

**THE JUDICIAL RETIREMENT SYSTEM  
OF NEW JERSEY  
REPORT ON AN INVESTIGATION OF EXPERIENCE  
PREPARED AS OF JUNE 30, 2011**



August 3, 2012

State House Commission  
The Judicial Retirement System  
of New Jersey  
Trenton, New Jersey 08625-0295

Members of the Commission:

This year an actuarial investigation of the mortality and service experience of the members and beneficiaries of the retirement system was made in accordance with the provisions of Section 31 of Chapter 140, P.L. 1973. This Section specifies that such an investigation shall be made once in every three-year period. The results of this investigation, which examined the experience of the System from July 1, 2008 to June 30, 2011 are described in the attached report.

Please note that we have examined only the demographic and current salary increase assumptions and have not addressed the other economic assumptions, namely the interest rate assumption.

Buck performed the experience review based on data supplied by the State of New Jersey Division of Pensions and Benefits. Buck Consultants did not audit the data, although it was reviewed for reasonableness and consistency with prior data. The results of this review are dependent on the accuracy of the data.

The recommended assumptions contained in this report are to be used to value the pension benefits for members in the Judicial Retirement System. Use of these assumptions for any other purpose may not be appropriate. No one may make any representations or guarantees based on any statements or conclusions contained in this report without the written consent of Buck Consultants.

To the best of our knowledge, this experience investigation report is complete and accurate. The experience investigation was performed by, and under the supervision of, independent qualified actuaries who are members of the American Academy of Actuaries with experience in performing experience investigations for public retirement systems.

We are available at the Board's convenience to discuss this report.

Respectfully submitted,



Janet H. Cranna, F.S.A., E.A., M.A.A.A., F.C.A.  
Principal, Consulting Actuary

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**REPORT ON AN INVESTIGATION OF THE EXPERIENCE OF THE  
JUDICIAL RETIREMENT SYSTEM OF NEW JERSEY  
PREPARED AS OF JUNE 30, 2011**

**I. INTRODUCTION**

Section 31 of Chapter 140, P.L. 1973 of the New Jersey Statutes provides that once in every three-year period the actuary shall examine in detail the mortality and service experience of the members and beneficiaries of the Retirement System. This investigation is designed to ensure that the tables used for determining expected liabilities of the Retirement System are consistent with recent experience. If tables are not updated periodically, the liabilities of the System may be overstated or understated, and resulting contributions either too large or too small to fund the actual accruing liabilities.

This report was prepared in accordance with Actuarial Standards of Practice No. 35 (ASOP 35). ASOP 35 provides guidance to actuaries in selecting demographic and other noneconomic assumptions (including, but not limited to retirement, mortality and mortality improvement, termination of employment and disability) for measuring obligations under defined benefit plans.

This report summarizes the Retirement System's experience for the period from July 1, 2008 to June 30, 2011. Experience for active male and female members and disabled members were combined for the study. Mortality experience among service retired members and beneficiaries were based on gender. In instances where the data being examined appeared inconsistent with prior results or incomplete, we made no recommendation. These items will be reviewed closely when the next scheduled experience study is prepared as of June 30, 2014 and proposed changes, if warranted, will be recommended at that time.

Also, as noted earlier, we have included an examination of the current salary increase assumption in this study.

## II. EXAMINATION OF EXPERIENCE

As noted earlier, the examination this year covers the three-year period from July 1, 2008 to June 30, 2011. Where appropriate, we have made reference to trends that were first identified in prior studies.

The experience among active members has been compared with the experience expected according to the current active service and retirement tables. The experience among retired members and beneficiaries has also been compared with the experience expected according to the current mortality tables.

In the case of withdrawals, the current assumption is that no termination will occur prior to retirement. The information presented shows the actual number of vested and non-vested terminations. In investigating the experience with respect to death, male and female members were examined separately. With regard to disability and retirement, members were treated in one group. The expected number of separations from service on account of withdrawal, death, disability and service retirement were calculated by multiplying the rates of separation used as a basis for the active service tables by the number of those exposed. The actual number of those who had separated from service was then compared with the expected number. If the ratio of actual to expected is 1.000, the tables have exactly predicted what actually occurred. If the ratio of actual to expected is greater than 1.000, then the tables have underestimated actual experience. If the ratio is less than 1.000, then the tables have overstated actual experience.

Finally, in accordance with the current salary increase assumption, the expected salaries of those members who remain in service from year to year were obtained and these expected salaries were compared with the actual salaries. Again, a ratio of actual to expected of 1.000 would indicate that actual salary increases were identical to anticipated increases while a ratio greater than 1.000 indicates that salaries have increased faster than anticipated and a ratio less than 1.000 indicates that salaries have increased slower than anticipated.

The following tables examine the experience for active and inactive employees.

## ACTIVE PLAN EXPERIENCE

The first portion of this section contains a summary of active plan experience which examines the following rates:

- Withdrawal Rates
- Death Rates
- Disability Rates
- Service Retirement Rates
- Salary Increase Rates

**TABLE 1**

**COMPARISON OF ACTUAL AND EXPECTED SEPARATIONS  
FROM ACTIVE SERVICE**

**VESTED AND NON-VESTED WITHDRAWALS**

<b>Central Age of Group</b>	<b>Exposures</b>	<b>Actual Terminations</b>	<b>Expected Terminations</b>	<b>Ratio of Actual to Expected</b>
35	1	0	0.00	0.0000
40	17	0	0.00	0.0000
45	46	0	0.00	0.0000
50	177	0	0.00	0.0000
55	225	1	0.00	0.0000
58	57	0	0.00	0.0000
59	52	0	0.00	0.0000
<b>Total</b>	<b>575</b>	<b>1</b>	<b>0.00</b>	<b>0.0000</b>

Recommendation: No change.

**TABLE 2**  
**COMPARISON OF ACTUAL AND EXPECTED SEPARATIONS**  
**FROM ACTIVE SERVICE**

**DEATHS**

<b>Sex</b>	<b>Central Age of Group</b>	<b>Exposures</b>	<b>Actual Deaths</b>	<b>Expected Deaths</b>	<b>Ratio of Actual To Expected</b>
Male	20	0	0	0.00	0.0000
	25	0	0	0.00	0.0000
	30	0	0	0.00	0.0000
	35	1	0	0.00	0.0000
	40	11	0	0.01	0.0000
	45	23	0	0.03	0.0000
	50	114	0	0.18	0.0000
	55	188	0	0.43	0.0000
	60	309	1	1.18	0.8475
	65	242	0	1.59	0.0000
	68	26	0	0.26	0.0000
	69	21	0	0.24	0.0000
	<b>Total</b>	<b>935</b>	<b>1</b>	<b>3.92</b>	<b>0.2551</b>

Recommendation: No change to the base mortality table (RP-2000 Combined Healthy Mortality Table for Males with age set back 5 years). However, provide for future improvements in mortality using a generational approach based on projection scale AA.

<b>Sex</b>	<b>Central Age of Group</b>	<b>Exposures</b>	<b>Actual Deaths</b>	<b>Expected Deaths</b>	<b>Ratio of Actual To Expected</b>
Female	20	0	0	0.00	0.0000
	25	0	0	0.00	0.0000
	30	0	0	0.00	0.0000
	35	0	0	0.00	0.0000
	40	6	0	0.00	0.0000
	45	23	0	0.02	0.0000
	50	65	1	0.09	11.1111
	55	93	0	0.19	0.0000
	60	97	0	0.32	0.0000
	65	41	0	0.26	0.0000
	68	4	0	0.04	0.0000
	69	2	0	0.02	0.0000
	<b>Total</b>	<b>331</b>	<b>1</b>	<b>0.94</b>	<b>1.0638</b>

Recommendation: No change to the base mortality table (RP-2000 Combined Healthy Mortality Table for Females with age set back 3 years). However, provide for future improvements in mortality using a generational approach based on projection scale AA.

**TABLE 3**  
**COMPARISON OF ACTUAL AND EXPECTED SEPARATIONS**  
**FROM ACTIVE SERVICE**  
**DISABILITY RETIREMENTS**

<b>Central Age of Group</b>	<b>Exposures</b>	<b>Actual Disabilities</b>	<b>Expected Disabilities</b>	<b>Ratio of Actual to Expected</b>
35	1	0	0.00	0.0000
40	17	0	0.00	0.0000
45	46	0	0.04	0.0000
50	179	0	0.21	0.0000
55	281	0	0.54	0.0000
60	406	4	1.33	3.0075
65	283	3	1.32	2.2727
68	30	0	0.18	0.0000
69	23	0	0.15	0.0000
<b>Total</b>	<b>1,266</b>	<b>7</b>	<b>3.77</b>	<b>1.8568</b>

Recommendation: No change.

**TABLE 4**

**COMPARISON OF ACTUAL AND EXPECTED SEPARATIONS  
FROM ACTIVE SERVICE**

**RATES OF RETIREMENT**

Type	Age	Exposures	Actual Retirements	Expected Retirements	Ratio of Actual to Expected
Retirements at age 60 with 20 years of judicial service or age 65 with 15 years of judicial service	60	12	2	3.60	0.5556
	61	11	3	2.20	1.3636
	62	7	1	1.40	0.7143
	63	11	6	2.20	2.7273
	64	6	4	1.20	3.3333
	65	31	13	7.75	1.6774
	66	31	10	6.20	1.6129
	67	21	6	4.20	1.4286
	68	17	2	3.40	0.5882
	69	13	0	2.60	0.0000
Total		160	47	34.75	1.3525

Recommendation: No change.

Type	Age	Exposures	Actual Retirements	Expected Retirements	Ratio of Actual to Expected
Retirements after age 59 with less than 12 years of judicial service	60	45	1	0.00	0.0000
	61	51	0	0.00	0.0000
	62	41	1	0.00	0.0000
	63	35	0	0.00	0.0000
	64	28	1	0.00	0.0000
	65	23	1	0.00	0.0000
	66	12	1	0.00	0.0000
	67	9	0	0.00	0.0000
	68	10	1	0.00	0.0000
	69	5	0	0.00	0.0000
Total		259	6	0.00	0.0000

Recommendation: No change.

**TABLE 4  
(Continued)**

**COMPARISON OF ACTUAL AND EXPECTED SEPARATIONS  
FROM ACTIVE SERVICE**

**RATES OF RETIREMENT**

<b>Type</b>	<b>Age</b>	<b>Exposures</b>	<b>Actual Retirements</b>	<b>Expected Retirements</b>	<b>Ratio of Actual to Expected</b>
Retirements after age 59 with 12 or more years of judicial service (but have not attained age 60 with 20 years of judicial service or age 65 with 15 years of judicial service)	60	34	1	0.00	0.0000
	61	29	1	0.00	0.0000
	62	30	1	0.00	0.0000
	63	29	0	0.00	0.0000
	64	29	0	0.00	0.0000
	65	8	1	2.00	0.5000
	66	6	0	0.00	0.0000
	67	4	0	0.00	0.0000
	68	3	0	0.00	0.0000
	69	5	0	0.00	0.0000
	<b>Total</b>	<b>177</b>	<b>4</b>	<b>2.00</b>	<b>2.0000</b>

Recommendation: No change.

<b>Type</b>	<b>Age</b>	<b>Exposures</b>	<b>Actual Retirements</b>	<b>Expected Retirements</b>	<b>Ratio of Actual to Expected</b>
Early retirement prior to age 60 with 5 years of judicial service and 25 or more years of aggregate public service	Under 53	2	0	0.00	0.0000
	53	5	0	0.00	0.0000
	54	11	0	0.00	0.0000
	55	15	0	0.00	0.0000
	56	13	0	0.00	0.0000
	57	12	1	0.00	0.0000
	58	16	0	0.00	0.0000
	59	21	0	0.00	0.0000
	<b>Total</b>	<b>95</b>	<b>1</b>	<b>0.00</b>	<b>0.0000</b>

Recommendation: No change.

**TABLE 5**

**COMPARISON OF ACTUAL AND EXPECTED  
ACTIVE SALARY INCREASES**

<b>CENTRAL AGE OF GROUP</b>	<b>SALARY INCREASE</b>			
	<b>Actual Salary from Previous Year</b>	<b>Actual</b>	<b>Expected</b>	<b>Ratio of Actual to Expected</b>
40	\$ 1,469,000	\$ 1,485,000	\$ 1,535,105	0.967
45	6,496,000	6,600,000	6,788,320	0.972
50	25,112,329	25,514,453	26,242,384	0.972
55	40,211,405	40,925,914	42,020,918	0.974
60	61,829,551	62,926,419	64,611,881	0.974
65	45,828,029	46,572,739	47,890,290	0.972
Greater than 67	10,785,141	10,938,674	11,270,472	0.971
<b>Total</b>	<b>\$ 191,731,455</b>	<b>\$ 194,963,199</b>	<b>\$ 200,359,370</b>	<b>0.973</b>

Recommendation: Decrease the assumed future salary increases from 4.50% per annum to 2.50% per annum for fiscal year ending 2012 through fiscal year ending 2016 and 3.75% per annum for fiscal years ending 2017 and thereafter.

## INACTIVE PLAN EXPERIENCE

The second portion of this section contains a summary of inactive plan experience which examines the following rates:

- Service Retirement and Beneficiary Mortality Rates
- Disability Mortality Rates

**TABLE 6****COMPARISON OF ACTUAL AND EXPECTED CASES OF DEATH  
AMONG SERVICE RETIRED MEMBERS AND BENEFICIARIES**

<b>Sex</b>	<b>Central Age of Group</b>	<b>Exposures</b>	<b>Actual Deaths</b>	<b>Expected Deaths</b>	<b>Ratio of Actual to Expected</b>
Male	Under 48	3	0	0.0080	0.0000
	50	0	0	0.0000	0.0000
	55	6	0	0.0139	0.0000
	60	13	0	0.0574	0.0000
	65	130	1	0.9406	1.0632
	70	224	2	2.9237	0.6841
	75	225	3	4.9391	0.6074
	80	160	10	5.9697	1.6751
	85	117	9	7.4563	1.2070
	90	56	9	7.9386	1.1337
	<b>Total</b>	<b>934</b>	<b>34</b>	<b>30.2473</b>	<b>1.1241</b>

Recommendation: No change to the base mortality table (RP-2000 Combined Healthy Mortality Table for Males with age set back 5 years). However, provide for future improvements in mortality using a generational approach based on projection scale AA.

<b>Sex</b>	<b>Central Age of Group</b>	<b>Exposures</b>	<b>Actual Deaths</b>	<b>Expected Deaths</b>	<b>Ratio of Actual to Expected</b>
Female	Under 48	1	0	0.0010	0.0000
	50	4	0	0.0053	0.0000
	55	3	0	0.0069	0.0000
	60	33	0	0.1222	0.0000
	65	52	0	0.3737	0.0000
	70	74	2	0.9301	2.1503
	75	97	1	2.0134	0.4967
	80	90	4	3.1203	1.2819
	85	98	7	5.6839	1.2315
	90	98	16	11.6592	1.3723
	<b>Total</b>	<b>550</b>	<b>30</b>	<b>23.9160</b>	<b>1.2544</b>

Recommendation: No change to the base mortality table (RP-2000 Combined Healthy Mortality Table for Females with age set back 3 years). However, provide for future improvements in mortality using a generational approach based on projection scale AA.

**TABLE 7****COMPARISON OF ACTUAL AND EXPECTED CASES OF DEATH  
AMONG DISABLED MEMBERS**

<b>Sex</b>	<b>Central Age of Group</b>	<b>Exposures</b>	<b>Actual Deaths</b>	<b>Expected Deaths</b>	<b>Ratio of Actual to Expected</b>
Male	Under 48	0	0	0.0000	0.0000
	50	0	0	0.0000	0.0000
	55	0	0	0.0000	0.0000
	60	3	0	0.1336	0.0000
	65	3	0	0.1393	0.0000
	70	3	1	0.1978	5.0556
	75	3	1	0.2825	3.5398
	80	2	0	0.2249	0.0000
	85	0	0	0.0000	0.0000
	90	3	0	0.5998	0.0000
	<b>Total</b>	<b>17</b>	<b>2</b>	<b>1.5779</b>	<b>1.2675</b>

Recommendation: No change.

<b>Sex</b>	<b>Central Age of Group</b>	<b>Exposures</b>	<b>Actual Deaths</b>	<b>Expected Deaths</b>	<b>Ratio of Actual to Expected</b>
Female	Under 48	0	0	0.0000	0.0000
	50	1	0	0.0155	0.0000
	55	2	0	0.0341	0.0000
	60	2	0	0.0392	0.0000
	65	0	0	0.0000	0.0000
	70	0	0	0.0000	0.0000
	75	0	0	0.0000	0.0000
	80	0	0	0.0000	0.0000
	85	0	0	0.0000	0.0000
	90	0	0	0.0000	0.0000
	<b>Total</b>	<b>5</b>	<b>0</b>	<b>0.0888</b>	<b>0.0000</b>

Recommendation: No change.

### **III. COMMENTS AND GENERAL RECOMMENDATION OF ACTUARIES**

#### **RATES OF WITHDRAWAL**

The current assumption is that no vested (meeting the vested eligibility requirement of five or more years of judicial service and ten or more years of aggregate public service) or non-vested (prior to meeting the vesting requirement) terminations will occur. Table 1 illustrates that there was 1 termination out of 575 exposures, or approximately 0.2%, during the study period. This is in line with the experience from the prior four studies and supports the current assumption. Therefore, we do not recommend any change to the assumed rates of withdrawal.

#### **RATES OF DISABILITY RETIREMENT**

Table 3 shows that actual disabilities for active members were within an acceptable range of that expected and no change is recommended to the assumed rates of disability among active members.

#### **RATES OF SERVICE RETIREMENT**

The retirement assumption for members who have attained age 60 with 20 years of judicial service is 30% at age 60 and 20% for all other ages. The retirement assumption for members who have attained age 65 with 15 years of judicial service is 25% at age 65 and 20% for all other ages. In addition, the retirement assumption is that 25% of judges who have 12 or more years of judicial service but have not attained age 60 with 20 years of judicial service or age 65 with 15 years of judicial service will retire at age 65. At age 70, all remaining active members are assumed to retire.

The first section of Table 4 presents the experience for members who are age 60 or over with at least 20 years of judicial service or who are at least age 65 with 15 or more years of judicial service. Actual retirements for the three-year period were about 135% of that expected (roughly 29% of those eligible actually retired when 22% was expected), reversing the trend of the prior study. Since there is no clear pattern at this time, we recommend no change to the assumption. We will continue to carefully monitor

the experience of this assumption and determine whether changes are warranted during the next experience study.

The second section of Table 4 summarizes the experience for members who are at least age 60 and have less than 12 years of judicial service. Although no retirements were expected from this group during the three year study period, 6 judges actually retired. However, this incidence of retirement is relatively small and we are not recommending any change to this assumption at this time.

The next section of Table 4 contains the experience for retirements of members with 12 or more years of judicial service (but have not attained age 60 with 20 years of judicial service or age 65 with 15 years of judicial service). The number of actual retirements is within an acceptable range of that expected, therefore, we do not recommend any change to the assumed rates of retirement within this group.

Similarly, the last section of Table 4 summarizes the data for members who meet the Early Retirement eligibility (prior to age 60 while serving as a judge with 5 consecutive years of judicial service and 25 or more years of aggregate public service). The current assumption is that there are no retirements for this group. There was 1 actual retirement out of 95 exposures. The number of actual retirements is within an acceptable range of that expected, therefore we do not recommend any changes in this assumption.

#### **RATES OF SALARY INCREASE**

Table 5 shows that the salary increase assumption of 4.50% per year (prior to the July 1, 2011 actuarial valuation) is higher than the actual salary increase experience during the study period. The actual salary increase rate is 1.69%. In addition, based on historical data we have accumulated for our six previous experience studies, it appears that members of the system do not receive salary increases on an annual basis. The Treasurer, upon recommendation from the Directors of the Division of Pensions and Benefits and the Division of Investments, has recommended, effective with the July 1, 2011 actuarial valuation, assumed future salary increases of 2.50% per annum for fiscal year ending 2012 through fiscal year

ending 2016 and 3.75% per annum for fiscal years ending 2017 and thereafter. We believe this is a reasonable assumption given the experience of the System.

### **MORTALITY IMPROVEMENT**

As noted in prior experience studies, we have seen continued and steady improvement in mortality rates over time in the general population. This trend is expected to continue into the future. In fact, Actuarial Standards of Practice No. 35 states that the actuary should “include an assumption as to expected mortality improvement after the measurement date.” In light of these recommendations, we recommend the use of a generational approach toward future mortality improvements for all members.

The projection of mortality improvements on a generational basis results in a separate table for each year of birth. The rates of mortality decrease as the year of birth increases. For example, a participant born in 1960 will have a higher rate of mortality at each age than a participant born in 1965. The mortality table for birth year 1965 will have five more years of mortality improvement than the table for birth year 1960.

To create this dynamic mortality table, we will select a base mortality table that represents the current experience of the plan. Each year after the measurement date, this base table will be projected with an additional year of improvement. The resulting generational mortality table will better reflect expected future mortality improvements compared to a static table and should decrease the losses experienced by the plan over time.

We recommend the use of projection scale AA in the projection of the mortality tables.

The following table demonstrates the impact of the generational mortality improvement. It compares the expected age at death for male members of various ages before and after incorporating the recommended mortality projections. The base table is the current mortality assumption for male members retired on account

of service retirement which is the RP-2000 Combined Healthy Male Mortality Table with ages set back 5 years.

Age at Measurement Date	Expected Age at Death (Males)	
	Zero Future Mortality Improvement	Generational Mortality Improvement
50	85.5	87.5
55	85.8	87.4
60	86.2	87.4
65	86.7	87.6

#### **RATES OF DEATH AMONG ACTIVE MEMBERS**

The data (summarized in Table 2) examined during the three-year measurement period shows that the experience for male and female active members is within an acceptable range of that expected. We recommend the continued use of the RP-2000 Combined Healthy Mortality Tables (set back 5 years for males and 3 years for females) as the base mortality table at the measurement date. The base table will then be projected on a generational basis using projection scale AA.

#### **RATES OF MORTALITY AMONG RETIRED MEMBERS AND BENEFICIARIES**

The data for healthy inactive mortality, which is summarized in Table 6, shows that the actual mortality experience among service retired male and female members and beneficiaries is within the acceptable range of that expected. We recommend the continued use of the RP-2000 Combined Healthy Mortality Tables (set back 5 years for males and 3 years for females) as the base mortality table at the measurement date. The base table will then be projected on a generational basis using projection scale AA.

Table 7 shows that the experience for death among disabled members is in line with that expected and no changes are recommended.

#### **IV. PROPOSED NEW ASSUMPTIONS**

The experience investigation for the period from July 1, 2008 through June 30, 2011 was based on information received from the Division of Pensions and Benefits for the July 1, 2009 through July 1, 2011 valuations. Based on an examination of the three-year study period, we are proposing the following changes:

<b><u>Rates</u></b>	<b><u>Proposed Changes</u></b>
Vested and Non-Vested Withdrawals	No Change
Active Death	No Change *
Disability	No Change
Retirement	
• Age 60 with 20 years of judicial service or age 65 with 15 years of judicial service	No Change
• Age 60 with less than 12 years of judicial service	No Change
• Age 60 with 12 or more years of judicial service (but not meeting the 60/20 or 65/15 eligibility)	No Change
• Less than age 60 with 5 years of judicial service and 25 or more years of public service	No Change
Salary Increase	Decrease **
Inactive Mortality	
• Retired male and female members and beneficiaries	No Change *
• Disability retirements	No Change

\* No change to the base mortality table (RP-2000 Combined Healthy Mortality Table for Males with ages set back 5 years and Females with ages set back 3 years). However, provide for future improvements in mortality using a generational approach based on projection scale AA.

\*\* Effective with the July 1, 2011 actuarial valuation.

The following tables give a comparison of the current, actual and proposed rates of separation from active service and rates of mortality for retired members at quinquennial ages.

**TABLE 8**

**COMPARISON OF ACTUAL AND EXPECTED RATES OF SEPARATION  
FROM ACTIVE SERVICE**

**VESTED AND NON-VESTED WITHDRAWALS**

<b>Central Age of Group</b>	<b>Current Rates</b>	<b>Actual Rates</b>	<b>Proposed Rates: No Change</b>
35	0.00000	0.00000	0.00000
40	0.00000	0.00000	0.00000
45	0.00000	0.00000	0.00000
50	0.00000	0.00000	0.00000
55	0.00000	0.00444	0.00000
60	0.00000	0.00000	0.00000
65	0.00000	0.00000	0.00000
68	0.00000	0.00000	0.00000
69	0.00000	0.00000	0.00000

**TABLE 9****COMPARISON OF ACTUAL AND EXPECTED RATES OF SEPARATION  
FROM ACTIVE SERVICE****DEATHS**

<b>Sex</b>	<b>Central Age of Group</b>	<b>Current Rates</b>	<b>Actual Rates</b>	<b>Proposed Rates</b>
Male	20	0.00028	0.00000	0.00028
	25	0.00034	0.00000	0.00034
	30	0.00038	0.00000	0.00038
	35	0.00046	0.00000	0.00046
	40	0.00077	0.00000	0.00077
	45	0.00108	0.00000	0.00108
	50	0.00151	0.00000	0.00151
	55	0.00222	0.00000	0.00222
	60	0.00373	0.00324	0.00373
	65	0.00688	0.00000	0.00688
	68	0.01001	0.00000	0.01001
69	0.01128	0.00000	0.01128	

Recommendation: No change to the base mortality table (RP-2000 Combined Healthy Mortality Table for Males with ages set back 5 years). However, provide for future improvements in mortality using a generational approach based on projection scale AA.

<b>Sex</b>	<b>Central Age of Group</b>	<b>Current Rates</b>	<b>Actual Rates</b>	<b>Proposed Rates</b>
Female	20	0.00019	0.00000	0.00019
	25	0.00019	0.00000	0.00019
	30	0.00023	0.00000	0.00023
	35	0.00035	0.00000	0.00035
	40	0.00056	0.00000	0.00056
	45	0.00086	0.00000	0.00086
	50	0.00133	0.01538	0.00133
	55	0.00204	0.00000	0.00204
	60	0.00353	0.00000	0.00353
	65	0.00676	0.00000	0.00676
	68	0.00971	0.00000	0.00971
69	0.01095	0.00000	0.01095	

Recommendation: No change to the base mortality table (RP-2000 Combined Healthy Mortality Table for Females with ages set back 3 years). However, provide for future improvements in mortality using a generational approach based on projection scale AA.

**TABLE 10**

**COMPARISON OF ACTUAL AND EXPECTED RATES OF SEPARATION  
FROM ACTIVE SERVICE**

**DISABILITY RETIREMENTS**

<b>Central Age of Group</b>	<b>Current Rates</b>	<b>Actual Rates</b>	<b>Proposed Rates: No Change</b>
35	0.00026	0.00000	0.00026
40	0.00034	0.00000	0.00034
45	0.00063	0.00000	0.00063
50	0.00115	0.00000	0.00115
55	0.00193	0.00000	0.00193
60	0.00326	0.00985	0.00326
65	0.00477	0.01060	0.00477
68	0.00599	0.00000	0.00599
69	0.00652	0.00000	0.00652

**TABLE 11**

**COMPARISON OF ACTUAL AND EXPECTED RATES OF SEPARATION  
FROM ACTIVE SERVICE RETIREMENTS**

<b>Type</b>	<b>Central Age of Group</b>	<b>Current Rates</b>	<b>Actual Rates</b>	<b>Proposed Rates: No Change</b>
Age 60 with 20 years of judicial service or age 65 with 15 years of judicial service	60	0.30000	0.16667	0.30000
	61	0.20000	0.27273	0.20000
	62	0.20000	0.14286	0.20000
	63	0.20000	0.54545	0.20000
	64	0.20000	0.66667	0.20000
	65	0.25000	0.41935	0.25000
	66	0.20000	0.32258	0.20000
	67	0.20000	0.28571	0.20000
	68	0.20000	0.11765	0.20000
69	0.20000	0.00000	0.20000	
After age 59 with less than 12 years of judicial service	60	0.00000	0.02222	0.00000
	61	0.00000	0.00000	0.00000
	62	0.00000	0.02439	0.00000
	63	0.00000	0.00000	0.00000
	64	0.00000	0.03571	0.00000
	65	0.00000	0.04348	0.00000
	66	0.00000	0.08333	0.00000
	67	0.00000	0.00000	0.00000
	68	0.00000	0.10000	0.00000
69	0.00000	0.00000	0.00000	
After age 59 with twelve or more years of judicial service (but have not attained age 60 with 20 years of judicial service or age 65 with 15 years of judicial service)	60	0.00000	0.02941	0.00000
	61	0.00000	0.03448	0.00000
	62	0.00000	0.03333	0.00000
	63	0.00000	0.00000	0.00000
	64	0.00000	0.00000	0.00000
	65	0.25000	0.12500	0.25000
	66	0.00000	0.00000	0.00000
	67	0.00000	0.00000	0.00000
	68	0.00000	0.00000	0.00000
69	0.00000	0.00000	0.00000	
Prior to age 60 with 5 years of judicial service and 25 or more years of aggregate public service	50	0.00000	0.00000	0.00000
	51	0.00000	0.00000	0.00000
	52	0.00000	0.00000	0.00000
	53	0.00000	0.00000	0.00000
	54	0.00000	0.00000	0.00000
	55	0.00000	0.00000	0.00000
	56	0.00000	0.00000	0.00000
	57	0.00000	0.08333	0.00000
	58	0.00000	0.00000	0.00000
59	0.00000	0.00000	0.00000	

**TABLE 12**

**COMPARISON OF ACTUAL AND EXPECTED  
SALARY INCREASES**

<b>Central Age of Group</b>	<b>Current Rates</b>	<b>Actual Rates</b>	<b>Proposed Rates</b>	
			<b>Fiscal Year Ending 2012 through Fiscal Year Ending 2016</b>	<b>Fiscal Year Ending 2017 and thereafter</b>
40	4.50%	1.09%	2.50%	3.75%
45	4.50%	1.60%	2.50%	3.75%
50	4.50%	1.60%	2.50%	3.75%
55	4.50%	1.78%	2.50%	3.75%
60	4.50%	1.77%	2.50%	3.75%
65	4.50%	1.63%	2.50%	3.75%
Greater than 67	4.50%	1.42%	2.50%	3.75%

**TABLE 13**  
**COMPARISON OF ACTUAL AND EXPECTED RATES OF MORTALITY**  
**AMONG RETIRED MEMBERS AND BENEFICIARIES**

**MALES**

Central Age of Group	Current Rates	Actual Rates	Proposed Rates
45	0.00108	0.00000	0.00108
50	0.00151	0.00000	0.00151
55	0.00222	0.00000	0.00222
60	0.00373	0.00000	0.00373
65	0.00688	0.00769	0.00688
70	0.01290	0.00893	0.01290
75	0.02235	0.01333	0.02235
80	0.03824	0.06250	0.03824
85	0.06539	0.07692	0.06539
90 and over	0.11182	0.16071	0.11182

Recommendation: No change to the base mortality table (RP-2000 Combined Healthy Mortality Table for Males with ages set back 5 years). However, provide for future improvements in mortality using a generational approach based on projection scale AA.

**FEMALES**

Central Age of Group	Current Rates	Actual Rates	Proposed Rates
45	0.00086	0.00000	0.00086
50	0.00133	0.00000	0.00133
55	0.00204	0.00000	0.00204
60	0.00353	0.00000	0.00353
65	0.00676	0.00000	0.00676
70	0.01223	0.02703	0.01223
75	0.02088	0.01031	0.02088
80	0.03446	0.04444	0.03446
85	0.05700	0.07143	0.05700
90 and over	0.09732	0.16327	0.09732

Recommendation: No change to the base mortality table (RP-2000 Combined Healthy Mortality Table for Females with ages set back 3 years). However, provide for future improvements in mortality using a generational approach based on projection scale AA.

**TABLE 14**

**COMPARISON OF ACTUAL AND EXPECTED RATES OF MORTALITY  
AMONG DISABLED MEMBERS**

**MALES**

<b>Central Age of Group</b>	<b>Current Rates</b>	<b>Actual Rates</b>	<b>Proposed Rates: No Change</b>
45	0.02513	0.00000	0.02513
50	0.03156	0.00000	0.03156
55	0.03804	0.00000	0.03804
60	0.04508	0.00000	0.04508
65	0.05467	0.00000	0.05467
70	0.06973	0.33333	0.06973
75	0.09244	0.33333	0.09244
80	0.11201	0.00000	0.11201
85	0.15532	0.00000	0.15532
90 and over	0.21683	0.00000	0.21683

**FEMALES**

<b>Central Age of Group</b>	<b>Current Rates</b>	<b>Actual Rates</b>	<b>Proposed Rates: No Change</b>
45	0.00900	0.00000	0.00900
50	0.01349	0.00000	0.01349
55	0.01865	0.00000	0.01865
60	0.02415	0.00000	0.02415
65	0.03150	0.00000	0.03150
70	0.04306	0.00000	0.04306
75	0.05978	0.00000	0.05978
80	0.08267	0.00000	0.08267
85	0.11505	0.00000	0.11505
90 and over	0.16058	0.00000	0.16058

## V. COST IMPACT OF THE PROPOSED ASSUMPTIONS

The overall effect of the proposed changes would be an increase in the normal contribution and the accrued liability payment. The following chart presents a summary of the liabilities and contributions under the current and proposed assumptions as of July 1, 2011:

	<b>Current</b>	<b>Proposed</b>
Actuarial Accrued Liability	\$ 585,700,787	\$ 592,664,607
Additional Accrued Liability		\$ 6,963,820
Unfunded Accrued Liability/(Surplus)	\$ 274,976,005	\$ 281,939,825
Funded Ratios:		
Actuarial Value of Assets	53.1%	52.4%
Market Value of Assets	46.1%	45.6%
<u>Recommended Contribution*:</u>		
• Normal Cost	\$ 16,441,524	\$ 16,802,663
• Accrued Liability	<u>24,310,280</u>	<u>24,925,941</u>
• Total Contribution	\$ 40,751,804	\$ 41,728,604
Additional Annual Contribution		\$ 976,800

\* Recommended contribution for the fiscal year ending June 30, 2013; does not reflect the phase in under Chapter 1, P.L. 2010.

The calculations were based on the same data and actuarial methods as were used in the July 1, 2011 valuation. Note that the July 1, 2011 valuation reflects the revised economic assumptions which include a 7.95% per annum interest rate and a salary increase assumption of 2.50% per annum for fiscal year ending 2012 through fiscal year ending 2016 and 3.75% per annum for fiscal years ending 2017 and thereafter.

**VI. COMPLETE SET OF PROPOSED ASSUMPTIONS**

**Table 1**  
**Active Termination Tables**

Age	Vested and Non-Vested Withdrawals	Deaths*		Disability
		Male	Female	
20	0.00000	0.00027	0.00018	0.00019
21	0.00000	0.00028	0.00019	0.00020
22	0.00000	0.00030	0.00019	0.00020
23	0.00000	0.00032	0.00019	0.00020
24	0.00000	0.00033	0.00019	0.00021
25	0.00000	0.00034	0.00019	0.00021
26	0.00000	0.00036	0.00020	0.00021
27	0.00000	0.00037	0.00020	0.00021
28	0.00000	0.00037	0.00021	0.00022
29	0.00000	0.00038	0.00021	0.00022
30	0.00000	0.00038	0.00022	0.00022
31	0.00000	0.00038	0.00024	0.00023
32	0.00000	0.00038	0.00025	0.00024
33	0.00000	0.00039	0.00026	0.00024
34	0.00000	0.00041	0.00031	0.00026
35	0.00000	0.00044	0.00035	0.00026
36	0.00000	0.00050	0.00039	0.00028
37	0.00000	0.00056	0.00043	0.00028
38	0.00000	0.00063	0.00047	0.00030
39	0.00000	0.00070	0.00051	0.00030
40	0.00000	0.00077	0.00055	0.00033
41	0.00000	0.00084	0.00060	0.00036
42	0.00000	0.00090	0.00065	0.00043
43	0.00000	0.00096	0.00071	0.00047
44	0.00000	0.00102	0.00077	0.00054
45	0.00000	0.00108	0.00085	0.00064
46	0.00000	0.00114	0.00094	0.00071
47	0.00000	0.00121	0.00103	0.00080
48	0.00000	0.00130	0.00112	0.00091
49	0.00000	0.00140	0.00122	0.00102
50	0.00000	0.00151	0.00133	0.00114
51	0.00000	0.00162	0.00143	0.00126
52	0.00000	0.00173	0.00155	0.00142
53	0.00000	0.00186	0.00168	0.00157
54	0.00000	0.00200	0.00185	0.00177
55	0.00000	0.00214	0.00202	0.00197
56	0.00000	0.00245	0.00221	0.00218
57	0.00000	0.00267	0.00242	0.00218
58	0.00000	0.00292	0.00272	0.00269
59	0.00000	0.00320	0.00309	0.00296
60	0.00000	0.00362	0.00348	0.00326
61	0.00000	0.00420	0.00392	0.00354
62	0.00000	0.00469	0.00444	0.00383
63	0.00000	0.00527	0.00506	0.00412
64	0.00000	0.00595	0.00581	0.00442
65	0.00000	0.00675	0.00666	0.00473
66	0.00000	0.00768	0.00765	0.00510
67	0.00000	0.00876	0.00862	0.00550
68	0.00000	0.01001	0.00971	0.00599
69	0.00000	0.01128	0.01095	0.00652

\* Base mortality table is the RP-2000 Combined Healthy Mortality Table for Males and Females with ages set back 5 years for males and 3 years for females. Provide for future improvements in mortality using a generational approach based on projection scale AA.

**Table 2**

**Active Service Retirement Tables**

<b>Age</b>	<b>Age 60 with 20 Years Judicial Service or Age 65 with 15 Years Judicial Service</b>	<b>After Age 59 with Less than 12 Years Judicial Service</b>	<b>After Age 59 with More than 12 Years Judicial Service (but have not attained 60/20JS or 65/15JS)</b>	<b>Prior to age 60 with 5 Years Judicial Service and 25 Years Public Service</b>
50	0.00000	0.00000	0.00000	0.00000
51	0.00000	0.00000	0.00000	0.00000
52	0.00000	0.00000	0.00000	0.00000
53	0.00000	0.00000	0.00000	0.00000
54	0.00000	0.00000	0.00000	0.00000
55	0.00000	0.00000	0.00000	0.00000
56	0.00000	0.00000	0.00000	0.00000
57	0.00000	0.00000	0.00000	0.00000
58	0.00000	0.00000	0.00000	0.00000
59	0.00000	0.00000	0.00000	0.00000
60	0.30000	0.00000	0.00000	0.00000
61	0.20000	0.00000	0.00000	0.00000
62	0.20000	0.00000	0.00000	0.00000
63	0.20000	0.00000	0.00000	0.00000
64	0.20000	0.00000	0.00000	0.00000
65	0.25000	0.00000	0.25000	0.00000
66	0.20000	0.00000	0.00000	0.00000
67	0.20000	0.00000	0.00000	0.00000
68	0.20000	0.00000	0.00000	0.00000
69	0.20000	0.00000	0.00000	0.00000

**Table 3**

**Salary Increases**

Age	Salary Increase		Age	Salary Increase	
	FY2012 through FY2016	FY2017 and thereafter		FY2012 through FY2016	FY2017 and thereafter
20	0.0250	0.0375	45	0.0250	0.0375
21	0.0250	0.0375	46	0.0250	0.0375
22	0.0250	0.0375	47	0.0250	0.0375
23	0.0250	0.0375	48	0.0250	0.0375
24	0.0250	0.0375	49	0.0250	0.0375
25	0.0250	0.0375	50	0.0250	0.0375
26	0.0250	0.0375	51	0.0250	0.0375
27	0.0250	0.0375	52	0.0250	0.0375
28	0.0250	0.0375	53	0.0250	0.0375
29	0.0250	0.0375	54	0.0250	0.0375
30	0.0250	0.0375	55	0.0250	0.0375
31	0.0250	0.0375	56	0.0250	0.0375
32	0.0250	0.0375	57	0.0250	0.0375
33	0.0250	0.0375	58	0.0250	0.0375
34	0.0250	0.0375	59	0.0250	0.0375
35	0.0250	0.0375	60	0.0250	0.0375
36	0.0250	0.0375	61	0.0250	0.0375
37	0.0250	0.0375	62	0.0250	0.0375
38	0.0250	0.0375	63	0.0250	0.0375
39	0.0250	0.0375	64	0.0250	0.0375
40	0.0250	0.0375	65	0.0250	0.0375
41	0.0250	0.0375	66	0.0250	0.0375
42	0.0250	0.0375	67	0.0250	0.0375
43	0.0250	0.0375	68	0.0250	0.0375
44	0.0250	0.0375	69	0.0250	0.0375

**Table 4**

**Mortality Table for Retired Members and Beneficiaries**

Age	Healthy Retired Members and Beneficiaries*		Disability Retirement**	
	Male	Female	Male	Female
40	0.00077	0.00055	0.02257	0.00745
41	0.00084	0.00060	0.02257	0.00745
42	0.00090	0.00065	0.02257	0.00745
43	0.00096	0.00071	0.02257	0.00745
44	0.00102	0.00077	0.02385	0.00818
45	0.00108	0.00085	0.02512	0.00896
46	0.00114	0.00094	0.02640	0.00977
47	0.00121	0.00103	0.02769	0.01063
48	0.00130	0.00112	0.02898	0.01153
49	0.00140	0.00122	0.03027	0.01248
50	0.00151	0.00133	0.03156	0.01346
51	0.00162	0.00143	0.03286	0.01446
52	0.00173	0.00155	0.03415	0.01550
53	0.00186	0.00168	0.03544	0.01654
54	0.00200	0.00185	0.03673	0.01760
55	0.00214	0.00202	0.03803	0.01865
56	0.00245	0.00221	0.03933	0.01971
57	0.00267	0.00242	0.04067	0.02077
58	0.00292	0.00272	0.04204	0.02184
59	0.00320	0.00309	0.04347	0.02294
60	0.00362	0.00348	0.04498	0.02408
61	0.00420	0.00392	0.04658	0.02529
62	0.00469	0.00444	0.04831	0.02660
63	0.00527	0.00506	0.05017	0.02803
64	0.00595	0.00581	0.05221	0.02959
65	0.00675	0.00666	0.05445	0.03132
66	0.00768	0.00765	0.05691	0.03323
67	0.00876	0.00862	0.05961	0.03534
68	0.01001	0.00971	0.06258	0.03763
69	0.01128	0.01095	0.06584	0.04014
70	0.01274	0.01216	0.06941	0.04285
71	0.01441	0.01345	0.07329	0.04577
72	0.01608	0.01486	0.07751	0.04890
73	0.01787	0.01674	0.08207	0.05223
74	0.01980	0.01858	0.08695	0.05578

\*Base mortality table is the RP-2000 Combined Healthy Mortality Table for Males and Females with ages set back 5 years for males and 3 years for females. Provide for future improvements in mortality using a generational approach based on projection scale AA.

\*\*Base mortality table is the RP-2000 Disabled Mortality Table for Males and Females with ages set forward 2 years for males and females.

**Table 4**

**Mortality Table for Retired Members and Beneficiaries  
(Continued)**

Age	Healthy Retired Members and Beneficiaries*		Disability Retirement**	
	Male	Female	Male	Female
75	0.02221	0.02066	0.09215	0.05954
76	0.02457	0.02297	0.09764	0.06354
77	0.02728	0.02546	0.10339	0.06779
78	0.03039	0.02811	0.10937	0.07231
79	0.03390	0.03097	0.11554	0.07713
80	0.03783	0.03411	0.12188	0.08230
81	0.04217	0.03759	0.12834	0.08784
82	0.04691	0.04151	0.13492	0.09379
83	0.05212	0.04588	0.14160	0.10020
84	0.05793	0.05078	0.14837	0.10710
85	0.06437	0.05629	0.15523	0.11451
86	0.07204	0.06251	0.16219	0.12246
87	0.08049	0.06952	0.16923	0.13097
88	0.08972	0.07745	0.18341	0.14005
89	0.09978	0.08638	0.19977	0.14970
90	0.11076	0.09634	0.21661	0.15992
91	0.12280	0.10730	0.23366	0.17043
92	0.13604	0.11915	0.25069	0.18280
93	0.15059	0.13168	0.26749	0.19451
94	0.16642	0.14460	0.28391	0.20538
95	0.18341	0.15762	0.29985	0.21524
96	0.19977	0.17043	0.31530	0.22395
97	0.21661	0.18280	0.33021	0.23139
98	0.23366	0.19451	0.34456	0.23747
99	0.25069	0.20538	0.35863	0.24483
100	0.26749	0.21524	0.37169	0.25450
101	0.28391	0.22395	0.38304	0.26604
102	0.29985	0.23139	0.39200	0.27905
103	0.31530	0.23747	0.39789	0.29312
104	0.33021	0.24483	0.40000	0.30781
105	0.34456	0.25450	0.40000	0.32272
106	0.35863	0.26604	0.40000	0.33744
107	0.37169	0.27905	0.40000	0.35154
108	0.38304	0.29312	0.40000	0.36462

\*Base mortality table is the RP-2000 Combined Healthy Mortality Table for Males and Females with ages set back 5 years for males and 3 years for females. Provide for future improvements in mortality using a generational approach based on projection scale AA.

\*\*Base mortality table is the RP-2000 Disabled Mortality Table for Males and Females with ages set forward 2 years for males and females.