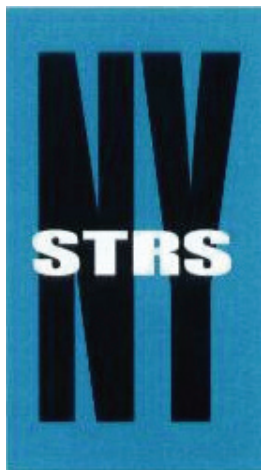


# ACTUARIAL VALUATION REPORT

*as of*

*JUNE 30, 2008*



*New York State Teachers' Retirement System*

Office of the Actuary  
July 16, 2009

**NEW YORK STATE TEACHERS' RETIREMENT SYSTEM**

**Actuarial Valuation Report  
as of June 30, 2008**

**TABLE OF CONTENTS**

<b>A.</b>	<b>INTRODUCTION.....</b>	<b>1</b>
<b>B.</b>	<b>EMPLOYER CONTRIBUTION RATE .....</b>	<b>1</b>
<b>C.</b>	<b>GAIN/LOSS IN THE EMPLOYER CONTRIBUTION RATE .....</b>	<b>3</b>
<b>D.</b>	<b>EMPLOYER CONTRIBUTION RATE HISTORY.....</b>	<b>4</b>
<b>E.</b>	<b>EMPLOYER CONTRIBUTION RATE DECREASE .....</b>	<b>5</b>
<b>F.</b>	<b>MEMBER DATA.....</b>	<b>5</b>
<b>G.</b>	<b>FUNDED STATUS .....</b>	<b>6</b>
<b>H.</b>	<b>ACTUARIAL EXPERIENCE .....</b>	<b>7</b>
<b>I.</b>	<b>NEW LEGISLATION .....</b>	<b>7</b>
<b>J.</b>	<b>FUTURE EXPECTATIONS.....</b>	<b>7</b>
<b>K.</b>	<b>CERTIFICATION .....</b>	<b>8</b>

**APPENDICES**

<b>1.</b>	<b>RECONCILIATION OF THE ACTUARIAL VALUE OF ASSETS .....</b>	<b>9</b>
<b>2.</b>	<b>COMPARISON OF MARKET VALUE TO ACTUARIAL VALUE OF ASSETS .....</b>	<b>10</b>
<b>3.</b>	<b>THE ACTUARY'S VALUATION BALANCE SHEET.....</b>	<b>11</b>
<b>4.</b>	<b>FUNDING PROGRESS.....</b>	<b>12</b>
<b>5.</b>	<b>EMPLOYER CONTRIBUTION RATE .....</b>	<b>13</b>
<b>6.</b>	<b>MEMBER RECONCILIATION .....</b>	<b>22</b>
<b>7.</b>	<b>DISTRIBUTION OF ACTIVE MEMBERS .....</b>	<b>23</b>
<b>8.</b>	<b>HISTORICAL MEMBER STATISTICS.....</b>	<b>26</b>
<b>9.</b>	<b>RETIREMENT STATISTICS .....</b>	<b>27</b>
<b>10.</b>	<b>2004 – 2008 EXPERIENCE STUDY .....</b>	<b>29</b>
<b>11.</b>	<b>HISTORY OF THE EMPLOYER CONTRIBUTION RATE.....</b>	<b>40</b>
<b>12.</b>	<b>HISTORY OF THE MEMBER CONTRIBUTION RATE .....</b>	<b>41</b>
<b>13.</b>	<b>ACTUARIAL COST AND ASSET VALUATION METHODS.....</b>	<b>42</b>
<b>14.</b>	<b>PRESENT ACTUARIAL ASSUMPTIONS.....</b>	<b>43</b>
<b>15.</b>	<b>SUMMARY OF BENEFIT PROVISIONS .....</b>	<b>61</b>

# NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

## Actuarial Valuation Report as of June 30, 2008

### 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, 2008. 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, 2009 to June 30, 2010 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, 2009 to June 30, 2010 fiscal year and collected in the fiscal year ending June 30, 2011 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 Insurance 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, 2010 is **6.19%**. The Employer Contribution Rates determined by the actuarial valuations as of June 30, 2008 and June 30, 2007 and the changes between the two are summarized below:

	As of <u>6/30/2008</u>	As of <u>6/30/2007</u>	<u>Change</u>
Normal Rate	5.73%	7.17%	-1.44%
Expense Rate	0.32	0.32	0.00
Group Life Insurance 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>6.19%</b>	<b>7.63%</b>	<b>-1.44%</b>

As in prior years, the actual employer contributions made by participating employers during the fiscal year ending June 30, 2008 were equal to the employer contributions determined in accordance with the annual actuarial valuation. Additional payments are made by certain participating employers as required by statute for participation in early retirement incentives and Section 803 of Article 18 of the Retirement and Social Security Law.

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

The Employer Contribution Rate of 6.19% represents a 144 basis point decrease over the prior year's rate of 7.63%.

#### **NORMAL RATE**

The Normal Rate component of the Employer Contribution Rate has decreased by 144 basis points over the prior year's rate. This change may be broken down as follows:

<b><u>Salary/Service:</u></b>	This gain is due to salary and service data coming in lower than expected.	-0.02
<b><u>Net Investment Gain:</u></b>	The investment return on the actuarial value of assets was approximately 11.1% which was greater than the 8.0% expected return.	-2.11
<b><u>New Entrants:</u></b>	New entrants join the Retirement System with no accumulated assets, did not participate in prior favorable investment experience, and enter with a higher average Normal Contribution Rate of approximately 11.8%. Because of this, New Entrants exert upward pressure on the Employer Contribution Rate.	+0.25
<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.	+0.04
<b><u>Retirement:</u></b>	There were more retirements at younger ages than expected.	+0.27
<b><u>Cost of Living Adjustment:</u></b>	The actual COLA increase of 1.40% was lower than the expected increase of 1.75%.	<u>-0.03</u>
<b><u>TOTAL CHANGE IN THE NORMAL RATE</u></b>		<b>-1.44%</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 premiums collected have generally been more than sufficient to cover payments over the past several years, this rate is being held constant in anticipation of rising payouts in the future due to Tier 2, 3 and 4 post-retirement death benefits and the inactive death benefit.

The **Excess Benefit Plan Rate** 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 has been set to 1 basis point in order to replenish the fund and ensure that the fund balance does not go below zero.

### **D. EMPLOYER CONTRIBUTION RATE HISTORY**

The following chart summarizes the Employer Contribution Rate for the last 20 years:

<u>Salary Year</u>	<u>Employer Contribution Rate</u>	<u>Salary Year</u>	<u>Employer Contribution Rate</u>
1990-1991	6.84%	2000-2001	0.43%
1991-1992	6.64	2001-2002	0.36
1992-1993	8.00	2002-2003	0.36
1993-1994	8.41	2003-2004	2.52
1994-1995	7.24	2004-2005	5.63
1995-1996	6.37	2005-2006	7.97
1996-1997	3.57	2006-2007	8.60
1997-1998	1.25	2007-2008	8.73
1998-1999	1.42	2008-2009	7.63
1999-2000	1.43	2009-2010	6.19

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

## **E. EMPLOYER CONTRIBUTION RATE DECREASE**

The Employer Contribution Rate has decreased this year from 7.63% to 6.19%. This represents approximately an 18.9% decrease. The Normal Rate component equals 5.73%, a decrease of approximately 20.1% from the prior year's Normal Rate of 7.17%. Although the rate of return on the market value of assets was -6.4% for the fiscal year ending June 30, 2008, the rate of return on the actuarial value of assets was 11.1%, due to the positive, double-digit market value returns in each of the four prior years. The impact of this gain, as well as the other actuarial assumption gains and losses, led to the decrease in this year's contribution rate.

Six 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. 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 **11.8%** of pay. This means the cost for each new member, if each year the actuarial assumptions are exactly realized, would be approximately 11.8% 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 11.8% rate. Additionally, if returns in the capital markets over a period of years are below expectations and actuarial losses accrue as a result, the Normal Rate could well increase beyond the New Entrant Normal Rate of 11.8% of pay. It is not a cap.

## **F. MEMBER DATA**

The member data for the valuation was determined as of June 30, 2008. Compared with the previous year, the total number of members increased from 403,401 to 411,607; the number of active members increased from 270,045 to 274,901; the number of retired members increased from 128,591 to 131,814; and the number of beneficiaries receiving monthly benefits increased from 4,765 to 4,892.

The number of retirements decreased from 6,900 during the 2006-2007 fiscal year to 6,330 during the 2007-2008 fiscal year. There was no early retirement incentive offered in the 2007-2008 fiscal year. The number of retirements in recent years has generally remained consistent; however, the recent severe weakening of the economy appears to be leading to a decrease in the number of retirements going forward. The number of retirements over the last ten years is as follows:

<u>Fiscal Year</u>	<u>Total Number of Retirements</u>	<u>Fiscal Year</u>	<u>Total Number of Retirements</u>
1998-1999*	6,111	2003-2004	7,287
1999-2000*	6,658	2004-2005	7,182
2000-2001*	7,946	2005-2006	7,281
2001-2002	7,344	2006-2007	6,900
2002-2003*	10,173	2007-2008	6,330

\*denotes an early retirement incentive offered during that fiscal year.

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

As of June 30, 2008, the actuarial value of plan assets was equal to \$88.25 billion. The accrued pension benefit liability in accordance with the Entry Age Normal Cost Method was equal to \$82.78 billion. These two values produced a funded ratio of 106.6% as of June 30, 2008.

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



## **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 due to retirement, withdrawal, disability, or death. In addition, the assumptions are used to estimate future salary increases, future investment earnings, and the probability of death for retired members and beneficiaries. A summary of the results of the most recent experience study is contained in Appendix 10. The current actuarial assumptions were adopted by the Retirement Board on October 26, 2006, effective with the actuarial valuation of the Retirement System's assets and liabilities as of June 30, 2006.

The Retirement Board annually reviews the asset allocation policy to determine if historical investment experience, recent developments and/or future expectations require any changes in the policy. The current asset allocation policy as approved by the Retirement Board in July 2008 produces a long-term expected annual investment rate of return of 8.3%.

## **I. NEW LEGISLATION**

There were no significant benefit improvements enacted during the 2008 Legislative Session.

## **J. FUTURE EXPECTATIONS**

The market value rate of return on assets for the fiscal year ending June 30, 2008 was -6.4%. The five-year market value rate of return was 9.9% as of June 30, 2008. The rate of return on the actuarial value of assets for the year was 11.1%, due to the four prior years of double-digit returns, and is the primary reason for the decrease in this year's contribution rate.

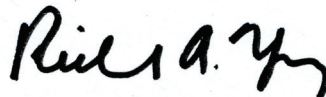
Looking ahead, the fiscal year ending June 30, 2009 was a poorly returning year in the capital markets of historic proportions. While our market value rate of return for the year has not yet been finalized, it is anticipated that it will be in the neighborhood of -20%. The asset smoothing method will dampen the impact of this negative return, however, and the effect on the

employer contribution rate and plan funded status in the short term will not be as great as the dramatic drop in assets would lead one to expect. The decrease in Retirement System assets was substantial, however, and will likely lead to a significant increase in the next employer contribution rate, as well as a strong potential for further significant increases in succeeding years.

## **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.



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

New York State  
Teachers' Retirement System  
Office of the Actuary  
July 16, 2009

## APPENDIX 1

### RECONCILIATION OF THE ACTUARIAL VALUE OF ASSETS

From June 30, 2007 to June 30, 2008

	Actuarial Value* (in thousands)
1. Actuarial Value of Assets as of June 30, 2007 <sup>1</sup>	\$82,768,378
2. Contributions and Transfers	
Employer contributions	1,098,230
Member contributions	157,144
Net transfer of reserves in/out	<u>2,349</u>
Subtotal	1,257,723
3. Net Investment Income/(Loss)	9,044,493
4. Distributions	
Benefit payments	4,898,476
Return of member contributions	<u>22,792</u>
Subtotal	4,921,267
5. Actuarial Value of Assets as of June 30, 2008	<u>\$88,149,326</u> <sup>2</sup>
6. Market Value of Assets as of June 30, 2008	\$95,769,336

\*Numbers may not total due to rounding.

---

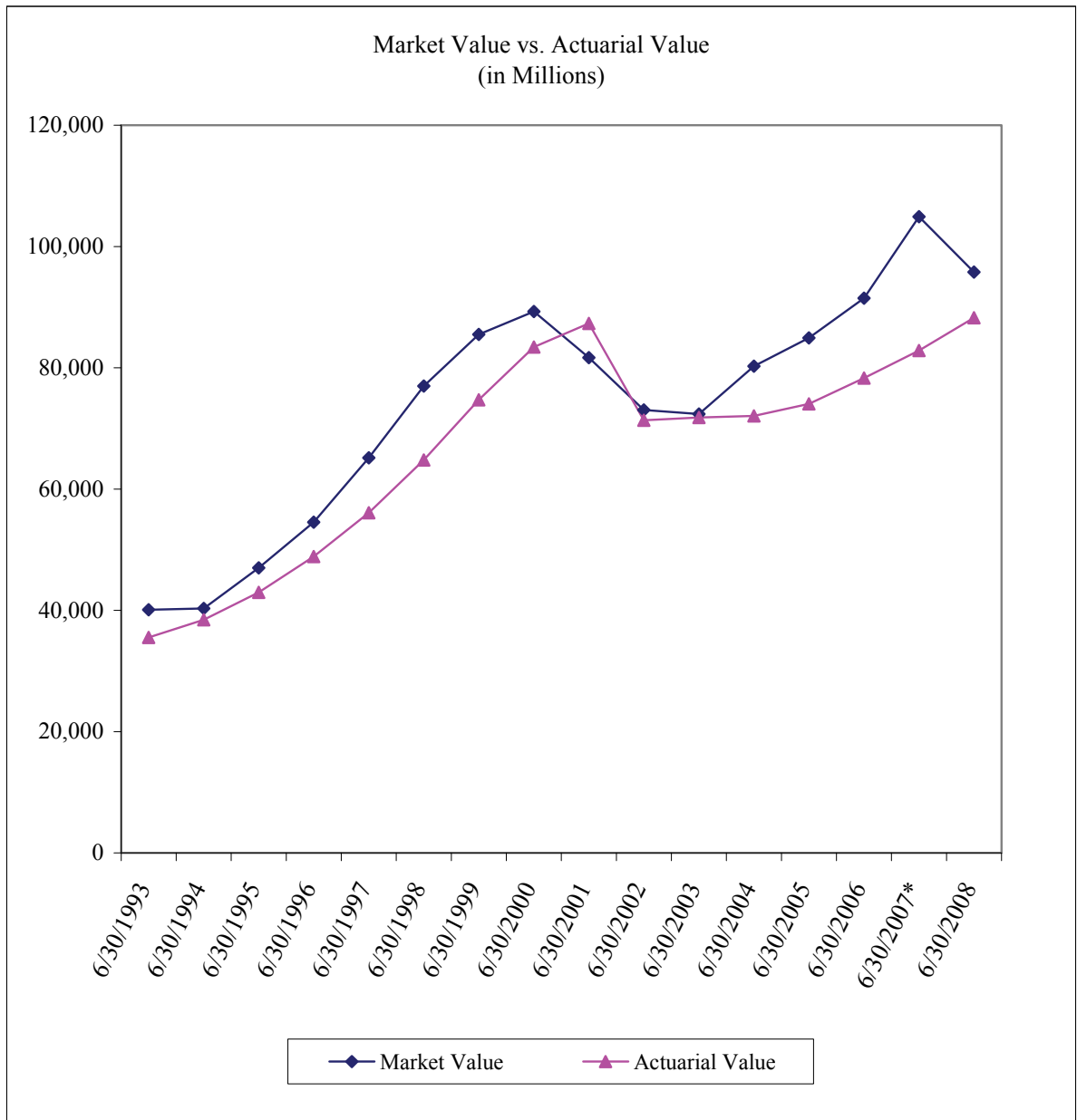
<sup>1</sup> Effective June 30, 2007, the Retirement System's asset valuation method was changed.

<sup>2</sup> Actuarial value of assets used in determining the Normal Rate, and excludes the net asset value of the Group Life Insurance Fund.

APPENDIX 2

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

Fiscal Year Ending	Market Value	Actuarial Value	Fiscal Year Ending	Market Value	Actuarial Value
6/30/1993	\$ 40,094.6	\$ 35,527.1	6/30/2001	\$ 81,664.2	\$ 87,295.3
6/30/1994	40,291.5	38,464.9	6/30/2002	73,041.2	71,374.4
6/30/1995	46,999.1	42,984.8	6/30/2003	72,391.5	71,780.4
6/30/1996	54,567.5	48,865.4	6/30/2004	80,276.2	72,044.4
6/30/1997	65,152.4	56,085.3	6/30/2005	84,908.5	74,074.3
6/30/1998	76,980.5	64,778.9	6/30/2006	91,492.2	78,335.8
6/30/1999	85,514.4	74,721.1	6/30/2007*	104,912.9	82,858.9
6/30/2000	89,247.3	83,421.8	6/30/2008	95,769.3	88,254.7



\*Effective June 30, 2007, the Retirement System's asset valuation method was changed.

## APPENDIX 3

### THE ACTUARY'S VALUATION BALANCE SHEET

as of June 30, 2008

(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, 2008.

#### ASSETS

Present Assets of System for Valuation Purposes <sup>1</sup>	\$88,254,694
Present Value of Prospective Contributions to Pension Accumulation Fund	
from Employer Contributions	9,566,414
from Member Contributions	<u>636,798</u>
TOTAL ASSETS	<u>\$98,457,906</u>

#### LIABILITIES

Present Value of Future Benefits for:	
Retired Members and Beneficiaries	\$47,513,096
Active Members	50,901,011
Member Contributions Accumulated to Date in the Annuity Savings Fund	21,218
Benefits Due and Unpaid	<u>22,581</u>
TOTAL LIABILITIES	<u>\$98,457,906</u>

---

<sup>1</sup> Differs from the assets presented in the Retirement System's financial statements because the actuarial value of assets is not at market value.

## APPENDIX 4

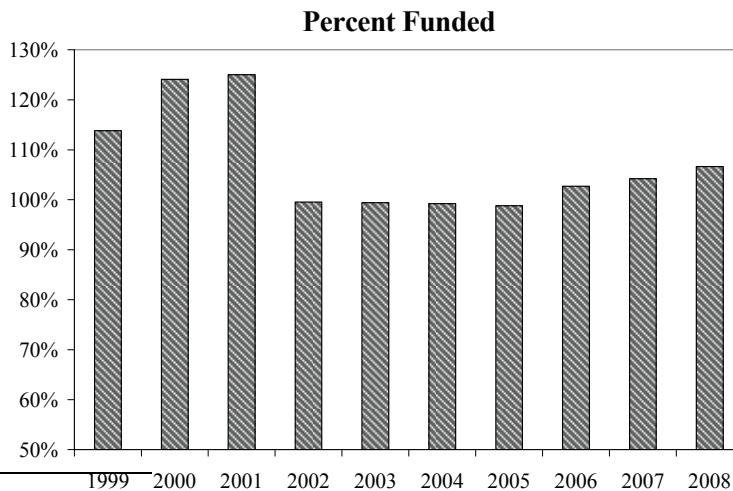
### FUNDING PROGRESS

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

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

#### Analysis of Funding Progress (in Millions)

<u>Fiscal Year Ending</u>	<u>Actuarial Value of Assets</u>	<u>Accrued Pension Benefit Liability</u>	<u>Percent Funded</u>
1999	\$74,721.1	\$65,636.7	113.8%
2000	83,421.8	67,201.9	124.1
2001	87,295.3	69,817.0	125.0
2002	71,374.4	71,693.4	99.6
2003	71,780.4	72,209.4	99.4
2004	72,044.4	72,604.9	99.2
2005	74,074.3	74,961.1	98.8
2006 <sup>1</sup>	78,335.8	76,353.0	102.6
2007 <sup>2</sup>	82,858.9	79,537.2	104.2
2008	88,254.7	82,777.5	106.6



<sup>1</sup> Effective June 30, 2006, the Accrued Pension Benefit Liability is calculated under the Entry Age Normal Cost Method as required by Governmental Accounting Standards Board (GASB) Statement No. 50 – *Pension Disclosures*. NYSTRS is funded in accordance with the Aggregate Cost Method. GASB now requires that the Entry Age Normal Cost Method be used to calculate the accrued liability for purposes of presenting the funded percentage.

<sup>2</sup> Effective June 30, 2007, the Retirement System's asset valuation method was changed.

APPENDIX 5

**EMPLOYER CONTRIBUTION RATE**

2008 Valuation

8.00% Interest

<b>Normal Rate</b>	5.73 %
<b>Group Life Insurance Rate</b>	0.13
<b>Excess Benefit Plan Rate</b>	0.01
<b>Expense Rate</b>	<u>0.32</u>
<b>Computed Contribution Rate as of June 30, 2008</b>	= <b>6.19 %</b>

APPENDIX 5 (Cont'd.)

**NORMAL RATE CALCULATION**

2008 Valuation

8.00% Interest

**Liabilities**

**Active Tier 1**

Service Pension	\$4,429,995,483
Disability Pension	48,828
Vested Pension	480,351
Active Death over \$50,000	14,530,624
Death Benefit After 10-Yr Withdrawal over \$50,000	57
Annuity Savings Fund	21,218,401
COLA	99,971,093
<b>Total</b>	<b>\$4,566,244,837</b>

**Active Tier 2**

Service Pension	\$4,160,190,728
Post Retired Death over \$50,000	2,500,567
Disability Pension	440,124
Post Disabled Death over \$50,000	7,772
Vested Pension	3,881,581
Active Death over \$50,000	8,322,757
Death Benefit After 10-Yr Withdrawal over \$50,000	895
COLA	100,896,194
<b>Total</b>	<b>\$4,276,240,618</b>

**Active Tier 3**

Service Pension	\$6,936,587,680
Post Retired Death over \$50,000	5,563,479
Disability Pension	14,123,184
Post Disabled Death over \$50,000	310,020
Refund on Active Death	3,781,717
Active Death over \$50,000	17,626,959
Refund on Quit	350,379
Vested Pension	111,468,602
Death Benefit After 10-Yr Withdrawal over \$50,000	41,079
Refund on Death after Vested Withdrawal	23,297
COLA	184,896,631
<b>Total</b>	<b>\$7,274,773,027</b>

**Active Tier 4**

Service Pension	\$30,632,544,324
Post Retired Death over \$50,000	64,615,477
Disability Pension	216,782,303
Post Disabled Death over \$50,000	7,843,713
Refund on Active Death	22,525,641
Active Death over \$50,000	209,275,947
Refund on Quit	191,550,611
Vested Pension	1,808,880,915
Death Benefit After 10-Yr Withdrawal over \$50,000	3,753,816
Refund on Death after Vested Withdrawal	1,981,920
COLA	786,923,853
<b>Total</b>	<b>\$33,946,678,520</b>



APPENDIX 5 (Cont'd.)

**NORMAL RATE CALCULATION (Cont'd.)**

2008 Valuation

8.00% Interest

**Liabilities (Cont'd.)**

**Retirees**

Retired Pension	\$42,142,810,669
Retired Annuity	185,094,379
Disability Pension	263,779,594
Disability Annuity	1,292,156
Beneficiary Pension	502,427,148
Beneficiary Annuity	8,904,317
DBA Pension	6,866,169
DBA Annuity	604,459
Escalation	5,338,510
Post Retired Death over \$50,000	1,066,647
COLA	3,379,237,707
Catch-Up & Prior \$532 Supp	940,141,085
Total	<u>\$47,437,562,840</u>

**Vesteds**

Inactive Vested	\$151,590,166
Death Benefit After 10-Yr Withdrawal over \$50,000	581,277
Active Vested	307,787,769
Death Benefit After 10-Yr Withdrawal over \$50,000	989,769
COLA	11,670,599
Total	<u>\$472,619,580</u>

**TIAA**

Service Pension	\$3,719,670
Disability Pension	70,925
Vested Pension	107,395
Active Death over \$50,000	5,019
COLA	291,239
Total	<u>\$4,194,248</u>

**Miscellaneous**

Incurred Death but not Paid	\$5,964,358
Unclaimed Non-Member Funds	12,029,964
Total	<u>\$17,994,322</u>

**Total Liabilities**

\$97,996,307,992

APPENDIX 5 (Cont'd.)

**NORMAL RATE CALCULATION (Cont'd.)**

2008 Valuation

8.00% Interest

**Assets for Valuation**

Current Total Assets		\$94,458,424,385	
Less:	Expense Fund	<u>14,836,335</u>	
	Sub-total		\$94,443,588,050
Less:	5 Year Smoothing Adjustment		1,463,894,407
Less:	Provision for Adverse Market Deviation		<u>4,725,000,000</u>
	<b>Assets for Valuation Purposes</b>		\$88,254,693,643
Less:	Group Life Insurance Fund Net Asset Value		<u>\$105,367,944</u>
	<b>Assets for Normal Rate Valuation Purposes</b>		\$88,149,325,699

**Receivables**

Assets receivable from Normal Rate in 2008-2009 fiscal year (2007-2008 paybase)(2006 Normal Rate)(1.08) <sup>-7/24</sup> (13,690,128,086) (0.0828)(1.08) <sup>-7/24</sup>			\$1,108,381,461
Assets receivable from Normal Rate in 2009-2010 fiscal year (2008-2009 paybase)(2007 Normal Rate)(1.08) <sup>-1 7/24</sup> (14,201,000,000) (0.0717)(1.08) <sup>-1 7/24</sup>			\$921,861,616
Assets receivable from the amortization of Article 18			\$51,760
Present Value of Future Member Contributions (Tier 4 Present Value of Future Employee Contributions)(1.08) <sup>-7/24</sup> (651,254,020) (1.08) <sup>-7/24</sup>			<u>\$636,798,192</u>
	<b>Total Receivables</b>		\$2,667,093,029

APPENDIX 5 (Cont'd.)

**NORMAL RATE CALCULATION (Cont'd.)**

2008 Valuation  
8.00% Interest

**Present Value of Future Salaries**

Tier 1	\$1,054,887,144	
Tier 2	1,536,271,382	
Tier 3	5,143,522,842	
Tier 4	<u>120,414,437,655</u>	
	\$128,149,119,023	x (1.08) <sup>-7/24</sup>
		= \$125,304,604,355

**Normal Rate**

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

$$\frac{\$7,179,889,264}{\$125,304,604,355} = 5.7299\%$$

5.73% (rounded)

APPENDIX 5 (Cont'd.)

**GROUP LIFE INSURANCE FUND**

2008 Valuation

8.00% Interest

**A) Calculation of June 30, 2008 Balance**

Actuarial Value as of July 1, 2007		\$137,919,586
Interest	[ 137,919,586 x .08 ]	\$11,033,567
October 15, 2007 actual premium	\$17,013,558	
October 15, 2007 deferred premium	<u>(\$16,840,200)</u>	
Premium Gain/(Loss)		\$173,358
Interest	[ 173,358 x (1.08 <sup>8.5/12</sup> -1) ]	\$9,713
Death Benefits paid in 2007-2008		(\$9,970,163)
Interest	[ (9,970,163) x (1.08 <sup>.5</sup> -1) ]	(\$391,134)
October 15, 2010 deferred premium [from B]		\$19,119,100
Interest discount	[ 19,119,100 x (1.08 <sup>-(2+3.5/12)</sup> -1) ]	<u>(\$3,091,395)</u>
<b>Actuarial Value as of June 30, 2008</b>		<b>\$154,802,632</b>

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

Death benefits	[ 9,970,163 x 1.08 <sup>2+9.5/12</sup> ]	\$12,359,766
Interest	[ (11,033,567) x 1.08 <sup>2+3.5/12</sup> ]	(\$13,161,702)
Premium Loss/(Gain)	[ (173,358) x 1.08 <sup>3</sup> ]	(\$218,381)
Adjustment to the GLIF reserve		<u>\$20,139,417</u>
Total required premium		\$19,119,100

GLIF Rate =  $\frac{\text{Required premium}}{\text{Estimated 2009-2010 paybase}}$

=  $\frac{\$19,119,100}{\$14,707,000,000}$

= 0.13%

October 15, 2010 deferred premium [ 14,707,000,000 x 0.0013 ] = \$19,119,100

**C) Summary of Deferred Premiums**

	<u>Deferred Premium</u>	<u>Present Value as of 6/30/2008</u>
Due October 15, 2008	\$17,314,700	\$16,930,367
Due October 15, 2009	\$18,198,700	\$16,476,616
Due October 15, 2010	\$19,119,100	<u>\$16,027,705</u>
		<u>\$49,434,688</u>

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

\$154,802,632 - \$49,434,688 = \$105,367,944

APPENDIX 5 (Cont'd.)

**EXCESS BENEFIT PLAN FUND\***

2008 Valuation

<b>Balance as of July 1, 2008</b>		\$2,300,566
<b>less</b>	Accrual Final Adjustment for the 2008 Fiscal Year	\$153,899
<b>plus</b>	Employer contribution (paid 10/15/2008) [ 0.0000 X \$13,690,128,086 (6/30/2006 ECR rate of .00% times '07-'08 paybase) ]	\$0
<b>less</b>	Annual Estimated Payments	<u>\$600,000</u>
<b>Expected Balance as of June 30, 2009</b>		\$1,546,667
<b>plus</b>	Employer contribution (payable 10/15/2009) [ .0001 X \$14,201,000,000 (6/30/2007 ECR rate of .01% times est'd. '08-'09 paybase) ]	\$1,420,100
<b>less</b>	Annual Estimated Payments (\$600,000 X 1.5)	<u>\$900,000</u>
<b>Expected Balance as of June 30, 2010</b>		\$2,066,767

$$\begin{array}{rcl}
 \text{Rate} & = & \frac{\text{Anticipated Excess Benefits Paid in 2010-2011}}{\text{2009-2010 Salary}} = \frac{\$600,000 \times 1.5 \times 1.5}{\$14,707,000,000} \\
 & = & \frac{\$1,350,000}{\$14,707,000,000} = 0.00918\%
 \end{array}$$

round to 0.01%

\* Fund is in a zero-interest checking account

APPENDIX 5 (Cont'd.)

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.

In 2008-09, the Rate increased to 0.32% in response to GASB 45 and business plan projects. For 2009-10, the 3.73% increase in employer contributions reflects the projected growth in the member salary base.

**Employer Contributions to the Administrative Expense Fund**

Member Salary Base		Rate	Employer Contributions (Net of Billing Adjustments)		Increase in Contributions to the Administrative Fund
Year	Amount		Year Collected	Amount	Percent
2003-04	11,766,665,114	0.25 %	2004-05	29,417,836	11.84 %
2004-05	12,163,707,565	0.25	2005-06	30,454,517	3.52
2005-06	12,518,030,337	0.25	2006-07	31,379,402	3.04
2006-07	13,083,003,687	0.25	2007-08	32,764,295	4.41
2007-08	13,690,128,086	0.32	2008-09	43,808,410	33.71
2008-09	14,201,000,000 *	0.32	2009-10	45,443,200	3.73
2009-10	14,707,000,000 *	0.32 *	2010-11	47,062,400	3.56
2010-11	15,226,000,000 *	0.27 *	2011-12	41,110,200	-12.65

\*Projected.

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 approximately 3.5% annually from 2008-09 to 2010-11.

The Administrative Employer Contribution Rate Calculation: 0.32%

Several factors are considered when anticipating the expenses to be used in calculating the administrative rate, which include general price increases, an estimated 10% increase in health insurance premiums, and planned capital asset purchases.

Calculation of Administrative Employer Contribution Rate	
Estimated operating budget 2010-11 based on above	= Projected 2010-11
X Member allocation percentage	Member Related Expenses
<u>Projected 2010-11 Member-Related Expenses</u>	= Employer Contribution Rate
Projected 2009-10 Member Salary Base	

<sup>1</sup> From the NYSTRS 2009-10 Operating Budget Report.

APPENDIX 5 (Cont'd.)

**ASSET VALUATION METHOD  
DEVELOPMENT OF SMOOTHING ADJUSTMENT**

<u>FYE</u>	<u>Market Value</u>	<u>Contributions</u>	<u>Benefit Payments</u>	<u>Average Market Value<sup>1</sup></u>
06/30/2003	71,979,965,783	231,728,685	3,670,076,118	
06/30/2004	79,727,765,026	314,575,961	3,976,325,636	70,214,627,604
06/30/2005	84,011,699,408	494,425,829	4,190,897,542	77,982,534,551
06/30/2006	90,319,347,651	872,914,574	4,484,684,109	82,387,671,843
06/30/2007	103,651,575,130	1,176,264,166	4,722,377,152	88,791,346,193
06/30/2008	94,458,424,385	1,306,481,575	4,980,254,119	102,086,872,519

<u>FYE</u>	<u>Actual Gain<sup>2</sup></u>	<u>(3.0%) Expected Gain<sup>3</sup></u>	<u>Unexpected Gain<sup>4</sup></u>	<u>Smoothing Adjustment<sup>5</sup></u>
06/30/2003	658,543,826			
06/30/2004	9,512,009,700	2,106,438,828	7,405,570,872	
06/30/2005	5,977,703,650	2,339,476,037	3,638,227,613	
06/30/2006	7,914,023,262	2,471,630,155	5,442,393,107	
06/30/2007	14,721,967,106	2,663,740,386	12,058,226,720	
06/30/2008	-7,781,949,313	3,062,606,176	-10,844,555,489	<b>1,463,894,407</b>

<sup>1</sup> Average Market Value = Market Value<sub>(previous yr)</sub> - (.5 x Benefit Payments) + ((8.5/12) x Contributions)

<sup>2</sup> Actual Gain = Net Appreciation (Realized and Unrealized)

<sup>3</sup> Expected Gain = 3.0% x Average Market Value

<sup>4</sup> Unexpected Gain = Actual Gain - Expected Gain

<sup>5</sup> Smoothing Adjustment = (.20 x Unexpected Gain 6/30/2005)  
+ (.40 x Unexpected Gain 6/30/2006)  
+ (.60 x Unexpected Gain 6/30/2007)  
+ (.80 x Unexpected Gain 6/30/2008)

APPENDIX 6

**MEMBER RECONCILIATION**

**ACTIVE MEMBERS:**

	<b>Men</b>	<b>Women</b>	<b>Total</b>
June 30, 2007.....	65,494	204,551	270,045
Changes During Year:			
Added.....	3,981	13,441	17,422
Withdrawn.....	1,564	4,501	6,065
Retired.....	1,755	4,575	6,330
Died.....	49	122	171
Total Membership June 30, 2008.....	66,107	208,794	274,901

**MEMBERS RETIRED FOR:**

	<b>Service*</b>			<b>Disability</b>			<b>Total</b>		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
June 30, 2007.....	48,072	78,475	126,547	544	1,500	2,044	48,616	79,975	128,591
Changes During Year:									
Retired.....	1,731	4,492	6,223	24	83	107	1,755	4,575	6,330
Died.....	1,045	1,671	2,716	26	65	91	1,071	1,736	2,807
Lump Sum.....	77	222	299	0	0	0	77	222	299
Restored to Active Membership....	0	0	0	0	1	1	0	1	1
June 30, 2008.....	48,681	81,074	129,755	542	1,517	2,059 **	49,223	82,591	131,814

**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
June 30, 2007.....	871	3,414	4,285	79	174	253	33	194	227	983	3,782	4,765
Changes During Year:												
Added.....	110	263	373	5	3	8	0	0	0	115	266	381
Died.....	58	178	236	2	6	8	1	9	10	61	193	254
June 30, 2008.....	923	3,499	4,422	82	171	253	32	185	217	1,037	3,855	4,892

**SUMMARY**

	<b>Men</b>	<b>Women</b>	<b>Total</b>
Active Members.....	66,107	208,794	274,901
Retired Members.....	49,223	82,591	131,814
Beneficiaries.....	1,037	3,855	4,892
Total.....	116,367	295,240	411,607

\*Also includes vested retirees.

\*\*Includes 46 men and 63 women retired for disability who receive a service benefit.



APPENDIX 7

DISTRIBUTION OF ACTIVE MEMBERS

Distribution by Age as of June 30, 2008

<u>Age</u>	<u>Males</u>	<u>Females</u>	<u>Total Members</u>
15-19	18	56	74
20-24	1,641	5,860	7,501
25-29	8,209	25,610	33,819
30-34	10,559	29,474	40,033
35-39	10,409	29,350	39,759
40-44	8,534	26,257	34,791
45-49	7,458	27,196	34,654
50-54	7,564	27,598	35,162
55-59	7,373	25,091	32,464
60-64	3,371	9,762	13,133
65-69	680	2,001	2,681
70-74	192	382	574
75-79	76	116	192
80-84	18	36	54
85 or older	<u>5</u>	<u>5</u>	<u>10</u>
Total	66,107	208,794	274,901

*Average Male age is 42 years 1 month*

*Average Female age is 42 years 6 months*

APPENDIX 7 (Cont'd.)

Distribution of Active Members by Age and New York State Service as of June 30, 2008

**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	18	0	18
20-24	1,641	0	1,641
25-29	8,206	3	8,209
30-34	9,638	921	10,559
35-39	5,911	4,498	10,409
40-44	3,618	4,916	8,534
45-49	2,762	4,696	7,458
50-54	2,336	5,228	7,564
55-59	1,701	5,672	7,373
60-64	1,001	2,370	3,371
65-69	339	341	680
70-74	103	89	192
75-79	55	21	76
80-84	10	8	18
85 or older	<u>4</u>	<u>1</u>	<u>5</u>
Total	37,343	28,764	66,107

**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	56	0	56
20-24	5,860	0	5,860
25-29	25,607	3	25,610
30-34	27,298	2,176	29,474
35-39	18,900	10,450	29,350
40-44	13,908	12,349	26,257
45-49	13,318	13,878	27,196
50-54	10,098	17,500	27,598
55-59	5,775	19,316	25,091
60-64	2,067	7,695	9,762
65-69	542	1,459	2,001
70-74	147	235	382
75-79	43	73	116
80-84	16	20	36
85 or older	<u>3</u>	<u>2</u>	<u>5</u>
Total	123,638	85,156	208,794

APPENDIX 7 (Cont'd.)

Distribution of Active Members by Total Service as of June 30, 2008

**Active Members**

<u>Service</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
0-4	21,746	69,839	91,585
5-9	14,939	50,940	65,879
10-14	10,605	32,007	42,612
15-19	5,840	19,877	25,717
20-24	4,893	17,704	22,597
25-29	3,342	10,219	13,561
30-34	2,876	6,071	8,947
35 or more	<u>1,866</u>	<u>2,137</u>	<u>4,003</u>
Total	66,107	208,794	274,901

*Median Male has 8 Years of Total Service*

*Median Female has 8 Years of Total Service*

APPENDIX 8  
HISTORICAL MEMBER STATISTICS

**Members and Annuitants 1925-2008**

<u>As of June 30</u>	<u>Active 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
2008	274,901	136,706

**Number of Active Members by Tier**

<u>As of June 30</u>	<u>Tier 1</u>	<u>Tier 2</u>	<u>Tier 3</u>	<u>Tier 4</u>	<u>Total</u>
1989	88,984	19,092	30,720	52,957	191,753
1990	85,103	18,590	29,422	62,079	195,194
1991	81,010	18,224	28,348	67,723	195,305
1992	74,872	17,801	27,495	72,205	192,373
1993	70,180	17,448	26,788	78,475	192,891
1994	67,423	17,212	26,121	84,935	195,691
1995	64,093	17,012	25,206	93,087	199,398
1996	58,850	16,596	24,546	100,926	200,918
1997	53,502	16,186	23,861	110,167	203,716
1998	49,266	15,860	23,302	120,652	209,080
1999	50,859	15,776	20,726	128,906	216,267
2000	47,234	15,700	20,159	141,893	224,986
2001	41,169	15,472	19,914	157,795	234,350
2002	35,601	15,121	19,674	172,438	242,834
2003	28,327	14,463	19,083	185,374	247,247
2004	22,986	13,947	18,835	198,747	254,515
2005	17,901	13,210	18,535	210,710	260,356
2006	13,621	12,084	18,173	220,532	264,410
2007	10,838	10,178	17,743	231,286	270,045
2008	8,630	8,171	17,007	241,093	274,901

APPENDIX 9  
RETIREMENT STATISTICS

**RETIREMENT STATISTICS 2007-08 MEMBERS RETIRED FOR:**

	<b>Service*</b>	<b>Disability</b>
Number Retired .....	<b>6,223</b>	<b>107</b>
Age at Retirement:		
Average.....	58 yrs., 11 mos.	53 yrs., 0 mos.
Median.....	58 yrs., 0 mos.	53 yrs., 8 mos.
Years of Service:		
Average.....	27 yrs., 8 mos.	18 yrs., 7 mos.
Median.....	31 yrs., 0 mos.	18 yrs., 2 mos.
**Benefit:		
Average.....	\$45,779.28	\$22,734.12
Median.....	\$48,503.04	\$19,707.84
Final Average Salary:		
Average.....	\$77,065.51	\$59,863.87
Median.....	\$77,738.33	\$62,221.83
***Benefit as % of FAS:		
Average.....	53.14%	35.71%
Median.....	61.50%	33.33%

**2007-08 MEMBERS 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>1,279</b>	<b>3,022</b>	<b>1,922</b>
Age at Retirement:			
Average.....	59 yrs., 7 mos.	58 yrs., 9 mos.	58 yrs., 8 mos.
Median.....	58 yrs., 7 mos.	57 yrs., 8 mos.	58 yrs., 0 mos.
Years of Service:			
Average.....	11 yrs., 6 mos.	28 yrs., 7 mos.	37 yrs., 4 mos.
Median.....	11 yrs., 6 mos.	30 yrs., 0 mos.	36 yrs., 6 mos.
**Benefit			
Average.....	\$6,918.51	\$45,735.88	\$71,707.54
Median.....	\$4,770.96	\$45,913.56	\$68,024.88
Final Average Salary:			
Average.....	\$38,748.48	\$80,858.63	\$96,599.68
Median.....	\$31,990.45	\$78,752.00	\$92,237.00
***Benefit as % of FAS:			
Average.....	16.08%	55.52%	74.04%
Median.....	14.79%	60.00%	73.33%

\*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, 2008 RETIRED FOR:**

	<b>Service*</b>	<b>Disability</b>
Number Retired.....	<b>129,864</b>	<b>1,950</b>
Age at Retirement:		
Average.....	58 yrs., 1 mo.	49 yrs., 3 mos.
Median.....	56 yrs., 10 mos.	50 yrs., 0 mos.
Years of Service:		
Average.....	28 yrs., 3 mos.	19 yrs., 1 mo.
Median.....	30 yrs., 5 mos.	18 yrs., 4 mos.
**Benefit:		
Average.....	\$35,397.06	\$16,912.29
Median.....	\$34,557.84	\$15,084.48
Final Average Salary:		
Average.....	\$59,017.89	\$45,045.79
Median.....	\$59,405.62	\$44,659.12
***Benefit as % of FAS:		
Average.....	55.19%	36.38%
Median.....	60.67%	33.46%

**ALL RETIREES AS OF JUNE 30, 2008 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>21,688</b>	<b>77,449</b>	<b>30,727</b>
Age at Retirement:			
Average.....	58 yrs., 4 mos.	57 yrs., 11 mos.	58 yrs., 6 mos.
Median.....	56 yrs., 6 mos.	56 yrs., 5 mos.	57 yrs., 10 mos.
Years of Service:			
Average.....	14 yrs., 4 mos.	28 yrs., 7 mos.	37 yrs., 1 mo.
Median.....	14 yrs., 5 mos.	30 yrs., 0 mos.	36 yrs., 5 mos.
**Benefit:			
Average.....	\$7,118.43	\$34,662.04	\$57,209.58
Median.....	\$5,453.64	\$33,531.72	\$55,402.32
Final Average Salary:			
Average.....	\$31,125.40	\$59,483.32	\$77,532.09
Median.....	\$25,309.32	\$59,165.53	\$75,608.27
***Benefit as % of FAS:			
Average.....	22.39%	57.03%	73.72%
Median.....	21.17%	59.29%	72.89%

\*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

2004 – 2008 EXPERIENCE STUDY  
 NUMBER OF SERVICE RETIREMENTS  
 TIER 1 AND TIERS 2,3,4 AT LEAST AGE 62 OR WITH 30 YEARS OF SERVICE  
 EXPOSURE BASED ON ACTIVE TEACHERS  
 ASSUMPTIONS ADOPTED OCTOBER 2006 (T1, T234)

MALES					FEMALES				
AGE	EXPOSURES	ACTUAL	EXPECTED	RATIO OF	EXPOSURES	ACTUAL	EXPECTED	RATIO OF	
				ACTUAL TO				ACTUAL TO	
				EXPECTED				EXPECTED	
50	63	0	0.00	N/A	111	0	0.00	N/A	
51	155	5	0.00	N/A	297	2	0.00	N/A	
52	1,102	7	0.00	N/A	1,774	4	0.00	N/A	
53	2,689	14	0.00	N/A	5,259	11	0.00	N/A	
54	4,454	182	0.00	N/A	9,118	307	0.00	N/A	
55	5,993	2,282	2,255.05	1.012	12,235	4,070	3,755.99	1.084	
56	4,946	1,497	1,524.75	0.982	10,361	2,774	2,589.40	1.071	
57	4,100	896	1,085.71	0.825	8,633	1,507	1,647.93	0.914	
58	3,481	807	898.55	0.898	7,295	1,330	1,389.16	0.957	
59	2,732	682	768.13	0.888	6,038	1,126	1,224.38	0.920	
60	2,073	534	622.34	0.858	4,844	1,059	1,132.68	0.935	
61	1,443	406	432.74	0.938	3,657	796	875.59	0.909	
62	1,917	456	720.27	0.633	6,139	1,568	1,853.70	0.846	
63	1,250	249	397.66	0.626	4,201	878	1,255.05	0.700	
64	871	148	256.75	0.576	3,015	539	859.85	0.627	
65	622	124	200.87	0.617	2,194	511	713.33	0.716	
66	439	106	120.58	0.879	1,418	306	417.84	0.732	
67	302	36	85.30	0.422	983	175	243.72	0.718	
68	250	43	68.58	0.627	751	143	213.42	0.670	
69	200	24	47.89	0.501	558	103	155.23	0.664	
70	149	23	27.87	0.825	423	77	108.57	0.709	
71	589	73	589.00	0.124	1,353	236	1,353.00	0.174	
TOTAL	39,820	8,594	10,102.04	0.851	90,657	17,522	19,788.84	0.885	

APPENDIX 10 (Cont'd.)

2004-2008 EXPERIENCE STUDY  
 NUMBER OF SERVICE RETIREMENTS  
 TIERS 2,3,4 LESS THAN AGE 62 AND WITH LESS THAN 30 YEARS OF SERVICE  
 EXPOSURE BASED ON ACTIVE TEACHERS  
 ASSUMPTIONS ADOPTED OCTOBER 2006 (T234)

AGE	MALES				FEMALES			
	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
50	6,570	0	0.00	N/A	23,955	0	0.00	N/A
51	7,034	0	0.00	N/A	25,048	0	0.00	N/A
52	6,959	0	0.00	N/A	25,213	0	0.00	N/A
53	6,214	0	0.00	N/A	23,222	0	0.00	N/A
54	5,398	45	0.00	N/A	20,436	138	0.00	N/A
55	4,619	232	434.51	0.534	17,270	883	1325.42	0.666
56	3,848	148	296.57	0.499	13,986	600	873.85	0.687
57	3,083	111	204.10	0.544	11,053	435	527.47	0.825
58	2,430	106	156.82	0.676	8,713	362	414.80	0.873
59	1,941	65	136.43	0.476	6,950	354	352.33	1.005
60	1,565	81	117.46	0.690	5,619	331	328.48	1.008
61	1,170	65	87.72	0.741	4,370	329	261.58	1.258
62	0	0	0.00	N/A	0	0	0.00	N/A
TOTAL	50,831	853	1,433.61	0.595	185,835	3,432	4,083.93	0.840



APPENDIX 10 (Cont'd.)

2004-2008 EXPERIENCE STUDY  
 NUMBER OF DEATHS AMONG ACTIVE MEMBERS  
 EXPOSURE BASED ON ACTIVE TEACHERS  
 ASSUMPTIONS ADOPTED OCTOBER 2006

CENTRAL <u>AGE</u>	MALES			FEMALES		
	<u>ACTUAL</u>	<u>EXPECTED</u>	RATIO OF ACTUAL TO <u>EXPECTED</u>	<u>ACTUAL</u>	<u>EXPECTED</u>	RATIO OF ACTUAL TO <u>EXPECTED</u>
20	0	0.07	0.000	1	0.19	5.263
25	8	3.42	2.339	9	7.43	1.211
30	15	7.00	2.143	15	14.66	1.023
35	13	9.45	1.376	12	19.31	0.621
40	13	11.44	1.136	17	25.80	0.659
45	19	18.23	1.042	43	44.28	0.971
50	33	29.99	1.100	88	66.68	1.320
55	47	55.40	0.848	101	89.68	1.126
60	30	30.10	0.997	52	49.95	1.041
65	14	7.35	1.905	15	15.37	0.976
70	15	2.20	6.818	14	3.46	4.046
TOTAL	207	174.65	1.185	367	336.81	1.090

APPENDIX 10 (Cont'd.)

2004-2008 EXPERIENCE STUDY  
 NUMBER OF DISABILITY RETIREMENTS  
 EXPOSURE BASED ON ACTIVE TEACHERS  
 ASSUMPTIONS ADOPTED OCTOBER 2006

CENTRAL AGE	MALES			FEMALES		
	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
30	0	0.94	0.000	0	1.85	0.000
35	2	3.10	0.645	9	14.90	0.604
40	1	5.66	0.177	19	35.67	0.533
45	20	16.08	1.244	56	74.30	0.754
50	26	52.72	0.493	142	173.19	0.820
54	22	34.51	0.637	91	102.05	0.892
TOTAL	71	113.01	0.628	317	401.96	0.789

APPENDIX 10 (Cont'd.)

2004-2008 EXPERIENCE STUDY  
 COMPARISON OF SALARY SCALE TO ACTUAL SALARY INCREASES  
 ASSUMPTIONS ADOPTED OCTOBER 2006

<b>MALES</b>			
CENTRAL	ACTUAL	EXPECTED	RATIO OF
<u>AGE</u>	<u>SALARIES</u>	<u>SALARIES</u>	<u>ACTUAL TO</u>
			<u>EXPECTED</u>
20	15,379,659	12,780,699	1.203
25	1,014,891,498	994,562,609	1.020
30	2,037,372,250	2,051,443,594	0.993
35	2,490,188,601	2,504,169,565	0.994
40	2,239,174,964	2,251,310,415	0.995
45	2,083,594,211	2,094,804,968	0.995
50	2,558,113,815	2,571,382,410	0.995
55	3,468,631,851	3,525,009,554	0.984
60	1,386,100,776	1,414,711,852	0.980
65	231,848,216	237,306,019	0.977
70	68,366,896	70,496,382	0.970
<b>TOTAL</b>	<b>17,593,662,737</b>	<b>17,727,978,067</b>	<b>0.992</b>

APPENDIX 10 (Cont'd.)

2004-2008 EXPERIENCE STUDY  
 COMPARISON OF SALARY SCALE TO ACTUAL SALARY INCREASES  
 ASSUMPTIONS ADOPTED OCTOBER 2006

**FEMALES**

CENTRAL <u>AGE</u>	<u>ACTUAL</u> <u>SALARIES</u>	<u>EXPECTED</u> <u>SALARIES</u>	RATIO OF ACTUAL TO <u>EXPECTED</u>
20	59,443,738	47,024,440	1.264
25	3,129,548,259	3,065,731,843	1.021
30	5,236,514,247	5,290,075,056	0.990
35	5,577,580,324	5,609,244,481	0.994
40	5,357,067,755	5,373,981,474	0.997
45	5,951,853,278	5,973,830,083	0.996
50	7,454,155,662	7,483,062,946	0.996
55	8,553,506,004	8,631,368,922	0.991
60	3,335,886,463	3,365,602,705	0.991
65	658,307,357	671,051,188	0.981
70	151,662,041	154,566,701	0.981
TOTAL	45,465,525,128	45,665,539,839	0.996

APPENDIX 10 (Cont'd.)

2004-2008 EXPERIENCE STUDY  
 NUMBER OF WITHDRAWALS  
 EXPOSURE BASED ON ACTIVE TEACHERS  
 ASSUMPTIONS ADOPTED OCTOBER 2006

CENTRAL <u>AGE</u>	MALES			FEMALES		
	<u>ACTUAL</u>	<u>EXPECTED</u>	RATIO OF ACTUAL TO <u>EXPECTED</u>	<u>ACTUAL</u>	<u>EXPECTED</u>	RATIO OF ACTUAL TO <u>EXPECTED</u>
20	181	212.96	0.850	527	684.55	0.770
25	2,722	2,486.15	1.095	8,356	8,039.49	1.039
30	2,120	1,738.17	1.220	8,179	7,929.71	1.031
35	1,552	1,300.01	1.194	6,963	6,862.29	1.015
40	1,214	1,044.26	1.163	4,454	4,430.75	1.005
45	1,067	967.40	1.103	3,960	3,853.32	1.028
50	990	999.90	0.990	3,486	3,670.76	0.950
54	402	425.84	0.944	1,268	1,418.96	0.894
TOTAL	10,248	9,174.69	1.117	37,193	36,889.83	1.008

APPENDIX 10 (Cont'd.)

2004-2008 EXPERIENCE STUDY  
 NUMBER OF DEATHS AMONG MEMBERS RETIRED FOR DISABILITY  
 MORTALITY ADOPTED OCTOBER 2006

CENTRAL AGE	MALES			FEMALES		
	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
30	0	0.00	N/A	0	0.04	0.000
35	1	0.22	4.545	1	0.91	1.099
40	0	0.51	0.000	3	4.52	0.664
45	4	5.49	0.729	18	23.72	0.759
50	9	11.26	0.799	46	59.02	0.779
55	33	31.18	1.058	83	102.52	0.810
60	35	24.50	1.429	52	58.91	0.883
65	16	15.48	1.034	21	24.10	0.871
70	13	12.68	1.025	26	18.95	1.372
75	13	12.58	1.033	22	19.50	1.128
80	8	9.35	0.856	16	16.91	0.946
85	6	3.27	1.835	15	11.62	1.291
90	1	0.80	1.250	9	8.74	1.030
95	0	0.00	N/A	10	5.95	1.681
100	0	0.00	N/A	4	4.27	0.937
105	0	0.00	N/A	1	1.03	0.971
110	0	0.00	N/A	0	0.00	N/A
TOTAL	139	127.32	1.092	327	360.71	0.907

APPENDIX 10 (Cont'd.)

2004-2008 EXPERIENCE STUDY  
 NUMBER OF DEATHS AMONG MEMBERS RETIRED FOR SERVICE  
 MORTALITY ADOPTED OCTOBER 2006

CENTRAL AGE	MALES			FEMALES		
	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
55	65	76.89	0.845	97	109.52	0.886
60	253	298.73	0.847	294	333.34	0.882
65	431	419.81	1.027	375	415.77	0.902
70	554	611.94	0.905	526	535.63	0.982
75	898	906.87	0.990	813	849.53	0.957
80	1060	1,072.01	0.989	1105	1168.32	0.946
85	930	881.03	1.056	1659	1603.02	1.035
90	504	529.44	0.952	1897	1769.29	1.072
95	219	208.85	1.049	1398	1260.64	1.109
100	44	38.65	1.138	498	412.69	1.207
105	2	0.95	2.105	46	41.93	1.097
110	0	0.00	N/A	1	0.62	1.613
TOTAL	4,960	5,045.17	0.983	8,709	8,500.30	1.025

APPENDIX 10 (Cont'd.)

2004-2008 EXPERIENCE STUDY  
 NUMBER OF DEATHS AMONG BENEFICIARIES  
 MORTALITY ADOPTED OCTOBER 2006

CENTRAL AGE	MALES			FEMALES		
	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
5	0	0.00	N/A	0	0.00	N/A
10	0	0.00	N/A	0	0.00	N/A
15	0	0.00	N/A	0	0.00	N/A
20	0	0.00	N/A	0	0.00	N/A
25	0	0.00	N/A	0	0.00	N/A
30	0	0.00	N/A	0	0.00	N/A
35	0	0.00	N/A	0	0.02	0.000
40	0	0.03	0.000	1	0.04	25.000
45	0	0.10	0.000	1	0.08	12.500
50	0	0.27	0.000	1	0.32	3.125
55	2	0.81	2.469	0	1.49	0.000
60	3	1.89	1.587	5	4.89	1.022
65	4	3.82	1.047	16	11.15	1.435
70	11	9.35	1.176	31	22.99	1.348
75	23	22.56	1.020	52	53.89	0.965
80	42	39.66	1.059	113	116.67	0.969
85	72	65.88	1.093	233	208.49	1.118
90	86	76.17	1.129	232	226.62	1.024
95	39	32.40	1.204	171	152.04	1.125
100	8	7.23	1.107	38	38.17	0.996
105	0	0.00	N/A	3	3.76	0.798
110	0	0.00	N/A	0	0.00	N/A
TOTAL	290	260.17	1.115	897	840.62	1.067



APPENDIX 10 (Cont'd.)

Investment Rate of Return<sup>1</sup>  
on  
Market and Actuarial Value of Assets

as of June 30, 2008

Annualized rate of return over the last:

	<u>Based Upon Market Value of Assets</u>	<u>Based Upon Actuarial Value of Assets<sup>2</sup></u>
1 Year:	-6.4%	11.1%
3 Years:	7.7%	12.3%
5 Years:	9.9%	10.1%
10 Years:	6.0%	7.8%
15 Years:	9.3%	10.1%
20 Years:	10.1%	
25 Years:	10.6%	

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>3</sup></u>
1 Year:	3.98%	3.0%	2.0%	1.75%
3 Years:	3.37%	3.0%	1.7%	1.75%
5 Years:	3.00%	3.0%	1.5%	1.75%

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

<sup>2</sup> Effective June 30, 2007, the Retirement System's asset valuation method was changed.

<sup>3</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 the 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%. The COLA benefit was first initiated in 2001.

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>	<u>Salary Year</u>	<u>Employer Contribution Rate</u>
1921-22	5.10 %	1956-57	10.90 %	1991-92	6.64 %
1922-23	5.10	1957-58	11.20	1992-93	8.00
1923-24	5.20	1958-59	13.40	1993-94	8.41
1924-25	5.20	1959-60	14.00	1994-95	7.24
1925-26	5.20	1960-61	18.35	1995-96	6.37
1926-27	5.20	1961-62	18.55	1996-97	3.57
1927-28	5.20	1962-63	19.55	1997-98	1.25
1928-29	5.30	1963-64	21.13	1998-99	1.42
1929-30	5.50	1964-65	17.67	1999-00	1.43
1930-31	5.50	1965-66	17.70	2000-01	0.43
1931-32	5.50	1966-67	17.72	2001-02	0.36
1932-33	5.50	1967-68	18.50	2002-03	0.36
1933-34	5.50	1968-69	18.80	2003-04	2.52
1934-35	5.60	1969-70	18.60	2004-05	5.63
1935-36	5.70	1970-71	18.80	2005-06	7.97
1936-37	5.80	1971-72	18.80	2006-07	8.60
1937-38	5.93	1972-73	18.80	2007-08	8.73
1938-39	6.03	1973-74	18.80	2008-09	7.63
1939-40	6.13	1974-75	18.80	2009-10	6.19
1940-41	6.23	1975-76	19.40		
1941-42	6.33	1976-77	19.40	<b>Average</b>	<b>10.81 %</b>
1942-43	6.43	1977-78	20.40		
1943-44	6.53	1978-79	21.40		
1944-45	7.10	1979-80	22.49		
1945-46	7.20	1980-81	23.49		
1946-47	7.50	1981-82	23.49		
1947-48	7.80	1982-83	23.49		
1948-49	8.00	1983-84	22.90		
1949-50	8.40	1984-85	22.80		
1950-51	8.80	1985-86	21.40		
1951-52	9.60	1986-87	18.80		
1952-53	9.90	1987-88	16.83		
1953-54	9.90	1988-89	14.79		
1954-55	10.30	1989-90	6.87		
1955-56	10.40	1990-91	6.84		

## 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 member elected special retirement allowance: 4% went to 6.5%, 5% went to 8% (all members eligible)
1957	If member 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.

## APPENDIX 13

### 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 assets is determined by recognizing each year's realized and unrealized appreciation, in excess of (or less than) an assumed inflationary gain of 3%, at a rate of 20% per year, until fully recognized after five years.

## APPENDIX 14

### PRESENT ACTUARIAL ASSUMPTIONS

Actuarial assumptions have been developed based upon actual member experience. Various actuarial and graduation techniques are applied to experience data and tables are developed. An experience study is performed annually and assumptions are revised when warranted.

#### Table of Contents

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

APPENDIX 14 (Cont'd.)

Mortality Rates  
for Active Members

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	0.000050	20	0.000042
21	0.000064	21	0.000061
22	0.000082	22	0.000063
23	0.000103	23	0.000072
24	0.000116	24	0.000074
25	0.000124	25	0.000083
26	0.000135	26	0.000098
27	0.000141	27	0.000109
28	0.000159	28	0.000113
29	0.000167	29	0.000125
30	0.000171	30	0.000140
31	0.000187	31	0.000150
32	0.000195	32	0.000151
33	0.000207	33	0.000166
34	0.000214	34	0.000171
35	0.000224	35	0.000184
36	0.000239	36	0.000193
37	0.000248	37	0.000201
38	0.000258	38	0.000210
39	0.000270	39	0.000244
40	0.000317	40	0.000269
41	0.000379	41	0.000288
42	0.000437	42	0.000310
43	0.000499	43	0.000343
44	0.000540	44	0.000391
45	0.000581	45	0.000425
46	0.000640	46	0.000441
47	0.000682	47	0.000465
48	0.000735	48	0.000489
49	0.000785	49	0.000525

APPENDIX 14 (Cont'd.)

Mortality Rates  
for Active Members  
(cont'd.)

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
50	0.000847	50	0.000549
51	0.000916	51	0.000570
52	0.001013	52	0.000594
53	0.001082	53	0.000616
54	0.001154	54	0.000637
55	0.001207	55	0.000684
56	0.001309	56	0.000723
57	0.001404	57	0.000789
58	0.001506	58	0.000825
59	0.001558	59	0.000880
60	0.001652	60	0.000969
61	0.001702	61	0.001043
62	0.001803	62	0.001108
63	0.001906	63	0.001174
64	0.002009	64	0.001261
65	0.002205	65	0.001362
66	0.002408	66	0.001462
67	0.002603	67	0.001609
68	0.003006	68	0.001810
69	0.003508	69	0.002000
70	0.005003	70	0.002305

APPENDIX 14 (Cont'd.)

Disability Retirement Rates  
for Active Members

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



APPENDIX 14 (Cont'd.)

Withdrawal Rates  
for Active Members

Males

<u>Age</u>	<u>0 Years of Service</u>	<u>1 Year of Service</u>	<u>2 Years of Service</u>	<u>3 Years of Service</u>	<u>4 Years of Service</u>	<u>5 Years of Service</u>	<u>6 Years of Service</u>	<u>7 Years of Service</u>	<u>8 Years of Service</u>	<u>9 Years of Service</u>	<u>10 or more Years of Service</u>
20	0.260517	0.101803	0.065606	0.037313	0.025162	0.020051	0.017520	0.014856	0.010593	0.003281	0.010398
21	0.260517	0.101803	0.065606	0.037313	0.025162	0.020051	0.017520	0.014856	0.010593	0.003281	0.010398
22	0.260517	0.101803	0.065606	0.037313	0.025162	0.020051	0.017520	0.014856	0.010593	0.003281	0.010398
23	0.262212	0.101803	0.065606	0.037313	0.025162	0.020051	0.017520	0.014856	0.010593	0.003281	0.010398
24	0.263908	0.103029	0.065606	0.037313	0.025162	0.020051	0.017520	0.014856	0.010593	0.003281	0.010398
25	0.265603	0.104254	0.065949	0.037313	0.025162	0.020051	0.017520	0.014856	0.010593	0.003281	0.010398
26	0.267299	0.105480	0.066291	0.038886	0.025162	0.020051	0.017520	0.014856	0.010593	0.003281	0.010398
27	0.268994	0.106706	0.066634	0.040459	0.026449	0.020051	0.017520	0.014856	0.010593	0.003281	0.010398
28	0.270690	0.107931	0.066976	0.042032	0.027735	0.020787	0.017520	0.014856	0.010593	0.003281	0.010398
29	0.272385	0.109157	0.067319	0.043605	0.029022	0.021523	0.018688	0.014856	0.010593	0.003281	0.010398
30	0.274081	0.110383	0.067661	0.045178	0.030309	0.022260	0.019856	0.014940	0.010593	0.003281	0.010398
31	0.271427	0.110812	0.068886	0.045112	0.031596	0.022996	0.021024	0.015025	0.011516	0.003281	0.010398
32	0.268773	0.111241	0.070112	0.045046	0.032882	0.023732	0.022191	0.015109	0.012439	0.005117	0.010398
33	0.266119	0.111670	0.071337	0.044979	0.034169	0.024468	0.023359	0.015194	0.013362	0.006954	0.010244
34	0.263465	0.112100	0.072562	0.044913	0.035456	0.025205	0.024527	0.015279	0.014285	0.008790	0.010090
35	0.260811	0.112529	0.073787	0.044847	0.036742	0.025941	0.025695	0.015363	0.015208	0.010627	0.009935
36	0.263803	0.115408	0.075717	0.046966	0.037348	0.028379	0.024681	0.017463	0.015639	0.012464	0.009781
37	0.266794	0.118287	0.077646	0.049086	0.037955	0.030816	0.023668	0.019563	0.016070	0.014300	0.009626
38	0.269786	0.121165	0.079575	0.051206	0.038561	0.033254	0.022654	0.021662	0.016501	0.016137	0.009472
39	0.272778	0.124044	0.081505	0.053326	0.039167	0.035692	0.021640	0.023762	0.016933	0.017973	0.009318
40	0.275770	0.126923	0.083434	0.055446	0.039773	0.038129	0.020626	0.025862	0.017364	0.019810	0.009163
41	0.273127	0.128411	0.083212	0.058174	0.041323	0.038680	0.024053	0.027373	0.019111	0.020298	0.008855
42	0.270485	0.129899	0.082990	0.060902	0.042873	0.039231	0.027479	0.028884	0.020858	0.020786	0.008546
43	0.267842	0.131388	0.082768	0.063631	0.044423	0.039782	0.030905	0.030394	0.022605	0.021275	0.008238
44	0.265200	0.132876	0.082546	0.066359	0.045973	0.040333	0.034331	0.031905	0.024352	0.021763	0.007929
45	0.262557	0.134364	0.082324	0.069088	0.047523	0.040884	0.037757	0.033416	0.026099	0.022251	0.007621
46	0.266854	0.135077	0.086828	0.069149	0.050506	0.045896	0.038026	0.034646	0.028790	0.025757	0.007882
47	0.271151	0.135791	0.091332	0.069211	0.053490	0.050909	0.038294	0.035877	0.031481	0.029263	0.008143
48	0.275448	0.136504	0.095837	0.069272	0.056473	0.055921	0.038563	0.037107	0.034173	0.032769	0.008404
49	0.279745	0.137218	0.100341	0.069334	0.059457	0.060934	0.038831	0.038338	0.036864	0.036275	0.008664
50	0.284043	0.137931	0.104845	0.069395	0.062440	0.065946	0.039100	0.039568	0.039555	0.039781	0.008925
51	0.288340	0.138644	0.109349	0.069456	0.065423	0.070958	0.039368	0.040799	0.042246	0.043286	0.009186
52	0.292637	0.139358	0.113853	0.069518	0.068407	0.075971	0.039636	0.042029	0.044937	0.046792	0.009447
53	0.296934	0.140071	0.118357	0.069579	0.071390	0.080983	0.039905	0.043260	0.047629	0.050298	0.009708
54	0.301231	0.140785	0.122861	0.069641	0.074374	0.085996	0.040173	0.044490	0.050320	0.053804	0.009969

APPENDIX 14 (Cont'd.)

Withdrawal Rates  
for Active Members

Females

<u>Age</u>	<u>0 Years of Service</u>	<u>1 Year of Service</u>	<u>2 Years of Service</u>	<u>3 Years of Service</u>	<u>4 Years of Service</u>	<u>5 Years of Service</u>	<u>6 Years of Service</u>	<u>7 Years of Service</u>	<u>8 Years of Service</u>	<u>9 Years of Service</u>	<u>10 or more Years of Service</u>
20	0.239474	0.101131	0.061054	0.046437	0.052638	0.052717	0.050623	0.051462	0.050984	0.054963	0.037037
21	0.239474	0.101131	0.061054	0.046437	0.052638	0.052717	0.050623	0.051462	0.050984	0.054963	0.037037
22	0.239474	0.101131	0.061054	0.046437	0.052638	0.052717	0.050623	0.051462	0.050984	0.054963	0.037037
23	0.245399	0.101131	0.061054	0.046437	0.052638	0.052717	0.050623	0.051462	0.050984	0.054963	0.037037
24	0.251323	0.103802	0.061054	0.046437	0.052638	0.052717	0.050623	0.051462	0.050984	0.054963	0.037037
25	0.257247	0.106473	0.066031	0.046437	0.052638	0.052717	0.050623	0.051462	0.050984	0.054963	0.037037
26	0.263171	0.109143	0.071008	0.051351	0.052638	0.052717	0.050623	0.051462	0.050984	0.054963	0.037037
27	0.269095	0.111814	0.075985	0.056266	0.054905	0.052717	0.050623	0.051462	0.050984	0.054963	0.037037
28	0.275019	0.114485	0.080962	0.061180	0.057172	0.055094	0.050623	0.051462	0.050984	0.054963	0.037037
29	0.280943	0.117155	0.085939	0.066094	0.059439	0.057471	0.053375	0.051462	0.050984	0.054963	0.037037
30	0.286867	0.119826	0.090916	0.071009	0.061705	0.059848	0.056127	0.053786	0.050984	0.054963	0.037037
31	0.280855	0.120841	0.091119	0.071390	0.063972	0.062225	0.058878	0.056111	0.053483	0.054963	0.037037
32	0.274843	0.121855	0.091322	0.071771	0.066239	0.064601	0.061630	0.058435	0.055983	0.054963	0.037037
33	0.268831	0.122870	0.091525	0.072152	0.068506	0.066978	0.064381	0.060760	0.058482	0.054963	0.037037
34	0.262819	0.123884	0.091728	0.072534	0.070772	0.069355	0.067133	0.063084	0.060981	0.054963	0.037037
35	0.256807	0.124899	0.091931	0.072915	0.073039	0.071732	0.069885	0.065409	0.063480	0.054963	0.037037
36	0.251402	0.119873	0.088700	0.069278	0.067732	0.065074	0.064350	0.060394	0.058585	0.051900	0.033579
37	0.245997	0.114846	0.085469	0.065641	0.062424	0.058416	0.058815	0.055378	0.053691	0.048837	0.030121
38	0.240593	0.109820	0.082239	0.062004	0.057117	0.051758	0.053281	0.050363	0.048796	0.045774	0.026664
39	0.235188	0.104794	0.079008	0.058366	0.051809	0.045101	0.047746	0.045348	0.043902	0.042712	0.023206
40	0.229784	0.099768	0.075777	0.054729	0.046502	0.038443	0.042211	0.040332	0.039007	0.039649	0.019748
41	0.230350	0.100167	0.075293	0.052637	0.045548	0.037934	0.039791	0.037762	0.035936	0.035894	0.018024
42	0.230916	0.100566	0.074809	0.050545	0.044594	0.037425	0.037370	0.035192	0.032865	0.032139	0.016299
43	0.231482	0.100966	0.074326	0.048454	0.043640	0.036917	0.034950	0.032622	0.029794	0.028383	0.014575
44	0.232048	0.101365	0.073842	0.046362	0.042686	0.036408	0.032530	0.030052	0.026723	0.024628	0.012851
45	0.232615	0.101764	0.073358	0.044270	0.041732	0.035900	0.030109	0.027482	0.023652	0.020873	0.011127
46	0.240807	0.105514	0.076273	0.048294	0.043248	0.037497	0.031159	0.029064	0.024572	0.022283	0.011271
47	0.249000	0.109263	0.079187	0.052318	0.044763	0.039094	0.032209	0.030646	0.025493	0.023692	0.011416
48	0.257193	0.113013	0.082102	0.056342	0.046278	0.040692	0.033260	0.032227	0.026414	0.025102	0.011560
49	0.265385	0.116763	0.085017	0.060366	0.047794	0.042289	0.034310	0.033809	0.027335	0.026512	0.011705
50	0.273578	0.120512	0.087931	0.064390	0.049309	0.043886	0.035360	0.035391	0.028256	0.027921	0.011849
51	0.281771	0.124262	0.090846	0.068414	0.050825	0.045484	0.036410	0.036972	0.029177	0.029331	0.011994
52	0.289964	0.128012	0.093761	0.072438	0.052340	0.047081	0.037460	0.038554	0.030097	0.030741	0.012139
53	0.298156	0.131761	0.096675	0.076462	0.053855	0.048679	0.038511	0.040135	0.031018	0.032151	0.012283
54	0.306349	0.135511	0.099590	0.080486	0.055371	0.050276	0.039561	0.041717	0.031939	0.033560	0.012428

APPENDIX 14 (Cont'd.)

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

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

APPENDIX 14 (Cont'd.)

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

<u>Males</u>		<u>Females</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
55	0.094070	55	0.076747
56	0.077070	56	0.062480
57	0.066202	57	0.047722
58	0.064533	58	0.047607
59	0.070290	59	0.050695
60	0.075053	60	0.058458
61	0.074973	61	0.059857

APPENDIX 14 (Cont'd.)

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

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

APPENDIX 14 (Cont'd.)

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

APPENDIX 14 (Cont'd.)

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

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

APPENDIX 14 (Cont'd.)

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

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



## APPENDIX 14 (Cont'd.)

Mortality Rates for  
Disabled Annuitants

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

## APPENDIX 14 (Cont'd.)

Mortality Rates for  
Disabled Annuitants  
(cont'd.)

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

APPENDIX 14 (Cont'd.)

Mortality Rates for  
Disabled Annuitants  
(cont'd.)

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

APPENDIX 14 (Cont'd.)

Salary Scale

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

APPENDIX 14 (Cont'd.)

Salary Scale  
(cont'd.)

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

## APPENDIX 14 (Cont'd.)

### Valuation Rate of Interest Assumption

The interest rate for valuation purposes is a level 8.0%. This valuation rate of interest is made up of a 3.0%<sup>1</sup> annual rate of inflation and a 5.0% real rate of return.

The valuation rate of interest assumption represents our best estimate of the anticipated annual rate of return on plan assets over a very long-term horizon.

The valuation rate of interest assumption is developed based upon the Retirement System's specific asset allocation, and capital market assumptions, based upon recommendations from Callan Associates Inc., the System's investment consultant. Using expected returns and standard deviations for each asset class, and including anticipated correlation between the classes, a long-term anticipated rate of return is developed. As of June 30, 2008, Callan has estimated this annual rate of return to be 8.3% given our asset allocation. This analysis is performed annually.

### Projected COLA Assumption

The annual percentage for estimating future COLA benefit payments is 1.75%.<sup>2</sup>

---

<sup>1</sup> The average annual rate of increase in the Consumer Price Index (CPI) for 1925 – 2008 was 3.07%.

<sup>2</sup> 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 the 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 15

### SUMMARY OF BENEFIT PROVISIONS

#### 1. Membership

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

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

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

Tier 3 members are entitled to receive the benefits of either Tier 3 or Tier 4, however, they may not mix the provisions of the two tiers.

#### 2. Service Retirement

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

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

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

Tier 1 members generally may retire at:

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

## APPENDIX 15 (Cont'd.)

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

Tier 2 members generally may retire at:

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

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

Tier 3 members generally may retire at:

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

Tier 4: 1  $\frac{2}{3}$ % 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  $\frac{1}{2}$ % of FAS per year of NYS service in excess of 30 years.

Tier 4 members generally may retire at:

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

### 3. Disability Retirement

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



## APPENDIX 15 (Cont'd.)

### 4. Death Benefits

#### *a) Active Service*

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

The death benefit for Tier 2, 3, and 4 members is generally equal to one of the following two options based on the member's election at entry: 1) 3 times annual salary after 3 years of service (proportionately reduced for service under 3 years) or 2) the greater of (1) above or the Tier 1 death benefit.

#### *b) Not in Active Service*

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

### 5. Deferred Retirement

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

### 6. Member Contributions

Tier 3 and 4 members are required to contribute 3% of pay to fund a portion of their benefit. Such contributions cease upon the attainment of the earlier of 10 years of service credit or 10 years of membership effective October 1, 2000. Certain Tier 1 and 2 members may elect to contribute in order to receive an additional benefit.

## APPENDIX 15 (Cont'd.)

### 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.