New York City Retirement Systems EXPERIENCE STUDY REPORT

Actuarial Experience Investigation From

June 30, 2001 Through June 30, 2005 (Four Year Study), and June 30, 1988 Through June 30, 2005 (17 Year Study)

Submitted by
The Segal Company
November 30, 2006

SEGAL

NEW YORK CITY
RETIREMENT SYSTEMS
EXPERIENCE STUDY REPORT

Actuarial Experience Investigation
From June 30, 2001 Through
June 30, 2005 (Four-Year Study), and
From June 30, 1988 Through
June 30, 2005 (17-Year Study)

Submitted by
The Segal Company
November 30, 2006

SEGAL

NEW YORK CITY
RETIREMENT SYSTEMS
EXPERIENCE STUDY REPORT

Actuarial Experience Investigation
From June 30, 2001 Through June 30, 2005 (Four-Year Study), and
From June 30, 1988 Through June 30, 2005 (17-Year Study)

Submitted by
The Segal Company
November 30, 2006

SEGAL

November 30, 2006

The Honorable William C. Thompson, Jr.
Comptroller
NYC Office of the Comptroller
1 Centre Street
Room 530
New York, NY 10007

Re: Experience Study of the New York City Retirement Systems

Dear Comptroller Thompson:

We are pleased to submit this report on the results of the fiscal 2002-2005 experience study for the New York City Retirement Systems. Also included are results of a more comprehensive 17-year study encompassing fiscal years 1989 through 2005. The purpose of the study was to review the actuarial experience with regard to each demographic and salary related assumption employed in performing actuarial valuations for the Retirement Systems, and make recommendations as to revisions in assumptions where deemed appropriate.

We received the full cooperation of the staff of the Office of the Actuary. That cooperation has been greatly appreciated, and the study could not have been completed without their assistance.

This report, together with Appendices 3 and 4 containing detailed numeric output for each Retirement System, constitutes the results of our experience investigation.

We look forward to meeting with you to discuss this report and any follow-up to it.

Sincerely yours,

Michael Karlin

Howard Rog

Michael Karlin, F.S.A., M.A.A.A.
Senior Vice President and Actuary

Howard Rog, F.S.A., M.A.A.A.
Senior Vice President and Actuary

EXECUTIVE SUMMARY

Overview of Experience Study

- The Segal Company was retained by the Office of the Comptroller of the City of New York to conduct two biennial experience studies for the New York City Retirement Systems ("NYCRS"). This report, together with Appendices 3 and 4, presents the results of the second study, which covers the four year period from June 30, 2001 to June 30, 2005, as well as the 17-year period from June 30, 1988 through June 30, 2005 for the five actuarially funded systems of the NYCRS as follows:
    - New York City Employees' Retirement System ("NYCERS")
    - Teachers' Retirement System of the City of New York ("TRS")
    - New York City Board of Education Retirement System ("BERS")
    - New York City Police Pension Fund ("POLICE")
    - New York City Fire Pension Fund ("FIRE")
- The purpose of the experience study is to determine how accurately the actuarial assumptions currently utilized in preparing annual valuations of the NYCRS have predicted actual experience that has emerged during the periods studied. This report will present summary results of the experience study, together with commentary and observations in several key areas. In addition, two additional binders which present comprehensive, detailed numeric output regarding all aspects of the study, have also been prepared and are an integral part of this study.
- Another objective of the experience study is to use the emerging experience as a basis on which to recommend revisions in actuarial assumptions, in any areas that are deemed appropriate. These recommendations, which have been developed in accordance with all relevant Actuarial Standards of Practice (primarily ASOP 4, "Measuring Pension Obligations", ASOP 27, "Selection of Economic Assumptions for Measuring Pension Obligations", and ASOP 35, "Selection of Demographic and Other Non economic Assumptions for Measuring Pension Obligations"), are also presented in this report, together with the cost impact that would result from their implementation.

- It is important to note that although actual experience is reported in this study based on the actual patterns observed, ultimate recommendations are based on both experience and future expectations. Thus, for example, certain events that are not expected to recur or that are considered as non-representative of likely future experience may be omitted from consideration in arriving at a recommendation. The best example of this is the World Trade Center attack on September 11, 2001, which greatly influenced several areas of experience for POLICE and FIRE, particularly during fiscal 2002 and 2003, although the effects continue to manifest themselves in some areas even now.

- It should also be noted that the actuarial assumptions *currently* being utilized by the Actuary are used as the basis against which actual experience is being compared for all 17 years of the study. This is true even in cases where actuarial assumptions were revised several times during this period, or in cases where the form of the assumption had been changed (e.g., certain assumptions used to be based on the age of the member, but were changed to be service based).

- Completing this project involved processing massive amounts of data, handling complicated and changing storage specifications for that data, and understanding highly complex Retirement Systems. In the course of the study, numerous obstacles and challenges were encountered. They included computer system capabilities, data inconsistencies, compatibility of results with the prior auditor and resolving data anomalies to our satisfaction. The vast majority of these challenges have been overcome, and the results of the study are considerably improved as a result.

- The areas of experience evaluated included postretirement mortality (both for service and disabled pensioners), withdrawals from active membership, retirements (both unreduced and reduced), active member mortality and disability (both accidental and ordinary), salary increases, and overtime as a percentage of pay (both on an ongoing basis, as well as that occurring in the year before retirement or disability).

General Observations and Findings

- Consistent with national trends, mortality among retirees generally showed some improvement in the most recent four year period as compared to the entire study period. Our recommendations include an updating of the postretirement mortality tables used for most systems, as well as the continuation of a mortality improvement factor to anticipate further extensions of longevity in the future.
- We found that many members who were initially coded as "active-inactive" members, and thus appeared to be withdrawals from active membership, would later emerge with a *different* reason for termination (e.g., death, retirement, or disability). In our study, we reflected this "maturing" of the data by applying the ultimate reason for termination rather than a withdrawal code at the time the member left active status. This resulted in considerably different results from the prior audit. In particular, withdrawals tended to be lower while all other decrements (death, disability and retirement) generally increased from the previous study.
- The September 11 attack at the World Trade Center manifested itself in several areas for POLICE and FIRE. The most obvious result was the large number of accidental deaths, which was then followed by more accidental disabilities, high overtime pay and finally an elevated level of retirements.
- The most significant finding for TRS was a substantially greater degree of retirements than expected. However, this was solely due to former Tier 1 and Tier 2 members. Retirements among Tier 3 and Tier 4, on the other hand, were more in line with (and even lower than) expectations. Ordinary disabilities were also much higher than expected for Teachers.
- Withdrawals were well below expectations for all NYCERS subgroups. Ordinary disability experience was higher than expected for General Employees, Transit and TBTA, while overtime exceeded the current assumption for General Employees and considerably so for TBTA.

Recommendations

- The current inflation assumption is 2.5%. In considering the appropriate level of inflation to project over the next 40 to 50 years, we looked at the historical changes in the CPI over various periods, the expected inflation rate inherent in 10-year Treasury securities, the assumptions being used for Social Security projections, and the rates of inflation assumed by other public pension funds. Although 2.5% remains within the reasonable range for this assumption (albeit at the lower end), our recommendation would be for an increase in this assumption to 3.0%.

- The investment return assumption (currently 8%) was reviewed from several perspectives in connection with this study. Using the portfolio mix by type of security for each of the systems and the expected real rates of return by security, we find that a 5.0% overall real rate of return falls in the middle of the expected range. This, together with a 3.0% inflation assumption, results in an 8% investment return assumption. We also note that the current 8% assumption is well within the mainstream of that used by large public retirement systems, and is also reasonable when considering the historical performance of actual System assets. For these reasons, we recommend continuation of the 8% investment return assumption.

- Our recommendation of a 5.0% real rate of return represents a reduction from the current 5.5% assumption.

- Several revisions in actuarial assumptions are being proposed for each retirement system. A brief summary of these recommendations is contained in Table 1 for TRS, BERS, POLICE and FIRE systems and Table 2 for all subgroups of NYCERS.

- The change in annual contribution requirements was determined separately for each system and for each category of assumption change. The results are summarized in Table 3. As shown in the table, the total effect on fiscal 2006 contribution requirements of adopting our recommendations would be an increase of $406.3 million, or 9.4%. The most significant components of this increase are due to the revision in postretirement mortality assumption, and the recommendation to increase the inflation assumption from 2.5% to 3.0% per annum (while at the same time retaining the 8.0% interest assumption due to a decrease from 5.5% to 5.0% in the assumed real rate of return).

- The actuarial cost method currently in use is Frozen Initial Liability (FIL). We recommend that consideration be given to changing this funding method to Entry Age Normal (EAN). EAN is much more commonly used in the public sector than FIL (a recent NASRA survey shows that 77% of large public plans use EAN), and also provides a better and more direct measure of both the cost of benefits attributable to each year of service, as well as the funded status of the Systems. Using EAN would allow the calculation of a funded percentage, and the tracking of this parameter over time. It would also facilitate a measurement of actuarial gains or losses occurring each year. Our recommendation includes the stipulation that unfunded actuarial accrued liabilities be amortized over not more than 15 years, as a level percentage of payroll, assuming that payroll increases at 3.5% per annum (i.e., the sum of the inflation and real wage growth assumptions). Table 3 shows the effect of changing the cost method to EAN. As indicated, the fiscal 2006 employer contribution would decline by $211.1 million, or 4.5%, if this cost method had been used.

- We want to stress that our recommendation to change the cost method to EAN only applies if (i) the actuarial assumptions are also revised in accordance with (or similar to) our recommendations, and (ii) the amortization of unfunded actuarial accrued liabilities is completed (other than amortization bases set up for future experience gains or losses) over the next 15 years.

Table 1

Summary of Assumption Recommendations – POLICE, FIRE, TRS and BERS

Assumption	POLICE	FIRE	TRS	BERS
Interest rate	No change (8.0%)	No change (8.0%)	No change (8.0%)	No change (8.0%)
Inflation	2.5% to 3.0%	2.5% to 3.0%	2.5% to 3.0%	2.5% to 3.0%
Real Rate of Return	5.5% to 5.0%	5.5% to 5.0%	5.5% to 5.0%	5.5% to 5.0%
Real Wage Growth	No change (0.5%)	No change (0/5%)	No change (0/5%)	No change (0.5%)
Service Retiree Mortality	Update male table	Use age 55 rate at ages under 55 for men	Update tables based on actual 4-year experience	Same as General
Disabled Retiree Mortality	No change	Use service retiree age 55 rate below age 55	20% increase in rates	Same as General
Future Retiree Mortality Improvement	Apply factors (10% for men, 5% for women)	Apply factors (10% for men, 5% for women)	Apply factors (10% for men, 5% for women)	Apply factors (10% for men, 5% for women)
Withdrawals	Update – higher at most ages	Lower rates at service 1,2 and 17-19	Slight increase for service 0-15	Increase rates
Retirements – 1st year eligible	Higher rates (50% to 80% at 40 and under, 50% to 60% at 41-62)	Higher at ages 40 & under (15% to 25%), 50-54 (change to 20%)	Generally higher until age 62, lower above 62, unify by gender	Same as General (lower below 62 and for Improved Plan)
Retirements – 2nd year eligible	Lower rates (25% to 18% at ages below 63)	No change	Generally higher until age 62, lower above 62, unify by gender	Same as General (lower below 62 and for Improved Plan)
Retirements – 3rd and later years	Update rates	Lower rates at 62-64	Generally higher until age 62, lower above 62, unify by gender	Same as General (lower at 62 & under, and for Improved Plan)
Reduced Retirements	N/A	N/A	2.5% at all ages	2.5% at all ages
Active Mortality	No change	33% decrease	50% increase for men, 20% for women	Same as Transit
Accidental Death	Double to .02%	No change	No change	No change
Ordinary Disability	No change	Lower at 46-54, higher at 55 and over	Higher rates	Same as General (higher rates)
Accidental Disability	No change	No change	Unify male and female tables	Same as General
Merit Salary Scale	Higher at service 0 and 1, lower for service over 20	Higher at service 0, mostly lower for service 17-23 and 25-29	Higher at service 0-8, reduce from 2% to 1% at service 23 and over	Lower scale
OT for all years	Reduce current 12% for service above 20 years	Change 12% to service based	N/A	None now, propose 8% - 12% (service based)
OT before Service Retirement	No change	Change 16% to service based	N/A	None now, propose same as OT for all years
OT before Disabled Retirement	Change from 6% to service based	Change 6% to OT before service retirement less 4%	N/A	None now, propose same as OT for all years less 4%

Table 2
Summary of Assumption Recommendations - NYCERS

Assumption	General	Transit	Sanitation	Corrections	TBTA	HP-TP
Interest rate	No change (8.0%)	No change (8.0%)	No change (8.0%)	No change (8.0%)	No change (8.0%)	No change (8.0%)
Inflation	2.5% to 3.0%	2.5% to 3.0%	2.5% to 3.0%	2.5% to 3.0%	2.5% to 3.0%	2.5% to 3.0%
Real Rate of Return	5.5% to 5.0%	5.5% to 5.0%	5.5% to 5.0%	5.5% to 5.0%	5.5% to 5.0%	5.5% to 5.0%
Real Wage Growth	No change (0.5%)	No change (0.5%)	No change (0.5%)	No change (0.5%)	No change (0.5%)	No change (0.5%)
Service Retiree Mortality	Update tables based on actual 4-year experience	Same as General	Same as General	Same as General	Same as General	Same as Police
Disabled Retiree Mortality	No change	No change	Update male table, no change for women	Same as Sanitation	No change	Same as Police
Future Retiree Mortality	Apply factors (10% for men, 5% for women)	Apply factors (10% for men, 5% for women)	Apply factors (10% for men, 5% for women)	Apply factors (10% for men, 5% for women)	Apply factors (10% for men, 5% for women)	Apply factors (10% for men, 5% for women)
Withdrawals	Lower rates at service 1-6, 12 and over, higher at 7-10	Lower rates, unify men and women	Lower rates	Lower rates above 1 year service	Lower rates, except higher at service 0	N/A
Retirements – 1st year eligible	Lower below age 62 and for Improved Plan	Lower above 60 and for Improved Plan	Higher rates, lower for Improved Plan (unify with regular)	Much higher rates (80% up to 54, 100% above), unify with Improved Plan	No change	N/A
Retirements – 2nd year eligible	Lower rates below age 62 and for Improved Plan	Lower rates at 62 and 65, and for Improved Plan	Mostly higher rates, lower for Improved Plan (unify with regular)	Much higher rates (40% up to 55, 100% above), unify with Improved Plan	No change	N/A
Retirements – 3rd and later years	Lower below age 63; higher for Improved Plan at 61 and under, lower at 62 and 65	Higher (except lower at 62), update Improved Plan	Mostly higher rates, lower for Improved Plan (unify with regular)	Much higher rates (20% up to 51, 25% 52-62, then 100%), unify with Improved Plan	No change	N/A
Reduced Retirements	2.5% at all ages	Reduce to 1% at all ages	Reduce to 1% at all ages	No change	No change	N/A
Active Mortality	5 x current for men, update for women	56% x General for men, same as General for women	½ x General	½ x General	Same as Transit	N/A
Accidental Death	No change	Drop rate in half to .005%	Drop rate in half to .005%	Change .01% to zero	Change .01% to zero	N/A
Ordinary Disability	Higher rates	Higher rates (by 60% at 35 and over)	No change	No change	Change to 1% at all ages	N/A
Accidental Disability	Change .02% to .032% for men, no change for women (.01%)	Drop rate in half to .01%	No change	No change	No change	N/A
Merit Salary Scale	5% to 6% at service 0, lower at all other durations (including 1.5% to 1% over 15 years)	Reduce at service 1-5	Increase 5% to 15% at service 0, no other changes	No change	Eliminate blips, smooth the scale	N/A
OT for all years	Change 4% to 5% until 19 years service, then declining	No change	Update	No change	Update, mostly higher	N/A
OT before Service Retirement	Same as OT for all years	Update	Use OT for all years + 0%, 2% or 4%, depending on service	Reduce to OT for all years assumption	Update, mostly higher	N/A
OT before Disabled Retirement	Same as OT for all years	Change 6% to 4%	Reduce by 50%	Change to OT for all years less 4%	No change	N/A

Table 3

Impact of Assumption and Funding Method Recommendations on Fiscal Year 2006 Contribution Requirements (Millions)

	POLICE	FIRE	TRS	BERS	NYCERS	Total
Fiscal Year 2006 Contribution Requirement						
a) Determined by Office of the Actuary	$1,337.7	$608.8	$1,316.6	$90.8	$1,024.4	$4,378.3
b) Determined by Segal	1,319.8	598.7	1,288.1	89.7	1,039.7	4,336.0
Impact of Proposed Changes in the Following Assumptions						
a) Post retirement mortality	+ 33.0	+ 17.4	+ 11.9	+ 4.5	+ 148.4	+ 215.2
b) Turnover	+ 2.3	(0.1)	+ 1.1	(3.0)	+ 40.4	+ 40.7
c) Retirement	+ 29.1	+ 0.5	+ 30.2	(3.3)	(20.3)	+ 36.2
d) Active ordinary death	-	(0.6)	+ 0.5	(0.6)	+ 7.8	+ 7.1
e) Accidental death	+ 0.8	-	-	-	(0.6)	+ 0.2
f) Ordinary disability	-	(1.1)	+ 6.5	+ 0.9	+ 7.9	+ 14.2
g) Accidental disability	-	-	+ 0.7	+ 0.0	+ 0.3	+ 1.0
h) Merit salary scale	(8.6)	(4.0)	(87.3)	(6.3)	(60.3)	(166.5)
i) Extra .5% inflation in salary scale	+ 37.5	+ 4.7	+ 59.3	+ 5.4	+ 105.2	+ 212.1
j) Overtime for all years	(3.5)	(1.7)	-	+ 14.2	(12.2)	(3.2)
k) Overtime before retirement	+ 2.3	+ 17.5	-	(0.2)	(42.0)	+ (22.4)
l) CPI/COLA	+ 15.0	+ 4.2	+ 14.8	+ 6.0	+ 31.6	+ 71.6
m) Total change	+ $107.9	+ $36.8	+ $37.7	+ $17.7	+ $206.2	+ $406.3
Fiscal Year 2006 Contribution Requirement after Proposed Changes (Segal)	$1,427.7	$635.5	$1,325.8	$107.4	$1,245.9	$4,742.3
Change funding method to entry age normal (15 year amortization as level % of pay)	(205.5)	(15.6)	(30.9)	(3.7)	+ 44.6	(211.1)
Fiscal year 2006 Contribution Requirement on EAN method	$1,222.2	$619.9	$1,294.9	$103.7	$1,290.5	$4,531.2

TABLE OF CONTENTS

Page

I. INTRODUCTION

In January 2005, The Office of the Comptroller of the City of New York retained The Segal Company (Segal) to perform actuarial audits and related services with respect to the following retirement systems (collectively the "Systems"):

- New York City Employees' Retirement System ("NYCERS")
- Teachers' Retirement System of the City of New York ("TRS")
- New York City Board of Education Retirement System ("BERS")
- New York City Police Pension Fund ("POLICE")
- New York City Fire Pension Fund ("FIRE")

The contract covers two consecutive engagements covering two biennial periods. Each engagement is comprised of the following for the five Systems:

(1) An Experience Study which compares actual experience with the assumptions used to calculate pension contributions and comments on the appropriateness of each assumption. The first engagement reviews experience data through June 30, 2003 while the second engagement reviews experience through June 30, 2005.

(2) An audit of Employer Pension Contributions, which confirms the computations of actuarial assets and liabilities, including the software used, and the appropriateness and legality of the actuarial assumptions and methods used. The first engagement audits Employer Pension Contributions for Fiscal Year 2004 while the second engagement audits Employer Pension Contributions for Fiscal Year 2006.

(3) An Administrative Review which reviews the actuarial valuation and data processes and comments on the quality and completeness of the data and financial, actuarial and operational procedures used in the valuations.

(4) An Independent Actuary's Statement which reviews the entire engagement and comments on the financial condition and financing policies.

This report, together with Appendices 3 and 4, is the deliverable for the Experience Study for the second engagement, and presents the results of the study, covering the four year period from June 30, 2001 to June 30, 2005, as well as the 17-year period from June 30, 1988 to June 30, 2005.

Actuarial Valuations

Actuarial valuations of the New York City Retirement Systems are prepared annually to determine the contribution rates required to fund the Retirement Systems on an actuarial reserve basis. Each actuarial valuation involves a projection of the benefits expected to be paid in the future to all members of the Retirement Systems. The projection of expected future benefit payments is based on the characteristics of members as of the valuation date and the benefit provisions in effect during that year.

An actuarial valuation requires the use of a series of assumptions regarding uncertain future events. Assumptions must be made to project the number of active members who will become eligible for benefits, the amount of those benefits and the number of years benefits will be payable to current and future benefit recipients.

The assumptions used in actuarial valuations can be grouped in two categories: (1) economic assumptions – the assumed long-term rates of investment return, inflation, real rate of return, salary increases and payroll growth; and (2) noneconomic assumptions – the assumed withdrawal, disability and mortality rates and assumed retirement ages. Noneconomic assumptions are selected with heavy emphasis on recent experience, while economic assumptions are selected with less emphasis on experience in the recent past. All assumptions are intended to be reflective of expectations for the future, and hence may disregard certain past events that are not deemed to be a useful indication of future experience. The selection of assumptions should be done in accordance with relevant Actuarial Standards of Practice, including the following:

ASOP 4 – Measuring Pension Obligations

ASOP – 27 Selection of Economic Assumptions for Measuring Pension Obligations

ASOP 35 – Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations

This report presents a review of the NYCRS experience during the four year period June 30, 2001 through June 30, 2005. In addition, aggregate experience for the 17 year period ending on June 30, 2005 is also shown.

Current Contribution Rate and Long Term Costs

In considering actuarial assumptions, the emphasis is often placed on the immediate impact the assumptions have on the cost of the retirement plan for the current year. However, it is perhaps more important to consider the long term cost of the plan because a retirement plan is a long term arrangement involving the payment of benefits to members for their lifetime and thereafter to any beneficiaries.

The long term cost of a retirement plan can be summarized by the following equations:

> ***Cumulative Increases in Funds = Cumulative Decreases in Funds***
> which can be also stated in more detail as:
> ***Contributions + Investment Income = Benefits Payments + Administrative Expenses***

Observe that the above equation has no term for, and is *not* directly affected by, the actuarial assumptions. Rather, the choice of actuarial assumptions used results in different *patterns* of contributions and investment income over time.

An example of how actuarial assumptions can influence the current year's cost is as follows. If the investment return assumption is increased and nothing else changes, the right side of the equation is unchanged. On the left side of the equation the assumed investment income increases and, to have this side balance to the same total, the current year contribution rate is reduced. But, if the anticipated additional investment returns are not actually realized, the contribution rate would have to increase in the future to make up the deficiency.

The above example illustrates a general principle. The use of assumptions that results in a *lower* current contribution rate ("optimistic assumptions") can increase the risk that contributions will *increase* in the future when actual experience might differ from the assumptions.

In general, if actual emerging experience *exactly* replicates the assumed experience, the actual cost of the Retirement System will equal the cost projected by the actuarial valuation. However, this result is generally not achievable because of the long term period and numerous variables involved in actuarial valuations. The Retirement System usually realizes a net actuarial gain or a net actuarial loss, reflecting the net difference between actual experience and the experience projected by the assumptions used in the actuarial valuation. Calculated contribution rates are updated in connection with each actuarial valuation to reflect actual experience and any benefit changes enacted since the last valuation date.

The Boards of Trustees of each Retirement System adopt the actuarial assumptions used in actuarial valuations that require Board approval, as recommended by the Actuary. The State Legislature and the Governor enact legislation for those actuarial assumptions and methods that require legislation. If the assumptions on an overall basis prove to be a good indicator of emerging experience, the actuarially-determined contribution rates for the existing schedule of benefits will remain relatively level as a percentage of salary. On the other hand, if the assumptions understate or overstate the actual cost of the Retirement System, the result will be gradually increasing or gradually decreasing calculated contribution rates.

Actuarial experience reports are prepared periodically and serve as the basis for considering changes in actuarial assumptions.

Statistical Credibility

The concept of statistical credibility is a useful tool for reviewing the Retirement System's experience. In general, this concept is that the greater the number of observations one makes of a given factor, the greater the credibility one can place on the experience to estimate the factor. The reliance (or credibility) one can place on the experience increases with both the number of observations of the factor (also called exposures) and the number of observed occurrences of the factor (also called decrements). This is a particularly important concept for the smaller Retirement Systems (or smaller NYCERS subgroups), because there is a relatively small amount of exposures for several of the decrements. Similarly, larger Systems can also have relatively small amounts of exposure to particular decrements, which would limit their credibility in that area as well.

In addition to the observations of experience of the Retirement Systems during the relevant period, other factors enter into setting actuarial assumptions. These factors include trends and future expectations, observations made based on other employee groups, and trends affecting the population in general. Also, events that are not expected to recur (e.g., the September 11 terror attacks) might be disregarded in setting future assumptions.

Experience Review Procedure

In performing the experience review, we monitored each employee's individual history of plan membership year to year. This method was used for each of the assumptions affecting plan members on an individual basis, including mortality, withdrawal, disability, retirement age, and salary increases.

The balance of this report presents a review of steps involved and challenges encountered during the preparation of the experience study (Section II), a description of the experience elements studied (Section III), a discussion of certain issues associated with the development of assumption recommendations (Section IV), an overview of the results of the experience study with regard to each area of demographic experience together with our comments and recommendations (Section V), a discussion of the economic assumptions and our recommendations in this area (Section VI) and a determination of the annual cost impact of implementing our recommendations (Section VII). In addition, detailed tables containing comprehensive experience results for each Retirement System (both for the fiscal 2002-2005 period as well as the 17-year fiscal 1989-2005 periods) appear in Appendices 3 and 4 that are an integral part of this experience study. Finally, Appendix 1 to this report presents a summary of the current recommended assumption tables, and Appendix 2 provides a more detailed description of the data and methodology used in performing the experience study.

II. PROJECT STEPS AND CHALLENGES ENCOUNTERED

Conceptually, an experience study is a fairly simple analysis. It essentially involves determining, for each study year, whether any particular member was subject to a specific decrement (e.g., withdrawal, death, disability, retirement) or not. If so, the individual is included in the exposure for that decrement for that year. If the decrement actually occurred to that person, then the decrement is counted as well. Thus, an experience study is essentially a statistical tabulation, which is performed by summing exposures and occurrences/decrements. Although the mathematical and statistical theory can be complex, the practical implementation of the study does not have complex mathematical formulas involved, as there are in preparing actuarial valuations.

The difficulty in completing an experience study for the New York City Retirement Systems, however, arises in the handling of the massive amounts of data, and in its complexity. There are five Retirement Systems (one of which has six distinctive subgroups measured in the study), four tiers of benefits, multiple plans and eligibility requirements, and huge quantities of data to process. In fact, we processed millions of data records in order to complete the study. There are also numerous data fields that need to be tracked from year to year, and a highly complicated coding system for the data itself. Additionally, the data formatting and file storage specifications changed a few times during the 17-year period over which experience was analyzed and also differs in certain aspects among different Retirement Systems.

Project Steps

The steps taken in completing this project involved the following:

- Data collection/orientation phase - Information regarding the current actuarial assumptions utilized, the plan specifications, and the structure and layout of the various data files needed to be collected and absorbed. The complexities involved in understanding all these items led to many interpretative challenges along the way, which needed to be overcome during this phase.

- Programming phase - In this segment of the study, we developed extensive computer programs and procedures to handle the data processing and aggregation of results. This phase also required elaborate testing and modification of the programs.

- Analysis of results/checking phase - As our computer programs calculated the mathematical results of the study, experienced staff members reviewed and analyzed the results. In many cases, the results appeared unreasonable which led, in many cases, to revisions based on updated understandings of the data specifications or plans. In other cases, certain inconsistencies or suspect results were discussed with the Office of the Actuary ("OA") in order to benefit from their expertise with regard to the Retirement Systems. In still other situations, listings had to be provided to the OA to ascertain the reasons for whatever unexplained phenomenon was discovered.

- Development of assumption recommendations - Once all problems had been resolved and the actual experience results were finalized to our satisfaction, the results of the analysis were used to develop recommendations for revisions in actuarial assumptions. This involved poring over the output of both the four year and 17-year studies, and applying judgment as how best to use these results in projecting the future. Phenomena that are not expected to recur (e.g., September 11, Tier 1 results for a rapidly declining group) needed to be filtered out in order to produce a more relevant recommendation. Other phenomena that would not have appeared yet in the experience results (e.g., generational mortality improvement) needed to be factored into our recommendations.

- Computation of cost impact for recommendations - Once the specific proposal for changes in assumptions was developed, we ran these new sets of assumptions through our computer programs to calculate the cost of each specific recommendation. By preparing costs for each individual assumption change, the significance of each recommendation is highlighted.

- Compilation of results and report preparation - Finally, once a sufficient degree of confidence was attained with regard to the results, they were summarized in a concise and understandable manner.

Challenges Encountered

At numerous points during this process, challenges were encountered. Among the most significant issues were the following:

- Computer system capabilities - The size and complexity of the data processing requirements was much greater than originally anticipated. This led to more resources (both in terms of personnel and hardware / software) ultimately being devoted to the project.

- Data inconsistencies - As previously mentioned, the massive amounts of data and complicated formats on the data files led to several misunderstandings as to what is actually represented on the data files. This was exacerbated by incomplete or inadequate descriptions of some of the data elements. Additional data analysis and discussions with OA personnel were required to overcome these problems.

- Compatibility with prior auditor - As our analysis was being performed, we compared the results that we obtained versus those that were available from the prior auditor during the periods that they studied (i.e., the four year period covering fiscal 1998 through 2001, as well as the 13-year period encompassing fiscal years 1989 through 2001). We repeatedly arrived at significantly different results, and had to extensively investigate the explanations for such differences. Eventually, the reason for the differences was discovered; members initially coded as "active-inactives" who later were coded with a decrement had been treated as terminations by the prior auditor. In such cases, we changed the member's initial coding to the ultimate decrement that was coded later in his or her chronological data stream. The resolution of this problem established an improved methodology, but also resulted in some substantive differences in study results/conclusions from the prior study.

- Data anomalies - Our analysis produced results on a fiscal year by fiscal year basis, rather than only in the aggregate for the four year and 17-year study periods. This represented a further improvement over prior studies, in that it enabled a better analysis of trends. However, it also identified several data anomalies that needed to be investigated. For example, it was discovered that there were a huge number of deaths occurring among

retirees in all Retirement Systems during fiscal 1990. After investigating this phenomenon, it appeared that some may have been due to data cleanups in that year, but that the more significant factor was data errors (possibly due to a different data layout that existed in those years). In the end, it was decided to omit fiscal 1989 and 1990 experience from the retiree mortality study, in order to improve the quality of the results. Several other anomalies that were pertinent to particular years and particular decrements were also discovered, and required investigation and corrective action.

The above is a sampling of the many challenges that were encountered during the course of this study. Of course, in any study as massive and complex as this, challenges are to be expected and will inevitably occur. However, we did uncover more critical problems than were anticipated at the start of the project. Fortunately, the vast majority of them were resolved satisfactorily, and to some extent, the quality of the results has been improved by virtue of tackling and resolving these issues.

III. DESCRIPTION OF EXPERIENCE ELEMENTS STUDIED

The following paragraphs describe the key areas of experience that were analyzed, and should be referred to prior to reviewing the individual report volumes that contain detailed experience results for each Retirement System.

Postretirement Mortality Experience

The expected future lifetime of a retired participant is used to develop the liabilities of each Retirement System. An individual receiving a $1,000 monthly benefit who is expected to live 20 years, for example, will have a higher liability than an individual receiving the same benefit but who is expected to live 15 years. Deviations in actual mortality experience versus that anticipated in accordance with the assumption results in an experience gain or loss each year.

Tables 1 and 2 of each accompanying report volume show the mortality experience of service retirees and disability retirees during the fiscal 2002-2005 and fiscal 1991-2005 periods (note that data issues precluded including fiscal years 1989 and 1990 in the postretirement mortality study). Each table shows, by age and in total, the number of life years exposed, the number of actual deaths, the expected number of deaths based on the currently assumed mortality tables, the ratio of actual to expected deaths, and the actual and expected aggregate mortality rates. Wherever we are proposing new mortality tables, the number of deaths expected based on the proposed table, the ratio of actual to expected deaths based on the proposed table, and the proposed aggregate mortality rates are also shown. Finally, in order to smooth out the effects of individual age fluctuations, tables combining results by five year age groups are also included.

Withdrawals From Active Membership

The assumed withdrawal or turnover rates used in annual actuarial valuations project the percentage of employees at each service duration who will terminate employment (for reasons other than death, disability and retirement) before qualifying for retirement benefits. To the extent that members terminate before attaining vesting status, their entire employer

provided benefit is forfeited. On the other hand, if the withdrawal occurs after fulfillment of the vesting requirement, then the member remains eligible for a deferred vested benefit, payable upon attaining the System's retirement eligibility age.

Participants eligible for retirement (either unreduced or reduced) were excluded from the withdrawal experience review. Such participants are considered in the analysis of retirement experience.

Table 3 of each volume presents the withdrawal experience for the 4-year and 17-year study periods from June 30, 2001 to June 30, 2005 and from June 30, 1988 to June 30, 2005, respectively. The current withdrawal assumption is based on years of service. Corresponding to this assumption, we studied the rates of withdrawal by service. Each table shows the number of members exposed to potential terminations, the actual number of terminations, the expected number based on the current and proposed assumptions, the ratio of actual to expected (and actual to proposed) for each service group, and the actual and expected (under both the current and proposed assumptions) aggregate withdrawal rates.

For several of the Retirement Systems, withdrawal rates are higher than normal in the most recent study years. This is at least partly due to the many employees who are classified as "active-inactives". As time elapses, some of these employees will reappear with active status codes, and be reclassified as non-withdrawals. Others will later appear on the data with another decrement code (e.g., death or disability). For this reason, we would not draw any firm conclusions based on the recent year withdrawal experience in this study until the results have more time to "mature".

Retirement Experience

A schedule of retirement rates is used in an actuarial valuation to measure the probability of eligible members retiring during the next year. Generally speaking, the earlier a member retires, the greater the cost to the Retirement System. This is because the early retirement reduction that applies to early retirees (if any) is smaller than the reduction that would be necessary to make up for the longer period of benefit payments that will apply.

The retirement rates being applied in the valuations generally distinguish between members who are in the first year following attainment of eligibility to retire, the second year following initial eligibility, and the third and later years of eligibility to retire with an unreduced benefit. The theory behind this assumption is that members who just recently fulfilled the retirement eligibility conditions are more likely to retire than in subsequent years.

Corresponding to the format of this assumption, we have studied retirements in the same categories - i.e., those that just attained eligibility to retire, those who are in the second year of eligibility to retire, and those who are in the third and later year of eligibility to retire. These results are presented in Tables 4-6 in the accompanying report volumes. In addition, for Retirement Systems where there is a separate early retirement assumption that applies to members who cannot retire with an unreduced benefit but are nevertheless eligible to retire with a benefit reduction, the experience with regard to reduced retirement is presented in Table 7.

In the course of the study, we found that there were a number of retirements that appeared to occur *before* the member was eligible to retire (e.g., after 18 or 19 years of service for a System with a 20-year requirement). Discussions revealed that these members most likely purchased service credit from the System in order to fulfill the eligibility criteria, and then retired. Others may be "deferred retirees" (i.e., members who terminated with a vested entitlement to a retirement benefit, but did not yet attain payability age). Still others may be due to early retirement incentives, data problems or retirements under a different plan than that coded on the data. The appendix describes how these issues were dealt with in the study.

Active Member Mortality

Two types of death benefits are available for most Retirement Systems - accidental death and ordinary death. Each type of death benefit is provided to deceased members' beneficiaries – in some cases the benefit level is service related, while in other cases the benefit is the same irrespective of the amount of service credited. Tables 8 and 9 (Tables 7 and 8 for Systems where reduced retirement is not applicable) provide the results of the experience study with regard to ordinary and accidental deaths respectively.

It should be noted that often members leave employment when ill or disabled, and are never coded as an active death even if they do ultimately die due to that illness or disability. Therefore, an active experience study of mortality is generally understated, and may not accurately capture the proportion of active members who die while in active service. Nevertheless, the study can appropriately be used to measure the assumption, since future deaths can be anticipated to have a similar pattern of coding to past observations.

Disability Retirements

Two types of disability benefits are available – accidental disability and ordinary disability. Accidental disability benefits generally have no eligibility requirements – i.e., employees qualify if their disability arises from duty related causes even if the disability occurs on the first day after employment. Ordinary disabilities, on the other hand, require up to ten years of service (depending on the system and tier) to become eligible to receive a benefit.

In analyzing each Retirement System's disability experience, we separately evaluated the incidence of accidental and ordinary disabilities. The exposure used to measure the rate of accidental disabilities was based on all active members in the Retirement System, since all members were subjected to the possibility of becoming disabled due to job related causes, and therefore qualifying for a benefit. Ordinary disabilities were measured versus exposure consisting of only those employees eligible to receive that ordinary disability benefit, namely those that satisfied the service requirement.

Tables 10 (ordinary disabilities) and 11 (accidental disabilities) in each report volume (Tables 9 and 10 if reduced retirement is not studied) present the results of the experience study with regard to disability benefits.

Salary Experience

Projected assumed salary increases are important in the actuarial valuation process, since retirement benefits are based on salaries during the one to three year period prior to retirement. Therefore, larger assumed salary increases result in higher anticipated benefits, while lower assumed salary increases result in smaller projections of retirement benefits.

Overall salary experience has been analyzed and the results are presented in Table 11 (or Table 12) for each volume. This table shows the actual salary increases, by service, for all members included in any two consecutive valuations during that period.

The salary increase assumption actually consists of three components - one representing inflation, one representing productivity growth, and one that represents increases for merit, promotion and longevity. A separation of the actual increases into components has been undertaken for this study, and the results with regard to the merit, promotion and longevity components are also shown in Table 11 (or Table 12).

Overtime Assumption

Actuarial valuations contain several assumptions that predict the amount of overtime that a member will earn in any given year (expressed as a percentage of salary rate), as follows:

- A general overtime assumption, that estimates the percentage of overtime to be earned throughout the member's career

- An overtime assumption for the year(s) before service retirement, that estimates the percentage of overtime that will be earned by a member in the year (or years) before retiring with a service retirement benefit

- An overtime assumption for the year before disability, that estimates the percentage of overtime that will be earned by a member in the year before becoming disabled (either accidental or ordinary).

The overtime assumption for the year(s) before retirement is higher than the general overtime assumption, because member benefits are based on their compensation earned in the last year(s) before retirement. Therefore, members tend to increase their overtime earnings just prior to retirement.

Tables 12-14 (or 13-15) of each report volume study the overtime experience with regard to each of these assumptions, where they exist. In each case, the actual percentage of overtime earned is compared to the percentage predicted by the assumption.

IV. ISSUES RELATED TO DEVELOPING ASSUMPTION RECOMMENDATIONS

Several considerations enter into the development of assumption recommendations. The process involves far more than merely mirroring actual experience during the most recent four year period and projecting similar experience into the future. Among other factors that entered into the thought process in proposing assumption revisions are the following:

Credibility of Available Data

As previously noted, the more observations available for a particular area of experience, the greater is the degree of credibility, or reliability, with regard to the results observed. Thus, for example, areas where there is little exposure, such as mortality among female POLICE or FIRE members, would not lend themselves to the development of a reliable assumption. By contrast, NYCERS General and TRS have a huge body of experience in this area, and such experience can be used quite reliably in developing an assumption for the future.

Past Results versus Future Expectations

The actuary needs to carefully consider the extent to which the future can be predicted based on the past. On the one hand, the future is unknown, and the only available indicator as to what future experience might be is the results that did in fact occur in the past. However, we also know that experience varies during different periods – this is obvious from a review of the fiscal year by fiscal year experience results that we published in connection with this study for each area of experience analyzed. Therefore, assumptions should be selected with an appropriate degree of reliance on past experience, but also without totally dismissing the current assumption. After all, the current assumption was also developed based on actual experience, albeit during an earlier period than now being evaluated.

Furthermore, it is undesirable to have sharp swings in assumptions that could result from excessive reliance on recent experience. For example, withdrawals may be temporarily high during a four year period due to economic conditions. If fully reflected in the next assumption, this would need to be reversed after the next four year study if economic conditions changed. This could lead to sharp and unnecessary swings in employee contribution requirements. Therefore, we try not to be too abrupt in recommending

assumption changes that represent a sharp departure from what was used in the past.

Nonrecurring Events

The most obvious and clear example of an event that profoundly affected experience during the fiscal 2002-2005 study period, but that cannot be anticipated to recur, was the World Trade Center attack of September 11, 2001. But other nonrecurring events also are evident upon a close analysis of the data – for example, early retirement incentive offerings and periodic data cleanups that resulted in a large increase in certain decrements occurring during particular fiscal years. The actuary must make judgments regarding such matters and decide how much of the experience in any of these areas (if any) may be projected to occur in the future, and to what extent (if any) the proposed assumption should reflect these areas of experience.

Four Year versus 17-Year Experience Studies

This report presents the results of both a four year study covering fiscal years 2002-2005, as well as a 17-year study covering fiscal 1989-2005. Clearly, greater weight should be given to the more recent experience (i.e., the four year study) in developing an assumption. This is partly because the previous 13 years were already used in the creation of the existing actuarial assumptions, and the current assumption scales are also considered in developing a new assumption. In this study, however, we placed somewhat more reliance on the 17-year study than we normally would, for two reasons:

- (i) Due to the significant number of members coded as "active-inactives" (which need time to "mature" until the cause of decrement eventually emerges), the most recent study years are, to some extent (particularly with regard to certain systems and certain decrements), *less* reliable than earlier study years.

- (ii) Because the maturation of "active-inactives" was not fully reflected by the prior auditor, our experience results for the 13-year period differed (significantly, in some cases) from prior published results. Consequently, the more precise results for prior experience periods that we derived in this study had not yet been properly reflected in the development of earlier assumptions.

In areas where these considerations were not a factor (such as postretirement mortality), however, much more weight was in fact given to the most recent four year period.

Retirement Rates Split between Tiers 1/2 versus Tiers 3/4

The current retirement assumptions do not distinguish between different tiers of benefits. The format of this assumption was established long ago, before the existence of multiple tiers, and has not been modified since then. However, as time passes, Tiers 3 and 4 take on added significance, as a continually greater proportion of active members are participants in those tiers. Therefore, in connection with this study, we decided to evaluate retirement experience separately by tier. As evident from the results, the experience does, in fact, differ considerably by the different tiers. This may have been expected, because the retirement eligibilities and benefits also vary considerably between the tiers.

In light of the substantially different retirement patterns between Tiers 1 and 2 versus Tiers 3 and 4, and because the vast majority of liabilities and active members counts now consist of Tier 3 and 4 members, we are recommending retirement assumptions based on Tier 3 and 4 experience. Although in some cases the emerging experience with regard to Tiers 3 and 4 is not yet substantial enough to be considered completely reliable, we still feel that Tier 1 and 2 experience is no longer appropriate for use in predicting Tier 3 and 4 future experience. Also, it was felt that complicating the valuation process with separate assumptions for the different tiers is not warranted, since the remaining Tier 1 and 2 active membership is rapidly dwindling.

Generational Mortality

Studies of retiree mortality, such as those undertaken in connection with this experience study, measure the longevity of retirees as experienced during the period analyzed. However, actuaries need to also consider the impact of future longevity improvements, such as have been consistently occurring over any significant period of time. One way to accomplish this objective would be through the use of "generational mortality tables" – i.e., dynamic mortality tables that project mortality improvement each year into the future. Under this methodology, for example, the mortality rate for a 60 year old woman in the year 2026 would be based on the 2006 mortality rate for a 60 year old woman multiplied by 20 years

worth of a "mortality improvement factor".

We considered recommending the use of generational mortality tables, but decided not to proceed in that manner. Generational tables are not commonly in use at this time, and they complicate the valuation process. Furthermore, they may appear to lend greater credence to projected longevity improvements than are supportable by accumulated data, as we really have little idea about how future trends and events may accelerate or decelerate future mortality improvements. Therefore, as an alternative to the use of generational tables, we are recommending overall factors to be applied to the mortality rates at each age to reflect future improvements. These factors (.95 for women and .90 for men) were derived based on a recently published mortality table, the Retired Pensioners Mortality Table (RP-2000), and its accompanying projection scale for future mortality improvements. Application of the overall factors are intended to have a similar effect on liabilities as would have resulted from the use of full generational tables.

Rates versus Probabilities

Although used somewhat interchangeably, there is a technical difference between the development of "probabilities" of a decrement occurring and the corresponding "rates". This is only the case in situations where multiple decrements are operating at the same time, such as death, disability, withdrawal and retirement for active members of the retirement systems. Probabilities take into account only the one decrement that is being considered at the time, without adjustment for other decrements that may also occur. Rates, on the other hand, are adjusted for any particular decrement to take into account the possibility that the member was also subject to the possibility of another decrement occurring during the same time period. Rates are always higher than probabilities (although generally only by a slight amount).

As an example, assume that for a particular member, there was a 40% chance of retirement, a 10% chance of disability and a 2% chance of death, and that all decrements are assumed to occur in the middle of the year. The probabilities would be the same percentages noted, because no adjustment is made to any single decrement to reflect the chance that another decrement might also have occurred. Rates, however, would be adjusted for the possibility of other decrements occurring, as follows: the rate of retirement would be 40 / (100 - 1/2x10

- 1/2x2) = 42.6%; the rate of disability would be 10 / (100 - 1/2x40 - 1/2x2) = 12.7%, and the rate of death would be 2 / (100 - 1/2x40 - 1/2x10) = 2.7%.

We should note that our experience study methodology did adjust for the possibility of other decrements occurring, and therefore we technically developed rates of the various decrements occurring. The OA, on the other hand, uses probabilities. The difference should not be significant in terms of costs, and the rates that we recommend in this report can either be adjusted to their corresponding probabilities, or can be used as they are with minimal impact on contribution requirements.

Merit Salary Scale

Perhaps the most difficult part of the study was the development of recommendations with regard to the merit component of the salary scale. Actual salary increases for members who remained active during any fiscal year were measured, and are presented in the detailed output for each system. The problem comes in, however, in assessing how much of the increase is attributable to inflation and general wage increases (for which there is a separate assumption) and how much is due to merit.

Several different approaches were considered for use in this aspect of the study:

1. Assume that actual inflation and general wage increases during each study period were part of the salary increases granted, and therefore strip out these amounts from the overall salary study to arrive at the merit component. The problem here is that salary increases usually are not directly related to inflation that occurred during the same time period.

2. Assume that the currently assumed merit component at the longer service durations (i.e., those durations where it levels out at the lowest level – generally 1% to 2%) is accurate, measure the actual increases at those durations, and assume that the differential represents the inflation and general wage increase components actually granted during the period. The problem with this methodology is that we don't know if these ultimate merit increases are in fact still representative of what is happening.

3. Compute average salaries at each service duration, and determine the increase in this average over each individual service year. This method is intended to eliminate inflation and general wage increases from the equation, because a snapshot of average salaries is used, each of which is at the same point in time and hence has the same amount of general increases included. The problem with this method is that significant anomalies in the salary increases by service duration were observed for many systems.

4. Look at actual contractual increases in collective bargaining agreements to predict future merit increases. Of course, there is no guarantee that current agreements will hold for any length of time beyond the duration of the current agreement.

In the end, we decided to base our merit salary scale recommendations on a combination of all these approaches, as enumerated above. There is no precise formula that we felt could be used to scientifically determine an appropriate merit scale . But we looked at the actual study results, together with the current scale which already reflects to some degree the contractual provisions, and subjectively estimated what we felt would be a reasonable predictor of future salary experience.

V. SUMMARY OF RESULTS, OBSERVATIONS AND RECOMMENDATIONS – DEMOGRAPHIC ASSUMPTIONS

Tables 4 through 13 that appear following this section present a summary of the experience study results for the following Retirement Systems (including subgroups within NYCERS):

Table 4 - POLICE
Table 5 -FIRE
Table 6 - TRS
Table 7 - BERS
Table 8 - NYCERS - General Employees
Table 9 - NYCERS - Transit
Table 10 - NYCERS - Sanitation
Table 11 - NYCERS - Corrections
Table 12 - NYCERS - TBTA
Table 13 - NYCERS - HP-TP

Each table summarizes results for each decrement studied, separately for the four year study (i.e., fiscal years 2002 through 2005) and the 17-year study (fiscal years 1989 through 2005). The items summarized are as follows:

- **Ratio of actual to expected experience** - a number greater than 1.0 indicates that there were *more* decrements than anticipated by the actuarial assumption employed in that area. A ratio of less than 1.0 indicates *less* actual decrements occurring than expected based on the assumption. Thus, for example, assume that (based on the number of exposures during the period studied) the mortality assumption would have predicted 500 pensioner deaths, and that the actual number of pensioner deaths was 400. In this case, the ratio of actual to expected experience shown would be 0.80 (i.e., 400 actual deaths / 500 expected deaths).

- **Ratio of actual to proposed experience –** in situations where a revised assumption is being proposed, this column shows the ratio of actual experience to that which would have been predicted by the proposed assumption, had it been in effect during the period

studied. Again, a number greater than 1.0 indicates that there were *more* actual decrements occurring than expected based on the proposed assumption, while a ratio of less than 1.0 indicates *less* actual decrements than would have been anticipated by this proposed assumption. In cases where no revision to the current assumption is being proposed, this column is left blank

- **Average annual number of decrements** - this column shows the average number of decrements that actually occurred during the period shown and for the decrement studied. The purpose of this column is to provide the reader with some sense of the significance of the ratio shown. Thus, for example, in two different mortality studies the ratio of actual to expected experience might show 0.80, indicating that less deaths occurred among retirees than anticipated by the assumption (i.e., only 80% of the expected number). Further assume that in one case 400 deaths occurred on average per year, while in the other case the average annual number of deaths was 50. Clearly in this instance, the first study would have greater credibility, as it was based on a much higher degree of experience. Expressed in other words, any conclusions based on the first study would have a much higher degree of statistical reliability than those coming from the second study.

Note, though, that for salary and overtime pay experience, there are no decrements occurring. For those results, we have instead shown the actual salary increase or the actual overtime pay as a percentage of salary under the column labeled "average annual number of decrements". For those experience elements, the ratio of actual to expected column represents the actual percentage salary increase observed (or the actual overtime pay as a percentage of pay) divided by the expected percentage salary increase (or the expected overtime pay as a percentage of pay). For example, if the actuarial assumptions predicted a 6% salary increase on average, and the actual salary increase was 8% on average, then the ratio of actual to expected shown would be 1.33 (i.e., 8% actual increase / 6% expected increase).

General Observations Based on Study Results

Based on the results of the four year (i.e., fiscal 2002 through 2005) and 17-year (i.e., fiscal 1989-2005) experience studies, we offer the following comments and observations

concerning some of the highlights that are generally applicable to most (if not all) of the Retirement Systems:

- Mortality among retirees (both service and disabled) in virtually every system and subgroup showed some improvement in the four year study (i.e., fiscal years 2002 through 2005) as compared to the 15-year study (i.e., fiscal 1991-2005). This is consistent with national trends toward longer life expectancies.

- Withdrawals in most groups are higher (substantially so, in some cases) in fiscal 2002-2005 than in the fiscal 1989-2005 period. However, this conclusion cannot yet be considered firm, until the data has more time to "mature" (i.e., for some of those members considered as withdrawals, other causes of decrement will ultimately emerge, thereby reducing the percentage of actual withdrawals and increasing some other decrements).

- Actual withdrawals were generally higher than expected for POLICE, FIRE, TRS and BERS, while they came in below expectations for NYCERS.

- Retirements patterns for POLICE and FIRE were apparently influenced by 9/11, as they have been extremely high in fiscal 2002 and 2003, and generally remained high through fiscal 2005.

- TRS and Corrections showed higher than expected retirements, while retirements in the other groups generally came in either close to or below expectations.

- Active mortality and ordinary disability experience showed more decrements than expected for most groups (POLICE and FIRE were the main exceptions).

- Overtime was extremely high for POLICE, FIRE and TBTA during the fiscal 2002-2005 period, but more moderate when measured during the 17-year full study period. TRS have no evidence of either significant overtime or salary increases in the year before retirement. BERS members, on the other hand, earned a considerable amount of overtime, even though there is no current assumption for it. Most NYCERS groups did not display any significant deviations from the current assumptions.

The following sections discuss, in greater specificity, our comments, observations and recommendations regarding each individual Retirement System (or subgroup, for NYCERS).

POLICE

1. **Service Retiree Mortality** – for men, the ratios of actual to expected experience were 1.08 for the four year study, and 1.23 for the 15 year study. This indicates that mortality is improving when comparing the 15-year period to the 4-year period, and that a mortality table predicting longer life expectancies is appropriate. For women, the 4-year and 15-year ratios of actual to expected experience were 1.04 and 1.13. Note, however, the experience is much more limited for women, and therefore the results have less credibility.

   Recommendation – We have recommended a revised base service retiree mortality table for men that reflects the better mortality results experienced during the fiscal 2002-2005 period. For women, no change is recommended to the base table.

2. **Disabled Retiree Mortality –** the 4-year and 15-year ratios of actual to expected experience for men were 1.01 and 1.10, respectively. The pattern of mortality results by age group also was reasonably consistent with the assumption. For women, the corresponding ratios were .79 for the 4-year study and 1.27 for the 15-year study. However, there is very limited experience for women.

   Recommendation – No change to the base disability retiree mortality table is recommended.

3. **Withdrawals from Active Service –** a much higher level of withdrawals has been experienced in the most recent fiscal years than was observed in the earlier study years. This is evident from ratios of actual to expected experience of 1.45 in the 4-year study, as compared to only 0.90 in the 17-year study. Although for many systems some of the recent year withdrawals eventually get reclassified into other decrement categories, this seems to occur less for POLICE. Therefore, it appears that the credibility of these results

is fairly good.

Recommendation – We recommend a new scale of withdrawal rates predicting a somewhat higher percentage of terminations at most ages. The proposed rates are somewhere in the middle of the 17-year and 4-year experience results, thereby reflecting to some degree (but not completely) the higher degree of withdrawals in recent years.

4. **Service Retirements in First Year Eligible –** Much higher retirements than expected were found. In fact, 78% of first year eligible members retired in the 4-year study and 63% in the 17-year study, as compared to the 50% assumption. Some of this may be September 11 related, and it may not be appropriate to give full credence to the recent year results. However, there are clearly more active members retiring in the first year of eligibility than anticipated by the current assumption.

   Recommendation – Change the current 50% assumption to 80% at ages 40 and under, and the current 50% to 60% at all other ages up to 62, and retain the current 100% assumption at ages 63 and over.

5. **Service Retirements in Second Year Eligible –** Contrary to the first year eligible experience, less retirements than predicted were observed in the second year eligible.

   Recommendation – Change the 25% retirement rate to 18% at all ages, until age 63 and older at which point retain the current 100% assumption.

6. **Service Retirements after Second Year Eligible –** Overall experience is similar to the second year of eligibility, but the pattern shows a slight increase with age. Therefore, it appears appropriate to continue with a separate scale of retirement rates after the second year of eligibility as compared to those that apply in the second year.

   Recommendation – The current rates assumed are 15% up to age 61, 50% at age 62, and 100% at ages 63 and over. Our recommendation is to revise these rates to 12% at ages 45 and under, 14% at ages 46-49, 16% at 50-53, 18% for ages 54-57, 20% at 58-61, retain 50% at 62 and 100% at ages 63 and over.

7. **Active Member Mortality –** There is a limited degree of experience, with only 397 deaths

among men and 54 among women occurring during the 17-year study. Overall, the current assumption predicted the actual experience reasonably well.

Recommendation – No change to the current table is recommended.

8. **Accidental Death –** 113 accidental deaths occurred during the 17-year study, of which as many as 24 appear to be September 11 related. The 17-year study ratio of actual to expected was 2.04, however this would decline to 1.72 without the 24 deaths during fiscal 2002. Other than the September 11 deaths, there were only 6 deaths during the last four years, a lower level than in earlier years. Besides the 24 accidental deaths in fiscal 2002, there were three other years with an elevated level of deaths – 11 in fiscal 1998 and 10 in fiscal years 1993 and 1990.

   Recommendation – We recommend doubling the current assumption (i.e., change .01% to .02%). This will come close to replicating the 17-year experience, and anticipate a small degree of periodic events that serve to increase the overall incidence of accidental deaths.

9. **Ordinary Disability –** The 4-year and 17-year ratios of actual to expected experience were 0.99 and 1.00, indicating experience that is remarkably close to the current assumption. Furthermore, the age pattern of disabilities observed appears reasonably close to the predicted pattern.

   Recommendation – No change to the current assumption is recommended.

10. **Accidental Disability –** The 4-year and 17-year ratios of actual to expected experience were 1.02 and 1.04, again remarkably close to the current assumption. The age pattern also is reasonably consistent with the assumption. There is no significant evidence of September 11 related disabilities, although more could possibly occur in the future.

    Recommendation – We recommend no change in the current assumption. However, the Actuary may choose to supplement the current assumption with an additional overlay to cover anticipated September 11 related disabilities in the future, particularly as related to the World Trade Center Bill (we understand that an assumption has already been

implemented for this purpose).

11. **Merit Salary Scale –** Much higher increases appeared in the first two years of employment than predicted by the current scale. In the rest of the service durations, actual experience matched reasonably well that predicted by the current assumption. There are certain bumps in salary contained in the current assumption (e.g., 35% at service 4, 3.6% at service 19) that were not found to occur precisely at those durations, but generally were consistent with increases experienced in that year together with adjoining years. Thus, for example, we found merit increases in years 4 and 5 that together conformed with the large increase predicted by the current assumption at duration 4. We would consider this as verifying the assumption, with the different duration probably due to rounding of service for valuation purposes. Finally, at the longest service durations, the increases appeared to taper down quicker than predicted by the current assumption.

    Recommendation – Change the current 6% and 5% for service 0 and 1 to 12% and 8%. Retain the current scale at most other service durations, except drop the increases more quickly beginning at service 20.

12. **Overtime for All Years –** Actual overtime was substantially higher than expected in the fiscal 2002-2005 period. Much of this is clearly attributable to September 11, and needs to be discounted in evaluating the current assumption. We also found that the pattern of overtime seems to decline somewhat as service increases, as opposed to the current assumption which remains level at all service durations

    Recommendation –Retain the current assumption (12% at all service durations) for service durations up to 20 years, then reduce it to 10% at service 21, 8% at 22, 7% at 23, 6% at 24 and 25, and 5% for service durations 26 and over.

13. **Overtime before Service Retirement –** Similar to the overtime for all years study, overtime before service retirement also showed a large increase in the most recent study years, apparently due to September 11. The current assumption is 16% at all service durations, the actual overall average was 17.3% for the 16-year study and 25.4% for the most recent four years. The pattern by service appears to peak at 18-19 years of service

and then decline. But there is not enough of a deviation from the assumption, nor enough clear evidence, to recommend a change.

Recommendation – Retain the current assumption.

14. Overtime before Disability Retirement – The current assumption is 6% at all service durations, the actual observed amounts were 10.1% for the 4-year study (which included the effects of September 11) and 5.4% for the 16-year study period. A more pronounced trend of peaking at 18-20 years was found here, as compared to overtime before service retirement.

Recommendation – Change to a service based assumption – 2% for service 5 or less, 4% for service 6-14, 6% for service 15-16, 10% for service 17-21, 6% for 22-28, 5% for 29-35, and 3% for service 36 and over.

FIRE

1. Service Retiree Mortality – Overall ratios of actual to expected experience for men were 1.06 for the 4-year and 1.07 for the 15-year studies. This indicates experience reasonably close to expectations. However, considerably more deaths than expected occurred among younger retirees.

Recommendation – Retain the current male base rates at ages 55 and over. For ages under 55, apply the current age 55 rate.

2. Disability Retiree Mortality – Overall experience conformed quite well with the current assumption.

Recommendation – No change is proposed, except that assumed disabled retiree mortality rates at ages below 55 should not dip below the service retiree mortality rates (which were increased below age 55) at the corresponding ages. When this occurs (ages 52 and below), use the service retiree mortality rate instead.

3. Withdrawals from Active Service – The number of withdrawals during fiscal 2005 was

extraordinarily high, way above other years. Apparently, this data needs time to "mature". Fiscal 2004 was quite high as well. Some of this may also be September 11 related. Without those years, the overall experience was reasonably close to the assumption.

Recommendation – A couple of minor revisions – change 0.7% to 0.6% at service 1, 0.5% to 0.4% at service 2, and 0.2% to 0.1% at service 17-19. Retain the current assumption at other service durations.

4. **Retirements –** Considerably higher than normal retirements (in all years studied – the first year of eligibility, second year of eligibility and after the second year of eligibility) were observed in the years after September 11, but it is unlikely that this pattern will persist. In other study years, the experience was fairly consistent with the assumptions.

   Recommendation – For the first year eligible to retire, change 15% at ages 40 and under to 25%, leave 15% unchanged at ages 41-49, increase ages 50-54 to 20%, and leave ages 55 and over unchanged. For the second year eligible, no change is recommended. For the third and later years of eligibility to retire, retain the current assumption at ages up to 61 and at ages 65 and over, change 40% to 25% at age 62, and change 100% to 50% at ages 63 and 64.

5. **Active Member Mortality –** During the 17 year study period, only 130 men and 1 woman died (non-accidental) while in active service. This produced male actual to expected ratios of 0.14 for the 4-year and 0.54 for the 17-year studies. Possibly more deaths are being classified as accidental in recent years.

   Recommendation – Reduce the current assumption by one-third (i.e., propose new active member mortality rates that are each 2/3 of the current assumption).

6. **Accidental Death –** Due to the over 300 accidental deaths related to the September 11 terror attack, experience in this area has been unfavorable. Excluding fiscal 2002, however, results in a 16-year ratio of 0.97, which is very close to the assumption.

   Recommendation – No change to the current assumption is recommended.

7. **Ordinary Disability –** The 17-year ratio is 1.28, and will likely increase a bit more as the

recent years data "matures". The slope of the actual experience also appears to be steeper than the current assumption (i.e., the rates of disability increase more sharply than predicted as age increases). Finally, we observed a significant discontinuity at age 55, where the incidence of disabilities increases sharply.

Recommendation – We propose no change to the current rates up to age 45, reducing the current rates at ages 46-54, and increasing them at ages 55 and over.

8. **Accidental Disability –** The 4-year and 17-year ratios of actual to expected experience are 2.04 and 1.16, respectively. The recent years experience was somewhat inflated due to September 11. Over the long term, however, the assumption has been fairly accurate.

   Recommendation – No change is recommended. A somewhat higher level of future accidental disabilities due to September 11 and the WTC bill are likely. The Actuary has already implemented another assumption in recognition of anticipated future experience under the WTC bill, and should continue this assumption, or a more refined version of it.

9. **Merit Salary Scale –** Overall experience by service exhibited a pattern reasonably indicative of that predicted by the assumption. The bumps in salary at certain durations were less evident in the 4-year study as compared to the 17-year study, thereby indicating they may no longer be occurring. However, it may be too early to draw this conclusion. Finally, experience indicates that increases may be smaller than currently expected at the longest service durations.

   Recommendation – Change the assumed increase at service duration 0 from 5% to 10%, reduced the assumed increase at most durations from 17-23 to 1.60%, and reduce the assumed increase to 1.0% at service durations 25-29. Retain the current assumption at all other service durations.

10. **Overtime for all Years –** Overtime has been extremely high in the fiscal 2002-2005 period, obviously related to September 11. During prior years, the 12% assumption was fairly close to actual experience. The service pattern differs from the assumption, however, in that the amount of overtime generally drops off as service increases.

Recommendation – Change the current 12% assumption to a service based assumption that better reflects actual experience - 14% for service 0-20, 13% for service 21-22, 12% for service 23-24, 11% for service 25, 10% for service 26, 9% for service 27, 8% for service 28-30, 7% for service 31-32, 6% for service 33-34, and 5% for service 35 and over.

11. **Overtime before Service Retirement –** Similar experience as to overtime for all years – very high in recent years (September 11 related), and a pattern that appears to be at least somewhat service related.

    Recommendation – Change the current 16% assumption to 14% at service 0-16, 20% for service 17-25, 15% for service 26-33, and 10% for service 34 and over.

12. **Overtime before Disability Retirement –** Experience has been well above the 6% assumption, even before the huge increases associated with September 11. Also, a service related pattern is observed in this area as well.

    Recommendation – Change the 6% at all service durations assumption to the proposed overtime before retirement scale less 4% at each duration.

TRS

1. **Service Retiree Mortality –** The actual to expected ratios were 1.02 for men and 1.08 for women in the four year study, and 1.13 for men and 1.19 for women in the 15-year study. This indicates that mortality has been improving among service retirees over the study period. Since this is such a large group, with nearly 643,000 life years of exposure and 21,713 deaths, actual experience has a great degree of credibility, and can be used to derive a new assumption. Although the overall ratios in the four year study are fairly close to 1.0, the pattern of experience by age does not match the current assumption too precisely, especially for men.

   Recommendation – We propose new base tables for men and women, which are derived by using actual experience during the fiscal 2002-2005 period. For ages 55 to

99, the actual rate for each five year age grouping is used as the proposed rate at the midpoint of the age band, with rates interpolated for ages in between, and extrapolated above age 99 and below age 55.

2. **Disabled Retiree Mortality –** The current tables overstate actual mortality. This is evident from ratios of 1.22 for men and 1.21 for women in the four year study, and 1.41 for men and 1.21 for women in the 15-year study. The age pattern also deviates to some extent from actual experience, but has a reasonably similar slope.

   Recommendation – Increase the current disabled life mortality rates by 20% across the board. This will bring the actual to proposed ratios close to 1.0 for the four year study.

3. **Withdrawals from Active Service –** These have been very high in recent years, and apparently need a long time to mature for this system. Factoring in a likely reduction in recent year counts, and using the 17-year study as an overall guide, the slope of experience is actually quite consistent with the current assumption. However, since the overall rates have been showing a pattern of steady increases over the years, it appears that a small increase in the assumed rates is warranted.

   Recommendation – Increase the current rates slightly for service durations 0 to 15, and retain the current assumption at service durations above 15.

4. **Retirements –** In general, the current assumption is for higher rates of retirement for men than women, however there is not much evidence to support this differentiation. Tiers 1 and 2 have much higher retirement experience than Tiers 3 and 4. Since Tiers 3 and 4 will dominate in the future, even though there is much less experience for these tiers, we will nevertheless base our recommendations on Tier 3 and 4 experience. The current retirement scales do not differentiate significantly between the first year of eligibility, the second year, and after the second year. In fact, experience at most ages also does not vary significantly between year of eligibility to retire, and we would expect still less variation in the future under Tiers 3 and 4 (which have less stringent eligibility to retire conditions). Finally, actual retirements are generally higher in all categories at ages under 62.

   Recommendation – We suggest unifying the retirement assumption for men and

women. Our proposed assumptions in all eligibility categories are generally higher until age 62 and lower above age 62.

5. **Reduced Retirements** - The level of reduced retirements has increased significantly in recent years. The current assumption increases by age, but actual data shows a much flatter slope. Tiers 3 and 4 have a much lower level of reduced retirements than Tiers 1 and 2.

   Recommendation – Change to 2.5% at all ages.

6. **Active Member Mortality –** The same assumption is now being used as for all other groups, except POLICE and FIRE. But the 17 year ratios of actual to expected experience are 1.46 for men and 1.16 for women, which are lower than most other groups, although still indicating the need for a higher scale.

   Recommendation – Increase the male rates by 50% and the female rates by 20% to better replicate actual experience.

7. **Accidental Death –** There is no current assumption for accidental deaths, and none in fact occurred during the 17-year study period.

   Recommendation – No change is recommended.

8. **Ordinary Disability –** Considerably more ordinary disabilities occurred than predicted, as clear from ratios of 2.45 for men and 2.20 for women in the four year study, and 1.84 for both men and women in the 17-year study. The number of disabilities has been especially high in recent years, although this may be an anomaly. Although the current assumption increases with increasing age, the actual pattern does not show much of an increase in incidence of disabilities with age for men. Women do show a pattern of increases with age, but only until age 60.

   Recommendation – Use the 17-year experience to develop a new assumption, but a bit higher to reflect the increases that occurred in recent years. Although considerably higher than the current scale, the incidence of ordinary disabilities is still expected to be quite low, with rates generally not exceeding 0.3% per year.

9. **Accidental Disability –** The current scale predicts higher rates for men, although actual experience shows much less of a variation between genders.

   Recommendation – Assume the same rates for men and women, as follows: zero at ages 29 and below, .01% at ages 30-39, .02% at 40-49, .03% at 50-59, and .04% at ages 60 and over.

10. **Merit Salary Scale –** The current scale contains bumps at certain durations (e.g., 6% at 19 years of service, 3% at 21 years), which are not precisely matched by experience, but are generally observed to occur within a year or two of the assumption. The overall increases are higher than assumed in the early service years and lower than assumed at the longer service years.

    Recommendation – We propose increases at durations 0 to 8, a reduction at service 9, no change for service 10 to 22, and then a drop from 2% to 1% for service above 22 years.

11. **Overtime –** There is currently no assumption for overtime, either for all years, or before service or disability retirement. Experience for all years shows that there is very little overtime earned by teachers. For the year before regular and disabled retirement, instead of studying overtime (which there is none), we studied salary increases to determine whether members somehow enhance their earnings in the last year worked prior to retirement (for example, by increasing their per-session pay). The study revealed no evidence of salary increases in the last year worked that are *significantly* above the overall assumed increases.

    Recommendation – No change is recommended.

BERS

1. **Service Retiree Mortality –** The current assumption is the same as for NYCERS – General employees. The experience for BERS over the study period has been a bit better than for General employees, but reasonably in line. Note, however, that BERS has less than one-tenth as many deaths as NYCERS - General.

Recommendation – Use the same proposed table as for NYCERS – General.

2. **Disabled Retiree Mortality –** Similar comments as for service retiree mortality.

   Recommendation – Use the same proposed table as for NYCERS – General

3. **Withdrawals from Active Service –** There have been more withdrawals than expected, especially during the last three fiscal years. Currently, different withdrawal rate scales are being used for men and women – the male scale is higher, and men have, in fact, experienced higher actual withdrawal rates than women (especially the last few years). The pattern of withdrawals has also exhibited a difference by gender.

   Recommendation - Propose higher rates of withdrawal for both men and women, mostly based on the 17-year experience study (since we are not sure how much credibility to give the extremely high rates of recent years).

4. **Retirements –** The current retirement assumptions are the same as for General employees. BERS appears to have lower actual rates of retirement than General employees, but it is not clear how valid the BERS data is. Due to their high proportion of part time employees and other data issues, we are uncomfortable giving full credibility to the BERS experience. For General employees, retirement rates were generally reduced below age 62 and for the Improved Plan.

   Recommendation – The same assumptions as for General employees are recommended.

5. **Reduced Retirements –** The current assumption is age related, but experience does not seem to support that pattern. Experience was much higher than for General employees, but again it is not clear how much credibility can be given to those results (possibly a portion of the reduced retirements actually belong in the unreduced retirement study).

   Recommendation – Same as for General employees, change the assumed rates to 2.5% at all ages.

6. **Active Member Mortality –** The assumption is the same as for General employees. Experience was higher than assumed, but not as high as observed for General employees.

Recommendation – Increase the rates to those proposed for Transit.

7. **Accidental Deaths –** There is no current assumption. Only two accidental deaths have occurred in the past 17 years.

   Recommendation – No change is proposed.

8. **Ordinary Disability –** The current assumption is the same as for General employees. Experience has been much worse than General employees for the recent four years (especially in fiscal 2003), but not as bad for the 17-year study. The volume of experience is much less than for General (only ¼ as much over the last four years).

   Recommendation – Same as is being proposed for General.

9. **Accidental Disability –** Again, the current assumption is the same as General, but experience was worse (i.e., more accidental disabilities) than General – especially in fiscal 2003. But there is a relatively small amount of experience, and uncertainty as to the data validity and whether fiscal 2003 experience was a one-time aberration (possibly due to September 11 or some kind of data cleanup).

   Recommendation – Same as is being proposed for General.

10. **Merit Salary Scale –** There is quite a bit less correlation with service than indicated by the current assumption. Also, although the data does not appear to be too reliable, there is an indication that overall merit increases are lower than now assumed.

    Recommendation – Retain the 5% assumption for service 0, and then reduce the assumed merit scale at all other service durations.

11. **Overtime –** There is no assumption currently for overtime – either for all years of service or before retirement (either service or disabled). The data, however, shows a considerable amount of overtime being earned, with an increasing pattern by service..

    Recommendation – Institute an overtime assumption of 8% for service 0-10, 10% for service 11-20, and 12% for service 21 and over. Use this assumption for both all years as well as in the year before service retirement. For the year before disability retirement, assume this amount less 4%.

NYCERS – General

1. **Service Retiree Mortality –** This group has a huge amount of experience (nearly 250,000 life years of exposure and 11,030 deaths in the four-year study), which is credible enough for use in developing an assumption. Actual to expected ratios were 0.93 for men and 1.06 for women in the four year study, thereby indicating that the male assumption is too high and the female assumption too low.

   Recommendation – Use actual four year experience to develop new mortality tables for men and women. We used the actual experience by five year age groups and applied those rates to the midpoint of the grouping, then interpolated between ages and extrapolated to the oldest and youngest ages to arrive at our proposed tables.

2. **Disabled Retiree Mortality –** Actual experience was reasonably in line with the assumption, both on an aggregate basis as well as by age groups.

   Recommendation – No change is recommended, except for the inclusion of a mortality improvement factor of .90 for men and .95 for women (as is being recommended for all other groups as well).

3. **Withdrawals from Active Service –** Somewhat less aggregate withdrawals were observed than predicted by the current assumption. By service durations, the pattern found was for less withdrawals at service durations 1-6 as well as 12 and over, and more withdrawals at service 7-10.

   Recommendation – A new scale of withdrawal rates was developed based on a blend of four year and 17-year experience. The new scale conforms to the pattern observed (i.e., less withdrawals at service 1-6, more at service 7-10, and less at service 12 and over).

4. **Retirements –** Tiers 1 and 2 showed considerably higher retirements than Tiers 3 and 4. Actual retirements during the first year of eligibility were generally higher than expected, during the second year they were close to expected, and after the second year of eligibility they were somewhat below expected. The improved plan generally had less retirements than expected during the first two years of eligibility to retire, and more retirements thereafter. Our recommendations were related to Tiers 3 and 4, which have now attained dominance for active members.

Recommendation – Lower rates of retirement are proposed at ages below 62 in the first two years of eligibility to retire, and at ages below 63 in the third year of eligibility to retire. No change is recommended at the higher ages. For the Improved Plan, lower rates are proposed for the first two years of eligibility to retire, and higher rates below age 62.

5. **Reduced Retirements –** The current scale varies by age, starting at 2% for ages 50-57 and gradually increasing to 6% at age 61. Actual experience is reasonably close to the assumption in the aggregate, but displays considerably less variation by age.

   Recommendation – Assume 2.5% reduced retirements at all ages 50-61.

6. **Active Member Mortality –** For men, the four year ratio is 2.74 and the 17-year ratio is 4.95. Overall deaths are much greater than assumed for men, although the age pattern is reasonably consistent. The current assumption for women is half that for men, and the ratios for women are also high – 3.59 for the four year study and 2.33 for all 17 years. For women, the actual increases in mortality by age are steeper than currently predicted.

   Recommendation – Use the current rates multiplied by a factor of five at each age for men. For women, use an increasing percentage of the male rates (varying from 7.5% at ages below 40, up to 37.5% at ages 65 and over) instead of 50% at all ages.

7. **Accidental Death –** There is no current assumption, and only 13 accidental deaths occurred during the 17-year study period.

   Recommendation – No change is recommended.

8. **Ordinary Disability –** More disabilities than expected occurred, both in the four year and the 17-year studies. This was the case for both men and women, and was especially true (and by a greater degree) at the young ages.

   Recommendation – New tables are proposed for both men and women, with generally higher assumed rates of ordinary disability, and with an age pattern that better replicates actual experience.

9. **Accidental Disability –** The current assumption is .02% for men and .01% for women at all ages. Actual experience showed considerably more accidental disabilities for men,

and about the number expected for women. Although somewhat of an increasing pattern by age was found, this was not definitive enough to base an assumption on.

Recommendation - Increase the male assumption to .032% at all ages, and leave the female assumption unchanged at .01%.

10. **Merit Salary Scale -** Actual increases observed were higher than currently assumed at service 0 and lower for most other years.

    Recommendation – Increase the assumed merit increase at service 0 from 5% to 6%, and decrease the current scale for all other service durations, including a decrease from 1.5% to 1% for all service durations above 15.

11. **Overtime for All Years -** The current assumption is 4%. Actual experience was less favorable (i.e., the actual overtime was larger than assumed), and also displayed somewhat of a declining pattern by service.

    Recommendation - Assume 5% until 19 years of service, then declining gradually by 0.15% per year (i.e., 4.85% at 20 years service, 4.70% at 21 years, 4.55% at 22 years, etc.).

12. **Overtime Before Service and Disabled Retirements –** The current assumptions are both 4%, the same as for all years service. The actual result is somewhat smaller overtime in the year before both types of retirement as compared to all years.

    Recommendation – We recommend the same change as proposed for the overtime assumption for all years. Thus, all three overtime assumptions will be the same, as is the case currently.

NYCERS – Transit

1. **Service Retiree Mortality –** The current assumption is the same as for NYCERS – General retirees. Experience has also been similar to this group.

   Recommendation – Use the same proposed table as for NYCERS – General.

2. **Disabled Retiree Mortality –** The current assumption is the same as for NYCERS –

General. Experience is reasonably similar to NYCERS – General.

Recommendation – Consistent with NYCERS – General, no change is recommended, other than application of the mortality improvement factors.

3. **Withdrawals from Active Service –** The current assumption is higher for women than for men. Actual experience shows a bit higher rate for men over the 17 years, but considerably higher for women during the last four years. Presumably, as the recent experience matures, men and women will be closer again. We also note that male exposure is over six times as large as for women, thereby rendering male experience as much more important.

   Recommendation – Unify the male and female assumption based on the 17-year study results. Lower rates are proposed, as follows: 10% at service 0, 5% at 1 year, 3% at year 2, 2.4% at year 3, 2.2% at year 4, 2.1% at year 5, then dropping by 0.1% per year until 1% at service durations 16 and over.

4. **Retirements –** As with all other systems, Tiers 1 and 2 evidenced a higher degree of retirements than Tiers 3 and 4. In general, Transit displayed less retirements than anticipated in most classifications during the four year study and, to a lesser extent, during the 17-year study also. This was less evident for Improved Plan members.

   Recommendation – New retirement scales are proposed for the first year eligible, the second year eligible, and after the second year of eligibility to retire. Emphasis was placed on Tiers 3 and 4 experience. The proposed rates are lower above age 60 in the first year eligible, at ages 62 and 65 in the second year eligible, and higher in the third year eligible (except lower at age 62). For the Improved Plan, lower rates are proposed for the first two years of eligibility, and ages 62 and 65 in the third year, while higher rates are proposed in the third year at ages 61 and less.

5. **Reduced Retirements –** The current scale is 2% at ages 50-57, 3% at 58, 4% at 59, 5% at 60, and 6% at 61. Actual experience shows considerably less reduced retirements, and also much less variation by age.

   Recommendation – assume 1% at all ages from 50 to 61.

6. **Active Member Mortality –** The current assumption is the same as for NYCERS General. Again, more deaths occurred than expected (ratios for men of 2.00 and 2.79 for the four and 17-year studies, ratios for women of 3.21 and 1.90 for the four and 17-year studies), although not as high an incidence as for NYCERS General members.

   Recommendation – Use 56% of the current proposed NYCERS General rates for men, and the same as NYCERS General proposed rates for women.

7. **Accidental Death –** The assumption is a rate of .01% at all ages. In actuality, only 10 deaths occurred in 17 years, as compared to 58 expected.

   Recommendation – Drop the current rate in half to .005%.

8. **Ordinary Disability –** The four and 17 year ratios were 1.23 and 1.69, respectively, thereby indicating a higher incidence of ordinary disabilities than assumed.

   Recommendation – Increase the current assumption by 60% at all ages from 35 and over, and use the age 35 rate (i.e., .024%) for all ages below 35.

9. **Accidental Disability –** The assumption is .02%, the actual experience rate was .0244% for the 17 years studied. But 77 of 141 disabilities occurred in fiscal 1990 (was there some kind of data clean up that year or bad data), and very few in recent years.

   Recommendation – Drop the rate in half to .01%.

10 **Merit Salary Scale –** The ultimate 1% assumption at service five and over looks good relative to experience. Years 0 to 4 show slightly lower increases than assumed.

   Recommendation – A reduction from 12% to 10% at service 1, and by 1% in each of service years 2-5 is recommended.

11. **Overtime for All Years –** Currently, 8% is assumed. This assumption holds up very well versus actual experience (the actual rate of overtime was 8.52% for the 16-year study and 8.91% for the recent four years).

   Recommendation – No change is proposed.

12. **Overtime Before Service Retirement –** Ratios of .84 for 16 years and .72 for four years were found. Actual overtime is especially lower than expected at the shorter service

durations.

Recommendation – We propose 6% for service 0-17, 12% for service 18-20, 14% for service 21 and 22, 16% for service 23, 14% for service 24-30, 10% for service 31, 9% for service 32, 8% for service 33-38, and 5% for service 39 and over.

13. **Overtime Before Disabled Retirement –** The current assumption is 6%, which appears to be too high based on the study results.

    Recommendation – 4% is proposed.

NYCERS _ Sanitation

1. **Service Retiree Mortality –** The current assumption is the same as for NYCERS General. Experience has been slightly better than for NYCERS General retirees, but similar. The overall actual to expected ratios for men came out reasonably close to 1.0.

   Recommendation – Change to the same table recommended for NYCERS General.

2. **Disabled Retiree Mortality –** The current table in use is the same as for Corrections, and differs from NYCERS General. This table unifies with the regular service retiree table at ages 80 and over; for other groups, this does not occur until at least age 90. The 15-year male ratio is 0.95, which is reasonable in the aggregate, but the ratio increases at older ages.

   Recommendation – Higher rates at ages 65 and over (a 1% increase to the mortality rate at age 66, 2% at age 67, and so on until 20% at ages 85 and older) and lower rates at ages 64 and under (reduce the current age 64 rate by 1%, the age 63 rate by 2%, and so on until a 15% reduction at ages 55 and under), and the proposed table will not unify into the regular service retiree table at all.

3. **Withdrawals from Active Service –** Actual experience reveals less withdrawals than expected, with actual to expected ratios of 0.63 for the four year study and 0.74 in the 17-year study.

   Recommendation – A lower scale of withdrawal rates is proposed. No change to service 0 and 1 rates (6% and 4%), change years 2-5 to 2%, 1.5%, 1.2% and 1.1%,

change years 6-9 to 1.0%, 1.0%, 0.9%, and 0.8%, and change the years 10 and over rate to 0.7%.

4. **Service Retirements –** The 17-year ratios are 1.16 for the first year eligible (1.12 for Tiers 1 and 2, 1.63 for Tiers 3 and 4), 1.07 for the second year eligible (1.06 for Tiers 1 and 2, 1.22 for Tiers 3 and 4), and 1.12 after the second year eligible (1.14 for Tiers 1 and 2, 0.46 for Tiers 3 and 4). Experience with regard to Tiers 1 and 2 is rapidly declining, so Tiers 3 and 4 will dominate in the future. However, there is limited experience from Tiers 3 and 4 thus far, particularly with regard to the second and later years of eligibility to retire. The Improved Plan has lots of exposure, and the actual retirements are *less* than for regular plan retirees in all years, contrary to the current assumption.

   Recommendation – Change the Improved Plan assumption to the same as that used for regular plan retirees. For the first year eligible, revise the assumed retirement rate to 50% up to age 52, 60% at ages 53-69 and 100% at ages 70 and over. For the second year eligible, unify the assumption with the Improved Plan, and assume 20% up to age 53, 30% at 54-60, 40% at 61-69, and 100% at 70 and over. For the third and later years of eligibility to retire, unify the assumption with the Improved Plan, and assume 15% up to age 54, 20% at 55-61, 40% at 62-69 and 100% at ages 70 and over.

5. **Reduced Retirement –** Actual experience is much lower than expected (the ratios are .30 for four years and .16 for 17 years).

   Recommendation – Reduce the current assumption to assume 1% at all ages.

6. **Active Member Mortality –** The current assumption is the same as for NYCERS General. The 17-year ratio for men is 2.48, which is lower than for General. However, the exposure for Sanitation is only 1/8 of that for General employees, while the number of deaths is 1/20. Nevertheless, the fact remains that experience is better than General.

   Recommendation – Assume ½ of the proposed active mortality table for General employees (both men and women).

7. **Accidental Death –** Only 5 accidental deaths occurred during the 17- year study period, 13 were expected.

Recommendation – Consistent with Transit, drop the rate by 50% from .01% to .005%.

8. **Ordinary Disability –** The actual to expected ratios were .92 for 17 years and .73 for the last four years (which may increase due to maturation). The age pattern is also reasonably consistent with the assumption.

   Recommendation – No change is recommended.

9. **Accidental Disability –** Ratios of 1.04 for 17 years and 0.53 for four years were observed. The age pattern is also reasonably consistent with the assumption.

   Recommendation – No change is recommended.

10. **Merit Salary Scale –** The data showed salary bumps at service durations 0, 4 and 5. The current assumption has a large salary bump at service 4, presumably this reflects what we observed at the combined service 4 and 5 durations.

    Recommendation –Retain the current scale, except replace 5% at duration 0 with 15%.

11. **Overtime for All Years –** The current assumption increases with increasing service. The actual pattern differs in that it increases somewhat until 20 years of service, but then shows a decline.

    Recommendation – We recommend changing to 14% for service 0-4, 16% for service 5-11, 18% at durations 12-25, 14% for service 26-30 and 12% at service durations 31 and over.

12. **Overtime before Service Retirement –** Currently, it is assumed that overtime prior to service retirement will be the regular overtime for all years assumption plus 2% until 16 years of service, 4% for service 17-44, and 2% for service 45 and over. Actual experience displayed less than expected overtime at 0-15 years of service, then much more after 15 years of service.

    Recommendation – Use the proposed overtime for all years of service assumption plus 0% for service 0-15, 2% for service 16-19, or 4% for service 20 and over.

13. **Overtime before Disabled Retirement –** Actual experience is well below expected.

    Recommendation – Use ½ of the current assumption at all service durations.

NYCERS – Corrections

1. **Service Retiree Mortality –** The current assumption is the same as for all NYCERS groups other than HP-TP. Actual experience was reasonably close to expected.

   Recommendation – Since a new table was proposed for NYCERS General employees, we recommend that this proposed table be used for Corrections also. This should still provide a good fit to actual experience.

2. **Disabled Retiree Mortality –** Currently, the same table as for Sanitation is assumed. The 17-year ratios were 0.78 for men and 0.61 for women. Similar to Sanitation, the ratio goes up at older ages, but the overall magnitude of mortality is below Sanitation.

   Recommendation – Use the same table proposed for Sanitation.

3. **Withdrawals from Active Service –** Overall ratios of actual to expected are 0.42 for four years and 0.46 for 17 years, indicating a need for reduced withdrawal rates. Experience in fiscal 2005 was extremely low, there may be some kind of data issue that year, or maybe it needs to mature.

   Recommendation – Retain the current 10% and 7% assumption at service 0 and 1, then reduce the assumed rate at all service durations above 1 year.

4. **Retirements in First Year Eligible -** The first year experience shows much higher retirements than expected. There is a lot of Improved Plan experience, especially in the four year study. All experience is now in Tiers 3 and 4.

   Recommendation – Unify the regular and Improved Plan assumptions. Assume 80% at all ages up to 54, and 100% for ages above 54.

5. **Retirements in Second Year Eligible -** There is no more Tier 1 and 2 experience. The Improved Plan shows higher retirements than Tiers 3 and 4 in the most recent four years, while lower for the full 17-year period. Tiers 3 and 4, in the aggregate, had retirement rates of 28% in the four year and 60% in the 17-year study, but there hasn't been that much experience in either period. The Improved Plan has much more experience, mostly in the last four years, with a four year aggregate rate of 39% and without much variation by age.

Recommendation – Assume 40% up to age 55, then 100% at ages 56 and over for both the regular and Improved plans.

6. **Retirements after Second Year Eligible –** There is still a fair amount of Tier 1 and 2 experience here, although it will dwindle in the future. There is not that much difference between Tiers 1/2 and Tiers 3/4 anyway, although Tiers 3 and 4 actual rates are higher. The Improved Plan experience is close to Tiers 3 and 4 for the recent four years. Not much age variation is evident, but there is some – especially at age 55.

   Recommendation – For all plans, 20% at all ages up to 51, 25% from 52 to 62, and 100% at ages 63 and over.

7. **Reduced Retirements –** Currently, rates of 2% to 6% are assumed for ages 51-61. We found virtually no exposure, nor any reduced retirements.

   Recommendation – No change is recommended, as there is no data upon which to base an assumption.

8. **Active Member Mortality –** The current assumption is the same as all other groups (except Police and Fire). The 17-year ratios of actual to expected were 2.43 for men and 1.21 for women.

   Recommendation – Use 50% of the proposed rates for General.

9. **Accidental Death –** The current assumption is 0.01%. No accidental deaths occurred in 17 years as compared to 18 expected.

   Recommendation – Eliminate the assumption, and assume no accidental deaths.

10. **Ordinary Disability –** The ratios were 0.69 for four years and 1.19 for 17 years. The age pattern was reasonably consistent with the assumption. The ratios in recent years are lower than long ago, so even allowing for the data to mature, overall recent experience should be in line with the assumption.

    Recommendation – No change is recommended.

11. **Accidental Disability –** The four and 17 year ratios are 1.15 and 1.05, respectively. The expected rate increases with age, although the actual slope of the increase appears

steeper. The total number of disabilities is 460 in 17 years, and the majority of them occurred in fiscal 1999 and 2000. This is not that large a number, and not conclusive as to whether the changing age pattern is valid (in any event, it wouldn't have a significant impact).

Recommendation – No change is recommended.

12. **Merit Salary Scale –** The big blip in year four seems validated – apparently, it is combined into years 4 and 5 in our study, due to the rounding of service. Other blips also seem valid, especially based on the four year study data. There seems to be a larger increase actually occurring in year 0, but this is the only observation that seems contrary to the current assumption, and it is not significant.

    Recommendation – No change is proposed.

13. **Overtime for All Years –** The ratios were 0.96 for four years and 1.37 for 16 years. The pattern exhibits an increase with service, as does the current assumption, although actual experience is a bit less steep than assumed. Overall results are reasonably consistent with the four year experience (high increases occurred many years ago and are apparently no longer relevant).

    Recommendation – No change is recommended.

14. **Overtime before Service Retirement –** The current assumption is essentially overtime for all years + 2% (although there are a couple durations where it is +4%). There is no evidence at all of higher overtime before retirement in the most recent four years. There is some evidence for the 16-year study (especially at service 25-29), but not conclusive.

    Recommendation – Change this assumption to be the same as the recommended overtime for all years assumption.

15. **Overtime before Disabled Retirement –** Experience is significantly below the assumption, and well below overtime for all years.

    Recommendation – Use the regular overtime for all years assumption less 4% for all service durations.

TBTA

1. **Service and Disabled Retiree Mortality –** The current assumptions are the same as General employees. Experience in both areas, although somewhat limited, is similar in the various age bands to General.

   Recommendation – Propose the same tables as are being suggested for General employees.

2. **Withdrawals from Active Service –** These have been very high in the most recent two years, although they may need time to mature. In prior years, experience was mostly lower than assumed.

   Recommendation – increase 5% to 10% at service 0, leave service 1 unchanged at 4.4%, then decrease the assumption at other ages.

3. **Retirements –** There is very limited experience for TBTA at all years of eligibility. Tiers 1 and 2 used to dominate, but now Tiers 3 and 4, which have even less experience, are taking on primary significance. For year 1 of eligibility, the Improved Plan has more experience and retirements are lower than expected, but reasonably consistent with the assumption. In the second year of eligibility, the limited study results are fairly in line with the assumption (again, the Improved Plan assumed rates appear high). In the third and later years of eligibility, the Improved Plan has more retirements than expected, but not substantially so. For reduced retirements, there is also very limited experience, and no results stand out.

   Recommendation – No change is being proposed due to the dearth of experience.

4. **Active Member Mortality –** There were about twice as many deaths as expected. Currently, the assumption is the same as for the other NYCERS groups.

   Recommendation – The same table as being recommended for Transit is proposed.

5. **Accidental Deaths –** The current assumed rate of 0.01% would produce about 2 deaths over the 17-year period. None were observed.

   Recommendation – Consistent with Corrections, we recommend eliminating the

assumption.

6. **Ordinary Disability –** The 17-year ratios of actual to expected were 2.62 for men and 4.11 for women, although they have been lower in recent years. The ratios are very high at the young ages, and the overall pattern does not vary that much by age, especially for men.

   Recommendation – Change the male assumption to 1% at all ages. Change the female assumption to the same as that proposed for men.

7. **Accidental Disabilities –** Actual experience, although limited, is reasonably in line with the current assumption.

   Recommendation – No change is proposed.

8. **Merit Salary Scale –** Salary blips appear at certain durations, but not the same ones as dictated by the assumption. There is no evidence at all of the 13% assumed bump in year 4.

   Recommendation – Smooth out the salary scale – retain 7.5% at duration 0, then assume 5.0%, 4.5%, 4.0%, 3.5%, 3.0%, 2.5%, 2.0%, 1.5% at service 1-8, and 1.25% for service 9 and over.

11. **Overtime for All Years –** The current assumption increases steadily from 1% to 20%, but there is limited evidence of this increasing pattern. In general, experience has been much flatter.

    Recommendation – 15% for years 1-9, 18% for years 10-11, 22% at years 12-25, 18% for 26-31, 15% for service 32-33, and 10% for service 34 and over.

12. **Overtime before Service Retirement –** The current assumption is the overtime for all years assumption + 2%. Experience is higher than assumed.

    Recommendation – 10% for service 0-12, 20% for service 13-15, 28% at durations 16-28, 20% for service 29-32, and 10% for service 33 and over.

13. **Overtime before Disabled Retirement –** There is very limited experience, with the actual overtime coming in a bit below expectations.

    Recommendation – No change.

HP-TP

1. **Service Retiree Mortality –** The current assumption is the same as for POLICE, and experience is reasonably similar to POLICE experience.

   Recommendation – Use the same table recommended for POLICE.

2. **Disabled Retiree Mortality -** The current assumption is the same as for POLICE, and experience is similar to POLICE although somewhat higher at several age groups.

   Recommendation – Use the same table recommended for POLICE.

Table 4 - POLICE

EXPERIENCE RESULTS SUMMARY						
	Fiscal Years 2002-2005			Fiscal Years 1989-2005		
	Ratio: Actual to		Avg annual #	Ratio: Actual to		Avg annual #
	Expected	Proposed	of decrements	Expected	Proposed	of decrements
Service Retiree Mortality						
Men	1.08	1.00	469.5	1.23	1.14	468.9
Women	1.04	-	6.8	1.13	-	4.7
Disabled Retiree Mortality						
Men	1.01	-	259.3	1.10	-	220.7
Women	0.79	-	3.5	1.27	-	3.7
Active Withdrawals	1.45	1.28	947.3	0.90	0.78	637.5
Service Retirements						
First year eligible	1.56	1.24	1640.0	1.26	1.02	585.9
Second year eligible	0.72	0.99	61.0	0.74	1.03	60.3
After 2nd year eligible	1.14	1.09	164.8	0.87	0.84	287.6
Active Mortality						
Men	0.90	-	21.5	1.02	-	23.4
Women	1.03	-	2.3	1.96	-	3.2
Accidental Death	2.14	1.07	7.5	2.04	1.02	6.6
Ordinary Disability	0.99	-	86.0	1.00	-	80.3
Accidental Disability	1.02	-	352.5	1.04	-	312.4
Salary Increases - Total	1.27	1.14	7.48%	1.04	0.93	6.59%
Merit Only	1.20	1.14	3.48%	0.89	0.84	2.99%
Overtime Pay - all years	1.44	1.47	17.30%	0.93	0.96	11.19%
Overtime Pay – before retirement	1.59	-	25.38%	1.08	-	17.32%
Overtime Pay – before disabled retirement	1.69	1.73	10.10%	0.90	1.04	5.38%

Notes:

1. Service and disabled mortality figures exclude fiscal 1989 and 1990 (data issues)
2. Overtime pay figures exclude fiscal 1989 (data not available)
3. For salary study, the actual percentage increase is shown under the decrement column
4. For the overtime studies, the actual overtime as a percentage of salary is shown under the decrement column
5. The salary study with merit only was based on actual salary increases less assumed inflation components of 4.00% and 3.60% for the 4 year and 17 year studies, respectively.

Table 5 - FIRE

EXPERIENCE RESULTS SUMMARY						
	Fiscal Years 2002-2005			Fiscal Years 1989-2005		
	Ratio: Actual to		Avg annual # of decrements	Ratio: Actual to		Avg annual # of decrements
	Expected	Proposed		Expected	Proposed	
Service Retiree Mortality						
Men	1.06	1.05	215.8	1.07	1.06	186.9
Disabled Retiree Mortality						
Men	0.98	0.96	204.0	1.05	1.03	168.7
Active Withdrawals	1.98	2.18	52.3	1.14	1.25	26.9
Service Retirements						
First year eligible	1.34	1.28	118.0	0.96	0.93	56.2
Second year eligible	1.70	-	44.3	0.99	-	22.3
After 2nd year eligible	1.46	1.56	191.5	0.82	0.90	175.3
Active Mortality						
Men	0.14	0.21	1.8	0.54	0.81	7.6
Women	0.00	0.00	0.0	3.45	5.18	0.1
Accidental Death	11.40	-	78.0	3.25	-	24.8
Ordinary Disability	0.68	0.57	15.5	1.28	0.97	46.2
Accidental Disability	2.04	-	378.0	1.16	-	257.6
Salary Increases - Total	1.21	1.10	7.02%	1.04	0.95	5.86%
Merit Only	0.95	0.92	2.66%	1.08	1.08	2.88%
Overtime Pay - all years	1.66	1.47	19.89%	1.21	1.10	14.55%
Overtime Pay – before retirement	1.94	1.64	31.05%	1.31	1.17	20.91%
Overtime Pay – before disabled retirement	3.94	1.82	23.65%	2.23	1.14	13.39%

Notes:

1. Service and disabled mortality figures exclude fiscal 1989 and 1990 (data issues)
2. Overtime pay figures exclude fiscal 1989 (data not available)
3. For salary study, the actual percentage increase is shown under the decrement column
4. For the overtime studies, the actual overtime as a percentage of salary is shown under the decrement column
5. The salary study with merit only was based on actual salary increases less assumed inflation components of 4.36% and 2.98% for the 4 year and 17 year studies, respectively.

Table 6 - TRS

EXPERIENCE RESULTS SUMMARY						
	Fiscal Years 2002-2005			Fiscal Years 1989-2005		
	Ratio: Actual to		Avg annual #	Ratio: Actual to		Avg annual #
	Expected	Proposed	of decrements	Expected	Proposed	of decrements
Service Retiree Mortality						
Men	1.02	1.02	488.0	1.13	1.14	443.8
Women	1.08	1.01	1051.3	1.19	1.12	1003.7
Disabled Retiree Mortality						
Men	1.22	1.01	28.3	1.41	1.17	32.7
Women	1.21	1.01	77.0	1.21	1.01	85.3
Active Withdrawals	1.67	1.58	4740.3	1.10	1.04	2272.3
Service Retirements						
First year eligible - Total (Men)	1.48	1.03	94.8	1.75	0.89	124.3
First year eligible - Total (Women)	1.85	1.34	450.3	1.66	1.17	351.9
Tiers 1 & 2 (Men)	3.16	1.24	68.8	2.47	0.95	111.8
Tiers 1 & 2 (Women)	3.54	1.81	293.8	2.48	1.32	236.2
Tiers 3 &4 (Men)	0.62	0.71	26.0	0.48	0.57	12.5
Tiers 3 & 4 (Women)	0.97	0.90	156.5	1.00	0.94	115.8
Second year eligible - Total (Men)	2.46	1.14	117.3	2.01	0.86	105.4
Second year eligible – Total (Women)	2.29	1.39	354.5	1.63	1.06	228.5
Tiers 1 & 2 (Men)	5.75	1.32	104.5	3.08	0.92	98.6
Tiers 1 & 2 (Women)	4.83	1.72	268.5	2.65	1.18	168.4
Tiers 3 & 4 (Men)	0.43	0.54	12.8	0.33	0.42	6.8
Tiers 3 & 4 (Women)	0.87	0.88	86.0	0.79	0.83	60.1
After 2nd year eligible - Total (Men)	2.17	1.77	1118.3	1.51	1.29	632.9
After 2nd year eligible – Total (Women)	1.25	1.14	1616.0	1.01	0.94	959.3
Tiers 1 & 2 (Men)	3.47	2.43	1056.5	1.99	1.52	600.2
Tiers 1 & 2 (Women)	2.99	2.15	1284.3	1.83	1.43	723.4
Tiers 3 & 4 (Men)	0.29	0.31	61.8	0.28	0.30	32.8
Tiers 3 & 4 (Women)	0.38	0.41	331.8	0.43	0.46	235.9
Reduced retirements - Total (Men)	1.83	2.16	94.0	1.31	1.62	35.1
Reduced retirements – Total (Women)	1.29	1.61	279.5	1.05	1.35	156.9
Tiers 1 & 2 (Men)	8.98	9.41	55.0	5.85	6.81	18.1
Tiers 1 & 2 (Women)	6.41	7.43	64.3	3.76	5.00	33.7
Tiers 3 & 4 (Men)	0.86	1.03	39.0	0.72	0.89	16.9
Tiers 3 & 4 (Women)	1.04	1.31	215.3	0.87	1.12	123.2

Table 6 – TRS (Continued)

EXPERIENCE RESULTS SUMMARY						
	Fiscal Years 2002-2005			Fiscal Years 1989-2005		
	Ratio: Actual to		Avg annual #	Ratio: Actual to		Avg annual #
	Expected	Proposed	of decrements	Expected	Proposed	of decrements
Active Mortality						
Men	0.17	0.12	5.5	1.46	0.97	46.0
Women	0.23	0.19	11.8	1.16	0.96	48.2
Accidental Death	N/A	N/A	0.0	N/A	N/A	0.0
Ordinary Disability						
Men	2.45	1.33	29.8	1.84	0.87	24.3
Women	2.20	1.09	86.8	1.84	0.91	64.6
Accidental Disability						
Men	0.74	0.89	4.3	0.81	0.96	4.7
Women	1.12	0.86	13.0	1.12	0.86	11.1
Salary Increases - Total	1.25	1.12	7.74%	1.10	1.01	6.52%
Merit Only	1.26	1.18	4.02%	1.25	1.23	3.67%
Overtime Pay - all years	N/A	N/A	0.00%	N/A	N/A	0.00%
Overtime Pay - before retirement	N/A	N/A	7.16%	N/A	N/A	5.75%
Overtime Pay - before disabled retirement	N/A	N/A	3.73%	N/A	N/A	3.87%

Notes:

1. Service and disabled mortality figures exclude fiscal 1989 and 1990 (data issues)
2. Overtime pay figures exclude fiscal 1989 (data not available)
3. For salary study, the actual percentage increase is shown under the decrement column
4. For the overtime studies, the actual overtime as a percentage of salary is shown under the decrement column
5. No overtime data is available for years before fiscal 2002
6. The salary study with merit only was based on actual salary increases less assumed inflation components of 3.72% and 2.85% for the 4 year and 17 year studies, respectively.

Table 7 - BERS

EXPERIENCE RESULTS SUMMARY						
	Fiscal Years 2002-2005			Fiscal Years 1989-2005		
	Ratio: Actual to		Avg annual # of decrements	Ratio: Actual to		Avg annual # of decrements
	Expected	Proposed		Expected	Proposed	
Service Retiree Mortality						
Men	0.86	0.94	91.5	0.99	1.09	53.9
Women	0.92	0.88	246.0	1.16	1.08	157.1
Disabled Retiree Mortality						
Men	0.94	-	7.8	1.01	-	4.1
Women	0.68	-	8.0	0.87	-	4.7
Active Withdrawals						
Men	2.42	1.61	352.3	1.36	0.92	211.3
Women	1.94	1.41	878.5	1.38	1.04	604.9
Service Retirements						
First year eligible	0.87	0.96	161.8	0.80	0.85	136.3
Tiers 1 & 2	1.17	1.65	12.0	0.84	1.07	23.8
Tiers 3 & 4	0.85	0.93	149.8	0.79	0.81	112.5
First year eligible - Improved	0.66	0.99	6.3	0.37	0.53	1.5
Second year eligible	0.69	0.78	60.5	0.54	0.59	45.1
Tiers 1 & 2	0.70	1.11	5.5	0.58	0.75	11.6
Tiers 3 & 4	0.69	0.75	55.0	0.53	0.54	33.5
Second year eligible - Improved	0.81	1.30	3.3	0.23	0.36	0.8
After 2nd year eligible	0.51	0.50	364.8	0.55	0.55	221.0
Tiers 1 & 2	0.75	0.81	108.5	0.81	0.91	78.5
Tiers 3 & 4	0.44	0.43	256.3	0.47	0.45	142.5
Third year eligible - Improved	1.90	1.82	27.5	0.31	0.26	6.6
Reduced retirements	1.53	2.03	160.0	0.76	1.01	53.3
Tiers 1 & 2	3.73	5.38	6.3	3.97	5.70	3.4
Tiers 3 & 4	1.49	1.98	153.8	0.72	0.96	49.9

Table 7 – BERS (Continued)

EXPERIENCE RESULTS SUMMARY							
	Fiscal Years 2002-2005				Fiscal Years 1989-2005		
	Ratio: Actual to		Avg annual # of decrements		Ratio: Actual to		Avg annual # of decrements
	Expected	Proposed			Expected	Proposed	
Active Mortality							
Men	2.60	1.00	18.8		3.00	1.15	20.7
Women	2.71	1.18	40.8		3.51	1.51	46.3
Accidental Death	N/A	N/A	0.0		N/A	N/A	0.0
Ordinary Disability							
Men	2.35	1.04	19.3		1.50	0.90	9.8
Women	2.38	1.50	48.5		2.16	1.34	23.1
Accidental Disability							
Men	2.12	1.35	2.0		2.69	1.72	2.5
Women	3.07	3.16	5.3		2.51	2.59	3.7
Salary Increases	0.73	0.77	3.99%		0.85	0.89	4.76%
Merit Only	0.73	1.04	1.77%		0.82	1.14	2.14%
Overtime Pay - all years	N/A	1.62	14.55%		N/A	N/A	N/A
Overtime Pay - before retirement	N/A	1.03	10.69%		N/A	N/A	N/A
Overtime Pay - before disabled retirement	N/A	1.19	6.84%		N/A	N/A	N/A

Notes:

1. Service and disabled mortality figures exclude fiscal 1989 and 1990 (data issues)
2. Overtime pay figures exclude fiscal 1989 (data not available)
3. For salary study, the actual percentage increase is shown under the decrement column
4. For the overtime studies, the actual overtime as a percentage of salary is shown under the decrement column
5. No overtime data is available for years before fiscal 2002
6. The salary study with merit only was based on actual salary increases less assumed inflation components of 2.22% and 2.62% for the 4 year and 17 year studies, respectively.

Table 8 - NYCERS - General Employees

EXPERIENCE RESULTS SUMMARY							
	Fiscal Years 2002-2005				Fiscal Years 1989-2005		
	Ratio: Actual to		Avg annual # of decrements		Ratio: Actual to		Avg annual # of decrements
	Expected	Proposed			Expected	Proposed	
Service Retiree Mortality							
Men	0.93	1.01	1367.0		1.04	1.13	1398.5
Women	1.06	1.01	1390.5		1.08	1.03	1178.1
Disabled Retiree Mortality							
Men	0.92	-	116.8		1.02	-	113.9
Women	0.98	-	73.8		0.94	-	53.9
Active Withdrawals	0.86	0.96	3778.8		0.92	1.03	4015.9
Service Retirements							
First year eligible - Total	1.09	1.25	666.5		1.23	1.50	734.0
Tiers 1 & 2	1.77	3.18	239.5		1.71	2.70	471.4
Tiers 3 & 4	0.89	0.94	427.0		0.82	0.83	262.6
First year eligible - Improved	0.77	1.16	136.3		0.64	0.96	32.2
Second year eligible - Total	1.05	1.29	269.0		0.99	1.30	272.8
Tiers 1 & 2	1.48	3.09	110.3		1.20	2.15	171.6
Tiers 3 & 4	0.87	0.92	158.8		0.76	0.78	101.2
Second year eligible - Improved	0.75	1.19	39.8		0.59	0.95	9.5
After 2nd year eligible - Total	0.67	0.70	1226.5		0.81	0.87	1417.8
Tiers 1 & 2	0.96	1.15	665.5		0.97	1.14	1016.6
Tiers 3 & 4	0.50	0.47	561.0		0.58	0.55	401.2
Third year eligible - Improved	1.34	1.01	63.8		1.27	0.95	15.1
Reduced retirements - Total	0.98	1.25	394.5		0.75	0.98	206.8
Tiers 1 & 2	1.04	1.27	15.3		2.92	3.94	45.4
Tiers 3 & 4	0.98	1.25	379.3		0.62	0.81	161.4

Table 8 - NYCERS - General Employees (Continued)

EXPERIENCE RESULTS SUMMARY							
	Fiscal Years 2002-2005				Fiscal Years 1989-2005		
	Ratio: Actual to		Avg annual # of decrements		Ratio: Actual to		Avg annual # of decrements
	Expected	Proposed			Expected	Proposed	
Active Mortality							
Men	2.74	0.55	205.3		4.95	0.99	356.2
Women	3.59	1.61	152.3		2.33	1.05	83.7
Accidental Death	N/A	-	1.8		N/A	-	0.8
Ordinary Disability							
Men	1.32	0.78	144.8		1.64	0.95	154.1
Women	1.45	0.81	121.0		1.69	0.94	116.8
Accidental Disability							
Men	1.62	1.02	17.5		1.56	0.98	17.5
Women	0.64	-	4.0		0.90	-	4.9
Salary Increases - Total	0.82	0.82	4.29%		0.95	0.95	4.99%
Merit Only	0.93	1.21	2.07%		0.91	1.18	2.07%
Overtime Pay - all years	1.27	1.04	5.06%		1.26	1.04	5.02%
Overtime Pay - before retirement	1.16	1.13	4.63%		1.06	1.01	4.25%
Overtime Pay - before disabled retirement	0.78	0.65	3.12%		0.87	0.72	3.47%

Notes:

1. Service and disabled mortality figures exclude fiscal 1989 and 1990 (data issues)
2. Overtime pay figures exclude fiscal 1989 (data not available)
3. For salary study, the actual percentage increase is shown under the decrement column
4. For the overtime studies, the actual overtime as a percentage of salary is shown under the decrement column
5. The salary study with merit only was based on actual salary increases less assumed inflation components of 2.22% and 2.92% for the 4 year and 17 year studies, respectively.

Table 9 - NYCERS - Transit

EXPERIENCE RESULTS SUMMARY						
	Fiscal Years 2002-2005			Fiscal Years 1989-2005		
	Ratio: Actual to		Avg annual # of decrements	Ratio: Actual to		Avg annual # of decrements
	Expected	Proposed		Expected	Proposed	
Service Retiree Mortality						
Men	0.94	1.03	869.8	1.02	1.12	867.8
Women	1.24	1.17	71.0	1.17	1.10	57.4
Disabled Retiree Mortality						
Men	0.96	-	68.3	1.08	-	69.1
Women	0.77	-	8.5	0.80	-	6.6
Active Withdrawals						
Men	0.63	1.01	524.8	0.58	0.91	498.3
Women	0.77	1.63	158.0	0.38	0.77	71.0
Service Retirements						
First year eligible - Total	0.38	0.66	78.0	1.12	1.45	351.0
Tiers 1 & 2	0.90	0.91	17.5	1.49	1.67	316.0
Tiers 3 & 4	0.33	0.61	60.5	0.35	0.67	35.0
First year eligible - Improved	0.75	1.12	67.0	0.57	0.85	15.8
Second year eligible - Total	0.30	0.67	31.5	0.66	1.11	99.4
Tiers 1 & 2	0.62	0.83	11.0	0.85	1.23	86.2
Tiers 3 & 4	0.24	0.60	20.5	0.27	0.68	13.1
Second year eligible - Improved	0.74	1.19	15.5	0.43	0.69	3.7
After 2nd year eligible - Total	0.62	0.75	334.5	0.80	0.90	464.1
Tiers 1 & 2	0.94	0.95	258.5	0.96	0.98	407.5
Tiers 3 & 4	0.28	0.43	76.0	0.37	0.56	56.6
Third year eligible - Improved	1.13	1.19	38.0	0.56	0.60	9.0
Reduced retirements - Total	0.46	1.42	49.3	0.29	0.90	17.5
Tiers 1 & 2	0.00	0.00	0.0	0.00	0.00	0.0
Tiers 3 & 4	0.46	1.42	49.3	0.29	0.90	17.5

Table 9 - NYCERS – Transit (Continued)

EXPERIENCE RESULTS SUMMARY							
	Fiscal Years 2002-2005				Fiscal Years 1989-2005		
	Ratio: Actual to		Avg annual # of decrements		Ratio: Actual to		Avg annual # of decrements
	Expected	Proposed			Expected	Proposed	
Active Mortality							
Men	2.00	0.72	79.5		2.79	1.00	97.8
Women	3.21	1.67	9.0		1.90	1.01	4.1
Accidental Death	0.35	0.70	1.3		0.17	0.35	0.6
Ordinary Disability	1.23	0.77	81.0		1.69	1.05	92.1
Accidental Disability	0.07	0.14	0.5		1.22	2.44	8.3
Salary Increases - Total	0.77	0.73	4.09%		0.96	0.92	5.15%
Merit Only	0.91	1.01	2.10%		0.99	1.10	2.33%
Overtime Pay - all years	1.11	-	8.91%		1.06	-	8.52%
Overtime Pay - before retirement	0.72	0.85	9.66%		0.84	1.02	12.55%
Overtime Pay - before disabled retirement	0.51	0.77	3.07%		0.58	0.87	3.49%

Notes:

1. Service and disabled mortality figures exclude fiscal 1989 and 1990 (data issues)
2. Overtime pay figures exclude fiscal 1989 (data not available)
3. For salary study, the actual percentage increase is shown under the decrement column
4. For the overtime studies, the actual overtime as a percentage of salary is shown under the decrement column
5. The salary study with merit only was based on actual salary increases less assumed inflation components of 1.99% and 2.82% for the 4 year and 17 year studies, respectively.

Table 10 - NYCERS - Sanitation

EXPERIENCE RESULTS SUMMARY							
	Fiscal Years 2002-2005				Fiscal Years 1989-2005		
	Ratio: Actual to		Avg annual # of decrements		Ratio: Actual to		Avg annual # of decrements
	Expected	Proposed			Expected	Proposed	
Service Retiree Mortality							
Men	0.92	1.00	293.5		0.94	1.03	258.0
Women	1.10	1.11	1.8		0.53	0.52	0.7
Disabled Retiree Mortality							
Men	0.97	0.94	71.3		0.95	0.95	61.5
Women	2.32	-	0.5		1.33	-	0.3
Active Withdrawals	0.63	0.80	64.3		0.73	0.93	77.2
Service Retirements							
First year eligible - Total	0.42	0.37	2.3		1.16	0.90	87.5
Tiers 1 & 2	0.00	0.00	0.0		1.12	0.87	77.9
Tiers 3 & 4	0.44	0.39	2.3		1.63	1.32	9.5
First year eligible - Improved	0.79	0.89	176.3		0.68	0.77	46.1
Second year eligible - Total	0.47	0.45	1.0		1.07	1.01	24.8
Tiers 1 & 2	2.50	1.67	0.3		1.06	1.00	23.6
Tiers 3 & 4	0.37	0.37	0.8		1.22	1.20	1.2
Second year eligible - Improved	0.44	0.81	29.5		0.33	0.61	7.2
After 2nd year eligible - Total	1.19	1.19	38.3		1.12	1.10	109.9
Tiers 1 & 2	1.40	1.37	37.3		1.14	1.11	108.9
Tiers 3 & 4	0.18	0.20	1.0		0.45	0.49	1.1
Third year eligible - Improved	0.89	1.11	73.0		0.64	0.80	18.0
Reduced retirements	0.30	1.04	0.3		0.16	0.51	0.1
Tiers 1 & 2	0.00	0.00	0.0		0.00	0.00	0.0
Tiers 3 & 4	0.30	1.04	0.3		0.16	0.51	0.1

Table 10 - NYCERS – Sanitation (Continued)

EXPERIENCE RESULTS SUMMARY							
	Fiscal Years 2002-2005				Fiscal Years 1989-2005		
	Ratio: Actual to		Avg annual # of decrements		Ratio: Actual to		Avg annual # of decrements
	Expected	Proposed			Expected	Proposed	
Active Mortality							
Men	2.19	0.88	16.8		2.48	0.99	17.6
Accidental Death	1.02	2.04	0.8		0.39	0.78	0.3
Ordinary Disability	0.73		23.8		0.92		25.5
Accidental Disability	0.53		10.0		1.04		19.1
Salary Increases - Total	1.05	0.97	7.43%		1.10	1.01	7.57%
Merit Only	0.79	0.77	3.21%		0.93	0.90	3.58%
Overtime Pay - all years	1.06	1.02	17.06%		1.09	1.03	16.98%
Overtime Pay - before retirement	0.96	1.05	20.95%		0.93	1.06	21.33%
Overtime Pay - before disabled retirement	0.34	0.67	4.71%		0.48	0.95	5.96%

Notes:

1. Service and disabled mortality figures exclude fiscal 1989 and 1990 (data issues)
2. Overtime pay figures exclude fiscal 1989 (data not available)
3. For salary study, the actual percentage increase is shown under the decrement column
4. For the overtime studies, the actual overtime as a percentage of salary is shown under the decrement column
5. The salary study with merit only was based on actual salary increases less assumed inflation components of 4.22% and 3.99% for the 4 year and 17 year studies, respectively.

Table 11 - NYCERS - Corrections

EXPERIENCE RESULTS SUMMARY							
	Fiscal Years 2002-2005				Fiscal Years 1989-2005		
	Ratio: Actual to		Avg annual # of decrements		Ratio: Actual to		Avg annual # of decrements
	Expected	Proposed			Expected	Proposed	
Service Retiree Mortality							
Men	0.90	0.97	57.0		0.91	0.98	42.5
Women	1.12	0.90	6.3		1.27	1.05	4.8
Disabled Retiree Mortality							
Men	0.78	0.82	17.5		0.78	0.83	12.6
Women	0.51	-	2.8		0.61	-	2.1
Active Withdrawals	0.42	0.80	128.8		0.45	0.80	177.3
Service Retirements							
First year eligible - Total	1.93	0.92	24.8		1.57	0.77	68.5
Tiers 1 & 2	0.00	0.00	0.0		1.16	0.56	28.6
Tiers 3 & 4	1.93	0.92	24.8		2.13	1.04	39.9
First year eligible - Improved	1.43	1.07	412.5		1.32	0.99	99.4
Second year eligible - Total	1.43	0.60	2.5		1.44	0.61	10.7
Tiers 1 & 2	0.00	0.00	0.0		1.06	0.44	6.4
Tiers 3 & 4	1.43	0.60	2.5		3.12	1.43	4.3
Second year eligible - Improved	0.97	0.97	33.8		0.77	0.76	8.0
After 2nd year eligible - Total	1.16	0.85	17.0		1.35	0.89	33.1
Tiers 1 & 2	1.09	0.80	13.0		1.32	0.86	31.0
Tiers 3 & 4	1.44	1.07	4.0		2.32	1.66	2.1
Third year eligible - Improved	1.39	1.31	39.8		1.17	1.11	9.7
Reduced retirements - Total	0.00	-	0.0		0.00	-	0.0
Tiers 1 & 2	0.00	-	0.0		0.00	-	0.0
Tiers 3 & 4	0.00	-	0.0		0.00	-	0.0

Table 11 - NYCERS – Corrections (Continued)

EXPERIENCE RESULTS SUMMARY							
	Fiscal Years 2002-2005				Fiscal Years 1989-2005		
	Ratio: Actual to		Avg annual # of decrements		Ratio: Actual to		Avg annual # of decrements
	Expected	Proposed			Expected	Proposed	
Active Mortality							
Men	1.30	0.46	6.0		2.43	0.87	11.1
Women	2.93	2.23	4.3		1.21	1.09	1.3
Accidental Death	0.00	0.00	0.0		0.00	0.00	0.0
Ordinary Disability	0.69	-	29.5		1.19	-	40.2
Accidental Disability	1.15	-	33.5		1.05	-	27.1
Salary Increases - Total	1.02	-	6.52%		0.87	-	6.52%
Merit Only	0.91	-	3.11%		0.69	-	3.08%
Overtime Pay - all years	0.96	-	9.33%		1.37	-	12.30%
Overtime Pay - before retirement	0.74	0.88	9.98%		0.80	0.97	11.13%
Overtime Pay - before disabled retirement	0.50	0.67	4.03%		0.62	0.80	4.64%

Notes:

1. Service and disabled mortality figures exclude fiscal 1989 and 1990 (data issues)
2. Overtime pay figures exclude fiscal 1989 (data not available)
3. For salary study, the actual percentage increase is shown under the decrement column
4. For the overtime studies, the actual overtime as a percentage of salary is shown under the decrement column
5. The salary study with merit only was based on actual salary increases less assumed inflation components of 3.41% and 3.44% for the 4 year and 17 year studies, respectively.

Table 12 - NYCERS - TBTA

EXPERIENCE RESULTS SUMMARY							
	Fiscal Years 2002-2005				Fiscal Years 1989-2005		
	Ratio: Actual to		Avg annual # of decrements		Ratio: Actual to		Avg annual # of decrements
	Expected	Proposed			Expected	Proposed	
Service Retiree Mortality							
Men	0.97	1.06	22.5		1.09	1.20	18.5
Women	0.74	0.65	1.0		0.92	0.83	0.9
Disabled Retiree Mortality							
Men	0.86	-	3.8		0.79	-	2.6
Women	0.00	-	0.0		0.21	-	0.1
Active Withdrawals	1.01	1.08	30.5		0.81	0.96	26.2
Service Retirements							
First year eligible - Total	0.92	-	4.0		1.37	-	10.1
Tiers 1 & 2	1.82	-	1.5		1.66	-	7.3
Tiers 3 & 4	0.71	-	2.5		0.95	-	2.8
First year eligible - Improved	0.90	-	19.0		0.75	-	4.6
Second year eligible - Total	0.97	-	1.8		1.01	-	2.8
Tiers 1 & 2	1.25	-	0.5		1.14	-	1.8
Tiers 3 & 4	0.89	-	1.3		0.85	-	1.0
Second year eligible - Improved	0.73	-	4.5		0.61	-	1.2
After 2nd year eligible - Total	0.78	-	4.0		1.00	-	8.6
Tiers 1 & 2	1.91	-	2.3		1.49	-	6.9
Tiers 3 & 4	0.44	-	1.8		0.42	-	1.6
Third year eligible - Improved	1.48	-	6.8		1.35	-	1.8
Reduced retirements - Total	1.44	-	1.5		1.07	-	1.1
Tiers 1 & 2	5.56	-	0.3		5.71	-	0.4
Tiers 3 & 4	1.25	-	1.3		0.78	-	0.8

Table 12 - NYCERS – TBTA (Continued)

EXPERIENCE RESULTS SUMMARY							
	Fiscal Years 2002-2005				Fiscal Years 1989-2005		
	Ratio: Actual to		Avg annual # of decrements		Ratio: Actual to		Avg annual # of decrements
	Expected	Proposed			Expected	Proposed	
Active Mortality							
Men	2.28	0.81	2.3		2.27	0.81	2.6
Women	2.35	1.29	0.3		1.95	1.10	0.2
Accidental Death	0.00	0.00	0.0		0.00	0.00	0.0
Ordinary Disability							
Men	1.50	0.58	2.8		2.62	0.95	5.8
Women	2.86	0.88	0.8		4.11	1.20	0.9
Accidental Disability							
Men	0.40	-	0.3		0.84	-	0.6
Women	0.00	-	0.0		1.56	-	0.1
Salary Increases - Total	1.24	1.47	7.77%		1.10	1.12	6.11%
Merit Only	0.57	0.80	1.84%		0.80	1.05	2.06%
Overtime Pay - all years	2.88	1.70	30.41%		1.75	1.07	19.31%
Overtime Pay - before retirement	2.29	1.83	46.82%		1.47	1.27	32.14%
Overtime Pay - before disabled retirement	0.32	-	3.41%		0.83	-	8.46%

Notes:

1. Service and disabled mortality figures exclude fiscal 1989 and 1990 (data issues)
2. Overtime pay figures exclude fiscal 1989 (data not available)
3. For salary study, the actual percentage increase is shown under the decrement column
4. For the overtime studies, the actual overtime as a percentage of salary is shown under the decrement column
5. The salary study with merit only was based on actual salary increases less assumed inflation components of 5.93% and 4.05% for the 4 year and 17 year studies, respectively.

Table 13 - NYCERS - HP TP

EXPERIENCE RESULTS SUMMARY							
	Fiscal Years 2002-2005				Fiscal Years 1989-2005		
	Ratio: Actual to		Avg annual #		Ratio: Actual to		Avg annual #
	Expected	Proposed	of decrements		Expected	Proposed	of decrements
Service Retiree Mortality							
Men	0.95	0.91	43.0		1.07	1.03	35.8
Disabled Retiree Mortality							
Men	1.07	-	24.0		1.25	-	21.3

Notes:

1. Service and disabled mortality figures exclude fiscal 1989 and 1990 (data issues)

VI. OBSERVATIONS AND RECOMMENDATIONS - ECONOMIC ASSUMPTIONS

The economic assumptions have a significant impact on the development of plan liabilities and contributions. Changes to these assumptions can substantially alter the results determined by the actuary. The goal of our analysis is to produce a consistent set of economic assumptions that appropriately reflect expected future economic trends.

The primary economic assumptions that affect the Systems' funding are:

- Inflation
- Investment return
- Salary increases

The current economic assumptions used for the Fiscal Year 2006 actuarial valuation are as follows:

Inflation	-	2.5% per annum
Investment return	-	8.0% per annum
Real wage growth	-	0.5% per annum
Real rate of return	-	5.5% per annum
Salary increases	-	3.0% plus a service-related salary scale.

The Actuarial Standards Board (ASB) has adopted Actuarial Standard of Practice No. 27 (ASOP 27), (Selection of Economic Assumptions for Measuring Pension Obligations) to provide actuaries guidance in developing economic assumptions. A key feature of the ASB's guidance is the "building block" approach in developing economic assumptions. This approach requires the actuary to consider the key component parts of major assumptions and determine reasonable best-estimates for each component.

Under this approach, we consider the investment rate of return assumption as the combination of an inflation component and a real rate of return component. The components of the salary increase assumption are inflation, productivity and merit. Note that the inflation component is included in both those assumptions (i.e., investment rate of return and salary increases).

Inflation

In developing a recommendation for the assumed inflation component, we reviewed a commonly referenced historical measure of inflation, the Consumer Price Index for all urban consumers (CPI-U). The table below shows how recent inflation experience is well below the longer-term average rate.

Average Annual Change in CPI-U
(periods ending June 30, 2006)

Past 5 Years	2.7%
Past 10 Years	2.6%
Past 20 Years	3.1%
Past 40 Years	4.7%

The average annual rate of increase in the CPI-U over the five years ending June 30, 2006 is 2.7%. Historical trend is a less important consideration for the assumed rate of inflation, but assists in determining the reasonable bounds of expected inflation.

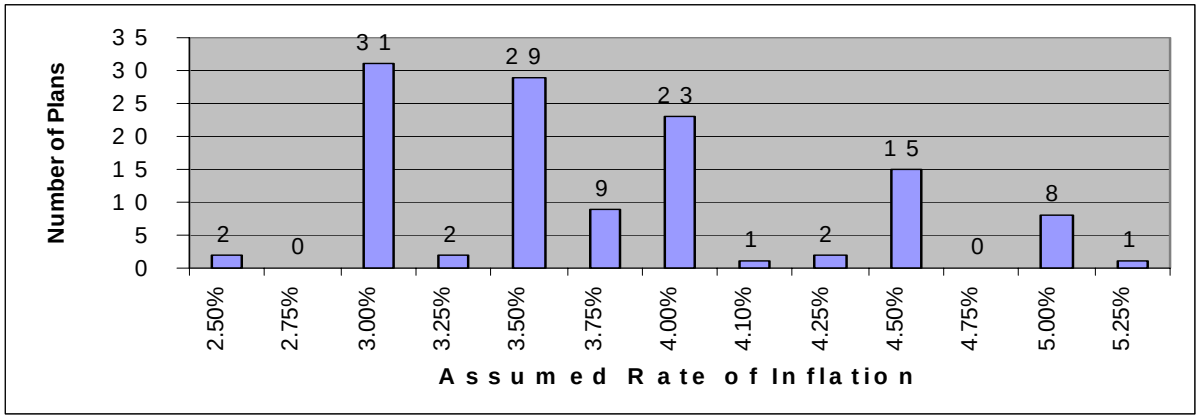
Next, we consider the measure of future inflation expectation. A good indication of future expectation is a market based forecast. Treasury Inflation Protection Securities (TIPS) are government bonds, which, in addition to a fixed yield, add the actual percentage change in CPI to the principal value. Therefore, the spread between the TIPS and the Conventional Treasury bond of the same maturity is an indication of the market's forecast for inflation. However, the Treasury no longer issues 30-year TIPS so for this purpose we looked at 10-year maturities.

As of the end of July 2006, the 10-year bond had a yield of 5.06%, while the 10-year TIPS had a yield of 2.55%. The difference between the yields, 2.51%, can be considered the bond market's forecast for inflation over the next 10 years. The market's expectation of inflation is not a completely valid measurement for forming the basis of an assumption, but is useful as an indicator for future trend.

The graph below shows the results of the September 2005 (Fiscal Year 2004) Public Fund Survey presented by the National Association of State Retirement Administrators (NASRA). The Survey covers 103 Systems and 127 Plans. The median inflation assumption for Fiscal Year 2004 was 3.50%, which represented a decline from the median of 3.75% for the prior year study (for Fiscal Year 2003).

The typical range of expected inflation for actuarial assumptions as indicated in the study was between 3.00% and 4.50%.

Assumed Rate of Inflation



As another basis for determining the future expected inflation, we reference the *2006 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds (2006 OASDI Trustees Report).* The range of inflation rates in this report was 1.8% for low-cost projection, 2.8% for the intermediate, and 3.8% for high-cost projection.

After reviewing and considering the various expected ranges, we determine the specific point in the ranges which is the best estimate of long-term future inflation rates. Because we find no compelling reasons to favor either the high or low end of the range, we recommend an increase in the assumed inflation rate from 2.5% to 3.0%, as the best estimate for the future annual rate of inflation. This is slightly higher than the (i) intermediate rates used in the 2006 OASDI Trustees report, (ii) the expected inflation rate inherent in the 10-year Treasures, (iii) the change in CPI over the last 10 years, but slightly lower than the median in the NASRA Survey.

Our recommendation for inflation is as follows:

Current inflation component assumption – 2.50% per annum
Recommended inflation component assumption – 3.00% per annum

Investment Rate of Return

The investment rate of return assumption is developed using the "building block" approach as outlined in the ASOP 27. Under this approach, the investment rate of return assumption is made up of two components; the inflation component and the real investment rate of return component. The reasonable range of the inflation component determined above is combined with the reasonable range of the real rate of return component. This reasonable range is then evaluated and refined. The final recommendation is a specific point in this best-estimate range.

In developing the reasonable range for the real rate of return, we consider the historical returns of the Systems' two major asset classes, Stocks and Bonds. First, over the long term, U.S. Stocks (S&P 500) have averaged an annual rate of return of 10.20%, while U.S. Bonds have averaged a 5.70% annual rate of return. Using the average annual rate of inflation since 1926 of 3.10%, and considering the range of common allocations (35% to 65% for both stocks and bonds), we determined the initial range for the total expected real rate of return to be 4.20% to 5.50% for various diversified portfolios.

Based on each System's current target allocation and total return assumptions by asset class contained in the Performance Overview as of March 31, 2006 provided to us by The Office of the Comptroller, the expected real rates of return range from 5.01% to 5.20%, as developed in Table 14.

Table 14

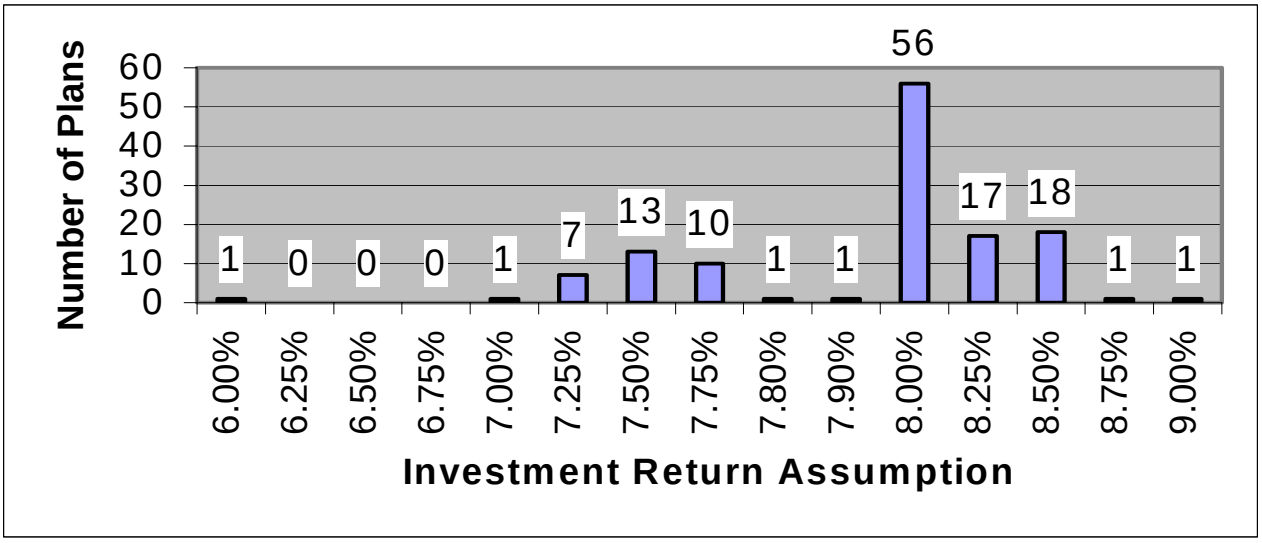
Development of Expected Real Rate of Return

Asset Class	Expected Real Rate of Return (A)	Target Allocation (B)					Contribution to Total Real Rate of Return (A) x (B)				
		NYCERS	TRS	POLICE	FIRE	BERS	NYCERS	TRS	POLICE	FIRE	BERS
Domestic Equity	6.00%	50%	48%	48%	47%	48%	3.00%	2.88%	2.88%	2.82%	2.88%
International Equity	6.25%	20%	16%	23%	19%	23%	1.25%	1.00%	1.44%	1.19%	1.44%
Private Equity	9.00%	2%	2%	2%	2%	0%	0.18%	0.18%	0.18%	0.18%	0.00%
Fixed Income	2.50%	21%	22%	22%	21%	21%	0.53%	0.56%	0.55%	0.53%	0.53%
Enhanced Yield	3.50%	5%	5%	4%	6%	5%	0.18%	0.18%	0.14%	0.21%	0.18%
Real Estate	4.00%	1%	5%	0%	4%	0%	0.04%	0.20%	0.00%	0.16%	0.00%
Short-Term Investments	0.50%	1%	2%	1%	1%	3%	0.01%	0.01%	0.01%	0.01%	0.02%
Total Expected Real Rate of Return							5.19%	5.01%	5.20%	5.10%	5.05%
Assumed Rate of Inflation							3.00%	3.00%	3.00%	3.00%	3.00%
Total Expected Investment Return							8.19%	8.01%	8.20%	8.10%	8.05%

The range of expected real rates of return (i.e., from 5.01% to 5.20%) falls in the middle of the reasonable range. Combining the best-estimate range with the assumed rate of inflation of 3.00% yields an investment rate of return assumption between 7.20% and 8.50%.

A review of the 127 other statewide retirement plans contained in the NASRA Survey reveals that 8.0% is both the mean and most used assumption. The Survey also shows that all but 4 have an investment return assumption between 7.25% and 8.50%. The graph which follows shows the results of the September 2005 Public Fund Survey presented by NASRA.

Assumed Rates of Investment Return



The current assumption is 8.00%, which is well within the reasonable range developed for this assumption. Therefore, we recommend no change to the current investment rate of return assumption of 8.00%. This recommendation is based upon the following observations:

1. The assumption remains reasonable when considering the long-term expected returns for a similarly allocated System based upon long-term historical data.
2. The assumption remains reasonable when we consider the expected investment rate of return of the Systems' asset allocation based upon the expected future return of the Systems.

3. The assumption remains reasonable when we consider the investment return assumption utilized by similar funds.

4. The assumption remains reasonable when considering the historical performance of the actual System compared to its benchmark. Specifically, the Systems have averaged an annual net rate of return on investments of between 8.6% and 8.9% over the ten years ended March 31, 2006.

Current investment rate of return assumption – 8.00% per annum
Recommended investment rate of return assumption – 8.00% per annum

Note that the Actuary currently recovers investment expenses with interest in the second fiscal year following the year of expenditure. Therefore, the investment return assumption is developed without subtracting the impact of anticipated investment expenses.

Implicit in our recommended investment rate of return assumption of 8.00% and our recommended inflation assumption of 3.00% is an assumed real rate of return of 5.00% per annum. This represents a decrease from the current assumption of 5.50%, which represents the difference between the current investment return assumption of 8.00% and the current inflation assumption of 2.50%.

Salary Increase Assumption

Because the benefits provided by the System are based on an employee's final average compensation, salary increases have a direct effect on members' retirement benefits. For purposes of actuarial valuations, it is currently assumed that salaries will increase at an annual rate of 3% per year plus a service-related salary scale.

Under the "building block" approach recommended in the ASOP 27, this assumption is composed of three components;

- Inflation (to maintain purchasing power)
- Productivity (to recognize the extent employees share in the increased output

and efficiency)

- Merit, longevity, and/or promotional increases (to recognize the extent the employee increases his value with experience and additional responsibilities)

The component of salary scale related to merit, promotion and longevity increases is evaluated in Section IV of this report.

The proposed salary increase assumption therefore includes the following components:

Inflation: 3.0%
Productivity: 0.5%
Merit, Longevity and promotion: As proposed in Section IV.

VII. ANNUAL COST IMPACT OF RECOMMENDATIONS

We have completed cost calculations to determine the annual cost impact, expressed in terms of employer contribution requirements, for each revision to the current actuarial assumptions that is being proposed. A summary of the cost implications appears in Table 3 in the Executive Summary of this report. The tables that follow this section present a more detailed analysis of these costs by retirement system, as follows:

Table 15 – POLICE
Table 16 – FIRE
Table 17 – TRS
Table 18 – BERS
Table 19 – NYCERS

Each table shows the development of the annual contribution requirement under several different scenarios. The first column shows the cost as prepared by the Office of the Actuary. The second column shows the corresponding contribution requirement, as developed by Segal. Then, each subsequent column presents the contribution requirement developed with one of the assumptions revised (from the prior column) as per our recommendations. The line at the bottom shows the change in annual contribution requirements for this particular change in assumption, as well as the cumulative change in contribution requirement for all assumption revisions until that point. Finally, the last column on the second page of each table shows the overall cumulative effect of implementing all of our assumption proposals. Thus, these tables enable the reader to understand the significance of each assumption change that has been recommended.

As evident from these tables, the assumption recommendations that have the most significant impact on contribution requirements are the following:

- The proposed increase in assumed inflation from 2.5% to 3.0%. The increase in contribution requirement due to this change is the sum of the increases due to (i) the CPI component included in the salary scale, and (ii) the increase in automatic cost of living adjustments (COLA) that would be triggered by higher inflation. Thus, for example, for NYCERS the combined impact due to an increase in the inflation assumption would be $136.8 million, consisting of $105.2 million in the salary scale and $31.6 million due to the impact on COLA's.

- The improvement in postretirement mortality. This had a large impact on each system, and is due to two factors – (i) the general improvement in mortality that has been observed during the study period, leading to recommendations for revised tables predicting longer life expectancies, and (ii) the factors for future mortality improvements that we have built into our recommendations.
- Reductions in the merit component of the salary scale. For many systems, the study appeared to show that salary increases due to merit tended to level off at a lower level at advanced service durations than is now assumed. Consequently, the recommendation to reduce some of these scales led to fairly large reductions in employer contribution requirements.
- Other active decrements. Finally, our recommendations tended to reduce withdrawal rates, and increase predicted rates of retirement, death and disability, each of which leads to a cost increase. While the effect of each individual change was not that significant, when taken together these proposals do result in measurable increase in contribution requirements.

Table 20 presents active liabilities, payroll information and other present values separately by NYCERS subgroups. Although costs are not determined separately for these subgroups within NYCERS, this table will enable the reader to infer where the most important changes are being recommended for NYCERS. Note, however, that the active liabilities will not add to the total used in developing costs in Table 19 due to certain adjustments that need to be included for final cost determinations.

Finally, one of our recommendations is to revise the actuarial cost method used in annual actuarial valuations from Frozen Initial Liability to the Entry Age Normal cost method with a 15 year amortization of unfunded actuarial accrued liabilities (as a percentage of payroll). The Executive Summary of this report describes the reasons and basis for this recommendation. Table 21 presents the determination of the fiscal 2006 contribution requirement under EAN. The lines at the bottom show the total contribution requirement under this method, and the reduction in contribution requirements that would result from its implementation (note that for NYCERS there is an increase).

Table 15
New York City Retirement Systems
Exp Study Recommendations
Impact on FY 06 Contrib Req-ment
System: POLICE

	Office of the Actuary	Segal -- Baseline	Cost Impact: Post-Retirement Mortality	Cost Impact: Turnover	Cost Impact: Retirement	Cost Impact: Ordinary Mortality	Cost Impact: Accidental Mortality
I. Liabilities							
Inactives -- Fixed Benefits	$10,950,431,407	$10,944,178,745	$11,058,428,963	$11,058,428,963	$11,058,428,963	$11,058,428,963	$11,058,428,963
Inactives -- Supplemental Benefits	1,983,600,845	1,975,125,628	2,003,897,221	2,003,897,221	2,003,897,221	2,003,897,221	2,003,897,221
Inactives -- VSF	2,145,621,088	2,116,909,152	2,129,610,379	2,129,610,379	2,129,610,379	2,129,610,379	2,129,610,379
Actives	15,047,784,403	15,025,830,858	15,099,291,343	15,000,849,150	14,948,113,519	14,948,113,519	14,949,867,597
Actives -- VSF	2,029,600,115	2,000,296,068	2,006,987,684	2,001,406,359	2,037,308,906	2,037,308,906	2,035,614,405
Offset to VSF Liability	2,567,981,000	2,567,981,000	2,567,981,000	2,567,981,000	2,567,981,000	2,567,981,000	2,567,981,000
Total Liability	**$29,589,056,858**	**$29,494,359,451**	**$29,730,234,590**	**$29,626,211,072**	**$29,609,377,988**	**$29,609,377,988**	**$29,609,437,565**
II. Assets							
Actuarial Value of Assets	$19,729,413,000	$19,729,413,000	$19,729,413,000	$19,729,413,000	$19,729,413,000	$19,729,413,000	$19,729,413,000
PV of Future EE Contributions	346,088,649	337,829,603	337,829,603	332,928,231	332,928,231	332,928,231	332,775,506
Total Prospective Assets	**20,075,501,649**	**20,067,242,603**	**20,067,242,603**	**20,062,341,231**	**20,062,341,231**	**20,062,341,231**	**20,062,188,506**
PV of Future Normal Contributions	$9,513,555,209	$9,427,116,848	$9,662,991,987	$9,563,869,841	$9,547,036,757	$9,547,036,757	$9,547,249,059
PV of Future Salaries (Proj)	$19,475,730,524	$19,344,830,729	$19,344,830,729	$19,055,764,783	$18,502,092,851	$18,502,092,851	$18,488,334,232
Normal Cost Percentage	48.848%	48.732%	49.951%	50.189%	51.600%	51.600%	51.639%
Annual Payroll (Proj)	2,738,525,671	2,708,202,753	2,708,202,753	2,699,904,753	2,682,469,340	2,682,469,340	2,682,038,400
Normal Contribution	$1,337,715,020	$1,319,761,366	$1,352,774,357	$1,355,055,196	$1,384,154,179	$1,384,154,179	$1,384,977,809
Investment Expenses	0	0	0	0	0	0	0
Adminstrative Expenses	0	0	0	0	0	0	0
Total POLICE Pension Fund Contribution	**$1,337,715,020**	**$1,319,761,366**	**$1,352,774,357**	**$1,355,055,196**	**$1,384,154,179**	**$1,384,154,179**	**$1,384,977,809**
Change in Contribution:							
a) For this Assumption			*$33,012,992*	*$2,280,839*	*$29,098,983*	*$0*	*$823,630*
b) Cumulative for All Assumptions			*$33,012,992*	*$35,293,831*	*$64,392,814*	*$64,392,814*	*$65,216,444*

Table 15
New York City Retirement Systems
Exp Study Recommendations
Impact on FY 06 Contrib Req-ment
System: POLICE

	Cost Impact: Ordinary Disability	Cost Impact: Accidental Disability	Cost Impact: Sal Scale (excl CPI)	Cost Impact: Sal Scale (Incl CPI)	Cost Impact: Overtime All	Cost Impact: Dual Overtime	Cost Impact: CPI/COLA
I. Liabilities							
Inactives -- Fixed Benefits	$11,058,428,963	$11,058,428,963	$11,058,428,963	$11,058,428,963	$11,058,428,963	$11,058,428,963	$11,058,428,963
Inactives -- Supplemental Benefits	2,003,897,221	2,003,897,221	2,003,897,221	2,003,897,221	2,003,897,221	2,003,897,221	2,084,523,858
Inactives -- VSF	2,129,610,379	2,129,610,379	2,129,610,379	2,129,610,379	2,129,610,379	2,129,610,379	2,126,868,433
Actives	14,949,867,597	14,949,867,597	14,939,036,978	15,443,571,533	15,433,279,866	15,449,756,301	15,481,136,935
Actives -- VSF	2,035,614,405	2,035,614,405	2,035,614,405	2,035,614,405	2,035,614,405	2,035,614,405	2,033,170,844
Offset to VSF Liability	2,567,981,000	2,567,981,000	2,567,981,000	2,567,981,000	2,567,981,000	2,567,981,000	2,567,981,000
Total Liability	**$29,609,437,565**	**$29,609,437,565**	**$29,598,606,946**	**$30,103,141,501**	**$30,092,849,834**	**$30,109,326,269**	**$30,216,148,033**
II. Assets							
Actuarial Value of Assets	$19,729,413,000	$19,729,413,000	$19,729,413,000	$19,729,413,000	$19,729,413,000	$19,729,413,000	$19,729,413,000
PV of Future EE Contributions	332,775,506	332,775,506	334,752,620	343,570,826	343,570,826	343,570,826	343,570,826
Total Prospective Assets	**20,062,188,506**	**20,062,188,506**	**20,064,165,620**	**20,072,983,826**	**20,072,983,826**	**20,072,983,826**	**20,072,983,826**
PV of Future Normal Contributions	$9,547,249,059	$9,547,249,059	$9,534,441,326	$10,030,157,675	$10,019,866,008	$10,036,342,443	$10,143,164,207
PV of Future Salaries (Proj)	$18,488,334,232	$18,488,334,232	$18,585,474,546	$19,203,754,182	$19,186,027,269	$19,186,027,269	$19,186,027,269
Normal Cost Percentage	51.639%	51.639%	51.300%	52.230%	52.225%	52.311%	52.867%
Annual Payroll (Proj)	2,682,038,400	2,682,038,400	2,682,995,091	2,706,976,407	2,700,540,713	2,700,540,713	2,700,540,713
Normal Contribution	$1,384,977,809	$1,384,977,809	$1,376,376,482	$1,413,853,777	$1,410,357,387	$1,412,679,852	$1,427,694,859
Investment Expenses	0	0	0	0	0	0	0
Adminstrative Expenses	0	0	0	0	0	0	0
Total POLICE Pension Fund Contribution	**$1,384,977,809**	**$1,384,977,809**	**$1,376,376,482**	**$1,413,853,777**	**$1,410,357,387**	**$1,412,679,852**	**$1,427,694,859**
Change in Contribution:							
a) For this Assumption	*$0*	*$0*	*($8,601,328)*	*$37,477,296*	*($3,496,390)*	*$2,322,465*	*$15,015,006*
b) Cumulative for All Assumptions	*$65,216,444*	*$65,216,444*	*$56,615,116*	*$94,092,412*	*$90,596,022*	*$92,918,487*	*$107,933,493*

Table 16
New York City Retirement Systems
Exp Study Recommendations
Impact on FY 06 Contrib Req-ment
System: FIRE

	Office of the Actuary	Segal -- Baseline	Cost Impact: Post-Retirement Mortality	Cost Impact: Turnover	Cost Impact: Retirement	Cost Impact: Ordinary Mortality	Cost Impact: Accidental Mortality
I. Liabilities							
Inactives -- Fixed Benefits	$5,709,702,845	$5,705,384,233	$5,792,598,353	$5,792,598,353	$5,792,598,353	$5,792,598,353	$5,792,598,353
Inactives -- Supplemental Benefits	824,583,417	820,299,406	850,219,214	850,219,214	850,219,214	850,219,214	850,219,214
Inactives -- VSF	619,012,904	607,983,201	621,294,899	621,294,899	621,294,899	621,294,899	621,294,899
Actives	5,587,676,780	5,631,663,336	5,659,324,850	5,662,524,853	5,661,600,935	5,668,989,447	5,668,989,447
Actives -- VSF	447,364,229	419,386,929	420,365,311	420,975,339	418,508,736	421,504,038	421,504,038
Offset to VSF Liability	969,104,000	969,104,000	969,104,000	969,104,000	969,104,000	969,104,000	969,104,000
Total Liability	**$12,219,236,175**	**$12,215,613,105**	**$12,374,698,627**	**$12,378,508,658**	**$12,375,118,137**	**$12,385,501,951**	**$12,385,501,951**
II. Assets							
Actuarial Value of Assets	$6,748,327,114	$6,748,327,114	$6,748,327,114	$6,748,327,114	$6,748,327,114	$6,748,327,114	$6,748,327,114
PV Future UAL Contributions	105,170,273	$105,170,273	$105,170,273	$105,170,273	$105,170,273	$105,170,273	$105,170,273
PV of Future EE Contributions	81,905,124	81,115,346	81,115,346	81,154,122	81,154,122	81,256,093	81,256,093
Total Prospective Assets	**6,935,402,511**	**6,934,612,733**	**6,934,612,733**	**6,934,651,509**	**6,934,651,509**	**6,934,753,480**	**6,934,753,480**
PV of Future Normal Contributions	$5,283,833,664	$5,281,000,372	$5,440,085,894	$5,443,857,149	$5,440,466,628	$5,450,748,471	$5,450,748,471
PV of Future Salaries (Proj)	$7,881,651,852	$7,989,206,193	$7,989,206,193	$7,998,652,921	$7,983,741,015	$8,013,007,389	$8,013,007,389
Normal Cost Percentage	67.040%	66.102%	68.093%	68.060%	68.144%	68.024%	68.024%
Annual Payroll (Proj)	876,666,703	873,894,156	873,894,156	874,182,475	873,897,142	874,493,488	874,493,488
Normal Contribution	$587,717,358	$577,661,515	$595,060,748	$594,968,592	$595,508,468	$594,865,450	$594,865,450
UAL Contribution	21,054,018	21,054,018	21,054,018	21,054,018	21,054,018	21,054,018	21,054,018
Investment Expenses	0	0	0	0	0	0	0
Adminstrative Expenses	0	0	0	0	0	0	0
Total FIRE Pension Fund Contribution	**$608,771,376**	**$598,715,533**	**$616,114,766**	**$616,022,610**	**$616,562,486**	**$615,919,468**	**$615,919,468**
Change in Contribution:							
a) For this Assumption			*$17,399,233*	*($92,155)*	*$539,876*	*($643,018)*	*$0*
b) Cumulative for All Assumptions			*$17,399,233*	*$17,307,077*	*$17,846,953*	*$17,203,935*	*$17,203,935*

Table 16
New York City Retirement Systems
Exp Study Recommendations
Impact on FY 06 Contrib Req-ment
System: FIRE

	Cost Impact: Ordinary Disability	Cost Impact: Accidental Disability	Cost Impact: Sal Scale (excl CPI)	Cost Impact: Sal Scale (Incl CPI)	Cost Impact: Overtime All	Cost Impact: Dual Overtime	Cost Impact: CPI/COLA
I. Liabilities							
Inactives -- Fixed Benefits	$5,792,598,353	$5,792,598,353	$5,792,598,353	$5,792,598,353	$5,792,598,353	$5,792,598,353	$5,792,598,353
Inactives -- Supplemental Benefits	850,219,214	850,219,214	850,219,214	850,219,214	850,219,214	850,219,214	881,706,715
Inactives -- VSF	621,294,899	621,294,899	621,294,899	621,294,899	621,294,899	621,294,899	620,742,169
Actives	5,661,591,710	5,661,591,710	5,622,511,477	5,850,570,235	5,855,962,440	6,021,963,998	6,031,518,649
Actives -- VSF	416,399,385	416,399,385	416,399,385	416,399,385	416,399,385	416,399,385	416,208,568
Offset to VSF Liability	969,104,000	969,104,000	969,104,000	969,104,000	969,104,000	969,104,000	969,104,000
Total Liability	**$12,372,999,561**	**$12,372,999,561**	**$12,333,919,328**	**$12,561,978,086**	**$12,567,370,291**	**$12,733,371,849**	**$12,773,670,454**
II. Assets							
Actuarial Value of Assets	$6,748,327,114	$6,748,327,114	$6,748,327,114	$6,748,327,114	$6,748,327,114	$6,748,327,114	$6,748,327,114
PV Future UAL Contributions	$105,170,273	$105,170,273	$105,170,273	$105,170,273	$105,170,273	$105,170,273	$105,170,273
PV of Future EE Contributions	81,259,218	81,259,218	81,264,834	83,693,518	85,188,043	85,188,043	85,188,043
Total Prospective Assets	**6,934,756,605**	**6,934,756,605**	**6,934,762,221**	**6,937,190,905**	**6,938,685,430**	**6,938,685,430**	**6,938,685,430**
PV of Future Normal Contributions	$5,438,242,956	$5,438,242,956	$5,399,157,107	$5,624,787,181	$5,628,684,861	$5,794,686,419	$5,834,985,024
PV of Future Salaries (Proj)	$8,004,104,352	$8,004,104,352	$8,003,023,672	$8,331,023,369	$8,464,328,272	$8,464,328,272	$8,464,328,272
Normal Cost Percentage	67.943%	67.943%	67.464%	67.516%	66.499%	68.460%	68.936%
Annual Payroll (Proj)	873,938,133	873,938,133	874,118,875	880,373,181	891,307,904	891,307,904	891,307,904
Normal Contribution	$593,779,786	$593,779,786	$589,715,558	$594,392,757	$592,710,843	$610,189,391	$614,432,017
UAL Contribution	21,054,018	21,054,018	21,054,018	21,054,018	21,054,018	21,054,018	21,054,018
Investment Expenses	0	0	0	0	0	0	0
Adminstrative Expenses	0	0	0	0	0	0	0
Total FIRE Pension Fund Contribution	**$614,833,804**	**$614,833,804**	**$610,769,576**	**$615,446,775**	**$613,764,861**	**$631,243,409**	**$635,486,035**
Change in Contribution:							
a) For this Assumption	*($1,085,665)*	*$0*	*($4,064,228)*	*$4,677,199*	*($1,681,914)*	*$17,478,548*	*$4,242,626*
b) Cumulative for All Assumptions	*$16,118,271*	*$16,118,271*	*$12,054,043*	*$16,731,242*	*$15,049,328*	*$32,527,876*	*$36,770,502*

Table 17
New York City Retirement Systems
Exp Study Recommendations
Impact on FY 06 Contrib Req-ment
System: TRS

	Office of the Actuary	Segal -- Baseline	Cost Impact: Post-Retirement Mortality	Cost Impact: Turnover	Cost Impact: Retirement	Cost Impact: Ordinary Mortality	Cost Impact: Accidental Mortality
I. Liabilities							
Inactives -- Fixed Benefits	$22,865,619,419	22,995,375,353	$23,078,306,073	$23,078,306,073	$23,078,306,073	$23,078,306,073	$23,078,306,073
Inactives -- Supplemental Benefits	1,770,859,121	1,668,885,925	1,688,744,165	1,688,744,165	1,688,744,165	1,688,744,165	1,688,744,165
Actives	22,946,252,963	22,856,023,792	22,877,505,765	22,751,787,850	22,898,080,442	22,873,514,432	22,873,514,432
PV Bfts Due to Annuitization of VFA	498,534,585	498,534,585	498,534,585	498,534,585	498,534,585	498,534,585	498,534,585
Total Liability	**$48,081,266,088**	**$48,018,819,655**	**$48,143,090,588**	**$48,017,372,673**	**$48,163,665,265**	**$48,139,099,255**	**$48,139,099,255**
II. Assets							
Actuarial Value of Assets	$34,331,159,512	$34,331,159,512	$34,331,159,512	$34,331,159,512	$34,331,159,512	$34,331,159,512	$34,331,159,512
PV Future UAL Contributions	10,438,963	$10,438,963	$10,438,963	$10,438,963	$10,438,963	$10,438,963	$10,438,963
PV of Future EE Contributions	464,291,551	462,477,716	462,477,716	458,989,651	459,435,685	459,179,887	459,179,887
Due from TDA Program	203,500,621	203,500,621	203,500,621	203,500,621	203,500,621	203,500,621	203,500,621
Total Prospective Assets	**34,602,389,405**	**34,600,575,570**	**34,600,575,570**	**34,597,087,505**	**34,597,533,539**	**34,597,277,741**	**34,597,277,741**
PV of Future Normal Contributions	$13,478,876,683	$13,418,244,085	$13,542,515,018	$13,420,285,168	$13,566,131,726	$13,541,821,514	$13,541,821,514
PV of Future Salaries (Proj)	$63,694,768,024	$64,471,133,000	$64,471,133,000	$63,647,102,862	$62,695,859,824	$62,527,782,681	$62,527,782,681
Normal Cost Percentage	21.162%	20.813%	21.006%	21.085%	21.638%	21.657%	21.657%
Annual Payroll (Proj)	6,208,882,768	6,176,053,918	6,176,053,918	6,157,850,710	6,140,180,243	6,137,312,510	6,137,312,510
Normal Contribution	$1,313,923,771	$1,285,422,102	$1,297,341,886	$1,298,382,822	$1,328,612,201	$1,329,157,770	$1,329,157,770
UAL Contribution	2,686,746	2,686,746	2,686,746	2,686,746	2,686,746	2,686,746	2,686,746
Investment Expenses	0	0	0	0	0	0	0
Adminstrative Expenses	0	0	0	0	0	0	0
Total Teachers Retirement System Contrib	**$1,316,610,517**	**$1,288,108,848**	**$1,300,028,632**	**$1,301,069,568**	**$1,331,298,947**	**$1,331,844,516**	**$1,331,844,516**
Change in Contribution:							
a) For this Assumption			*$11,919,784*	*$1,040,936*	*$30,229,379*	*$545,569*	*$0*
b) Cumulative for All Assumptions			*$11,919,784*	*$12,960,720*	*$43,190,099*	*$43,735,668*	*$43,735,668*

Table 17
New York City Retirement Systems
Exp Study Recommendations
Impact on FY 06 Contrib Req-ment
System: TRS

	Cost Impact: Ordinary Disability	Cost Impact: Accidental Disability	Cost Impact: Sal Scale (excl CPI)	Cost Impact: Sal Scale (Incl CPI)	Cost Impact: Overtime All	Cost Impact: Dual Overtime	Cost Impact: CPI/COLA
I. Liabilities							
Inactives -- Fixed Benefits	$23,078,306,073	$23,078,306,073	$23,078,306,073	$23,078,306,073	$23,078,306,073	$23,078,306,073	$23,078,309,333
Inactives -- Supplemental Benefits	1,688,744,165	1,688,744,165	1,688,744,165	1,688,744,165	1,688,744,165	1,688,744,165	1,794,628,300
Actives	22,822,921,258	22,827,178,565	22,092,996,148	23,257,098,458	23,257,098,458	23,257,098,458	23,308,545,697
PV Bfts Due to Annuitization of VFA	498,534,585	498,534,585	498,534,585	498,534,585	498,534,585	498,534,585	498,534,585
Total Liability	**$48,088,506,081**	**$48,092,763,388**	**$47,358,580,971**	**$48,522,683,281**	**$48,522,683,281**	**$48,522,683,281**	**$48,680,017,915**
II. Assets							
Actuarial Value of Assets	$34,331,159,512	$34,331,159,512	$34,331,159,512	$34,331,159,512	$34,331,159,512	$34,331,159,512	$34,331,159,512
PV Future UAL Contributions	$10,438,963	$10,438,963	$10,438,963	$10,438,963	$10,438,963	$10,438,963	$10,438,963
PV of Future EE Contributions	458,058,434	458,028,194	472,157,158	478,582,896	478,582,896	478,582,896	478,582,896
Due from TDA Program	203,500,621	203,500,621	203,500,621	203,500,621	203,500,621	203,500,621	203,500,621
Total Prospective Assets	**34,596,156,288**	**34,596,126,048**	**34,610,255,012**	**34,616,680,750**	**34,616,680,750**	**34,616,680,750**	**34,616,680,750**
PV of Future Normal Contributions	$13,492,349,793	$13,496,637,340	$12,748,325,959	$13,906,002,531	$13,906,002,531	$13,906,002,531	$14,063,337,165
PV of Future Salaries (Proj)	$61,898,547,943	$61,880,424,191	$62,822,022,631	$65,889,705,139	$65,889,705,139	$65,889,705,139	$65,889,705,139
Normal Cost Percentage	21.798%	21.811%	20.293%	21.105%	21.105%	21.105%	21.344%
Annual Payroll (Proj)	6,127,423,718	6,127,189,717	6,155,355,606	6,199,190,359	6,199,190,359	6,199,190,359	6,199,190,359
Normal Contribution	$1,335,655,822	$1,336,401,349	$1,249,106,313	$1,308,339,125	$1,308,339,125	$1,308,339,125	$1,323,155,190
UAL Contribution	2,686,746	2,686,746	2,686,746	2,686,746	2,686,746	2,686,746	2,686,746
Investment Expenses	0	0	0	0	0	0	0
Adminstrative Expenses	0	0	0	0	0	0	0
Total Teachers Retirement System Contrib	**$1,338,342,568**	**$1,339,088,095**	**$1,251,793,059**	**$1,311,025,871**	**$1,311,025,871**	**$1,311,025,871**	**$1,325,841,936**
Change in Contribution:							
a) For this Assumption	*$6,498,052*	*$745,527*	*($87,295,036)*	*$59,232,812*	*$0*	*$0*	*$14,816,065*
b) Cumulative for All Assumptions	*$50,233,720*	*$50,979,247*	*($36,315,789)*	*$22,917,023*	*$22,917,023*	*$22,917,023*	*$37,733,088*

Table 18
New York City Retirement Systems
Exp Study Recommendations
Impact on FY 06 Contrib Req-ment
System: BERS

	Office of the Actuary	Segal -- Baseline	Cost Impact: Post-Retirement Mortality	Cost Impact: Turnover	Cost Impact: Retirement	Cost Impact: Ordinary Mortality	Cost Impact: Accidental Mortality
I. Liabilities							
Inactives -- Fixed Benefits	$964,814,950	969,360,612	$987,568,970	$987,568,970	$987,568,970	$987,568,970	$987,568,970
Inactives -- Supplemental Benefits	127,253,075	118,433,965	122,983,808	122,983,808	122,983,808	122,983,808	122,983,808
Actives	1,654,927,229	1,678,851,373	1,694,202,647	1,609,332,973	1,616,749,999	1,602,787,506	1,602,787,506
PV Bfts Due to Annuitization of VFA	812,964	812,964	812,964	812,964	812,964	812,964	812,964
Total Liability	**$2,747,808,218**	**$2,767,458,914**	**$2,805,568,389**	**$2,720,698,715**	**$2,728,115,741**	**$2,714,153,248**	**$2,714,153,248**
II. Assets							
Actuarial Value of Assets	$1,936,785,857	$1,936,785,857	$1,936,785,857	$1,936,785,857	$1,936,785,857	$1,936,785,857	$1,936,785,857
PV Future UAL Contributions	6,793,791	$6,793,791	$6,793,791	$6,793,791	$6,793,791	$6,793,791	$6,793,791
PV of Future EE Contributions	87,140,096	85,067,160	85,067,160	83,434,748	83,762,713	83,613,982	83,613,982
Due from TDA Program	13,028,927	13,028,927	13,028,927	13,028,927	13,028,927	13,028,927	13,028,927
Total Prospective Assets	**2,017,690,817**	**2,015,617,881**	**2,015,617,881**	**2,013,985,469**	**2,014,313,434**	**2,014,164,703**	**2,014,164,703**
PV of Future Normal Contributions	$730,117,401	$751,841,033	$789,950,508	$706,713,246	$713,802,307	$699,988,545	$699,988,545
PV of Future Salaries (Proj)	$4,975,506,748	$5,158,009,245	$5,158,009,245	$4,652,745,856	$4,908,450,386	$4,831,181,065	$4,831,181,065
Normal Cost Percentage	14.674%	14.576%	15.315%	15.189%	14.542%	14.489%	14.489%
Annual Payroll (Proj)	605,594,354	602,167,383	602,167,383	587,153,302	590,879,231	589,069,009	589,069,009
Normal Contribution	$88,864,916	$87,771,918	$92,221,935	$89,182,715	$85,925,658	$85,350,209	$85,350,209
UAL Contribution	1,973,755	1,973,755	1,973,755	1,973,755	1,973,755	1,973,755	1,973,755
Investment Expenses	0	0	0	0	0	0	0
Adminstrative Expenses	0	0	0	0	0	0	0
Total Board of Ed Retirement Sys Contrib	**$90,838,671**	**$89,745,673**	**$94,195,690**	**$91,156,470**	**$87,899,413**	**$87,323,964**	**$87,323,964**
Change in Contribution:							
a) For this Assumption			*$4,450,017*	*($3,039,220)*	*($3,257,057)*	*($575,449)*	*$0*
b) Cumulative for All Assumptions			*$4,450,017*	*$1,410,797*	*($1,846,260)*	*($2,421,709)*	*($2,421,709)*

Table 18
New York City Retirement Systems
Exp Study Recommendations
Impact on FY 06 Contrib Req-ment
System: BERS

	Cost Impact: Ordinary Disability	Cost Impact: Accidental Disability	Cost Impact: Sal Scale (excl CPI)	Cost Impact: Sal Scale (Incl CPI)	Cost Impact: Overtime All	Cost Impact: Dual Overtime	Cost Impact: CPI/COLA
I. Liabilities							
Inactives -- Fixed Benefits	$987,568,970	$987,568,970	$987,568,970	$987,568,970	$987,568,970	$987,568,970	$1,021,210,217
Inactives -- Supplemental Benefits	122,983,808	122,983,808	122,983,808	122,983,808	122,983,808	122,983,808	131,715,782
Actives	1,598,603,864	1,598,737,012	1,517,959,399	1,580,663,427	1,721,012,093	1,719,554,325	1,726,408,507
PV Bfts Due to Annuitization of VFA	812,964	812,964	812,964	812,964	812,964	812,964	812,964
Total Liability	**$2,709,969,606**	**$2,710,102,754**	**$2,629,325,141**	**$2,692,029,169**	**$2,832,377,835**	**$2,830,920,067**	**$2,880,147,470**
II. Assets							
Actuarial Value of Assets	$1,936,785,857	$1,936,785,857	$1,936,785,857	$1,936,785,857	$1,936,785,857	$1,936,785,857	$1,936,785,857
PV Future UAL Contributions	$6,793,791	$6,793,791	$6,793,791	$6,793,791	$6,793,791	$6,793,791	$6,793,791
PV of Future EE Contributions	83,361,711	83,357,824	82,466,675	82,982,912	86,123,009	86,123,009	86,123,009
Due from TDA Program	13,028,927	13,028,927	13,028,927	13,028,927	13,028,927	13,028,927	13,028,927
Total Prospective Assets	**2,013,912,432**	**2,013,908,545**	**2,013,017,396**	**2,013,533,633**	**2,016,673,730**	**2,016,673,730**	**2,016,673,730**
PV of Future Normal Contributions	$696,057,174	$696,194,209	$616,307,745	$678,495,536	$815,704,105	$814,246,337	$863,473,740
PV of Future Salaries (Proj)	$4,735,518,782	$4,733,875,856	$4,472,058,145	$4,646,308,744	$5,219,036,105	$5,219,036,105	$5,219,036,105
Normal Cost Percentage	14.699%	14.707%	13.781%	14.603%	15.629%	15.601%	16.545%
Annual Payroll (Proj)	586,775,148	586,733,396	580,338,995	584,538,919	637,294,345	637,294,345	637,294,345
Normal Contribution	$86,250,079	$86,290,881	$79,976,517	$85,360,218	$99,602,733	$99,424,291	$105,440,349
UAL Contribution	1,973,755	1,973,755	1,973,755	1,973,755	1,973,755	1,973,755	1,973,755
Investment Expenses	0	0	0	0	0	0	0
Adminstrative Expenses	0	0	0	0	0	0	0
Total Board of Ed Retirement Sys Contrib	**$88,223,834**	**$88,264,636**	**$81,950,272**	**$87,333,973**	**$101,576,488**	**$101,398,046**	**$107,414,104**
Change in Contribution:							
a) For this Assumption	*$899,870*	*$40,802*	*($6,314,364)*	*$5,383,701*	*$14,242,515*	*($178,442)*	*$6,016,059*
b) Cumulative for All Assumptions	*($1,521,839)*	*($1,481,037)*	*($7,795,401)*	*($2,411,699)*	*$11,830,815*	*$11,652,373*	*$17,668,432*

Table 19
New York City Retirement Systems
Exp Study Recommendations
Impact on FY 06 Contrib Req-ment
System: NYCERS

	Office of the Actuary	Segal -- Baseline	Cost Impact: Post-Retirement Mortality	Cost Impact: Turnover	Cost Impact: Retirement	Cost Impact: Ordinary Mortality	Cost Impact: Accidental Mortality
I. Liabilities							
Inactives -- Fixed Benefits	$19,451,063,251	$19,557,240,102	$20,060,196,958	$20,060,196,958	$20,060,196,958	$20,060,196,958	$20,060,196,958
Inactives -- Supplemental Benefits	3,151,376,891	3,178,318,164	3,331,275,814	3,331,275,814	3,331,275,814	3,331,275,814	3,331,275,814
Inactives -- VSF	513,698,568	517,356,218	525,617,581	525,617,581	525,617,581	525,617,581	525,617,581
Actives	27,057,081,755	27,110,746,883	27,631,451,686	28,190,882,478	28,167,655,736	28,036,925,543	28,032,889,447
Actives -- VSF	774,106,402	787,148,682	793,399,338	860,311,849	923,147,457	913,068,493	913,767,697
Offset to VSF Liability	108,137,333	108,137,333	108,137,333	108,137,333	108,137,333	108,137,333	108,137,333
Total Liability	**$50,839,189,534**	**$51,042,672,716**	**$52,233,804,044**	**$52,860,147,347**	**$52,899,756,213**	**$52,758,947,056**	**$52,755,610,164**
II. Assets							
Actuarial Value of Assets	$41,430,332,090	$41,430,332,090	$41,430,332,090	$41,430,332,090	$41,430,332,090	$41,430,332,090	$41,430,332,090
PV Future UAL Contributions	148,044,796	$148,044,796	$148,044,796	$148,044,796	$148,044,796	$148,044,796	$148,044,796
PV of Future EE Contributions	1,530,626,649	1,499,067,214	1,499,067,214	1,543,549,854	1,574,589,786	1,555,700,345	1,555,933,559
Total Prospective Assets	**43,109,003,535**	**43,077,444,100**	**43,077,444,100**	**43,121,926,740**	**43,152,966,672**	**43,134,077,231**	**43,134,310,445**
PV of Future Normal Contributions	$7,730,185,999	$7,965,228,616	$9,156,359,944	$9,738,220,607	$9,746,789,541	$9,624,869,825	$9,621,299,719
PV of Future Salaries (Proj)	$72,172,985,744	$72,464,635,709	$72,464,635,709	$75,210,495,251	$77,067,160,456	$75,236,046,682	$75,248,486,295
Normal Cost Percentage	10.711%	10.992%	12.636%	12.948%	12.647%	12.793%	12.786%
Annual Payroll (Proj)	9,124,498,133	9,030,719,059	9,030,719,059	9,124,825,942	9,181,172,544	9,137,486,207	9,137,825,490
Normal Contribution	$977,324,995	$992,656,639	$1,141,121,660	$1,181,482,463	$1,161,142,892	$1,168,958,610	$1,168,362,367
UAL Contribution	47,033,180	47,033,180	47,033,180	47,033,180	47,033,180	47,033,180	47,033,180
Investment Expenses	0	0	0	0	0	0	0
Adminstrative Expenses	0	0	0	0	0	0	0
Total NYCERS Pension Fund Contribution	**$1,024,358,175**	**$1,039,689,819**	**$1,188,154,840**	**$1,228,515,643**	**$1,208,176,072**	**$1,215,991,790**	**$1,215,395,547**
Change in Contribution:							
a) For this Assumption			*$148,465,021*	*$40,360,803*	*($20,339,571)*	*$7,815,719*	*($596,243)*
b) Cumulative for All Assumptions			*$148,465,021*	*$188,825,824*	*$168,486,253*	*$176,301,971*	*$175,705,728*

Table 19
New York City Retirement Systems
Exp Study Recommendations
Impact on FY 06 Contrib Req-ment
System: NYCERS

	Cost Impact: Ordinary Disability	Cost Impact: Accidental Disability	Cost Impact: Sal Scale (excl CPI)	Cost Impact: Sal Scale (Incl CPI)	Cost Impact: Overtime All	Cost Impact: Dual Overtime	Cost Impact: CPI/COLA
I. Liabilities							
Inactives -- Fixed Benefits	$20,060,196,958	$20,060,196,958	$20,060,196,958	$20,060,196,958	$20,060,196,958	$20,060,196,958	$20,060,202,240
Inactives -- Supplemental Benefits	3,331,275,814	3,331,275,814	3,331,275,814	3,331,275,814	3,331,275,814	3,331,275,814	3,499,046,333
Inactives -- VSF	525,617,581	525,617,581	525,617,581	525,617,581	525,617,581	525,617,581	525,282,180
Actives	27,948,137,815	27,949,711,170	27,243,501,604	28,424,937,233	28,348,540,650	28,003,647,603	28,096,132,972
Actives -- VSF	913,767,697	913,767,697	913,767,697	913,767,697	913,767,697	913,767,697	912,705,432
Offset to VSF Liability	108,137,333	108,137,333	108,137,333	108,137,333	108,137,333	108,137,333	108,137,333
Total Liability	**$52,670,858,532**	**$52,672,431,887**	**$51,966,222,321**	**$53,147,657,950**	**$53,071,261,367**	**$52,726,368,320**	**$52,985,231,824**
II. Assets							
Actuarial Value of Assets	$41,430,332,090	$41,430,332,090	$41,430,332,090	$41,430,332,090	$41,430,332,090	$41,430,332,090	$41,430,332,090
PV Future UAL Contributions	$148,044,796	$148,044,796	$148,044,796	$148,044,796	$148,044,796	$148,044,796	$148,044,796
PV of Future EE Contributions	1,540,768,839	1,540,716,747	1,515,298,178	1,557,264,397	1,567,899,617	1,567,899,617	1,567,899,617
Total Prospective Assets	**43,119,145,725**	**43,119,093,633**	**43,093,675,064**	**43,135,641,283**	**43,146,276,503**	**43,146,276,503**	**43,146,276,503**
PV of Future Normal Contributions	$9,551,712,807	$9,553,338,254	$8,872,547,257	$10,012,016,667	$9,924,984,864	$9,580,091,817	$9,838,955,321
PV of Future Salaries (Proj)	$73,969,239,897	$73,961,707,307	$72,005,795,209	$74,791,594,698	$75,306,954,432	$75,306,954,432	$75,306,954,432
Normal Cost Percentage	12.913%	12.917%	12.322%	13.387%	13.179%	12.721%	13.065%
Annual Payroll (Proj)	9,109,030,592	9,108,796,221	9,059,260,889	9,124,415,883	9,175,743,123	9,175,743,123	9,175,743,123
Normal Contribution	$1,176,249,120	$1,176,583,208	$1,116,282,127	$1,221,485,554	$1,209,271,186	$1,167,246,283	$1,198,810,839
UAL Contribution	47,033,180	47,033,180	47,033,180	47,033,180	47,033,180	47,033,180	47,033,180
Investment Expenses	0	0	0	0	0	0	0
Adminstrative Expenses	0	0	0	0	0	0	0
Total NYCERS Pension Fund Contribution	**$1,223,282,300**	**$1,223,616,388**	**$1,163,315,307**	**$1,268,518,734**	**$1,256,304,366**	**$1,214,279,463**	**$1,245,844,019**
Change in Contribution:							
a) For this Assumption	*$7,886,753*	*$334,088*	*($60,301,081)*	*$105,203,428*	*($12,214,368)*	*($42,024,904)*	*$31,564,556*
b) Cumulative for All Assumptions	*$183,592,481*	*$183,926,569*	*$123,625,488*	*$228,828,915*	*$216,614,547*	*$174,589,644*	*$206,154,200*

Table 20
New York City Retirement Systems
Exp Study Recommendations
Impact on FY 06 Contrib Req-ment
Breakdown for NYCERS Subgroups

	Office of the Actuary	Segal -- Baseline	Cost Impact: Post-Retirement Mortality	Cost Impact: Turnover	Cost Impact: Retirement	Cost Impact: Ordinary Mortality	Cost Impact: Accidental Mortality
I. Total Active Liability							
General Employees	$15,669,967,583	$15,748,659,669	$15,993,745,290	$16,203,240,215	$16,214,397,111	$16,123,561,237	$16,123,561,237
Transit	$5,798,390,905	$5,793,122,088	$5,980,532,317	$6,245,296,908	$6,181,221,181	$6,157,872,190	$6,155,662,714
Sanitation	$2,141,792,683	$2,216,972,404	$2,277,532,378	$2,244,697,704	$2,236,481,173	$2,230,198,190	$2,229,816,310
Corrections	$2,915,129,216	$2,905,844,307	$2,925,889,477	$3,036,342,380	$3,074,251,000	$3,065,579,910	$3,064,374,068
TBTA	$306,618,730	$300,856,837	$308,460,646	$316,013,693	$316,013,693	$314,422,438	$314,183,540
II. Present Value of Future EE Contributions							
General Employees	N/A	$819,346,358	$819,346,358	$836,859,302	$857,367,402	$844,766,814	$844,766,814
Transit	N/A	$331,868,751	$331,868,751	$354,028,222	$364,696,324	$360,007,895	$360,124,768
Sanitation	N/A	$174,186,332	$174,186,332	$167,617,199	$167,631,641	$166,736,805	$166,775,076
Corrections	N/A	$145,770,337	$145,770,337	$156,210,642	$156,059,930	$155,551,212	$155,613,141
TBTA	N/A	$27,895,436	$27,895,436	$28,834,489	$28,834,489	$28,637,619	$28,653,760
III. Present Value of Future Sals (Proj)							
General Employees	$48,437,112,014	$47,891,756,823	$47,891,756,823	$48,995,156,854	$50,415,064,610	$48,990,300,193	$48,990,300,193
Transit	$15,209,303,251	$15,980,404,819	$15,980,404,819	$17,308,532,854	$18,178,264,109	$17,857,790,848	$17,865,418,429
Sanitation	$3,545,504,428	$3,486,171,050	$3,486,171,050	$3,336,166,710	$3,436,018,752	$3,396,527,543	$3,397,796,295
Corrections	$4,127,856,428	$4,312,951,236	$4,312,951,236	$4,741,958,953	$4,209,133,105	$4,175,560,435	$4,178,399,743
TBTA	$853,209,623	$793,351,781	$793,351,781	$828,679,880	$828,679,880	$815,867,662	$816,571,635
IV. Annual Payroll (Proj)							
General Employees	$5,808,808,070	$5,744,919,481	$5,744,919,481	$5,782,907,500	$5,807,303,076	$5,773,922,693	$5,773,922,693
Transit	$2,024,220,326	$2,009,963,039	$2,009,963,039	$2,049,893,886	$2,078,871,488	$2,071,641,557	$2,071,808,035
Sanitation	$509,443,369	$497,677,733	$497,677,733	$496,958,149	$508,101,699	$506,560,737	$506,604,633
Corrections	$682,890,293	$679,925,581	$679,925,581	$696,131,161	$687,961,035	$686,752,546	$686,864,960
TBTA	$99,136,075	$98,233,225	$98,233,225	$98,935,246	$98,935,246	$98,608,674	$98,625,169

Table 20
New York City Retirement Systems
Exp Study Recommendations
Impact on FY 06 Contrib Req-ment
Breakdown for NYCERS Subgroups

	Cost Impact: Ordinary Disability	Cost Impact: Accidental Disability	Cost Impact: Sal Scale (excl CPI)	Cost Impact: Sal Scale (Incl CPI)	Cost Impact: Overtime All	Cost Impact: Dual Overtime	Cost Impact: CPI/COLA
I. Total Active Liability							
General Employees	$16,071,366,195	$16,072,783,557	$15,380,077,187	$16,096,886,597	$16,058,285,964	$16,058,285,964	$16,116,542,655
Transit	$6,129,429,680	$6,129,585,673	$6,118,913,784	$6,416,540,123	$6,416,540,123	$6,117,460,183	$6,137,021,329
Sanitation	$2,229,816,310	$2,229,816,310	$2,234,194,543	$2,302,136,445	$2,264,509,221	$2,262,679,989	$2,268,411,490
Corrections	$3,064,374,068	$3,064,374,068	$3,064,374,068	$3,149,833,156	$3,149,833,156	$3,104,905,920	$3,112,971,167
TBTA	$307,859,984	$307,859,984	$300,650,444	$314,249,334	$314,080,608	$315,023,969	$315,894,753
II. Present Value of Future EE Contributions							
General Employees	$834,651,020	$834,368,969	$810,713,862	$832,975,785	$840,150,998	$840,150,998	$840,150,998
Transit	$356,291,522	$356,521,481	$354,873,985	$366,642,364	$366,642,364	$366,642,364	$366,642,364
Sanitation	$166,775,076	$166,775,076	$168,214,320	$172,188,503	$173,644,063	$173,644,063	$173,644,063
Corrections	$155,613,141	$155,613,141	$155,613,141	$158,859,107	$158,859,107	$158,859,107	$158,859,107
TBTA	$27,438,080	$27,438,080	$25,882,870	$26,598,638	$28,603,085	$28,603,085	$28,603,085
III. Present Value of Future Sals (Proj)							
General Employees	$48,013,680,381	$47,991,189,046	$46,160,637,024	$48,026,133,199	$48,436,482,096	$48,436,482,096	$48,436,482,096
Transit	$17,609,154,146	$17,624,112,893	$17,473,405,911	$18,125,323,619	$18,125,323,619	$18,125,323,619	$18,125,323,619
Sanitation	$3,397,796,295	$3,397,796,295	$3,424,523,852	$3,534,542,405	$3,577,830,563	$3,577,830,563	$3,577,830,563
Corrections	$4,178,399,743	$4,178,399,743	$4,178,399,743	$4,306,448,499	$4,306,448,499	$4,306,448,499	$4,306,448,499
TBTA	$770,209,331	$770,209,331	$768,828,678	$799,146,976	$860,869,655	$860,869,655	$860,869,655
IV. Annual Payroll (Proj)							
General Employees	$5,752,033,063	$5,751,466,110	$5,707,097,820	$5,748,110,581	$5,791,685,011	$5,791,685,011	$5,791,685,011
Transit	$2,066,023,835	$2,066,356,417	$2,061,507,506	$2,076,443,469	$2,076,443,469	$2,076,443,469	$2,076,443,469
Sanitation	$506,604,633	$506,604,633	$507,978,481	$511,577,370	$513,151,872	$513,151,872	$513,151,872
Corrections	$686,864,960	$686,864,960	$686,864,960	$691,767,910	$691,767,910	$691,767,910	$691,767,910
TBTA	$97,504,101	$97,504,101	$95,812,122	$96,516,553	$102,694,861	$102,694,861	$102,694,861

Table 21
New York City Retirement Systems
Experience Study Recommendations
Impact on F2006 Contribution Requirement - FIL to EAN Funding Method Change

	POLICE	FIRE	TRS	BERS	NYCERS
I. EAN Normal Cost Based on Cumulative Proposed Assumptions	585,218,499	215,259,503	562,312,902	47,751,621	823,289,765
II. EAN Actuarial Liabilities Based on Cumulative Proposed Assumptions					
Inactives -- Fixed Benefits	11,058,428,963	5,792,598,353	23,078,309,333	1,021,210,217	20,060,202,240
Inactives -- Supplemental Benefits	2,084,523,858	881,706,715	1,794,628,300	131,715,782	3,499,046,333
Inactives -- VSF	2,126,868,433	620,742,169	N/A	N/A	525,282,180
Actives	10,285,569,232	3,395,417,545	14,458,746,381	1,182,721,751	19,429,565,258
Actives -- VSF	1,452,572,748	265,900,513	N/A	N/A	602,961,159
Offset to VSF Liability	2,567,981,000	969,104,000	N/A	N/A	108,137,333
Due to Annuitization of VFA	N/A	N/A	498,534,585	812,964	N/A
Total EAN Actuarial Liability	**24,439,982,234**	**9,987,261,295**	**39,830,218,599**	**2,336,460,714**	**44,008,919,837**
III. Assets					
Actuarial Value of Assets Used for FY 06 Valuation:	19,729,413,000	6,748,327,114	34,331,159,512	1,936,785,857	41,430,332,090
FY 05 Discounted Contrib Receivable Incl in Assets:	994,279,111	471,029,114	1,181,908,512	92,999,857	791,704,090
Adjusted Actuarial Value of Assets as of 71/2004:	**18,735,133,889**	**6,277,298,000**	**33,149,251,000**	**1,843,786,000**	**40,638,628,000**
PV Unfunded Amortization Bases:	0	105,170,273	10,438,963	6,793,791	148,044,796
New UAL Base Under EAN Method (EAN AL - Assets - PV Unfunded Bases):	5,704,848,345	3,604,793,022	6,670,528,636	485,880,923	3,222,247,041
Amortization Factor -- 15-Yr Level % of Pay	11.3246	11.3246	11.3246	11.3246	11.3246
Total Mid-Year Contribution Under Current FIL Method	**1,427,694,859**	**635,486,035**	**1,325,841,936**	**107,414,104**	**1,245,844,019**
Total Mid-Year Contrib -- EAN NC + 15 Yr Level % Amort of UAAL					
Amortization Amount	503,755,191	318,314,018	589,027,653	42,904,740	284,534,062
NC + Amortization	1,088,973,690	533,573,521	1,151,340,555	90,656,361	1,107,823,827
Total Contribution (including interest and prior UAAL amortizations)	**1,222,230,228**	**619,920,356**	**1,294,915,605**	**103,723,638**	**1,290,420,216**
Reduction to Contribution as Compared to FIL Method	*205,464,630*	*15,565,678*	*30,926,331*	*3,690,467*	*(44,576,197)*

Appendix 1:

CURRENT AND RECOMMENDED ASSUMPTION TABLES

TABLE OF CONTENTS

SUMMARY OF ACTUARIAL ASSUMPTIONS

Table 22

Current Assumptions
Service Retiree Mortality Valuation Tables

	BERS, NYCERS (except HPTP)		POLICE, HPTP		FIRE		TRS	
Age	Male	Female	Male	Female	Male	Female	Male	Female
20	0.0368%	0.0192%	0.0351%	0.0192%	0.0351%	0.0192%	0.0351%	0.0183%
21	0.0383%	0.0205%	0.0365%	0.0205%	0.0365%	0.0205%	0.0365%	0.0195%
22	0.0398%	0.0216%	0.0379%	0.0216%	0.0379%	0.0216%	0.0379%	0.0206%
23	0.0414%	0.0229%	0.0394%	0.0229%	0.0394%	0.0229%	0.0394%	0.0218%
24	0.0433%	0.0243%	0.0413%	0.0243%	0.0413%	0.0243%	0.0413%	0.0232%
25	0.0453%	0.0258%	0.0432%	0.0258%	0.0432%	0.0258%	0.0432%	0.0245%
26	0.0476%	0.0273%	0.0454%	0.0273%	0.0454%	0.0273%	0.0454%	0.0260%
27	0.0501%	0.0289%	0.0477%	0.0289%	0.0477%	0.0289%	0.0477%	0.0275%
28	0.0529%	0.0307%	0.0504%	0.0307%	0.0504%	0.0307%	0.0504%	0.0293%
29	0.0559%	0.0326%	0.0532%	0.0326%	0.0532%	0.0326%	0.0532%	0.0310%
30	0.0592%	0.0348%	0.0565%	0.0348%	0.0565%	0.0348%	0.0565%	0.0332%
31	0.0630%	0.0371%	0.0600%	0.0371%	0.0600%	0.0371%	0.0600%	0.0353%
32	0.0671%	0.0395%	0.0639%	0.0395%	0.0639%	0.0395%	0.0639%	0.0376%
33	0.0717%	0.0422%	0.0683%	0.0422%	0.0683%	0.0422%	0.0683%	0.0402%
34	0.0766%	0.0451%	0.0730%	0.0451%	0.0730%	0.0451%	0.0730%	0.0430%
35	0.0840%	0.0485%	0.0800%	0.0485%	0.0800%	0.0485%	0.0800%	0.0462%
36	0.0885%	0.0511%	0.0844%	0.0511%	0.0844%	0.0511%	0.0844%	0.0487%
37	0.0943%	0.0546%	0.0898%	0.0546%	0.0898%	0.0546%	0.0898%	0.0520%
38	0.1015%	0.0584%	0.0966%	0.0584%	0.0966%	0.0584%	0.0966%	0.0556%
39	0.1101%	0.0629%	0.1049%	0.0629%	0.1049%	0.0629%	0.1049%	0.0598%
40	0.1209%	0.0677%	0.1151%	0.0677%	0.1151%	0.0677%	0.1151%	0.0645%
41	0.1752%	0.0736%	0.1314%	0.0736%	0.1262%	0.0736%	0.1299%	0.0695%
42	0.2295%	0.0817%	0.1477%	0.0817%	0.1373%	0.0817%	0.1447%	0.0754%
43	0.2838%	0.0917%	0.1640%	0.0917%	0.1483%	0.0917%	0.1595%	0.0821%
44	0.3381%	0.1039%	0.1803%	0.1039%	0.1594%	0.1039%	0.1743%	0.0896%
45	0.3925%	0.1185%	0.1966%	0.1185%	0.1706%	0.1185%	0.1891%	0.0984%
46	0.4468%	0.1355%	0.2129%	0.1355%	0.1816%	0.1355%	0.2039%	0.1083%
47	0.5011%	0.1545%	0.2292%	0.1545%	0.1927%	0.1545%	0.2186%	0.1192%
48	0.5554%	0.1752%	0.2454%	0.1752%	0.2038%	0.1752%	0.2335%	0.1307%
49	0.6097%	0.1973%	0.2617%	0.1973%	0.2148%	0.1973%	0.2483%	0.1425%
50	0.6640%	0.2205%	0.2781%	0.2205%	0.2259%	0.2205%	0.2631%	0.1543%
51	0.7382%	0.2486%	0.3677%	0.2486%	0.2828%	0.2486%	0.2930%	0.1681%
52	0.8124%	0.2788%	0.4574%	0.2788%	0.3396%	0.2788%	0.3229%	0.1827%
53	0.8867%	0.3113%	0.5470%	0.3113%	0.3965%	0.3113%	0.3527%	0.1982%
54	0.9609%	0.3463%	0.6367%	0.3463%	0.4534%	0.3463%	0.3827%	0.2151%
55	1.0351%	0.3840%	0.6901%	0.3840%	0.5102%	0.3840%	0.4126%	0.2339%
56	1.1054%	0.4417%	0.7604%	0.4417%	0.5671%	0.4417%	0.4534%	0.2596%
57	1.1757%	0.5040%	0.8307%	0.5040%	0.6239%	0.5040%	0.4941%	0.2876%
58	1.2460%	0.5705%	0.9010%	0.5705%	0.6808%	0.5705%	0.5348%	0.3179%
59	1.3163%	0.6407%	0.9713%	0.6407%	0.7377%	0.6407%	0.5756%	0.3497%
60	1.3866%	0.7143%	1.0416%	0.7143%	0.7945%	0.7143%	0.6163%	0.3832%
61	1.5487%	0.8067%	1.1313%	0.8067%	0.8514%	0.8067%	0.7029%	0.4279%
62	1.7108%	0.8895%	1.2209%	0.8895%	0.9082%	0.8895%	0.7895%	0.4746%
63	1.8729%	0.9737%	1.3106%	0.9737%	0.9802%	0.9737%	0.8762%	0.5234%
64	2.0350%	1.0654%	1.4003%	1.0654%	1.0726%	1.0654%	0.9627%	0.5741%
65	2.1971%	1.1649%	1.4900%	1.1649%	1.1726%	1.1649%	1.0493%	0.6265%

Table 22

Current Assumptions
Service Retiree Mortality Valuation Tables

	BERS, NYCERS (except HPTP)		POLICE, HPTP		FIRE		TRS	
Age	Male	Female	Male	Female	Male	Female	Male	Female
66	2.3788%	1.2739%	1.5796%	1.2739%	1.2825%	1.2739%	1.2086%	0.7080%
67	2.5604%	1.3978%	1.6693%	1.3978%	1.4072%	1.3978%	1.3680%	0.7938%
68	2.7420%	1.5317%	1.8759%	1.5317%	1.5420%	1.5317%	1.5273%	0.8846%
69	2.9236%	1.6379%	2.0825%	1.6379%	1.6593%	1.6379%	1.6867%	0.9802%
70	3.1053%	1.7416%	2.2892%	1.7416%	1.8926%	1.7416%	1.8461%	1.0802%
71	3.3416%	1.9535%	2.4957%	1.9535%	2.1261%	1.9535%	2.0534%	1.2199%
72	3.5779%	2.1653%	2.7024%	2.1653%	2.3594%	2.1653%	2.2608%	1.3636%
73	3.8142%	2.3772%	2.9488%	2.3772%	2.6675%	2.3772%	2.4682%	1.5091%
74	4.0505%	2.5890%	3.1951%	2.5890%	2.9756%	2.5890%	2.6756%	1.6544%
75	4.2868%	2.8009%	3.4415%	2.8009%	3.2837%	2.8009%	2.8830%	1.7974%
76	4.8845%	3.1635%	3.6878%	3.1635%	3.5918%	3.1635%	3.2448%	2.0578%
77	5.4821%	3.5260%	3.9342%	3.5260%	3.8999%	3.5260%	3.6065%	2.3182%
78	6.0797%	3.8886%	4.3560%	3.8886%	4.4712%	3.8886%	3.9683%	2.5768%
79	6.6773%	4.2512%	4.7778%	4.2512%	5.0425%	4.2512%	4.3301%	2.8314%
80	7.2749%	4.6138%	5.1995%	4.6138%	5.6138%	4.6138%	4.6919%	3.0798%
81	7.9995%	5.1332%	5.6214%	5.1332%	6.1851%	5.1332%	5.3518%	3.6284%
82	8.7241%	5.6527%	6.0431%	5.6527%	6.7564%	5.6527%	6.0117%	4.1770%
83	9.4486%	6.1721%	6.8308%	6.1721%	7.8474%	6.1721%	6.6716%	4.7256%
84	10.1732%	6.6915%	7.6184%	6.6915%	8.9384%	6.6915%	7.3316%	5.2743%
85	10.8977%	7.2110%	8.4060%	7.2110%	10.0295%	7.2110%	7.9915%	5.8229%
86	12.0324%	8.2234%	9.1935%	8.2234%	11.1206%	8.2234%	8.9738%	6.7341%
87	13.1671%	9.2358%	9.9811%	9.2358%	12.2116%	9.2358%	9.9560%	7.6453%
88	14.3018%	10.2481%	11.2508%	10.2481%	13.0740%	10.2481%	10.9383%	8.5566%
89	15.4365%	11.2605%	12.5204%	11.2605%	13.9365%	11.2605%	11.9206%	9.4678%
90	16.5712%	12.2729%	13.7899%	12.2729%	14.7990%	12.2729%	12.9028%	10.3790%
91	18.2659%	13.7083%	15.1353%	13.7083%	15.7070%	13.7083%	14.2521%	11.8079%
92	19.9062%	15.1220%	16.4676%	15.1220%	16.6428%	15.1220%	15.5925%	13.2163%
93	21.4964%	16.5350%	17.7909%	16.5350%	18.9512%	16.5350%	16.9283%	14.6247%
94	23.0810%	17.9368%	19.1478%	17.9368%	21.1760%	17.9368%	18.3018%	16.0567%
95	24.6685%	19.4640%	20.5460%	19.4640%	23.3253%	19.4640%	19.7210%	17.5405%
96	26.2532%	21.1361%	22.1691%	21.1361%	25.3299%	21.1361%	21.3631%	20.0184%
97	27.8345%	22.8306%	23.8006%	22.8306%	27.2620%	22.8306%	23.0188%	22.4440%
98	29.4357%	24.6045%	25.4629%	24.6045%	29.1440%	24.6045%	24.9509%	24.6045%
99	31.0839%	26.5343%	27.4354%	26.5343%	31.0016%	26.5343%	27.4354%	26.5343%
100	32.8097%	28.6331%	30.1977%	28.6331%	31.5403%	28.6331%	30.1977%	28.6331%
101	34.8474%	31.5468%	33.2706%	31.5468%	33.2706%	31.5468%	33.2706%	31.5468%
102	36.9921%	34.8130%	36.7152%	34.8130%	36.7152%	34.8130%	36.7152%	34.8130%
103	40.4947%	38.3968%	40.4947%	38.3968%	40.4947%	38.3968%	40.4947%	38.3968%
104	44.8442%	42.5209%	44.8442%	42.5209%	44.8442%	42.5209%	44.8442%	42.5209%
105	49.9036%	47.3182%	49.9036%	47.3182%	49.9036%	47.3182%	49.9036%	47.3178%
106	55.8442%	52.9509%	55.8442%	52.9509%	55.8442%	52.9509%	55.8442%	52.9509%
107	62.8438%	59.5880%	62.8438%	59.5880%	62.8438%	59.5880%	62.8438%	59.5880%
108	71.0868%	67.4038%	71.0868%	67.4038%	71.0868%	67.4038%	71.0868%	67.4038%
109	80.7632%	76.5790%	80.7632%	76.5790%	80.7632%	76.5790%	80.7632%	76.5790%
110	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%

Table 23

Proposed Assumptions
Service Retiree Mortality Valuation Tables

	BERS, NYCERS (all except HPTP)		POLICE, HPTP		FIRE		TRS	
Age	Male	Female	Male	Female	Male	Female	Male	Female
20	0.0490%	0.0394%	0.0286%	0.0182%	0.4592%	0.0182%	0.0460%	0.0349%
21	0.0531%	0.0427%	0.0312%	0.0195%	0.4592%	0.0195%	0.0478%	0.0372%
22	0.0575%	0.0462%	0.0339%	0.0205%	0.4592%	0.0205%	0.0497%	0.0393%
23	0.0623%	0.0500%	0.0370%	0.0218%	0.4592%	0.0218%	0.0517%	0.0416%
24	0.0674%	0.0542%	0.0403%	0.0231%	0.4592%	0.0231%	0.0541%	0.0442%
25	0.0731%	0.0586%	0.0439%	0.0245%	0.4592%	0.0245%	0.0566%	0.0467%
26	0.0791%	0.0635%	0.0479%	0.0259%	0.4592%	0.0259%	0.0595%	0.0496%
27	0.0857%	0.0687%	0.0521%	0.0275%	0.4592%	0.0275%	0.0625%	0.0524%
28	0.0929%	0.0744%	0.0568%	0.0292%	0.4592%	0.0292%	0.0661%	0.0559%
29	0.1006%	0.0806%	0.0619%	0.0310%	0.4592%	0.0310%	0.0697%	0.0591%
30	0.1090%	0.0872%	0.0675%	0.0331%	0.4592%	0.0331%	0.0741%	0.0633%
31	0.1180%	0.0944%	0.0735%	0.0352%	0.4592%	0.0352%	0.0787%	0.0673%
32	0.1279%	0.1022%	0.0801%	0.0375%	0.4592%	0.0375%	0.0838%	0.0717%
33	0.1385%	0.1107%	0.0873%	0.0401%	0.4592%	0.0401%	0.0895%	0.0767%
34	0.1500%	0.1198%	0.0951%	0.0428%	0.4592%	0.0428%	0.0957%	0.0820%
35	0.1625%	0.1297%	0.1036%	0.0461%	0.4592%	0.0461%	0.1049%	0.0881%
36	0.1761%	0.1405%	0.1129%	0.0485%	0.4592%	0.0485%	0.1106%	0.0929%
37	0.1907%	0.1521%	0.1231%	0.0519%	0.4592%	0.0519%	0.1177%	0.0992%
38	0.2066%	0.1647%	0.1341%	0.0555%	0.4592%	0.0555%	0.1266%	0.1060%
39	0.2238%	0.1783%	0.1461%	0.0598%	0.4592%	0.0598%	0.1375%	0.1140%
40	0.2424%	0.1930%	0.1592%	0.0643%	0.4592%	0.0643%	0.1509%	0.1230%
41	0.2626%	0.2089%	0.1735%	0.0699%	0.4592%	0.0699%	0.1703%	0.1325%
42	0.2845%	0.2262%	0.1890%	0.0776%	0.4592%	0.0776%	0.1897%	0.1438%
43	0.3082%	0.2449%	0.2060%	0.0871%	0.4592%	0.0871%	0.2091%	0.1566%
44	0.3338%	0.2652%	0.2245%	0.0987%	0.4592%	0.0987%	0.2285%	0.1709%
45	0.3616%	0.2871%	0.2446%	0.1126%	0.4592%	0.1126%	0.2479%	0.1876%
46	0.3917%	0.3108%	0.2665%	0.1287%	0.4592%	0.1287%	0.2673%	0.2065%
47	0.4243%	0.3365%	0.2904%	0.1468%	0.4592%	0.1468%	0.2866%	0.2273%
48	0.4596%	0.3643%	0.3164%	0.1664%	0.4592%	0.1664%	0.3061%	0.2492%
49	0.4979%	0.3944%	0.3448%	0.1874%	0.4592%	0.1874%	0.3255%	0.2717%
50	0.5394%	0.4270%	0.3757%	0.2095%	0.4592%	0.2095%	0.3449%	0.2942%
51	0.5843%	0.4623%	0.4094%	0.2362%	0.4592%	0.2362%	0.3841%	0.3206%
52	0.6870%	0.5005%	0.4461%	0.2649%	0.4592%	0.2649%	0.4233%	0.3484%
53	0.7612%	0.5419%	0.4861%	0.2957%	0.4592%	0.2957%	0.4624%	0.3780%
54	0.8433%	0.5867%	0.5297%	0.3290%	0.4592%	0.3290%	0.5017%	0.4102%
55	0.9343%	0.6352%	0.5772%	0.3648%	0.4592%	0.3648%	0.5409%	0.4460%
56	1.0351%	0.6877%	0.6289%	0.4196%	0.5104%	0.4196%	0.5944%	0.4950%
57	1.1468%	0.8121%	0.6853%	0.4788%	0.5615%	0.4788%	0.6477%	0.5484%
58	1.1934%	0.8943%	0.7468%	0.5420%	0.6127%	0.5420%	0.6916%	0.5933%
59	1.2420%	0.9848%	0.8137%	0.6087%	0.6639%	0.6087%	0.7385%	0.6417%
60	1.2926%	1.0845%	0.8867%	0.6786%	0.7151%	0.6786%	0.7885%	0.6942%
61	1.3452%	1.1943%	0.9662%	0.7664%	0.7663%	0.7664%	0.8420%	0.7509%
62	1.3999%	1.3152%	1.0528%	0.8450%	0.8174%	0.8450%	0.8990%	0.8123%
63	1.4925%	1.3625%	1.1472%	0.9250%	0.8822%	0.9250%	0.9429%	0.8262%
64	1.5911%	1.4114%	1.2501%	1.0121%	0.9653%	1.0121%	0.9889%	0.8404%
65	1.6963%	1.4622%	1.3621%	1.1067%	1.0553%	1.1067%	1.0371%	0.8549%

Table 23

Proposed Assumptions
Service Retiree Mortality Valuation Tables

	BERS, NYCERS (all except HPTP)		POLICE, HPTP		FIRE		TRS	
Age	Male	Female	Male	Female	Male	Female	Male	Female
66	1.8085%	1.5147%	1.4843%	1.2102%	1.1543%	1.2102%	1.0877%	0.8696%
67	1.9280%	1.5691%	1.6173%	1.3279%	1.2665%	1.3279%	1.1408%	0.8845%
68	2.1053%	1.6952%	1.7623%	1.4551%	1.3878%	1.4551%	1.2465%	0.9688%
69	2.2988%	1.8315%	1.9203%	1.5560%	1.4934%	1.5560%	1.3621%	1.0611%
70	2.5101%	1.9787%	2.0925%	1.6545%	1.7033%	1.6545%	1.4883%	1.1622%
71	2.7409%	2.1377%	2.2801%	1.8558%	1.9135%	1.8558%	1.6263%	1.2729%
72	2.9929%	2.3095%	2.4845%	2.0570%	2.1235%	2.0570%	1.7771%	1.3941%
73	3.2155%	2.4991%	2.7073%	2.2583%	2.4008%	2.2583%	1.9565%	1.4983%
74	3.4548%	2.7043%	2.9500%	2.4596%	2.6780%	2.4596%	2.1542%	1.6103%
75	3.7118%	2.9263%	3.2145%	2.6609%	2.9553%	2.6609%	2.3717%	1.7307%
76	3.9880%	3.1665%	3.5027%	3.0053%	3.2326%	3.0053%	2.6113%	1.8601%
77	4.2847%	3.4265%	3.8168%	3.3497%	3.5099%	3.3497%	2.8751%	1.9991%
78	4.7142%	3.7094%	4.2421%	3.6942%	4.0241%	3.6942%	3.2111%	2.2839%
79	5.1869%	4.0156%	4.7131%	4.0386%	4.5383%	4.0386%	3.5864%	2.6093%
80	5.7070%	4.3472%	5.2344%	4.3831%	5.0524%	4.3831%	4.0055%	2.9811%
81	6.2792%	4.7061%	5.8113%	4.8765%	5.5666%	4.8765%	4.4737%	3.4059%
82	6.9087%	5.0946%	6.4496%	5.3701%	6.0808%	5.3701%	4.9965%	3.8912%
83	7.6086%	5.6744%	7.1557%	5.8635%	7.0627%	5.8635%	5.5925%	4.4064%
84	8.3793%	6.3201%	7.9365%	6.3569%	8.0446%	6.3569%	6.2595%	4.9897%
85	9.2282%	7.0393%	8.7997%	6.8505%	9.0266%	6.8505%	7.0060%	5.6503%
86	10.1630%	7.8403%	9.7540%	7.8122%	10.0085%	7.8122%	7.8416%	6.3984%
87	11.1925%	8.7325%	10.8087%	8.7740%	10.9904%	8.7740%	8.7769%	7.2455%
88	12.3262%	9.6962%	11.7383%	9.7357%	11.7666%	9.7357%	9.8505%	8.2464%
89	13.5747%	10.7663%	12.8770%	10.6975%	12.5429%	10.6975%	11.0554%	9.3857%
90	14.9497%	11.9546%	14.1262%	11.6593%	13.3191%	11.6593%	12.4078%	10.6824%
91	16.4639%	13.2739%	15.4966%	13.0229%	14.1363%	13.0229%	13.9255%	12.1582%
92	18.1316%	14.7389%	17.0000%	14.3659%	14.9785%	14.3659%	15.6290%	13.8379%
93	19.4086%	16.1685%	18.6491%	15.7083%	17.0561%	15.7083%	17.1501%	15.1801%
94	20.7756%	17.7367%	20.4583%	17.0400%	19.0584%	17.0400%	18.8194%	16.6525%
95	22.2389%	19.4570%	22.4430%	18.4908%	20.9928%	18.4908%	20.6511%	18.2677%
96	23.8053%	21.3442%	24.6202%	20.0793%	22.7969%	20.0793%	22.6612%	20.0396%
97	25.4819%	23.4144%	27.0086%	21.6891%	24.5358%	21.6891%	24.8668%	21.9833%
98	27.2007%	24.2884%	29.6287%	23.3743%	26.2296%	23.3743%	27.4531%	24.6030%
99	29.0353%	25.1950%	32.5030%	25.2076%	27.9014%	25.2076%	30.3083%	27.5348%
100	30.9937%	26.1355%	35.6562%	27.2014%	28.3863%	27.2014%	33.4606%	30.8160%
101	33.0842%	27.1111%	39.1152%	29.9695%	29.9435%	29.9695%	36.9406%	34.4883%
102	35.3157%	31.3913%	42.9098%	33.0724%	33.0437%	33.0724%	40.7826%	38.5981%
103	37.6977%	36.0515%	47.0725%	36.4770%	36.4452%	36.4770%	45.0242%	43.1977%
104	40.2404%	41.4036%	51.6390%	40.3949%	40.3598%	40.3949%	49.7069%	48.3454%
105	42.9545%	47.5502%	56.6485%	44.9523%	44.9132%	44.9523%	54.8767%	54.1066%
106	49.8030%	54.6093%	62.1440%	50.3034%	50.2598%	50.3034%	60.5841%	60.5543%
107	57.7434%	62.7163%	68.1726%	56.6086%	56.5594%	56.6086%	66.8851%	67.7703%
108	66.9498%	72.0270%	74.7861%	64.0336%	63.9781%	64.0336%	73.8415%	75.8463%
109	77.6240%	82.7198%	82.0411%	72.7501%	72.6869%	72.7501%	81.5214%	84.8846%
110	90.0000%	95.0000%	90.0000%	95.0000%	90.0000%	95.0000%	90.0000%	95.0000%

Table 24

Current Assumptions
Disabled Retiree Mortality Valuation Tables

	General, Transit, TBTA, BERS		POLICE, HPTP		FIRE		Sanitation, Corrections		TRS	
Age	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
20	1.4109%	2.8452%	0.0379%	0.0216%	0.0379%	0.0216%	0.7055%	1.4226%	1.0076%	2.9247%
21	1.4462%	2.8595%	0.0394%	0.0229%	0.0394%	0.0229%	0.7232%	1.4298%	1.0282%	2.9247%
22	1.4824%	2.8736%	0.0413%	0.0243%	0.0413%	0.0243%	0.7412%	1.4369%	1.0491%	2.9247%
23	1.5194%	2.8879%	0.0432%	0.0258%	0.0432%	0.0258%	0.7597%	1.4439%	1.0706%	2.9247%
24	1.5575%	2.9021%	0.0454%	0.0273%	0.0454%	0.0273%	0.7788%	1.4511%	1.0925%	2.9247%
25	1.5963%	2.9163%	0.0477%	0.0289%	0.0477%	0.0289%	0.7982%	1.4582%	1.1148%	2.9247%
26	1.6361%	2.9306%	0.0504%	0.0307%	0.0504%	0.0307%	0.8181%	1.4653%	1.1376%	2.9247%
27	1.6770%	2.9448%	0.0532%	0.0326%	0.0532%	0.0326%	0.8385%	1.4725%	1.1608%	2.9247%
28	1.7187%	2.9590%	0.0565%	0.0348%	0.0565%	0.0348%	0.8594%	1.4795%	1.1846%	2.9247%
29	1.7615%	2.9732%	0.0600%	0.0371%	0.0600%	0.0371%	0.8808%	1.4866%	1.2088%	2.9247%
30	1.8052%	2.9875%	0.0639%	0.0395%	0.0639%	0.0395%	0.9027%	1.4938%	1.2336%	2.9247%
31	1.8501%	3.0017%	0.0683%	0.0422%	0.0683%	0.0422%	0.9251%	1.5009%	1.2588%	2.9247%
32	1.8960%	3.0159%	0.0730%	0.0451%	0.0730%	0.0451%	0.9480%	1.5080%	1.2844%	2.9247%
33	1.9430%	3.0302%	0.0800%	0.0485%	0.0800%	0.0485%	0.9716%	1.5151%	1.3107%	2.9247%
34	1.9912%	3.0443%	0.0844%	0.0511%	0.0844%	0.0511%	0.9957%	1.5222%	1.3375%	2.9247%
35	2.0406%	3.0586%	0.0898%	0.0546%	0.0898%	0.0546%	1.0203%	1.5293%	1.3649%	2.9247%
36	2.0911%	3.0729%	0.0966%	0.0584%	0.0966%	0.0584%	1.0456%	1.5365%	1.3928%	2.9247%
37	2.1428%	3.0870%	0.1049%	0.0629%	0.1049%	0.0629%	1.0715%	1.5436%	1.4212%	2.9247%
38	2.1957%	3.1013%	0.1151%	0.0677%	0.1151%	0.0677%	1.0979%	1.5506%	1.4502%	2.9247%
39	2.2499%	3.1155%	0.1314%	0.0736%	0.1262%	0.0736%	1.1250%	1.5578%	1.4799%	2.9247%
40	2.3055%	3.1297%	0.1477%	0.0817%	0.1373%	0.0817%	1.1527%	1.5649%	1.5101%	2.9247%
41	2.3525%	3.1440%	0.1640%	0.0917%	0.1483%	0.0917%	1.1763%	1.5720%	1.5410%	2.9247%
42	2.4005%	3.1582%	0.1803%	0.1039%	0.1594%	0.1039%	1.2003%	1.5792%	1.5725%	2.9247%
43	2.4495%	3.1724%	0.1966%	0.1185%	0.1706%	0.1185%	1.2248%	1.5862%	1.6046%	2.9247%
44	2.4995%	3.1866%	0.2129%	0.1355%	0.1816%	0.1355%	1.2497%	1.5933%	1.6375%	2.9247%
45	2.5505%	3.2009%	0.2292%	0.1545%	0.1927%	0.1545%	1.2753%	1.6005%	1.6709%	2.9247%
46	2.5701%	3.2151%	0.2454%	0.1752%	0.2038%	0.1752%	1.2851%	1.6076%	1.7051%	2.9247%
47	2.5893%	3.2293%	0.2617%	0.1973%	0.2148%	0.1973%	1.2947%	1.6147%	1.7399%	2.9247%
48	2.6477%	3.2435%	0.2781%	0.2205%	0.2259%	0.2205%	1.3239%	1.6217%	1.7755%	2.9247%
49	2.7058%	3.2577%	0.3677%	0.2486%	0.2828%	0.2486%	1.3530%	1.6289%	1.8109%	2.7372%
50	2.7639%	3.2720%	0.4574%	0.2788%	0.3396%	0.2788%	1.3820%	1.6360%	1.8462%	2.5618%
51	2.8468%	3.2862%	0.5470%	0.3113%	0.3965%	0.3113%	1.4519%	1.6760%	1.8813%	2.3984%
52	2.9313%	3.3004%	0.6367%	0.3463%	0.4534%	0.3463%	1.5243%	1.7162%	1.9163%	2.2471%
53	3.0199%	3.3147%	0.6901%	0.3840%	0.5102%	0.3840%	1.6005%	1.7568%	1.9528%	2.1093%
54	3.1100%	3.3288%	0.7604%	0.4417%	0.5671%	0.4417%	1.6794%	1.7976%	1.9895%	1.9837%
55	3.2012%	3.3431%	0.8307%	0.5040%	0.6239%	0.5040%	1.7607%	1.8387%	2.0266%	1.8705%
56	3.3086%	3.3574%	0.9010%	0.5705%	0.6808%	0.5705%	1.8528%	1.8802%	2.0643%	1.7696%
57	3.4182%	3.3715%	0.9713%	0.6407%	0.7377%	0.6407%	1.9484%	1.9218%	2.1032%	1.6813%
58	3.5306%	3.3858%	1.0416%	0.7143%	0.7945%	0.7143%	2.0478%	1.9638%	2.1437%	1.6060%
59	3.6461%	3.4000%	1.1313%	0.8067%	0.8514%	0.8067%	2.1512%	2.0061%	2.1866%	1.5441%
60	3.7649%	3.4142%	1.2209%	0.8895%	0.9082%	0.8895%	2.2590%	2.0485%	2.2326%	1.4957%
61	3.8878%	3.4232%	1.3106%	0.9737%	0.9802%	0.9737%	2.3715%	2.0882%	2.2825%	1.4615%
62	4.0154%	3.4405%	1.4003%	1.0654%	1.0726%	1.0654%	2.4895%	2.1331%	2.3372%	1.4417%
63	4.1483%	3.4674%	1.4900%	1.1649%	1.1726%	1.1649%	2.6134%	2.1844%	2.3977%	1.4371%
64	4.2880%	3.5052%	1.5796%	1.2739%	1.2825%	1.2739%	2.7442%	2.2433%	2.4656%	1.4484%
65	4.4364%	3.5556%	1.6693%	1.3978%	1.4072%	1.3978%	2.8837%	2.3111%	2.5427%	1.4771%

Table 24

Current Assumptions
Disabled Retiree Mortality Valuation Tables

	General, Transit, TBTA, BERS		POLICE, HPTP		FIRE		Sanitation, Corrections		TRS	
Age	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
66	4.5957%	3.6206%	1.8759%	1.5317%	1.5420%	1.5317%	3.0332%	2.3896%	2.6311%	1.5247%
67	4.7682%	3.7020%	2.0825%	1.6379%	1.6593%	1.6379%	3.1947%	2.4804%	2.7327%	1.5927%
68	4.9552%	3.8010%	2.2892%	1.7416%	1.8926%	1.7416%	3.3696%	2.5847%	2.8494%	1.6820%
69	5.1580%	3.9196%	2.4957%	1.9535%	2.1261%	1.9535%	3.5590%	2.7046%	2.9825%	1.7934%
70	5.3787%	4.0596%	2.7024%	2.1653%	2.3594%	2.1653%	3.7651%	2.8417%	3.1342%	1.9287%
71	5.6195%	4.2233%	2.9488%	2.3772%	2.6675%	2.3772%	3.9899%	2.9986%	3.3062%	2.0892%
72	5.8824%	4.4127%	3.1951%	2.5890%	2.9756%	2.5890%	4.2353%	3.1771%	3.5008%	2.2764%
73	6.1688%	4.6295%	3.4415%	2.8009%	3.2837%	2.8009%	4.5032%	3.3796%	3.7193%	2.4913%
74	6.4793%	4.8746%	3.6878%	3.1635%	3.5918%	3.1635%	4.7947%	3.6072%	3.9632%	2.7345%
75	6.8150%	5.1494%	3.9342%	3.5260%	3.8999%	3.5260%	5.1113%	3.8621%	4.2347%	3.0066%
76	7.2092%	5.4553%	4.3560%	3.8886%	4.4712%	3.8886%	5.4790%	4.1460%	4.5354%	3.3080%
77	7.6334%	5.7929%	4.7778%	4.2512%	5.0425%	4.2512%	5.8778%	4.4605%	4.8674%	3.6391%
78	8.0881%	6.1624%	5.1995%	4.6138%	5.6138%	4.6138%	6.3087%	4.8066%	5.2319%	4.0004%
79	8.5742%	6.5655%	5.6214%	5.1332%	6.1851%	5.1332%	6.7737%	5.1868%	5.6298%	4.3922%
80	9.0925%	7.0032%	6.0431%	5.6527%	6.7564%	5.6527%	7.2749%	5.6025%	6.0619%	4.8143%
81	9.6433%	7.4228%	6.8308%	6.1721%	7.8474%	6.1721%	7.9995%	6.0124%	6.5290%	5.2671%
82	10.2268%	7.8716%	7.6184%	6.6915%	8.9384%	6.6915%	8.7241%	6.4548%	7.0315%	5.7503%
83	10.8479%	8.3564%	8.4060%	7.2110%	10.0295%	7.2110%	9.4486%	6.9358%	7.6355%	6.2637%
84	11.5093%	8.8800%	9.1935%	8.2234%	11.1206%	8.2234%	10.1732%	7.4592%	8.2847%	6.8075%
85	12.2138%	9.4462%	9.9811%	9.2358%	12.2116%	9.2358%	10.8977%	8.0293%	8.9692%	7.3812%
86	13.0205%	10.0587%	11.2508%	10.2481%	13.0740%	10.2481%	12.0324%	8.6505%	9.6896%	7.9847%
87	13.8828%	10.7222%	12.5204%	11.2605%	13.9365%	11.2605%	13.1671%	9.3283%	10.4469%	8.7149%
88	14.8045%	11.4412%	13.7899%	12.2729%	14.7990%	12.2729%	14.3018%	10.2481%	11.2454%	9.5731%
89	15.7903%	12.2209%	15.1353%	13.7083%	15.7070%	13.7083%	15.4365%	11.2605%	12.0815%	10.4828%
90	16.8444%	13.0674%	16.4676%	15.1220%	16.6428%	15.1220%	16.5712%	12.2729%	12.9554%	11.4430%
91	18.2659%	13.8842%	17.7909%	16.5350%	18.9512%	16.5350%	18.2659%	13.7083%	14.2521%	12.4271%
92	19.9062%	15.1220%	19.1478%	17.9368%	21.1760%	17.9368%	19.9062%	15.1220%	15.5925%	13.4752%
93	21.4964%	16.5350%	20.5460%	19.4640%	23.3253%	19.4640%	21.4964%	16.5350%	16.9283%	14.6247%
94	23.0810%	17.9368%	22.1691%	21.1361%	25.3299%	21.1361%	23.0810%	17.9368%	18.3018%	16.0567%
95	24.6685%	19.4640%	23.8006%	22.8306%	27.2620%	22.8306%	24.6685%	19.4640%	19.7210%	17.5405%
96	26.2532%	21.1361%	25.4629%	24.6045%	29.1440%	24.6045%	26.2532%	21.1361%	21.3631%	20.0184%
97	27.8345%	22.8306%	27.4354%	26.5343%	31.0016%	26.5343%	27.8345%	22.8306%	23.0188%	22.4440%
98	29.4357%	24.6045%	30.1977%	28.6331%	31.5403%	28.6331%	29.4357%	24.6045%	24.9509%	24.6045%
99	31.0839%	26.5343%	33.2706%	31.5468%	33.2706%	31.5468%	31.0839%	26.5343%	27.4354%	26.5343%
100	32.8097%	28.6331%	36.7152%	34.8130%	36.7152%	34.8130%	32.8097%	28.6331%	30.1977%	28.6331%
101	34.8474%	31.5468%	40.4947%	38.3968%	40.4947%	38.3968%	34.8474%	31.5468%	33.2706%	31.5468%
102	36.9921%	34.8130%	44.8442%	42.5209%	44.8442%	42.5209%	36.9921%	34.8130%	36.7152%	34.8130%
103	40.4947%	38.3968%	49.9036%	47.3182%	49.9036%	47.3182%	40.4947%	38.3968%	40.4947%	38.3968%
104	44.8442%	42.5209%	55.8442%	52.9509%	55.8442%	52.9509%	44.8442%	42.5209%	44.8442%	42.5209%
105	49.9036%	47.3182%	62.8438%	59.5880%	62.8438%	59.5880%	49.9036%	47.3182%	49.9036%	47.3178%
106	55.8442%	52.9509%	71.0868%	67.4038%	71.0868%	67.4038%	55.8442%	52.9509%	55.8442%	52.9509%
107	62.8438%	59.5880%	80.7632%	76.5790%	80.7632%	76.5790%	62.8438%	59.5880%	62.8438%	59.5880%
108	71.0868%	67.4038%	100.0000%	100.0000%	100.0000%	100.0000%	71.0868%	67.4038%	71.0868%	67.4038%
109	80.7632%	76.5790%	100.0000%	100.0000%	100.0000%	100.0000%	80.7632%	76.5790%	80.7632%	76.5790%
110	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%

Table 25

Proposed Assumptions
Disabled Retiree Mortality Valuation Tables

	General, Transit, TBTA, BERS		POLICE, HPTP		FIRE		Sanitation, Corrections		TRS	
Age	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
20	1.2698%	2.7029%	0.0341%	0.0205%	0.4592%	0.0205%	0.5397%	1.3515%	1.0882%	3.3342%
21	1.3016%	2.7165%	0.0355%	0.0218%	0.4592%	0.0218%	0.5532%	1.3583%	1.1105%	3.3342%
22	1.3342%	2.7299%	0.0372%	0.0231%	0.4592%	0.0231%	0.5670%	1.3651%	1.1330%	3.3342%
23	1.3675%	2.7435%	0.0389%	0.0245%	0.4592%	0.0245%	0.5812%	1.3717%	1.1562%	3.3342%
24	1.4018%	2.7570%	0.0409%	0.0259%	0.4592%	0.0259%	0.5958%	1.3785%	1.1799%	3.3342%
25	1.4367%	2.7705%	0.0429%	0.0275%	0.4592%	0.0275%	0.6106%	1.3853%	1.2040%	3.3342%
26	1.4725%	2.7841%	0.0454%	0.0292%	0.4592%	0.0292%	0.6258%	1.3920%	1.2286%	3.3342%
27	1.5093%	2.7976%	0.0479%	0.0310%	0.4592%	0.0310%	0.6415%	1.3989%	1.2537%	3.3342%
28	1.5468%	2.8111%	0.0509%	0.0331%	0.4592%	0.0331%	0.6574%	1.4055%	1.2794%	3.3342%
29	1.5854%	2.8245%	0.0540%	0.0352%	0.4592%	0.0352%	0.6738%	1.4123%	1.3055%	3.3342%
30	1.6247%	2.8381%	0.0575%	0.0375%	0.4592%	0.0375%	0.6906%	1.4191%	1.3323%	3.3342%
31	1.6651%	2.8516%	0.0615%	0.0401%	0.4592%	0.0401%	0.7077%	1.4259%	1.3595%	3.3342%
32	1.7064%	2.8651%	0.0657%	0.0428%	0.4592%	0.0428%	0.7252%	1.4326%	1.3872%	3.3342%
33	1.7487%	2.8787%	0.0720%	0.0461%	0.4592%	0.0461%	0.7433%	1.4393%	1.4156%	3.3342%
34	1.7921%	2.8921%	0.0760%	0.0485%	0.4592%	0.0485%	0.7617%	1.4461%	1.4445%	3.3342%
35	1.8365%	2.9057%	0.0808%	0.0519%	0.4592%	0.0519%	0.7805%	1.4528%	1.4741%	3.3342%
36	1.8820%	2.9193%	0.0869%	0.0555%	0.4592%	0.0555%	0.7999%	1.4597%	1.5042%	3.3342%
37	1.9285%	2.9327%	0.0944%	0.0598%	0.4592%	0.0598%	0.8197%	1.4664%	1.5349%	3.3342%
38	1.9761%	2.9462%	0.1036%	0.0643%	0.4592%	0.0643%	0.8399%	1.4731%	1.5662%	3.3342%
39	2.0249%	2.9597%	0.1183%	0.0699%	0.4592%	0.0699%	0.8606%	1.4799%	1.5983%	3.3342%
40	2.0750%	2.9732%	0.1329%	0.0776%	0.4592%	0.0776%	0.8818%	1.4867%	1.6309%	3.3342%
41	2.1173%	2.9868%	0.1476%	0.0871%	0.4592%	0.0871%	0.8999%	1.4934%	1.6643%	3.3342%
42	2.1605%	3.0003%	0.1623%	0.0987%	0.4592%	0.0987%	0.9182%	1.5002%	1.6983%	3.3342%
43	2.2046%	3.0138%	0.1769%	0.1126%	0.4592%	0.1126%	0.9370%	1.5069%	1.7330%	3.3342%
44	2.2496%	3.0273%	0.1916%	0.1287%	0.4592%	0.1287%	0.9560%	1.5136%	1.7685%	3.3342%
45	2.2955%	3.0409%	0.2063%	0.1468%	0.4592%	0.1468%	0.9756%	1.5205%	1.8046%	3.3342%
46	2.3131%	3.0543%	0.2209%	0.1664%	0.4592%	0.1664%	0.9831%	1.5272%	1.8415%	3.3342%
47	2.3304%	3.0678%	0.2355%	0.1874%	0.4592%	0.1874%	0.9904%	1.5340%	1.8791%	3.3342%
48	2.3829%	3.0813%	0.2503%	0.2095%	0.4592%	0.2095%	1.0128%	1.5406%	1.9175%	3.3342%
49	2.4352%	3.0948%	0.3309%	0.2362%	0.4592%	0.2362%	1.0350%	1.5475%	1.9558%	3.1204%
50	2.4875%	3.1084%	0.4117%	0.2649%	0.4592%	0.2649%	1.0572%	1.5542%	1.9939%	2.9205%
51	2.5621%	3.1219%	0.4923%	0.2957%	0.4592%	0.2957%	1.1238%	1.5922%	2.0318%	2.7342%
52	2.6382%	3.1354%	0.5730%	0.3290%	0.4592%	0.3290%	1.1935%	1.6304%	2.0696%	2.5617%
53	2.7179%	3.1490%	0.6211%	0.3648%	0.4592%	0.3648%	1.2676%	1.6690%	2.1090%	2.4046%
54	2.7990%	3.1624%	0.6844%	0.4196%	0.5104%	0.4196%	1.3452%	1.7077%	2.1487%	2.2614%
55	2.8811%	3.1759%	0.7476%	0.4788%	0.5615%	0.4788%	1.4262%	1.7468%	2.1887%	2.1324%
56	2.9777%	3.1895%	0.8109%	0.5420%	0.6127%	0.5420%	1.5174%	1.7862%	2.2294%	2.0173%
57	3.0764%	3.2029%	0.8742%	0.6087%	0.6639%	0.6087%	1.6133%	1.8257%	2.2715%	1.9167%
58	3.1775%	3.2165%	0.9374%	0.6786%	0.7151%	0.6786%	1.7140%	1.8656%	2.3152%	1.8308%
59	3.2815%	3.2300%	1.0182%	0.7664%	0.7663%	0.7664%	1.8199%	1.9058%	2.3615%	1.7603%
60	3.3884%	3.2435%	1.0988%	0.8450%	0.8174%	0.8450%	1.9314%	1.9461%	2.4112%	1.7051%
61	3.4990%	3.2520%	1.1795%	0.9250%	0.8822%	0.9250%	2.0490%	1.9838%	2.4651%	1.6661%
62	3.6139%	3.2685%	1.2603%	1.0121%	0.9653%	1.0121%	2.1733%	2.0264%	2.5242%	1.6435%
63	3.7335%	3.2940%	1.3410%	1.1067%	1.0553%	1.1067%	2.3050%	2.0752%	2.5895%	1.6383%
64	3.8592%	3.3299%	1.4216%	1.2102%	1.1543%	1.2102%	2.4451%	2.1311%	2.6628%	1.6512%
65	3.9928%	3.3778%	1.5024%	1.3279%	1.2665%	1.3279%	2.5953%	2.1955%	2.7461%	1.6839%

Table 25

Proposed Assumptions
Disabled Retiree Mortality Valuation Tables

	General, Transit, TBTA, BERS		POLICE, HPTP		FIRE		Sanitation, Corrections		TRS	
Age	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
66	4.1361%	3.4396%	1.6883%	1.4551%	1.3878%	1.4551%	2.7572%	2.2701%	2.8416%	1.7382%
67	4.2914%	3.5169%	1.8743%	1.5560%	1.4934%	1.5560%	2.9327%	2.3564%	2.9513%	1.8157%
68	4.4597%	3.6110%	2.0603%	1.6545%	1.7033%	1.6545%	3.1236%	2.4555%	3.0774%	1.9175%
69	4.6422%	3.7236%	2.2461%	1.8558%	1.9135%	1.8558%	3.3312%	2.5694%	3.2211%	2.0445%
70	4.8408%	3.8566%	2.4322%	2.0570%	2.1235%	2.0570%	3.5580%	2.6996%	3.3849%	2.1987%
71	5.0576%	4.0121%	2.6539%	2.2583%	2.4008%	2.2583%	3.8064%	2.8487%	3.5707%	2.3817%
72	5.2942%	4.1921%	2.8756%	2.4596%	2.6780%	2.4596%	4.0786%	3.0182%	3.7809%	2.5951%
73	5.5519%	4.3980%	3.0974%	2.6609%	2.9553%	2.6609%	4.3771%	3.2106%	4.0168%	2.8401%
74	5.8314%	4.6309%	3.3190%	3.0053%	3.2326%	3.0053%	4.7036%	3.4268%	4.2803%	3.1173%
75	6.1335%	4.8919%	3.5408%	3.3497%	3.5099%	3.3497%	5.0602%	3.6690%	4.5735%	3.4275%
76	6.4883%	5.1825%	3.9204%	3.6942%	4.0241%	3.6942%	5.4735%	3.9387%	4.8982%	3.7711%
77	6.8701%	5.5033%	4.3000%	4.0386%	4.5383%	4.0386%	5.9248%	4.2375%	5.2568%	4.1486%
78	7.2793%	5.8543%	4.6796%	4.3831%	5.0524%	4.3831%	6.4159%	4.5663%	5.6505%	4.5605%
79	7.7168%	6.2372%	5.0593%	4.8765%	5.5666%	4.8765%	6.9498%	4.9275%	6.0802%	5.0071%
80	8.1833%	6.6530%	5.4388%	5.3701%	6.0808%	5.3701%	7.5295%	5.3224%	6.5469%	5.4883%
81	8.6790%	7.0517%	6.1477%	5.8635%	7.0627%	5.8635%	8.3515%	5.7118%	7.0513%	6.0045%
82	9.2041%	7.4780%	6.8566%	6.3569%	8.0446%	6.3569%	9.1865%	6.1321%	7.5940%	6.5553%
83	9.7631%	7.9386%	7.5654%	6.8505%	9.0266%	6.8505%	10.0344%	6.5890%	8.2463%	7.1406%
84	10.3584%	8.4360%	8.2742%	7.8122%	10.0085%	7.8122%	10.8955%	7.0862%	8.9475%	7.7606%
85	10.9924%	8.9739%	8.9830%	8.7740%	10.9904%	8.7740%	11.7695%	7.6278%	9.6867%	8.4146%
86	11.7185%	9.5558%	10.1257%	9.7357%	11.7666%	9.7357%	12.9950%	8.2180%	10.4648%	9.1026%
87	12.4945%	10.1861%	11.2684%	10.6975%	12.5429%	10.6975%	14.2205%	8.8619%	11.2827%	9.9350%
88	13.3241%	10.8691%	12.4109%	11.6593%	13.3191%	11.6593%	15.4459%	9.7357%	12.1450%	10.9133%
89	14.2113%	11.6099%	13.6218%	13.0229%	14.1363%	13.0229%	16.6714%	10.6975%	13.0480%	11.9504%
90	15.1600%	12.4140%	14.8208%	14.3659%	14.9785%	14.3659%	17.8969%	11.6593%	13.9918%	13.0450%
91	16.4393%	13.1900%	16.0118%	15.7083%	17.0561%	15.7083%	19.7272%	13.0229%	15.3923%	14.1669%
92	17.9156%	14.3659%	17.2330%	17.0400%	19.0584%	17.0400%	21.4987%	14.3659%	16.8399%	15.3617%
93	19.3468%	15.7083%	18.4914%	18.4908%	20.9928%	18.4908%	23.2161%	15.7083%	18.2826%	16.6722%
94	20.7729%	17.0400%	19.9522%	20.0793%	22.7969%	20.0793%	24.9275%	17.0400%	19.7659%	18.3046%
95	22.2017%	18.4908%	21.4205%	21.6891%	24.5358%	21.6891%	26.6420%	18.4908%	21.2987%	19.9962%
96	23.6279%	20.0793%	22.9166%	23.3743%	26.2296%	23.3743%	28.3535%	20.0793%	23.0721%	22.8210%
97	25.0511%	21.6891%	24.6919%	25.2076%	27.9014%	25.2076%	30.0613%	21.6891%	24.8603%	25.5862%
98	26.4921%	23.3743%	27.1779%	27.2014%	28.3863%	27.2014%	31.7906%	23.3743%	26.9470%	28.0491%
99	27.9755%	25.2076%	29.9435%	29.9695%	29.9435%	29.9695%	33.5706%	25.2076%	29.6302%	30.2491%
100	29.5287%	27.2014%	33.0437%	33.0724%	33.0437%	33.0724%	35.4345%	27.2014%	32.6135%	32.6417%
101	31.3627%	29.9695%	36.4452%	36.4770%	36.4452%	36.4770%	37.6352%	29.9695%	35.9322%	35.9634%
102	33.2929%	33.0724%	40.3598%	40.3949%	40.3598%	40.3949%	39.9515%	33.0724%	39.6524%	39.6868%
103	36.4452%	36.4770%	44.9132%	44.9523%	44.9132%	44.9523%	43.7343%	36.4770%	43.7343%	43.7724%
104	40.3598%	40.3949%	50.2598%	50.3034%	50.2598%	50.3034%	48.4317%	40.3949%	48.4317%	48.4738%
105	44.9132%	44.9523%	56.5594%	56.6086%	56.5594%	56.6086%	53.8959%	44.9523%	53.8959%	53.9423%
106	50.2598%	50.3034%	63.9781%	64.0336%	63.9781%	64.0336%	60.3117%	50.3034%	60.3117%	60.3640%
107	56.5594%	56.6086%	72.6869%	72.7501%	72.6869%	72.7501%	67.8713%	56.6086%	67.8713%	67.9303%
108	63.9781%	64.0336%	90.0000%	95.0000%	90.0000%	95.0000%	76.7737%	64.0336%	76.7737%	76.8403%
109	72.6869%	72.7501%	90.0000%	95.0000%	90.0000%	95.0000%	87.2243%	72.7501%	87.2243%	87.3001%
110	90.0000%	95.0000%	90.0000%	95.0000%	90.0000%	95.0000%	90.0000%	95.0000%	90.0000%	95.0000%

Table 26

Current Assumptions
Withdrawals from Active Service

Service	POLICE	FIRE	General	Transit		Sanit	Corr.	TBTA	TRS	BERS	
				Male	Female					Male	Female
0	10.00%	1.00%	10.00%	12.00%	15.00%	6.00%	10.00%	5.00%	7.50%	6.00%	4.50%
1	8.00%	0.70%	8.70%	8.00%	9.00%	4.00%	7.00%	4.40%	6.50%	5.60%	4.30%
2	6.00%	0.50%	7.50%	6.00%	7.00%	3.00%	5.40%	3.90%	5.80%	5.20%	4.10%
3	4.00%	0.30%	6.40%	4.50%	5.50%	2.00%	4.60%	3.50%	5.15%	4.80%	3.90%
4	3.00%	0.20%	5.40%	3.50%	4.50%	1.70%	4.20%	3.20%	4.55%	4.40%	3.70%
5	2.00%	0.20%	4.50%	3.00%	4.00%	1.50%	4.00%	3.00%	4.00%	4.00%	3.50%
6	1.80%	0.20%	4.00%	2.90%	3.90%	1.40%	3.80%	2.90%	3.50%	3.70%	3.30%
7	1.60%	0.20%	3.60%	2.80%	3.80%	1.30%	3.60%	2.80%	3.05%	3.40%	3.10%
8	1.40%	0.20%	3.30%	2.70%	3.70%	1.20%	3.40%	2.70%	2.65%	3.10%	2.90%
9	1.20%	0.20%	3.10%	2.60%	3.60%	1.10%	3.20%	2.60%	2.30%	2.80%	2.70%
10	1.00%	0.20%	3.00%	2.50%	3.50%	1.00%	3.00%	2.50%	2.00%	2.50%	2.50%
11	0.90%	0.20%	2.90%	2.40%	3.40%	1.00%	2.90%	2.40%	1.75%	2.30%	2.40%
12	0.80%	0.20%	2.80%	2.30%	3.30%	1.00%	2.80%	2.30%	1.55%	2.10%	2.30%
13	0.70%	0.20%	2.70%	2.20%	3.20%	1.00%	2.70%	2.20%	1.40%	1.90%	2.20%
14	0.60%	0.20%	2.60%	2.10%	3.10%	1.00%	2.60%	2.10%	1.30%	1.70%	2.10%
15	0.50%	0.20%	2.50%	2.00%	3.00%	1.00%	2.50%	2.00%	1.25%	1.50%	2.00%
16	0.50%	0.20%	2.40%	1.90%	2.90%	1.00%	2.40%	2.00%	1.20%	1.40%	1.90%
17	0.50%	0.20%	2.30%	1.80%	2.80%	1.00%	2.30%	2.00%	1.15%	1.30%	1.80%
18	0.50%	0.20%	2.20%	1.70%	2.70%	1.00%	2.20%	2.00%	1.10%	1.20%	1.70%
19	0.50%	0.20%	2.10%	1.60%	2.60%	1.00%	2.10%	2.00%	1.05%	1.10%	1.60%
20	N/A	N/A	2.00%	1.50%	2.50%	1.00%	2.00%	2.00%	1.00%	1.00%	1.50%
21	N/A	N/A	2.00%	1.50%	2.50%	1.00%	2.00%	2.00%	1.00%	1.00%	1.40%
22	N/A	N/A	2.00%	1.50%	2.50%	1.00%	2.00%	2.00%	1.00%	1.00%	1.30%
23	N/A	N/A	2.00%	1.50%	2.50%	1.00%	2.00%	2.00%	1.00%	1.00%	1.20%
24	N/A	N/A	2.00%	1.50%	2.50%	1.00%	2.00%	2.00%	1.00%	1.00%	1.10%
25	N/A	N/A	2.00%	1.50%	2.50%	1.00%	2.00%	2.00%	1.00%	1.00%	1.00%
26	N/A	N/A	2.00%	1.50%	2.50%	1.00%	2.00%	2.00%	1.00%	1.00%	1.00%
27	N/A	N/A	2.00%	1.50%	2.50%	1.00%	2.00%	2.00%	1.00%	1.00%	1.00%
28	N/A	N/A	2.00%	1.50%	2.50%	1.00%	2.00%	2.00%	1.00%	1.00%	1.00%
29	N/A	N/A	2.00%	1.50%	2.50%	1.00%	2.00%	2.00%	1.00%	1.00%	1.00%
30	N/A	N/A	2.00%	1.50%	2.50%	1.00%	2.00%	2.00%	1.00%	1.00%	1.00%
31	N/A	N/A	2.00%	1.50%	2.50%	1.00%	2.00%	2.00%	1.00%	1.00%	1.00%
32	N/A	N/A	2.00%	1.50%	2.50%	1.00%	2.00%	2.00%	1.00%	1.00%	1.00%
33	N/A	N/A	2.00%	1.50%	2.50%	1.00%	2.00%	2.00%	1.00%	1.00%	1.00%
34	N/A	N/A	2.00%	1.50%	2.50%	1.00%	2.00%	2.00%	1.00%	1.00%	1.00%
35	N/A	N/A	2.00%	1.50%	2.50%	1.00%	2.00%	2.00%	1.00%	1.00%	1.00%

Table 27

Proposed Assumptions
Withdrawals from Active Service

				Transit						BERS	
Service	POLICE	FIRE	General	Male	Female	Sanitation	Corr.	TBTA	TRS	Male	Female
0	10.00%	1.00%	10.00%	10.00%	10.00%	6.00%	10.00%	10.00%	8.00%	8.00%	5.00%
1	9.00%	0.60%	7.80%	5.00%	5.00%	4.00%	7.00%	4.40%	7.00%	7.60%	5.00%
2	5.60%	0.40%	5.70%	3.00%	3.00%	2.00%	4.00%	3.00%	6.20%	7.20%	5.00%
3	4.70%	0.30%	5.00%	2.40%	2.40%	1.50%	2.00%	2.50%	5.40%	6.80%	5.00%
4	3.90%	0.20%	4.50%	2.20%	2.20%	1.20%	1.90%	2.40%	4.70%	6.40%	5.00%
5	3.20%	0.20%	4.20%	2.10%	2.10%	1.10%	1.80%	2.30%	4.20%	6.10%	5.00%
6	2.60%	0.20%	3.90%	2.00%	2.00%	1.00%	1.70%	2.20%	3.70%	5.80%	5.00%
7	2.10%	0.20%	3.70%	1.90%	1.90%	1.00%	1.60%	2.10%	3.20%	5.50%	5.00%
8	1.70%	0.20%	3.50%	1.80%	1.80%	0.90%	1.50%	2.00%	2.80%	5.20%	5.00%
9	1.40%	0.20%	3.30%	1.70%	1.70%	0.80%	1.40%	1.90%	2.50%	4.90%	4.80%
10	1.20%	0.20%	3.10%	1.60%	1.60%	0.70%	1.30%	1.80%	2.30%	4.60%	4.60%
11	1.10%	0.20%	2.90%	1.50%	1.50%	0.70%	1.20%	1.70%	2.10%	4.30%	4.40%
12	0.90%	0.20%	2.70%	1.40%	1.40%	0.70%	1.10%	1.60%	1.90%	4.00%	4.20%
13	0.80%	0.20%	2.50%	1.30%	1.30%	0.70%	1.00%	1.50%	1.60%	3.70%	4.00%
14	0.70%	0.20%	2.40%	1.20%	1.20%	0.70%	1.00%	1.50%	1.40%	3.40%	3.80%
15	0.60%	0.20%	2.30%	1.10%	1.10%	0.70%	1.00%	1.50%	1.30%	3.10%	3.60%
16	0.50%	0.20%	2.10%	1.00%	1.00%	0.70%	1.00%	1.50%	1.20%	2.80%	3.40%
17	0.40%	0.10%	1.90%	1.00%	1.00%	0.70%	1.00%	1.50%	1.15%	2.50%	3.20%
18	0.30%	0.10%	1.70%	1.00%	1.00%	0.70%	1.00%	1.50%	1.10%	2.20%	3.00%
19	0.20%	0.10%	1.50%	1.00%	1.00%	0.70%	1.00%	1.50%	1.05%	1.90%	2.80%
20	N/A	N/A	1.50%	1.00%	1.00%	0.70%	1.00%	1.50%	1.00%	1.60%	2.60%
21	N/A	N/A	1.50%	1.00%	1.00%	0.70%	1.00%	1.50%	1.00%	1.40%	2.40%
22	N/A	N/A	1.50%	1.00%	1.00%	0.70%	1.00%	1.50%	1.00%	1.20%	2.00%
23	N/A	N/A	1.50%	1.00%	1.00%	0.70%	1.00%	1.50%	1.00%	1.20%	1.80%
24	N/A	N/A	1.50%	1.00%	1.00%	0.70%	1.00%	1.50%	1.00%	1.20%	1.70%
25	N/A	N/A	1.50%	1.00%	1.00%	0.70%	1.00%	1.50%	1.00%	1.20%	1.60%
26	N/A	N/A	1.50%	1.00%	1.00%	0.70%	1.00%	1.50%	1.00%	1.20%	1.50%
27	N/A	N/A	1.50%	1.00%	1.00%	0.70%	1.00%	1.50%	1.00%	1.20%	1.50%
28	N/A	N/A	1.50%	1.00%	1.00%	0.70%	1.00%	1.50%	1.00%	1.20%	1.50%
29	N/A	N/A	1.50%	1.00%	1.00%	0.70%	1.00%	1.50%	1.00%	1.20%	1.50%
30	N/A	N/A	1.50%	1.00%	1.00%	0.70%	1.00%	1.50%	1.00%	1.20%	1.50%
31	N/A	N/A	1.50%	1.00%	1.00%	0.70%	1.00%	1.50%	1.00%	1.20%	1.50%
32	N/A	N/A	1.50%	1.00%	1.00%	0.70%	1.00%	1.50%	1.00%	1.20%	1.50%
33	N/A	N/A	1.50%	1.00%	1.00%	0.70%	1.00%	1.50%	1.00%	1.20%	1.50%
34	N/A	N/A	1.50%	1.00%	1.00%	0.70%	1.00%	1.50%	1.00%	1.20%	1.50%
35	N/A	N/A	1.50%	1.00%	1.00%	0.70%	1.00%	1.50%	1.00%	1.20%	1.50%

Table 28

Current Assumptions
Retirement in 1st Year Eligible

Age	POLICE	FIRE	General, BERS	Transit	Sanitation	Corr.	TBTA	TRS		NYCERS IRB (all but Corr.)	Corr. IRB
								Male	Female		
Under 41	50%	15%	20%	25%	40%	32%*	30%	N/A	N/A	60%	60%
41	50%	15%	20%	25%	40%	34%	30%	N/A	N/A	60%	60%
42	50%	15%	20%	25%	40%	36%	30%	N/A	N/A	60%	60%
43	50%	15%	20%	25%	40%	38%	30%	N/A	N/A	60%	60%
44	50%	15%	20%	25%	40%	40%	30%	N/A	N/A	60%	60%
45	50%	15%	20%	25%	40%	40%	30%	N/A	N/A	60%	60%
46	50%	15%	20%	25%	40%	40%	30%	N/A	N/A	60%	60%
47	50%	15%	20%	25%	40%	40%	30%	N/A	N/A	60%	60%
48	50%	15%	20%	25%	40%	40%	30%	N/A	N/A	60%	60%
49	50%	15%	20%	25%	40%	40%	30%	N/A	N/A	60%	60%
50	50%	15%	20%	25%	40%	40%	30%	N/A	N/A	60%	60%
51	50%	16%	20%	25%	40%	40%	30%	N/A	N/A	60%	60%
52	50%	17%	20%	25%	40%	40%	30%	N/A	N/A	60%	60%
53	50%	18%	20%	25%	40%	40%	30%	N/A	N/A	60%	60%
54	50%	19%	20%	25%	40%	40%	30%	N/A	N/A	60%	60%
55	50%	20%	20%	25%	40%	40%	30%	12%	10%	60%	60%
56	50%	21%	20%	25%	40%	40%	30%	12%	10%	60%	60%
57	50%	22%	20%	25%	40%	40%	30%	12%	10%	60%	60%
58	50%	23%	20%	25%	40%	40%	30%	12%	10%	60%	60%
59	50%	24%	20%	25%	40%	40%	30%	12%	10%	60%	60%
60	50%	25%	20%	30%	40%	40%	30%	12%	10%	60%	60%
61	50%	30%	20%	40%	40%	40%	30%	12%	10%	60%	60%
62	50%	40%	30%	60%	60%	40%	60%	25%	20%	60%	60%
63	100%	100%	20%	40%	40%	100%	40%	20%	15%	40%	100%
64	100%	100%	20%	40%	40%	100%	40%	20%	15%	40%	100%
65	100%	100%	25%	60%	60%	100%	60%	30%	30%	60%	100%
66	100%	100%	20%	40%	40%	100%	40%	25%	25%	40%	100%
67	100%	100%	20%	40%	40%	100%	40%	25%	25%	40%	100%
68	100%	100%	20%	40%	40%	100%	40%	25%	25%	40%	100%
69	100%	100%	20%	40%	40%	100%	40%	25%	25%	40%	100%
After 70	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

* 30% at ages 39 and under

Table 29

Proposed Assumptions
Retirement in 1st Year Eligible

Age	POLICE	FIRE	General, BERS	Transit	Sanitation, Sanit IRB	Corrections, Corr. IRB	TRS	Genl, Transit, BERS (IRB)
Under 41	80%	25%	10%	25%	50%	80%	15%	40%
41	60%	15%	10%	25%	50%	80%	15%	40%
42	60%	15%	10%	25%	50%	80%	15%	40%
43	60%	15%	10%	25%	50%	80%	15%	40%
44	60%	15%	10%	25%	50%	80%	15%	40%
45	60%	15%	10%	25%	50%	80%	15%	40%
46	60%	15%	10%	25%	50%	80%	15%	40%
47	60%	15%	10%	25%	50%	80%	15%	40%
48	60%	15%	10%	25%	50%	80%	15%	40%
49	60%	15%	10%	25%	50%	80%	15%	40%
50	60%	20%	10%	25%	50%	80%	15%	40%
51	60%	20%	10%	25%	50%	80%	15%	40%
52	60%	20%	10%	25%	50%	80%	15%	40%
53	60%	20%	10%	25%	60%	80%	15%	40%
54	60%	20%	10%	25%	60%	80%	15%	40%
55	60%	20%	10%	25%	60%	100%	15%	40%
56	60%	21%	10%	25%	60%	100%	15%	40%
57	60%	22%	10%	25%	60%	100%	15%	40%
58	60%	23%	10%	25%	60%	100%	20%	40%
59	60%	24%	10%	25%	60%	100%	20%	40%
60	60%	25%	10%	30%	60%	100%	20%	40%
61	60%	30%	10%	30%	60%	100%	20%	40%
62	60%	40%	30%	30%	60%	100%	22%	40%
63	100%	100%	20%	20%	60%	100%	10%	40%
64	100%	100%	20%	20%	60%	100%	10%	40%
65	100%	100%	25%	30%	60%	100%	20%	40%
66	100%	100%	20%	20%	60%	100%	15%	40%
67	100%	100%	20%	20%	60%	100%	15%	40%
68	100%	100%	20%	20%	60%	100%	15%	40%
69	100%	100%	20%	20%	60%	100%	15%	40%
After 70	100%	100%	100%	100%	100%	100%	100%	100%

Table 30

Current Assumptions
Retirement in 2nd Year Eligible

Age	POLICE	FIRE	General, BERS	Transit, TBTA	Sanitation	Corr.	TRS Male	TRS Female	Genl, Tran, TBTA, BERS IRB	Sanitation IRB	Corr. IRB
Under 41	25%	6%	0%	0%	20%*	10%*	N/A	N/A	0%	40%*	40%*
41	25%	6%	15%	20%	20%	11%	N/A	N/A	40%	40%	40%
42	25%	6%	15%	20%	20%	12%	N/A	N/A	40%	40%	40%
43	25%	6%	15%	20%	20%	13%	N/A	N/A	40%	40%	40%
44	25%	6%	15%	20%	20%	14%	N/A	N/A	40%	40%	40%
45	25%	6%	15%	20%	20%	15%	N/A	N/A	40%	40%	40%
46	25%	6%	15%	20%	20%	16%	N/A	N/A	40%	40%	40%
47	25%	7%	15%	20%	20%	17%	N/A	N/A	40%	40%	40%
48	25%	8%	15%	20%	20%	18%	N/A	N/A	40%	40%	40%
49	25%	9%	15%	20%	20%	19%	N/A	N/A	40%	40%	40%
50	25%	10%	15%	20%	20%	20%	N/A	N/A	40%	40%	40%
51	25%	11%	15%	20%	20%	21%	N/A	N/A	40%	40%	40%
52	25%	12%	15%	20%	20%	22%	N/A	N/A	40%	40%	40%
53	25%	13%	15%	20%	20%	23%	N/A	N/A	40%	40%	40%
54	25%	14%	15%	20%	20%	24%	N/A	N/A	40%	40%	40%
55	25%	15%	15%	20%	20%	25%	N/A	N/A	40%	40%	40%
56	25%	16%	15%	20%	20%	25%	10%	8%	40%	40%	40%
57	25%	17%	15%	20%	20%	25%	10%	8%	40%	40%	40%
58	25%	18%	15%	20%	20%	25%	10%	8%	40%	40%	40%
59	25%	19%	15%	20%	20%	25%	10%	8%	40%	40%	40%
60	25%	20%	15%	20%	20%	25%	10%	8%	40%	40%	40%
61	25%	25%	15%	30%	30%	30%	10%	8%	40%	40%	40%
62	50%	40%	30%	60%	60%	40%	25%	20%	60%	60%	60%
63	100%	100%	15%	40%	40%	100%	20%	15%	40%	40%	100%
64	100%	100%	15%	40%	40%	100%	20%	15%	40%	40%	100%
65	100%	100%	25%	60%	60%	100%	30%	30%	60%	60%	100%
66	100%	100%	15%	40%	40%	100%	25%	25%	40%	40%	100%
67	100%	100%	15%	40%	40%	100%	25%	25%	40%	40%	100%
68	100%	100%	15%	40%	40%	100%	25%	25%	40%	40%	100%
69	100%	100%	15%	40%	40%	100%	25%	25%	40%	40%	100%
After 70	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

* Zero at ages 35 and under

Table 31

Proposed Assumptions
Retirement in 2nd Year Eligible

Age	POLICE	General, BERS	Transit	TRS	Sanitation, Sanit IRB	Corr., Corr. IRB	Genl, Trans, BERS (IRB)
Under 41	18%	6%	0%	15%	20%	40%	0%
41	18%	6%	15%	15%	20%	40%	25%
42	18%	6%	15%	15%	20%	40%	25%
43	18%	6%	15%	15%	20%	40%	25%
44	18%	6%	15%	15%	20%	40%	25%
45	18%	6%	15%	15%	20%	40%	25%
46	18%	6%	15%	15%	20%	40%	25%
47	18%	6%	15%	15%	20%	40%	25%
48	18%	6%	15%	15%	20%	40%	25%
49	18%	6%	15%	15%	20%	40%	25%
50	18%	6%	15%	15%	20%	40%	25%
51	18%	6%	15%	15%	20%	40%	25%
52	18%	6%	15%	15%	20%	40%	25%
53	18%	6%	15%	15%	20%	40%	25%
54	18%	6%	15%	15%	30%	40%	25%
55	18%	6%	15%	15%	30%	40%	25%
56	18%	6%	15%	15%	30%	100%	25%
57	18%	6%	15%	15%	30%	100%	25%
58	18%	6%	15%	15%	30%	100%	25%
59	18%	6%	15%	15%	30%	100%	25%
60	18%	6%	15%	15%	30%	100%	25%
61	18%	6%	15%	15%	40%	100%	25%
62	18%	30%	20%	20%	40%	100%	25%
63	100%	15%	15%	15%	40%	100%	25%
64	100%	15%	15%	15%	40%	100%	25%
65	100%	25%	20%	20%	40%	100%	25%
66	100%	15%	15%	10%	40%	100%	25%
67	100%	15%	15%	10%	40%	100%	25%
68	100%	15%	15%	10%	40%	100%	25%
69	100%	15%	15%	10%	40%	100%	25%
After 70	100%	100%	100%	100%	100%	100%	100%

Table 32

Current Assumptions
Retirement After 2nd Year Eligible

Age	POLICE	FIRE	General, BERS	Transit	Sanitation	Corr	TBTA	TRS Male	TRS Female	Genl, Tran, BERS IRB	Sanit IRB	Corr IRB	TBTA IRB
Under 41	15%	5%	0%	0%	15%*	5%*	0%	N/A	N/A	0%	20%*	20%*	0%
41	15%	5%	0%	0%	15%	6%	0%	N/A	N/A	0%	20%	20%	0%
42	15%	5%	15%	15%	15%	7%	10%	N/A	N/A	20%	20%	20%	20%
43	15%	5%	15%	15%	15%	8%	10%	N/A	N/A	20%	20%	20%	20%
44	15%	5%	15%	15%	15%	9%	10%	N/A	N/A	20%	20%	20%	20%
45	15%	5%	15%	15%	15%	10%	10%	N/A	N/A	20%	20%	20%	20%
46	15%	5%	15%	15%	15%	11%	10%	N/A	N/A	20%	20%	20%	20%
47	15%	5%	15%	15%	15%	12%	10%	N/A	N/A	20%	20%	20%	20%
48	15%	5%	15%	15%	15%	13%	10%	N/A	N/A	20%	20%	20%	20%
49	15%	5%	15%	15%	15%	14%	10%	N/A	N/A	20%	20%	20%	20%
50	15%	5%	15%	15%	15%	15%	10%	N/A	N/A	20%	20%	20%	20%
51	15%	6%	15%	15%	15%	15%	10%	N/A	N/A	20%	20%	20%	20%
52	15%	7%	15%	15%	15%	15%	10%	N/A	N/A	20%	20%	20%	20%
53	15%	8%	15%	15%	15%	15%	10%	N/A	N/A	20%	20%	20%	20%
54	15%	9%	15%	15%	15%	15%	10%	N/A	N/A	20%	20%	20%	20%
55	15%	10%	15%	15%	15%	15%	10%	N/A	N/A	20%	20%	20%	20%
56	15%	11%	15%	15%	15%	15%	10%	N/A	N/A	20%	20%	20%	20%
57	15%	12%	15%	15%	15%	15%	10%	10%	8%	20%	20%	20%	20%
58	15%	13%	15%	15%	15%	15%	10%	10%	8%	20%	20%	20%	20%
59	15%	14%	15%	15%	15%	15%	10%	10%	8%	20%	20%	20%	20%
60	15%	15%	15%	20%	20%	20%	20%	10%	8%	20%	20%	20%	20%
61	15%	20%	15%	30%	30%	30%	30%	10%	8%	20%	30%	30%	30%
62	50%	40%	30%	60%	60%	40%	60%	25%	20%	60%	60%	60%	60%
63	100%	100%	15%	40%	40%	100%	40%	20%	15%	40%	40%	100%	40%
64	100%	100%	15%	40%	40%	100%	40%	20%	15%	40%	40%	100%	40%
65	100%	100%	25%	60%	60%	100%	60%	30%	30%	60%	60%	100%	60%
66	100%	100%	15%	40%	40%	100%	40%	25%	25%	40%	40%	100%	40%
67	100%	100%	15%	40%	40%	100%	40%	25%	25%	40%	40%	100%	40%
68	100%	100%	15%	40%	40%	100%	40%	25%	25%	40%	40%	100%	40%
69	100%	100%	15%	40%	40%	100%	40%	25%	25%	40%	40%	100%	40%
After 70	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

* Zero at ages 37 and under

Table 33

Proposed Assumptions
Retirement After 2nd Year Eligible

Age	POLICE	FIRE	General, BERS	Transit	Sanitation, Sanit IRB	Corrections, Corr IRB	TRS	Genl, Transit, BERS (IRB)
Under 41	12%	5%	8%	0%	15%	20%	10%	0%
41	12%	5%	8%	0%	15%	20%	10%	0%
42	12%	5%	8%	20%	15%	20%	10%	30%
43	12%	5%	8%	20%	15%	20%	10%	30%
44	12%	5%	8%	20%	15%	20%	10%	30%
45	12%	5%	8%	20%	15%	20%	10%	30%
46	14%	5%	8%	20%	15%	20%	10%	30%
47	14%	5%	8%	20%	15%	20%	10%	30%
48	14%	5%	8%	20%	15%	20%	10%	30%
49	14%	5%	8%	20%	15%	20%	10%	30%
50	16%	5%	8%	20%	15%	20%	10%	30%
51	16%	6%	8%	20%	15%	20%	10%	30%
52	16%	7%	8%	20%	15%	25%	10%	30%
53	16%	8%	8%	20%	15%	25%	10%	30%
54	18%	9%	8%	20%	15%	25%	10%	30%
55	18%	10%	8%	20%	20%	25%	10%	30%
56	18%	11%	8%	20%	20%	25%	10%	30%
57	18%	12%	8%	20%	20%	25%	10%	30%
58	20%	13%	8%	20%	20%	25%	10%	30%
59	20%	14%	8%	20%	20%	25%	10%	30%
60	20%	15%	8%	20%	20%	25%	10%	30%
61	20%	20%	8%	20%	20%	25%	20%	30%
62	50%	25%	25%	20%	40%	25%	30%	40%
63	100%	50%	15%	20%	40%	100%	15%	40%
64	100%	50%	15%	20%	40%	100%	15%	40%
65	100%	100%	25%	30%	40%	100%	25%	40%
66	100%	100%	20%	25%	40%	100%	20%	40%
67	100%	100%	20%	25%	40%	100%	20%	40%
68	100%	100%	20%	25%	40%	100%	20%	40%
69	100%	100%	20%	25%	40%	100%	20%	40%
After 70	100%	100%	100%	100%	100%	100%	100%	100%

Table 34

Current and Proposed Assumptions
Reduced Retirement

	Current Assumption			Proposed Assumption			
Age	NYCERS (except TBTA)	TBTA	TRS, BERS	General	Transit	Sanitation	TRS, BERS
Under 41	0.00%	N/A	N/A	N/A	N/A	1.00%	2.50%
41	0.00%	N/A	N/A	N/A	N/A	1.00%	2.50%
42	0.00%	N/A	N/A	N/A	N/A	1.00%	2.50%
43	0.00%	N/A	N/A	N/A	N/A	1.00%	2.50%
44	0.00%	N/A	N/A	N/A	N/A	1.00%	2.50%
45	0.00%	N/A	2.00%	N/A	N/A	1.00%	2.50%
46	0.00%	N/A	2.00%	N/A	N/A	1.00%	2.50%
47	0.00%	N/A	2.00%	N/A	N/A	1.00%	2.50%
48	0.00%	N/A	2.00%	N/A	N/A	1.00%	2.50%
49	0.00%	N/A	2.00%	N/A	N/A	1.00%	2.50%
50	2.00%	N/A	2.00%	2.50%	1.00%	1.00%	2.50%
51	2.00%	N/A	2.00%	2.50%	1.00%	1.00%	2.50%
52	2.00%	N/A	2.00%	2.50%	1.00%	1.00%	2.50%
53	2.00%	N/A	2.00%	2.50%	1.00%	1.00%	2.50%
54	2.00%	N/A	2.00%	2.50%	1.00%	1.00%	2.50%
55	2.00%	2.00%	2.00%	2.50%	1.00%	1.00%	2.50%
56	2.00%	2.00%	2.00%	2.50%	1.00%	1.00%	2.50%
57	2.00%	2.00%	2.00%	2.50%	1.00%	1.00%	2.50%
58	3.00%	3.00%	3.00%	2.50%	1.00%	1.00%	2.50%
59	4.00%	4.00%	4.00%	2.50%	1.00%	1.00%	2.50%
60	5.00%	5.00%	5.00%	2.50%	1.00%	1.00%	2.50%
61	6.00%	6.00%	6.00%	2.50%	1.00%	1.00%	2.50%
62	0.00%	0.00%	0.00%	0.00%	0.00%	1.00%	2.50%
63	0.00%	0.00%	0.00%	0.00%	0.00%	1.00%	2.50%
64	0.00%	0.00%	0.00%	0.00%	0.00%	1.00%	2.50%
65	0.00%	0.00%	0.00%	0.00%	0.00%		2.50%
66	0.00%	0.00%	0.00%	0.00%	0.00%		2.50%
67	0.00%	0.00%	0.00%	0.00%	0.00%		2.50%
68	0.00%	0.00%	0.00%	0.00%	0.00%		2.50%
69	0.00%	0.00%	0.00%	0.00%	0.00%		2.50%
After 70	0.00%	0.00%	0.00%	0.00%	0.00%		

Table 35

Current Assumptions
Ordinary Death

	POLICE, FIRE		General, Transit Sanitation, TBTA		Corrections		TRS		BERS	
Age	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
20	0.030%	0.015%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%
21	0.032%	0.016%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%
22	0.034%	0.017%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%
23	0.036%	0.018%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%
24	0.038%	0.019%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%
25	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%
26	0.042%	0.021%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%
27	0.044%	0.022%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%
28	0.046%	0.023%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%
29	0.048%	0.024%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%
30	0.050%	0.025%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%	0.040%	0.020%
31	0.052%	0.026%	0.042%	0.021%	0.042%	0.021%	0.042%	0.021%	0.042%	0.021%
32	0.054%	0.027%	0.044%	0.022%	0.044%	0.022%	0.044%	0.022%	0.044%	0.022%
33	0.056%	0.028%	0.046%	0.023%	0.046%	0.023%	0.046%	0.023%	0.046%	0.023%
34	0.058%	0.029%	0.048%	0.024%	0.048%	0.024%	0.048%	0.024%	0.048%	0.024%
35	0.060%	0.030%	0.050%	0.025%	0.050%	0.025%	0.050%	0.025%	0.050%	0.025%
36	0.064%	0.032%	0.052%	0.026%	0.052%	0.026%	0.052%	0.026%	0.052%	0.026%
37	0.068%	0.034%	0.054%	0.027%	0.054%	0.027%	0.054%	0.027%	0.054%	0.027%
38	0.072%	0.036%	0.056%	0.028%	0.056%	0.028%	0.056%	0.028%	0.056%	0.028%
39	0.076%	0.038%	0.058%	0.029%	0.058%	0.029%	0.058%	0.029%	0.058%	0.029%
40	0.080%	0.040%	0.060%	0.030%	0.060%	0.030%	0.060%	0.030%	0.060%	0.030%
41	0.094%	0.047%	0.070%	0.035%	0.070%	0.035%	0.070%	0.035%	0.070%	0.035%
42	0.108%	0.054%	0.080%	0.040%	0.080%	0.040%	0.080%	0.040%	0.080%	0.040%
43	0.122%	0.061%	0.090%	0.045%	0.090%	0.045%	0.090%	0.045%	0.090%	0.045%
44	0.136%	0.068%	0.100%	0.050%	0.100%	0.050%	0.100%	0.050%	0.100%	0.050%
45	0.150%	0.075%	0.110%	0.055%	0.110%	0.055%	0.110%	0.055%	0.110%	0.055%
46	0.170%	0.085%	0.120%	0.060%	0.120%	0.060%	0.120%	0.060%	0.120%	0.060%
47	0.190%	0.095%	0.130%	0.065%	0.130%	0.065%	0.130%	0.065%	0.130%	0.065%
48	0.210%	0.105%	0.140%	0.070%	0.140%	0.070%	0.140%	0.070%	0.140%	0.070%
49	0.230%	0.115%	0.150%	0.075%	0.150%	0.075%	0.150%	0.075%	0.150%	0.075%
50	0.250%	0.125%	0.160%	0.080%	0.160%	0.080%	0.160%	0.080%	0.160%	0.080%
51	0.280%	0.140%	0.170%	0.085%	0.170%	0.085%	0.170%	0.085%	0.170%	0.085%
52	0.310%	0.155%	0.180%	0.090%	0.180%	0.090%	0.180%	0.090%	0.180%	0.090%
53	0.340%	0.170%	0.190%	0.095%	0.190%	0.095%	0.190%	0.095%	0.190%	0.095%
54	0.370%	0.185%	0.200%	0.100%	0.200%	0.100%	0.200%	0.100%	0.200%	0.100%
55	0.400%	0.200%	0.210%	0.105%	0.210%	0.105%	0.210%	0.105%	0.210%	0.105%
56	0.440%	0.220%	0.220%	0.110%	0.220%	0.110%	0.220%	0.110%	0.220%	0.110%
57	0.480%	0.240%	0.230%	0.115%	0.230%	0.115%	0.230%	0.115%	0.230%	0.115%
58	0.520%	0.260%	0.240%	0.120%	0.240%	0.120%	0.240%	0.120%	0.240%	0.120%
59	0.560%	0.280%	0.250%	0.125%	0.250%	0.125%	0.250%	0.125%	0.250%	0.125%
60	0.600%	0.300%	0.260%	0.130%	0.260%	0.130%	0.260%	0.130%	0.260%	0.130%
61	0.640%	0.320%	0.270%	0.135%	0.270%	0.135%	0.270%	0.135%	0.270%	0.135%
62	0.680%	0.340%	0.280%	0.140%	0.280%	0.140%	0.280%	0.140%	0.280%	0.140%
63	0.000%	0.000%	0.290%	0.145%	0.000%	0.000%	0.290%	0.145%	0.290%	0.145%
64	0.000%	0.000%	0.300%	0.150%	0.000%	0.000%	0.300%	0.150%	0.300%	0.150%
65	0.000%	0.000%	0.320%	0.160%	0.000%	0.000%	0.320%	0.160%	0.320%	0.160%
66	0.000%	0.000%	0.350%	0.175%	0.000%	0.000%	0.350%	0.175%	0.350%	0.175%
67	0.000%	0.000%	0.390%	0.195%	0.000%	0.000%	0.390%	0.195%	0.390%	0.195%
68	0.000%	0.000%	0.440%	0.220%	0.000%	0.000%	0.440%	0.220%	0.440%	0.220%
69	0.000%	0.000%	0.500%	0.250%	0.000%	0.000%	0.500%	0.250%	0.500%	0.250%

Table 36

Proposed Assumptions
Ordinary Death

	FIRE		General		Transit, Corrections, TBTA, BERS		Sanitation		TRS	
Age	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
20	0.0200%	0.0100%	0.2000%	0.0150%	0.1120%	0.0150%	0.1000%	0.0075%	0.0600%	0.0240%
21	0.0213%	0.0107%	0.2000%	0.0150%	0.1120%	0.0150%	0.1000%	0.0075%	0.0600%	0.0240%
22	0.0227%	0.0113%	0.2000%	0.0150%	0.1120%	0.0150%	0.1000%	0.0075%	0.0600%	0.0240%
23	0.0240%	0.0120%	0.2000%	0.0150%	0.1120%	0.0150%	0.1000%	0.0075%	0.0600%	0.0240%
24	0.0253%	0.0127%	0.2000%	0.0150%	0.1120%	0.0150%	0.1000%	0.0075%	0.0600%	0.0240%
25	0.0267%	0.0133%	0.2000%	0.0150%	0.1120%	0.0150%	0.1000%	0.0075%	0.0600%	0.0240%
26	0.0280%	0.0140%	0.2000%	0.0150%	0.1120%	0.0150%	0.1000%	0.0075%	0.0600%	0.0240%
27	0.0293%	0.0147%	0.2000%	0.0150%	0.1120%	0.0150%	0.1000%	0.0075%	0.0600%	0.0240%
28	0.0307%	0.0153%	0.2000%	0.0150%	0.1120%	0.0150%	0.1000%	0.0075%	0.0600%	0.0240%
29	0.0320%	0.0160%	0.2000%	0.0150%	0.1120%	0.0150%	0.1000%	0.0075%	0.0600%	0.0240%
30	0.0333%	0.0167%	0.2000%	0.0150%	0.1120%	0.0150%	0.1000%	0.0075%	0.0600%	0.0240%
31	0.0347%	0.0173%	0.2100%	0.0158%	0.1176%	0.0158%	0.1050%	0.0079%	0.0630%	0.0252%
32	0.0360%	0.0180%	0.2200%	0.0165%	0.1232%	0.0165%	0.1100%	0.0083%	0.0660%	0.0264%
33	0.0373%	0.0187%	0.2300%	0.0173%	0.1288%	0.0173%	0.1150%	0.0086%	0.0690%	0.0276%
34	0.0387%	0.0193%	0.2400%	0.0180%	0.1344%	0.0180%	0.1200%	0.0090%	0.0720%	0.0288%
35	0.0400%	0.0200%	0.2500%	0.0188%	0.1400%	0.0188%	0.1250%	0.0094%	0.0750%	0.0300%
36	0.0427%	0.0213%	0.2600%	0.0195%	0.1456%	0.0195%	0.1300%	0.0098%	0.0780%	0.0312%
37	0.0453%	0.0227%	0.2700%	0.0203%	0.1512%	0.0203%	0.1350%	0.0101%	0.0810%	0.0324%
38	0.0480%	0.0240%	0.2800%	0.0210%	0.1568%	0.0210%	0.1400%	0.0105%	0.0840%	0.0336%
39	0.0507%	0.0253%	0.2900%	0.0218%	0.1624%	0.0218%	0.1450%	0.0109%	0.0870%	0.0348%
40	0.0533%	0.0267%	0.3000%	0.0375%	0.1680%	0.0375%	0.1500%	0.0188%	0.0900%	0.0360%
41	0.0627%	0.0313%	0.3500%	0.0438%	0.1960%	0.0438%	0.1750%	0.0219%	0.1050%	0.0420%
42	0.0720%	0.0360%	0.4000%	0.0500%	0.2240%	0.0500%	0.2000%	0.0250%	0.1200%	0.0480%
43	0.0813%	0.0407%	0.4500%	0.0563%	0.2520%	0.0563%	0.2250%	0.0281%	0.1350%	0.0540%
44	0.0907%	0.0453%	0.5000%	0.0625%	0.2800%	0.0625%	0.2500%	0.0313%	0.1500%	0.0600%
45	0.1000%	0.0500%	0.5500%	0.0963%	0.3080%	0.0963%	0.2750%	0.0481%	0.1650%	0.0660%
46	0.1133%	0.0567%	0.6000%	0.1050%	0.3360%	0.1050%	0.3000%	0.0525%	0.1800%	0.0720%
47	0.1267%	0.0633%	0.6500%	0.1138%	0.3640%	0.1138%	0.3250%	0.0569%	0.1950%	0.0780%
48	0.1400%	0.0700%	0.7000%	0.1225%	0.3920%	0.1225%	0.3500%	0.0613%	0.2100%	0.0840%
49	0.1533%	0.0767%	0.7500%	0.1313%	0.4200%	0.1313%	0.3750%	0.0656%	0.2250%	0.0900%
50	0.1667%	0.0833%	0.8000%	0.1800%	0.4480%	0.1800%	0.4000%	0.0900%	0.2400%	0.0960%
51	0.1867%	0.0933%	0.8500%	0.1913%	0.4760%	0.1913%	0.4250%	0.0956%	0.2550%	0.1020%
52	0.2067%	0.1033%	0.9000%	0.2025%	0.5040%	0.2025%	0.4500%	0.1013%	0.2700%	0.1080%
53	0.2267%	0.1133%	0.9500%	0.2138%	0.5320%	0.2138%	0.4750%	0.1069%	0.2850%	0.1140%
54	0.2467%	0.1233%	1.0000%	0.2250%	0.5600%	0.2250%	0.5000%	0.1125%	0.3000%	0.1200%
55	0.2667%	0.1333%	1.0500%	0.2888%	0.5880%	0.2888%	0.5250%	0.1444%	0.3150%	0.1260%
56	0.2933%	0.1467%	1.1000%	0.3025%	0.6160%	0.3025%	0.5500%	0.1513%	0.3300%	0.1320%
57	0.3200%	0.1600%	1.1500%	0.3163%	0.6440%	0.3163%	0.5750%	0.1581%	0.3450%	0.1380%
58	0.3467%	0.1733%	1.2000%	0.3300%	0.6720%	0.3300%	0.6000%	0.1650%	0.3600%	0.1440%
59	0.3733%	0.1867%	1.2500%	0.3438%	0.7000%	0.3438%	0.6250%	0.1719%	0.3750%	0.1500%
60	0.4000%	0.2000%	1.3000%	0.4225%	0.7280%	0.4225%	0.6500%	0.2113%	0.3900%	0.1560%
61	0.4267%	0.2133%	1.3500%	0.4388%	0.7560%	0.4388%	0.6750%	0.2194%	0.4050%	0.1620%
62	0.4533%	0.2267%	1.4000%	0.4550%	0.7840%	0.4550%	0.7000%	0.2275%	0.4200%	0.1680%
63	0.4800%	0.2400%	1.4500%	0.4713%	0.8120%	0.4713%	0.7250%	0.2356%	0.4350%	0.1740%
64	0.5067%	0.2533%	1.5000%	0.4875%	0.8400%	0.4875%	0.7500%	0.2438%	0.4500%	0.1800%
65	0.0000%	0.0000%	1.6000%	0.6000%	0.8960%	0.6000%	0.8000%	0.3000%	0.4800%	0.1920%
66	0.0000%	0.0000%	1.7500%	0.6563%	0.9800%	0.6563%	0.8750%	0.3281%	0.5250%	0.2100%
67	0.0000%	0.0000%	1.9500%	0.7313%	1.0920%	0.7313%	0.9750%	0.3656%	0.5850%	0.2340%
68	0.0000%	0.0000%	2.2000%	0.8250%	1.2320%	0.8250%	1.1000%	0.4125%	0.6600%	0.2640%
69	0.0000%	0.0000%	2.5000%	0.9375%	1.4000%	0.9375%	1.2500%	0.4688%	0.7500%	0.3000%

Table 37

Current and Proposed Assumptions
Accidental Death

	Current Assumption				Proposed Assumption		
Age	POLICE, Corrections	FIRE	General, TRS, BERS	Transit, Sanit, TBTA	POLICE	Transit, Sanitation	Corrections, TBTA
20	0.010%	0.020%	0.000%	0.010%	0.000%	0.005%	0.000%
21	0.010%	0.020%	0.000%	0.010%	0.020%	0.005%	0.000%
22	0.010%	0.020%	0.000%	0.010%	0.020%	0.005%	0.000%
23	0.010%	0.020%	0.000%	0.010%	0.020%	0.005%	0.000%
24	0.010%	0.020%	0.000%	0.010%	0.020%	0.005%	0.000%
25	0.010%	0.020%	0.000%	0.010%	0.020%	0.005%	0.000%
26	0.010%	0.020%	0.000%	0.010%	0.020%	0.005%	0.000%
27	0.010%	0.020%	0.000%	0.010%	0.020%	0.005%	0.000%
28	0.010%	0.020%	0.000%	0.010%	0.020%	0.005%	0.000%
29	0.010%	0.020%	0.000%	0.010%	0.020%	0.005%	0.000%
30	0.010%	0.020%	0.000%	0.010%	0.020%	0.005%	0.000%
31	0.010%	0.020%	0.000%	0.010%	0.020%	0.005%	0.000%
32	0.010%	0.020%	0.000%	0.010%	0.020%	0.005%	0.000%
33	0.010%	0.020%	0.000%	0.010%	0.020%	0.005%	0.000%
34	0.010%	0.020%	0.000%	0.010%	0.020%	0.005%	0.000%
35	0.010%	0.020%	0.000%	0.010%	0.020%	0.005%	0.000%
36	0.010%	0.020%	0.000%	0.010%	0.020%	0.005%	0.000%
37	0.010%	0.020%	0.000%	0.010%	0.020%	0.005%	0.000%
38	0.010%	0.030%	0.000%	0.010%	0.020%	0.005%	0.000%
39	0.010%	0.040%	0.000%	0.010%	0.020%	0.005%	0.000%
40	0.010%	0.050%	0.000%	0.010%	0.020%	0.005%	0.000%
41	0.010%	0.060%	0.000%	0.010%	0.020%	0.005%	0.000%
42	0.010%	0.070%	0.000%	0.010%	0.020%	0.005%	0.000%
43	0.010%	0.080%	0.000%	0.010%	0.020%	0.005%	0.000%
44	0.010%	0.090%	0.000%	0.010%	0.020%	0.005%	0.000%
45	0.010%	0.100%	0.000%	0.010%	0.020%	0.005%	0.000%
46	0.010%	0.110%	0.000%	0.010%	0.020%	0.005%	0.000%
47	0.010%	0.120%	0.000%	0.010%	0.020%	0.005%	0.000%
48	0.010%	0.130%	0.000%	0.010%	0.020%	0.005%	0.000%
49	0.010%	0.140%	0.000%	0.010%	0.020%	0.005%	0.000%
50	0.010%	0.150%	0.000%	0.010%	0.020%	0.005%	0.000%
51	0.010%	0.160%	0.000%	0.010%	0.020%	0.005%	0.000%
52	0.010%	0.170%	0.000%	0.010%	0.020%	0.005%	0.000%
53	0.010%	0.180%	0.000%	0.010%	0.020%	0.005%	0.000%
54	0.010%	0.190%	0.000%	0.010%	0.020%	0.005%	0.000%
55	0.010%	0.200%	0.000%	0.010%	0.020%	0.005%	0.000%
56	0.010%	0.210%	0.000%	0.010%	0.020%	0.005%	0.000%
57	0.010%	0.230%	0.000%	0.010%	0.020%	0.005%	0.000%
58	0.010%	0.260%	0.000%	0.010%	0.020%	0.005%	0.000%
59	0.010%	0.300%	0.000%	0.010%	0.020%	0.005%	0.000%
60	0.010%	0.350%	0.000%	0.010%	0.020%	0.005%	0.000%
61	0.010%	0.420%	0.000%	0.010%	0.020%	0.005%	0.000%
62	0.010%	0.500%	0.000%	0.010%	0.020%	0.005%	0.000%
63	0.000%	0.000%	0.000%	0.010%	0.000%	0.005%	0.000%
64	0.000%	0.000%	0.000%	0.010%	0.000%	0.005%	0.000%
65	0.000%	0.000%	0.000%	0.010%	0.000%	0.005%	0.000%
66	0.000%	0.000%	0.000%	0.010%	0.000%	0.005%	0.000%
67	0.000%	0.000%	0.000%	0.010%	0.000%	0.005%	0.000%
68	0.000%	0.000%	0.000%	0.010%	0.000%	0.005%	0.000%
69	0.000%	0.000%	0.000%	0.010%	0.000%	0.005%	0.000%

Table 38

Current Assumptions
Ordinary Disability

			BERS, General					TBTA		TRS	
Age	POLICE	FIRE	Male	Female	Transit	Sanitation	Corrections	Male	Female	Male	Female
20	0.010%	0.010%	0.100%	0.050%	0.100%	0.200%	0.100%	0.030%	0.040%	0.020%	0.010%
21	0.010%	0.010%	0.100%	0.050%	0.100%	0.200%	0.100%	0.030%	0.040%	0.020%	0.010%
22	0.020%	0.010%	0.100%	0.050%	0.100%	0.200%	0.100%	0.030%	0.040%	0.020%	0.010%
23	0.030%	0.010%	0.100%	0.050%	0.100%	0.200%	0.100%	0.040%	0.040%	0.020%	0.010%
24	0.040%	0.010%	0.100%	0.050%	0.100%	0.200%	0.100%	0.040%	0.040%	0.020%	0.010%
25	0.050%	0.010%	0.100%	0.050%	0.100%	0.200%	0.100%	0.040%	0.040%	0.020%	0.010%
26	0.060%	0.010%	0.100%	0.050%	0.100%	0.220%	0.120%	0.040%	0.040%	0.020%	0.010%
27	0.070%	0.020%	0.100%	0.050%	0.100%	0.240%	0.140%	0.040%	0.040%	0.020%	0.010%
28	0.080%	0.030%	0.100%	0.050%	0.100%	0.260%	0.160%	0.040%	0.040%	0.020%	0.010%
29	0.090%	0.040%	0.100%	0.050%	0.100%	0.280%	0.180%	0.040%	0.040%	0.020%	0.010%
30	0.100%	0.050%	0.100%	0.050%	0.100%	0.300%	0.200%	0.050%	0.050%	0.020%	0.010%
31	0.120%	0.060%	0.110%	0.050%	0.110%	0.320%	0.220%	0.050%	0.050%	0.020%	0.010%
32	0.140%	0.070%	0.120%	0.050%	0.120%	0.340%	0.240%	0.060%	0.050%	0.020%	0.010%
33	0.160%	0.080%	0.130%	0.050%	0.130%	0.360%	0.260%	0.060%	0.050%	0.020%	0.020%
34	0.180%	0.090%	0.140%	0.050%	0.140%	0.380%	0.280%	0.070%	0.050%	0.020%	0.020%
35	0.200%	0.100%	0.150%	0.050%	0.150%	0.400%	0.300%	0.080%	0.060%	0.030%	0.020%
36	0.220%	0.110%	0.160%	0.060%	0.160%	0.420%	0.330%	0.100%	0.070%	0.030%	0.030%
37	0.240%	0.120%	0.170%	0.070%	0.170%	0.440%	0.360%	0.130%	0.090%	0.030%	0.040%
38	0.260%	0.130%	0.180%	0.080%	0.180%	0.460%	0.390%	0.160%	0.100%	0.030%	0.040%
39	0.280%	0.140%	0.190%	0.090%	0.190%	0.480%	0.420%	0.180%	0.120%	0.040%	0.050%
40	0.300%	0.150%	0.200%	0.100%	0.200%	0.500%	0.450%	0.210%	0.140%	0.040%	0.060%
41	0.320%	0.150%	0.220%	0.120%	0.210%	0.520%	0.490%	0.240%	0.170%	0.040%	0.070%
42	0.340%	0.150%	0.240%	0.140%	0.220%	0.540%	0.530%	0.270%	0.200%	0.040%	0.070%
43	0.360%	0.150%	0.260%	0.160%	0.230%	0.560%	0.570%	0.300%	0.230%	0.050%	0.080%
44	0.380%	0.150%	0.280%	0.180%	0.240%	0.580%	0.610%	0.330%	0.260%	0.050%	0.080%
45	0.400%	0.150%	0.300%	0.200%	0.250%	0.600%	0.650%	0.360%	0.300%	0.050%	0.090%
46	0.420%	0.160%	0.320%	0.220%	0.260%	0.640%	0.700%	0.380%	0.330%	0.050%	0.090%
47	0.440%	0.170%	0.340%	0.240%	0.270%	0.680%	0.750%	0.410%	0.360%	0.060%	0.090%
48	0.460%	0.180%	0.360%	0.260%	0.280%	0.720%	0.800%	0.440%	0.390%	0.060%	0.090%
49	0.480%	0.190%	0.380%	0.280%	0.290%	0.760%	0.850%	0.460%	0.420%	0.060%	0.090%
50	0.500%	0.200%	0.400%	0.300%	0.300%	0.800%	0.900%	0.490%	0.450%	0.070%	0.100%
51	0.600%	0.360%	0.420%	0.320%	0.320%	0.840%	0.960%	0.500%	0.460%	0.080%	0.110%
52	0.700%	0.520%	0.440%	0.340%	0.340%	0.880%	1.050%	0.500%	0.470%	0.090%	0.110%
53	0.800%	0.680%	0.460%	0.360%	0.360%	0.920%	1.170%	0.500%	0.490%	0.100%	0.120%
54	0.900%	0.840%	0.480%	0.380%	0.380%	0.960%	1.320%	0.500%	0.500%	0.110%	0.120%
55	1.000%	1.000%	0.500%	0.400%	0.400%	1.000%	1.500%	0.500%	0.500%	0.120%	0.130%
56	2.000%	2.000%	0.500%	0.400%	0.420%	1.050%	1.700%	0.500%	0.500%	0.130%	0.130%
57	3.000%	3.000%	0.500%	0.400%	0.440%	1.100%	1.950%	0.500%	0.500%	0.140%	0.140%
58	4.000%	4.000%	0.500%	0.400%	0.460%	1.150%	2.250%	0.500%	0.500%	0.150%	0.140%
59	5.000%	5.000%	0.500%	0.400%	0.480%	1.200%	2.600%	0.500%	0.500%	0.160%	0.150%
60	6.000%	6.000%	0.500%	0.400%	0.500%	1.250%	3.000%	0.500%	0.500%	0.170%	0.150%
61	8.000%	8.000%	0.500%	0.400%	0.520%	1.300%	3.500%	0.500%	0.500%	0.180%	0.150%
62	10.000%	10.000%	0.500%	0.400%	0.540%	1.350%	4.000%	0.500%	0.500%	0.200%	0.160%
63	0.000%	0.000%	0.500%	0.400%	0.560%	1.400%	0.000%	0.500%	0.500%	0.210%	0.160%
64	0.000%	0.000%	0.500%	0.400%	0.580%	1.450%	0.000%	0.500%	0.500%	0.230%	0.170%
65	0.000%	0.000%	0.500%	0.400%	0.600%	1.500%	0.000%	0.500%	0.500%	0.240%	0.170%
66	0.000%	0.000%	0.500%	0.400%	0.620%	1.600%	0.000%	0.500%	0.500%	0.260%	0.180%
67	0.000%	0.000%	0.500%	0.400%	0.640%	1.700%	0.000%	0.500%	0.500%	0.280%	0.190%
68	0.000%	0.000%	0.500%	0.400%	0.660%	1.800%	0.000%	0.500%	0.500%	0.290%	0.200%
69	0.000%	0.000%	0.500%	0.400%	0.680%	1.900%	0.000%	0.500%	0.500%	0.310%	0.210%

Table 39

Proposed Assumptions
Ordinary Disability

Age	FIRE	BERS, General		Transit	TBTA	TRS	
		Male	Female			Male	Female
20	0.010%	0.450%	0.150%	0.240%	1.000%	0.020%	0.040%
21	0.010%	0.450%	0.150%	0.240%	1.000%	0.020%	0.040%
22	0.010%	0.450%	0.150%	0.240%	1.000%	0.020%	0.040%
23	0.010%	0.450%	0.150%	0.240%	1.000%	0.020%	0.040%
24	0.010%	0.450%	0.150%	0.240%	1.000%	0.020%	0.040%
25	0.010%	0.450%	0.150%	0.240%	1.000%	0.070%	0.060%
26	0.010%	0.450%	0.150%	0.240%	1.000%	0.070%	0.060%
27	0.020%	0.450%	0.150%	0.240%	1.000%	0.070%	0.060%
28	0.030%	0.450%	0.150%	0.240%	1.000%	0.070%	0.060%
29	0.040%	0.450%	0.150%	0.240%	1.000%	0.070%	0.060%
30	0.050%	0.450%	0.150%	0.240%	1.000%	0.120%	0.080%
31	0.060%	0.450%	0.150%	0.240%	1.000%	0.120%	0.080%
32	0.070%	0.450%	0.150%	0.240%	1.000%	0.120%	0.080%
33	0.080%	0.450%	0.150%	0.240%	1.000%	0.120%	0.080%
34	0.090%	0.450%	0.150%	0.240%	1.000%	0.120%	0.080%
35	0.100%	0.450%	0.150%	0.240%	1.000%	0.140%	0.110%
36	0.110%	0.450%	0.170%	0.256%	1.000%	0.140%	0.110%
37	0.120%	0.450%	0.190%	0.272%	1.000%	0.140%	0.110%
38	0.130%	0.450%	0.210%	0.288%	1.000%	0.140%	0.110%
39	0.140%	0.450%	0.230%	0.304%	1.000%	0.140%	0.110%
40	0.150%	0.450%	0.230%	0.320%	1.000%	0.160%	0.140%
41	0.150%	0.450%	0.250%	0.336%	1.000%	0.160%	0.140%
42	0.150%	0.450%	0.280%	0.352%	1.000%	0.160%	0.140%
43	0.150%	0.450%	0.310%	0.368%	1.000%	0.160%	0.140%
44	0.150%	0.470%	0.340%	0.384%	1.000%	0.160%	0.140%
45	0.150%	0.490%	0.370%	0.400%	1.000%	0.180%	0.180%
46	0.150%	0.510%	0.400%	0.416%	1.000%	0.180%	0.180%
47	0.150%	0.530%	0.440%	0.432%	1.000%	0.180%	0.180%
48	0.150%	0.550%	0.480%	0.448%	1.000%	0.180%	0.180%
49	0.150%	0.580%	0.530%	0.464%	1.000%	0.180%	0.180%
50	0.150%	0.610%	0.590%	0.480%	1.000%	0.200%	0.240%
51	0.200%	0.640%	0.650%	0.512%	1.000%	0.200%	0.240%
52	0.300%	0.670%	0.650%	0.544%	1.000%	0.200%	0.240%
53	0.500%	0.700%	0.650%	0.576%	1.000%	0.200%	0.240%
54	0.800%	0.730%	0.650%	0.608%	1.000%	0.200%	0.240%
55	2.000%	0.760%	0.650%	0.640%	1.000%	0.220%	0.310%
56	3.000%	0.780%	0.650%	0.672%	1.000%	0.220%	0.310%
57	4.000%	0.800%	0.650%	0.704%	1.000%	0.220%	0.310%
58	5.000%	0.820%	0.650%	0.736%	1.000%	0.220%	0.310%
59	6.000%	0.850%	0.650%	0.768%	1.000%	0.220%	0.310%
60	7.000%	0.850%	0.650%	0.800%	1.000%	0.240%	0.260%
61	10.000%	0.850%	0.650%	0.832%	1.000%	0.240%	0.260%
62	16.000%	0.850%	0.650%	0.864%	1.000%	0.240%	0.260%
63	20.000%	0.850%	0.650%	0.896%	1.000%	0.240%	0.260%
64	20.000%	0.850%	0.650%	0.928%	1.000%	0.240%	0.260%
65	0.000%	0.850%	0.650%	0.960%	1.000%	0.260%	0.260%
66	0.000%	0.850%	0.650%	0.992%	1.000%	0.260%	0.260%
67	0.000%	0.850%	0.650%	1.024%	1.000%	0.260%	0.260%
68	0.000%	0.850%	0.650%	1.056%	1.000%	0.260%	0.260%
69	0.000%	0.850%	0.650%	1.088%	1.000%	0.260%	0.260%

Table 40

Current Assumptions
Accidental Disability

			BERS, General					TBTA		TRS	
Age	POLICE	FIRE	Male	Female	Transit	Sanitation	Corrections	Male	Female	Male	Female
20	0.100%	0.020%	0.020%	0.010%	0.020%	0.200%	0.050%	0.020%	0.020%	0.000%	0.000%
21	0.140%	0.020%	0.020%	0.010%	0.020%	0.200%	0.060%	0.020%	0.020%	0.000%	0.000%
22	0.180%	0.020%	0.020%	0.010%	0.020%	0.200%	0.070%	0.020%	0.020%	0.000%	0.000%
23	0.220%	0.020%	0.020%	0.010%	0.020%	0.200%	0.080%	0.020%	0.020%	0.000%	0.000%
24	0.260%	0.020%	0.020%	0.010%	0.020%	0.200%	0.090%	0.020%	0.020%	0.000%	0.000%
25	0.300%	0.020%	0.020%	0.010%	0.020%	0.200%	0.100%	0.020%	0.020%	0.000%	0.000%
26	0.360%	0.030%	0.020%	0.010%	0.020%	0.200%	0.110%	0.020%	0.020%	0.000%	0.000%
27	0.420%	0.040%	0.020%	0.010%	0.020%	0.200%	0.120%	0.020%	0.020%	0.000%	0.000%
28	0.480%	0.050%	0.020%	0.010%	0.020%	0.200%	0.130%	0.020%	0.020%	0.010%	0.000%
29	0.540%	0.070%	0.020%	0.010%	0.020%	0.200%	0.140%	0.030%	0.020%	0.010%	0.000%
30	0.600%	0.100%	0.020%	0.010%	0.020%	0.200%	0.150%	0.030%	0.020%	0.010%	0.000%
31	0.660%	0.180%	0.020%	0.010%	0.020%	0.200%	0.160%	0.030%	0.020%	0.010%	0.000%
32	0.720%	0.270%	0.020%	0.010%	0.020%	0.200%	0.170%	0.040%	0.020%	0.010%	0.000%
33	0.780%	0.370%	0.020%	0.010%	0.020%	0.200%	0.180%	0.040%	0.020%	0.010%	0.010%
34	0.840%	0.480%	0.020%	0.010%	0.020%	0.200%	0.190%	0.050%	0.020%	0.010%	0.010%
35	0.900%	0.600%	0.020%	0.010%	0.020%	0.200%	0.200%	0.050%	0.020%	0.010%	0.010%
36	0.960%	0.720%	0.020%	0.010%	0.020%	0.200%	0.220%	0.050%	0.020%	0.010%	0.010%
37	1.020%	0.850%	0.020%	0.010%	0.020%	0.200%	0.240%	0.060%	0.020%	0.010%	0.010%
38	1.080%	0.990%	0.020%	0.010%	0.020%	0.200%	0.260%	0.060%	0.020%	0.010%	0.010%
39	1.140%	1.140%	0.020%	0.010%	0.020%	0.200%	0.280%	0.070%	0.020%	0.010%	0.010%
40	1.200%	1.300%	0.020%	0.010%	0.020%	0.200%	0.300%	0.070%	0.020%	0.010%	0.010%
41	1.260%	1.480%	0.020%	0.010%	0.020%	0.210%	0.320%	0.070%	0.020%	0.020%	0.010%
42	1.320%	1.670%	0.020%	0.010%	0.020%	0.220%	0.340%	0.080%	0.020%	0.020%	0.010%
43	1.380%	1.870%	0.020%	0.010%	0.020%	0.230%	0.360%	0.080%	0.020%	0.020%	0.010%
44	1.440%	2.080%	0.020%	0.010%	0.020%	0.240%	0.380%	0.080%	0.020%	0.020%	0.010%
45	1.500%	2.300%	0.020%	0.010%	0.020%	0.250%	0.400%	0.080%	0.020%	0.020%	0.010%
46	1.600%	2.600%	0.020%	0.010%	0.020%	0.260%	0.420%	0.080%	0.020%	0.020%	0.020%
47	1.700%	2.920%	0.020%	0.010%	0.020%	0.270%	0.440%	0.090%	0.020%	0.030%	0.020%
48	1.800%	3.260%	0.020%	0.010%	0.020%	0.280%	0.460%	0.090%	0.020%	0.030%	0.020%
49	1.900%	3.620%	0.020%	0.010%	0.020%	0.290%	0.480%	0.090%	0.020%	0.030%	0.020%
50	2.000%	4.000%	0.020%	0.010%	0.020%	0.300%	0.500%	0.090%	0.020%	0.030%	0.020%
51	2.200%	4.500%	0.020%	0.010%	0.020%	0.310%	0.520%	0.090%	0.020%	0.030%	0.020%
52	2.400%	5.100%	0.020%	0.010%	0.020%	0.320%	0.540%	0.090%	0.020%	0.030%	0.020%
53	2.600%	5.800%	0.020%	0.010%	0.020%	0.330%	0.560%	0.100%	0.020%	0.030%	0.020%
54	2.800%	6.600%	0.020%	0.010%	0.020%	0.340%	0.580%	0.100%	0.020%	0.040%	0.020%
55	3.000%	7.500%	0.020%	0.010%	0.020%	0.350%	0.600%	0.100%	0.020%	0.040%	0.020%
56	3.400%	8.500%	0.020%	0.010%	0.020%	0.360%	0.620%	0.100%	0.020%	0.040%	0.030%
57	3.800%	9.700%	0.020%	0.010%	0.020%	0.380%	0.640%	0.100%	0.020%	0.040%	0.030%
58	4.200%	11.100%	0.020%	0.010%	0.020%	0.410%	0.660%	0.100%	0.020%	0.040%	0.030%
59	4.600%	12.700%	0.020%	0.010%	0.020%	0.450%	0.680%	0.100%	0.020%	0.040%	0.030%
60	5.000%	14.500%	0.020%	0.010%	0.020%	0.500%	0.700%	0.100%	0.020%	0.050%	0.030%
61	6.000%	16.500%	0.020%	0.010%	0.020%	0.560%	0.720%	0.100%	0.020%	0.050%	0.030%
62	7.000%	19.000%	0.020%	0.010%	0.020%	0.630%	0.740%	0.100%	0.020%	0.050%	0.030%
63	0.000%	0.000%	0.020%	0.010%	0.020%	0.710%	0.000%	0.100%	0.020%	0.050%	0.040%
64	0.000%	0.000%	0.020%	0.010%	0.020%	0.800%	0.000%	0.100%	0.020%	0.060%	0.040%
65	0.000%	0.000%	0.020%	0.010%	0.020%	0.900%	0.000%	0.100%	0.020%	0.060%	0.040%
66	0.000%	0.000%	0.020%	0.010%	0.020%	1.020%	0.000%	0.100%	0.020%	0.060%	0.040%
67	0.000%	0.000%	0.020%	0.010%	0.020%	1.160%	0.000%	0.100%	0.020%	0.060%	0.040%
68	0.000%	0.000%	0.020%	0.010%	0.020%	1.320%	0.000%	0.100%	0.020%	0.060%	0.040%
69	0.000%	0.000%	0.020%	0.010%	0.020%	1.500%	0.000%	0.100%	0.020%	0.070%	0.040%

Table 41

Proposed Assumptions
Accidental Disability

Age	BERS, General Male	Female	Transit	TRS
20	0.032%	0.010%	0.010%	0.000%
21	0.032%	0.010%	0.010%	0.000%
22	0.032%	0.010%	0.010%	0.000%
23	0.032%	0.010%	0.010%	0.000%
24	0.032%	0.010%	0.010%	0.000%
25	0.032%	0.010%	0.010%	0.000%
26	0.032%	0.010%	0.010%	0.000%
27	0.032%	0.010%	0.010%	0.000%
28	0.032%	0.010%	0.010%	0.000%
29	0.032%	0.010%	0.010%	0.000%
30	0.032%	0.010%	0.010%	0.010%
31	0.032%	0.010%	0.010%	0.010%
32	0.032%	0.010%	0.010%	0.010%
33	0.032%	0.010%	0.010%	0.010%
34	0.032%	0.010%	0.010%	0.010%
35	0.032%	0.010%	0.010%	0.010%
36	0.032%	0.010%	0.010%	0.010%
37	0.032%	0.010%	0.010%	0.010%
38	0.032%	0.010%	0.010%	0.010%
39	0.032%	0.010%	0.010%	0.010%
40	0.032%	0.010%	0.010%	0.020%
41	0.032%	0.010%	0.010%	0.020%
42	0.032%	0.010%	0.010%	0.020%
43	0.032%	0.010%	0.010%	0.020%
44	0.032%	0.010%	0.010%	0.020%
45	0.032%	0.010%	0.010%	0.020%
46	0.032%	0.010%	0.010%	0.020%
47	0.032%	0.010%	0.010%	0.020%
48	0.032%	0.010%	0.010%	0.020%
49	0.032%	0.010%	0.010%	0.020%
50	0.032%	0.010%	0.010%	0.030%
51	0.032%	0.010%	0.010%	0.030%
52	0.032%	0.010%	0.010%	0.030%
53	0.032%	0.010%	0.010%	0.030%
54	0.032%	0.010%	0.010%	0.030%
55	0.032%	0.010%	0.010%	0.030%
56	0.032%	0.010%	0.010%	0.030%
57	0.032%	0.010%	0.010%	0.030%
58	0.032%	0.010%	0.010%	0.030%
59	0.032%	0.010%	0.010%	0.030%
60	0.032%	0.010%	0.010%	0.040%
61	0.032%	0.010%	0.010%	0.040%
62	0.032%	0.010%	0.010%	0.040%
63	0.032%	0.010%	0.010%	0.040%
64	0.032%	0.010%	0.010%	0.040%
65	0.032%	0.010%	0.010%	0.040%
66	0.032%	0.010%	0.010%	0.040%
67	0.032%	0.010%	0.010%	0.040%
68	0.032%	0.010%	0.010%	0.040%
69	0.032%	0.010%	0.010%	0.040%

Table 42

Current Assumptions
Merit Salary Scale

Service	POLICE	FIRE	BERS, Genl	Transit	Sanitation	Corrections	TBTA	TRS
0	6.00%	5.00%	5.00%	15.00%	5.00%	10.00%	7.50%	8.00%
1	5.00%	5.00%	4.20%	12.00%	5.00%	9.00%	7.00%	7.00%
2	4.00%	5.00%	3.50%	9.00%	5.00%	8.00%	6.50%	6.00%
3	3.00%	5.00%	3.00%	6.00%	5.00%	7.00%	6.00%	5.00%
4	35.00%	26.00%	2.70%	3.00%	36.00%	38.00%	13.00%	4.00%
5	0.50%	0.50%	2.50%	1.00%	0.50%	0.50%	1.00%	3.00%
6	0.60%	0.60%	2.40%	1.00%	1.00%	1.00%	1.00%	2.00%
7	0.70%	0.70%	2.30%	1.00%	1.50%	1.50%	1.00%	2.00%
8	0.80%	0.80%	2.20%	1.00%	2.00%	2.00%	1.00%	2.00%
9	2.60%	2.60%	2.10%	1.00%	3.00%	3.00%	2.00%	3.00%
10	1.00%	1.00%	2.00%	1.00%	2.00%	2.00%	1.00%	2.00%
11	1.10%	1.10%	1.90%	1.00%	2.00%	2.00%	1.00%	2.00%
12	1.20%	1.20%	1.80%	1.00%	2.00%	2.00%	1.00%	2.00%
13	1.30%	1.30%	1.70%	1.00%	2.00%	2.00%	1.00%	2.00%
14	3.10%	3.10%	1.60%	1.00%	3.00%	3.00%	2.00%	3.00%
15	1.50%	1.50%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
16	1.60%	1.60%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
17	1.70%	1.70%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
18	1.80%	1.80%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
19	3.60%	3.60%	1.50%	1.00%	3.00%	3.00%	2.00%	6.00%
20	2.00%	2.00%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
21	1.90%	1.90%	1.50%	1.00%	2.00%	2.00%	1.00%	3.00%
22	1.80%	1.80%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
23	1.70%	1.70%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
24	1.60%	1.60%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
25	1.50%	1.50%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
26	1.40%	1.40%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
27	1.30%	1.30%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
28	1.20%	1.20%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
29	1.10%	1.10%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
30	1.00%	1.00%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
31	1.00%	1.00%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
32	1.00%	1.00%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
33	1.00%	1.00%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
34	1.00%	1.00%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%
Over 34	1.00%	1.00%	1.50%	1.00%	2.00%	2.00%	1.00%	2.00%

Table 43

Proposed Assumptions
Merit Salary Scale

Service	POLICE	FIRE	General	Transit	Sanitation	TBTA	TRS	BERS
0	12.00%	10.00%	6.00%	15.00%	15.00%	7.50%	9.00%	5.00%
1	8.00%	5.00%	3.00%	10.00%	5.00%	5.00%	8.00%	3.50%
2	4.00%	5.00%	2.50%	8.00%	5.00%	4.50%	7.00%	2.80%
3	4.00%	5.00%	2.00%	5.00%	5.00%	4.00%	6.00%	2.20%
4	35.00%	26.00%	2.00%	2.00%	36.00%	3.50%	5.00%	1.70%
5	0.50%	0.50%	2.00%	1.00%	0.50%	3.00%	4.50%	1.50%
6	1.00%	0.60%	2.00%	1.00%	1.00%	2.50%	4.00%	1.40%
7	0.50%	0.70%	1.90%	1.00%	1.50%	2.00%	3.50%	1.30%
8	1.00%	0.80%	1.80%	1.00%	2.00%	1.50%	2.50%	1.20%
9	2.50%	2.60%	1.70%	1.00%	3.00%	1.25%	2.00%	1.10%
10	1.00%	1.00%	1.60%	1.00%	2.00%	1.00%	2.00%	1.00%
11	1.10%	1.10%	1.50%	1.00%	2.00%	1.00%	2.00%	1.00%
12	1.20%	1.20%	1.40%	1.00%	2.00%	1.00%	2.00%	1.00%
13	1.30%	1.30%	1.30%	1.00%	2.00%	1.00%	2.00%	1.00%
14	3.00%	3.10%	1.20%	1.00%	3.00%	1.00%	3.00%	1.00%
15	1.50%	1.50%	1.10%	1.00%	2.00%	1.00%	2.00%	1.00%
16	1.60%	1.60%	1.00%	1.00%	2.00%	1.00%	2.00%	1.00%
17	1.70%	1.60%	1.00%	1.00%	2.00%	1.00%	2.00%	1.00%
18	1.80%	1.60%	1.00%	1.00%	2.00%	1.00%	2.00%	1.00%
19	3.60%	3.60%	1.00%	1.00%	3.00%	1.00%	6.00%	1.00%
20	2.00%	1.60%	1.00%	1.00%	2.00%	1.00%	2.00%	1.00%
21	1.80%	1.60%	1.00%	1.00%	2.00%	1.00%	3.00%	1.00%
22	1.60%	1.60%	1.00%	1.00%	2.00%	1.00%	2.00%	1.00%
23	1.40%	1.60%	1.00%	1.00%	2.00%	1.00%	1.00%	1.00%
24	1.20%	1.60%	1.00%	1.00%	2.00%	1.00%	1.00%	1.00%
25	1.00%	1.00%	1.00%	1.00%	2.00%	1.00%	1.00%	1.00%
26	1.00%	1.00%	1.00%	1.00%	2.00%	1.00%	1.00%	1.00%
27	1.00%	1.00%	1.00%	1.00%	2.00%	1.00%	1.00%	1.00%
28	1.00%	1.00%	1.00%	1.00%	2.00%	1.00%	1.00%	1.00%
29	1.00%	1.00%	1.00%	1.00%	2.00%	1.00%	1.00%	1.00%
30	1.00%	1.00%	1.00%	1.00%	2.00%	1.00%	1.00%	1.00%
31	1.00%	1.00%	1.00%	1.00%	2.00%	1.00%	1.00%	1.00%
32	1.00%	1.00%	1.00%	1.00%	2.00%	1.00%	1.00%	1.00%
33	1.00%	1.00%	1.00%	1.00%	2.00%	1.00%	1.00%	1.00%
34	1.00%	1.00%	1.00%	1.00%	2.00%	1.00%	1.00%	1.00%
Over 34	1.00%	1.00%	1.00%	1.00%	2.00%	1.00%	1.00%	1.00%

Table 44

Current Assumptions
Overtime for All Years

Service	POLICE, FIRE	General	Transit	Sanitation	Corrections	TBTA	TRS, BERS
0	12.00%	4.00%	8.00%	10.00%	6.00%	0.00%	0.00%
1	12.00%	4.00%	8.00%	10.50%	6.30%	1.00%	0.00%
2	12.00%	4.00%	8.00%	11.00%	6.60%	2.00%	0.00%
3	12.00%	4.00%	8.00%	11.50%	6.90%	3.00%	0.00%
4	12.00%	4.00%	8.00%	12.00%	7.20%	4.00%	0.00%
5	12.00%	4.00%	8.00%	12.50%	7.50%	5.00%	0.00%
6	12.00%	4.00%	8.00%	13.00%	7.80%	6.00%	0.00%
7	12.00%	4.00%	8.00%	13.50%	8.10%	7.00%	0.00%
8	12.00%	4.00%	8.00%	14.00%	8.40%	8.00%	0.00%
9	12.00%	4.00%	8.00%	14.50%	8.70%	9.00%	0.00%
10	12.00%	4.00%	8.00%	15.00%	9.00%	10.00%	0.00%
11	12.00%	4.00%	8.00%	15.50%	9.30%	11.00%	0.00%
12	12.00%	4.00%	8.00%	16.00%	9.60%	12.00%	0.00%
13	12.00%	4.00%	8.00%	16.50%	9.90%	13.00%	0.00%
14	12.00%	4.00%	8.00%	17.00%	10.20%	14.00%	0.00%
15	12.00%	4.00%	8.00%	17.50%	10.50%	15.00%	0.00%
16	12.00%	4.00%	8.00%	18.00%	10.80%	16.00%	0.00%
17	12.00%	4.00%	8.00%	18.50%	11.10%	17.00%	0.00%
18	12.00%	4.00%	8.00%	19.00%	11.40%	18.00%	0.00%
19	12.00%	4.00%	8.00%	19.50%	11.70%	19.00%	0.00%
20	12.00%	4.00%	8.00%	20.00%	12.00%	20.00%	0.00%
21	12.00%	4.00%	8.00%	20.00%	12.00%	20.00%	0.00%
22	12.00%	4.00%	8.00%	20.00%	12.00%	20.00%	0.00%
23	12.00%	4.00%	8.00%	20.00%	12.00%	20.00%	0.00%
24	12.00%	4.00%	8.00%	20.00%	12.00%	20.00%	0.00%
25	12.00%	4.00%	8.00%	20.00%	12.00%	20.00%	0.00%
26	12.00%	4.00%	8.00%	20.00%	12.00%	20.00%	0.00%
27	12.00%	4.00%	8.00%	20.00%	12.00%	20.00%	0.00%
28	12.00%	4.00%	8.00%	20.00%	12.00%	20.00%	0.00%
29	12.00%	4.00%	8.00%	20.00%	12.00%	20.00%	0.00%
30	12.00%	4.00%	8.00%	20.00%	12.00%	20.00%	0.00%
31	12.00%	4.00%	8.00%	20.00%	12.00%	20.00%	0.00%
32	12.00%	4.00%	8.00%	20.00%	12.00%	20.00%	0.00%
33	12.00%	4.00%	8.00%	20.00%	12.00%	20.00%	0.00%
34	12.00%	4.00%	8.00%	20.00%	12.00%	20.00%	0.00%
Over 34	12.00%	4.00%	8.00%	20.00%	12.00%	20.00%	0.00%

Table 45

Proposed Assumptions
Overtime for All Years

Service	POLICE	FIRE	General	Sanitation	TBTA	BERS
0	12.00%	14.00%	5.00%	14.00%	0.00%	8.00%
1	12.00%	14.00%	5.00%	14.00%	15.00%	8.00%
2	12.00%	14.00%	5.00%	14.00%	15.00%	8.00%
3	12.00%	14.00%	5.00%	14.00%	15.00%	8.00%
4	12.00%	14.00%	5.00%	14.00%	15.00%	8.00%
5	12.00%	14.00%	5.00%	16.00%	15.00%	8.00%
6	12.00%	14.00%	5.00%	16.00%	15.00%	8.00%
7	12.00%	14.00%	5.00%	16.00%	15.00%	8.00%
8	12.00%	14.00%	5.00%	16.00%	15.00%	8.00%
9	12.00%	14.00%	5.00%	16.00%	15.00%	8.00%
10	12.00%	14.00%	5.00%	16.00%	18.00%	8.00%
11	12.00%	14.00%	5.00%	16.00%	18.00%	10.00%
12	12.00%	14.00%	5.00%	18.00%	22.00%	10.00%
13	12.00%	14.00%	5.00%	18.00%	22.00%	10.00%
14	12.00%	14.00%	5.00%	18.00%	22.00%	10.00%
15	12.00%	14.00%	5.00%	18.00%	22.00%	10.00%
16	12.00%	14.00%	5.00%	18.00%	22.00%	10.00%
17	12.00%	14.00%	5.00%	18.00%	22.00%	10.00%
18	12.00%	14.00%	5.00%	18.00%	22.00%	10.00%
19	12.00%	14.00%	5.00%	18.00%	22.00%	10.00%
20	12.00%	14.00%	4.85%	18.00%	22.00%	10.00%
21	10.00%	13.00%	4.70%	18.00%	22.00%	12.00%
22	8.00%	13.00%	4.55%	18.00%	22.00%	12.00%
23	7.00%	12.00%	4.40%	18.00%	22.00%	12.00%
24	6.00%	12.00%	4.25%	18.00%	22.00%	12.00%
25	6.00%	11.00%	4.10%	18.00%	22.00%	12.00%
26	5.00%	10.00%	3.95%	14.00%	18.00%	12.00%
27	5.00%	9.00%	3.80%	14.00%	18.00%	12.00%
28	5.00%	8.00%	3.65%	14.00%	18.00%	12.00%
29	5.00%	8.00%	3.50%	14.00%	18.00%	12.00%
30	5.00%	8.00%	3.35%	14.00%	18.00%	12.00%
31	5.00%	7.00%	3.20%	12.00%	18.00%	12.00%
32	5.00%	7.00%	3.05%	12.00%	15.00%	12.00%
33	5.00%	6.00%	2.90%	12.00%	15.00%	12.00%
34	5.00%	6.00%	2.75%	12.00%	10.00%	12.00%
Over 34	5.00%	5.00%	2.60%*	12.00%	10.00%	12.00%

* Rate decreases by .15% per year service thereafter to an ultimate rate of 1.25%

Table 46

Current Assumptions
Overtime Before Service Retirement

Service	POLICE, FIRE	General	Transit	Sanitation	Corrections	TBTA	TRS, BERS
0	16.00%	4.00%	12.00%	12.00%	8.00%	2.00%	0.00%
1	16.00%	4.00%	12.00%	12.50%	8.30%	3.00%	0.00%
2	16.00%	4.00%	12.00%	13.00%	8.60%	4.00%	0.00%
3	16.00%	4.00%	12.00%	13.50%	8.90%	5.00%	0.00%
4	16.00%	4.00%	12.00%	14.00%	9.20%	6.00%	0.00%
5	16.00%	4.00%	12.00%	14.50%	9.50%	7.00%	0.00%
6	16.00%	4.00%	12.00%	15.00%	9.80%	8.00%	0.00%
7	16.00%	4.00%	12.00%	15.50%	10.10%	9.00%	0.00%
8	16.00%	4.00%	12.00%	16.00%	10.40%	10.00%	0.00%
9	16.00%	4.00%	12.00%	16.50%	10.70%	11.00%	0.00%
10	16.00%	4.00%	12.00%	17.00%	11.00%	12.00%	0.00%
11	16.00%	4.00%	12.00%	17.50%	11.30%	13.00%	0.00%
12	16.00%	4.00%	12.00%	18.00%	11.60%	14.00%	0.00%
13	16.00%	4.00%	12.00%	18.50%	11.90%	15.00%	0.00%
14	16.00%	4.00%	12.00%	19.00%	12.20%	16.00%	0.00%
15	16.00%	4.00%	12.00%	19.50%	12.50%	17.00%	0.00%
16	16.00%	4.00%	12.13%	20.00%	12.80%	18.00%	0.00%
17	16.00%	4.00%	12.00%	20.50%	13.10%	19.00%	0.00%
18	16.00%	4.00%	12.00%	21.00%	13.40%	20.24%	0.00%
19	16.00%	4.00%	12.00%	21.50%	13.70%	21.00%	0.00%
20	16.00%	4.00%	12.07%	22.05%	14.00%	22.00%	0.00%
21	16.00%	4.00%	12.00%	22.00%	14.00%	22.00%	0.00%
22	16.00%	4.00%	12.07%	22.00%	14.00%	22.00%	0.00%
23	16.00%	4.00%	12.00%	22.00%	14.00%	22.00%	0.00%
24	16.00%	4.00%	12.00%	22.00%	14.00%	22.00%	0.00%
25	16.00%	4.00%	12.09%	22.00%	14.00%	22.00%	0.00%
26	16.00%	4.00%	12.11%	22.00%	14.00%	22.00%	0.00%
27	16.00%	4.00%	12.00%	22.00%	14.00%	22.00%	0.00%
28	16.00%	4.00%	12.84%	22.30%	15.48%	23.38%	0.00%
29	16.00%	4.00%	14.34%	23.10%	16.00%	22.79%	0.00%
30	16.00%	4.00%	15.06%	23.44%	14.00%	24.00%	0.00%
31	16.00%	4.00%	16.00%	24.00%	16.00%	24.00%	0.00%
32	16.00%	4.00%	16.00%	24.00%	16.00%	24.00%	0.00%
33	16.00%	4.00%	16.00%	24.00%	14.00%	22.00%	0.00%
34	16.00%	4.00%	16.00%	24.00%	14.00%	22.00%	0.00%
Over 34	16.00%	4.00%	16.00%	24.00%	14.00%	22.00%	0.00%

Table 47

Proposed Assumptions
Overtime Before Service Retirement

Service	FIRE	General	Transit	Sanitation	Corrections	TBTA	BERS
0	14.00%	5.00%	6.00%	14.00%	6.00%	10.00%	8.00%
1	14.00%	5.00%	6.00%	14.00%	6.30%	10.00%	8.00%
2	14.00%	5.00%	6.00%	14.00%	6.60%	10.00%	8.00%
3	14.00%	5.00%	6.00%	14.00%	6.90%	10.00%	8.00%
4	14.00%	5.00%	6.00%	14.00%	7.20%	10.00%	8.00%
5	14.00%	5.00%	6.00%	16.00%	7.50%	10.00%	8.00%
6	14.00%	5.00%	6.00%	16.00%	7.80%	10.00%	8.00%
7	14.00%	5.00%	6.00%	16.00%	8.10%	10.00%	8.00%
8	14.00%	5.00%	6.00%	16.00%	8.40%	10.00%	8.00%
9	14.00%	5.00%	6.00%	16.00%	8.70%	10.00%	8.00%
10	14.00%	5.00%	6.00%	16.00%	9.00%	10.00%	8.00%
11	14.00%	5.00%	6.00%	16.00%	9.30%	10.00%	10.00%
12	14.00%	5.00%	6.00%	18.00%	9.60%	10.00%	10.00%
13	14.00%	5.00%	6.00%	18.00%	9.90%	20.00%	10.00%
14	14.00%	5.00%	6.00%	18.00%	10.20%	20.00%	10.00%
15	14.00%	5.00%	6.00%	18.00%	10.50%	20.00%	10.00%
16	14.00%	5.00%	6.00%	20.00%	10.80%	28.00%	10.00%
17	20.00%	5.00%	6.00%	20.00%	11.10%	28.00%	10.00%
18	20.00%	5.00%	12.00%	20.00%	11.40%	28.00%	10.00%
19	20.00%	5.00%	12.00%	20.00%	11.70%	28.00%	10.00%
20	20.00%	4.85%	12.00%	22.00%	12.00%	28.00%	10.00%
21	20.00%	4.70%	14.00%	22.00%	12.00%	28.00%	12.00%
22	20.00%	4.55%	14.00%	22.00%	12.00%	28.00%	12.00%
23	20.00%	4.40%	16.00%	22.00%	12.00%	28.00%	12.00%
24	20.00%	4.25%	14.00%	22.00%	12.00%	28.00%	12.00%
25	20.00%	4.10%	14.00%	22.00%	12.00%	28.00%	12.00%
26	15.00%	3.95%	14.00%	18.00%	12.00%	28.00%	12.00%
27	15.00%	3.80%	14.00%	18.00%	12.00%	28.00%	12.00%
28	15.00%	3.65%	14.00%	18.00%	12.00%	28.00%	12.00%
29	15.00%	3.50%	14.00%	18.00%	12.00%	20.00%	12.00%
30	15.00%	3.35%	14.00%	18.00%	12.00%	20.00%	12.00%
31	15.00%	3.20%	10.00%	16.00%	12.00%	20.00%	12.00%
32	15.00%	3.05%	9.00%	16.00%	12.00%	20.00%	12.00%
33	15.00%	2.90%	8.00%	16.00%	12.00%	10.00%	12.00%
34	10.00%	2.75%	8.00%	16.00%	12.00%	10.00%	12.00%
Over 34	10.00%	2.60%*	8.00%	16.00%	12.00%	10.00%	12.00%

* Rate decreases by .15% per year of service to an ultimate rate of 1.25%.

Table 48

Current Assumptions
Overtime Before Disabled Retirement

Service	POLICE, FIRE	General	Transit	Sanitation	Corrections	TBTA	TRS, BERS
0	6.00%	4.00%	6.00%	8.00%	4.80%	0.00%	0.00%
1	6.00%	4.00%	6.00%	8.40%	5.04%	0.80%	0.00%
2	6.00%	4.00%	6.00%	8.80%	5.28%	1.60%	0.00%
3	6.00%	4.00%	6.00%	9.20%	5.52%	2.40%	0.00%
4	6.00%	4.00%	6.00%	9.60%	5.76%	3.20%	0.00%
5	6.00%	4.00%	6.00%	10.00%	6.00%	4.00%	0.00%
6	6.00%	4.00%	6.00%	10.40%	6.24%	4.80%	0.00%
7	6.00%	4.00%	6.00%	10.80%	6.48%	5.60%	0.00%
8	6.00%	4.00%	6.00%	11.20%	6.72%	6.40%	0.00%
9	6.00%	4.00%	6.00%	11.60%	6.96%	7.20%	0.00%
10	6.00%	4.00%	6.00%	12.00%	7.20%	8.00%	0.00%
11	6.00%	4.00%	6.00%	12.40%	7.44%	8.80%	0.00%
12	6.00%	4.00%	6.00%	12.80%	7.68%	9.60%	0.00%
13	6.00%	4.00%	6.00%	13.20%	7.92%	10.40%	0.00%
14	6.00%	4.00%	6.00%	13.60%	8.16%	11.20%	0.00%
15	6.00%	4.00%	6.00%	14.00%	8.40%	12.00%	0.00%
16	6.00%	4.00%	6.00%	14.40%	8.64%	12.80%	0.00%
17	6.00%	4.00%	6.00%	14.80%	8.88%	13.60%	0.00%
18	6.00%	4.00%	6.00%	15.20%	9.12%	14.40%	0.00%
19	6.00%	4.00%	6.00%	15.60%	9.36%	15.20%	0.00%
20	6.00%	4.00%	6.00%	16.00%	9.60%	16.00%	0.00%
21	6.00%	4.00%	6.00%	16.00%	9.60%	16.00%	0.00%
22	6.00%	4.00%	6.00%	16.00%	9.60%	16.00%	0.00%
23	6.00%	4.00%	6.00%	16.00%	9.60%	16.00%	0.00%
24	6.00%	4.00%	6.00%	16.00%	9.60%	16.00%	0.00%
25	6.00%	4.00%	6.00%	16.00%	9.60%	16.00%	0.00%
26	6.00%	4.00%	6.00%	16.00%	9.60%	16.00%	0.00%
27	6.00%	4.00%	6.00%	16.00%	9.60%	16.00%	0.00%
28	6.00%	4.00%	6.00%	16.00%	9.60%	16.00%	0.00%
29	6.00%	4.00%	6.00%	16.00%	9.60%	16.00%	0.00%
30	6.00%	4.00%	6.00%	16.00%	9.60%	16.00%	0.00%
31	6.00%	4.00%	6.00%	16.00%	9.60%	16.00%	0.00%
32	6.00%	4.00%	6.00%	16.00%	9.60%	16.00%	0.00%
33	6.00%	4.00%	6.00%	16.00%	9.60%	16.00%	0.00%
34	6.00%	4.00%	6.00%	16.00%	9.60%	16.00%	0.00%
Over 34	6.00%	4.00%	6.00%			16.00%	0.00%

Table 49

Proposed Assumptions
Overtime Before Disabled Retirement

Service	POLICE	FIRE	General	Transit	Sanitation	Corrections	BERS
0	2.00%	10.00%	5.00%	4.00%	4.00%	2.00%	4.00%
1	2.00%	10.00%	5.00%	4.00%	4.20%	2.30%	4.00%
2	2.00%	10.00%	5.00%	4.00%	4.40%	2.60%	4.00%
3	2.00%	10.00%	5.00%	4.00%	4.60%	2.90%	4.00%
4	2.00%	10.00%	5.00%	4.00%	4.80%	3.20%	4.00%
5	2.00%	10.00%	5.00%	4.00%	5.00%	3.50%	4.00%
6	4.00%	10.00%	5.00%	4.00%	5.20%	3.80%	4.00%
7	4.00%	10.00%	5.00%	4.00%	5.40%	4.10%	4.00%
8	4.00%	10.00%	5.00%	4.00%	5.60%	4.40%	4.00%
9	4.00%	10.00%	5.00%	4.00%	5.80%	4.70%	4.00%
10	4.00%	10.00%	5.00%	4.00%	6.00%	5.00%	4.00%
11	4.00%	10.00%	5.00%	4.00%	6.20%	5.30%	6.00%
12	4.00%	10.00%	5.00%	4.00%	6.40%	5.60%	6.00%
13	4.00%	10.00%	5.00%	4.00%	6.60%	5.90%	6.00%
14	4.00%	10.00%	5.00%	4.00%	6.80%	6.20%	6.00%
15	6.00%	10.00%	5.00%	4.00%	7.00%	6.50%	6.00%
16	6.00%	10.00%	5.00%	4.00%	7.20%	6.80%	6.00%
17	10.00%	16.00%	5.00%	4.00%	7.40%	7.10%	6.00%
18	10.00%	16.00%	5.00%	4.00%	7.60%	7.40%	6.00%
19	10.00%	16.00%	5.00%	4.00%	7.80%	7.70%	6.00%
20	10.00%	16.00%	4.85%	4.00%	8.00%	8.00%	6.00%
21	10.00%	16.00%	4.70%	4.00%	8.00%	8.00%	8.00%
22	6.00%	16.00%	4.55%	4.00%	8.00%	8.00%	8.00%
23	6.00%	16.00%	4.40%	4.00%	8.00%	8.00%	8.00%
24	6.00%	16.00%	4.25%	4.00%	8.00%	8.00%	8.00%
25	6.00%	16.00%	4.10%	4.00%	8.00%	8.00%	8.00%
26	6.00%	11.00%	3.95%	4.00%	8.00%	8.00%	8.00%
27	6.00%	11.00%	3.80%	4.00%	8.00%	8.00%	8.00%
28	6.00%	11.00%	3.65%	4.00%	8.00%	8.00%	8.00%
29	5.00%	11.00%	3.50%	4.00%	8.00%	8.00%	8.00%
30	5.00%	11.00%	3.35%	4.00%	8.00%		8.00%
31	5.00%	11.00%	3.20%	4.00%	8.00%		8.00%
32	5.00%	11.00%	3.05%	4.00%	8.00%		8.00%
33	5.00%	11.00%	2.90%	4.00%	8.00%		8.00%
34	5.00%	6.00%	2.75%	4.00%	8.00%		8.00%
Over 34	5.00%	6.00%	2.60%*	4.00%			8.00%

* Rate decreases by .15% per year service thereafter to an ultimate rate of 1.25%

Table 50

Retiree Life Expectancies Under Current and Proposed Assumptions

	Age of Retiree							
	45		55		65		75	
	Male	Female	Male	Female	Male	Female	Male	Female
Service Retirees								
Current Assumptions								
POLICE, HP-TP	35.5	37.6	26.5	28.4	18.7	20.0	12.1	12.8
FIRE	36.2	37.6	27.0	28.4	18.8	20.0	11.5	12.8
NYCERS (except HP-TP), BERS	31.7	37.6	23.5	28.4	16.3	20.0	10.3	12.8
Teachers	37.3	41.0	28.2	31.6	19.7	22.6	12.5	14.5
Proposed Valuation Tables								
POLICE, HP-TP	35.8	38.2	26.9	28.8	18.9	20.4	11.9	13.2
FIRE	36.5	38.2	28.0	28.8	19.6	20.0	12.2	12.8
NYCERS (except HP-TP), BERS	33.6	36.2	25.2	27.5	17.9	19.9	11.5	13.1
TRS	37.8	39.9	29.0	30.9	20.9	22.6	13.2	14.7
Disabled Retirees								
Current Assumptions								
POLICE, HP-TP	34.0	35.7	24.9	26.6	17.3	18.5	10.9	11.6
FIRE	34.3	35.7	25.3	26.6	17.2	18.5	10.3	11.6
NYCERS General, TBTA, Transit, BERS	21.9	22.4	17.4	19.4	13.1	15.4	9.0	10.8
NYCERS Sanitation, Corrections	27.8	29.1	21.3	23.6	15.4	17.8	10.1	12.0
TRS	27.9	28.8	22.6	26.1	17.0	19.8	11.4	12.9
Proposed Valuation Tables								
POLICE	34.7	36.2	25.9	27.1	18.2	18.9	11.6	11.9
FIRE	34.8	36.2	26.2	27.1	18.0	18.9	10.9	11.9
NYCERS General, Transit, TBTA	23.3	23.2	18.5	20.0	14.0	15.9	9.7	11.1
NYCERS Sanitation, Corrections	29.1	29.8	21.9	24.1	15.4	18.2	9.8	12.3
TRS	26.9	26.9	21.8	24.7	16.3	18.6	10.9	12.0

Appendix 2:

EXPERIENCE STUDY DATA HANDLING AND METHODOLOGY

I. DATA HANDLING

A. Source Data

The experience study relied on several sources of data to complete the study. The following list includes the sources of data and their primary composition:

- An aggregated data file from the prior auditor that covered valuation years 1988-2001. This was referred to as "preliminary" and did not include any modifications by the prior auditor except to track individuals through those years. In general, this file contained most of the information necessary to measure experience over the indicated years.
- An aggregated data file from the prior auditor that covered valuations years 1988-2001. The was referred to as "final" and included modifications to status and other fields according to the methods described by the prior auditor. Similar to the "preliminary" data files, this included most of the information necessary to measure experience for those years.
- Supplemental data provided by the prior auditor to include data missing from the previous two files. This data included indications of plan, tier, subgroup in NYCERS, and improved plan status.
- Cartridge valuations files from the Office of the OA for valuation years 1988-2001. These were the flat text files originally used by the OA for valuation purposes and by the prior auditor to compile their aggregate comprehensive data sets.
- Access™ valuation files from the OA for valuation years 2001-2005. These were database files provided in Microsoft™ Access™ format, but contained the same information as the text valuation files.
- Supplemental data from the OA covering several additional data requests and clarifications from Segal.

Although all data sources were used in the preparation of the experience results, the primary data sources were the "final" aggregate file from the prior auditor and the Access™ valuation files provided by the OA. Since there was an overlap between the two data sources for 2001, we combined the data from both of these sources, and where there were discrepancies, the OA data was used.

Each data file contained items such as identifiers, status (e.g., active, retired, inactive), gender, various dates (e.g., date of hire), credited service, salary and overtime. The process of preparing the data for the experience study included following each member during the entire period of the study, in order to ascertain if and when various decrements occurred to that member (i.e., when he retired, died, became disabled, or terminated employment), as well as the number of years that he or she was subject to that cause of decrement. For members that remained active during the entire study period, the history of salary increases and overtime earned was compiled for use in those portions of the study. Finally, retired members were followed over the study period to determine when they died, if applicable.

B. Data Manipulations

In general, all data used in this process has been modified in ways that facilitate expedient processing. The prior auditor data was reformatted to eliminate certain redundancies as well as import it into our database systems. The OA data was similarly normalized and cleaned. This included the following sort of manipulations:

- Normalizing certain fields to a single consistent format: These included identifying number fields (SSN, pension number, member number, DA number, etc.), dates, service fields, and some others.
- Translating field names and status codes to our format.
- Unifying the sex code formats.
- Clearing or correcting corrupt fields.

Supplemental data was handled in similar ways including normalized identifier fields and other modifications consistent with instructions from the OA on the use of the data.

C. Data Corrections

In the course of the experience study analysis, certain unexplainable results were investigated thoroughly by the OA and determined to be incorrectly represented in one or more source data files. The OA and the Systems produced data correction information that has been applied to our compiled data.

An example of such correction was a misinterpretation of a withdrawal code in the 2001 termination file for TRS by the prior auditor. The code was used to mean multiple things resulting in an ambiguity causing a material number of active deaths and active terminations to be interpreted as disability retirees and service retirees for a time, before ultimately dying in FY2001. This was due to an interaction between this code ambiguity and the application of the prior auditor's "Mass Edit" rules for their data.

D. Data Compilation

The data compilation process tracks individuals and beneficiaries from one year to the next and aggregates that information into a single data object that can then be analyzed for experience events such as those described in this report. This process generally attempts to match an individual record from one year of the valuation data to the next through use of the valuation tables and experience related tables (including withdrawal tables and salary experience tables).

Our method for matching these records between our data sources (which include individual valuation years' data from the OA as well as aggregate data from the prior auditor) is to match as many identifiers as present on the data while avoiding duplication and splitting of records.

We focused primarily on three identifiers that stay with an individual through their career: social security number (SSN), member number, and pension number. Additionally, we would use a supplemental withdrawal table where available and appropriate to associate a new pension number with the prior member number.

We achieved this in the following fashion:

(1) For each year of valuation data, we combined the active and pension files into a single unified format (this includes subchapter one retirees, non-finalized pensioners, and designated annuitant tables where appropriate by Retirement System as well as other experience related data tables).

(2) New pension numbers and other withdrawal fields are associated with member numbers for the previous valuation year through the withdrawal experience table.

(3) Data is aggregated by adding each new year to the prior sum of years.

A. In a seven step process, records are matched to the previous data for the current valuation year.

(i) SSN, member number, and pension number are first checked simultaneously for all records in the prior data and in the current data for duplication (that is, more than one record might have all three identifiers the same). Any duplicates are inspected to determine how they should be treated. Finally, all records matching all three identifiers have their current year's data added to the data object containing their prior data, and all such records are set aside.

(ii) In a similar fashion, the remaining records in the prior data as well as the current valuation year data are tested for duplication on SSN and member number simultaneously. They are then matched, aggregated, and set aside as in the previous step.

(iii) This is repeated for the combination of SSN and pension number.

(iv) This is repeated for the combination of member number and pension number.

(v) This is repeated for pension number alone.

(vi) This is repeated for member number alone.

(vii) Finally, this is repeated for SSN alone.

(viii) For some Retirement Systems, an additional step of linking the designated annuitant file from year to year was performed based on the designated annuitant number.

B. Any records remaining in the current year's valuation data unmatched to prior year's data are appended to the aggregate data if they are receiving salary as an active employee or are receiving pension benefits as a pensioner or beneficiary.

C. Finally, the combination of their status indicators is used to determine the record's status for the current valuation year.

(4) For some Retirement Systems, the OA includes a certain assumed rate of overtime pay in the salary fields in the data, and this was removed for those systems.

(5) Any supplemental data from the prior auditor or the OA was integrated consistent with the instructions and content.

(6) Final checks are run on the compiled data to ensure that all dates, identifiers, and other fields are correctly formatted and contain reasonable information.

II. METHODOLOGY

A. Data Editing via Mass Edits

It is desirable to include the greatest proportion of Retirement System members in the experience study as possible. This increases the validity of the study results. However, in certain cases, missing data made it necessary for us to either exclude the record from the study or compensate for the missing data by making an assumption. Some of these adjustments are as follows:

- If a record was missing a date of birth, then that member was excluded from any study that was age based.
- If a record was missing credited service, then that member was excluded from any study that was service based (except where a member was only active for one valuation year).
- If a record was missing gender, then a suitable gender was assumed based on the beneficiary's gender. If there was no beneficiary, then male was assumed.

In addition to these adjustments to the basic demographic information for individual members, we made certain additional edits to the data in cases where the history of the individual did not appear to be correct, or where the reason for a change in status did not emerge until a subsequent year. These primarily involved changing the status code for the member during one or more years of his or her history, based on the status codes appearing for other years. We call these "mass edits", because a substantial number of record statuses might be revised. Some of the more significant mass edits that were performed on the data are described as follows:

- In cases where an individual had a sequence of active status codes followed by a termination code and then immediately followed by another termination code, then the final termination code was assumed to be the originating reason for termination (e.g., member is listed as active on June 30, 1991-2000, coded as "refunded" in 2001 and then coded as a death or accidental disability in 2002, we assumed that the death or accidental disability actually occurred during fiscal 2001).
- For any contiguous sequence of in-pay statuses, the last such status is assumed to have been the only status over all such in-pay status years (e.g., someone coded as active through June 30, 1994, then as retired for 1995-1997, and then as an ordinary disability for 1998, is assumed to have retired as an ordinary disability in fiscal 1995, the first year of in-pay status).
- Any member coded as active during the first and last years of a period, and with those active years surrounding one or more years of active-inactive status, is assumed to have been active during the intervening years (i.e., the active-inactive years) as well.
- Any member coded as active for a period of years, then coded as active-inactive for some additional years, and finally coded as retired or terminated vested, is assumed to have attained the retired or terminated vested status at the inception of the active-inactive coding in that sequence.
- Where a sequence of statuses appears for a member that would have been continuous except for a single intervening status code that is different (including a missing year in the history), then we replace the single intervening status code by the status that appears in the rest of the sequence.
- Any sequence of active-inactive statuses that are succeeded by blank statuses or by termination codes are assumed to have actually terminated at inception of the active-inactive period.
  - As an exception to this rule, if the active inactive statuses are present to the termination of the study and the member has sufficient age and service so as to appear eligible for retirement at the inception of his active-inactive status, that member is considered to have retired upon that inception.
- Finally, any sequence of statuses that were not reasonably possible either before or after these edits would eliminate that record from all studies. The number of records in this category is deemed immaterial, however.
- In NYCERS, the subgroup classification code often changed from one group to another and potentially back again. Any such occurrences were edited to a reasonable pattern.

It should be noted that these mass edits have a material impact on the results of the experience study. In particular, withdrawals in the most recent study years are higher than in preceding years because most active-inactive status codes are assumed to have terminated. In later years, after these statuses have had a chance to "mature" and be overwritten by either a return to active employment or other termination codes, then the rates of withdrawal will decline.

B. General Methods

- The analysis of experience involves counting "exposure" to a decrement (i.e., the number of members who were exposed to that cause or decrement in any given year). The number of people for whom the decrement actually occurred during the period is divided by the exposure count to arrive at the actual rate of decrement observed in the study. In counting exposure, we followed these rules: Note that these general methods do not apply to retirement decrements, the method for which are described in the following section.

- Age was computed in completed months, and exposure to a decrement was apportioned to a given age based on the exact monthly age as of the beginning of the study year (i.e., if a person is 55.25 as of the beginning of the year and exposed to a particular decrement, then the decrement exposure for age 55 gets .75 of a year and the decrement exposure for age 56 gets .25 of a year).
- For ages in which the actual decrement occurs, the allocated exposure is always 1.0 (i.e., the exposure for a given age cannot be less than the actual decrement).
- Service is calculated as rounded service from the service field provided as of the beginning of the study year.
- If a member decrements due to a particular cause during the year, then the exposure for that cause is 1.0 and the exposure for other causes that the member was subject to is 0.5.

C. Specific Retirement Methods

Many retirements were found to have occurred before the member seemed to have become eligible to retire, based on the system's eligibility criteria. In researching these occurrences with the OA, several explanations and special cases were revealed including the purchase of service, legislative changes, and early retirement incentives. In light of these findings, we have used the following methods specific to the study of retirement from active service.

- The calculations of Age for purposes of determining eligibility to retire is Age Nearest Birthday as of the beginning of the fiscal year being studied. Similarly, service is rounded to the nearest whole year based on the service on file as of the beginning of the fiscal year
- Eligibility for unreduced retirement and reduced retirement are calculated based on a member's Retirement System, tier, improved plan code, physically taxing code, and identified plan.
- Due to the nature of actual retirement eligibilities (often at 20 or 25 years of membership service exactly), some members will appear to have retired without quite fulfilling the eligibility criteria of the next closest retirement date (either having retired slightly before apparent reduced or slightly before apparent unreduced). In these cases, the member is assumed to have retired at the first eligibility of that eligibility criteria.
- There is often a material jump in service when a member moves from the active listing to the pensioner listing, and this generally arises due to the purchase of service or the qualification of prior service in another Retirement System that was unavailable on the active file listing. For this reason, we have used service on the pensioner listing as the basis instead of the service on the active listing, for those cases where eligibility to retire otherwise appears not to have been met.
- Any active members retiring from active service who have not met any eligibility criteria calculated above are eliminated from the study.
  - For POLICE and FIRE, members who separated within three years of eligibility are assumed to have retired at first eligibility.

D. Baseline Overtime and Dual Overtime Methods

For each system, we studied baseline overtime and dual overtime for retirement and disability. The baseline overtime study studies the annual amount of overtime for those members who were active as of the beginning and end of that year. The OA has found in the past that incidences of member overtime increase in the period before retirement and decrease in the period before disability. We have studied this dual overtime for those retirements or disabilities in the period immediately prior to decrement.

- The baseline overtime studies the ratio of actual overtime and the average of actual salary at the beginning and end of the year.
- Dual overtime calculates the baseline overtime strictly in the year prior to retirement or disability decrement (e.g. a member who retired in Fiscal Year 2005 will have a dual overtime of overtime during Fiscal Year 2004 over the average actual salary during Fiscal Year 2004).
    - For incidences of dual overtime in the Teachers Retirement System, in the absence of overtime data we studied the increase in reported salary in the year prior to decrement in comparison with the previous years' salary (as shown in tables 14A-15C of the Teachers experience study report).

E. Exclusions and Miscellany

There were situations and occurrences that were special in nature or otherwise required specific handling. This listing includes those items:

- For the study of post-retirement mortality, the prior auditor's data showed abnormally high deaths for fiscal year 1990 across all Systems. This data appears to be unreliable and therefore, FY89 and FY90 have been excluded from the post-retirement mortality studies for all Retirement Systems.
- BERS and TRS currently do not have any assumption of overtime, and thus the expected overtime for these studies is always zero.