ACTUARIAL VALUATION REPORT

as of

JUNE 30, 2011

New York State Teachers' Retirement System

Office of the Actuary
July 16, 2012

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

Actuarial Valuation Report
as of June 30, 2011

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NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

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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, 2011. 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, 2012 to June 30, 2013 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, 2012 to June 30, 2013 fiscal year and collected in the fiscal year ending June 30, 2014 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. This rate is determined by an annual actuarial valuation of Retirement System assets and liabilities.

The **Expense Rate** is a one-year term rate representing 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 representing the cost of the first $50,000 of member death benefits.

The **Excess Benefit Plan Rate** is a one-year term rate representing 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, 2013 is **11.84%**. The Employer Contribution Rates determined by the actuarial valuations as of June 30, 2011 and June 30, 2010 and the changes between the two are summarized below:

	As of 6/30/2011	As of 6/30/2010	Change
Normal Rate	11.44%	10.71%	+0.73%
Expense Rate	0.27	0.27	0.00
Group Life Insurance Rate	0.13	0.13	0.00
Excess Benefit Plan Rate	0.00	0.00	0.00
Employer Contribution Rate	**11.84%**	**11.11%**	**+0.73%**

The actuarial assumptions in use for the June 30, 2011 actuarial valuation were developed primarily based upon Retirement System experience and were adopted by the Retirement Board on October 27, 2011. The June 30, 2011 valuation is the first one to use the newly revised assumptions. Further detail on the development of the assumptions can be found in the Report on the 2011 Recommended Actuarial Assumptions.

As in prior years, the actual employer contributions made by participating employers during the fiscal year ending June 30, 2011 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.

C. GAIN/LOSS IN THE EMPLOYER CONTRIBUTION RATE

The Employer Contribution Rate of 11.84% represents a 73 basis point increase over the prior year's rate of 11.11%.

NORMAL RATE

The Normal Rate component of the Employer Contribution Rate has increased by 73 basis points over the prior year's rate. This change may be broken down as follows:

New Assumptions:	The new actuarial assumptions adopted by the Retirement Board on October 27, 2011 had the net effect of decreasing the normal rate for the June 30, 2011 valuation.	-2.14
Salary/Service:	This gain is due to salary and service data coming in lower than expected.	-0.52
Net Investment Loss:	The investment return on the actuarial value of assets was approximately 3.5% which was less than the 8.0% expected return.	+3.07
New Entrants:	New entrants joined the Retirement System with a long-term expected normal rate of approximately 7.5% which compares favorably to the current normal rate of 11.44%.	-0.02
Withdrawal:	Fewer members withdrew than expected.	+0.12
Mortality:	Members are living longer than expected and receive benefits for a longer period.	+0.04
Retirement:	There were fewer retirements than expected.	-0.05
Pension Payments:	Actual payments to retirees were greater than expected.	+0.29
Cost of Living Adjustment:	The actual COLA increase of 1.20% was lower than the expected increase.	-0.06
TOTAL CHANGE IN THE NORMAL RATE		**+0.73%**

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, 4 and 5 post-retirement death benefits and the inactive death benefit.

The **Excess Benefit Plan Rate** remains 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. It is anticipated that the current fund balance is sufficiently large to cover at least two years' worth of payments, allowing us to keep this component equal to 0.00% in this year's Employer Contribution Rate.

D. EMPLOYER CONTRIBUTION RATE HISTORY

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

Salary Year	*Employer Contribution Rate*	*Salary Year*	*Employer Contribution Rate*
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
2001-2002	0.36	2011-2012	11.11
2002-2003	0.36	2012-2013	11.84

The complete Employer Contribution Rate history is presented in Appendix 13.

E. EMPLOYER CONTRIBUTION RATE INCREASE

The Employer Contribution Rate has increased this year from 11.11% to 11.84%, representing an increase of approximately 7%. The Normal Rate component equals 11.44%, an increase of approximately 7% over the prior year's Normal Rate of 10.71%. The rate of return on the System's market value of assets for the fiscal year ending June 30, 2011 was 23.2%, comparing extremely favorably to the 8.0% actuarial rate of return assumption. Primarily due to the very large investment loss two years ago, however, the System's five-year market value rate of return stands at 4.2%. While the asset smoothing method did help to dampen the impact of the large 2009 loss on the Employer Contribution Rate, this loss continues to exert an upward pressure on the rate, and was the primary reason for the continued increase in the rate. Without the actuarial gain due to the revision of the actuarial assumptions effective with the June 30, 2011 valuation, the increase in the rate would have been greater.

F. MEMBER DATA

The member data for the valuation was determined as of June 30, 2011. Compared with the previous year, the total number of members decreased slightly from 427,490 to 427,278; the number of active members decreased from 285,774 to 280,435; the number of retired members increased from 136,626 to 141,633; and the number of beneficiaries receiving monthly benefits increased from 5,090 to 5,210.

The number of retirements increased from 5,501 during the 2009-2010 fiscal year to 8,423 during the 2010-2011 fiscal year. Two early retirement incentives were offered during the summer of 2010, leading to the increase in the number of retirements during the 2010-2011 fiscal year. However, prior fiscal years have shown a trend toward decreasing numbers of retirements, likely due to the recent weakening of the economy. The number of retirements over each of the last ten years is as follows:

Fiscal Year	***Total Number of Retirements***	***Fiscal Year***	***Total Number of Retirements***
2001-2002	7,344	2006-2007	6,900
2002-2003*	10,173	2007-2008	6,330
2003-2004	7,287	2008-2009	5,644
2004-2005	7,182	2009-2010	5,501
2005-2006	7,281	2010-2011*	8,423

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

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, 2011, the actuarial value of plan assets was equal to $86.89 billion. The accrued pension benefit liability calculated in accordance with the Entry Age Normal Cost Method was equal to $89.82 billion. These two values produced a funded ratio of 96.7% as of June 30, 2011. If the market value of plan assets is used instead of the actuarial value of plan assets, the funded ratio as of June 30, 2011 would be equal to 100.1%.

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.

A history of the Retirement System's funded status is provided in Appendix 4 of this report.

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 27, 2011, and first effective with the actuarial valuation of the Retirement System's assets and liabilities as of June 30, 2011.

The Retirement Board, in consultation with Retirement System staff and the external investment consultant, annually reviews the asset allocation policy to determine if any changes to the policy are appropriate. According to the System's external investment consultant, the System's asset allocation as of June 30, 2011 produces a long-term (15 year) expected annual geometric rate of return of 7.25%, and an expected annual arithmetic rate of return of 8.05%. A more detailed review of the reasoning behind the Retirement System's valuation rate of interest assumption can be found in the Report on the 2011 Recommended Actuarial Assumptions.

The Retirement System's asset allocation, including targets and ranges, can be found in Appendix 11. Historical rate of return information can be found at the end of Appendix 10. Detailed investment information is available in the System's Comprehensive Annual Financial Report.

I. NEW LEGISLATION

The following legislation affecting the Retirement System was signed into law during the 2011 Legislative Session:

1) **Same-Sex Marriages:**

   Chapter 95 of the Laws of 2011 authorizes same-sex marriages in the state of New York. Under Chapter 95, the Retirement System is authorized to treat same-sex spouses equally for the purposes of any spousal benefit provided by the System.

2) **Property Tax Cap:**

   Chapter 97 of the Laws of 2011 amends the General Municipal Law and Education Law and caps year over year increases in property taxes that may be assessed by school districts and other municipalities. The cap is generally equal to the lesser of 2% or the increase in the CPI. The law provides certain exceptions, including an exception for increases in required pension contributions in excess of 2% of covered payroll.

3) **Credit in Public Employee Retirement Systems Outside of New York:**

   Chapter 553 of the Laws of 2011 allows certain eligible Tier 3, 4, and 5 members of the Retirement System who have permanently ceased teaching in the state of New York to withdraw their System membership and obtain credit in

another public employee retirement system outside of New York State. Prior to enactment, Tier 3, 4, or 5 members with 10 years of credited service could not withdraw their membership.

4) **Percentage of Assets Invested in Real Estate:**

Chapter 554 of the Laws of 2011 increases the percentage of assets which may be invested by a public retirement system of the state of New York in real estate from 5% to 10%. It also allows the retirement system to classify real estate funds or partnerships in which a public retirement system may invest to be classified as a real estate asset for the purposes of this limit.

J. SENSITIVITY ANALYSIS

Included in Appendix 12 is a Sensitivity Analysis. 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 upon the actuarial valuation as of June 30, 2012. Looking ahead, the capital markets ended the fiscal year mixed, with domestic equities returning approximately 5%, but international equities were off for the year with a return of approximately -14%. Overall the System's equity portfolio will likely have a return of around 0%. The market value rate of return for the System's entire portfolio, though still only estimated, should be in the neighborhood of 2%. Unfortunately this will cause the System's five-year rate of return, already below 8.0%, to decline further. Continued increases in the ECR over the next couple of years are very likely, with a potentially significant increase with the valuation as of June 30, 2012.

With Chapter 18 of the Laws of 2012 a new benefit structure was signed into law for members joining on or after April 1, 2012. Tier 6 represents both a further benefit reduction over Tier 5, and an increase in the required employee contribution rate, and continues the pattern of shifting costs from employer to employee. The New Entrant Rate, a hypothetical rate that represents the long-term expected employer cost of a benefit structure, is 7.9% of pay for Tier 5, whereas it is 4.6% of pay for the Tier 6 benefit structure. However, at this time, the vast

majority of active members still belong to Tier 4 with a New Entrant Rate of 10.9% of pay. Over time, as Tier 5 and 6 members begin to make up a larger percentage of the membership, the new, more modest benefit structures should have the effect of lowering the ECR. Tier 6 will first be incorporated into the actuarial valuation as of June 30, 2012.

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 17. 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. The undersigned meet the qualification standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

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Actuary

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Manager, Research and Valuation

New York State Teachers' Retirement System
Office of the Actuary
July 16, 2012

APPENDIX 1

RECONCILIATION OF THE ACTUARIAL VALUE OF ASSETS

From June 30, 2010 to June 30, 2011

	Actuarial Value* (in thousands)
1. Actuarial Value of Assets as of June 30, 2010	$88,397,808
2. Contributions and Transfers	
Employer contributions	850,462
Member contributions	154,157
Net transfers (in/out)	2,144
Subtotal	1,006,763
3. Net Investment Income/(Loss)	3,010,675
4. Distributions	
Benefit payments	5,673,511
Return of member contributions	20,348
Subtotal	5,693,859
5. Actuarial Value of Assets as of June 30, 2011[1]	$86,721,387
6. Market Value of Assets as of June 30, 2011	$89,889,724

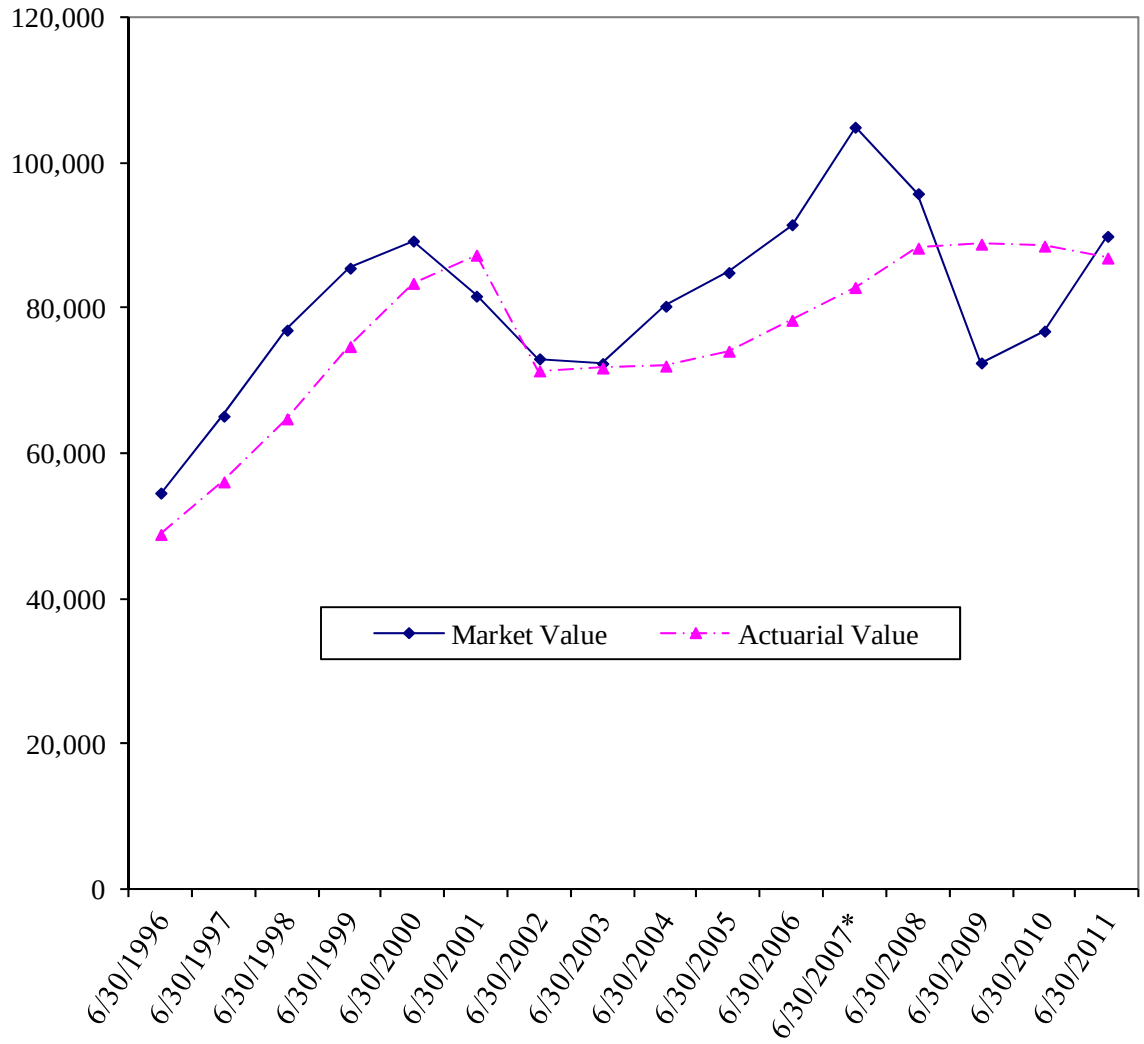
*Totals may not add due to rounding.

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

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
6/30/1996	$ 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
6/30/2002	73,041.2	71,374.4	6/30/2010	76,844.9	88,544.4
6/30/2003	72,391.5	71,780.4	6/30/2011	89,889.7	86,892.2

Market Value vs. Actuarial Value
(in Millions)



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

APPENDIX 3

ACTUARIAL PRESENT VALUE OF FUTURE BENEFITS

as of June 30, 2011 and June 30, 2010
(in Thousands)

Each year an actuarial valuation determines the actuarial present value of future benefits, which is the current value of retirement and ancillary benefit payments that the Retirement System can expect to pay in the future to current retirees and members. The results of the two most recent actuarial valuations are displayed in the following table.

	2011	2010
Present Value of Benefits Currently Being Paid:		
Service Retirement Benefits…….	$49,049,453	$45,142,681
Disability Retirement Benefits…….	272,752	277,525
Death Benefits……..	3,945	3,186
Survivor Benefits……..	637,374	578,984
Cost-of-Living Allowance……	4,536,243	4,432,009
Total Present Value of Benefits Presently Being Paid	54,499,768	50,434,385
Present Value of Benefits Payable in the Future to Current Active Members:		
Service Retirement Benefits…….	47,911,909	50,464,025
Disability Retirement Benefits…….	217,523	257,735
Termination Benefits……	1,793,953	2,332,825
Death and Survivor Benefits……	438,029	396,152
Cost-of-Living Allowance……	1,020,253	1,220,775
Total Active Member Liabilities	51,381,667	54,671,511
Present Value of Benefits Payable in the Future to Current Inactive (Vested) Members:		
Retirement Benefits……..	208,241	184,375
Death Benefits……..	236	328
Cost-of-Living Allowance……	4,435	4,461
Total Vested Liabilities	212,911	189,164
Unclaimed Funds…….	9,211	7,022
Total Actuarial Present Value of Future Benefits	**$106,103,558**	**$105,302,082**

Note: Totals may not sum due to rounding

FUNDING PROGRESS

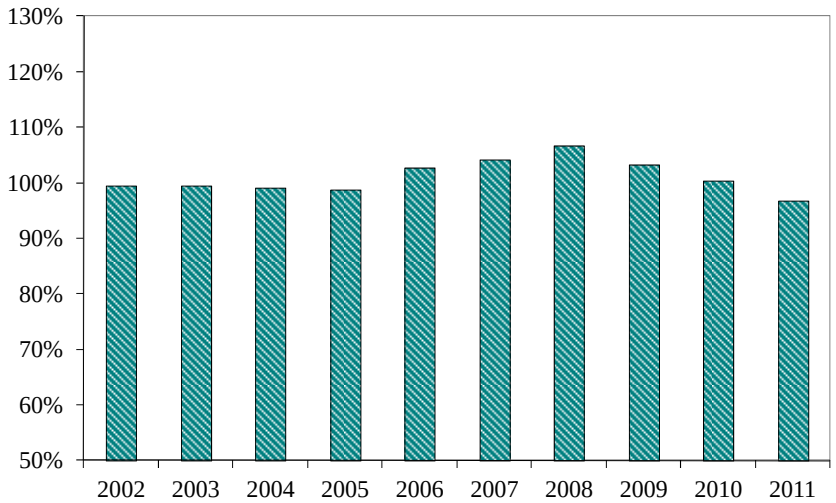
The portion of the actuarial present value of future benefits that is attributed to service rendered as of the valuation date is known as the actuarial accrued liability. In order to effectively assess the funding progress of a retirement system, it is necessary to compare the actuarial value of assets and the actuarial accrued liabilities over a period of time.

The Retirement System's funding method has allowed the accumulation of assets appropriate 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]	Actuarial Accrued Liability[2]	Percent Funded
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
2010	88,544.4	88,318.8	100.3
2011	86,892.2	89,824.9	96.7

Percent Funded



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

[2] Effective June 30, 2006, the Actuarial Accrued 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

2011 Valuation
8.00% Interest

Normal Rate	11.44%
Group Life Insurance Rate	0.13
Excess Benefit Plan Rate	0.00
Expense Rate	0.27
Computed Contribution Rate as of June 30, 2011	**11.84%**

NORMAL RATE CALCULATION

2011 Valuation
8.00% Interest

Liabilities

Active Tier 1	
Service Pension	$1,786,381,505
Disability Pension	1,509
Vested Pension	10,831
Active Death over $50,000	17,269,415
Death Benefit After 10-Yr Withdrawal over $50,000	1
Annuity Savings Fund	11,849,188
COLA	29,910,986
Total	$1,845,423,435
Active Tier 2	
Service Pension	$2,077,347,943
Post Retired Death over $50,000	1,726,199
Disability Pension	50,447
Post Disabled Death over $50,000	1,023
Vested Pension	336,633
Active Death over $50,000	6,400,395
Death Benefit After 10-Yr Withdrawal over $50,000	74
COLA	38,962,109
Total	$2,124,824,823
Active Tier 3	
Service Pension	$5,973,073,701
Post Retired Death over $50,000	4,458,356
Disability Pension	4,425,062
Post Disabled Death over $50,000	79,956
Refund on Active Death	4,404,168
Active Death over $50,000	17,400,521
Refund on Quit	216,573
Vested Pension	27,437,955
Death Benefit After 10-Yr Withdrawal over $50,000	6,611
Refund on Death after Vested Withdrawal	3,496
COLA	131,858,874
Total	$6,163,365,273

NORMAL RATE CALCULATION (Cont'd.)

2011 Valuation
8.00% Interest

Liabilities (Cont'd.)

Active Tier 4	
Service Pension	$37,487,273,116
Post Retired Death over $50,000	64,114,176
Disability Pension	211,235,526
Post Disabled Death over $50,000	6,309,936
Refund on Active Death	34,454,508
Active Death over $50,000	271,517,100
Refund on Quit	159,318,815
Vested Pension	1,579,888,824
Death Benefit After 10-Yr Withdrawal over $50,000	3,058,666
Refund on Death after Vested Withdrawal	1,539,670
COLA	806,312,657
Total	$40,625,022,994

Active Tier 5	
Service Pension	$219,776,514
Post Retired Death over $50,000	486,859
Disability Pension	1,767,943
Post Disabled Death over $50,000	49,351
Refund on Active Death	856,459
Active Death over $50,000	2,403,825
Refund on Quit	10,357,824
Vested Pension	10,747,832
Death Benefit After 10-Yr Withdrawal over $50,000	30,298
Refund on Death after Vested Withdrawal	27,747
COLA	5,413,426
Total	$251,918,078

NORMAL RATE CALCULATION (Cont'd.)

2011 Valuation
8.00% Interest

Liabilities (Cont'd.)

Retirees	
Retired Pension	$48,891,193,114
Retired Annuity	158,259,944
Disability Pension	271,863,319
Disability Annuity	888,836
Beneficiary Pension	622,222,174
Beneficiary Annuity	8,606,336
DBA Pension	6,052,032
DBA Annuity	493,670
Escalation	4,904,798
Post Retired Death over $50,000	1,939,784
COLA	3,827,982,491
Catch-Up & Prior §532 Supp	703,355,635
Total	$54,497,762,133
Vesteds	
Inactive Vested	$208,240,793
Death Benefit After 10-Yr Withdrawal over $50,000	236,134
Active Vested	352,326,674
Death Benefit After 10-Yr Withdrawal over $50,000	915,485
COLA	11,937,422
Total	$573,656,508
TIAA	
Service Pension	$3,880,375
Disability Pension	42,035
Vested Pension	56,104
Active Death over $50,000	9,499
COLA	292,076
Total	$4,280,089
Miscellaneous	
Incurred Death but not Paid	$8,093,285
Unclaimed Non-Member Funds	9,211,337
Total	$17,304,622
Total Liabilities	$106,103,557,955

NORMAL RATE CALCULATION (Cont'd.)

2011 Valuation
8.00% Interest

Assets for Valuation

Current Total Assets		$88,414,049,393	
Less:	Expense Fund	47,980,194	
	Sub-total		$88,366,069,199
Less:	5 Year Smoothing Adjustment		1,473,838,858
	Assets for Valuation Purposes		$86,892,230,341
Less:	Group Life Insurance Fund Net Asset Value		170,843,280
	Assets for Normal Rate Valuation Purposes		$86,721,387,061

Receivables

Assets receivable from Normal Rate in 2011-2012 fiscal year (2010-2011 paybase)(2009 Normal Rate)$(1.08)^{-7/24}$ $(14,732,894,649)(0.0821)(1.08)^{-7/24}$	$1,182,721,918
Assets receivable from Normal Rate in 2012-2013 fiscal year (2011-2012 paybase)(2010 Normal Rate)$(1.08)^{-1\ 7/24}$ $(14,807,000,000)(0.1071)(1.08)^{-1\ 7/24}$	$1,435,767,758
Assets receivable from the amortization of Article 18	$0
Present Value of Future Member Contributions (Tier 4 Present Value of Future Employee Contributions)$(1.08)^{-7/24}$ $(474,066,958)(1.08)^{-7/24}$	$463,544,136
(Tier 5 Present Value of Future Employee Contributions)$(1.08)^{-7/24}$ $(88,344,228)(1.08)^{-7/24}$	$86,383,259
Assets receivable from Retirement Incentive Payments Chapter 105 of the Laws of 2010 Receivable in 2011-2012 $(68,215,490)(1.08)^{-7/24}$	$66,701,317
Receivable in 2012-2013 $(11,039,890)(1.08)^{-1\ 7/24}$	$9,995,221
Receivable in 2013-2014 $(11,039,890)\ (1.08)^{-2\ 7/24}$	$9,254,834
Receivable in 2014-2015 $(11,039,890)\ (1.08)^{-3\ 7/24}$	$8,569,291
Receivable in 2015-2016 $(11,039,890)\ (1.08)^{-4\ 7/24}$	$7,934,529
Total Receivables	$3,270,872,263

NORMAL RATE CALCULATION (Cont'd.)

2011 Valuation
8.00% Interest

Present Value of Future Salaries

	Total PVFS			
Tier 1	$866,749,774			
Tier 2	1,077,056,204			
Tier 3	3,941,160,193			
Tier 4	135,901,694,793			
Tier 5	2,184,791,540			
	$143,971,452,504	x $(1.08)^{-7/24}$	=	$140,775,730,899

Normal Rate

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

$$\frac{\$16,111,298,631}{\$140,775,730,899} = 11.4447\%$$

11.44% (rounded)

GROUP LIFE INSURANCE FUND

2011 Valuation
8.00% Interest

A) Calculation of June 30, 2011 Balance

Actuarial Value as of July 1, 2010		$200,155,783
Interest	[200,155,783 x .08]	$16,012,463
October 15, 2010 actual premium	$19,271,106	
October 15, 2010 deferred premium	($19,119,100)	
Premium Gain/(Loss)		$152,006
Interest	[152,006 x $(1.08^{8.5/12} - 1)$]	$8,516
Death Benefits paid in 2010-2011		($7,496,107)
Interest	[(7,496,107) x $(1.08^{.5} - 1)$]	($294,076)
October 15, 2013 deferred premium [from B]		$19,441,500
Interest discount	[19,441,500x $(1.08^{-(2 + 3.5/12)} - 1)$]	($3,143,524)
Actuarial Value as of June 30, 2011		$224,836,561

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

Death benefits	[7,496,107 x $1.08^{2+9.5/12}$]	$9,292,739
Interest	[(16,012,463) x $1.08^{2+3.5/12}$]	($19,100,918)
Premium Loss/(Gain)	[(152,006) x 1.08^{3}]	($191,484)
Adjustment to the GLIF reserve		$29,441,163
Total required premium		$19,441,500

$$\text{GLIF Rate} = \frac{\text{Required premium}}{\text{Estimated 2012-2013 paybase}} = \frac{\$19,441,500}{\$14,955,000,000} = 0.13\%$$

October 15, 2013 deferred premium [14,955,000,000 x 0.0013] = $19,441,500

C) Summary of Deferred Premiums

	Deferred Premium	Present Value as of 6/30/2011
Due October 15, 2011	$20,117,500	$19,670,954
Due October 15, 2012	$19,908,200	$18,024,351
Due October 15, 2013	$19,441,500	$16,297,976
		$53,993,281

D) GLIF Net Asset Value (A - C)

$224,836,561 - $53,993,281 = $170,843,280

EXCESS BENEFIT PLAN FUND*

2011 Valuation

Balance as of July 1, 2011			$5,032,479
less	Accrual Final Adjustment for the 2011 Fiscal Year		($66,478)
plus	Employer contribution	(paid 10/15/2011)	$1,473,289
	[0.0001 X $14,732,894,649 (6/30/2009 Excess Benefit Plan rate of .01% times '10-'11 paybase)]		
less	Annual Estimated Payments		$600,000
Expected Balance as of June 30, 2012			$5,972,246
plus	Employer contribution	(payable 10/15/2012)	$0
	[.0000 X $14,807,000,000 (6/30/2010 Excess Benefit Plan rate of .00% times est'd. '11-'12 paybase)]		
less	Annual Estimated Payments		$600,000
Expected Balance as of June 30, 2013			$5,372,246

* Fund is in a zero-interest checking account

The Administrative Employer Contribution Rate and Employer Contributions[1]

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

In 2011-12, the Rate decreased to 0.27% to gradually bring the fund balance back within the preferred range. For 2013-14, there will be no change to the administrative rate and it's anticipated to be sustained for the next three to five years.

Employer Contributions to the Administrative Expense Fund

Member Salary Base			Employer Contributions (Net of Billing Adjustments)			Increase/Decrease in Contributions to the Administrative Fund
Year	Amount		Rate (%)	Year Collected	Amount	Percent
2013-14	$15,134,000,000	*	**0.27** *	2014-15	$40,862,000	1.20%
2012-13	14,955,000,000	*	**0.27** *	2013-14	40,379,000	1.00%
2011-12	14,807,000,000	*	**0.27**	2012-13	39,979,000	0.46%
2010-11	14,732,895,000		**0.27**	2011-12	39,796,000	(15.96%)
2009-10	14,792,116,000		**0.32**	2010-11	47,357,000	2.95%
2008-09	14,366,387,000		**0.32**	2009-10	45,998,000	5.00%
2007-08	13,690,128,000		**0.32**	2008-09	43,808,000	33.71%

*Projected.

Estimated 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 an average of 0.9% annually from 2012 through 2014.

*The Proposed Administrative Employer Contribution Rate Calculation (2013 – 14): **0.27%***

Several factors are considered when anticipating the expenses used in calculating the administrative rate, which include general price increases, an estimated 10% increase in pension related benefits, and planned capital asset purchases.

Rate Calculation

$$\frac{\text{Projected 2013-14 Retirement Administration Related Expenses}}{\text{Estimated 2012-13 Member Salary Base}} = \frac{\$41,600,000}{\$14,955,000,000} = 0.28\%$$

[1] From the NYSTRS 2012-13 Operating Budget Report.

ASSET VALUATION METHOD
DEVELOPMENT OF SMOOTHING ADJUSTMENT

FYE	Market Value	Contributions	Benefit Payments	Average Market Value[1]
06/30/2006	90,319,347,651	872,914,574	4,484,684,109	
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
06/30/2010	75,829,228,763	1,260,000,256	5,399,946,740	69,442,425,487
06/30/2011	88,414,049,393	1,072,744,659	5,751,514,083	73,713,332,522

FYE	Actual Gain[2]	3.0% Expected Gain[3]	Unexpected Gain[4]	Smoothing Adjustment[5]
06/30/2006	7,914,023,262			
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)	
06/30/2010	6,776,647,973	2,083,272,765	4,693,375,208	
06/30/2011	15,395,104,554	2,211,399,976	13,183,704,578	**1,473,838,858**

[1] Average Market Value = Market Value$_{(\text{previous yr})}$ − (.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 6/30/2008)
+ (.40 x Unexpected Gain 6/30/2009)
+ (.60 x Unexpected Gain 6/30/2010)
+ (.80 x Unexpected Gain 6/30/2011)

APPENDIX 6

MEMBER RECONCILIATION

ACTIVE MEMBERS:

	Male	Female	Total
June 30, 2010	68,269	217,505	**285,774**
Changes During Year:			
Added	2,115	6,814	**8,929**
Withdrawn	1,412	4,237	**5,649**
Retired	2,104	6,319	**8,423**
Died	71	125	**196**
June 30, 2011	66,797	213,638	**280,435**

MEMBERS RETIRED FOR:

	Service*			Disability			Total		
	Male	Female	Total	Male	Female	Total	**Male**	**Female**	**Total**
June 30, 2010	49,293	85,267	134,560	534	1,532	2,066	**49,827**	**86,799**	**136,626**
Changes During Year:									
Retired	2,083	6,232	8,315	21	87	108	**2,104**	**6,319**	**8,423**
Died	1,245	1,868	3,113	34	78	112	**1,279**	**1,946**	**3,225**
Lump Sum	39	150	189	0	0	0	**39**	**150**	**189**
Restored to Active Membership	0	0	0	1	1	2	**1**	**1**	**2**
June 30, 2011	50,092	89,481	139,573	520	1,540	2,060 **	**50,612**	**91,021**	**141,633**

BENEFICIARIES OF DECEASED:

	Service Annuitants			Disability Annuitants			Active Members			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	**Male**	**Female**	**Total**
June 30, 2010	984	3,658	4,642	83	169	252	31	165	196	**1,098**	**3,992**	**5,090**
Changes During Year:												
Added	125	315	440	6	4	10	0	0	0	**131**	**319**	**450**
Died	82	227	309	5	7	12	1	8	9	**88**	**242**	**330**
June 30, 2011	1,027	3,746	4,773	84	166	250	30	157	187	**1,141**	**4,069**	**5,210**

SUMMARY:

	Male	Female	Total
Active Members	66,797	213,638	**280,435**
Retired Members	50,612	91,021	**141,633**
Beneficiaries	1,141	4,069	**5,210**
Total	118,550	308,728	**427,278**

*Also includes vested retirees.

**Includes 41 males and 47 females retired for disability who receive a service benefit.

APPENDIX 7

DISTRIBUTION OF ACTIVE MEMBERS

Distribution by Age as of June 30, 2011

Age	Male	Female	Total Members
15-19	9	23	32
20-24	1,857	6,452	8,309
25-29	7,863	24,511	32,374
30-34	10,390	30,292	40,682
35-39	10,234	28,222	38,456
40-44	10,073	29,846	39,919
45-49	8,152	27,450	35,602
50-54	7,251	27,485	34,736
55-59	6,128	23,479	29,607
60-64	3,609	12,651	16,260
65-69	899	2,551	3,450
70-74	225	503	728
75-79	80	134	214
80-84	22	36	58
85 or older	5	3	8
Total	66,797	213,638	280,435

Average Male age is 42 years 0 months

Average Female age is 42 years 9 months

Distribution of Active Members by Age and New York State Service as of June 30, 2011

Male

Age	Less Than 10 Years New York State Service	10 or more Years New York State Service	Total New York State Service
15-19	9	0	9
20-24	1,857	0	1,857
25-29	7,863	0	7,863
30-34	9,077	1,313	10,390
35-39	4,949	5,285	10,234
40-44	3,340	6,733	10,073
45-49	2,496	5,656	8,152
50-54	2,038	5,213	7,251
55-59	1,601	4,527	6,128
60-64	1,050	2,559	3,609
65-69	398	501	899
70-74	122	103	225
75-79	50	30	80
80-84	11	11	22
85 or older	2	3	5
Total	34,863	31,934	66,797

Female

Age	Less Than 10 Years New York State Service	10 or more Years New York State Service	Total New York State Service
15-19	23	0	23
20-24	6,452	0	6,452
25-29	24,509	2	24,511
30-34	26,774	3,518	30,292
35-39	15,300	12,922	28,222
40-44	13,315	16,531	29,846
45-49	11,578	15,872	27,450
50-54	9,676	17,809	27,485
55-59	5,638	17,841	23,479
60-64	2,503	10,148	12,651
65-69	672	1,879	2,551
70-74	173	330	503
75-79	58	76	134
80-84	16	20	36
85 or older	1	2	3
Total	116,688	96,950	213,638

Distribution of Active Members by Total Service as of June 30, 2011

Years of Service	Male	Female	Total
0-4	20,801	66,292	87,093
5-9	13,431	47,356	60,787
10-14	13,127	41,031	54,158
15-19	7,664	22,883	30,547
20-24	4,875	17,401	22,276
25-29	3,634	11,620	15,254
30-34	2,098	5,302	7,400
35 or more	1,167	1,753	2,920
Total	66,797	213,638	280,435

Average Male has 11 Years of Total Service

Average Female has 10 Years of Total Service

APPENDIX 8

HISTORICAL MEMBER STATISTICS

Active Members and Annuitants 1925-2011

As of June 30	Active Members	Retirees & Beneficiaries
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
2010	285,774	141,716
2011	280,435	146,843

Number of Active Members by Tier

As of June 30	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Total
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
2010	5,582	5,706	14,942	255,966	3,578	285,774
2011	3,814	4,137	12,690	247,530	12,264	280,435

APPENDIX 9

RETIREMENT STATISTICS

RETIREMENT STATISTICS 2010-11 MEMBERS RETIRED FOR:

	Service*	Disability
Number Retired.....	**8,315**	**108**
Age at Retirement:		
Average.....	60 yrs., 3 mos.	52 yrs., 3 mos.
Median.....	59 yrs., 10 mos.	53 yrs., 2 mos.
Years of Service:		
Average.....	28 yrs., 7 mos.	18 yrs., 6 mos.
Median.....	30 yrs., 1 mo.	18 yrs., 0 mos.
**Benefit:		
Average.....	$51,200	$27,054
Median.....	$51,154	$24,429
Final Average Salary (FAS):		
Average.....	$85,010	$74,151
Median.....	$84,345	$71,815
***Benefit as % of FAS:		
Average.....	55.25%	34.87%
Median.....	60.00%	33.33%

2010-11 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.....	**1,264**	**4,912**	**2,139**
Age at Retirement:			
Average.....	60 yrs., 7 mos.	59 yrs., 10 mos.	61 yrs., 0 mos.
Median.....	60 yrs., 4 mos.	59 yrs., 5 mos.	60 yrs., 3 mos.
Years of Service:			
Average.....	12 yrs., 0 mos.	28 yrs., 3 mos.	39 yrs., 5 mos.
Median.....	12 yrs., 0 mos.	29 yrs., 0 mos.	39 yrs., 1 mo.
**Benefit:			
Average.....	$8,286	$48,726	$82,241
Median.....	$5,755	$48,185	$78,931
Final Average Salary (FAS):			
Average.....	$43,514	$86,628	$105,817
Median.....	$37,332	$83,930	$100,310
***Benefit as % of FAS:			
Average.....	17.39%	55.31%	77.50%
Median.....	16.88%	57.78%	78.00%

*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.

RETIREMENT STATISTICS ALL RETIREES AS OF JUNE 30, 2011 RETIRED FOR:

	Service*	**Disability**
Number Retired.....	**139,661**	**1,972**
Age at Retirement:		
Average.....	58 yrs., 3 mos.	49 yrs., 6 mos.
Median.....	57 yrs., 1 mo.	50 yrs., 2 mos.
Years of Service:		
Average.....	28 yrs., 5 mos.	19 yrs., 0 mos.
Median.....	30 yrs., 6 mos.	18 yrs., 4 mos.
**Benefit:		
Average.....	$38,238	$18,060
Median.....	$37,889	$16,390
Final Average Salary (FAS):		
Average.....	$63,642	$48,720
Median.....	$63,579	$47,901
***Benefit as % of FAS:		
Average.....	55.41%	36.13%
Median.....	60.93%	33.33%

ALL RETIREES AS OF JUNE 30, 2011 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.....	**22,727**	**82,574**	**34,360**
Age at Retirement:			
Average.....	58 yrs., 6 mos.	58 yrs., 0 mos.	58 yrs., 8 mos.
Median.....	56 yrs., 8 mos.	56 yrs., 7 mos.	58 yrs., 1 mo.
Years of Service:			
Average.....	14 yrs., 1 mo.	28 yrs., 7 mos.	37 yrs., 3 mos.
Median.....	14 yrs., 2 mos.	30 yrs., 0 mos.	36 yrs., 7 mos.
**Benefit:			
Average.....	$7,460	$37,152	$61,206
Median.....	$5,664	$36,212	$58,290
Final Average Salary (FAS):			
Average.....	$33,767	$64,063	$82,391
Median.....	$27,405	$63,114	$79,078
***Benefit as % of FAS:			
Average.....	21.71%	56.91%	74.09%
Median.....	20.30%	59.56%	73.33%

*Also includes vested retirees.

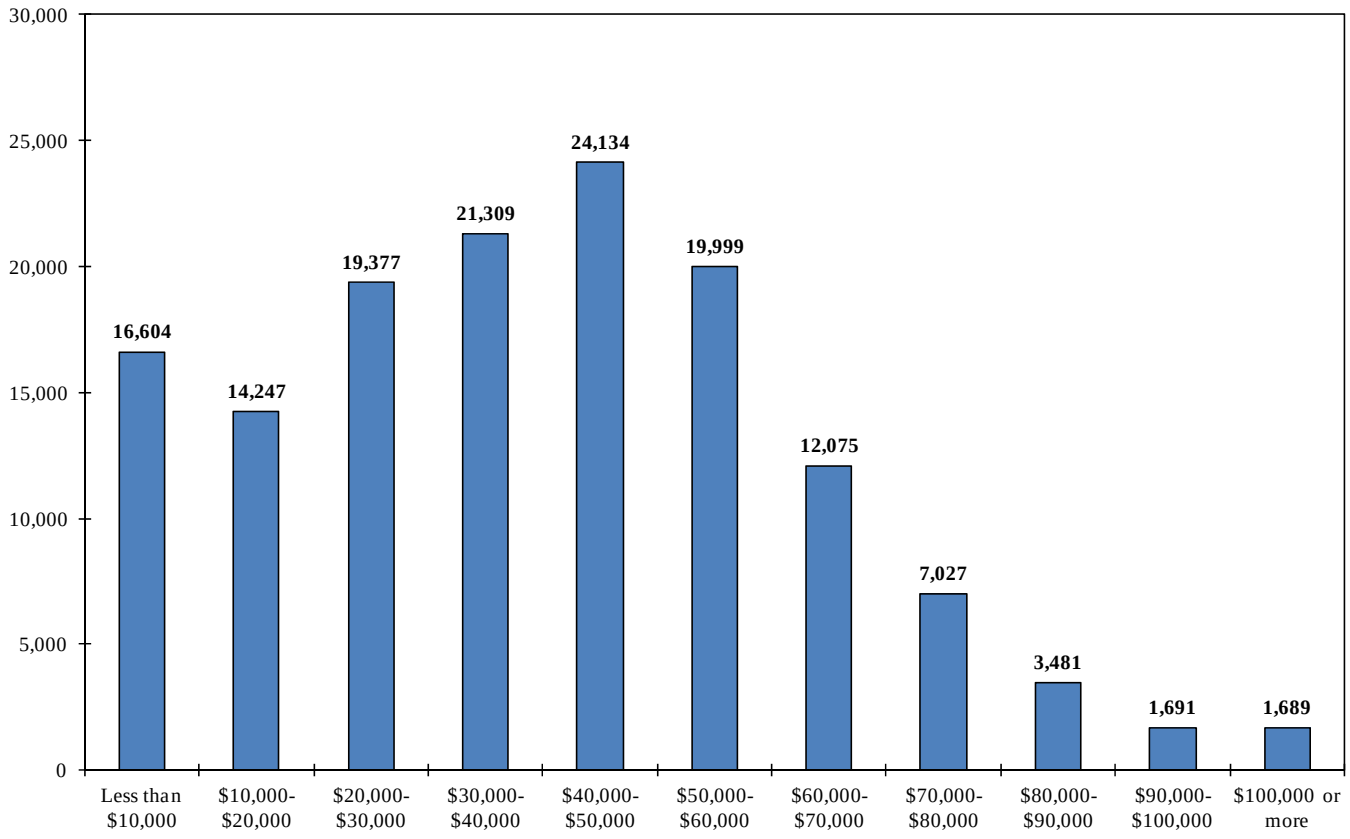
**The Maximum, even though the member may have chosen an option.

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

Retired Members' Characteristics[1] By Year of Retirement

Retired in Fiscal Year Ended	Number of Retired Members	Average Age at Retirement (yrs.- mos.)	Average Service at Retirement (yrs.- mos.)	Average Final Average Salary	Average Maximum Annual Benefit
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
2010	5,501	60-0	27-5	79,615	46,489
2011	8,423	60-3	28-7	85,010	51,200

Distribution of the Annual Benefit[2] of All Retired Members



[1] Averages are for service and vested retirees.
[2] Maximum annual retirement benefit as of June 30, 2011 including supplementation and COLA.

APPENDIX 10

2007 – 2011 EXPERIENCE STUDY
NUMBER OF SERVICE RETIREMENTS
TIER 1 AND TIERS 2, 3, 4, 5 AT LEAST AGE 62 OR WITH 30 YEARS OF SERVICE
EXPOSURE BASED ON ACTIVE TEACHERS
ASSUMPTIONS ADOPTED OCTOBER 2011

	MALE				**FEMALE**			
AGE	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
50	14	0	0.00	N/A	24	0	0.00	N/A
51	46	1	0.00	N/A	83	0	0.00	N/A
52	389	2	0.00	N/A	731	1	0.00	N/A
53	1,017	3	0.00	N/A	2,020	6	0.00	N/A
54	1,937	91	0.00	N/A	3,711	135	0.00	N/A
55	2,924	993	911.57	1.089	5,669	1,936	1,767.45	1.095
56	2,804	809	712.84	1.135	5,764	1,584	1,438.69	1.101
57	2,730	583	510.57	1.142	5,826	1,136	953.63	1.191
58	2,738	643	550.97	1.167	6,096	1,259	1,055.08	1.193
59	2,616	678	570.23	1.189	5,970	1,278	1,057.73	1.208
60	2,223	617	501.36	1.231	5,369	1,187	1,023.22	1.160
61	1,756	500	400.12	1.250	4,316	1,021	883.36	1.156
62	2,812	695	594.42	1.169	8,837	2,151	1,961.51	1.097
63	1,908	415	339.78	1.221	6,010	1,318	1,092.92	1.206
64	1,296	234	174.64	1.340	4,246	816	678.72	1.202
65	973	205	169.57	1.209	3,059	671	613.51	1.094
66	659	140	130.41	1.074	2,163	472	410.56	1.150
67	441	73	50.95	1.433	1,571	332	253.79	1.308
68	330	53	41.72	1.270	1,109	210	188.07	1.117
69	253	32	24.08	1.329	768	149	121.25	1.229
70	189	31	25.39	1.221	552	111	93.34	1.189
71	154	19	20.46	0.929	411	85	71.26	1.193
72	124	17	10.36	1.641	302	41	37.44	1.095
73	100	11	6.09	1.806	243	35	30.67	1.141
74	79	11	11.09	0.992	206	30	24.47	1.226
75	58	11	9.60	1.146	152	30	23.33	1.286
76	241	30	241.00	0.124	442	83	442.00	0.188
TOTAL	30,811	6,897	6,007.22	1.148	75,650	16,077	14,222.00	1.130

2007-2011 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 2011

	MALE				**FEMALE**			
AGE	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	EXPOSURES	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
50	6,180	1	0.00	N/A	23,091	1	0.00	N/A
51	6,247	2	0.00	N/A	23,124	3	0.00	N/A
52	6,066	2	0.00	N/A	23,066	4	0.00	N/A
53	5,642	2	0.00	N/A	22,623	6	0.00	N/A
54	5,243	41	0.00	N/A	22,054	145	0.00	N/A
55	4,915	185	170.19	1.087	21,226	965	895.38	1.078
56	4,379	163	131.34	1.241	19,122	809	704.36	1.149
57	3,789	146	109.20	1.337	16,727	731	588.22	1.243
58	3,286	168	124.64	1.348	14,079	728	563.48	1.292
59	2,842	135	98.23	1.374	11,617	672	491.00	1.369
60	2,334	142	110.05	1.290	9,232	589	447.66	1.316
61	1,872	122	99.90	1.221	7,179	532	450.48	1.181
TOTAL	52,795	1,109	843.55	1.315	213,140	5,185	4,140.58	1.252

2007-2011 EXPERIENCE STUDY
NUMBER OF DEATHS AMONG ACTIVE MEMBERS
EXPOSURE BASED ON ACTIVE TEACHERS
ASSUMPTIONS ADOPTED OCTOBER 2011

	MALE			**FEMALE**		
CENTRAL AGE	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
20	0	0.13	0.000	1	0.27	3.704
25	9	3.75	2.400	5	7.50	0.667
30	11	8.42	1.306	19	15.67	1.213
35	11	12.88	0.854	22	21.21	1.037
40	15	16.35	0.917	26	28.88	0.900
45	29	20.42	1.420	50	43.22	1.157
50	31	23.64	1.311	81	60.33	1.343
55	37	35.46	1.043	101	85.90	1.176
60	40	38.01	1.052	64	68.08	0.940
65	21	16.19	1.297	20	23.51	0.851
70	11	7.37	1.493	11	7.60	1.447
75	7	2.71	2.583	5	2.48	2.016
TOTAL	222	185.33	1.198	405	364.65	1.111

2007-2011 EXPERIENCE STUDY
NUMBER OF DISABILITY RETIREMENTS
EXPOSURE BASED ON ACTIVE TEACHERS
ASSUMPTIONS ADOPTED OCTOBER 2011

	MALE			**FEMALE**		
CENTRAL AGE	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
30	0	0.25	0.000	0	1.25	0.000
35	3	1.43	2.098	11	8.01	1.373
40	7	4.93	1.420	15	26.39	0.568
45	16	14.05	1.139	48	61.37	0.782
50	25	32.67	0.765	105	139.82	0.751
54	17	19.55	0.870	61	85.78	0.711
TOTAL	68	72.88	0.933	240	322.62	0.744

2007-2011 EXPERIENCE STUDY
COMPARISON OF SALARY SCALE TO ACTUAL SALARY INCREASES
ASSUMPTIONS ADOPTED OCTOBER 2011

MALE

CENTRAL AGE	ACTUAL SALARIES	EXPECTED SALARIES	RATIO OF ACTUAL TO EXPECTED
20	21,758,729	18,774,737	1.159
25	936,899,091	913,689,494	1.025
30	2,223,877,342	2,229,428,089	0.998
35	2,903,701,009	2,915,260,661	0.996
40	2,995,213,804	3,007,257,106	0.996
45	2,544,816,930	2,554,409,976	0.996
50	2,481,815,186	2,490,823,661	0.996
55	2,859,056,312	2,878,821,610	0.993
60	1,753,592,867	1,772,033,609	0.990
65	377,939,296	383,443,207	0.986
70	67,940,167	68,935,746	0.986
75	25,342,154	25,901,188	0.978
TOTAL	19,191,952,887	19,258,779,084	0.997

2007-2011 EXPERIENCE STUDY
COMPARISON OF SALARY SCALE TO ACTUAL SALARY INCREASES
ASSUMPTIONS ADOPTED OCTOBER 2011

FEMALE

CENTRAL AGE	ACTUAL SALARIES	EXPECTED SALARIES	RATIO OF ACTUAL TO EXPECTED
20	88,331,289	72,367,745	1.221
25	3,071,676,775	3,007,955,558	1.021
30	5,990,325,109	6,029,252,572	0.994
35	6,679,640,136	6,705,121,394	0.996
40	6,981,013,355	6,996,147,285	0.998
45	6,939,875,478	6,958,723,304	0.997
50	7,503,773,017	7,530,062,856	0.997
55	8,536,443,194	8,589,096,929	0.994
60	4,852,421,877	4,890,527,137	0.992
65	1,007,494,744	1,017,839,681	0.990
70	172,597,799	173,955,997	0.992
75	49,754,610	50,110,635	0.993
TOTAL	51,873,347,383	52,021,161,093	0.997

2007-2011 EXPERIENCE STUDY
NUMBER OF WITHDRAWALS
EXPOSURE BASED ON ACTIVE TEACHERS
ASSUMPTIONS ADOPTED OCTOBER 2011

	MALE			FEMALE		
CENTRAL AGE	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
20	360	354.70	1.015	974	1,190.98	0.818
25	2,796	2,797.02	1.000	8,907	9,174.12	0.971
30	2,233	2,139.40	1.044	7,884	7,898.22	0.998
35	1,488	1,471.05	1.012	6,169	6,104.13	1.011
40	1,169	1,182.55	0.989	4,459	4,598.73	0.970
45	970	989.87	0.980	3,885	3,958.06	0.982
50	895	904.47	0.990	3,447	3,448.38	1.000
54	346	344.55	1.004	1,144	1,149.69	0.995
TOTAL	10,257	10,183.61	1.007	36,869	37,522.31	0.983

2007-2011 EXPERIENCE STUDY
NUMBER OF DEATHS AMONG MEMBERS RETIRED FOR DISABILITY
MORTALITY ADOPTED OCTOBER 2011

	MALE			FEMALE		
CENTRAL AGE	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
30	0	0.00	N/A	0	0.00	N/A
35	2	0.38	5.263	4	1.39	2.878
40	1	0.86	1.163	5	3.52	1.420
45	4	5.61	0.713	19	17.59	1.080
50	8	10.23	0.782	35	41.72	0.839
55	19	18.39	1.033	77	78.25	0.984
60	24	26.09	0.920	61	71.93	0.848
65	18	22.15	0.813	29	41.65	0.696
70	15	16.08	0.933	25	22.00	1.136
75	11	14.45	0.761	19	21.12	0.900
80	15	14.71	1.020	28	24.33	1.151
85	12	8.62	1.392	14	20.51	0.683
90	1	3.27	0.306	15	16.34	0.918
95	0	0.00	N/A	6	5.67	1.058
100	0	0.00	N/A	4	4.00	1.000
105	0	0.00	N/A	0	0.71	0.000
110	0	0.00	N/A	0	0.00	N/A
TOTAL	130	140.84	0.923	341	370.73	0.920

2007-2011 EXPERIENCE STUDY
NUMBER OF DEATHS AMONG MEMBERS RETIRED FOR SERVICE
MORTALITY ADOPTED OCTOBER 2011

	MALE			FEMALE		
CENTRAL AGE	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED	ACTUAL	EXPECTED	RATIO OF ACTUAL TO EXPECTED
55	32	28.43	1.126	66	60.70	1.087
60	226	224.11	1.008	292	324.82	0.899
65	410	419.60	0.977	472	483.29	0.977
70	533	523.16	1.019	550	540.06	1.018
75	916	847.88	1.080	797	768.02	1.038
80	1,163	1,144.25	1.016	1,159	1,212.96	0.956
85	1,199	1,124.05	1.067	1,639	1,561.06	1.050
90	701	693.76	1.010	1,851	1,763.02	1.050
95	324	299.05	1.083	1,359	1,145.34	1.187
100	51	49.66	1.027	498	356.87	1.395
105	3	1.92	1.563	60	38.67	1.552
110	0	0.00	N/A	1	0.34	2.941
TOTAL	5,558	5,355.87	1.038	8,744	8,255.15	1.059

2007-2011 EXPERIENCE STUDY
NUMBER OF DEATHS AMONG BENEFICIARIES
MORTALITY ADOPTED OCTOBER 2011

	MALE			FEMALE		
CENTRAL AGE	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	0.02	0.000	0	0.00	N/A
40	0	0.03	0.000	0	0.04	0.000
45	1	0.08	12.500	1	0.07	14.286
50	0	0.17	0.000	1	0.20	5.000
55	2	0.48	4.167	0	0.98	0.000
60	1	1.73	0.578	4	4.04	0.990
65	5	4.07	1.229	15	10.38	1.445
70	5	7.49	0.668	34	21.70	1.567
75	25	19.75	1.266	60	47.69	1.258
80	46	42.86	1.073	131	110.52	1.185
85	89	69.94	1.273	223	210.48	1.059
90	104	91.47	1.137	289	254.13	1.137
95	41	53.83	0.762	188	159.62	1.178
100	14	9.45	1.481	56	40.67	1.377
105	0	0.00	N/A	7	6.20	1.129
110	0	0.00	N/A	1	0.34	2.941
TOTAL	333	301.37	1.105	1,010	867.06	1.165

APPENDIX 10 (Cont'd.)

Investment Rate of Return[1]
on
Market and Actuarial Value of Assets

as of June 30, 2011

Annualized rates of return over the last:

	Based Upon Market Value of Assets	Based Upon Actuarial Value of Assets[2]
1 Year:	23.2%	3.5%
3 Years:	3.2%	4.3%
5 Years:	4.2%	7.7%
10 Years:	5.5%	5.1%
15 Years:	7.4%	8.4%
20 Years:	8.8%	
25 Years:	9.0%	

Annualized inflation over the last:

	Inflation Assumption		COLA Benefit	
	Actual	Expected	Actual	Expected[3]
1 Year:	2.68%	3.0%	1.4%	1.625%
3 Years:	1.53%	3.0%	1.2%	1.625%
5 Years:	2.26%	3.0%	1.4%	1.625%

[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 future COLA benefit payments is 1.625%. 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

ASSET ALLOCATION

The table below displays the Retirement System's asset allocation targets and ranges as adopted by the Retirement Board on July 27, 2011 and effective on that date. The new asset allocation reflects a change to the target percentages for Domestic Equity and International Equity, as well as the addition of the Global Bonds asset class.

	Target	Range
Domestic Equity	37%	32-42%
International Equity	18%	14-22%
Real Estate	10%	6-14%
Private Equity	7%	4-12%
Total Equities	72%	
Domestic Fixed Income	18%	13-23%
Mortgages	8%	5-11%
Global Bonds	2%	0-3%
Cash Equivalents	0%	0-5%
Total Fixed Income	28%	

APPENDIX 12

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 11.84%.

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.

Assumption	Adjustment Made	Calculated Employer Contribution Rate
Current Assumptions		**11.84%**
Investment Return[1]	Decrease from 8.0% to 7.75%	13.86%
Investment Return[1]	Decrease from 8.0% to 7.5%	15.90%
Investment Return[1]	Decrease from 8.0% to 7.0%	20.17%
Salary Scale	Decrease of 10%	10.38%
Salary Scale	Increase of 10%	13.30%
Service Retirement Rates	Decrease of 10%	11.02%
Service Retirement Rates	Increase of 10%	12.62%
Healthy Annuitant Mortality	Decrease of 10%	13.03%
Healthy Annuitant Mortality	Increase of 10%	10.75%
Active Mortality	Decrease of 10%	11.86%
Active Mortality	Increase of 10%	11.84%

[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 13

HISTORY OF THE EMPLOYER CONTRIBUTION RATE

Salary Year	Employer Contribution Rate	Salary Year	Employer Contribution Rate	Salary Year	Employer Contribution Rate
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	2011-12	11.11
1942-43	6.43	1977-78	20.40	2012-13	11.84
1943-44	6.53	1978-79	21.40		
1944-45	7.10	1979-80	22.49	**Average**	**10.80 %**
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 14

HISTORY OF THE MEMBER CONTRIBUTION RATE

Year of Membership	Required Contribution
1921	4%
1948	5% (new members - 1948 and after)
1948	Voluntary 4% could 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)
1968	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 that would allow them to retire up to five years earlier. If their rate of contribution had been 4%, their new rate would be 6.5%. If their rate of contribution had been 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 rate of contribution had been 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, 1968, 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. 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. In accordance with Tier 5, enacted in 2009, members joining on or after January 1, 2010 must contribute 3.5% of salary throughout their working career towards the funding of their pension.

APPENDIX 15

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 16

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. The current actuarial assumptions were adopted by the Retirement Board on October 27, 2011.

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Mortality Rates
for Active Members

Males		Females	
Age	Rate	Age	Rate
20	0.000042	20	0.000040
21	0.000092	21	0.000050
22	0.000107	22	0.000057
23	0.000136	23	0.000068
24	0.000139	24	0.000072
25	0.000147	25	0.000086
26	0.000156	26	0.000102
27	0.000163	27	0.000117
28	0.000178	28	0.000118
29	0.000191	29	0.000119
30	0.000200	30	0.000142
31	0.000229	31	0.000148
32	0.000242	32	0.000163
33	0.000260	33	0.000175
34	0.000279	34	0.000176
35	0.000291	35	0.000186
36	0.000313	36	0.000202
37	0.000330	37	0.000212
38	0.000352	38	0.000222
39	0.000373	39	0.000239
40	0.000394	40	0.000257
41	0.000430	41	0.000277
42	0.000453	42	0.000300
43	0.000513	43	0.000334
44	0.000576	44	0.000361
45	0.000616	45	0.000388
46	0.000656	46	0.000411
47	0.000683	47	0.000432
48	0.000702	48	0.000465
49	0.000721	49	0.000482
50	0.000747	50	0.000511
51	0.000787	51	0.000544
52	0.000800	52	0.000587
53	0.000835	53	0.000622
54	0.000869	54	0.000658

Mortality Rates
for Active Members
(cont'd.)

Males		Females	
Age	Rate	Age	Rate
55	0.000937	55	0.000683
56	0.001093	56	0.000724
57	0.001293	57	0.000762
58	0.001416	58	0.000816
59	0.001588	59	0.000895
60	0.001747	60	0.000954
61	0.001897	61	0.001051
62	0.002111	62	0.001114
63	0.002412	63	0.001199
64	0.002892	64	0.001303
65	0.003396	65	0.001458
66	0.003811	66	0.001625
67	0.004599	67	0.001782
68	0.005510	68	0.002011
69	0.006500	69	0.002252
70	0.007502	70	0.002532
71	0.008523	71	0.003019
72	0.009511	72	0.003310
73	0.010552	73	0.003811
74	0.011521	74	0.004123
75	0.012798	75	0.004599

Disability Retirement Rates for Active Members

Males		Females	
Age	Rate	Age	Rate
30	0.000005	30	0.000005
31	0.000010	31	0.000018
32	0.000015	32	0.000032
33	0.000020	33	0.000046
34	0.000027	34	0.000054
35	0.000033	35	0.000080
36	0.000038	36	0.000090
37	0.000045	37	0.000089
38	0.000061	38	0.000113
39	0.000085	39	0.000174
40	0.000109	40	0.000220
41	0.000152	41	0.000300
42	0.000210	42	0.000387
43	0.000272	43	0.000440
44	0.000340	44	0.000482
45	0.000405	45	0.000545
46	0.000490	46	0.000589
47	0.000602	47	0.000675
48	0.000747	48	0.000773
49	0.000917	49	0.000992
50	0.001051	50	0.001222
51	0.001180	51	0.001430
52	0.001290	52	0.001575
53	0.001380	53	0.001675
54	0.001440	54	0.001725

Withdrawal Rates
for Active Members

Males

Age	0 Years of Service	1 Year of Service	2 Years of Service	3 Years of Service	4 Years of Service	5 Years of Service	6 Years of Service	7 Years of Service	8 Years of Service	9 Years of Service	10 or more Years of Service
20	0.259944	0.093433	0.064593	0.048649	0.037015	0.022000	0.012711	0.010469	0.009177	0.008490	0.007368
21	0.259944	0.093433	0.064593	0.048649	0.037015	0.022000	0.012711	0.010469	0.009177	0.008490	0.007368
22	0.259944	0.093433	0.064593	0.048649	0.037015	0.022000	0.012711	0.010469	0.009177	0.008490	0.007368
23	0.259944	0.093433	0.064593	0.048649	0.037015	0.022000	0.012711	0.010469	0.009177	0.008490	0.007368
24	0.272583	0.093433	0.064593	0.048649	0.037015	0.022000	0.012711	0.010469	0.009177	0.008490	0.007368
25	0.285222	0.100846	0.064593	0.048649	0.037015	0.022000	0.012711	0.010469	0.009177	0.008490	0.007368
26	0.297861	0.108259	0.070858	0.048649	0.037015	0.022000	0.012711	0.010469	0.009177	0.008490	0.007368
27	0.310500	0.115672	0.077123	0.051379	0.037015	0.022000	0.012711	0.010469	0.009177	0.008490	0.007368
28	0.323138	0.123086	0.083389	0.054108	0.039868	0.024169	0.012711	0.010469	0.009177	0.008490	0.007368
29	0.335777	0.130499	0.089654	0.056838	0.042721	0.026338	0.013989	0.010469	0.009177	0.008490	0.007368
30	0.348416	0.137912	0.095919	0.059567	0.044623	0.028507	0.016544	0.011635	0.009177	0.008490	0.007368
31	0.344014	0.138382	0.095492	0.062415	0.045574	0.030677	0.019100	0.013968	0.011002	0.008490	0.007368
32	0.339612	0.138851	0.095065	0.065263	0.046525	0.032846	0.021655	0.016300	0.012828	0.008884	0.007368
33	0.335210	0.139321	0.094638	0.068111	0.047476	0.035015	0.024210	0.018633	0.014653	0.010462	0.007368
34	0.330808	0.139790	0.094211	0.070958	0.048426	0.037184	0.026766	0.020965	0.016479	0.012040	0.007368
35	0.326406	0.140260	0.093783	0.073806	0.049377	0.039353	0.029321	0.023297	0.018304	0.013303	0.007368
36	0.325430	0.138801	0.094647	0.074514	0.051198	0.040652	0.030587	0.024116	0.018515	0.014313	0.007506
37	0.324454	0.137343	0.095511	0.075223	0.053018	0.041951	0.031853	0.024934	0.018726	0.015323	0.007645
38	0.323478	0.135885	0.096374	0.075931	0.054839	0.043250	0.033119	0.025753	0.018936	0.016333	0.007783
39	0.322502	0.134426	0.097238	0.076640	0.056659	0.044548	0.034386	0.026571	0.019147	0.017343	0.007922
40	0.321526	0.132968	0.098101	0.077348	0.058480	0.045847	0.035652	0.027390	0.019358	0.018353	0.008061
41	0.315621	0.136402	0.101321	0.077187	0.058465	0.044883	0.035483	0.029326	0.020588	0.018597	0.008304
42	0.309716	0.139835	0.104541	0.077025	0.058451	0.043919	0.035314	0.031262	0.021819	0.018842	0.008547
43	0.303810	0.143269	0.107761	0.076864	0.058437	0.042954	0.035145	0.033198	0.023049	0.019087	0.008790
44	0.297905	0.146703	0.110981	0.076702	0.058423	0.041990	0.034976	0.035134	0.024280	0.019331	0.009033
45	0.292000	0.150136	0.114201	0.076541	0.058409	0.041026	0.034807	0.037070	0.025510	0.019576	0.009276
46	0.290773	0.154527	0.116641	0.080859	0.059296	0.043021	0.036045	0.039363	0.026291	0.019590	0.008957
47	0.289546	0.158918	0.119082	0.085177	0.060184	0.045016	0.037284	0.041656	0.027071	0.019603	0.008638
48	0.288320	0.163308	0.121523	0.089495	0.061071	0.047011	0.038522	0.043949	0.027851	0.019617	0.008319
49	0.287093	0.167699	0.123964	0.093813	0.061959	0.049007	0.039760	0.046242	0.028631	0.019631	0.008000
50	0.285866	0.172090	0.126404	0.098131	0.062847	0.051002	0.040998	0.048535	0.029412	0.019645	0.007681
51	0.284639	0.176480	0.128845	0.102449	0.063734	0.052997	0.042236	0.050828	0.030192	0.019658	0.007362
52	0.283413	0.180871	0.131286	0.106767	0.064622	0.054992	0.043475	0.053121	0.030972	0.019672	0.007043
53	0.282186	0.185262	0.133727	0.111085	0.065509	0.056988	0.044713	0.055414	0.031753	0.019686	0.006724
54	0.280959	0.189652	0.136168	0.115403	0.066397	0.058983	0.045951	0.057707	0.032533	0.019699	0.006405

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	0.246985	0.093652	0.057894	0.046566	0.049651	0.040533	0.040279	0.031433	0.030269	0.029859	0.023495
21	0.246985	0.093652	0.057894	0.046566	0.049651	0.040533	0.040279	0.031433	0.030269	0.029859	0.023495
22	0.252705	0.093652	0.057894	0.046566	0.049651	0.040533	0.040279	0.031433	0.030269	0.029859	0.023495
23	0.264144	0.100160	0.057894	0.046566	0.049651	0.040533	0.040279	0.031433	0.030269	0.029859	0.023495
24	0.275583	0.106668	0.057894	0.046566	0.049651	0.040533	0.040279	0.031433	0.030269	0.029859	0.023495
25	0.287022	0.113175	0.065741	0.046566	0.049651	0.040533	0.040279	0.031433	0.030269	0.029859	0.023495
26	0.298461	0.119683	0.073589	0.051834	0.049651	0.040533	0.040279	0.031433	0.030269	0.029859	0.023495
27	0.309900	0.126190	0.081437	0.057103	0.049651	0.040533	0.040279	0.031433	0.030269	0.029859	0.023495
28	0.321339	0.132698	0.089285	0.062371	0.049651	0.040533	0.040279	0.031433	0.030269	0.029859	0.023495
29	0.332779	0.139205	0.097132	0.067640	0.057959	0.048790	0.044087	0.031433	0.030269	0.029859	0.023495
30	0.344218	0.145713	0.104980	0.072908	0.063498	0.057047	0.047896	0.033283	0.031649	0.029859	0.023495
31	0.337149	0.143990	0.102994	0.076587	0.066267	0.065304	0.051704	0.036984	0.034408	0.029859	0.023495
32	0.330080	0.142268	0.101008	0.080267	0.069037	0.068562	0.055512	0.040686	0.038771	0.030520	0.023495
33	0.323011	0.140545	0.099023	0.083946	0.071806	0.071482	0.059321	0.044387	0.043134	0.033165	0.023495
34	0.315943	0.138822	0.097037	0.087625	0.074576	0.072579	0.063129	0.048088	0.047165	0.035810	0.023495
35	0.308874	0.137100	0.095051	0.091304	0.077345	0.071809	0.066937	0.051790	0.051195	0.038455	0.022675
36	0.301485	0.131968	0.093169	0.085419	0.072583	0.067681	0.061670	0.048941	0.041891	0.036339	0.021034
37	0.294097	0.126836	0.091287	0.079533	0.067822	0.063553	0.056403	0.046092	0.038337	0.034223	0.019393
38	0.286709	0.121704	0.089405	0.073647	0.063060	0.059425	0.051135	0.043243	0.034782	0.032107	0.017752
39	0.279321	0.116572	0.087522	0.067761	0.058298	0.055298	0.047553	0.040394	0.031227	0.029991	0.016111
40	0.271932	0.111440	0.085640	0.061875	0.053536	0.051170	0.043971	0.037545	0.027672	0.027875	0.014471
41	0.272086	0.112626	0.084583	0.062068	0.053566	0.048726	0.041349	0.035634	0.027143	0.026346	0.013501
42	0.272240	0.113812	0.083526	0.062260	0.053596	0.046282	0.038726	0.033722	0.026614	0.024818	0.012531
43	0.272393	0.114998	0.082468	0.062452	0.053626	0.043838	0.036103	0.031810	0.026085	0.023289	0.011560
44	0.272547	0.116185	0.081411	0.062644	0.053656	0.041395	0.033481	0.029899	0.025555	0.021760	0.010590
45	0.272700	0.117371	0.080354	0.062837	0.053686	0.038951	0.030858	0.027987	0.025026	0.020231	0.009620
46	0.276387	0.119587	0.083107	0.064476	0.053600	0.040789	0.031262	0.028348	0.025804	0.020103	0.009440
47	0.280073	0.121803	0.085860	0.066116	0.053514	0.042628	0.031667	0.028708	0.026581	0.019974	0.009259
48	0.283759	0.124019	0.088614	0.067756	0.053428	0.044466	0.032071	0.029069	0.027359	0.019846	0.009079
49	0.287445	0.126235	0.091367	0.069395	0.053342	0.046304	0.032476	0.029429	0.028136	0.019717	0.008899
50	0.291131	0.128450	0.094120	0.071035	0.053256	0.048143	0.032880	0.029790	0.028914	0.019589	0.008718
51	0.294817	0.130666	0.096873	0.072674	0.053170	0.049981	0.033284	0.030151	0.029691	0.019461	0.008538
52	0.298503	0.132882	0.099627	0.074314	0.053084	0.051820	0.033689	0.030511	0.030469	0.019332	0.008357
53	0.302189	0.135098	0.102380	0.075954	0.052997	0.053658	0.034093	0.030872	0.031246	0.019204	0.008177
54	0.305876	0.137314	0.105133	0.077593	0.052911	0.055496	0.034498	0.031232	0.032024	0.019075	0.007996

Service Retirement Rates
For Tier 1 Members and Tier 2, 3, and 4 Members
at Least Age 62 or with 30 Years of Service
and Tier 5 Members at Least Age 62

Males		Females	
Age	Rate	Age	Rate
55	0.311756	55	0.311774
56	0.254224	56	0.249599
57	0.187021	57	0.163685
58	0.201230	58	0.173078
59	0.217976	59	0.177174
60	0.225532	60	0.190579
61	0.227859	61	0.204671
62	0.211386	62	0.221966
63	0.178082	63	0.181851
64	0.134752	64	0.159849
65	0.174277	65	0.200559
66	0.197891	66	0.189809
67	0.115544	67	0.161544
68	0.126412	68	0.169583
69	0.095163	69	0.157879
70	0.134313	70	0.169101
71	0.132847	71	0.173372
72	0.083523	72	0.123957
73	0.060934	73	0.126204
74	0.140439	74	0.118774
75	0.165500	75	0.153458

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

Males		Females	
Age	Rate	Age	Rate
55	0.034627	55	0.042183
56	0.029994	56	0.036835
57	0.028821	57	0.035166
58	0.037932	58	0.040023
59	0.034563	59	0.042266
60	0.047151	60	0.048490
61	0.053363	61	0.062749

Service Retirement Rates
For Tier 5 Members Less Than Age 62
and with Less Than 30 Years of Service

Males		Females	
Age	Rate	Age	Rate
55	0.017313	55	0.021092
56	0.014997	56	0.018418
57	0.014411	57	0.017583
58	0.018966	58	0.020012
59	0.017281	59	0.021133
60	0.023575	60	0.024245
61	0.026682	61	0.031375

Service Retirement Rates
For Tier 5 Members Less Than Age 62
and with 30 Years of Service

Males		Females	
Age	Rate	Age	Rate
55	0.017313	55	0.021092
56	0.014997	56	0.018418
57	0.311756	57	0.311774
58	0.254224	58	0.249599
59	0.187021	59	0.163685
60	0.201230	60	0.173078
61	0.217976	61	0.177174

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)

Males		Females	
Age	Rate	Age	Rate
1	0.000485	1	0.000435
2	0.000327	2	0.000283
3	0.000272	3	0.000212
4	0.000212	4	0.000158
5	0.000194	5	0.000143
6	0.000186	6	0.000134
7	0.000178	7	0.000126
8	0.000164	8	0.000112
9	0.000159	9	0.000107
10	0.000161	10	0.000107
11	0.000167	11	0.000109
12	0.000174	12	0.000113
13	0.000183	13	0.000118
14	0.000196	14	0.000127
15	0.000208	15	0.000137
16	0.000219	16	0.000144
17	0.000232	17	0.000152
18	0.000244	18	0.000155
19	0.000255	19	0.000155
20	0.000266	20	0.000154
21	0.000279	21	0.000152
22	0.000290	22	0.000154
23	0.000304	23	0.000158
24	0.000315	24	0.000164
25	0.000328	25	0.000171
26	0.000349	26	0.000182
27	0.000357	27	0.000189
28	0.000367	28	0.000200
29	0.000385	29	0.000211
30	0.000415	30	0.000231

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.)

Males		Females	
Age	Rate	Age	Rate
31	0.000466	31	0.000275
32	0.000525	32	0.000314
33	0.000590	33	0.000349
34	0.000656	34	0.000380
35	0.000722	35	0.000409
36	0.000786	36	0.000437
37	0.000845	37	0.000464
38	0.000889	38	0.000494
39	0.000929	39	0.000528
40	0.000968	40	0.000576
41	0.001011	41	0.000631
42	0.001061	42	0.000695
43	0.001119	43	0.000764
44	0.001187	44	0.000839
45	0.001264	45	0.000904
46	0.001336	46	0.000970
47	0.001414	47	0.001038
48	0.001496	48	0.001122
49	0.001583	49	0.001213
50	0.001673	50	0.001330
51	0.001890	51	0.001490
52	0.002030	52	0.001668
53	0.002220	53	0.001875
54	0.002433	54	0.002116
55	0.002538	55	0.002355
56	0.002780	56	0.002509
57	0.003056	57	0.002672
58	0.003370	58	0.002843
59	0.003709	59	0.003041
60	0.004093	60	0.003267

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.)

Males		Females	
Age	Rate	Age	Rate
61	0.004551	61	0.003527
62	0.005047	62	0.003826
63	0.005638	63	0.004168
64	0.006278	64	0.004561
65	0.007004	65	0.005012
66	0.007867	66	0.005529
67	0.008804	67	0.006122
68	0.009816	68	0.006803
69	0.011014	69	0.007584
70	0.012307	70	0.008480
71	0.013835	71	0.009459
72	0.015565	72	0.010631
73	0.017524	73	0.011914
74	0.019741	74	0.013446
75	0.022362	75	0.015125
76	0.025213	76	0.017127
77	0.028581	77	0.019517
78	0.032405	78	0.022155
79	0.036746	79	0.025174
80	0.041671	80	0.028627
81	0.047254	81	0.032576
82	0.053580	82	0.037089
83	0.060435	83	0.042242
84	0.068492	84	0.048122
85	0.077205	85	0.055103
86	0.086987	86	0.063094
87	0.098446	87	0.072230
88	0.111338	88	0.082248
89	0.125188	89	0.094083
90	0.141337	90	0.107017

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.)

Males		Females	
Age	Rate	Age	Rate
91	0.158600	91	0.121632
92	0.178646	92	0.133966
93	0.199938	93	0.147979
94	0.223410	94	0.162252
95	0.250439	95	0.176070
96	0.270403	96	0.187908
97	0.288938	97	0.199611
98	0.311066	98	0.209895
99	0.325777	99	0.221434
100	0.339933	100	0.231938
101	0.358628	101	0.244834
102	0.371685	102	0.254498
103	0.383040	103	0.266044
104	0.392003	104	0.279055
105	0.397886	105	0.293116
106	0.400000	106	0.307811
107	0.400000	107	0.322725
108	0.400000	108	0.337441
109	0.400000	109	0.351544
110	0.400000	110	0.364617

Mortality Rates for Disabled Annuitants

Males		Females	
Age	Rate	Age	Rate
30	0.021045	30	0.037191
31	0.022268	31	0.039790
32	0.025123	32	0.041804
33	0.030890	33	0.042036
34	0.035471	34	0.044687
35	0.040060	35	0.046087
36	0.045043	36	0.047456
37	0.051671	37	0.048137
38	0.057059	38	0.049542
39	0.060136	39	0.050006
40	0.066075	40	0.051448
41	0.072010	41	0.053712
42	0.081075	42	0.056153
43	0.088267	43	0.058391
44	0.095107	44	0.059102
45	0.098034	45	0.060023
46	0.098073	46	0.061115
47	0.096203	47	0.061499
48	0.092171	48	0.062033
49	0.090039	49	0.061267
50	0.088106	50	0.059644
51	0.085180	51	0.059103
52	0.082046	52	0.058019
53	0.077567	53	0.057648
54	0.069299	54	0.056312
55	0.059562	55	0.053003
56	0.050222	56	0.050651
57	0.043923	57	0.044260
58	0.040994	58	0.039761
59	0.040370	59	0.036583

Mortality Rates for
Disabled Annuitants
(cont'd.)

Males		Females	
Age	Rate	Age	Rate
60	0.040254	60	0.034142
61	0.039865	61	0.033041
62	0.039284	62	0.031701
63	0.038507	63	0.032287
64	0.037749	64	0.032367
65	0.038009	65	0.032588
66	0.039816	66	0.034360
67	0.042679	67	0.034616
68	0.045317	68	0.034773
69	0.045826	69	0.035903
70	0.049085	70	0.036463
71	0.050661	71	0.037256
72	0.052953	72	0.038447
73	0.055112	73	0.040345
74	0.058231	74	0.042217
75	0.060057	75	0.045375
76	0.062590	76	0.048144
77	0.063405	77	0.051458
78	0.065189	78	0.052913
79	0.069245	79	0.055751
80	0.075091	80	0.060605
81	0.086987	81	0.070429
82	0.098446	82	0.080934
83	0.111338	83	0.090446
84	0.125188	84	0.100878
85	0.141337	85	0.120011
86	0.158600	86	0.138088
87	0.178646	87	0.147979
88	0.199938	88	0.162252
89	0.223410	89	0.176070

Mortality Rates for
Disabled Annuitants
(cont'd.)

Males		Females	
Age	Rate	Age	Rate
90	0.250439	90	0.187908
91	0.270403	91	0.199611
92	0.288938	92	0.209895
93	0.311066	93	0.221434
94	0.325777	94	0.231938
95	0.339933	95	0.244834
96	0.358628	96	0.254498
97	0.371685	97	0.266044
98	0.383040	98	0.279055
99	0.392003	99	0.293116
100	0.397886	100	0.307811
101	0.400000	101	0.322725
102	0.400000	102	0.337441
103	0.400000	103	0.351544
104	0.400000	104	0.364617
105	0.400000	105	0.376246
106	0.400000	106	0.386015
107	0.400000	107	0.393507
108	0.400000	108	0.398308
109	0.400000	109	0.400000
110	0.400000	110	0.400000

Salary Scale

Males		Females	
Age	Rate	Age	Rate
20	1.1203	20	1.1198
21	1.1201	21	1.1177
22	1.1198	22	1.1162
23	1.1184	23	1.1139
24	1.1152	24	1.1101
25	1.1091	25	1.1035
26	1.1018	26	1.0954
27	1.0909	27	1.0857
28	1.0841	28	1.0770
29	1.0777	29	1.0720
30	1.0748	30	1.0684
31	1.0718	31	1.0660
32	1.0691	32	1.0644
33	1.0665	33	1.0636
34	1.0646	34	1.0630
35	1.0627	35	1.0626
36	1.0615	36	1.0622
37	1.0611	37	1.0614
38	1.0593	38	1.0602
39	1.0576	39	1.0591
40	1.0561	40	1.0582
41	1.0545	41	1.0572
42	1.0532	42	1.0562
43	1.0524	43	1.0553
44	1.0517	44	1.0546
45	1.0504	45	1.0539
46	1.0485	46	1.0530
47	1.0469	47	1.0523
48	1.0456	48	1.0516
49	1.0448	49	1.0506

Salary Scale
(cont'd.)

Males		Females	
Age	Rate	Age	Rate
50	1.0440	50	1.0497
51	1.0433	51	1.0485
52	1.0428	52	1.0474
53	1.0422	53	1.0461
54	1.0415	54	1.0449
55	1.0401	55	1.0442
56	1.0388	56	1.0435
57	1.0382	57	1.0424
58	1.0374	58	1.0416
59	1.0372	59	1.0413
60	1.0364	60	1.0410
61	1.0352	61	1.0402
62	1.0347	62	1.0393
63	1.0338	63	1.0386
64	1.0316	64	1.0383
65	1.0294	65	1.0376
66	1.0263	66	1.0367
67	1.0249	67	1.0352
68	1.0250	68	1.0341
69	1.0254	69	1.0329
70	1.0259	70	1.0328
71	1.0247	71	1.0326
72	1.0241	72	1.0325
73	1.0241	73	1.0322
74	1.0239	74	1.0309
75	1.0238	75	1.0308

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 Hewitt Ennis Knupp, 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, 2011, Hewitt Ennis Knupp has estimated the geometric annual rate of return to be 7.25%, and the arithmetic annual rate of return to be 8.05%, given the System's asset allocation. This analysis is performed annually, and intended to be over a 15-year time horizon. Additionally, Hewitt Ennis Knupp performed an asset/liability study in 2011 in which stochastic simulation was used to project over one thousand future investment outcomes over a 40-year period based on the Retirement System's asset allocation. The resulting distribution of the 40-year annualized returns had a mean of 8.1% and a median of 8.2%.

For a complete explanation of the reasons behind the System's valuation rate of interest assumption, please see pages 24 through 28 of the Report on the 2011 Recommended Actuarial Assumptions.

Projected COLA Assumption

The annual percentage for estimating future COLA benefit payments is 1.625%.[2]

[1] The average annual rate of increase in the Consumer Price Index (CPI) for 1925 – 2011 was 3.02%.

[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 17

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 7/1/1973;
Tier 2:	Membership 7/1/1973 – 7/26/1976;
Tier 3:	Membership 7/27/1976 – 8/31/1983;
Tier 4:	Membership 9/1/1983 – 12/31/2009;
Tier 5:	Membership 1/1/2010 – 3/31/2012;
Tier 6:	Membership on or after 4/1/2012 (will first be included in the June 30, 2012 actuarial valuation).

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*:
$1/100^{th}$ of final average salary (FAS) per year for each of the first 25 years of service, plus $1/120^{th}$ of FAS per year for each of the next 10 years of service, plus $1/140^{th}$ 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:
$1/50^{th}$ of final average salary (FAS) per year for each of the first 25 years of NYS service, plus $1/60^{th}$ of FAS per year for each of the next 10 years of NYS service, plus $1/70^{th}$ 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.

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: 1⅔% 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: 1⅔% 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 1½% 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: 1⅔% 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 1½% of FAS per year of NYS service in excess of 30 years.

Tier 5 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 6⅔% 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) 1⅔% of FAS per year of projected service to age 60 or 2) ⅓ of FAS; but the benefit shall not be less than 1⅔% 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, 4 and 5 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

Tiers 1-4:
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.

Tier 5:
A member with at least 10 years of credited service who ceases teaching has a vested right to receive a deferred service retirement benefit. Members with less than 10 years of credited service who cease teaching may receive a refund of their member contributions with interest.

6. Member Contributions

Tier 3 and 4 members are required to contribute 3% of pay to fund a portion of their benefit. Effective October 1, 2000, such contributions cease upon the attainment of the earlier of 10 years of service credit or 10 years of membership. Tier 5 members are required to contribute 3.5% of their salary throughout their active membership. 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.