Teachers' Pension and Annuity Fund of New Jersey

Experience Study
July 1, 2006 – June 30, 2009

by

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December, 2010

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Executive Summary

This report presents the results of the statistical analysis of actual experience from July 1, 2006 through June 30, 2009 among active, inactive and retired employees and their spouses and beneficiaries covered by the Teachers' Pension and Annuity Fund of New Jersey (TPAF). This study is intended to comply with Title 18A, Subtitle 10, Chapter 66, Section 58. This statute requires that at least once in every 3-year period the actuary shall make an actuarial investigation into the mortality, service and compensation or salary experience of the members and beneficiaries of the retirement system.

Please note that in this particular study, we believe that due to the Great Recession of 2008, there are many instances where the recent experience may not be indicative of long-term anticipated future experience. Although there are some instances to the contrary, overall rates of withdrawal and retirement were lower than expected as many members remained in employment due to either fewer employment opportunities elsewhere or lack of certainty regarding a future in retirement. The recession also impacted salary increases. Thus in many instances, we recommend only minor adjustments to the current assumptions in situations where the current assumption may not be adequate or a trend has continued from the prior study that was not anticipated by the current assumptions.

There are effectively four sections to the report plus two appendices:

- Section I – Executive Summary and Introduction. This section provides a brief list of the key assumption changes proposed.
- Section II - Economic Assumptions. In this section, a review of the salary increase assumption is discussed and changes proposed where appropriate. The investment return assumption, CPI assumption and the rate of payroll growth for amortizing the unfunded actuarial accrued liability are not reviewed since these assumptions are prescribed by the State Treasurer.

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- Section III – Demographic Assumptions. This section presents a review of each assumption (rate of termination, retirement, mortality and disability) providing analysis on the experience observed as compared to the current assumption and proposes changes where appropriate.

- Section IV – Impact on Valuation Results displays the effect on the funded status and the statutory pension contribution as of June 30, 2010.

- Appendix I – Demographic Data Analysis summarizes the experience observed as compared to the current and proposed assumptions utilizing actual to expected ratios. Summaries of this information are provided throughout Section III and can be easily located using the Table Index.

- Appendix II – Proposed Assumptions displays all the assumptions proposed.

The following table provides a brief list of the key proposed assumptions.

Table 1 – Brief Summary of Proposed Assumptions	
Salary	For shorter service members, very slight increases in the salary increase assumption and for members with 30 or more years of service, a decrease in the salary increase assumption. This results in a very slight decrease in the average salary scale from the assumed 5.92% to 5.91%.
Termination	For members with 10 or more years of service, reflect an emerging trend that rates of withdrawal continue to decline for members as they approach early retirement. Also, decreases in the rates of withdrawal for female members under age 40 and less than 10 years of service.
Retirement	Slight increase in retirement rates for members at first eligibility and slight decrease in rates for members less than 25 years of service.
Disability	No change in the rates of disability, but value the greater of the early retirement benefit and the disability benefit for members with at least 25 years of service.
Pre-retirement Mortality	Decrease in the mortality rates for active members.
Postretirement Mortality	Decrease in the mortality rates, which increase assumed life expectancies for healthy and disabled members.

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The result of these proposed assumptions is an increase in the plan's actuarial accrued liability as of June 30, 2010 of 2.1%, decreasing the funded ratio on an actuarial value basis from 59.8% to 58.6% and a market value basis from 46.5% to 45.5%. The net impact on the full statutory pension contribution for the fiscal year ending June 30, 2012 is an increase of $97.2 million from $2,089.0 million to $2,186.2 million.

Please note that the assumptions developed in this report are intended to value pension benefits for all members participating in the Teachers' Pension and Annuity Fund. Use of these assumptions may not be appropriate for other purposes or any one subset of the membership.

Milliman's work is prepared solely for the internal business use of the State of New Jersey Division of Pension and Benefits. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exception:

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The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

In performing this analysis, we relied, without audit, on census data, plan provisions, asset statements and other information (both written and oral) provided by the State of New Jersey Division of Pensions and Benefits. We have not audited or verified the census data, asset statements or other information. To the extent any of these are inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete.

We performed a limited review of the data used directly in our analysis for reasonableness and consistency and have not found material defects in the data. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

Future actuarial measurements may differ significantly from the current measurements presented in this analysis due to actual plan experience deviating from the actuarial assumptions, and changes in plan provisions, actuarial assumptions, and applicable law. An assessment of the potential range and cost effect of such differences is beyond the scope of this analysis.

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We are members of the American Academy of Actuaries and meet its Qualification Standard to render this actuarial opinion.

Respectfully submitted,

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Member American Academy of Actuaries

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Introduction

This report presents the results of the statistical analysis of actual experience from July 1, 2006 through June 30, 2009 among active, inactive and retired employees and their spouses and beneficiaries covered by the Teachers' Pension and Annuity Fund of New Jersey (TPAF). This study is intended to comply with Title 18A, Subtitle 10, Chapter 66, Section 58 which requires that at least once in every 3-year period the actuary shall make an actuarial investigation into the mortality, service and compensation or salary experience of the members and beneficiaries of the retirement system.

If a retirement system is to operate on a sound actuarial basis, the funds on hand together with the value of expected future employee, district and state contributions must be adequate to cover the value of future expected benefit payments. The determination of the value of expected future contributions and the value of expected future benefit payments involves projections based on anticipated future rates of mortality, withdrawal, disability, and retirement as well as rates of investment income and salary growth. In these projections, it is assumed that a certain proportion of the members of TPAF will terminate, die, retire or become disabled each year. Moreover, benefits are determined for each of these occurrences based on assumptions regarding the rate at which salaries will increase in the future. The value of these benefits are then calculated based on an assumed life expectancy for retirees, surviving spouses and other beneficiaries and the assumed long-term yield on plan assets. At three-year intervals an analysis is made to evaluate the experience under TPAF in order to revise, where necessary, those assumptions that are no longer in line with recent experience and/or best estimates of anticipated future experience.

In many cases of statistical analysis, the greater the volume of data analyzed the more reliable the results. This is not necessarily true in evaluating the experience of the members of a retirement system if this involves extending the study over long periods of time. For example, consider mortality experience among retirees. Twenty years ago the

mortality rates at each age were considerably higher than the corresponding rates of mortality in more recent years. Thus, to include the experience of twenty years ago in a study of mortality rates would produce rates higher than are currently being experienced and can be expected to be experienced in the future. The use of mortality rates from even 10 or more years ago could understate life expectancy and hence contributions.

The experience from July 1, 2006 through June 30, 2009 served as a basis for this study. In a system as large as TPAF, three years of experience is generally adequate for statistical purposes. We also reviewed prior experience studies in order to identify long term trends in the experience. This search from a longer-term historical perspective is the final step of the process before developing assumptions that can serve as best estimates of future experience. Our objective is to avoid frequent changes in assumptions due to random fluctuations in experience while reflecting any emerging long-term trends. One method used to accomplish this is to recommend revised assumptions, which fall between the prior assumptions and the actual experience during the current study period. This avoids frequent, sharp fluctuations in assumptions and costs while recognizing any emerging trends in the underlying plan experience.

However in this particular study, we believe due to the Great Recession of 2008 there are many instances where the recent experience may not be indicative of long-term anticipated future experience. Although there are some instances to the contrary, overall rates of withdrawal and retirement were lower than expected as many members remained in employment due to either fewer employment opportunities elsewhere or lack of certainty regarding a future in retirement. The recession also impacted salary increases. Thus in many instances, we recommend only minor adjustments to the current assumptions in situations where the current assumption may not be adequate or a trend has continued from the prior study that was not anticipated by the current assumptions.

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As an aid in reviewing the detailed results of the evaluation as set forth in the following sections of this report, the following paragraphs review, in general terms, the effect of the various items of actuarial assumptions on the actuarial valuation. As noted above, an actuarial valuation involves a projection of the salaries and service of present members of the system and a determination of the value of the expected benefits payable to them.

Thus, if many members die or terminate before becoming eligible for benefits, required contributions to the fund will be smaller than if members experience lower mortality or turnover. Similarly, a high investment yield will mean greater expected investment income so that there is a corresponding reduction in required contributions today.

The overall reasonableness and consistency of the various actuarial assumptions is therefore a consideration. However, if as time passes each element in the actuarial assumptions moves further from actual experience, it is difficult to tell whether the assumptions are reasonable on an overall basis. Thus, it may be stated that one objective of the current analysis is to bring each element of the actuarial assumptions more in line with recent experience, especially those areas regarding demographic trends - withdrawal, disability, retirement and death.

We have not addressed the interest rate assumption of 8.25%, the CPI assumption of 3% for valuing pension adjustment benefits or the payroll growth assumption of 4.0% used as the growth rate in the amortization payments toward the unfunded actuarial accrued liability since each of these items is prescribed by the State Treasurer.

Economic Assumptions – Salary Increase Assumption

Current Assumption

Salary growth rates were reviewed to determine if any age or service based trends emerged during the study period, and to determine if adjustments would be appropriate in the overall salary growth assumption. The current assumption varies based on a member's years of service. For members in their early years of employment, a higher merit scale is generally assumed versus members with longer service.

Analysis

For the 3-year study period, the current assumption assumed the average salary increase was 5.92%. For each of the three years studied, the actual average increases were 5.67%, 5.68% and 4.57% for plan years ending June 30, 2007, 2008 and 2009. The increases for 2009 were much less than anticipated due to the Great Recession of 2008. Due to this large discrepancy, we eliminated this year from the analysis. For 2007 and 2008, the primary reason salary increases were less than anticipated was due to lower increases for long-service members slightly offset by larger increases for shorter service members.

Proposed Assumption

As a result, we recommend slightly lower salary increase assumptions for long-service members and very slight increases for short-service members. We tabulated the average rate of salary increase among members in each of the three years and have summarized the results below. This tabulation grouped members together based on their years of service.

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Table 2 - Summary of Salary Increase Experience and
Recommended and Current Total Salary Increase Assumptions (wage inflation + merit scale)

Completed Years of Service	Average Salary Increase During Fiscal Year ending			Average 2007-08 Increase	Recommended Assumption	Prior Assumption
	2007	2008	2009			
less than 1	6.90%	7.49%	6.40%	7.20%	7.35%	7.35%
1	6.69%	6.89%	5.50%	6.79%	7.35%	7.35%
2	6.40%	6.38%	5.05%	6.39%	7.35%	7.35%
3	6.57%	6.60%	5.06%	6.58%	7.35%	7.35%
4	6.78%	6.68%	5.01%	6.73%	7.35%	7.35%
5	7.04%	6.91%	5.49%	6.98%	7.35%	7.35%
6	7.25%	6.87%	5.44%	7.06%	7.35%	7.35%
7	7.32%	7.05%	5.52%	7.19%	7.35%	7.35%
8	7.72%	7.39%	5.74%	7.56%	7.35%	7.35%
9	7.67%	7.39%	6.17%	7.53%	7.35%	7.35%
10	8.31%	7.66%	6.33%	7.99%	7.35%	7.35%
11	8.20%	7.32%	6.28%	7.76%	7.35%	7.35%
12	7.71%	7.63%	6.28%	7.67%	7.35%	7.35%
13	7.56%	7.11%	6.16%	7.34%	7.20%	7.00%
14	7.01%	6.59%	5.56%	6.80%	6.85%	6.70%
15	6.36%	6.72%	4.80%	6.54%	6.55%	6.40%
16	5.76%	5.92%	4.36%	5.84%	5.90%	5.80%
17	5.29%	5.13%	3.88%	5.21%	5.30%	5.25%
18	4.99%	4.94%	3.84%	4.97%	5.10%	5.05%
19	4.63%	4.85%	3.84%	4.74%	4.75%	4.80%
20	4.23%	4.40%	3.61%	4.31%	4.75%	4.80%
21	3.98%	4.02%	3.07%	4.00%	4.30%	4.45%
22	3.99%	3.93%	3.27%	3.96%	4.25%	4.35%
23	3.80%	4.06%	3.11%	3.93%	4.10%	4.10%
24	3.89%	4.14%	2.98%	4.01%	4.10%	4.10%
25	3.56%	3.78%	3.15%	3.67%	4.10%	4.10%
26	3.77%	3.69%	2.87%	3.73%	3.75%	3.75%
27	3.29%	3.78%	2.78%	3.54%	3.75%	3.75%
28	3.44%	3.63%	2.69%	3.54%	3.75%	3.75%
29	3.24%	3.38%	3.00%	3.31%	3.75%	3.75%
30	3.21%	3.70%	2.77%	3.46%	3.75%	3.75%
31	3.22%	3.30%	2.47%	3.26%	3.40%	3.50%
32	3.27%	3.20%	2.71%	3.23%	3.40%	3.50%
33	3.08%	3.35%	2.58%	3.22%	3.40%	3.50%
34	3.03%	3.57%	2.56%	3.30%	3.40%	3.50%
35	3.04%	3.39%	2.48%	3.22%	3.40%	3.50%
36	3.41%	3.36%	2.47%	3.38%	3.40%	3.50%
37	3.53%	2.48%	2.71%	3.00%	3.40%	3.50%
38	3.35%	2.23%	2.40%	2.79%	3.40%	3.50%
39	3.19%	3.39%	2.84%	3.29%	3.40%	3.50%
40	3.00%	2.55%	2.87%	2.77%	3.40%	3.50%
Average	5.67%	5.68%	4.57%	5.68%	5.91%	5.92%

Effect on Plan's Liability

Overall, the proposed assumptions decrease the average rate of salary growth very slightly from 5.92% to 5.91%, but the decrease is primarily for long service members. Since long service members have higher relative liabilities than short service members, we would anticipate that the net effect of these proposed assumptions would result in a slight decrease in the plan's liability.

Demographic Assumptions

We determined the proposed demographic assumptions in accordance with the Actuarial Standards of Practice No. 35 (ASOP 35) revised by the Actuarial Standards Board in September of 2010. This standard provides guidance to actuaries in selecting demographic assumptions – primarily retirement, mortality, termination of employment and disability – for measuring obligations under defined benefit pension plans. A reasonable assumption is one that is expected to approximately model the contingency being measured and is not anticipated to produce significant gains or losses.

The general procedure in a study of demographic experience is to calculate rates of decrement and compare these rates to current assumptions. Initially, we determine the number of participants who were exposed to the risk of mortality, withdrawal, disability, etc. The next step is to determine how many actually died, withdrew, became disabled, etc. Dividing the number of terminations in each age and service cell by the number exposed to the risk of termination in that cell produces the rate of decrement. These crude rates of decrement may fluctuate from cell to cell. If there is a tendency for rates to increase (or decrease) by age or service we smooth or "graduate" them in order to provide rates of decrement with a more uniform progression. For all of the decrements we reviewed, we first compared the results to the current rates to determine if a change in assumptions was necessary. If a change in the current assumption did not fit recent experience we developed proposed rates which were either based directly on the graduated rates or on an average between the current rates and the graduated rates. We believe that a long-term approach which averages recent experience and prior assumptions avoids over-reacting to short-term, random fluctuations while assuring that the assumptions will be gradually modified to the extent that the long-term underlying trend has changed. Again, due to the Great Recession of 2008, we believe the recent experience is not indicative of the long-term experience of TPAF membership. Therefore, in many cases, no adjustment was made based on recent experience.

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The rates of decrement are applied to the number of exposures in order to obtain the expected number who will terminate from the particular cause under study. The actual number of terminations is compared to the expected number of terminations under the current actuarial assumptions and, if a change is proposed, under the new assumptions in order to obtain the ratio of actual to expected (A/E ratio). This A/E ratio provides an overall comparison between the actual decrements (due to death, withdrawal, disability, etc.) with the expected number of decrements based on the actuarial assumptions from the cause of decrement in question. An A/E ratio greater than 1.0 indicates that there were more actual decrements than expected during the study period and an A/E ratio of less than 1.0 indicates that there were fewer actual decrements than expected during the study period.

In the following pages, each decrement is reviewed for its appropriateness. Our analysis will include information about the current assumption, an analysis of experience observed in the current study period and a discussion on proposed changes to the assumptions.

Non-Contributory Members

The Division of Pensions and Benefits provides data for each annual valuation that identify non-contributory members. Many of these members are, in reality, members who have terminated employment or have applied for retirement or disability, etc., but whose paperwork was not completed in time to be included with the valuation data. Others are members who have ceased active service, but choose to let their contributions remain in the system so they could return to service at a later date or apply for a pension when they become eligible.

We reviewed the experience among the non-contributory members since the last study period to estimate the extent which these members are likely to (1) return to active service, (2) elect a refund of their contributions, or (3) wait until they become eligible to collect a pension and apply for retirement at that time. All data was reviewed to determine the status reported for these non-contributing members in subsequent years. That analysis indicated that approximately 30% of the current non-contributory members would return to active status. For those assumed to return to active status, a projected benefit will be valued.

Among the 70% of non-contributing members who are not expected to return to active status, a percentage of these members were assumed to have become disabled (1.5%), have died (0.75%) or have terminated employment (97.75%). Each of these assumptions is consistent with those used in the prior study. Among those who terminated employment, if the member was eligible for a retirement benefit, they were assumed to have retired. If the member was eligible for a deferred vested benefit, it was assumed that the member would elect the deferred vested benefit. All other members were assumed to elect a refund of their contributions.

Rate of Termination

Current Assumption

The current termination assumption consists of three components:

- Higher rates of turnover prior to attainment of 10 years of service that vary by service, gender and for females, age

- An assumption for those with 10 or more years of service electing a benefit that varies by age and gender

- An assumption for those with 10 or more years of service electing a contribution refund that varies by age and gender

Once an employee becomes eligible for reduced or unreduced retirement, the assumption is that the member will no longer leave under the withdrawal decrement. He or she will only retire as a healthy retiree, disabled retiree or die during active service.

Analysis

Similar patterns of terminations were observed in this analysis as in previous studies, although the number of terminations for female members was much lower than expected. Specifically, the rates of withdrawal among shorter service members vary significantly with service whereas withdrawal rates among longer service members vary by age. We also noticed that withdrawal rates among longer service members vary by service in addition to age.

There was also the continuing trend of members with 10 or more years of service to continue to leave their contributions in the system and elect a deferred vested benefit. In fact, only approximately 9% of the female members and 25% of the male members who were eligible for a deferred benefit elected a refund during the current study period, which

was very similar to the current assumptions of 8% of female and 23% of male members. Overall, for female members actual terminations were lower than those anticipated by the current assumptions by approximately 15%. This difference was primarily due to (1) members under the age of 40 with at least 3 years of service and fewer than 10 years or service, and (2) members with at least 15 years of service.

For male members, actual terminations were slightly higher by approximately 2%. This was primarily due to members with no more than 5 years of service. Also, there was a trend for members with at least 15 years of service having lower rates of withdrawal than expected.

Proposed Assumption

Due to the recession of 2008, we propose adjustments where we believe the current assumption may not have been adequate or there is an emerging trend not reflected in the current assumptions. We propose the following modifications to the current assumptions:

- For female members with at least three and less than 10 years of service, decrease current rates by 10% for those under age 40.
- For members with 10 or more years of service, reflect an emerging trend that rates of withdrawal continue to decline for members as years of service increase. The following chart indicates the proposed adjustments to the current assumptions.

Proposed Adjustment Factor to Withdrawal Rates		
Years of Service	Males	Females
10-14	1.25	1.10
15-19	0.90	0.90
20-24	0.60	0.60

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The following table summarizes the actual to expected ratios (A/E ratios) for males and females by service based on the current and proposed assumptions. Refer to Appendix A for a more detailed analysis of these ratios.

Table 3 – A/E Ratios for Rates of Termination				
Completed Years of Employment	Male		Female	
	Current	Proposed	Current	Proposed
0	1.03	1.03	1.36	1.36
1	1.09	1.09	0.95	0.95
2	1.16	1.16	1.09	1.09
3	1.10	1.10	0.86	0.94
4	0.99	0.99	0.82	0.89
5	1.08	1.08	0.82	0.90
6	0.89	0.89	0.77	0.84
7	0.68	0.68	0.71	0.78
8	0.94	0.94	0.65	0.71
9	0.68	0.68	0.80	0.87
Total 0 – 9	1.03	1.03	0.88	0.93
10-14	1.25	1.00	1.03	0.94
15-19	0.83	0.92	0.70	0.78
20-24	0.44	0.73	0.34	0.57
10+ electing a refund	1.06	0.98	0.90	0.93
10+ electing a benefit	0.94	0.94	0.79	0.84

Note: The methodology for accounting for non-contributory members has the effect of overstating members who will elect a benefit versus a contribution refund for those with 10 or more years of service.

Effect on Plan's Liability

Overall, the proposed assumptions decrease the expected number of terminations, which increase the plan's liability since more members would be expected to be eligible for service retirement. In addition, the decrease in the rate of withdrawal for members as they approach early retirement eligibility would result in a further increase in the plan's liability.

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Rate of Retirement

Current Assumption

The current retirement assumption consists of four components:

- A higher rate of retirement at first eligibility for an unreduced pension benefit and postretirement medical benefits (attainment of age 55 and 25 years of service) that varies by age and gender

- Rates of retirement that vary by age and gender subsequent to attainment of first eligibility

- Rates of retirement that vary by age and gender for an unreduced pension benefit and prior to eligibility for postretirement medical benefits (attainment of age 60 and less than 25 years of service)

- Separate rates of retirement that vary by age and gender for members eligible for a reduced pension benefit and postretirement medical benefits (attainment of 25 years of service prior to age 55)

Analysis

As with the number withdrawals experienced during the study period, the number of overall retirements was less than expected, especially for members eligible a reduced pension and members with less than 25 years of service. On the contrary, first eligibility rates were higher than expected.

Proposed Assumption

Due to the recession of 2008, we propose adjustments only where we believe the current assumption may not have been adequate or there is an emerging trend not reflected in the

current assumptions. We propose the following modifications to the current assumptions:

- For members at first eligibility, increase retirement rates at select ages slightly for male and female members.
- For members eligible to retire with less than 25 years, decrease retirement rates at select ages for male and female members.
- Combine early retirement rates for male and female members.

The following table summarizes the actual to expected ratios (A/E ratios) for males and females by retirement category for all ages combined based on the current and proposed assumptions. Refer to Appendix A for a more detailed analysis of these ratios.

Table 4 – A/E Ratios for Rates of Retirement					
Retirement Category	Eligibility	Male		Female	
		Current	Proposed	Current	Proposed
Reduced	>25 years, less than age 55	1.06	0.99	0.80	0.85
First Eligibility	First attain age 55 and 25 years	1.11	1.09	1.12	1.11
Ultimate	After attainment of age 55 and 25 years	0.93	0.93	0.96	0.96
Other	Attainment of age 60, but less than 25 years	0.76	0.79	0.64	0.69

New Tiers

Chapter 103, P.L. 2007, Chapter 89, P.L. 2008 and Chapter 1, P.L. 2010 amended the retirement provisions for TPAF members hired on or after July 1, 2007, after November 1, 2008 and after May 21, 2010, respectively. These laws increased the eligibility requirements to receive unreduced retirement benefits and modified the early retirement reduction factors. Since these new tiers impact only recently hired employees, there is no credible experience information on these members. The rates currently used for these

members were derived from the assumptions used for members hired prior to November 1, 2007. The adjustments proposed on retirement rates for members hired prior to November 1, 2007 will be applied to these new tiers as applicable.

Effect on Plan's Liability

The proposed assumptions slightly increase the expected number of retirements for members with 25 or more years of service and decrease the expected number of retirements for members with less than 25 years of service. We would expect minimal change in the plan's liability.

Rate of Mortality for Employees

Current Assumption

The current mortality assumption for active members varies by age and gender. No accidental deaths are assumed.

Analysis

There continues to be a significant reduction in the number of deaths of active members. There is sometimes a reporting delay such that members are coded as non-contributory members in one valuation and an ordinary death in a subsequent valuation. In reality, the member was a death from active status. The A/E ratios shown below accounts for the delay in reporting.

Proposed Assumption

We propose the following modifications to the current assumptions:
- A significant decrease in the expected number of ordinary deaths. For male and female members, we propose the Society of Actuaries RP-2000 Employee Male and Female Tables with White Collar adjustments setback 5 years for males and 10 years for females. The tables will be projected on a generational basis.
- Continuation of the assumption for no accidental deaths. There were no accidental deaths during the study period and only one during the last fifteen years.

The following table summarizes the actual to expected ratios (A/E ratios) for males and females for all ages combined based on the current and proposed assumptions. Refer to Appendix A for a more detailed analysis of these ratios.

Table 5 – A/E Ratios for Rates of Ordinary Death			
Male		Female	
Current	Proposed	Current	Proposed
0.85	0.94	0.86	1.11

Effect on Plan's Liability

The proposed assumptions decrease the expected number of deaths, which would increase the plan's liability as more members would be expected to collect a retirement benefit.

Rate of Disability

Current Assumption

The disability termination assumption consists of two components:

- Rates of ordinary disablement that vary by age and gender (attainment of 10 years of service is required)
- Rates of accidental disablement that vary by gender

The current ordinary disability assumption is not assumed to apply once the member is eligible for an unreduced retirement benefit and postretirement medical benefits (attainment of age 55 and 25 years of service for members hired prior to July 1, 2007).

Analysis

In total, actual ordinary disabilities were slightly higher than expected for male members and lower for female members. In reviewing the experience further, we noticed that very few members eligible for early retirement elected a disability retirement. These members are eligible for postretirement medical benefits so if the retirement benefit with a reduction is greater than the disability benefit, the member would elect early retirement. This is the primary reason that the experience for female members is less than expected.

Accidental disabilities were slightly lower than expected. Although there is very little experience, we notice a trend of lower accidental disabilities over the past 3 experience studies, especially for male members.

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Proposed Assumption

We propose the following modifications to the current assumptions:

- No change in the rate of ordinary disabilities. However, for members eligible for early retirement, value the greater of the early retirement benefit and the disability retirement benefit.
- Decrease the accidental disability rate for male members to .006% from .009%.

The following table summarizes the actual to expected ratios (A/E ratios) for males and females by disability category for all ages combined based on the current and proposed assumptions. Refer to Appendix A for a more detailed analysis of these ratios.

Disability Category	Male		Female	
	Current	Proposed	Current	Proposed
Ordinary	1.13	1.13	0.83	0.83
Accidental	0.55	0.83	0.53	0.53

Table 6 – A/E Ratio for Rates of Disability

Effect on Plan's Liability

By valuing the greater of the early retirement benefit and the disability benefit, the plan's liability would increase.

Rate of Postretirement Mortality

Current Assumption

The current mortality assumption for members collecting a benefit consists of three components:

- Mortality rates for retirees collecting a service retirement benefit and all beneficiaries that vary by age and gender (for males, the Society of Actuaries RP-2000 Annuitant Mortality Table with white collar adjustments served as the basis for the assumption and for females, the 1994 Uninsured Pensioner Mortality Table served as the basis for the assumption)

- Mortality rates for retirees collecting a disability retirement that vary by age and gender (RP-2000 Disabled Annuitant Mortality Table)

- A generational approach towards future mortality improvements for healthy retirees and beneficiaries (Scale AA)

Analysis

Actuarial Standards of Practice No. 35 states "The actuary should consider the effect of mortality improvement both prior to and subsequent to the measurement date" – section 3.5.3. Gradual and continued improvements in mortality, i.e., longer life expectancies, have been evident over the past centuries. The Society of Actuaries Retirement Plans Experience Committee (RPEC) stated in their report on the RP-2000 Mortality Table ". . . RPEC recommends that, in view of the long history of improvement in non-disabled mortality rates in all of these sets of data, pension valuations should take trends in long term mortality improvement into account. From a theoretical standpoint, the RPEC believes that the use of generational mortality improvement, as in the GAR-94 table, is an appropriate way of reflecting this improvement. In cases where it is not material or cost effective to incorporate generational mortality improvement into a calculation, the actuary should project mortality improvement on a comparable static basis."

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In light of this recommendation, we will continue a generational approach in reflecting mortality improvements. By using a generational approach, actuarial gains and losses are not expected to occur in the actuarial valuation. Therefore, we would expect the A/E ratios on the base table to be 1.0. However, there have been actuarial losses during the study period and the A/E ratios are 0.90 for males and 0.88 for females. We also reviewed the mortality experience weighted by the amount of the pension benefit rather than by number of retirees. In pension plans, if members with the larger benefits have lower mortality rates than those with smaller benefits, an actuarial loss would occur due to this bias. Weighting the rates of mortality by benefits would adjust the analysis for this bias. The A/E ratios weighted by benefits are 0.84 for males and 0.86 for females.

For disabled mortality, the A/E ratios are 0.63 for males and 0.90 for females based on data from the current study period.

Proposed Assumption

We propose the following modifications to the current assumptions:

- Continuation of a generational approach towards mortality improvements using Scale AA; the approach recommended by the Society of Actuaries RPEC
- For female members, adjustments to the base table to incorporate weighting by benefit and the experience during the current periods (90% of current rates)
- For males, propose 88% of the RP-2000 mortality table with white collar adjustments to reflect weighting by benefit and the experience during the current period
- For disability mortality rates, adjustments to the current table to reflect current and prior experience (80% for males and 95% for females).

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The following table highlights the A/E ratios based on the current and proposed assumptions by gender for selected age groups. Refer to Appendix A for a more detailed analysis of these ratios.

	Male		Female	
Weighting By	Current	Proposed	Current	Proposed
Healthy Retirees and Beneficiaries (Ages 65 and over)				
Counts	0.90	1.02	0.88	0.98
Benefits	0.84	0.96	0.86	0.96
Disabled Retirees				
Counts	0.63	0.79	0.90	0.95

Table 7 – A/E Ratio for Rates of Postretirement Mortality

Effect on Plan's Liability

Overall, the net effect of these proposed assumptions is an increase in the plan's liability since the proposed assumptions would increase the assumed life expectancy.

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Impact on Actuarial Valuation Results

		Proposed Assumptions		Current Assumptions		Difference	Percentage Difference
Funded Status Information							
Market Value of Pension Assets	$	25,763.6	$	25,763.6		0.0	0.0 %
Actuarial Value of Pension Assets	$	33,136.5	$	33,136.5		0.0	0.0 %
Actuarial Accrued Pension Liability	$	56,591.4	$	55,420.7		1,170.7	2.1 %
Unfunded Pension Liability							
Based on Market Value	$	30,827.8	$	29,657.1		1,170.7	3.9 %
Based on Actuarial Value	$	23,454.9	$	22,284.2		1,170.7	5.3 %
Funded Ratio							
Based on Market Value		45.5 %		46.5 %		N/A	(1.0) %
Based on Actuarial Value		58.6 %		59.8 %		N/A	(1.2) %
Statutory Contribution Information							
Gross Normal Cost (1/60th formula)	$	1,103.5	$	1,084.5	$	19.0	1.8 %
Expected Member Contributions		(579.0)		(578.6)		(0.4)	0.1 %
Net Normal Cost	$	524.5		505.9		18.6	3.7 %
Phased-in COLA Normal Cost (62.94%)		119.6		114.6		5.0	4.4 %
Normal Contribution (1/60th formula)	$	644.1	$	620.5	$	23.6	3.8 %
Additional Formula Contribution		116.6		114.1		2.5	2.2 %
Accrued Liability Contribution		1,425.5		1,354.4		71.1	5.2 %
Total Pension Contribution by Statute	$	2,186.2	$	2,089.0	$	97.2	4.7 %

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Termination - Male
0 to 9 Years of Service

Exposures

					Years of Service					
Age	0	1	2	3	4	5	6	7	8	9
<=24	216	831	258	10	2	0	0	0	0	0
25-29	394	2,066	2,420	2,301	1,909	1,382	797	230	6	3
30-34	197	832	1,028	1,173	1,385	1,616	2,022	2,187	1,819	1,161
35-39	150	545	615	664	763	837	951	1,108	1,262	1,330
40-44	100	389	407	446	479	496	522	556	598	574
45-49	100	305	372	387	401	402	452	438	402	346
50-54	101	286	270	320	388	388	389	387	350	310
55-59	96	246	297	290	325	341	332	294	254	238
All Ages	1,354	5,500	5,667	5,591	5,652	5,462	5,465	5,200	4,691	3,962

Actual

					Years of Service					
Age	0	1	2	3	4	5	6	7	8	9
<=24	10	36	27	0	0	0	0	0	0	0
25-29	27	119	138	108	56	36	16	2	1	0
30-34	16	59	63	55	45	52	40	29	24	11
35-39	13	50	58	26	27	25	17	21	13	18
40-44	6	42	28	20	22	12	14	8	15	6
45-49	16	36	31	24	17	9	10	4	10	2
50-54	10	34	19	14	13	13	7	8	3	4
55-59	15	27	24	11	10	10	11	2	5	1
All Ages	114	402	388	256	190	158	115	75	70	41

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Experience Study for the Period
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Rates of Termination - Male
0 to 9 Years of Service

Expected - Current Assumptions

					Years of Service					
Age	0	1	2	3	4	5	6	7	8	9
<=24	17.7	55.8	15.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0
25-29	32.3	138.8	142.8	96.0	64.7	37.0	18.8	4.9	0.1	0.0
30-34	16.1	55.9	60.7	48.9	47.0	43.3	47.7	46.4	28.9	17.6
35-39	12.3	36.6	36.3	27.7	25.9	22.4	22.4	23.5	20.1	20.2
40-44	8.2	26.1	24.0	18.6	16.2	13.3	12.3	11.8	9.5	8.7
45-49	8.2	20.5	21.9	16.1	13.6	10.8	10.7	9.3	6.4	5.3
50-54	8.3	19.2	15.9	13.3	13.2	10.4	9.2	8.2	5.6	4.7
55-59	7.9	16.5	17.5	12.1	11.0	9.1	7.8	6.2	4.0	3.6
All Ages	110.9	369.6	334.4	233.1	191.6	146.4	129.0	110.2	74.6	60.2

Expected - Proposed Assumptions

					Years of Service					
Age	0	1	2	3	4	5	6	7	8	9
<=24	17.7	55.8	15.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0
25-29	32.3	138.8	142.8	96.0	64.7	37.0	18.8	4.9	0.1	0.0
30-34	16.1	55.9	60.7	48.9	47.0	43.3	47.7	46.4	28.9	17.6
35-39	12.3	36.6	36.3	27.7	25.9	22.4	22.4	23.5	20.1	20.2
40-44	8.2	26.1	24.0	18.6	16.2	13.3	12.3	11.8	9.5	8.7
45-49	8.2	20.5	21.9	16.1	13.6	10.8	10.7	9.3	6.4	5.3
50-54	8.3	19.2	15.9	13.3	13.2	10.4	9.2	8.2	5.6	4.7
55-59	7.9	16.5	17.5	12.1	11.0	9.1	7.8	6.2	4.0	3.6
All Ages	110.9	369.6	334.4	233.1	191.6	146.4	129.0	110.2	74.6	60.2

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Experience Study for the Period
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Rates of Termination - Male
0 to 9 Years of Service

Ratio of Actual to Expected - Current Assumptions

	Years of Service									
Age	0	1	2	3	4	5	6	7	8	9
<=24	0.577	0.647	1.763	n/a	n/a	n/a	n/a	n/a	n/a	n/a
25-29	0.847	0.860	0.965	1.121	0.867	0.978	0.856	0.410	7.172	n/a
30-34	1.008	1.049	1.033	1.115	0.962	1.212	0.834	0.624	0.813	0.611
35-39	1.071	1.358	1.606	0.931	1.028	1.112	0.753	0.903	0.658	0.870
40-44	0.784	1.599	1.164	1.050	1.355	0.934	1.124	0.688	1.555	0.658
45-49	1.973	1.741	1.410	1.500	1.216	0.874	0.947	0.436	1.581	0.390
50-54	1.177	1.753	1.203	1.041	0.996	1.235	0.768	1.026	0.482	0.860
55-59	1.881	1.630	1.364	0.892	0.946	1.071	1.370	0.321	1.342	0.189
All Ages	1.029	1.088	1.159	1.099	0.991	1.080	0.888	0.678	0.944	0.679

Ratio of Actual to Expected - Proposed Assumptions

	Years of Service									
Age	0	1	2	3	4	5	6	7	8	9
<=24	0.577	0.647	1.763	n/a	n/a	n/a	n/a	n/a	n/a	n/a
25-29	0.847	0.860	0.965	1.121	0.867	0.978	0.856	0.410	7.172	n/a
30-34	1.008	1.049	1.033	1.115	0.962	1.212	0.834	0.624	0.813	0.611
35-39	1.071	1.358	1.606	0.931	1.028	1.112	0.753	0.903	0.658	0.870
40-44	0.784	1.599	1.164	1.050	1.355	0.934	1.124	0.688	1.555	0.658
45-49	1.973	1.741	1.410	1.500	1.216	0.874	0.947	0.436	1.581	0.390
50-54	1.177	1.753	1.203	1.041	0.996	1.235	0.768	1.026	0.482	0.860
55-59	1.881	1.630	1.364	0.892	0.946	1.071	1.370	0.321	1.342	0.189
All Ages	1.029	1.088	1.159	1.099	0.991	1.080	0.888	0.678	0.944	0.679

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Experience Study for the Period
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Rates of Termination - Male - Return of Contributions
10 or more Years of Service

Exposures

| Age | Years of Service | | |
	10-14	15-19	20-24
<=24	0	0	0
25-29	3	0	0
30-34	979	0	0
35-39	5,141	602	3
40-44	2,901	2,603	495
45-49	1,678	1,635	2,342
50-54	1,476	1,342	1,913
55-59	1,218	1,274	1,373
All Ages	13,396	7,456	6,126

Actual

| Age | Years of Service | | |
	10-14	15-19	20-24
<=24	0	0	0
25-29	0	0	0
30-34	1	0	0
35-39	26	0	0
40-44	7	4	0
45-49	7	1	1
50-54	4	3	1
55-59	0	2	1
All Ages	45	10	3

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Experience Study for the Period
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Rates of Termination - Male - Return of Contributions
10 or more Years of Service

Expected - Current Assumptions

Age	Years of Service		
---	10-14	15-19	20-24
<=24	0.0	0.0	0.0
25-29	0.0	0.0	0.0
30-34	4.2	0.0	0.0
35-39	19.1	2.0	0.0
40-44	6.4	5.5	0.9
45-49	2.5	2.5	3.5
50-54	1.6	1.4	2.0
55-59	0.9	0.9	1.0
All Ages	34.7	12.4	7.5

Expected - Proposed Assumptions

Age	Years of Service		
---	10-14	15-19	20-24
<=24	0.0	0.0	0.0
25-29	0.0	0.0	0.0
30-34	5.2	0.0	0.0
35-39	23.9	1.8	0.0
40-44	8.0	5.0	0.6
45-49	3.2	2.2	2.1
50-54	2.0	1.3	1.2
55-59	1.1	0.8	0.6
All Ages	43.4	11.1	4.5

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Experience Study for the Period
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Rates of Termination - Male - Return of Contributions
10 or more Years of Service

Ratio of Actual to Expected - Current Assumptions

	Years of Service		
Age	10-14	15-19	20-24
<=24	n/a	n/a	n/a
25-29	n/a	n/a	n/a
30-34	0.240	n/a	n/a
35-39	1.359	n/a	n/a
40-44	1.091	0.721	n/a
45-49	2.746	0.404	0.286
50-54	2.546	2.107	0.490
55-59	n/a	2.172	1.006
All Ages	1.296	0.809	0.402

Ratio of Actual to Expected - Proposed Assumptions

	Years of Service		
Age	10-14	15-19	20-24
<=24	n/a	n/a	n/a
25-29	n/a	n/a	n/a
30-34	0.192	n/a	n/a
35-39	1.088	n/a	n/a
40-44	0.875	0.800	n/a
45-49	2.188	0.455	0.476
50-54	2.000	2.308	0.833
55-59	n/a	2.500	1.667
All Ages	1.037	0.901	0.667

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Rates of Termination - Male - With Benefit
10 or more Years of Service

Exposures

Age	Years of Service 10-14	15-19	20-24
<=24	0	0	0
25-29	3	0	0
30-34	979	0	0
35-39	5,141	602	3
40-44	2,901	2,603	495
45-49	1,678	1,635	2,342
50-54	1,476	1,342	1,913
55-59	1,218	1,274	1,373
All Ages	13,396	7,456	6,126

Actual

Age	Years of Service 10-14	15-19	20-24
<=24	0	0	0
25-29	0	0	0
30-34	6	0	0
35-39	36	1	0
40-44	18	10	2
45-49	18	7	6
50-54	12	11	6
55-59	22	13	5
All Ages	112	42	20

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Rates of Termination - Male - With Benefit
10 or more Years of Service

Expected - Current Assumptions

	Years of Service		
Age	10-14	15-19	20-24
<=24	0.0	0.0	0.0
25-29	0.0	0.0	0.0
30-34	6.5	0.0	0.0
35-39	34.9	3.9	0.0
40-44	14.8	13.0	2.3
45-49	8.1	7.9	11.3
50-54	10.4	9.5	13.4
55-59	15.9	16.6	17.8
All Ages	90.5	50.8	44.8

Expected - Proposed Assumptions

	Years of Service		
Age	10-14	15-19	20-24
<=24	0.0	0.0	0.0
25-29	0.0	0.0	0.0
30-34	8.1	0.0	0.0
35-39	43.6	3.5	0.0
40-44	18.4	11.7	1.4
45-49	10.1	7.1	6.8
50-54	13.0	8.6	8.0
55-59	19.9	14.9	10.7
All Ages	113.1	45.8	26.9

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Experience Study for the Period
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Rates of Termination - Male - With Benefit
10 or more Years of Service

Ratio of Actual to Expected - Current Assumptions

	Years of Service		
Age	10-14	15-19	20-24
<=24	n/a	n/a	n/a
25-29	n/a	n/a	n/a
30-34	0.946	n/a	n/a
35-39	1.037	0.351	n/a
40-44	1.206	0.763	0.882
45-49	2.293	0.912	0.546
50-54	1.118	1.113	0.483
55-59	1.378	0.797	0.305
All Ages	1.239	0.831	0.449

Ratio of Actual to Expected - Proposed Assumptions

	Years of Service		
Age	10-14	15-19	20-24
<=24	n/a	n/a	n/a
25-29	n/a	n/a	n/a
30-34	0.760	n/a	n/a
35-39	0.829	0.391	n/a
40-44	0.967	0.846	1.466
45-49	1.829	1.008	0.906
50-54	0.895	1.230	0.809
55-59	1.103	0.887	0.507
All Ages	0.992	0.922	0.747

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Rates of Termination - Female
0 to 9 Years of Service

Exposures

					Years of Service					
Age	0	1	2	3	4	5	6	7	8	9
<=24	788	3,909	1,603	29	4	1	1	0	1	1
25-29	1,316	6,668	8,238	8,638	7,262	5,556	3,309	1,018	43	18
30-34	606	2,567	2,891	3,091	3,727	4,598	5,644	6,225	5,100	3,277
35-39	545	1,810	1,804	1,798	1,890	2,130	2,545	2,700	2,843	2,927
40-44	486	1,620	1,622	1,630	1,589	1,659	1,719	1,653	1,566	1,287
45-49	386	1,408	1,558	1,572	1,764	1,911	2,035	1,993	1,761	1,511
50-54	294	883	996	1,113	1,318	1,624	1,940	1,967	1,866	1,814
55-59	145	425	478	555	630	792	948	1,073	1,100	1,017
All Ages	4,566	19,290	19,190	18,426	18,184	18,271	18,141	16,629	14,280	11,852

Actual

					Years of Service					
Age	0	1	2	3	4	5	6	7	8	9
<=24	53	159	120	2	0	0	0	0	0	0
25-29	108	438	493	403	330	239	130	35	3	1
30-34	76	226	237	220	217	263	302	278	213	123
35-39	68	125	124	84	82	76	71	80	73	91
40-44	53	118	83	73	37	49	33	40	26	18
45-49	41	96	87	67	52	26	41	25	16	15
50-54	42	71	85	49	37	44	35	26	21	17
55-59	31	53	47	30	16	29	22	18	13	17
All Ages	472	1,285	1,276	927	771	727	634	503	364	283

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Rates of Termination - Female
0 to 9 Years of Service

Expected - Current Assumptions

					Years of Service					
Age	0	1	2	3	4	5	6	7	8	9
<=24	60.0	273.6	97.6	1.9	0.3	0.1	0.1	0.0	0.1	0.0
25-29	100.1	466.8	501.7	565.8	456.1	342.2	203.8	60.6	2.5	0.8
30-34	46.1	179.7	176.1	202.5	234.1	283.2	347.7	370.4	301.4	148.1
35-39	41.5	126.7	109.9	117.8	118.7	131.2	156.8	160.7	168.0	132.3
40-44	37.0	113.4	98.8	61.9	41.2	36.3	30.9	27.8	22.4	16.5
45-49	29.4	98.6	94.9	59.7	45.7	41.9	36.6	33.5	25.2	19.3
50-54	22.4	61.8	60.7	42.3	34.1	35.6	34.9	33.0	26.7	23.2
55-59	11.0	29.8	29.1	21.1	16.3	17.3	17.1	18.0	15.7	13.0
All Ages	347.5	1,350.3	1,168.7	1,073.0	946.3	887.8	827.9	703.9	562.0	353.3

Expected - Proposed Assumptions

					Years of Service					
Age	0	1	2	3	4	5	6	7	8	9
<=24	60.0	273.6	97.6	1.7	0.2	0.1	0.1	0.0	0.1	0.0
25-29	100.1	466.8	501.7	509.2	410.4	308.0	183.5	54.5	2.3	0.7
30-34	46.1	179.7	176.1	182.2	210.7	254.9	312.9	333.3	271.3	133.3
35-39	41.5	126.7	109.9	106.0	106.8	118.1	141.1	144.6	151.2	119.1
40-44	37.0	113.4	98.8	61.9	41.2	36.3	30.9	27.8	22.4	16.5
45-49	29.4	98.6	94.9	59.7	45.7	41.9	36.6	33.5	25.2	19.3
50-54	22.4	61.8	60.7	42.3	34.1	35.6	34.9	33.0	26.7	23.2
55-59	11.0	29.8	29.1	21.1	16.3	17.3	17.1	18.0	15.7	13.0
All Ages	347.5	1,350.3	1,168.7	984.2	865.4	812.2	757.1	644.8	514.8	325.2

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Rates of Termination - Female
0 to 9 Years of Service

Ratio of Actual to Expected - Current Assumptions

					Years of Service					
Age	0	1	2	3	4	5	6	7	8	9
<=24	0.879	0.582	1.229	1.081	n/a	n/a	n/a	n/a	n/a	n/a
25-29	1.076	0.938	0.982	0.712	0.724	0.699	0.636	0.581	1.077	0.841
30-34	1.649	1.256	1.345	1.084	0.927	0.929	0.868	0.750	0.708	0.833
35-39	1.640	0.984	1.130	0.712	0.691	0.577	0.455	0.499	0.435	0.690
40-44	1.443	1.044	0.839	1.185	0.900	1.360	1.058	1.456	1.152	1.083
45-49	1.389	0.971	0.922	1.115	1.137	0.620	1.132	0.755	0.617	0.781
50-54	1.880	1.151	1.399	1.156	1.087	1.249	1.004	0.772	0.771	0.753
55-59	2.838	1.766	1.613	1.423	0.971	1.666	1.308	1.013	0.820	1.294
All Ages	1.359	0.952	1.092	0.864	0.815	0.819	0.766	0.714	0.648	0.800

Ratio of Actual to Expected - Proposed Assumptions

					Years of Service					
Age	0	1	2	3	4	5	6	7	8	9
<=24	0.879	0.582	1.229	1.201	n/a	n/a	n/a	n/a	n/a	n/a
25-29	1.076	0.938	0.982	0.791	0.805	0.777	0.706	0.646	1.197	0.934
30-34	1.649	1.256	1.345	1.205	1.030	1.032	0.965	0.834	0.787	0.925
35-39	1.640	0.984	1.130	0.792	0.768	0.641	0.505	0.554	0.484	0.767
40-44	1.443	1.044	0.839	1.185	0.900	1.360	1.058	1.456	1.152	1.083
45-49	1.389	0.971	0.922	1.115	1.137	0.620	1.132	0.755	0.617	0.781
50-54	1.880	1.151	1.399	1.156	1.087	1.249	1.004	0.772	0.771	0.753
55-59	2.838	1.766	1.613	1.423	0.971	1.666	1.308	1.013	0.820	1.294
All Ages	1.359	0.952	1.092	0.942	0.891	0.895	0.838	0.780	0.707	0.869

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Rates of Termination - Female - Return of Contributions
10 or more Years of Service

Exposures

Age	Years of Service 10-14	15-19	20-24
<=24	0	0	0
25-29	5	0	0
30-34	2,841	2	0
35-39	12,383	1,725	3
40-44	5,779	7,735	1,839
45-49	5,444	5,651	8,322
50-54	7,633	7,298	7,294
55-59	5,252	7,949	9,212
All Ages	39,337	30,360	26,670

Actual

Age	Years of Service 10-14	15-19	20-24
<=24	0	0	0
25-29	0	0	0
30-34	7	0	0
35-39	24	2	0
40-44	12	7	0
45-49	3	5	3
50-54	15	3	3
55-59	4	3	2
All Ages	65	20	8

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Rates of Termination - Female - Return of Contributions
10 or more Years of Service

Expected - Current Assumptions

	Years of Service		
Age	10-14	15-19	20-24
<=24	0.0	0.0	0.0
25-29	0.0	0.0	0.0
30-34	10.6	0.0	0.0
35-39	30.7	3.6	0.0
40-44	6.6	8.1	1.4
45-49	3.2	3.3	4.8
50-54	5.5	5.3	5.3
55-59	3.7	5.5	6.3
All Ages	60.2	25.8	17.7

Expected - Proposed Assumptions

	Years of Service		
Age	10-14	15-19	20-24
<=24	0.0	0.0	0.0
25-29	0.0	0.0	0.0
30-34	11.7	0.0	0.0
35-39	33.8	3.2	0.0
40-44	7.2	7.3	0.8
45-49	3.5	3.0	2.9
50-54	6.1	4.8	3.2
55-59	4.0	4.9	3.8
All Ages	66.3	23.2	10.7

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Rates of Termination - Female - Return of Contributions
10 or more Years of Service

Ratio of Actual to Expected - Current Assumptions

	Years of Service		
Age	10-14	15-19	20-24
<=24	n/a	n/a	n/a
25-29	n/a	n/a	n/a
30-34	0.661	n/a	n/a
35-39	0.782	0.563	n/a
40-44	1.831	0.860	n/a
45-49	0.947	1.524	0.623
50-54	2.718	0.563	0.568
55-59	1.090	0.546	0.320
All Ages	1.079	0.775	0.451

Ratio of Actual to Expected - Proposed Assumptions

	Years of Service		
Age	10-14	15-19	20-24
<=24	n/a	n/a	n/a
25-29	n/a	n/a	n/a
30-34	0.598	n/a	n/a
35-39	0.710	0.625	n/a
40-44	1.667	0.959	n/a
45-49	0.857	1.667	1.034
50-54	2.459	0.625	0.938
55-59	1.000	0.612	0.526
All Ages	0.980	0.862	0.748

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Rates of Termination - Female - With Benefit
10 or more Years of Service

Exposures

	Years of Service		
Age	10-14	15-19	20-24
<=24	0	0	0
25-29	5	0	0
30-34	2,841	2	0
35-39	12,383	1,725	3
40-44	5,779	7,735	1,839
45-49	5,444	5,651	8,322
50-54	7,633	7,298	7,294
55-59	5,252	7,949	9,212
All Ages	39,337	30,360	26,670

Actual

	Years of Service		
Age	10-14	15-19	20-24
<=24	0	0	0
25-29	0	0	0
30-34	116	0	0
35-39	234	15	0
40-44	75	42	3
45-49	41	30	12
50-54	62	30	21
55-59	94	100	49
All Ages	621	216	84

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Rates of Termination - Female - With Benefit
10 or more Years of Service

Expected - Current Assumptions

Age	Years of Service 10-14	15-19	20-24
<=24	0.0	0.0	0.0
25-29	0.2	0.0	0.0
30-34	97.7	0.1	0.0
35-39	282.0	31.4	0.0
40-44	56.5	70.7	13.0
45-49	32.1	33.4	48.9
50-54	60.4	59.1	58.3
55-59	75.2	114.7	134.5
All Ages	604.1	309.3	254.8

Expected - Proposed Assumptions

Age	Years of Service 10-14	15-19	20-24
<=24	0.0	0.0	0.0
25-29	0.2	0.0	0.0
30-34	107.5	0.1	0.0
35-39	310.2	28.3	0.0
40-44	62.2	63.6	7.8
45-49	35.3	30.0	29.3
50-54	66.5	53.2	35.0
55-59	82.7	103.3	80.7
All Ages	664.6	278.5	152.8

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Rates of Termination - Female - With Benefit
10 or more Years of Service

Ratio of Actual to Expected - Current Assumptions

	Years of Service		
Age	10-14	15-19	20-24
<=24	n/a	n/a	n/a
25-29	n/a	n/a	n/a
30-34	1.191	n/a	n/a
35-39	0.828	0.468	n/a
40-44	1.318	0.590	0.211
45-49	1.286	0.888	0.252
50-54	1.024	0.504	0.355
55-59	1.248	0.871	0.362
All Ages	1.028	0.697	0.332

Ratio of Actual to Expected - Proposed Assumptions

	Years of Service		
Age	10-14	15-19	20-24
<=24	n/a	n/a	n/a
25-29	n/a	n/a	n/a
30-34	1.082	n/a	n/a
35-39	0.753	0.519	n/a
40-44	1.198	0.655	0.351
45-49	1.169	0.988	0.420
50-54	0.930	0.560	0.591
55-59	1.135	0.967	0.604
All Ages	0.935	0.774	0.553

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Retirement with Reduced Benefit, 25 or more Years of Service
Male

	Exposures	Actual	Expected Retirements		Ratio of Actual/Expected	
			Proposed Assumptions	Current Assumptions	Proposed Assumptions	Current Assumptions
<=49	664	13	10.2	9.8	1.247	1.294
50+	3,733	104	107.7	100.3	0.969	1.040
All Ages	4,397	117	117.9	110.1	0.993	1.063

Retirement with Unreduced Benefit
Male - Age 60 and Less Than 25 Years of Service

	Exposures	Actual	Expected Retirements		Ratio of Actual/Expected	
			Proposed Assumptions	Current Assumptions	Proposed Assumptions	Current Assumptions
<=59	0	0	0.0	0.0	n/a	n/a
60	1,078	79	107.8	118.6	0.730	0.664
61	833	56	83.3	91.6	0.672	0.611
62	635	46	69.8	69.8	0.655	0.655
63-64	818	72	90.0	90.0	0.803	0.803
65	286	37	48.6	48.6	0.770	0.770
66-70	588	97	100.0	100.0	0.972	0.972
71+	150	29	29.8	29.8	0.977	0.977
All Ages	4,388	416	529.3	548.4	0.787	0.759

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Retirement with Unreduced Benefit
Male - First Year Attainment of Age 55 and 25 Years of Service

| | | | Expected Retirements | | Ratio of Actual/Expected | |
	Exposures	Actual	Proposed Assumptions	Current Assumptions	Proposed Assumptions	Current Assumptions
<=54	0	0	0.0	0.0	n/a	n/a
55	1,956	304	293.4	293.4	1.035	1.035
56-57	139	32	30.6	27.8	1.046	1.151
58-59	115	32	28.8	25.3	1.113	1.265
60	50	17	13.5	12.0	1.259	1.417
61	37	12	11.1	9.6	1.081	1.247
62	34	22	13.6	12.9	1.594	1.678
63-64	51	29	20.4	20.4	1.422	1.422
65	14	7	7.0	7.0	1.000	1.000
66-70	27	14	13.5	13.5	1.037	1.037
71+	4	3	2.0	2.0	1.500	1.500
All Ages	2,427	471	433.8	423.9	1.087	1.112

Retirement with Unreduced Benefit
Male - After First Year Attainment of Age 55 and 25 Years of Service

| | | | Expected Retirements | | Ratio of Actual/Expected | |
	Exposures	Actual	Proposed Assumptions	Current Assumptions	Proposed Assumptions	Current Assumptions
<=54	0	0	0.0	0.0	n/a	n/a
55	0	0	0.0	0.0	n/a	n/a
56-57	4,073	496	509.7	509.7	0.972	0.972
58-59	4,171	580	604.7	604.7	0.959	0.959
60	1,871	350	392.9	392.9	0.891	0.891
61	1,482	334	340.9	340.9	0.980	0.980
62	1,011	330	364.0	364.0	0.906	0.906
63-64	1,097	303	329.1	329.1	0.920	0.920
65	325	98	123.5	123.5	0.791	0.791
66-70	560	155	168.0	168.0	0.923	0.923
71+	195	35	58.5	58.5	0.598	0.598
All Ages	14,785	2,679	2,891.3	2,891.3	0.927	0.927

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Retirement with Reduced Benefit, 25 or more Years of Service
Female

	Exposures	Actual	Expected Retirements		Ratio of Actual/Expected	
			Proposed Assumptions	Current Assumptions	Proposed Assumptions	Current Assumptions
<=49	1,790	28	27.6	28.6	1.006	0.972
50+	9,837	234	281.7	300.9	0.832	0.779
All Ages	11,627	262	309.3	329.5	0.848	0.796

Retirement with Unreduced Benefit
Female - Age 60 and Less Than 25 Years of Service

	Exposures	Actual	Expected Retirements		Ratio of Actual/Expected	
			Proposed Assumptions	Current Assumptions	Proposed Assumptions	Current Assumptions
<=59	0	0	0.0	0.0	n/a	n/a
60	4,031	217	282.2	322.5	0.768	0.672
61	3,123	151	218.6	249.8	0.689	0.603
62	2,171	143	217.1	217.1	0.657	0.657
63-64	2,789	179	278.9	278.9	0.641	0.641
65	900	88	135.0	162.0	0.655	0.546
66-70	1,447	158	217.1	217.1	0.726	0.726
71+	308	33	60.6	60.6	0.545	0.545
All Ages	14,769	968	1,409.4	1,508.0	0.687	0.642

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Retirement with Unreduced Benefit
Female - First Year Attainment of Age 55 and 25 Years of Service

| | | | Expected Retirements | | Ratio of Actual/Expected | |
| | | | Proposed | Current | Proposed | Current |
	Exposures	Actual	Assumptions	Assumptions	Assumptions	Assumptions
<=54	0	0	0.0	0.0	n/a	n/a
55	4,690	750	750.4	750.4	0.999	0.999
56-57	751	151	142.7	142.7	1.058	1.058
58-59	755	239	188.8	166.1	1.265	1.437
60	391	138	117.3	117.3	1.174	1.174
61	349	144	111.7	111.7	1.289	1.289
62	285	148	131.1	131.1	1.129	1.129
63-64	432	225	190.1	190.1	1.182	1.182
65	145	74	72.5	72.5	1.021	1.021
66-70	228	145	114.0	114.0	1.272	1.272
71+	39	21	19.0	19.0	1.105	1.105
All Ages	8,065	2,034	1,837.5	1,814.8	1.107	1.121

Retirement with Unreduced Benefit
Female - After First Year Attainment of Age 55 and 25 Years of Service

| | | | Expected Retirements | | Ratio of Actual/Expected | |
| | | | Proposed | Current | Proposed | Current |
	Exposures	Actual	Assumptions	Assumptions	Assumptions	Assumptions
<=54	0	0	0.0	0.0	n/a	n/a
55	0	0	0.0	0.0	n/a	n/a
56-57	8,622	1,085	1,163.2	1,163.2	0.933	0.933
58-59	7,730	1,142	1,120.1	1,120.1	1.020	1.020
60	3,350	622	670.0	670.0	0.929	0.929
61	2,622	566	576.8	576.8	0.981	0.981
62	1,863	555	596.2	596.2	0.932	0.932
63-64	2,427	657	643.2	643.2	1.022	1.022
65	838	238	293.3	293.3	0.811	0.811
66-70	1,610	461	483.0	483.0	0.954	0.954
71+	463	120	138.9	138.9	0.864	0.864
All Ages	29,525	5,447	5,684.7	5,684.7	0.958	0.958

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Ordinary Mortality - Male

	Exposures	Actual	Expected Deaths		Ratio of Actual/Expected	
			Proposed Assumptions	Current Assumptions	Proposed Assumptions	Current Assumptions
<=24	1,318	0	0.4	0.4	0.709	0.621
25-29	11,511	7	3.6	4.0	2.078	1.857
30-34	14,399	2	5.2	5.5	0.432	0.413
35-39	13,971	3	5.8	6.0	0.530	0.512
40-44	10,568	8	7.0	7.3	1.109	1.066
45-49	9,922	11	9.4	10.1	1.140	1.061
50-54	13,193	14	18.2	20.2	0.750	0.673
55-59	16,987	24	31.5	36.2	0.746	0.650
60-64	8,980	28	23.4	26.5	1.211	1.069
65-69	1,675	9	7.0	7.8	1.303	1.172
70+	474	2	3.5	3.6	0.576	0.551
All Ages	102,998	108	114.9	127.6	0.941	0.847

Ordinary Mortality - Female

	Exposures	Actual	Expected Deaths		Ratio of Actual/Expected	
			Proposed Assumptions	Current Assumptions	Proposed Assumptions	Current Assumptions
<=24	6,337	2	0.8	1.3	2.555	1.631
25-29	42,071	13	6.6	11.4	1.899	1.108
30-34	40,569	18	6.7	11.8	2.678	1.529
35-39	35,103	12	7.0	11.1	1.660	1.037
40-44	30,186	10	10.0	12.8	0.968	0.755
45-49	37,104	17	17.3	22.6	0.994	0.763
50-54	49,785	40	33.4	43.8	1.196	0.913
55-59	51,994	48	53.2	62.6	0.897	0.762
60-64	23,785	38	36.8	43.2	1.046	0.891
65-69	4,855	10	12.2	15.0	0.828	0.674
70+	1,123	3	5.3	7.8	0.565	0.383
All Ages	322,912	210	189.4	243.4	1.111	0.865

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Ordinary Disability - Male

	Exposures	Actual	Expected Disablements Proposed Assumptions	Expected Disablements Current Assumptions	Ratio of Actual/Expected Proposed Assumptions	Ratio of Actual/Expected Current Assumptions
<=24	0	0	0.0	0.0	n/a	n/a
25-29	3	0	0.0	0.0	0.000	0.000
30-34	979	0	0.6	0.6	0.164	0.164
35-39	5,746	2	3.7	3.7	0.410	0.410
40-44	6,001	2	4.7	4.7	0.518	0.518
45-49	6,317	10	7.6	7.6	1.379	1.379
50-54	9,942	10	20.2	20.2	0.518	0.518
55-59	3,875	25	18.7	18.7	1.355	1.355
60-64	1,843	18	12.2	12.2	1.479	1.479
65-69	467	12	5.3	5.3	2.277	2.277
70+	139	4	1.7	1.7	2.344	2.344
All Ages	35,312	84	74.7	74.7	1.131	1.131

Ordinary Disability - Female

	Exposures	Actual	Expected Disablements Proposed Assumptions	Expected Disablements Current Assumptions	Ratio of Actual/Expected Proposed Assumptions	Ratio of Actual/Expected Current Assumptions
<=24	0	0	0.0	0.0	n/a	n/a
25-29	5	0	0.0	0.0	0.000	0.000
30-34	2,844	3	1.8	1.8	1.511	1.511
35-39	14,112	10	10.4	10.4	0.932	0.932
40-44	15,355	13	16.1	16.1	0.794	0.794
45-49	21,205	30	32.2	32.2	0.939	0.939
50-54	35,793	51	80.7	80.7	0.635	0.635
55-59	22,452	75	102.8	102.8	0.734	0.734
60-64	9,989	73	77.8	77.8	0.941	0.941
65-69	1,848	26	24.0	24.0	1.085	1.085
70+	374	12	7.6	7.6	1.586	1.586
All Ages	123,977	294	353.5	353.5	0.830	0.830

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
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Accidental Disability - Male

	Exposures	Actual	Expected Disablements Proposed Assumptions	Expected Disablements Current Assumptions	Ratio of Actual/Expected Proposed Assumptions	Ratio of Actual/Expected Current Assumptions
<=24	1,318	0	0.1	0.1	0.000	0.000
25-29	11,511	0	0.7	1.0	0.000	0.000
30-34	14,399	0	0.9	1.3	0.000	0.000
35-39	13,971	0	0.8	1.3	0.000	0.000
40-44	10,568	1	0.6	1.0	1.577	1.051
45-49	9,922	0	0.6	0.9	0.000	0.000
50-54	13,193	1	0.8	1.2	1.263	0.842
55-59	16,987	1	1.0	1.5	0.981	0.654
60-64	8,980	0	0.5	0.8	0.000	0.000
65-69	1,675	2	0.0	0.0	n/a	n/a
70+	474	0	0.0	0.0	n/a	n/a
All Ages	102,998	5	6.1	9.1	0.826	0.551

Accidental Disability - Female

	Exposures	Actual	Expected Disablements Proposed Assumptions	Expected Disablements Current Assumptions	Ratio of Actual/Expected Proposed Assumptions	Ratio of Actual/Expected Current Assumptions
<=24	6,337	0	0.4	0.4	0.000	0.000
25-29	42,071	0	2.5	2.5	0.000	0.000
30-34	40,569	0	2.4	2.4	0.000	0.000
35-39	35,103	0	2.1	2.1	0.000	0.000
40-44	30,186	1	1.8	1.8	0.552	0.552
45-49	37,104	1	2.2	2.2	0.449	0.449
50-54	49,785	3	3.0	3.0	1.004	1.004
55-59	51,994	1	3.1	3.1	0.321	0.321
60-64	23,785	3	1.4	1.4	2.102	2.102
65-69	4,855	0	0.0	0.0	n/a	n/a
70+	1,123	1	0.0	0.0	n/a	n/a
All Ages	322,912	10	19.0	19.0	0.526	0.526

Teachers' Pension and Annuity Fund of New Jersey

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Healthy Retiree and Beneficiary Mortality - Male
Counts

	Exposures	Actual	Expected Deaths Proposed Assumptions	Expected Deaths Current Assumptions	Ratio of Actual/Expected Proposed Assumptions	Ratio of Actual/Expected Current Assumptions
50-54	467	5	2.0	2.5	2.470	1.973
55-59	6,122	44	27.3	45.8	1.610	0.960
60-64	16,912	112	112.4	166.2	0.997	0.674
65-69	15,233	147	171.2	191.4	0.859	0.768
70-74	11,830	236	224.6	252.1	1.051	0.936
75-79	10,455	359	352.6	393.2	1.018	0.913
80-84	6,477	373	392.8	432.3	0.950	0.863
85-89	3,062	354	324.3	354.4	1.092	0.999
90+	1,396	285	268.7	285.9	1.061	0.997
All Ages	71,954	1,915	1,875.9	2,123.9	1.021	0.902

Healthy Retiree and Beneficiary Mortality - Male
Benefits

	Exposures	Actual	Expected Deaths Proposed Assumptions	Expected Deaths Current Assumptions	Ratio of Actual/Expected Proposed Assumptions	Ratio of Actual/Expected Current Assumptions
50-54	14,469,934	189,072	62,533	78,962	3.024	2.394
55-59	261,835,874	1,769,854	1,170,700	1,968,098	1.512	0.899
60-64	740,693,393	4,713,944	4,917,970	7,274,961	0.959	0.648
65-69	655,058,510	5,819,852	7,348,055	8,214,931	0.792	0.708
70-74	476,787,825	8,693,209	9,027,182	10,135,139	0.963	0.858
75-79	381,520,830	12,245,017	12,781,850	14,254,086	0.958	0.859
80-84	198,469,595	11,147,032	11,906,110	13,106,018	0.936	0.851
85-89	73,759,294	7,896,974	7,738,745	8,458,926	1.020	0.934
90+	30,140,472	5,883,430	5,824,209	6,195,773	1.010	0.950
All Ages	2,832,735,727	58,358,384	60,777,355	69,686,895	0.960	0.837

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Experience Study for the Period
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Healthy Retiree and Beneficiary Mortality - Female
Counts

	Exposures	Actual	Expected Deaths		Ratio of Actual/Expected	
			Proposed Assumptions	Current Assumptions	Proposed Assumptions	Current Assumptions
50-54	1,069	9	2.6	2.9	3.466	3.119
55-59	12,168	60	47.7	53.0	1.258	1.132
60-64	28,655	137	169.6	188.5	0.808	0.727
65-69	26,406	154	208.1	231.3	0.740	0.666
70-74	20,000	211	247.4	274.9	0.853	0.768
75-79	17,886	368	377.9	419.9	0.974	0.876
80-84	13,430	484	484.3	538.1	0.999	0.900
85-89	8,759	654	674.1	749.0	0.970	0.873
90+	6,352	1,047	968.5	1,076.1	1.081	0.973
All Ages	134,725	3,124	3,180.2	3,533.5	0.982	0.884

Healthy Retiree and Beneficiary Mortality - Female
Benefits

	Exposures	Actual	Expected Deaths		Ratio of Actual/Expected	
			Proposed Assumptions	Current Assumptions	Proposed Assumptions	Current Assumptions
50-54	32,711,003	243,822	80,180	89,089	3.041	2.737
55-59	487,410,982	2,291,056	1,918,643	2,131,825	1.194	1.075
60-64	1,071,410,387	5,332,081	6,316,428	7,018,254	0.844	0.760
65-69	922,315,914	5,161,040	7,247,793	8,053,104	0.712	0.641
70-74	643,286,745	6,868,828	7,929,897	8,810,996	0.866	0.780
75-79	500,996,349	9,944,613	10,505,216	11,672,462	0.947	0.852
80-84	300,276,718	10,483,429	10,718,727	11,909,696	0.978	0.880
85-89	160,791,193	12,001,389	12,282,440	13,647,156	0.977	0.879
90+	105,817,619	17,845,919	16,190,424	17,989,360	1.102	0.992
All Ages	4,225,016,910	70,172,177	73,189,749	81,321,943	0.959	0.863

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
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Disabled Retiree Mortality - Male

	Exposures	Actual	Expected Deaths		Ratio of Actual/Expected	
			Proposed Assumptions	Current Assumptions	Proposed Assumptions	Current Assumptions
50-54	160	3	4.1	5.1	0.735	0.588
55-59	340	9	10.4	13.1	0.861	0.689
60-64	500	11	18.0	22.5	0.612	0.490
65-69	270	10	11.8	14.7	0.851	0.680
70-74	218	10	12.0	15.0	0.833	0.667
75-79	129	9	9.5	11.8	0.952	0.761
80-84	73	3	7.1	8.9	0.423	0.339
85-89	30	6	3.7	4.6	1.643	1.315
90+	5	0	0.8	1.0	0.000	0.000
All Ages	1,725	61	77.2	96.5	0.790	0.632

Disabled Retiree Mortality - Female

	Exposures	Actual	Expected Deaths		Ratio of Actual/Expected	
			Proposed Assumptions	Current Assumptions	Proposed Assumptions	Current Assumptions
50-54	558	18	7.3	7.7	2.466	2.343
55-59	1,073	30	19.2	20.2	1.564	1.485
60-64	1,389	34	31.8	33.5	1.068	1.014
65-69	1,070	27	31.6	33.3	0.854	0.811
70-74	674	11	27.3	28.7	0.403	0.383
75-79	405	20	22.6	23.8	0.884	0.840
80-84	250	11	19.3	20.3	0.570	0.542
85-89	71	9	7.5	7.9	1.202	1.142
90+	37	4	6.1	6.4	0.661	0.628
All Ages	5,527	164	172.7	181.8	0.950	0.902

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Proposed Assumptions
Rates of Termination - Male

Less than 10 Years of Service			10 to 14 Years of Service		15 to 19 Years of Service		20 to 24 Years of Service	
			Proposed Rates		Proposed Rates		Proposed Rates	
Years of Service	Proposed Rate	Age	With Benefit	Contribution Refund	With Benefit	Contribution Refund	With Benefit	Contribution Refund
0	0.0819	25	0.0081	0.0055	0.0059	0.0040	0.0039	0.0026
1	0.0672	26	0.0081	0.0055	0.0059	0.0040	0.0039	0.0026
2	0.0590	27	0.0081	0.0055	0.0059	0.0040	0.0039	0.0026
3	0.0417	28	0.0081	0.0055	0.0059	0.0040	0.0039	0.0026
4	0.0339	29	0.0081	0.0055	0.0059	0.0040	0.0039	0.0026
5	0.0268							
6	0.0236	30	0.0081	0.0055	0.0059	0.0040	0.0039	0.0026
7	0.0212	31	0.0081	0.0055	0.0059	0.0040	0.0039	0.0026
8	0.0159	32	0.0081	0.0055	0.0059	0.0040	0.0039	0.0026
9	0.0152	33	0.0082	0.0054	0.0059	0.0039	0.0040	0.0026
		34	0.0084	0.0053	0.0060	0.0038	0.0040	0.0025
		35	0.0085	0.0051	0.0061	0.0037	0.0041	0.0025
		36	0.0086	0.0050	0.0062	0.0036	0.0041	0.0024
		37	0.0090	0.0049	0.0065	0.0035	0.0043	0.0023
		38	0.0084	0.0044	0.0060	0.0032	0.0040	0.0021
		39	0.0078	0.0039	0.0056	0.0028	0.0037	0.0019
		40	0.0071	0.0034	0.0051	0.0024	0.0034	0.0016
		41	0.0065	0.0029	0.0047	0.0021	0.0031	0.0014
		42	0.0059	0.0025	0.0042	0.0018	0.0028	0.0012
		43	0.0059	0.0024	0.0042	0.0017	0.0028	0.0011
		44	0.0059	0.0023	0.0042	0.0016	0.0028	0.0011
		45	0.0059	0.0021	0.0042	0.0015	0.0028	0.0010
		46	0.0059	0.0020	0.0042	0.0014	0.0028	0.0010
		47	0.0056	0.0019	0.0040	0.0014	0.0027	0.0009
		48	0.0061	0.0018	0.0044	0.0013	0.0029	0.0008
		49	0.0066	0.0016	0.0048	0.0012	0.0032	0.0008
		50	0.0071	0.0015	0.0051	0.0011	0.0034	0.0007
		51	0.0076	0.0014	0.0055	0.0010	0.0037	0.0007
		52	0.0080	0.0014	0.0058	0.0010	0.0038	0.0007
		53	0.0099	0.0013	0.0071	0.0009	0.0047	0.0006
		54	0.0117	0.0011	0.0085	0.0008	0.0056	0.0005
		55	0.0136	0.0010	0.0098	0.0007	0.0065	0.0005
		56	0.0155	0.0009	0.0112	0.0006	0.0074	0.0004
		57	0.0176	0.0009	0.0127	0.0006	0.0085	0.0004
		58	0.0176	0.0009	0.0127	0.0006	0.0085	0.0004
		59	0.0176	0.0009	0.0127	0.0006	0.0085	0.0004

Teachers' Pension and Annuity Fund of New Jersey

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Proposed Assumptions
Rates of Termination - Female

Years of Service	Less than 10 Years of Service Proposed Rates		Age	10 to 14 Years of Service Proposed Rates		15 to 19 Years of Service Proposed Rates		20 to 24 Years of Service Proposed Rates	
	Less than Age 40	At Least Age 40		With Benefit	Contribution Refund	With Benefit	Contribution Refund	With Benefit	Contribution Refund
0	0.0761	0.0761	25	0.0430	0.0047	0.0352	0.0039	0.0235	0.0026
1	0.0700	0.0700	26	0.0430	0.0047	0.0352	0.0039	0.0235	0.0026
2	0.0609	0.0609	27	0.0430	0.0047	0.0352	0.0039	0.0235	0.0026
3	0.0589	0.0380	28	0.0430	0.0047	0.0352	0.0039	0.0235	0.0026
4	0.0565	0.0259	29	0.0430	0.0047	0.0352	0.0039	0.0235	0.0026
5	0.0554	0.0219							
6	0.0554	0.0180	30	0.0430	0.0047	0.0352	0.0039	0.0235	0.0026
7	0.0536	0.0168	31	0.0430	0.0047	0.0352	0.0039	0.0235	0.0026
8	0.0532	0.0143	32	0.0430	0.0047	0.0352	0.0039	0.0235	0.0026
9	0.0407	0.0128	33	0.0394	0.0043	0.0322	0.0035	0.0215	0.0023
			34	0.0357	0.0039	0.0292	0.0032	0.0195	0.0021
			35	0.0321	0.0034	0.0263	0.0028	0.0175	0.0019
			36	0.0285	0.0030	0.0233	0.0024	0.0155	0.0016
			37	0.0249	0.0028	0.0203	0.0023	0.0136	0.0015
			38	0.0216	0.0024	0.0176	0.0020	0.0118	0.0013
			39	0.0183	0.0021	0.0149	0.0017	0.0100	0.0011
			40	0.0150	0.0018	0.0122	0.0014	0.0082	0.0010
			41	0.0117	0.0014	0.0095	0.0012	0.0064	0.0008
			42	0.0086	0.0010	0.0070	0.0008	0.0047	0.0005
			43	0.0080	0.0009	0.0066	0.0007	0.0044	0.0005
			44	0.0075	0.0008	0.0061	0.0006	0.0041	0.0004
			45	0.0069	0.0007	0.0057	0.0005	0.0038	0.0004
			46	0.0064	0.0006	0.0052	0.0005	0.0035	0.0003
			47	0.0060	0.0007	0.0049	0.0005	0.0033	0.0004
			48	0.0064	0.0007	0.0052	0.0005	0.0035	0.0004
			49	0.0067	0.0007	0.0055	0.0005	0.0037	0.0004
			50	0.0070	0.0007	0.0058	0.0005	0.0038	0.0004
			51	0.0074	0.0007	0.0060	0.0005	0.0040	0.0004
			52	0.0078	0.0009	0.0064	0.0007	0.0043	0.0005
			53	0.0097	0.0009	0.0079	0.0007	0.0053	0.0005
			54	0.0115	0.0009	0.0094	0.0007	0.0063	0.0005
			55	0.0134	0.0009	0.0110	0.0007	0.0073	0.0005
			56	0.0153	0.0009	0.0125	0.0007	0.0083	0.0005
			57	0.0172	0.0007	0.0140	0.0005	0.0094	0.0004
			58	0.0172	0.0007	0.0140	0.0005	0.0094	0.0004
			59	0.0172	0.0007	0.0140	0.0005	0.0094	0.0004

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Proposed Assumptions
Rates of Retirement - Male - Class A and B

Age	Less than 25 Years of Service	More than 25 Years of Service First Eligibility	After First Eligibility
Less than 48	0.0120	N/A	N/A
48	0.0145	N/A	N/A
49	0.0165	N/A	N/A
50	0.0195	N/A	N/A
51	0.0235	N/A	N/A
52	0.0275	N/A	N/A
53	0.0375	N/A	N/A
54	0.0475	N/A	N/A
55	N/A	0.1500	N/A
56	N/A	0.2200	0.1200
57	N/A	0.2200	0.1300
58	N/A	0.2500	0.1400
59	N/A	0.2500	0.1500
60	0.1000	0.2700	0.2100
61	0.1000	0.3000	0.2300
62	0.1100	0.4000	0.3600
63	0.1100	0.4000	0.3000
64	0.1100	0.4000	0.3000
65	0.1700	0.5000	0.3800
66	0.1700	0.5000	0.3000
67	0.1700	0.5000	0.3000
68	0.1700	0.5000	0.3000
69	0.1700	0.5000	0.3000
70	0.1700	0.5000	0.3000
71 and older	0.2000	0.5000	0.3000

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
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Proposed Assumptions
Rates of Retirement - Female - Class A and B

	Less than 25 Years	More than 25 Years of Service	
Age	of Service	First Eligibility	After First Eligibility
Less than 48	0.0120	N/A	N/A
48	0.0145	N/A	N/A
49	0.0165	N/A	N/A
50	0.0195	N/A	N/A
51	0.0235	N/A	N/A
52	0.0275	N/A	N/A
53	0.0375	N/A	N/A
54	0.0475	N/A	N/A
55	N/A	0.1600	N/A
56	N/A	0.1900	0.1300
57	N/A	0.1900	0.1400
58	N/A	0.2500	0.1400
59	N/A	0.2500	0.1500
60	0.0700	0.3000	0.2000
61	0.0700	0.3200	0.2200
62	0.1000	0.4600	0.3200
63	0.1000	0.4400	0.2650
64	0.1000	0.4400	0.2650
65	0.1500	0.5000	0.3500
66	0.1500	0.5000	0.3000
67	0.1500	0.5000	0.3000
68	0.1500	0.5000	0.3000
69	0.1500	0.5000	0.3000
70	0.1500	0.5000	0.3000
71 and older	0.2000	0.5000	0.3000

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
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Proposed Assumptions
Rates of Retirement - Male - Class D

Age	Less than 25 Years of Service	More than 25 Years of Service First Eligibility	After First Eligibility
Less than 48	0.0060	N/A	N/A
48	0.0075	N/A	N/A
49	0.0085	N/A	N/A
50	0.0100	N/A	N/A
51	0.0120	N/A	N/A
52	0.0140	N/A	N/A
53	0.0190	N/A	N/A
54	0.0240	N/A	N/A
55	0.1150	N/A	N/A
56	0.1200	N/A	N/A
57	0.1250	N/A	N/A
58	0.1350	N/A	N/A
59	0.1400	N/A	N/A
60	0.1000	0.2900	N/A
61	0.1000	0.3000	0.2300
62	0.1100	0.4000	0.3600
63	0.1100	0.4000	0.3000
64	0.1100	0.4000	0.3000
65	0.1700	0.5000	0.3800
66	0.1700	0.5000	0.3000
67	0.1700	0.5000	0.3000
68	0.1700	0.5000	0.3000
69	0.1700	0.5000	0.3000
70	0.1700	0.5000	0.3000
71 and older	0.2000	0.5000	0.3000

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
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Proposed Assumptions
Rates of Retirement - Female - Class D

Age	Less than 25 Years of Service	More than 25 Years of Service	
		First Eligibility	After First Eligibility
Less than 48	0.0060	N/A	N/A
48	0.0075	N/A	N/A
49	0.0085	N/A	N/A
50	0.0100	N/A	N/A
51	0.0120	N/A	N/A
52	0.0140	N/A	N/A
53	0.0190	N/A	N/A
54	0.0240	N/A	N/A
55	0.1150	N/A	N/A
56	0.1200	N/A	N/A
57	0.1250	N/A	N/A
58	0.1350	N/A	N/A
59	0.1400	N/A	N/A
60	0.0700	0.3000	N/A
61	0.0700	0.3200	0.2200
62	0.1000	0.4600	0.3200
63	0.1000	0.4400	0.2650
64	0.1000	0.4400	0.2650
65	0.1500	0.5000	0.3500
66	0.1500	0.5000	0.3000
67	0.1500	0.5000	0.3000
68	0.1500	0.5000	0.3000
69	0.1500	0.5000	0.3000
70	0.1500	0.5000	0.3000
71 and older	0.2000	0.5000	0.3000

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
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Proposed Assumptions
Rates of Retirement - Male - Class E and F

Age	Less than 25 Years of Service	More than 25 Years of Service First Eligibility	After First Eligibility
Less than 48	0.0055	N/A	N/A
48	0.0070	N/A	N/A
49	0.0075	N/A	N/A
50	0.0090	N/A	N/A
51	0.0110	N/A	N/A
52	0.0125	N/A	N/A
53	0.0170	N/A	N/A
54	0.0215	N/A	N/A
55	0.1050	N/A	N/A
56	0.1075	N/A	N/A
57	0.1100	N/A	N/A
58	0.1200	N/A	N/A
59	0.1250	N/A	N/A
60	0.1700	N/A	N/A
61	0.1850	N/A	N/A
62	0.2950	0.5000	N/A
63	0.1100	0.4000	0.3000
64	0.1100	0.4000	0.3000
65	0.1700	0.5000	0.3800
66	0.1700	0.5000	0.3000
67	0.1700	0.5000	0.3000
68	0.1700	0.5000	0.3000
69	0.1700	0.5000	0.3000
70	0.1700	0.5000	0.3000
71 and older	0.2000	0.5000	0.3000

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
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Proposed Assumptions
Rates of Retirement - Female - Class E and F

Age	Less than 25 Years of Service	More than 25 Years of Service First Eligibility	After First Eligibility
Less than 48	0.0055	N/A	N/A
48	0.0070	N/A	N/A
49	0.0075	N/A	N/A
50	0.0090	N/A	N/A
51	0.0110	N/A	N/A
52	0.0125	N/A	N/A
53	0.0170	N/A	N/A
54	0.0215	N/A	N/A
55	0.1050	N/A	N/A
56	0.1075	N/A	N/A
57	0.1100	N/A	N/A
58	0.1200	N/A	N/A
59	0.1250	N/A	N/A
60	0.1900	N/A	N/A
61	0.2050	N/A	N/A
62	0.2400	0.4600	N/A
63	0.1000	0.4400	0.2650
64	0.1000	0.4400	0.2650
65	0.1500	0.5000	0.3500
66	0.1500	0.5000	0.3000
67	0.1500	0.5000	0.3000
68	0.1500	0.5000	0.3000
69	0.1500	0.5000	0.3000
70	0.1500	0.5000	0.3000
71 and older	0.2000	0.5000	0.3000

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
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Proposed Assumptions
Rates of Disability

	Ordinary Disability*			Accidental Disability	
	Proposed Rates				
Age	Male	Female		Gender	Proposed Rate
25	0.000301	0.000379		Male	0.00006
26	0.000313	0.000408		Female	0.00006
27	0.000326	0.000439			
28	0.000375	0.000476			
29	0.000424	0.000513			
30	0.000473	0.000550			
31	0.000522	0.000587			
32	0.000573	0.000626			
33	0.000585	0.000642			
34	0.000597	0.000658			
35	0.000609	0.000674			
36	0.000621	0.000690			
37	0.000635	0.000704			
38	0.000657	0.000767			
39	0.000679	0.000830			
40	0.000701	0.000893			
41	0.000723	0.000956			
42	0.000744	0.001020			
43	0.000837	0.001119			
44	0.000930	0.001218			
45	0.001023	0.001317			
46	0.001116	0.001416			
47	0.001211	0.001513			
48	0.001281	0.001595			
49	0.001351	0.001677			
50	0.001421	0.001759			
51	0.001491	0.001841			
52	0.001560	0.001925			
53	0.002284	0.002452			
54	0.003008	0.002979			
55	0.003732	0.003506			
56	0.004456	0.004033			
57	0.005178	0.004558			
58	0.005421	0.005254			
59	0.005664	0.005950			

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Proposed Assumptions
Rates of Disability

	Ordinary Disability*			Accidental Disability	
	Proposed Rates				
Age	Male	Female		Gender	Proposed Rate
60	0.005907	0.006646		Male	0.00006
61	0.006150	0.007342		Female	0.00006
62	0.006392	0.008039			
63	0.007618	0.009177			
64	0.008844	0.010315			
65	0.010070	0.011453			
66	0.011296	0.012591			
67	0.012522	0.013730			
68	0.012522	0.015590			
69	0.012522	0.017450			
70	0.012522	0.019310			
71	0.012522	0.021170			
72	0.012522	0.023030			
73	0.012522	0.022140			
74	0.012522	0.021250			
75	0.012522	0.020360			
76	0.012522	0.019470			
77	0.012522	0.018580			
78	0.012522	0.017690			
79	0.012522	0.016800			

* Assumption does not apply if have less than 10 years of service or have
attained age 55 and 25 years of service

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Proposed Assumptions
Rates of Mortality - Male

Proposed Rates

| | Active | Postretirement | |
Age	Ordinary	Healthy	Disabled
15	0.000212	0.000716	0.018057
16	0.000219	0.000756	0.018057
17	0.000228	0.000801	0.018057
18	0.000240	0.000841	0.018057
19	0.000254	0.000881	0.018057
20	0.000269	0.000919	0.018057
21	0.000284	0.000950	0.018057
22	0.000301	0.000974	0.018057
23	0.000316	0.000993	0.018057
24	0.000331	0.001001	0.018057
25	0.000345	0.001001	0.018057
26	0.000357	0.001006	0.018057
27	0.000366	0.001017	0.018057
28	0.000373	0.001046	0.018057
29	0.000376	0.001097	0.018057
30	0.000376	0.000940	0.018057
31	0.000378	0.001034	0.018057
32	0.000382	0.001148	0.018057
33	0.000393	0.001280	0.018057
34	0.000412	0.001422	0.018057
35	0.000353	0.001572	0.018057
36	0.000388	0.001729	0.018057
37	0.000431	0.001882	0.018057
38	0.000481	0.002040	0.018057
39	0.000534	0.002202	0.018057
40	0.000591	0.002370	0.018057
41	0.000649	0.002551	0.018057
42	0.000707	0.002756	0.018057
43	0.000766	0.002992	0.018057
44	0.000827	0.003262	0.018057

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Proposed Assumptions
Rates of Mortality - Male

Proposed Rates

Age	Active Ordinary	Postretirement Healthy	Disabled
45	0.000890	0.003573	0.018057
46	0.000958	0.003881	0.019078
47	0.001035	0.004215	0.020099
48	0.001124	0.004556	0.021123
49	0.001225	0.004908	0.022150
50	0.001342	0.005265	0.023180
51	0.001458	0.005244	0.024214
52	0.001583	0.005160	0.025250
53	0.001711	0.005030	0.026287
54	0.001843	0.004892	0.027322
55	0.001978	0.004781	0.028354
56	0.002112	0.004759	0.029386
57	0.002250	0.004820	0.030421
58	0.002398	0.005006	0.031467
59	0.002562	0.005329	0.032534
60	0.002747	0.005813	0.033634
61	0.002979	0.006440	0.034779
62	0.003247	0.007216	0.035985
63	0.003545	0.008124	0.037267
64	0.003884	0.009138	0.038646
65	0.004263	0.010238	0.040139
66	0.004682	0.011409	0.041770
67	0.005143	0.012631	0.043560
68	0.005637	0.013934	0.045527
69	0.006164	0.015339	0.047690
70	0.006725	0.016962	0.050066
71	0.007305	0.018832	0.052673
72	0.007902	0.021006	0.055524
73	0.008525	0.023505	0.058634
74	0.009168	0.026371	0.062010

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Proposed Assumptions
Rates of Mortality - Male

Proposed Rates

Age	Active Ordinary	Postretirement Healthy	Disabled
75	0.009823	0.029598	0.065654
76	0.010418	0.033249	0.069561
77	0.011240	0.037273	0.073719
78	0.012337	0.041786	0.078112
79	0.013662	0.046796	0.082714
80	0.015134	0.052282	0.087498
81	N/A	0.058768	0.092435
82	N/A	0.065941	0.097502
83	N/A	0.073899	0.102674
84	N/A	0.082537	0.107938
85	N/A	0.092106	0.113282
86	N/A	0.102766	0.118699
87	N/A	0.114570	0.124188
88	N/A	0.127483	0.129749
89	N/A	0.141763	0.135386
90	N/A	0.156880	0.146726
91	N/A	0.171578	0.159815
92	N/A	0.186610	0.173284
93	N/A	0.201921	0.186930
94	N/A	0.216859	0.200554
95	N/A	0.231626	0.213993
96	N/A	0.249836	0.227124
97	N/A	0.263870	0.239882
98	N/A	0.277460	0.252237
99	N/A	0.290582	0.264166
100	N/A	0.303209	0.275645
101	N/A	0.315593	0.286902
102	N/A	0.327083	0.297348
103	N/A	0.337075	0.306432
104	N/A	0.344963	0.313602
105	N/A	0.350140	0.318309
106	N/A	0.352000	0.320000
107	N/A	0.352000	0.320000
108	N/A	0.352000	0.320000
109	N/A	0.352000	0.320000

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Proposed Assumptions
Rates of Mortality - Female

Proposed Rates

| | Active | Postretirement | |
Age	Ordinary	Healthy	Disabled
15	0.000188	0.000230	0.007078
16	0.000176	0.000240	0.007078
17	0.000165	0.000248	0.007078
18	0.000147	0.000255	0.007078
19	0.000140	0.000257	0.007078
20	0.000141	0.000258	0.007078
21	0.000143	0.000260	0.007078
22	0.000148	0.000263	0.007078
23	0.000155	0.000266	0.007078
24	0.000162	0.000273	0.007078
25	0.000170	0.000281	0.007078
26	0.000177	0.000290	0.007078
27	0.000184	0.000301	0.007078
28	0.000188	0.000319	0.007078
29	0.000190	0.000336	0.007078
30	0.000191	0.000384	0.007078
31	0.000192	0.000439	0.007078
32	0.000194	0.000492	0.007078
33	0.000197	0.000544	0.007078
34	0.000201	0.000588	0.007078
35	0.000207	0.000631	0.007078
36	0.000214	0.000673	0.007078
37	0.000223	0.000714	0.007078
38	0.000235	0.000760	0.007078
39	0.000248	0.000811	0.007078
40	0.000284	0.000873	0.007078
41	0.000325	0.000946	0.007078
42	0.000363	0.001032	0.007078
43	0.000401	0.001133	0.007078
44	0.000435	0.001248	0.007078

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
July 1, 2006 through June 30, 2009

Proposed Assumptions
Rates of Mortality - Female

Proposed Rates

| | Active | Postretirement | |
Age	Ordinary	Healthy	Disabled
45	0.000466	0.001375	0.007078
46	0.000497	0.001516	0.007775
47	0.000527	0.001664	0.008511
48	0.000562	0.001819	0.009286
49	0.000599	0.001981	0.010102
50	0.000645	0.002151	0.010958
51	0.000699	0.002224	0.011853
52	0.000763	0.002356	0.012783
53	0.000837	0.002547	0.013742
54	0.000922	0.002785	0.014722
55	0.001016	0.003066	0.015717
56	0.001119	0.003384	0.016718
57	0.001229	0.003738	0.017721
58	0.001344	0.004118	0.018725
59	0.001463	0.004516	0.019730
60	0.001589	0.004937	0.020747
61	0.001720	0.005400	0.021789
62	0.001863	0.005920	0.022876
63	0.002015	0.006521	0.024028
64	0.002186	0.007217	0.025270
65	0.002374	0.006602	0.026625
66	0.002591	0.007411	0.028114
67	0.002832	0.008229	0.029759
68	0.003107	0.008993	0.031572
69	0.003415	0.009716	0.033568
70	0.003754	0.010497	0.035753
71	0.004131	0.011432	0.038133
72	0.004540	0.012618	0.040708
73	0.004979	0.014024	0.043481
74	0.005445	0.015581	0.046450

Teachers' Pension and Annuity Fund of New Jersey

Experience Study for the Period
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Proposed Assumptions
Rates of Mortality - Female

Proposed Rates

| | Active | Postretirement | |
Age	Ordinary	Healthy	Disabled
75	0.005943	0.017342	0.049619
76	0.006468	0.019361	0.052988
77	0.007017	0.021686	0.056568
78	0.007591	0.024255	0.060368
79	0.008186	0.027034	0.064403
80	0.008801	0.030118	0.068696
81	N/A	0.033601	0.073278
82	N/A	0.037578	0.078183
83	N/A	0.041937	0.083446
84	N/A	0.046618	0.089104
85	N/A	0.064019	0.095193
86	N/A	0.071210	0.101744
87	N/A	0.079411	0.108786
88	N/A	0.088669	0.116341
89	N/A	0.098851	0.124423
90	N/A	0.123095	0.133047
91	N/A	0.131575	0.142213
92	N/A	0.140564	0.151928
93	N/A	0.149801	0.161911
94	N/A	0.160669	0.173659
95	N/A	0.170961	0.184784
96	N/A	0.180516	0.195110
97	N/A	0.189183	0.204478
98	N/A	0.196836	0.212750
99	N/A	0.203376	0.219818
100	N/A	0.208719	0.225594
101	N/A	0.215195	0.232592
102	N/A	0.223689	0.241773
103	N/A	0.233837	0.252742
104	N/A	0.245273	0.265102
105	N/A	0.257631	0.278460
106	N/A	0.270547	0.292420
107	N/A	0.283656	0.306589
108	N/A	0.296590	0.320569
109	N/A	0.308986	0.333967