Report as of June 30, 2005

### 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, 2005. 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, 2006 to June 30, 2007 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, 2006 to June 30, 2007 fiscal year and collected in the fiscal year ending June 30, 2008 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, 2007 is **8.60%**. The Employer Contribution Rates determined by the actuarial valuations as of June 30, 2005 and June 30, 2004 and the changes between the two are summarized below:

	As of <u>6/30/2005</u>	As of <u>6/30/2004</u>	<u>Change</u>
Normal Rate	8.21%	7.58%	+0.63%
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	<b>8.60%</b>	<b>7.97%</b>	<b>+0.63%</b>

As in prior years, the actual employer contributions made by participating employers during the fiscal year ending June 30, 2005 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

Compared with the prior year, the Employer Contribution Rate increased from 7.97% to 8.60%.

#### NORMAL RATE

The change in the Employer Contribution Rate is due entirely to the increase in the Normal Rate of 63 basis points. This change may be broken down as follows:

<b><u>Salary/ Service:</u></b>	This loss is due to salary and service data coming in slightly higher than expected.	+0.03
<b><u>Net Investment Gain:</u></b>	The investment return on the <u>actuarial</u> value of assets was approximately 8.1%, which was greater than the 8.0% expected.	-0.20
<b><u>New Entrants:</u></b>	New Entrants join the Retirement System with no 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.	+0.17
<b><u>Withdrawal:</u></b>	Fewer members withdrew than expected.	+0.16
<b><u>Mortality:</u></b>	Members are living longer than expected and receive benefits for a longer period.	+0.35
<b><u>Retirement:</u></b>	There were more retirements at younger ages than expected.	+ <u>0.12</u>
<b><u>TOTAL CHANGE IN THE NORMAL RATE:</u></b>		<b>+0.63%</b>

## **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 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** 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>
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
2005-2006	7.97
2006-2007	8.60

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

## E. EMPLOYER CONTRIBUTION RATE INCREASE

The Employer Contribution Rate has increased this year from 7.97% to 8.60%. This represents approximately an 8% increase. The Normal Rate component equals 8.21%, an increase of approximately 8% over the prior year's Normal Rate of 7.58%. The Normal Rate is greater than zero for the fourth consecutive year, after being equal to zero for the prior six years. The primary reason for this increase is the investment returns in the early years of this decade that were substantially lower than expected. In addition, New Entrants continue to put upward pressure on the Normal Rate.

Three 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 **11.5%** 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 Retirement System’s membership continues to grow, and more and more New Entrants join, the Normal Rate is pulled toward this 11.5% rate. Additionally, if returns in the capital markets are below expectations and actuarial losses, as a result, continue to accrue, the Normal Rate may increase beyond the New Entrant Normal Rate of 11.5% of pay. It is not a cap.

#### **F. MEMBER DATA**

The member data for the valuation was determined as of June 30, 2005. Compared with the previous year, the total number of members increased from 375,761 to 385,681; the number of active members increased from 254,515 to 260,356; the number of retired members increased from 116,842 to 120,831; and the number of beneficiaries receiving monthly benefits increased from 4,404 to 4,494.

The number of retirements decreased from 7,287 during the 2003-2004 fiscal year to 7,182 during the 2004-2005 fiscal year. There was no early retirement incentive offered in the 2004-2005 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. 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
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

#### **G. FUNDED STATUS**

The actuarial value of assets and liabilities were determined as of June 30, 2005. When compared with the previous year, the actuarial value of assets increased from \$72.0 billion to \$74.1 billion and the accrued pension benefit liability, as defined by the Retirement System's actuarial funding method, increased from \$72.6 billion to \$75.0 billion.

The funded ratio decreased to 98.8% from the prior year's 99.2%.

#### **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 2005 produces a long-term expected annual investment rate of return of 8.1%. Therefore, the valuation rate of interest of 8.0% is reasonable and appropriate.

## **I. NEW LEGISLATION**

During the 2005 Legislative Session the following benefit improvements were enacted:

### **1) Older Workers Benefit Protection Act:**

**Chapter 559 of the Laws of 2005** amended certain provisions relating to death and disability benefits to ensure that the New York State Teachers' Retirement System is in compliance with the federal Older Workers Benefit Protection Act ("OWBPA"). The Retirement System has in practice been operating in compliance with this federal statute for many years. This law applies to death and disability benefit payments commencing on or after October 16, 1992.

### **2) Contributions to a Defined Contribution Plan:**

**Chapter 472 of the Laws of 2005** allows contributions made by an employer on behalf of a member to a defined contribution plan qualified under Section 401(a) of the Internal Revenue Code (IRC) to be included in the member's five-year final average salary calculation. IRC Section 401(a) was added to the list of other currently acceptable vehicles which include IRC Section 457, 403(b) and 125 plans. Only members with a date of membership prior to June 17, 1971 are eligible for the five-year final average

salary calculation.

**3) Effective Date of Legislation:**

**Chapter 497 of the Laws of 2005** provides that any law enacted on or after June 30, 2005 which establishes or affects a benefit provided by the New York State Teachers' Retirement System will be effective on the earlier of the date provided for in the law or June 30<sup>th</sup> of the calendar year of enactment.

**4) Active Military Duty Benefits:**

**Chapter 105 of the Laws of 2005** enables the beneficiaries of a public employee serving in a branch of the Armed Forces of the United States who is killed in action or dies as a result of wounds, disease, or injury suffered during service in a combat zone, to receive any death benefit and health insurance coverage as applicable under law as if such public employee's death was the result of an accident sustained in the performance of his or her duties as a public employee.

**Chapter 326 of the Laws of 2005** permits active members of the New York State Teachers' Retirement System called to active military duty on or after September 11, 2001 and prior to January 1, 2006 to receive service credit for such duty without making required member contributions. Such members must not be receiving their full salary from a participating employer at the time of active military duty, and must be eligible for military service credit under Section 242 or 243 of the Military Law.

**5) Retirement Incentive:**

There was no early retirement incentive enacted during the 2005 Legislative Session. Incentives had been offered in seven of the past ten years.

## **J. FUTURE EXPECTATIONS**

The Normal Rate is greater than zero for the fourth consecutive year, after being equal to zero for the prior six years. Prior to this decade, several consecutive 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 earlier in this decade led to a sharp reduction in assets and an increase in the Employer Contribution Rate. The zero Normal Rate was not permanently sustainable, however, just as above-average capital market returns are not permanently sustainable. Fortunately, the increase in the Employer Contribution Rate has been of a “step-like” nature.

The market value rate of return on assets for the fiscal year ending June 30, 2005 was 10.6%. The five-year market value rate of return, however, was 3.3% as of June 30, 2005. This is substantially lower than the valuation assumption rate of return of 8.0%. With a five-year asset smoothing method for valuation purposes, the five-year rate of return is significant. Continued actuarial losses on account of investment returns exert upward pressure on the Normal Rate. Additionally, Retirement System membership continues to grow, with New Entrants also exerting upward pressure on the Normal Rate.

## 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.

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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 13, 2006

APPENDIX 1

DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS

From June 30, 2004 to June 30, 2005

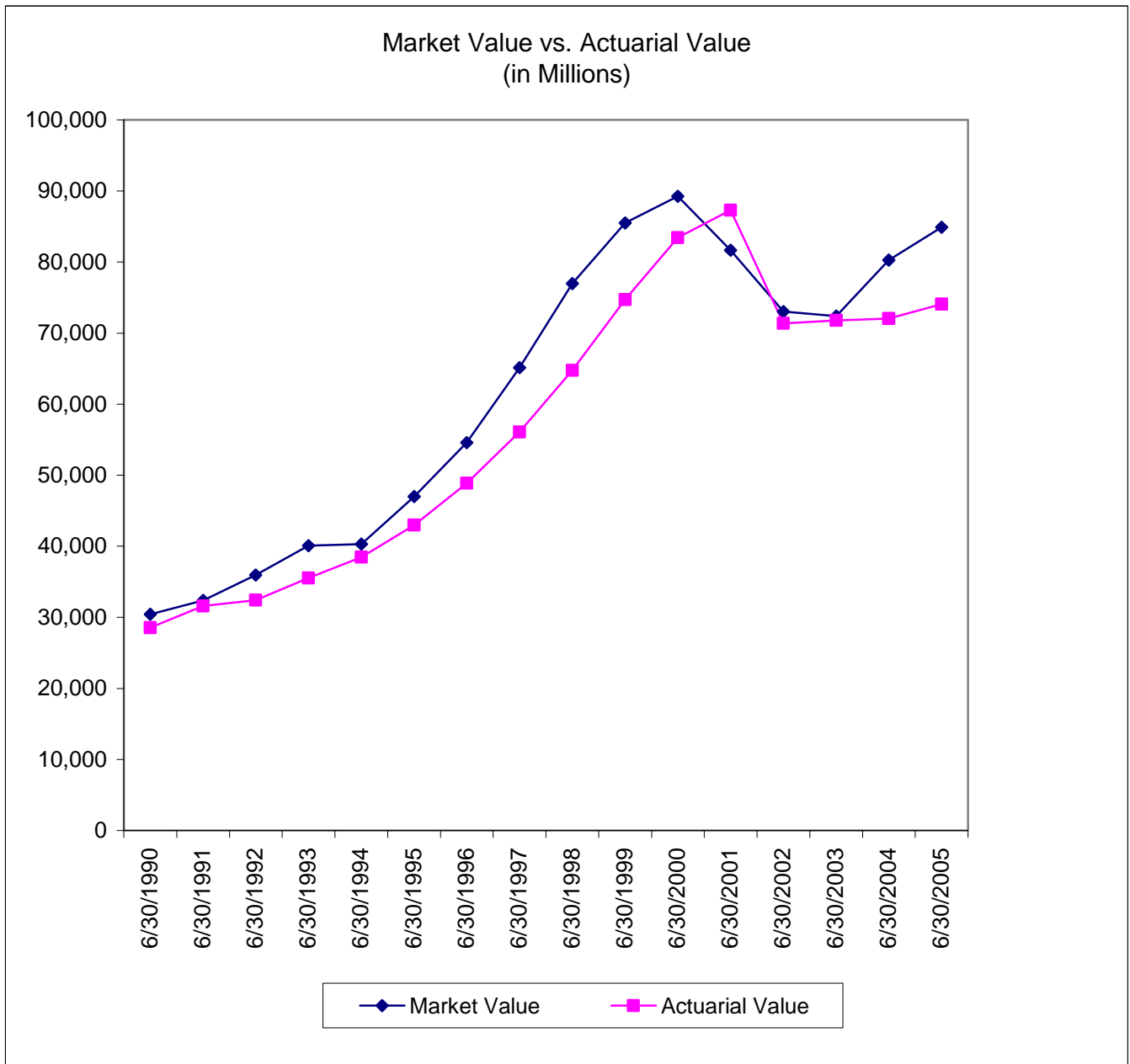
	Actuarial Value (in thousands)
1. Actuarial Value of Assets as of June 30, 2004	\$71,992,742
2. Contributions and Transfers	
Employer contributions	312,186
Member contributions	137,617
Net transfer of reserves in/out	<u>17,155</u>
Subtotal	466,958
3. Net Investment Income/(Loss)	5,693,717
4. Distributions	
Benefit payments	4,129,304
Return of member contributions	<u>12,466</u>
Subtotal	4,141,770
5. Actuarial Value of Assets as of June 30, 2005	<u>\$74,011,647*</u>
6. Market Value of Assets as of June 30, 2005	\$84,908,519

\*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  
(in Millions)

	<u>Market Value</u>	<u>Actuarial Value</u>		<u>Market Value</u>	<u>Actuarial Value</u>
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
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



APPENDIX 3

THE ACTUARY'S VALUATION BALANCE SHEET

as of June 30, 2005  
(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, 2005.

**ASSETS**

Present Assets of System for Valuation Purposes*	\$74,074,314
Present Value of Prospective Contributions to Pension Accumulation Fund	
from Employer Contributions	10,995,912
from Member Contributions	<u>637,555</u>
TOTAL ASSETS	<u>\$85,707,781</u>

**LIABILITIES**

Present Value of Future Benefits to:	
Retired Members and Beneficiaries	\$39,391,460
Active Members	46,260,645
Member Contributions Accumulated to Date in the Annuity Savings Fund	46,441
Benefits Due and Unpaid	<u>9,235</u>
TOTAL LIABILITIES	<u>\$85,707,781</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>
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
2004	72,044.4	72,604.9	99.2
2005	74,074.3	74,961.1	98.8

APPENDIX 5

EMPLOYER CONTRIBUTION RATE

2005 Valuation  
8.00% Interest

<b>Normal Rate</b>		8.21 %
<b>Group Life Rate</b>		0.13
<b>Excess Benefit Plan Rate</b>		0.01
<b>Expense Rate</b>		<u>0.25</u>
<b>Computed Contribution Rate as of June 30, 2005</b>	<b>=</b>	<b>8.60 %</b>

APPENDIX 5 (Cont'd.)  
**Normal Rate**  
 2005 Valuation ~ 8.00% Interest

**Liabilities**

L1	<b>Active Tier 1</b>	
	Service Pension	\$8,637,753,562
	Disability Pension	538,767
	Vested Pension	5,626,249
	Active Death over \$50,000	35,058,717
	Death Benefit After 10-Yr Withdrawal over \$50,000	1,073
	Annuity Savings Fund	46,440,569
	COLA	211,068,123
	Total	<u>\$8,936,487,060</u>
L2	<b>Active Tier 2</b>	
	Service Pension	\$5,671,748,484
	Post Retired Death over \$50,000	4,344,678
	Disability Pension	7,307,455
	Post Disabled Death over \$50,000	80,724
	Vested Pension	69,403,476
	Active Death over \$50,000	18,488,234
	Death Benefit After 10-Yr Withdrawal over \$50,000	18,568
	COLA	141,032,815
	Total	<u>\$5,912,424,434</u>
L3	<b>Active Tier 3</b>	
	Service Pension	\$5,911,016,574
	Post Retired Death over \$50,000	6,914,804
	Disability Pension	22,783,225
	Post Disabled Death over \$50,000	419,614
	Refund on Active Death	6,336,505
	Active Death over \$50,000	29,924,891
	Refund on Quit	444,403
	Vested Pension	173,949,706
	Death Benefit After 10-Yr Withdrawal over \$50,000	137,702
	Refund on Death after Vested Withdrawal	86,159
	COLA	154,014,340
	Total	<u>\$6,306,027,923</u>
L4	<b>Active Tier 4</b>	
	Service Pension	\$21,726,276,857
	Post Retired Death over \$50,000	54,203,752
	Disability Pension	168,934,920
	Post Disabled Death over \$50,000	4,957,988
	Refund on Active Death	26,994,266
	Active Death over \$50,000	239,470,374
	Refund on Quit	166,165,884
	Vested Pension	1,325,231,166
	Death Benefit After 10-Yr Withdrawal over \$50,000	3,822,313
	Refund on Death after Vested Withdrawal	2,304,252
	COLA	554,976,576
	Total	<u>\$24,273,338,348</u>

# Normal Rate

2005 Valuation  
8.00% Interest

## Liabilities (continued)

L5	<b>Retirees</b>	
	Retired Pension	\$34,804,477,856
	Retired Annuity	206,825,197
	Disability Pension	237,422,207
	Disability Annuity	1,556,085
	Beneficiary Pension	382,770,112
	Beneficiary Annuity	9,093,703
	DBA Pension	7,619,614
	DBA Annuity	733,191
	Escalation	4,461,319
	Post Retired Death over \$50,000	346,196
	COLA	2,497,869,372
	Catch-Up & Prior §532 Supp	1,201,753,659
	Total	<u>\$39,354,928,511</u>
L6	<b>Vesteds</b>	
	Inactive Vested	\$134,599,696
	Death Benefit After 10-Yr Withdrawal over \$50,000	420,885
	Active Vested	353,965,540
	Death Benefit After 10-Yr Withdrawal over \$50,000	1,540,826
	COLA	12,358,813
	Total	<u>\$502,885,760</u>
L7	<b>TIAA</b>	
	Service Pension	\$4,092,517
	Disability Pension	93,144
	Vested Pension	153,368
	Active Death over \$50,000	6,310
	COLA	318,301
	Total	<u>\$4,663,640</u>
L8	<b>Miscellaneous</b>	
	Incurred Death but not Paid	\$3,423,791
	Unclaimed Non-Member Funds	3,450,714
	Total	<u>\$6,874,505</u>
	<b>Total Liabilities</b>	<u><u>\$85,297,630,181</u></u>

## Normal Rate

2005 Valuation  
8.00% Interest

### Assets for Valuation

Current Total Assets		\$82,916,006,737	
Less:	Left with Organization to Accrue Interest	729,045	
	Expenses Due and Accrued	18,113,365	
	Other Liabilities	126,432,697	
	Expense Fund	15,741,131	
	Sub-total		\$82,754,990,499
Less:	Adjustment for 5 Year Averaging of Equities		3,120,676,351
Less:	Provision for Adverse Market Deviation		5,560,000,000
	<b>Assets for Valuation Purposes</b>		<b>\$74,074,314,148</b>
Less:	Group Life Insurance Fund Net Asset Value		62,666,767
	<b>Assets for Normal Rate Valuation Purposes</b>		<b>\$74,011,647,381</b>

### Receivables

R1 Assets receivable from Normal Rate in 2005-2006 fiscal year (2004-2005 paybase)(2003 Normal Rate)(1.0800) <sup>-7/24</sup> (12,163,707,565) (0.0524)(1.0800) <sup>-7/24</sup>			\$623,230,447
R2 Assets receivable from Normal Rate in 2006-2007 fiscal year (2005-2006 paybase)(2004 Normal Rate)(1.0800) <sup>-1 7/24</sup> (12,585,000,000) (0.0758)(1.0800) <sup>-1 7/24</sup>			\$863,674,455
R3 Assets receivable from the amortization of Article 18			\$920,485
R4 Present Value of Future Member Contributions (Tier 3 Present Value of Future Employee Contributions)(1.0800) <sup>-7/24</sup> (0) (1.0800) <sup>-7/24</sup>			\$0
(Tier 4 Present Value of Future Employee Contributions)(1.0800) <sup>-7/24</sup> (652,028,171) (1.0800) <sup>-7/24</sup>		<u>\$637,555,159</u>	\$637,555,159

# Normal Rate

2005 Valuation  
8.00% Interest

## Receivables (continued)

### R5 Assets receivable from Retirement Incentive Payments

Chapter 86 of the Laws of 2000

Receivable in 2005-2006

(16,157,318) (1.0800) - 7/24

\$15,798,675

\$15,798,675

Chapter 69 of the Laws of 2002

Receivable in 2005-2006

(24,064,215) (1.0800) - 7/24

\$23,530,064

Receivable in 2006-2007

(24,064,215) (1.0800) - 1 7/24

\$21,787,096

Receivable in 2007-2008

(24,064,215) (1.0800) - 2 7/24

\$20,173,237

\$65,490,397

\$2,206,669,618

# Normal Rate

2005 Valuation  
8.00% Interest

Present Value of Future Salaries

	<u>Total PVFS</u>	
Tier 1	\$2,615,301,714	
Tier 2	3,173,208,397	
Tier 3	7,428,198,672	
Tier 4	<u>99,859,596,724</u>	
	\$113,076,305,507	x (1.0800) <sup>-7/24</sup>
		= \$110,566,360,749

Normal Rate

<hr style="border: 0.5px solid black;"/> Total Liabilities - (Assets + Receivables)		
<hr style="border: 0.5px solid black;"/> Present Value of Future Salaries		
<hr style="border: 0.5px solid black;"/> \$9,079,313,182	=	8.2116%
\$110,566,360,749		8.21%

# Group Life Insurance Fund

2005 Valuation  
8.00% Interest

## A) Calculation of June 30, 2005 Balance

Actuarial Value as of July 1, 2004		\$95,246,384
Interest	[ 95,246,384 x .08 ]	\$7,619,711
October 15, 2004 actual premium	\$15,205,091	
October 15, 2004 deferred premium	<u>(\$15,563,600)</u>	
Premium Gain/(Loss)		(\$358,509)
Interest	[ (358,509) x (1.08 <sup>8.5/12</sup> -1) ]	(\$20,086)
Death Benefits paid in 2004-2005		(\$8,818,323)
Interest	[ (8,818,323) x (1.08 <sup>5</sup> -1) ]	(\$345,947)
October 15, 2007 deferred premium [from B]		\$16,840,200
Interest discount	[ 16,840,200 x (1.08 <sup>-(2+3.5/12)</sup> -1) ]	<u>(\$2,722,916)</u>
<b>Actuarial Value as of June 30, 2005</b>		<b>\$107,440,514</b>

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

Death benefits	[ 8,818,323 x 1.08 <sup>2+9.5/12</sup> ]	\$10,931,858
Interest	[ (7,619,711) x 1.08 <sup>2+3.5/12</sup> ]	(\$9,089,387)
Premium Loss/(Gain)	[ 358,509 x 1.08 <sup>3</sup> ]	\$451,618
Adjustment to the GLIF reserve		<u>\$14,546,111</u>
Total required premium		\$16,840,200
GLIF Rate	=	$\frac{\text{Required premium}}{\text{Estimated 2006-2007 paybase}}$
	=	$\frac{\$16,840,200}{\$12,954,000,000}$
	=	0.13%
October 15, 2007 deferred premium	[ 12,954,000,000 x 0.0013 ]	\$16,840,200

## C) Summary of Deferred Premiums

	<u>Deferred Premium</u>	<u>Present Value as of 6/30/2005</u>
Due October 15, 2005	\$16,048,500	\$15,692,273
Due October 15, 2006	\$16,528,200	\$14,964,190
Due October 15, 2007	\$16,840,200	<u>\$14,117,284</u>
		\$44,773,747

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

\$107,440,514 - \$44,773,747 = \$62,666,767



APPENDIX 5 (Cont'd.)  
**Excess Benefit Plan Fund\***  
 2005 Valuation

<b>Balance as of July 1, 2005</b>		\$240,999
<b>less</b>	Accrual Final Adjustment for the 2005 Fiscal Year	(\$134,451)
<b>plus</b>	Employer contribution (paid 10/15/2005) [ 0.0001 X \$12,163,707,565 (6/30/2003 ECR rate of .01% times '04-'05 paybase) ]	\$1,216,371
<b>less</b>	Annual Estimated Payments	<u>\$600,000</u>
<b>Expected Balance as of June 30, 2006</b>		\$991,821
<b>plus</b>	Employer contribution (payable 10/15/2006) [ 0.0001 X \$12,585,000,000 (6/30/2004 ECR rate of .01% times est'd. '05-'06 paybase) ]	\$1,258,500
<b>less</b>	Annual Estimated Payments (\$600,000 X 1.5)	<u>\$900,000</u>
<b>Expected Balance as of June 30, 2007</b>		\$1,350,321

$$\begin{array}{rcl}
 \text{Rate} & = & \frac{\text{Anticipated Excess Benefits Paid in 2007-2008}}{\text{2006-2007 Salary}} = \frac{\$600,000 \times 1.5 \times 1.5}{\$12,954,000,000} \\
 & = & \frac{\$1,350,000}{\$12,954,000,000} = 0.01042\% \\
 & & \text{round to } 0.01\%
 \end{array}$$

\* 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 3.33% increase in employer contributions for 2006-07 reflects the projected growth in the member salary base, from \$12,163,707,565 in 2004-05 to \$12,585,000,000 in 2005-06.

**Employer Contributions to the Administrative Expense Fund**

Member Salary Base		Rate	Employer Contributions (Net of Billing Adjustments)		Percent increase in contributions
Year	Amount		Year Collected	Amount	
2000-01	\$10,581,172,175	0.20	2001-02	\$21,182,106	4.93%
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	30,448,446	3.50%
2005-06	12,585,000,000 *	0.25	2006-07	31,462,500	3.33%
2006-07	12,954,000,000 *	0.25 *	2007-08	32,385,000	2.93%
2007-08	13,399,000,000 *	0.30 *	2008-09	40,197,000	24.12%

\*Projected.

Note: The rate applied to 2007-08 salaries for collection in 2008-09 has been included for discussion purposes only. A more accurate estimate of the rate will be available in April 2007 when expenses associated with GASB 45 are known. See "Anticipating the Rate for 2007-08" for a discussion of GASB 45 and its impact on the operating budget.

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 2.93% to 3.44% annually for the next several years. It has been estimated at \$12,954,000,000 for 2006-07.

Anticipating the Rate for 2007-08

Member-related expenses for 2007-08 have been estimated by applying a 4% increase to member-related expenses budgeted for 2006-07. This rate of increase has been determined based on current economic conditions and the System's five-year plan. Factors considered include general price increases, a 10% increase in health insurance expenses and an item-by-item calculation of amortization/depreciation expense on capital assets.

<sup>1</sup> From the NYSTRS 2006-07 Operating Budget Report.

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

In addition, GASB 45, Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions (OPEB), will be effective beginning with the 2007-08 fiscal year. The System is in the process of reviewing the impact of GASB 45 on the 2007-08 and future operating budgets. An amount equal to five times annual retiree health insurance expenses will be used to estimate OPEB benefits earned by employees in 2007-08. This "order of magnitude" has been suggested by industry experts. The member allocation percentage of 70% will then be applied to determine the portion to be defrayed by employer contributions.

For purposes of this estimate, expenses would be approximately \$9,735,000. Applying the member allocation percentage reduces this amount for billing purposes to \$6,814,500. In addition, benefits earned by employees prior to the effective date of GASB 45 will be amortized over a period of up to 30 years. This portion of the expense has not yet been estimated. Actual expenses will be known after the actuarial study to be performed this summer is complete.

A numerical calculation of member-related expenses divided by the projected member salary base would result in a Rate of 0.32%. The overall strength of the fund balance mitigates the need to increase the Rate for 2007-08 collections.

Budgeted 2006-07 Member-Related Expenses		\$ 33,767,575	
Projected Increase Based on Five-Year Plan		<u>x 1.04</u>	
Subtotal		\$ 35,118,278	
Estimated GASB 45 Expenses		<u>\$ 6,814,500</u>	
Projected 2007-08 Member-Related Expenses		\$ 41,932,778	
<u>Projected 2007-08 Member-Related Expenses</u>	=	<u>\$ 41,932,778</u>	= 0.32%
Projected 2006-07 Member Salary Base		\$12,954,000,000	

**Recommended rate based on this calculation and consideration of the overall strength of the fund balance: = 0.25%**

<sup>2</sup> From the NYSTRS 2006-07 Operating Budget Report.

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)
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

\* Method changed to compute separate adjustments for Domestic Equity, International Equity, Real Estate, 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)
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

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

## 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

APPENDIX 5 (Cont'd.)

**ACTUARIAL VALUE OF ASSETS**  
**Alternative Investments**

	<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



APPENDIX 6

MEMBER RECONCILIATION

**ACTIVE MEMBERS:**

	<b>Men</b>	<b>Women</b>	<b>Total</b>
July 1, 2004.....	63,689	190,826	<b>254,515</b>
Changes During Year:			
Added.....	3,672	12,323	<b>15,995</b>
Withdrawn.....	684	2,097	<b>2,781</b>
Retired.....	2,214	4,968	<b>7,182</b>
Died.....	60	131	<b>191</b>
Total Membership July 1, 2005.....	64,403	195,953	<b>260,356</b>

**MEMBERS RETIRED FOR:**

	<b>Service*</b>			<b>Disability</b>			<b>Total</b>		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
July 1, 2004.....	44,978	69,932	114,910	559	1,373	1,932	<b>45,537</b>	<b>71,305</b>	<b>116,842</b>
Changes During Year:									
Retired.....	2,186	4,856	7,042	28	112	140 **	<b>2,214</b>	<b>4,968</b>	<b>7,182</b>
Died.....	949	1,870	2,819	29	83	112	<b>978</b>	<b>1,953</b>	<b>2,931</b>
Lump Sum.....	72	182	254	0	0	0	<b>72</b>	<b>182</b>	<b>254</b>
Restored to Active Membership....	0	0	0	4	4	8	<b>4</b>	<b>4</b>	<b>8</b>
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>

**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, 2004.....	756	3,114	3,870	78	180	258	35	241	276	<b>869</b>	<b>3,535</b>	<b>4,404</b>
Changes During Year:												
Added.....	91	244	335	11	8	19	0	0	0	<b>102</b>	<b>252</b>	<b>354</b>
Died.....	65	166	231	2	6	8	2	18	20	<b>69</b>	<b>190</b>	<b>259</b>
Lump Sum.....	1	2	3	1	0	1	0	1	1	<b>2</b>	<b>3</b>	<b>5</b>
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>

**SUMMARY**

	<b>Men</b>	<b>Women</b>	<b>Total</b>
Active Members.....	64,403	195,953	<b>260,356</b>
Retired Members.....	46,697	74,134	<b>120,831</b>
Beneficiaries.....	900	3,594	<b>4,494</b>
Total.....	112,000	273,681	<b>385,681</b>

\*Also includes vested retirees.

\*\*Includes 2 men and 2 women retired for disability who receive a service benefit.

\*\*\*Includes 50 men and 66 women retired for disability who receive a service benefit.

APPENDIX 7

DISTRIBUTION OF ACTIVE MEMBERS

Distribution by Age as of June 30, 2005

<u>Age</u>	<u>Males</u>	<u>Females</u>	<u>Total Members</u>
15-19	9	40	49
20-24	1,683	5,952	7,635
25-29	8,910	25,341	34,251
30-34	9,657	27,276	36,933
35-39	9,062	25,804	34,866
40-44	7,447	24,186	31,633
45-49	7,056	25,267	32,323
50-54	9,146	30,637	39,783
55-59	8,459	23,018	31,477
60-64	2,291	6,713	9,004
65-69	454	1,286	1,740
70-74	143	324	467
75-79	57	87	144
80-84	25	20	45
85 or older	<u>4</u>	<u>2</u>	<u>6</u>
Total	64,403	195,953	260,356

*Average Male age is 42 years 2 months*

*Average Female age is 42 years 4 months*

APPENDIX 7 (Cont'd.)

Distribution of Active Members by Age and New York State Service as of June 30, 2005

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	9	0	9
20-24	1,683	0	1,683
25-29	8,908	2	8,910
30-34	9,080	577	9,657
35-39	5,917	3,145	9,062
40-44	3,533	3,914	7,447
45-49	2,743	4,313	7,056
50-54	2,282	6,864	9,146
55-59	1,590	6,869	8,459
60-64	716	1,575	2,291
65-69	237	217	454
70-74	83	60	143
75-79	38	19	57
80-84	16	9	25
85 or older	<u>2</u>	<u>2</u>	<u>4</u>
Total	36,837	27,566	64,403

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	40	0	40
20-24	5,952	0	5,952
25-29	25,341	0	25,341
30-34	25,734	1,542	27,276
35-39	17,698	8,106	25,804
40-44	13,368	10,818	24,186
45-49	12,707	12,560	25,267
50-54	9,770	20,867	30,637
55-59	4,805	18,213	23,018
60-64	1,548	5,165	6,713
65-69	382	904	1,286
70-74	123	201	324
75-79	31	56	87
80-84	11	9	20
85 or older	<u>0</u>	<u>2</u>	<u>2</u>
Total	117,510	78,443	195,953

APPENDIX 7 (Cont'd.)

Distribution of Active Members by Total Service as of June 30, 2005

<u>Service</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
0-4	22,422	70,342	92,764
5-9	13,970	45,020	58,990
10-14	7,554	25,001	32,555
15-19	5,600	20,888	26,488
20-24	4,119	14,516	18,635
25-29	3,846	10,780	14,626
30-34	5,054	7,766	12,820
35 or more	<u>1,838</u>	<u>1,640</u>	<u>3,478</u>
Total	64,403	195,953	260,356

*Median Male has 8 Years of Total Service*

*Median Female has 7 Years of Total Service*

APPENDIX 8  
HISTORICAL MEMBER STATISTICS

**Members and Annuitants 1925-2005**

<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

**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>
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
2004	22,986	13,947	18,835	198,747	254,515
2005	17,901	13,210	18,535	210,710	260,356

APPENDIX 9

RETIREMENT STATISTICS

**RETIREMENT STATISTICS 2004-05 RETIREES RETIRED FOR:**

	<b>Service*</b>	<b>Disability</b>
Number Retired.....	<b>7,046</b>	<b>136</b>
Age at Retirement:		
Average.....	57 yrs., 10 mos.	51 yrs., 2 mos.
Median.....	56 yrs., 4 mos.	52 yrs., 1 mo.
Years of Service:		
Average.....	28 yrs., 6 mos.	19 yrs., 3 mos.
Median.....	32 yrs., 2 mos.	17 yrs., 8 mos.
**Benefit:		
Average.....	\$45,394.47	\$25,447.39
Median.....	\$48,354.96	\$22,694.76
Final Average Salary:		
Average.....	\$72,126.25	\$61,121.55
Median.....	\$73,626.23	\$59,366.98
***Benefit as % of FAS:		
Average.....	57.07%	39.37%
Median.....	65.96%	35.09%

**2004-05 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>1,323</b>	<b>3,634</b>	<b>2,089</b>
Age at Retirement:			
Average.....	58 yrs., 8 mos.	57 yrs., 7 mos.	57 yrs., 9 mos.
Median.....	57 yrs., 2 mos.	55 yrs., 10 mos.	56 yrs., 9 mos.
Years of Service:			
Average.....	13 yrs., 1 mo.	29 yrs., 6 mos.	36 yrs., 8 mos.
Median.....	13 yrs., 1 mo.	31 yrs., 1 mo.	36 yrs., 0 mos.
**Benefit			
Average.....	\$7,233.13	\$46,629.02	\$67,415.10
Median.....	\$4,256.88	\$46,713.36	\$64,304.52
Final Average Salary:			
Average.....	\$34,003.39	\$76,196.55	\$89,189.48
Median.....	\$25,153.58	\$74,265.92	\$84,784.84
***Benefit as % of FAS:			
Average.....	18.99%	60.35%	75.47%
Median.....	18.13%	63.86%	74.85%

\*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, 2005 RETIRED FOR:**

	<b>Service*</b>	<b>Disability</b>
Number Retired.....	<b>118,995</b>	<b>1,836</b>
Age at Retirement:		
Average.....	58 yrs., 2 mos.	48 yrs., 10 mos.
Median.....	56 yrs., 10 mos.	49 yrs., 8 mos.
Years of Service:		
Average.....	28 yrs., 2 mos.	19 yrs., 1 mo.
Median.....	30 yrs., 0 mos.	18 yrs., 5 mos.
**Benefit:		
Average.....	\$32,339.49	\$15,848.22
Median.....	\$30,582.84	\$13,776.72
Final Average Salary:		
Average.....	\$54,082.22	\$41,786.37
Median.....	\$54,157.33	\$40,868.53
***Benefit as % of FAS:		
Average.....	54.89%	36.67%
Median.....	60.00%	34.07%

**ALL RETIREES AS OF JUNE 30, 2005 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>20,457</b>	<b>72,329</b>	<b>26,209</b>
Age at Retirement:			
Average.....	58 yrs., 5 mos.	57 yrs., 11 mos.	58 yrs., 9 mos.
Median.....	56 yrs., 7 mos.	56 yrs., 5 mos.	58 yrs., 1 mo.
Years of Service:			
Average.....	14 yrs., 6 mos.	28 yrs., 6 mos.	37 yrs., 2 mos.
Median.....	15 yrs., 0 mos.	29 yrs., 6 mos.	36 yrs., 5 mos.
**Benefit:			
Average.....	\$6,768.04	\$32,148.18	\$52,826.81
Median.....	\$5,191.32	\$30,679.44	\$52,430.64
Final Average Salary:			
Average.....	\$28,361.60	\$55,048.67	\$71,490.90
Median.....	\$23,240.84	\$54,840.40	\$71,217.09
***Benefit as % of FAS:			
Average.....	23.16%	57.00%	73.81%
Median.....	22.11%	58.69%	73.30%

\*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

2001 – 2005 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	EXPOSURES	MALES			FEMALES			RATIO OF ACTUAL TO EXPECTED
		ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	EXPOSURES	ACTUAL	EXPECTED	
50	913	6	0.00	0.000	2,696	5	0.00	0.000
51	2,166	13	0.00	0.000	5,947	20	0.00	0.000
52	4,449	47	0.00	0.000	10,169	61	0.00	0.000
53	6,993	160	0.00	0.000	14,486	254	0.00	0.000
54	8,956	575	0.00	0.000	16,908	749	0.00	0.000
55	9,528	3,747	2642.97	1.418	16,740	5,387	4403.61	1.223
56	6,386	2,218	1624.60	1.365	11,464	3,157	2461.88	1.282
57	4,583	1,149	1032.72	1.113	8,450	1,626	1484.61	1.095
58	3,464	941	764.23	1.231	6,762	1,336	1151.95	1.160
59	2,524	758	584.90	1.296	5,340	1,174	991.24	1.184
60	1,793	563	486.61	1.157	4,257	1,088	939.26	1.158
61	1,254	393	409.39	0.960	3,124	751	822.78	0.913
62	1,458	457	568.07	0.804	4,778	1,284	1486.12	0.864
63	928	224	327.84	0.683	3,143	817	947.39	0.862
64	642	139	233.03	0.596	2,166	469	639.27	0.734
65	496	121	212.59	0.569	1,626	460	541.69	0.849
66	391	88	148.24	0.594	1,122	275	382.58	0.719
67	281	54	91.59	0.590	810	171	242.98	0.704
68	209	45	54.48	0.826	625	131	191.85	0.683
69	155	26	47.71	0.545	483	109	130.34	0.836
70	114	21	32.87	0.639	349	62	100.16	0.619
71	468	58	468.00	0.124	1,126	242	1126.00	0.215
TOTAL	58,151	11,803	9,729.84	1.213	122,571	19,628	18,043.71	1.088



APPENDIX 10 (Cont'd.)

2001-2005 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	7,953	0	0.00	0.000	25,103	4	0.00	0.000
51	7,780	3	0.00	0.000	23,378	12	0.00	0.000
52	6,741	3	0.00	0.000	20,078	8	0.00	0.000
53	5,705	8	0.00	0.000	16,364	12	0.00	0.000
54	4,569	40	0.00	0.000	12,933	83	0.00	0.000
55	3,525	222	146.67	1.514	10,345	512	680.34	0.753
56	2,645	144	100.93	1.427	8,213	349	440.93	0.792
57	2,067	97	69.87	1.388	6,787	294	298.11	0.986
58	1,550	78	51.29	1.521	5,543	260	236.07	1.101
59	1,231	63	42.79	1.472	4,580	265	212.54	1.247
60	960	54	39.08	1.382	3,841	294	211.87	1.388
61	768	60	37.61	1.595	3,117	284	205.24	1.384
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	45,494	772	488.24	1.581	140,282	2,377	2,285.10	1.040

APPENDIX 10 (Cont'd.)

2001-2005 EXPERIENCE STUDY  
 NUMBER OF DEATHS AMONG ACTIVE MEMBERS  
 EXPOSURE BASED ON ACTIVE TEACHERS  
 ASSUMPTIONS ADOPTED OCTOBER 2000

CENTRAL	MALES			FEMALES			
	<u>AGE</u>	<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	0.11	0.000	1	0.25	4.000
	25	8	7.41	1.080	10	16.92	0.591
	30	11	15.97	0.689	17	26.42	0.643
	35	10	17.48	0.572	8	25.74	0.311
	40	9	16.37	0.550	26	33.03	0.787
	45	21	28.75	0.730	43	61.85	0.695
	50	51	60.06	0.849	87	113.49	0.767
	55	62	87.89	0.705	84	132.41	0.634
	60	30	26.63	1.127	43	54.65	0.787
	65	7	6.69	1.046	13	13.91	0.935
	70	10	2.19	4.566	15	3.46	4.335
TOTAL		219	269.55	0.812	347	482.13	0.720

APPENDIX 10 (Cont'd.)

2001-2005 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>	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	2.00	0.000
35	1	3.35	0.299	7	12.10	0.579
40	5	8.39	0.596	31	26.80	1.157
45	12	24.25	0.495	70	65.77	1.064
50	59	77.91	0.757	200	174.12	1.149
54	33	51.61	0.639	112	90.90	1.232
TOTAL	110	166.42	0.661	420	371.69	1.130

APPENDIX 10 (Cont'd.)

2001-2005 EXPERIENCE STUDY  
 COMPARISON OF SALARY SCALE TO ACTUAL SALARY INCREASES  
 ASSUMPTIONS ADOPTED OCTOBER 2000

**MALES**

CENTRAL <u>AGE</u>	ACTUAL <u>SALARIES</u>	EXPECTED <u>SALARIES</u>	RATIO OF ACTUAL TO <u>EXPECTED</u>
20	14,979,264	13,103,622	1.143
25	959,839,457	946,771,824	1.014
30	1,702,252,018	1,697,885,524	1.003
35	1,858,545,340	1,851,576,829	1.004
40	1,714,642,622	1,711,718,429	1.002
45	1,876,164,394	1,873,372,341	1.001
50	3,238,625,667	3,234,123,242	1.001
55	3,917,929,266	3,957,761,176	0.990
60	985,863,046	1,008,254,570	0.978
65	164,306,886	169,122,249	0.972
70	53,668,572	54,762,522	0.980
TOTAL	16,486,816,532	16,518,452,328	0.998

APPENDIX 10 (Cont'd.)

2001-2005 EXPERIENCE STUDY  
 COMPARISON OF SALARY SCALE TO ACTUAL SALARY INCREASES  
 ASSUMPTIONS ADOPTED OCTOBER 2000

**FEMALES**

CENTRAL <u>AGE</u>	ACTUAL <u>SALARIES</u>	EXPECTED <u>SALARIES</u>	RATIO OF ACTUAL TO <u>EXPECTED</u>
20	53,675,463	43,926,643	1.222
25	2,797,494,527	2,750,085,166	1.017
30	4,396,165,301	4,394,050,714	1.000
35	4,187,179,636	4,182,758,284	1.001
40	4,378,698,428	4,373,631,678	1.001
45	5,319,824,530	5,310,911,618	1.002
50	8,201,979,786	8,199,464,251	1.000
55	7,456,238,713	7,530,779,505	0.990
60	2,323,596,015	2,357,669,362	0.986
65	434,628,384	446,464,631	0.973
70	118,690,091	121,447,391	0.977
TOTAL	39,668,170,874	39,711,189,243	0.999

APPENDIX 10 (Cont'd.)

2001-2005 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	164	169.15	0.970	441	557.65	0.791
25	2,425	2,184.50	1.110	7,093	6,930.79	1.023
30	1,804	1,796.05	1.004	7,759	7,380.34	1.051
35	1,234	1,307.90	0.943	6,287	5,269.04	1.193
40	1,022	1,008.21	1.014	4,115	3,691.54	1.115
45	968	966.19	1.002	3,604	3,504.15	1.028
50	1,035	939.58	1.102	3,697	3,818.29	0.968
54	475	365.84	1.298	1,365	1,456.64	0.937
TOTAL	9,127	8,737.42	1.045	34,361	32,608.44	1.054

APPENDIX 10 (Cont'd.)

2001-2005 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	0.04	0.000
35	0	0.07	0.000	1	0.71	1.408
40	1	2.25	0.444	8	6.83	1.171
45	6	3.66	1.639	23	22.63	1.016
50	25	20.31	1.231	82	61.38	1.336
55	36	39.82	0.904	90	78.04	1.153
60	29	21.31	1.361	53	35.25	1.504
65	18	15.48	1.163	19	16.69	1.138
70	21	13.81	1.521	22	19.16	1.148
75	20	11.47	1.744	16	20.45	0.782
80	8	5.14	1.556	18	17.02	1.058
85	1	1.22	0.820	15	12.03	1.247
90	1	0.60	1.667	10	8.88	1.126
95	0	0.00	0.000	13	11.29	1.151
100	0	0.00	0.000	7	5.90	1.186
105	0	0.00	0.000	1	3.21	0.312
110	0	0.00	0.000	1	0.65	1.538
TOTAL	166	135.14	1.228	379	320.16	1.184

APPENDIX 10 (Cont'd.)

2001-2005 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	118	124.39	0.949	122	167.98	0.726
60	246	330.82	0.744	271	367.56	0.737
65	417	459.86	0.907	352	451.51	0.780
70	634	745.25	0.851	539	635.83	0.848
75	861	949.54	0.907	837	911.17	0.919
80	900	990.46	0.909	1,107	1,238.62	0.894
85	695	742.05	0.937	1,756	1,680.02	1.045
90	454	458.61	0.990	2,029	1,919.45	1.057
95	190	168.49	1.128	1,372	1,365.51	1.005
100	33	32.48	1.016	354	394.69	0.897
105	1	1.68	0.595	35	35.71	0.980
110	0	0.00	0.000	1	2.65	0.377
TOTAL	4,549	5,003.63	0.909	8,775	9,170.70	0.957



APPENDIX 10 (Cont'd.)

2001-2005 EXPERIENCE STUDY  
 NUMBER OF DEATHS AMONG BENEFICIARIES  
 MORTALITY ADOPTED OCTOBER 2000

CENTRAL AGE	MALES			FEMALES		
	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
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	0.01	0.000	0	0.00	0.000
35	0	0.00	0.000	0	0.04	0.000
40	0	0.06	0.000	1	0.06	16.667
45	0	0.14	0.000	0	0.14	0.000
50	0	0.39	0.000	0	0.55	0.000
55	1	1.16	0.862	1	2.72	0.368
60	3	2.07	1.449	6	7.06	0.850
65	6	4.16	1.442	18	13.66	1.318
70	10	12.14	0.824	39	27.94	1.396
75	22	22.87	0.962	62	62.15	0.998
80	41	38.37	1.069	119	130.32	0.913
85	75	71.24	1.053	206	194.57	1.059
90	77	62.63	1.229	202	218.98	0.922
95	38	30.16	1.260	147	138.23	1.063
100	7	5.21	1.344	25	26.20	0.954
105	0	0.00	0.000	1	0.91	1.099
110	0	0.00	0.000	0	0.00	0.000
TOTAL	280	250.61	1.117	827	823.53	1.004

APPENDIX 10 (Cont'd.)

Investment Rate of Return<sup>1</sup>  
on  
Market and Actuarial Value of Assets  
as of June 30, 2005

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:	10.6%	8.1%
3 Years:	10.1%	6.4%
5 Years:	3.3%	1.9%
10 Years:	9.7%	9.2%

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:	3.15%	3.0%	1.6%	1.75%
3 Years:	2.63%	3.0%	1.4%	1.75%
5 Years:	2.46%	3.0%	1.3%	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
		Average	10.93 %

## 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 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.

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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- IV. Retirement Rates
  - a) Tier 1 Members and Tiers 2, 3 and 4 Members at Least Age 62 or with 30 Years of Service
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- V. Service and Deferred Annuitant and Beneficiary Mortality Rates
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- 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										
	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	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

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	0.231046	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
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	0.041608	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 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	0.000592	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 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	0.006624	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%<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 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 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 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 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 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.