

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

Actuarial Valuation Report as of June 30, 2009

TABLE OF CONTENTS

A.	INTRODUCTION	1
B.	EMPLOYER CONTRIBUTION RATE	1
C.	GAIN/LOSS IN THE EMPLOYER CONTRIBUTION RATE.....	3
D.	EMPLOYER CONTRIBUTION RATE HISTORY.....	4
E.	EMPLOYER CONTRIBUTION RATE INCREASE.....	5
F.	MEMBER DATA	5
G.	FUNDED STATUS.....	6
H.	ACTUARIAL EXPERIENCE.....	7
I.	NEW LEGISLATION.....	7
J.	SENSITIVITY ANALYSIS	8
K.	FUTURE EXPECTATIONS	8
L.	CERTIFICATION	9

APPENDICES

1.	RECONCILIATION OF THE ACTUARIAL VALUE OF ASSETS.....	10
2.	COMPARISON OF MARKET VALUE TO ACTUARIAL VALUE OF ASSETS	11
3.	THE ACTUARY'S VALUATION BALANCE SHEET	12
4.	FUNDING PROGRESS	13
5.	EMPLOYER CONTRIBUTION RATE.....	14
6.	MEMBER RECONCILIATION.....	23
7.	DISTRIBUTION OF ACTIVE MEMBERS	24
8.	HISTORICAL MEMBER STATISTICS	27
9.	RETIREMENT STATISTICS	28
10.	2005 - 2009 EXPERIENCE STUDY	31
11.	SENSITIVITY ANALYSIS	42
12.	HISTORY OF THE EMPLOYER CONTRIBUTION RATE.....	43
13.	HISTORY OF THE MEMBER CONTRIBUTION RATE	44
14.	ACTUARIAL COST AND ASSET VALUATION METHODS.....	45
15.	PRESENT ACTUARIAL ASSUMPTIONS	46
16.	SUMMARY OF BENEFIT PROVISIONS	64

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

Actuarial Valuation Report as of June 30, 2009

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, 2009. 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, 2010 to June 30, 2011 fiscal year and to review the funded status of the Retirement System. Use of the valuation results contained herein for purposes other than those stated above may not be appropriate.

B. EMPLOYER CONTRIBUTION RATE

The Employer Contribution Rate to be applied to member salaries for the July 1, 2010 to June 30, 2011 fiscal year and collected in the fiscal year ending June 30, 2012 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, 2011 is **8.62%**. The Employer Contribution Rates determined by the actuarial valuations as of June 30, 2009 and June 30, 2008 and the changes between the two are summarized below:

	As of <u>6/30/2009</u>	As of <u>6/30/2008</u>	<u>Change</u>
Normal Rate	8.21%	5.73%	+2.48%
Expense Rate	0.27	0.32	-0.05
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	8.62%	6.19%	+2.43%

As in prior years, the actual employer contributions made by participating employers during the fiscal year ending June 30, 2009 were equal to the employer contributions determined in accordance with the annual actuarial valuation. Additional payments are made by certain participating employers as required by statute for participation in early retirement incentives and Section 803 of Article 18 of the Retirement and Social Security Law.

C. GAIN/LOSS IN THE EMPLOYER CONTRIBUTION RATE

The Employer Contribution Rate of 8.62% represents a 243 basis point increase over the prior year's rate of 6.19%.

NORMAL RATE

The Normal Rate component of the Employer Contribution Rate has increased by 248 basis points over the prior year's rate. This change may be broken down as follows:

<u>Salary/Service:</u>	This loss is due to salary and service data coming in higher than expected.	+0.06
<u>Net Investment Loss:</u>	The investment return on the actuarial value of assets was approximately 5.1% which was less than the 8.0% expected return.	+1.94
<u>New Entrants:</u>	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.	+0.22
<u>Withdrawal:</u>	Fewer members withdrew than expected.	+0.21
<u>Mortality:</u>	Members are living longer than expected and receive benefits for a longer period.	+0.02
<u>Retirement:</u>	There were fewer retirements than expected.	-0.21
<u>Pension Payments:</u>	Actual payments to retirees were greater than expected.	+0.22
<u>Cost of Living Adjustment:</u>	The actual COLA increase of 2.00% was higher than the expected increase of 1.75%.	+0.02
<u>TOTAL CHANGE IN THE NORMAL RATE</u>		+2.48%

OTHER COMPONENTS

The **Expense Rate** is set during the budget process and has decreased by five basis points 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>
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
2000-2001	0.43	2010-2011	8.62

The complete Employer Contribution Rate history is presented in Appendix 12.

E. EMPLOYER CONTRIBUTION RATE INCREASE

The Employer Contribution Rate has increased this year from 6.19% to 8.62%. This represents approximately a 39.3% increase. The Normal Rate component equals 8.21%, an increase of approximately 43.3% from the prior year's Normal Rate of 5.73%. The rate of return on the System's market value of assets was -20.5% for the fiscal year ending June 30, 2009, reflecting the horrific returns in the capital markets during that period. The System's five-year rate of return was reduced to 1.9%. Although the System's asset smoothing method helped to dampen the impact of this large investment loss, the upward impact on the rate was substantial, and overwhelmed the other gain/loss items for the year.

Seven 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 will be fully amortized after this valuation. 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 normal rate 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, 2009. Compared with the previous year, the total number of members increased from 411,607 to 419,635; the number of active members increased from 274,901 to 280,338; the number of retired members increased from 131,814 to 134,287; and the number of beneficiaries receiving monthly benefits increased from 4,892 to 5,010.

The number of retirements decreased from 6,330 during the 2007-2008 fiscal year to 5,644 during the 2008-2009 fiscal year. There was no early retirement incentive offered in the 2008-2009 fiscal year. The number of retirements in recent years has decreased, likely due to the recent weakening of the economy. 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>
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
2003-2004	7,287	2008-2009	5,644

*Denotes an early retirement incentive offered during that fiscal year.

Two early retirement incentives were enacted effective for the summer of 2010. These may lead to an increase in the number of retirements in the future.

Historical member statistics, including statistics specific to retired members, appear in the appendices to this report. Additional member statistics may also be found in the Retirement System's most recent Comprehensive Annual Financial Report.

G. FUNDED STATUS

As of June 30, 2009, the actuarial value of plan assets was equal to \$88.81 billion. The accrued pension benefit liability calculated in accordance with the Entry Age Normal Cost Method was equal to \$86.06 billion. These two values produced a funded ratio of 103.2% as of June 30, 2009.

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, and first 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 2009 produces a long-term expected annual investment rate of return of 8.5%.

I. NEW LEGISLATION

The following legislation affecting the Retirement System was signed into law during the 2009 Legislative Session:

1) Tier 5:

Chapter 504 of the Laws of 2009 created a new tier of membership (Tier 5) for members with a date of membership on or after January 1, 2010. Tier 5 members are required to pay member contributions of 3.5% of salary throughout active membership, and must have at least 10 years of credited service to be eligible for a service retirement benefit. Tier 5 members with 30 or more years of credited service must attain age 57 in order to retire with an unreduced benefit. Tier 5 members retiring before age 62 with less than 30 years of service are subject to more severe benefit reductions than Tier 4. The New Entrant Normal Rate under the Tier 5 benefit structure is approximately 8.7% of pay.

2) **Transfer of Reserves (ITHP):**

Chapter 41 of the Laws of 2009 re-established the transfer of reserves for Tier 1 and Tier 2 members who transferred from the New York City Teachers' Retirement System (NYCTRS) with at least 20 years of credited service. Eligible members may receive a benefit if their transferred-in reserve from NYCTRS, including ITHP, exceeds the actuarial accrued liability of the transferred service under the NYSTRS benefit structure.

J. SENSITIVITY ANALYSIS

Newly included in the Actuarial Valuation Report this year is a Sensitivity Analysis (Appendix 11). The purpose of this exhibit is to illustrate what the Employer Contribution Rate would have been had various actuarial assumptions been altered. The chart also gives the reader a feel for the significance of the assumptions on the valuation results, and the potential impact of modifying them.

K. FUTURE EXPECTATIONS

The next Employer Contribution Rate (ECR) will be determined based on the actuarial valuation as of June 30, 2010. Looking ahead, the markets rebounded during the '09-'10 fiscal year and the System's market value rate of return for the year, though still only estimated, will be in the neighborhood of +12%. This by no means makes up for the large loss during '08-'09, however, and the market value of assets at June 30, 2010 is still significantly less than it was two years earlier. The smoothing method dampened the impact of 2009's investment loss, but it will continue to exert upward pressure on the ECR for the next several years. So even with 2010's very positive investment performance, the Retirement System is likely to see an increase in the next few ECR's, possibly of a similar magnitude to that experienced this year.

The recently enacted Tier 5 benefit structure represents a benefit reduction for new members, as well as a significant shifting of costs from employer to employee with the increase in both the employee contribution rate and length of time it must be made. This change will first affect the next valuation, although it will be several years or more before Tier 5 members make

up a large enough percentage of the membership for it to have a noticeable impact on the System's overall ECR. There will eventually be an impact, however, and Tier 5's less costly benefit structure will serve to lower the rate.

Two early retirement incentives were recently enacted – Chapter 45 and Chapter 105 of the Laws of 2010. While the response to them is still unknown at this point in time, it is likely they will lead to an increase in the number of retirements during the summer of 2010.

L. CERTIFICATION

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

The benefits recognized in this actuarial valuation are prescribed by New York State statute (Article 11 of the Education Law and Articles 11, 14, 15, 18, 19, and 20 of the Retirement and Social Security Law), and are summarized in Appendix 16. 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 am a member of the American Academy of Actuaries and I meet the qualification standards of the American Academy of Actuaries to render the actuarial opinion contained herein.



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



New York State Teachers' Retirement System
Office of the Actuary
July 20, 2010

APPENDIX 1

RECONCILIATION OF THE ACTUARIAL VALUE OF ASSETS

From June 30, 2008 to June 30, 2009

	Actuarial Value* (in thousands)
1. Actuarial Value of Assets as of June 30, 2008 ¹	\$88,149,326
2. Contributions and Transfers	
Employer contributions	1,135,865
Member contributions	159,446
Net transfers (in/out)	<u>5,665</u>
Subtotal	1,300,976
3. Net Investment Income/(Loss)	4,391,434
4. Distributions	
Benefit payments	5,142,857
Return of member contributions	<u>17,080</u>
Subtotal	5,159,937
5. Actuarial Value of Assets as of June 30, 2009 ²	<u>\$88,681,798</u>
6. Market Value of Assets as of June 30, 2009	\$72,471,757

*Numbers may not total due to rounding.

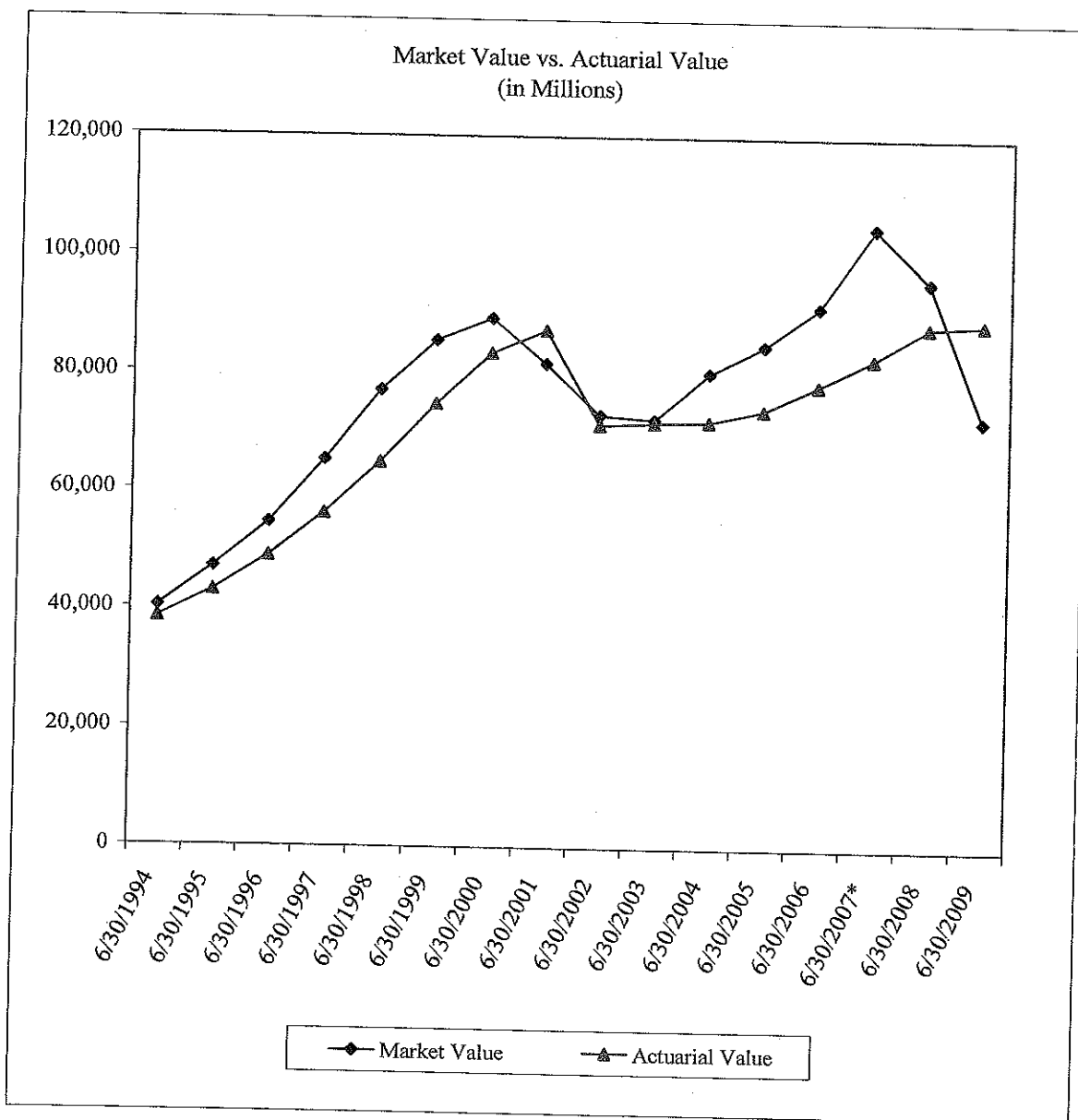
¹ Effective June 30, 2007, the Retirement System's asset valuation method was changed.

² 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
6/30/1994	\$ 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
6/30/2001	81,664.2	87,295.3	6/30/2009	72,471.8	88,805.5



*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, 2009
(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, 2009.

ASSETS

Present Assets of System for Valuation Purposes ¹	\$88,805,482
Present Value of Prospective Contributions to Pension Accumulation Fund	
from Employer Contributions	12,931,446
from Member Contributions	<u>623,110</u>
<u>TOTAL ASSETS</u>	<u>\$102,360,038</u>

LIABILITIES

Present Value of Future Benefits for:	
Retired Members and Beneficiaries	\$49,087,025
Active Members	53,227,809
Member Contributions Accumulated to Date in the Annuity Savings Fund	21,218
Benefits Due and Unpaid	<u>23,986</u>
<u>TOTAL LIABILITIES</u>	<u>\$102,360,038</u>

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

APPENDIX 4

FUNDING PROGRESS

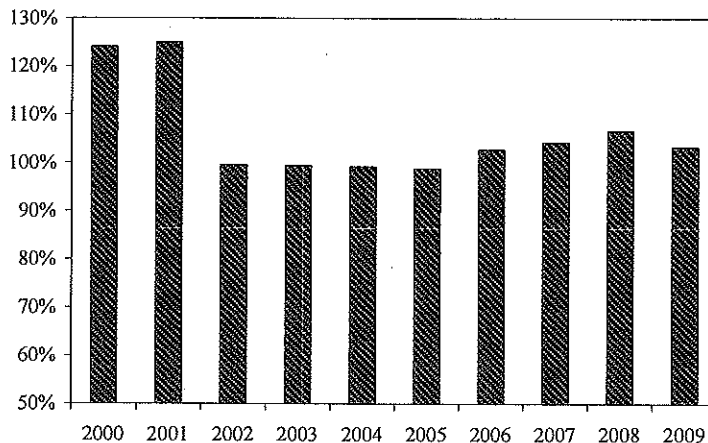
The Actuary's Valuation Balance Sheet provides a point-in-time comparison, as determined by actuarial valuation, between the present value of projected future benefits and the present assets as well as prospective contributions. In order to effectively assess the funding progress of a retirement system,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

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

Analysis of Funding Progress (in Millions)

Fiscal Year Ending	Actuarial Value of Assets ¹	Accrued Pension Benefit Liability ²	Percent Funded
2000	\$83,421.8	\$67,201.9	124.1%
2001	87,295.3	69,817.0	125.0
2002	71,374.4	71,693.4	99.6
2003	71,780.4	72,209.4	99.4
2004	72,044.4	72,604.9	99.2
2005	74,074.3	74,961.1	98.8
2006	78,335.8	76,353.0	102.6
2007	82,858.9	79,537.2	104.2
2008	88,254.7	82,777.5	106.6
2009	88,805.5	86,062.0	103.2

Percent Funded



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

² Effective June 30, 2006, the Accrued Pension Benefit Liability is calculated under the Entry Age Normal Cost Method as required by Governmental Accounting Standards Board (GASB) Statement No. 50 - *Pension Disclosures*. NYSTRS is funded in accordance with the Aggregate Cost Method. GASB now requires that the Entry Age Normal Cost Method be used to calculate the accrued liability for purposes of presenting the funded percentage.

APPENDIX 5

EMPLOYER CONTRIBUTION RATE

2009 Valuation

8.00% Interest

Normal Rate	8.21%
Group Life Insurance Rate	0.13
Excess Benefit Plan Rate	0.01
Expense Rate	0.27
Computed Contribution Rate as of June 30, 2009	8.62%

APPENDIX 5 (Cont'd.)

NORMAL RATE CALCULATION

2009 Valuation
8.00% Interest

Liabilities

Active Tier 1

Service Pension	\$3,635,636,232
Disability Pension	16,296
Vested Pension	162,588
Active Death over \$50,000	11,964,384
Death Benefit After 10-Yr Withdrawal over \$50,000	18
Annuity Savings Fund	21,217,794
COLA	77,146,053
Total	\$3,746,143,365

Active Tier 2

Service Pension	\$3,571,405,223
Post Retired Death over \$50,000	2,353,363
Disability Pension	235,861
Post Disabled Death over \$50,000	4,375
Vested Pension	2,022,012
Active Death over \$50,000	7,255,659
Death Benefit After 10-Yr Withdrawal over \$50,000	510
COLA	80,999,742
Total	\$3,664,276,745

Active Tier 3

Service Pension	\$7,080,773,073
Post Retired Death over \$50,000	5,735,764
Disability Pension	10,659,648
Post Disabled Death over \$50,000	231,569
Refund on Active Death	3,508,028
Active Death over \$50,000	16,463,350
Refund on Quit	325,396
Vested Pension	85,600,580
Death Benefit After 10-Yr Withdrawal over \$50,000	28,255
Refund on Death after Vested Withdrawal	15,462
COLA	183,462,243
Total	\$7,386,803,368

Active Tier 4

Service Pension	\$33,986,922,070
Post Retired Death over \$50,000	73,021,250
Disability Pension	234,967,538
Post Disabled Death over \$50,000	8,625,642
Refund on Active Death	24,012,908
Active Death over \$50,000	226,345,834
Refund on Quit	198,302,480
Vested Pension	1,957,378,511
Death Benefit After 10-Yr Withdrawal over \$50,000	4,063,606
Refund on Death after Vested Withdrawal	2,066,894
COLA	850,703,559
Total	\$37,566,410,292

APPENDIX 5 (Cont'd.)

NORMAL RATE CALCULATION (Cont'd.)

2009 Valuation

8.00% Interest

Liabilities (Cont'd.)

Retirees

Retired Pension	\$43,623,202,639
Retired Annuity	174,431,031
Disability Pension	270,518,873
Disability Annuity	1,208,332
Beneficiary Pension	535,441,885
Beneficiary Annuity	8,666,338
DBA Pension	6,563,912
DBA Annuity	560,892
Escalation	5,227,134
Post Retired Death over \$50,000	1,073,558
COLA	3,520,342,703
Catch-Up & Prior \$532 Supp	848,363,553
Total	\$48,995,600,850

Vesteds

Inactive Vested	\$167,092,583
Death Benefit After 10-Yr Withdrawal over \$50,000	699,487
Active Vested	296,368,884
Death Benefit After 10-Yr Withdrawal over \$50,000	918,588
COLA	11,446,784
Total	\$476,526,326

TIAA

Service Pension	\$3,713,504
Disability Pension	64,850
Vested Pension	96,210
Active Death over \$50,000	4,870
COLA	288,483
Total	\$4,167,917

Miscellaneous

Incurred Death but not Paid	\$11,405,585
Unclaimed Non-Member Funds	6,743,610
Total	\$18,149,195

Total Liabilities

\$101,858,078,058

APPENDIX 5 (Cont'd.)

NORMAL RATE CALCULATION (Cont'd.)

2009 Valuation
8.00% Interest

Assets for Valuation

Current Total Assets		\$71,249,898,676	
Less:	Expense Fund	26,858,381	
	Sub-total	\$71,223,040,295	
Plus:	5 Year Smoothing Adjustment		20,035,441,648
Less:	Provision for Adverse Market Deviation		2,453,000,000
	Assets for Valuation Purposes		\$88,805,481,943
Less:	Group Life Insurance Fund Net Asset Value		123,683,669
	Assets for Normal Rate Valuation Purposes		\$88,681,798,274

Receivables

Assets receivable from Normal Rate in 2009-2010 fiscal year			
	(2008-2009 paybase)(2007 Normal Rate)(1.08)	^{-7/24}	
	(14,366,386,886) (0.0717)(1.08)	^{-7/24}	\$1,007,205,568
Assets receivable from Normal Rate in 2010-2011 fiscal year			
	(2009-2010 paybase)(2008 Normal Rate)(1.08)	^{-1 7/24}	
	(14,922,000,000) (0.0573)(1.08)	^{-1 7/24}	\$774,121,816
Assets receivable from the amortization of Article 18			\$96,687
Present Value of Future Member Contributions			
	(Tier 4 Present Value of Future Employee Contributions)(1.08)	^{-7/24}	
	(637,255,449) (1.08)	^{-7/24}	\$623,110,346
	Total Receivables		\$2,404,534,417

APPENDIX 5 (Cont'd.)

NORMAL RATE CALCULATION (Cont'd.)

2009 Valuation

8.00% Interest

Present Value of Future Salaries

Tier 1	\$805,612,164	
Tier 2	1,261,952,232	
Tier 3	4,491,147,500	
Tier 4	<u>127,572,252,290</u>	
	\$134,130,964,186	x (1.08) ^{-7/24}
		= \$131,153,671,030

Normal Rate

Total Liabilities - (Assets + Receivables)

Present Value of Future Salaries

\$10,771,745,367
\$131,153,671,030

=

8.2131%

8.21% (rounded)

APPENDIX 5 (Cont'd.)

GROUP LIFE INSURANCE FUND

2009 Valuation
8.00% Interest

A) Calculation of June 30, 2009 Balance

Actuarial Value as of July 1, 2008		\$154,802,632
Interest	[154,802,632 x .08]	\$12,384,211
October 15, 2008 actual premium	\$17,831,761	
October 15, 2008 deferred premium	<u>(\$17,314,700)</u>	
Premium Gain/(Loss)		\$517,061
Interest	[517,061 x (1.08 ^{8.5/12} - 1)]	\$28,970
Death Benefits paid in 2008-2009		(\$8,606,887)
Interest	[(8,606,887) x (1.08 ⁻⁵ - 1)]	(\$337,652)
October 15, 2011 deferred premium [from B]		\$20,117,500
Interest discount	[20,117,500 x (1.08 ^{-(2+3.5/12)} - 1)]	<u>(\$3,252,828)</u>
Actuarial Value as of June 30, 2009		\$175,653,007

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

Death benefits	[8,606,887 x 1.08 ^{2+9.5/12}]	\$10,669,746
Interest	[(12,384,211) x 1.08 ^{2+3.5/12}]	(\$14,772,855)
Premium Loss/(Gain)	[(517,061) x 1.08 ³]	(\$651,348)
Adjustment to the GLIF reserve		<u>\$24,871,957</u>
Total required premium		<u>\$20,117,500</u>

GLIF Rate	=	<u>Required premium</u>	
		Estimated 2010-2011 paybase	
	=	<u>\$20,117,500</u>	
		\$15,475,000,000	
	=		0.13%

October 15, 2011 deferred premium [15,475,000,000 x 0.0013] = \$20,117,500

C) Summary of Deferred Premiums

	<u>Deferred Premium</u>	<u>Present Value as of 6/30/2009</u>
Due October 15, 2009	\$18,198,700	\$17,794,745
Due October 15, 2010	\$19,119,100	\$17,309,921
Due October 15, 2011	\$20,117,500	<u>\$16,864,672</u>
		<u>\$51,969,338</u>

D) GLIF Net Asset Value (A - C)

\$175,653,007 - \$51,969,338 = \$123,683,669

APPENDIX 5 (Cont'd.)

EXCESS BENEFIT PLAN FUND*
2009 Valuation

Balance as of July 1, 2009		\$2,967,249
less	Accrual Final Adjustment for the 2009 Fiscal Year	(\$173,867)
plus	Employer contribution (paid 10/15/2009) [0.0001 X \$14,366,386,886 (6/30/2007 Excess Benefit Plan rate of .01% times '08-'09 paybase)]	\$1,436,639
less	Annual Estimated Payments	<u>\$600,000</u>
Expected Balance as of June 30, 2010		<u>\$3,977,755</u>
plus	Employer contribution (payable 10/15/2010) [.0001 X \$14,922,000,000 (6/30/2008 Excess Benefit Plan rate of .01% times est'd. '09-'10 paybase)]	\$1,492,200
less	Annual Estimated Payments (\$600,000 X 1.25)	<u>\$750,000</u>
Expected Balance as of June 30, 2011		<u>\$4,719,955</u>

$$\begin{array}{rcl}
 \text{Excess Benefit Plan Rate} & = & \frac{\text{Anticipated Excess Benefits Paid in 2011-2012}}{\text{2010-2011 Salary}} = \frac{\$600,000 \times 1.25 \times 1.25}{\$15,475,000,000} \\
 & = & \frac{\$937,500}{\$15,475,000,000} = 0.00606\% \\
 & & \text{round to } 0.01\%
 \end{array}$$

* Fund is in a zero-interest checking account

APPENDIX 5 (Cont'd.)

The Administrative Employer Contribution Rate (Rate) and Employer Contributions¹

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 2010-11, the 3.87% 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
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	14,366,386,886	0.32	2009-10	45,972,438	4.94
2009-10	14,922,000,000 *	0.32	2010-11	47,750,400	3.87
2010-11	15,475,000,000 *	0.27 *	2011-12	41,782,500	-12.50
2011-12	16,026,000,000 *	0.27 *	2012-13	43,270,200	3.56

*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 2011-12.

The Administrative Employer Contribution Rate Calculation (2011 - 12): 0.27%

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 2011-12 based on above	= Projected 2011-12
X Member allocation percentage	Member Related Expenses
<u>Projected 2011-12 Member-Related Expenses</u>	= Employer Contribution Rate
<u>Projected 2010-11 Member Salary Base</u>	

¹ From the NYSTRS 2010-11 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</u> ¹
06/30/2004	79,727,765,026	314,575,961	3,976,325,636	
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
06/30/2009	71,249,898,676	1,357,000,550	5,217,944,754	92,810,660,731

<u>FYE</u>	<u>Actual Gain</u> ²	(3.0%) <u>Expected Gain</u> ³	<u>Unexpected Gain</u> ⁴	<u>Smoothing Adjustment</u> ⁵
06/30/2004	9,512,009,700			
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	
06/30/2009	-21,516,277,258	2,784,319,822	-24,300,597,080	-20,035,441,648

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

² Actual Gain = Net Appreciation (Realized and Unrealized)

³ Expected Gain = 3.0% x Average Market Value

⁴ Unexpected Gain = Actual Gain - Expected Gain

⁵ Smoothing Adjustment = (.20 x Unexpected Gain 6/30/2006)
+ (.40 x Unexpected Gain 6/30/2007)
+ (.60 x Unexpected Gain 6/30/2008)
+ (.80 x Unexpected Gain 6/30/2009)

APPENDIX 6

MEMBER RECONCILIATION

ACTIVE MEMBERS:

	Men	Women	Total
June 30, 2008.....	66,107	208,794	274,901
Changes During Year:			
Added.....	3,918	12,989	16,907
Withdrawn.....	1,483	4,148	5,631
Retired.....	1,498	4,146	5,644
Died.....	67	128	195
Total Membership June 30, 2009.....	66,977	213,361	280,338

MEMBERS RETIRED FOR:

	Service*			Disability			Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
June 30, 2008.....	48,681	81,074	129,755	542	1,517	2,059	49,223	82,591	131,814
Changes During Year:									
Retired.....	1,473	4,061	5,534	25	85	110	1,498	4,146	5,644
Died.....	1,129	1,699	2,828	30	80	110	1,159	1,779	2,938
Lump Sum.....	61	171	232	0	0	0	61	171	232
Restored to Active Membership....	0	0	0	0	1	1	0	1	1
June 30, 2009.....	48,964	83,265	132,229	537	1,521	2,058 **	49,501	84,786	134,287

BENEFICIARIES OF DECEASED:

	Service Annuitants			Disability Annuitants			Active Members			Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
June 30, 2008.....	923	3,499	4,422	82	171	253	32	185	217	1,037	3,855	4,892
Changes During Year:												
Added.....	105	289	394	4	5	9	0	0	0	109	294	403
Died.....	66	197	263	5	7	12	0	10	10	71	214	285
June 30, 2009.....	962	3,591	4,553	81	169	250	32	175	207	1,075	3,935	5,010

SUMMARY:

	Men	Women	Total
Active Members.....	66,977	213,361	280,338
Retired Members.....	49,501	84,786	134,287
Beneficiaries.....	1,075	3,935	5,010
Total.....	117,553	302,082	419,635

*Also includes vested retirees.

**Includes 45 men and 55 women retired for disability who receive a service benefit.

APPENDIX 7

DISTRIBUTION OF ACTIVE MEMBERS

Distribution by Age as of June 30, 2009

<u>Age</u>	<u>Males</u>	<u>Females</u>	<u>Total Members</u>
15-19	13	50	63
20-24	1,946	6,619	8,565
25-29	8,058	25,583	33,641
30-34	10,591	29,946	40,537
35-39	10,411	29,471	39,882
40-44	9,066	27,438	36,504
45-49	7,737	27,752	35,489
50-54	7,378	27,329	34,707
55-59	7,059	25,294	32,353
60-64	3,634	11,091	14,725
65-69	787	2,194	2,981
70-74	204	438	642
75-79	69	118	187
80-84	17	35	52
85 or older	7	3	10
Total	66,977	213,361	280,338

Average Male age is 42 years 0 months

Average Female age is 42 years 7 months

APPENDIX 7 (Cont'd.)

Distribution of Active Members by Age and New York State Service as of June 30, 2009

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	13	0	13
20-24	1,946	0	1,946
25-29	8,058	0	8,058
30-34	9,533	1,058	10,591
35-39	5,628	4,783	10,411
40-44	3,553	5,513	9,066
45-49	2,741	4,996	7,737
50-54	2,239	5,139	7,378
55-59	1,730	5,329	7,059
60-64	1,041	2,593	3,634
65-69	351	436	787
70-74	115	89	204
75-79	48	21	69
80-84	8	9	17
85 or older	3	4	7
Total	37,007	29,970	66,977

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	50	0	50
20-24	6,619	0	6,619
25-29	25,581	2	25,583
30-34	27,368	2,578	29,946
35-39	18,135	11,336	29,471
40-44	14,033	13,405	27,438
45-49	13,136	14,616	27,752
50-54	10,090	17,239	27,329
55-59	5,966	19,328	25,294
60-64	2,314	8,777	11,091
65-69	581	1,613	2,194
70-74	160	278	438
75-79	46	72	118
80-84	12	23	35
85 or older	2	1	3
Total	124,093	89,268	213,361

APPENDIX 7 (Cont'd.)

Distribution of Active Members by Total Service as of June 30, 2009

<u>Years of Service</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
0-4	21,639	70,552	92,191
5-9	14,730	50,557	65,287
10-14	11,578	34,928	46,506
15-19	6,221	20,484	26,705
20-24	5,016	18,029	23,045
25-29	3,368	10,727	14,095
30-34	2,541	5,818	8,359
35 or more	<u>1,884</u>	<u>2,266</u>	<u>4,150</u>
Total	66,977	213,361	280,338

Median Male has 9 Years of Total Service

Median Female has 8 Years of Total Service

APPENDIX 8

HISTORICAL MEMBER STATISTICS

Members and Annuitants 1925-2009

As of <u>June 30</u>	Active <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
2009	280,338	139,297

Number of Active Members by Tier

As of <u>June 30</u>	<u>Tier 1</u>	<u>Tier 2</u>	<u>Tier 3</u>	<u>Tier 4</u>	<u>Total</u>
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
2009	6,943	6,752	16,111	250,532	280,338

APPENDIX 9

RETIREMENT STATISTICS

RETIREMENT STATISTICS 2008-09 MEMBERS RETIRED FOR:

	Service*	Disability
Number Retired.....	5,534	110
Age at Retirement:		
Average.....	59 yrs., 6 mos.	53 yrs., 0 mos.
Median.....	58 yrs., 11 mos.	53 yrs., 10 mos.
Years of Service:		
Average.....	27 yrs., 7 mos.	19 yrs., 5 mos.
Median.....	30 yrs., 4 mos.	19 yrs., 0 mos.
**Benefit:		
Average.....	\$46,061	\$27,155
Median.....	\$48,312	\$22,029
Final Average Salary:		
Average.....	\$78,050	\$70,532
Median.....	\$78,632	\$64,332
***Benefit as % of FAS:		
Average.....	52.95%	36.38%
Median.....	60.67%	33.33%

2008-09 MEMBERS RETIRED FOR SERVICE* WITH:

	Less Than 20 Yrs. N.Y.	Between 20 Yrs. N.Y. and 35 Yrs. Total	35 Yrs. Total or More
Number Retired.....	1,105	2,816	1,613
Age at Retirement:			
Average.....	60 yrs., 1 mo.	59 yrs., 5 mos.	59 yrs., 5 mos.
Median.....	59 yrs., 3 mos.	58 yrs., 11 mos.	58 yrs., 11 mos.
Years of Service:			
Average.....	11 yrs., 6 mos.	28 yrs., 4 mos.	37 yrs., 7 mos.
Median.....	11 yrs., 3 mos.	30 yrs., 0 mos.	37 yrs., 2 mos.
**Benefit:			
Average.....	\$7,249	\$45,849	\$73,018
Median.....	\$5,018	\$45,607	\$68,440
Final Average Salary:			
Average.....	\$39,561	\$82,003	\$97,516
Median.....	\$33,412	\$79,708	\$90,819
***Benefit as % of FAS:			
Average.....	16.30%	54.88%	74.70%
Median.....	15.28%	60.00%	74.00%

*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, 2009 RETIRED FOR:

	Service*	Disability
Number Retired.....	132,329	1,958
Age at Retirement:		
Average.....	58 yrs., 2 mos.	49 yrs., 4 mos.
Median.....	56 yrs., 10 mos.	50 yrs., 1 mo.
Years of Service:		
Average.....	28 yrs., 4 mos.	19 yrs., 1 mo.
Median.....	30 yrs., 6 mos.	18 yrs., 5 mos.
**Benefit:		
Average.....	\$36,222	\$17,320
Median.....	\$35,532	\$15,472
Final Average Salary:		
Average.....	\$60,363	\$46,214
Median.....	\$60,674	\$45,571
***Benefit as % of FAS:		
Average.....	55.25%	36.37%
Median.....	60.81%	33.42%

ALL RETIREES AS OF JUNE 30, 2009 RETIRED FOR SERVICE* WITH:

	Less Than 20 Yrs. N.Y.	Between 20 Yrs. N.Y. and 35 Yrs. Total	35 Yrs. Total or More
Number Retired.....	21,999	78,461	31,869
Age at Retirement:			
Average.....	58 yrs., 5 mos.	57 yrs., 11 mos.	58 yrs., 6 mos.
Median.....	56 yrs., 7 mos.	56 yrs., 5 mos.	57 yrs., 10 mos.
Years of Service:			
Average.....	14 yrs., 3 mos.	28 yrs., 7 mos.	37 yrs., 1 mo.
Median.....	14 yrs., 4 mos.	30 yrs., 0 mos.	36 yrs., 5 mos.
**Benefit:			
Average.....	\$7,215	\$35,375	\$58,332
Median.....	\$5,509	\$34,352	\$56,172
Final Average Salary:			
Average.....	\$31,896	\$60,789	\$78,966
Median.....	\$25,997	\$60,339	\$76,676
***Benefit as % of FAS:			
Average.....	22.17%	57.00%	73.77%
Median.....	20.86%	59.36%	72.98%

*Also includes vested retirees.

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

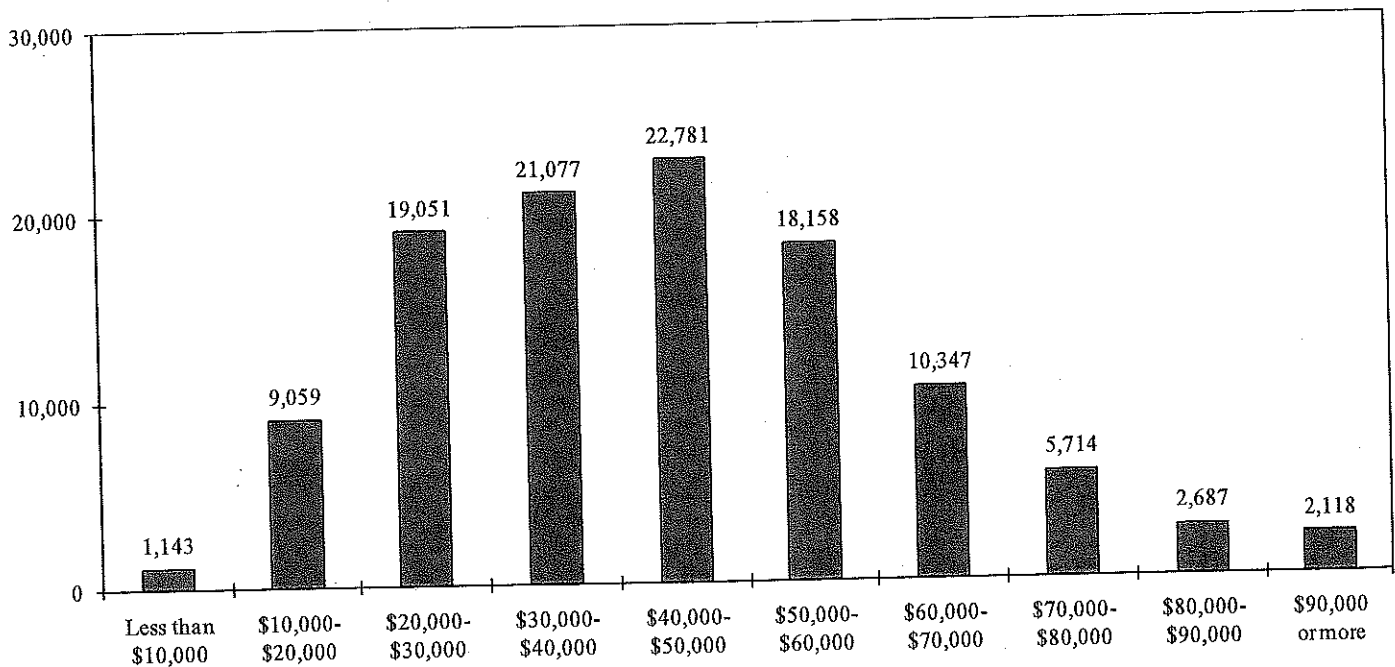
***The average and median of individual benefits as percentages of final average salary.

APPENDIX 9 (Cont'd.)

**Retired Members' Characteristics¹
By Year of Retirement**

<u>Retired in Fiscal Year Ending</u>	<u>Number of Retired Members</u>	<u>Average Age at Retirement (yrs. - mos.)</u>	<u>Average Service at Retirement (yrs. - mos.)</u>	<u>Average Final Average Salary</u>	<u>Average Maximum Annual Benefit</u>
2000	6,658	57-10	27-1	\$63,977	\$36,986
2001	7,946	57-9	29-7	67,027	42,266
2002	7,344	57-6	28-6	68,014	41,731
2003	10,173	57-4	30-1	70,427	44,898
2004	7,287	57-7	28-8	72,799	45,063
2005	7,182	57-10	28-6	72,126	45,394
2006	7,281	58-4	28-2	71,840	43,914
2007	6,900	58-7	28-1	74,185	44,204
2008	6,330	58-11	27-8	77,066	45,779
2009	5,644	59-6	27-7	78,050	46,061

**Distribution of the Annual Benefit² of All Retired Members
with 20 or More Years of Total Service**



¹ Averages are for service and vested retirees.

² Maximum annual retirement benefit as of June 30, 2009 including supplementation and COLA.

APPENDIX 10

2005 – 2009 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

AGE	MALES				FEMALES			
	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
50	38	0	0.00	N/A	69	0	0.00	N/A
51	101	4	0.00	N/A	186	2	0.00	N/A
52	757	4	0.00	N/A	1,128	3	0.00	N/A
53	1,946	8	0.00	N/A	3,306	7	0.00	N/A
54	3,428	148	0.00	N/A	6,626	235	0.00	N/A
55	4,841	1,776	1,821.58	0.975	9,821	3,304	3,014.92	1.096
56	4,066	1,180	1,253.46	0.941	8,726	2,342	2,180.78	1.074
57	3,733	776	988.52	0.785	7,929	1,374	1,513.54	0.908
58	3,404	764	878.68	0.869	7,384	1,314	1,406.11	0.934
59	2,796	664	786.13	0.845	6,182	1,181	1,253.58	0.942
60	2,133	546	640.35	0.853	5,062	1,089	1,183.66	0.920
61	1,602	426	480.43	0.887	3,904	842	934.73	0.901
62	2,146	504	806.31	0.625	6,945	1,700	2,097.07	0.811
63	1,446	281	460.01	0.611	4,565	905	1,363.80	0.664
64	999	158	294.48	0.537	3,356	609	957.10	0.636
65	722	140	233.16	0.600	2,486	529	808.27	0.654
66	483	116	132.67	0.874	1,683	368	495.93	0.742
67	340	35	96.04	0.364	1,112	195	275.70	0.707
68	265	43	72.70	0.591	822	153	233.60	0.655
69	203	22	48.61	0.453	607	101	168.86	0.598
70	170	27	31.79	0.849	455	86	116.78	0.736
71	638	77	638.00	0.121	1,473	246	1,473.00	0.167
TOTAL	36,257	7,699	9,662.92	0.797	83,827	16,585	19,477.43	0.851

APPENDIX 10 (Cont'd.)

2005-2009 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

AGE	MALES				FEMALES			
	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
50	6,402	0	0.00	N/A	23,346	0	0.00	N/A
51	6,560	0	0.00	N/A	24,162	0	0.00	N/A
52	6,464	0	0.00	N/A	24,499	0	0.00	N/A
53	6,089	0	0.00	N/A	23,775	0	0.00	N/A
54	5,456	43	0.00	N/A	21,926	146	0.00	N/A
55	4,749	203	446.74	0.454	19,382	934	1,487.51	0.628
56	4,078	155	314.29	0.493	16,016	678	1,000.68	0.678
57	3,430	123	227.07	0.542	13,206	533	630.22	0.846
58	2,781	117	179.47	0.652	10,439	446	496.97	0.897
59	2,227	79	156.54	0.505	8,242	390	417.83	0.933
60	1,811	88	135.92	0.647	6,516	378	380.91	0.992
61	1,426	89	106.91	0.832	5,170	384	309.46	1.241
TOTAL	51,473	897	1,566.94	0.572	196,679	3,889	4,723.58	0.823

APPENDIX 10 (Cont'd.)

2005-2009 EXPERIENCE STUDY
 NUMBER OF DEATHS AMONG ACTIVE MEMBERS
 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
20	0	0.08	0.000	1	0.20	5.000
25	7	3.28	2.134	6	7.39	0.812
30	14	7.08	1.977	16	14.93	1.072
35	11	9.72	1.132	19	19.87	0.956
40	12	12.07	0.994	25	26.81	0.932
45	22	18.63	1.181	46	45.19	1.018
50	32	28.31	1.130	78	64.87	1.202
55	38	51.24	0.742	110	89.41	1.230
60	35	32.68	1.071	52	55.77	0.932
65	16	8.41	1.902	19	17.23	1.103
70	15	2.36	6.356	16	3.75	4.267
TOTAL	202	173.86	1.162	388	345.42	1.123

APPENDIX 10 (Cont'd.)

2005-2009 EXPERIENCE STUDY
 NUMBER OF DISABILITY RETIREMENTS
 EXPOSURE BASED ON ACTIVE TEACHERS
 ASSUMPTIONS ADOPTED OCTOBER 2006

CENTRAL AGE	MALES			FEMALES		
	<u>ACTUAL</u>	<u>EXPECTED</u>	<u>RATIO OF ACTUAL TO EXPECTED</u>	<u>ACTUAL</u>	<u>EXPECTED</u>	<u>RATIO OF ACTUAL TO EXPECTED</u>
30	0	0.94	0.000	0	1.87	0.000
35	3	3.18	0.943	9	15.41	0.584
40	2	5.95	0.336	19	37.02	0.513
45	23	16.42	1.401	57	75.78	0.752
50	21	49.78	0.422	126	168.26	0.749
54	22	31.14	0.706	80	97.83	0.818
TOTAL	71	107.41	0.661	291	396.17	0.735

APPENDIX 10 (Cont'd.)

2005-2009 EXPERIENCE STUDY
 COMPARISON OF SALARY SCALE TO ACTUAL SALARY INCREASES
 ASSUMPTIONS ADOPTED OCTOBER 2006

MALES			RATIO OF
CENTRAL	ACTUAL	EXPECTED	ACTUAL TO
<u>AGE</u>	<u>SALARIES</u>	<u>SALARIES</u>	<u>EXPECTED</u>
20	15,898,964	13,058,261	1.218
25	990,943,758	967,013,007	1.025
30	2,128,726,932	2,145,801,027	0.992
35	2,659,614,391	2,678,457,002	0.993
40	2,473,287,681	2,487,247,676	0.994
45	2,214,644,233	2,225,059,913	0.995
50	2,468,996,942	2,482,021,048	0.995
55	3,268,716,061	3,306,049,209	0.989
60	1,549,179,973	1,571,082,150	0.986
65	275,030,753	278,860,847	0.986
70	74,328,625	75,989,323	0.978
TOTAL	18,119,368,313	18,230,639,463	0.994

APPENDIX 10 (Cont'd.)

2005-2009 EXPERIENCE STUDY
 COMPARISON OF SALARY SCALE TO ACTUAL SALARY INCREASES
 ASSUMPTIONS ADOPTED OCTOBER 2006

FEMALES			RATIO OF ACTUAL TO EXPECTED
CENTRAL AGE	ACTUAL SALARIES	EXPECTED SALARIES	
20	64,015,056	50,888,000	1.258
25	3,148,138,856	3,078,176,584	1.023
30	5,521,909,803	5,578,840,060	0.990
35	5,984,677,504	6,017,045,621	0.995
40	5,827,078,342	5,845,813,656	0.997
45	6,280,111,954	6,305,635,798	0.996
50	7,358,841,505	7,387,456,550	0.996
55	8,681,667,644	8,734,086,602	0.994
60	3,848,202,228	3,866,175,751	0.995
65	756,939,691	765,042,789	0.989
70	170,684,842	172,309,588	0.991
TOTAL	47,642,267,425	47,801,470,999	0.997

APPENDIX 10 (Cont'd.)

2005-2009 EXPERIENCE STUDY
 NUMBER OF WITHDRAWALS
 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
20	197	223.86	0.880	588	745.35	0.789
25	2,623	2,451.13	1.070	8,396	8,169.67	1.028
30	2,143	1,727.18	1.241	8,061	8,027.56	1.004
35	1,544	1,269.36	1.216	6,795	6,907.88	0.984
40	1,201	1,046.39	1.148	4,437	4,523.99	0.981
45	1,050	935.86	1.122	4,013	3,840.70	1.045
50	960	961.97	0.998	3,457	3,647.85	0.948
54	396	408.17	0.970	1,215	1,402.80	0.866
TOTAL	10,114	9,023.92	1.121	36,962	37,265.80	0.992

APPENDIX 10 (Cont'd.)

2005-2009 EXPERIENCE STUDY
 NUMBER OF DEATHS AMONG MEMBERS RETIRED FOR DISABILITY
 MORTALITY ADOPTED OCTOBER 2006

CENTRAL AGE	MALES			FEMALES		RATIO OF ACTUAL TO EXPECTED
	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	ACTUAL	EXPECTED	
30	0	0.00	N/A	0	0.04	0.000
35	1	0.31	3.226	2	1.13	1.770
40	0	0.33	0.000	3	3.72	0.806
45	6	6.57	0.913	18	23.15	0.778
50	8	9.47	0.845	41	56.03	0.732
55	29	26.31	1.102	79	97.51	0.810
60	32	24.65	1.298	57	64.86	0.879
65	14	16.71	0.838	23	27.40	0.839
70	16	13.21	1.211	26	18.76	1.386
75	9	12.02	0.749	19	19.32	0.983
80	10	10.38	0.963	18	17.91	1.005
85	8	4.23	1.891	19	12.27	1.548
90	1	1.07	0.935	13	8.87	1.466
95	0	0.00	N/A	8	5.16	1.550
100	0	0.00	N/A	3	4.36	0.688
105	0	0.00	N/A	1	0.53	1.887
110	0	0.00	N/A	0	0.00	N/A
TOTAL	134	125.26	1.070	330	361.02	0.914

APPENDIX 10 (Cont'd.)

2005-2009 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	42	61.77	0.680	93	97.03	0.958
60	253	302.83	0.835	315	355.40	0.886
65	419	446.99	0.937	393	455.21	0.863
70	538	610.74	0.881	519	553.10	0.938
75	939	938.04	1.001	811	857.35	0.946
80	1,072	1,134.82	0.945	1,152	1,213.04	0.950
85	1,037	985.41	1.052	1,630	1,636.00	0.996
90	558	578.59	0.964	1,860	1,793.26	1.037
95	245	233.11	1.051	1,360	1,252.58	1.086
100	46	43.02	1.069	478	420.83	1.136
105	1	0.45	2.222	46	46.40	0.991
110	0	0.00	N/A	0	0.00	N/A
TOTAL	5,150	5,335.77	0.965	8,657	8,680.20	0.997

APPENDIX 10 (Cont'd.)

2005-2009 EXPERIENCE STUDY
 NUMBER OF DEATHS AMONG BENEFICIARIES
 MORTALITY ADOPTED OCTOBER 2006

CENTRAL AGE	MALES			FEMALES		RATIO OF ACTUAL TO EXPECTED
	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	ACTUAL	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	0.01	0.000
35	0	0.00	N/A	0	0.05	0.000
40	0	0.04	0.000	0	0.08	12.500
45	1	0.09	11.111	1	0.30	3.333
50	0	0.25	0.000	1	1.33	0.000
55	2	0.70	2.857	0	4.94	1.215
60	1	2.07	0.483	6	11.36	1.320
65	2	4.08	0.490	15	23.28	1.375
70	12	9.05	1.326	32	53.44	0.973
75	23	22.82	1.008	52	117.36	1.057
80	44	41.98	1.048	124	219.62	1.079
85	84	68.91	1.219	237	236.13	1.008
90	86	82.28	1.045	238	159.19	1.087
95	37	36.70	1.008	173	44.20	1.063
100	10	8.18	1.222	47	5.13	0.780
105	0	0.00	N/A	4	0.00	N/A
110	0	0.00	N/A	0		
TOTAL	302	277.15	1.090	930	876.42	1.061

APPENDIX 10 (Cont'd.)

Investment Rate of Return¹
on
Market and Actuarial Value of Assets

as of June 30, 2009

Annualized rate of return over the last:

	Based Upon <u>Market Value of Assets</u>	Based Upon <u>Actuarial Value of Assets</u> ²
1 Year:	-20.5%	5.1%
3 Years:	-3.8%	10.3%
5 Years:	1.9%	10.0%
10 Years:	2.2%	6.5%
15 Years:	7.6%	9.8%
20 Years:	8.1%	
25 Years:	9.8%	

Annualized inflation over the last:

	<u>Inflation Assumption</u>		<u>COLA Benefit</u>	
	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u> ³
1 Year:	-0.38%	3.0%	1.0%	1.75%
3 Years:	2.11%	3.0%	1.5%	1.75%
5 Years:	2.57%	3.0%	1.5%	1.75%

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

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

³ 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

SENSITIVITY ANALYSIS

Valuation results are highly dependent on the actuarial assumptions used to project future events. If actual experience emerges differently from the assumptions used in the valuation process, actuarial gains or losses will result, and future Employer Contribution Rates will be higher or lower. In this section, results of a sensitivity analysis are presented in order to illustrate how deviations in specific assumptions would have changed the current Employer Contribution Rate of 8.62%.

It is important to note that the results displayed here, with the exception of those for the investment return, are the consequence of altering each assumption individually without accounting for possible correlation between assumptions. Therefore, these results are presented in order to provide an illustration as to the degree of impact that a variation in key assumptions could have on valuation results. There is no guarantee that future experience will be consistent with either our current or the following alternative set of assumptions.

<u>Assumption</u>	<u>Adjustment Made</u>	<u>Calculated Employer Contribution Rate</u>
Current Assumptions		8.62%
Investment Return ¹	Decrease from 8.0% to 7.5%	12.93%
Investment Return ¹	Decrease from 8.0% to 7.0%	17.47%
Active Mortality	Decrease of 10%	8.63%
Active Mortality	Increase of 10%	8.61%
Service Retirement Rates	Decrease of 10%	8.14%
Service Retirement Rates	Increase of 10%	9.08%
Salary Scale	Decrease of 10%	6.75%
Salary Scale	Increase of 10%	10.48%

¹ In the event that a change to the long term investment return assumption would be warranted, it is likely that a related change to the salary scale assumption would also be necessary in order for these assumptions to remain consistent with overall inflation. Therefore, for the results presented here, the salary scale assumption was decreased by one-half of the reduction in the investment return assumption.

APPENDIX 12

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	2010-11	8.62
1941-42	6.33	1976-77	19.40	Average	10.79 %
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 13

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)
2000	3% employee contribution ceases after ten years of service or membership
2010	3.5% throughout career for members joining 2010 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. In accordance with Tier 5, members joining on or after January 1, 2010 must contribute 3.5% of salary throughout their working career towards the funding of their pension. 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 14

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. This funding method is required by statute, specifically Section 517 of the New York State Education Law.

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 15

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 15 (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 15 (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 15 (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 15 (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	0.260517	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 15 (Cont'd.)

Withdrawal Rates
for Active Members

Females

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

APPENDIX 15 (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 15 (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 15 (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 15 (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 15 (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 15 (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 15 (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	0.035341
30	0.025310	31	0.036899
31	0.028145	32	0.038946
32	0.032542	33	0.039428
33	0.035000	34	0.040473
34	0.038165		
		35	0.041935
35	0.042432	36	0.042849
36	0.048006	37	0.042928
37	0.054112	38	0.043225
38	0.060124	39	0.044281
39	0.065006		
		40	0.045084
40	0.072142	41	0.050017
41	0.078563	42	0.052569
42	0.088195	43	0.057009
43	0.094091	44	0.061248
44	0.098659		
		45	0.065552
45	0.101034	46	0.068744
46	0.099347	47	0.071598
47	0.096113	48	0.073556
48	0.093684	49	0.075532
49	0.093042		
		50	0.076793
50	0.092882	51	0.076422
51	0.090847	52	0.073796
52	0.086215	53	0.069154
53	0.078395	54	0.063134
54	0.068565		
		55	0.056557
55	0.058441	56	0.050331
56	0.049080	57	0.045190
57	0.042276	58	0.041109
58	0.037908	59	0.038283
59	0.036513		

APPENDIX 15 (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 15 (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 15 (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 15 (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 15 (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%¹ 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, 2009, Callan has estimated this annual rate of return to be 8.5% given our asset allocation. This analysis is performed annually.

Projected COLA Assumption

The annual percentage for estimating future COLA benefit payments is 1.75%.²

¹ The average annual rate of increase in the Consumer Price Index (CPI) for 1925 – 2009 was 3.03%.

² 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 16

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, community colleges, and the State Education Department. 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 9/1/83 - 12/31/09;
Tier 5:	Membership on or after 1/1/10.

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. For valuation purposes, Tier 3 members are assumed to receive the Tier 4 benefit at retirement, as that is generally always the larger benefit.

2. Service Retirement

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

Tier 1:

Non-Contributory Plan

For Tier 1 members with a date of membership prior to July 1, 1970 the benefit is generally calculated as:

For New York State service prior to 7/1/1959 and all out-of-state service:

1/100th of final average salary (FAS) per year for each of the first 25 years of service, plus 1/120th of FAS per year for each of the next 10 years of service, plus 1/140th of FAS per year for each year of NYS service in excess of 35, plus

For New York State service subsequent to 7/1/1959:

1/50th of final average salary (FAS) per year for each of the first 25 years of NYS service, plus 1/60th of FAS per year for each of the next 10 years of NYS service, plus 1/70th of FAS per year for each year of NYS service in excess of 35.

Non-Contributory Plan members generally may retire at:

- Age 55 with 20 years of total service or
- Any age with 35 years of total service.

APPENDIX 16 (Cont'd.)

Career Plan

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 maximum pension permitted is 75% 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%.

Career Plan members generally may retire at:

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

The provisions of Article 19 of the Retirement and Social Security Law, effective July 11, 2000, provides to eligible Tier 1 and 2 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.

Tier 2: Computed under the Tier 1 Career Plan 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: 1½% 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.

APPENDIX 16 (Cont'd.)

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.

Tier 5: $1\frac{2}{3}\%$ of FAS per year of NYS service (if less than 25 years), or 2% of FAS per year of NYS service (if 25 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 10 years of service,
- Age 57 with 30 years of service, or
- Age 55 with 10 years of service, with benefit reduced by $6\frac{2}{3}\%$ for each of the first 2 years under age 62 and 5% 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.

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.

APPENDIX 16 (Cont'd.)

5. Deferred Retirement

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

6. Member Contributions

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

7. Cost-of-Living Adjustment (COLA)

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

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

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