

February 3, 2012

Experience Study 2006 - 2011 State Patrol Retirement Fund

MERCER

February 3, 2012

Minnesota State Retirement System
State Patrol Retirement Fund
St. Paul, MN 55103

2006 to 2011 Experience Study – State Patrol Retirement Fund

Dear Dave:

The results of the actuarial valuation are based on actuarial methods, procedures and assumptions adopted by the Legislative Commission on Pensions and Retirement (LCPR). These assumptions are used in developing employer contribution rates, disclosing employer liabilities pursuant to GASB requirements and for analyzing the fiscal impact of proposed legislative amendments.


The purpose of this report is to present the results of our review of the actuarial methods and procedures, economic assumptions, and demographic assumptions used in the June 30, 2011 actuarial valuation. Our proposals represent our best-estimate based on recent experience, future expectations and professional judgment.

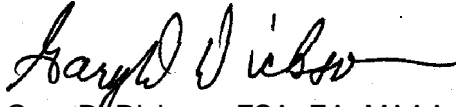
The analysis in this study was based on data for the period from July 1, 2006, to June 30, 2011, as provided by the Fund. The Fund's actuary would not customarily verify this data. We have reviewed the information for internal consistency and reasonableness and have no reason to doubt its substantial accuracy.

This report has been prepared exclusively for the Minnesota State Retirement System. Mercer is not responsible for consequences arising from the use of this report for any other purposes.

We are available to answer any questions on the material contained in the report, or to provide explanations or further details as may be appropriate. The undersigned credentialed actuaries meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

Sincerely,


Bonita J. Wurst, ASA, EA, MAAA


Gary D. Dickson, FSA, EA, MAAA

The information contained in this document (including any attachments) is not intended by Mercer to be used, and it cannot be used, for the purpose of avoiding penalties under the Internal Revenue Code that may be imposed on the taxpayer.

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Executive Summary

This report has been prepared by Mercer for the State Patrol Retirement Fund in order to analyze the Fund’s experience from July 1, 2006, through June 30, 2011, and to develop proposals for changes in valuation methods, allocation procedures, economic assumptions, and demographic assumptions.

A brief summary of our proposals is as follows:

Actuarial Methods	No changes to current actuarial methods.
Economic Assumptions	<p>Reduce the real wage growth assumption from 1.50% to 0.75%.</p> <p>Reduce the payroll growth assumption from 4.50% to 3.75%.</p> <p>Change the salary increase assumption from an age related table to a service related table.</p> <p>Reduce the investment return assumption from 8.50% to 8.00%.</p>
Demographic Assumptions	Change the basis for several of the assumptions and make adjustments to several other current assumptions to more closely match experience.

A valuation assumption which is outside the scope of this experience study is the Combined Service Annuity load factor. Currently, deferred vested liabilities are increased 30.0% to account for the effect of some members being eligible for a Combined Service Annuity. This assumption has been unchanged since 2002. We recommend that actual Combined Service Annuity data be collected and reviewed in order to determine whether the current factors are appropriate.

Executive Summary

Overview of Proposed Changes

Actuarial Methods

We propose no changes to the actuarial methods.

Economic Assumptions

Real Wage Growth

Based on our analysis of actual growth in real National Average Wages over the last 50 years, we propose changing the current assumption from 1.50% to 0.75%.

Payroll Growth

Based on our proposed change in the Real Wage Growth assumption, we propose changing the current assumption from 4.50% to 3.75%.

Salary Increases

We propose changing the salary increase rates from an age based table to a service based table.

Investment Return

Based on our analysis of anticipated returns for asset classes included in the target asset allocation, we propose changing the current assumption from 8.50% to 8.00%. Please see our Experience Study for the State Employees Retirement Fund dated August 31, 2009 for the detail behind this proposal.

Demographic Assumptions

Healthy Post-retirement Mortality

Mortality rates are used to project the length of time benefits will be paid to current and future retirees and beneficiaries. We propose a change to a more recent mortality table to better anticipate current and future mortality patterns.

Disabled Retired Mortality

In conjunction with our proposed change for healthy retiree mortality, we propose a change to a more recent mortality table for disability mortality.

Pre-retirement Mortality

In conjunction with our proposed change for healthy retiree mortality, we are proposing a change to a more recent mortality table.

Executive Summary

Retirement from Active Status

Retirement rates for actives are used to predict when active members will elect to begin receiving retirement benefits. We propose decreasing early retirement rates and increasing the retirement rates at ages 55 through 57 to reflect retirement patterns observed over the five-year experience study period.

Retirement from Inactive Status

Retirement rates for inactives are used to predict when vested terminated members will elect to begin receiving retirement benefits. We propose no change in the current assumption.

Retirement Statistics

We propose making minor adjustments to the assumed number of married retirees, the age difference between retirees and beneficiaries and the percentages of retirees electing the optional forms of benefit at retirement.

Disability Retirement

We propose decreasing disability rates to 80% of current rates for male and female members.

Termination Rates

We propose changing the termination rates during the three-year select period to reflect higher expected turnover in the first year and lower expected turnover in the second and third year.



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Actuarial Methods

Overview

Actuarial methods and allocation procedures are used as part of the valuation to determine actuarial accrued liabilities, to determine normal costs, to allocate costs to individual employers and to amortize unfunded accrued liabilities (UAL). We used the following objectives to propose actuarial methods and allocation procedures:

- Transparency of costs and funded status
- Predictable and stable employer contribution rates
- Protection of the plan's funded status
- Equity across generations
- Actuarial soundness
- Compliance with GASB requirements

We propose no changes to the fundamental actuarial methods at this time. The actuarial methods used for the June 30, 2011 actuarial valuation are shown in the table on the next page.

Actuarial Methods

Method	June 30, 2011 Method	Proposed Method
Cost method	Entry Age Normal	No change
UAL amortization method	UAL Amortized as a level percent of payroll. The UAL amortization method results in initial payments less than the "interest only" payment on the UAL. Payments less than the interest only amount will result in the UAL increasing for an initial period of time.	No change
UAL amortization period	A closed period ending June 30, 2036. If there is a negative Unfunded Actuarial Accrued Liability, the surplus amount shall be amortized over 30 years as a level percentage of payroll	No change
Asset valuation method	<p>The assets are valued based on a five-year moving average of expected and market values (five-year average actuarial value) determined as follows:</p> <ul style="list-style-type: none"> ▪ At the end of each plan year, an average asset value is calculated as the average of the market asset value at the beginning and end of the fiscal year net of investment income for the fiscal year; ▪ The investment gain or (loss) is taken as the excess of actual investment income over the expected investment income based on average asset value as calculated above; ▪ The investment gain or (loss) so determined is recognized over five years at 20% per year; ▪ The asset value is the sum of the expected asset value plus the schedule recognition of investment gains or (losses) during the current and the preceding four plan years. <p>For the purpose of determining the actuarial value of assets, the Post Fund asset loss for the fiscal year ending June 30, 2009 is recognized incrementally over five years at 20% per year, similar to the smoothing of active fund assets. Prior to June 30, 2009, Post Fund asset gains and losses were not smoothed.</p>	No change

The funding method is described in greater detail on the following page.

Actuarial Methods

Actuarial Cost Method

Actuarial Accrued Liability and required contributions in this report are computed using the Individual Entry Age Normal Cost Method. This method is prescribed by Minnesota Statutes.

The objective under this method is to fund each member's benefits under the Plan as payments which are level as a percentage of salary, starting at entry age, and continuing until the assumed date of retirement termination, disability or death. For valuation purposes, entry age for each member is determined as the age at valuation minus years of service as of the valuation date.

At any given date, a liability is calculated equal to the contributions which would have been accumulated if this method of funding had always been used, the current plan provisions had always been in place, and all assumptions had been precisely accurate. The difference between this liability and the assets (if any) which are held in the fund is the unfunded liability. The unfunded liability is typically funded over a chosen period in accordance with the amortization schedule.

A detailed description of the calculation follows:

The normal cost for each active member under the assumed retirement age is determined by applying to earnings the level percentage of salary which, if contributed each year from date of entry into the Plan until the assumed retirement (termination, disability or death) date, is sufficient to provide the full value of the benefits expected to be payable.

- The present value of future normal costs is the total of the discounted values of all active members' normal cost, assuming these to be paid in each case from the valuation date until retirement (termination, disability or death) date.
- The present value of projected benefits is calculated as the value of all benefit payments expected to be paid to the Plan's current members, including active and retired members, beneficiaries, and terminated members with vested rights.
- The accrued liability is the excess of the present value of projected benefits over the present value of future normal costs.
- The unfunded liability is the excess of the accrued liability over the assets of the fund, and represents that part of the accrued liability which has not been funded by accumulated past contributions.

Current Benefit Obligation is computed to be the present value of benefits earned to the valuation date, based on current service and including future salary increases to retirement.

Actuarial Methods

Decrement timing

All decrements are assumed to occur on the anniversary of the valuation date, beginning on the valuation date. Decrement timing is a fundamental part of the computer programming underlying actuarial calculations. Mercer's valuation systems use beginning of year decrements, a generally accepted actuarial practice. The Legislative Commission on Pensions and Retirement approved this modification to the Standards for Actuarial Work prior to the preparation of the 2011 valuation in order to ensure consistency and comparability.

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Economic Assumptions

Overview

Actuaries have traditionally been involved in the selection of economic assumptions and actuarial standards provide parameters for doing so. However, while actuaries have expertise in making sure assumptions are internally consistent within a model, actuaries have no more expertise in selecting many of the economic assumptions than do certain other professionals, e.g. economists. Actuaries must make “educated guesses” using professional judgment applied to historical information and estimates of future outcomes. As such, this report contains one set of economic assumptions that we would categorize as our best estimate. However, other sets of assumptions may be equally valid.

Actuarial Standard of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*, provides guidance on selecting economic assumptions used in measuring obligations under defined benefit pension plans. ASOP No. 27 suggests that economic assumptions be developed using the actuary’s professional judgment, taking into consideration past experience and the actuary’s expectations regarding the future. The process for selecting economic assumptions involves:

- Identifying components of each assumption and evaluating relevant data;
- Developing a best-estimate range for each economic assumption; and
- Evaluating measurement specific factors and selecting a point within the best-estimate range.

Economic Assumptions

A summary of the economic assumptions used for the June 30, 2011 actuarial valuation and proposed changes are shown below:

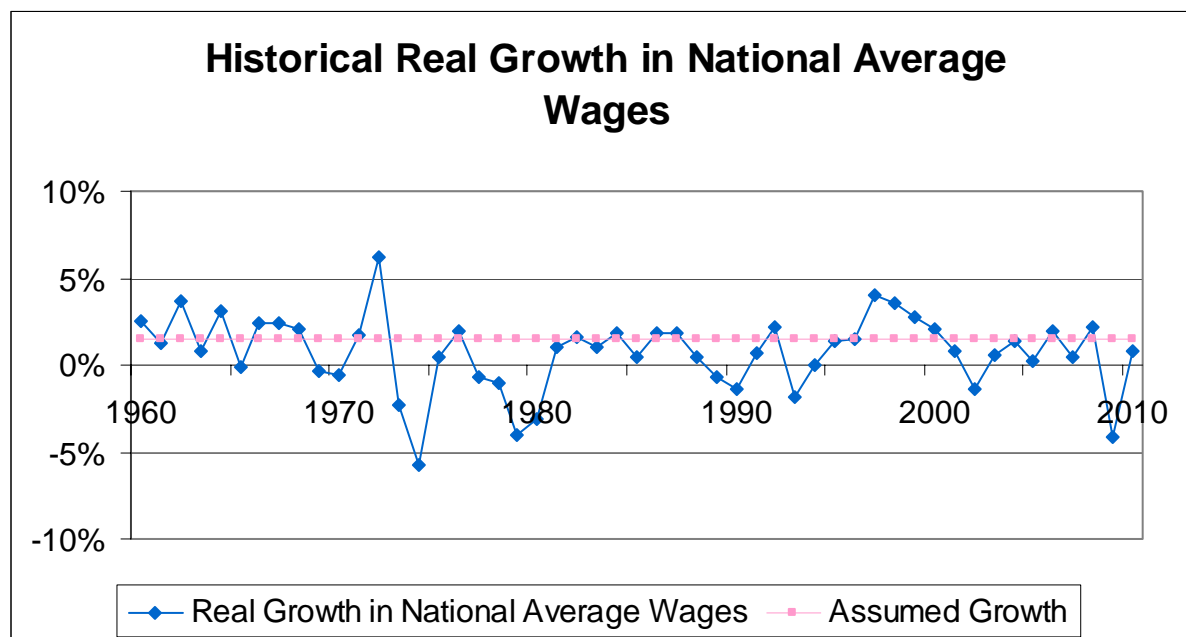
Assumption	June 30, 2011 Assumption	Proposed Assumption
Inflation	3.00%	No change ¹
Real wage growth (productivity)	1.50%	0.75%
Payroll growth	4.50%	3.75%
Salary Growth	Age related table	Service related table
Regular investment return	8.50%	8.00% ¹

Where appropriate, our economic assumption analysis and proposals are consistent with our recent analysis and final assumptions for the State Employees Retirement Fund.

Real Wage Growth

Real wage growth represents the increase in wages above inflation for the entire group due to improvements in productivity and competitive pressures. Merit and longevity wage growth, in contrast, represent the increases in wages for an individual due to factors such as performance, promotion, or seniority. Real wage growth combined with inflation represents the expected growth in total payroll for a stable population. Changes in payroll due to an increase or decline in the covered population are not captured by this assumption.

The chart below shows the real growth in national average wages over the past fifty years based on data compiled by the Social Security Administration.



¹ Please see the Experience Study for the State Employees Retirement Fund dated August 31, 2009, for the detail behind this proposed assumption.

Economic Assumptions

While the change in any one year has been volatile, the change over longer periods of time is more stable as shown in the table below.

Length of Period Ending December 31, 2010	Average Real Growth in National Average Wages
10 years	0.29%
20 years	0.96%
30 years	0.91%
40 years	0.51%
50 years	0.70%

Mercer's economic modeling suggests a reasonable expectation of average real growth in wages is from 0.50% to as much as 1.50%. Based on the table above, we propose changing the current assumption of 1.50% to 0.75%.

Payroll Growth

The payroll growth assumption is used to develop the annual amount necessary to amortize the unfunded actuarial liability as a level percentage of expected payroll.

Payroll growth is the sum of inflation and real wage growth. Since we are proposing a change in the real wage growth assumption, we propose a corresponding change in the payroll growth assumption, from 4.50% to 3.75%.

Salary Increases

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

- Inflation
- Productivity
- Merit/promotion

The inflation and productivity components are combined to produce the assumed rate of wage inflation. This rate represents the "across the board" average annual increase in salaries shown in the experience data. The merit component includes the additional increases in salary due to individual performance, seniority, promotions, etc.

We reviewed the annual salary increases for the period July 1, 2006 through June 30, 2011 by both age and service. The data group was continuing active members with two consecutive full years of employment. For the salary analysis, we excluded some of the most dramatic salary changes. We excluded the lowest 2.5% and the highest 2.5% for a total of 5.0% of records excluded. While this was a relatively small group, their salary increases distorted the experience of the overall group of continuing active members. We also excluded people with less than one year of service for the same reason.

Economic Assumptions

The following chart shows the actual and expected salary increases for 2006 to 2011.

Salary Increase

Age Group	Exposures	Observed Average	Expected Average
<25	21	4.87%	7.04%
25-29	239	5.99%	7.00%
30-34	594	5.35%	7.00%
35-39	734	3.97%	6.81%
40-44	686	3.80%	6.20%
45-49	764	3.36%	5.64%
50-54	626	2.93%	5.39%
55-59	72	3.08%	5.25%
60-64	1	-1.62%	5.25%
65+	0	N/A	N/A
Total	3,737	3.97%	6.23%

Economic Assumptions

The observed salary increases tended to follow service more closely than age. Therefore, we are proposing a service based table. Actual experience for the past two years was considerably lower than the first three years. The proposed rates reflect some decrease from the current assumption, but not as much as the observed average to allow for some conservatism.

Based on the experience from the last five years, and our expectations for inflation and productivity, our proposed salary increase assumption is shown below.

Service	Exposures	Observed Average	Expected Average*	Proposed Assumption
1	174	6.96%	6.78%	8.00%
2	198	6.83%	6.71%	7.50%
3	204	5.60%	6.73%	7.00%
4	173	3.75%	6.71%	6.75%
5	174	4.57%	6.71%	6.50%
6	151	4.73%	6.72%	6.25%
7	177	6.54%	6.66%	6.00%
8	209	4.94%	6.61%	5.85%
9	220	3.20%	6.49%	5.70%
10	208	2.85%	6.45%	5.55%
11	188	2.01%	6.34%	5.40%
12	147	3.03%	6.24%	5.25%
13	98	2.35%	6.12%	5.10%
14	76	0.98%	6.08%	4.95%
15	49	2.06%	5.94%	4.80%
16	70	4.63%	5.94%	4.65%
17	73	5.53%	5.96%	4.50%
18	106	4.11%	5.89%	4.35%
19	104	2.76%	5.81%	4.20%
20	115	2.60%	5.75%	4.05%
21	112	3.93%	5.71%	4.00%
22	114	3.35%	5.63%	4.00%
23	87	3.32%	5.57%	4.00%
24	100	2.67%	5.53%	4.00%
25	91	3.65%	5.48%	4.00%
26	70	2.69%	5.44%	4.00%
27	70	2.97%	5.43%	4.00%
28	64	2.39%	5.40%	4.00%
29	47	2.74%	5.37%	4.00%
30+	68	1.90%	5.34%	4.00%
Total	3,737	3.97%	6.23%	5.47%

* Based on current, age-based rates.



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Demographic Assumptions

Overview

Actuarial Standard of Practice (ASOP) No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*, provides guidance on selecting demographic assumptions used in measuring obligations under defined benefit pension plans. The general process for recommending demographic assumptions as defined in ASOP No. 35 is as follows:

- Identify the types of assumptions;
- Consider the relevant assumption universe;
- Consider the assumption format;
- Select the specific assumptions; and
- Evaluate the reasonableness of the selected assumption.

The purpose of the demographic experience study is to compare actual experience against expected experience based on the assumptions used in the most recent actuarial valuation. The observation period used in this study is July 1, 2006 through June 30, 2011, and the current assumptions are those adopted by the Legislative Commission on Pensions and Retirement (LCPR) for the June 30, 2011 actuarial valuation. If the actual experience differs significantly from the overall expected experience, or if the pattern of actual decrements by age, sex, or duration does not follow the expected pattern, new assumptions are considered.

Note that the expected counts provided are rounded throughout this report, so the totals may not add up and the A/E ratios may not divide to the exact percentage shown.

Demographic Assumptions

The demographic assumptions used for the June 30, 2011, actuarial valuation and the proposed assumptions for the June 30, 2012, actuarial valuation are shown in detail in the following sections.

A summary of the proposed changes are as follows:

- Changes to the healthy mortality assumption tables
- Changes to the disabled mortality assumption tables
- Adjustments to retirement assumptions
- Adjustments to percent married, beneficiary age and annuity option elections
- Adjustments to disability rates
- Adjustments to the termination rates in the select period

The proposed assumptions, in our opinion, were selected in a manner consistent with the requirements of ASOP No. 35.

Mortality Assumptions

Mortality rates are used to project the length of time benefits will be paid to current and future retirees and beneficiaries. The selection of a mortality assumption affects plan liabilities because the value of retiree benefits depends on how long the benefit payments are expected to continue. There are clear differences in the mortality rates among males and females, healthy retired members, disabled retired members and non-retired members. As a result, each of these groups is reviewed independently.

A summary of the current and proposed mortality rates is shown below:

Assumption	Current Assumption	Proposed Assumption
Healthy Post-retirement Mortality	1983 Group Annuity Mortality	RP 2000 annuitant generational mortality, white collar adjustment
Males	Set back 2 years	Set back 2 years
Females	Set back 1 year	Set forward 1 year
Disabled Retired Mortality	Combined Annuity Mortality	Same as healthy post-retirement mortality
Healthy Pre-retirement Mortality	1983 Group Annuity Mortality	RP 2000 non-annuitant generational mortality, white collar adjustment
Males	Set back 5 years	No setbacks
Females	Set back 2 years	No setbacks

Demographic Assumptions

Healthy Post-retirement Mortality

Mortality assumptions for healthy retired members are separated based on gender.

Life expectancies are expected to improve in the future, and this increased longevity should be reflected in the actuarial valuation through lower mortality rates than indicated by current experience. To determine whether the current mortality assumption remains reasonable, we calculated the ratio of actual to expected (A/E) deaths during the experience study period for each of the gender groups. For a static mortality table such as the current assumption, A/E ratios are targeted at or near 110 percent, in order to provide a margin for future mortality improvement. For a generational mortality table that incorporates improvements in mortality each year into the future, A/E ratios are targeted near 100%. If the group's A/E ratio was significantly below these thresholds, we would recommend a change to bring that A/E ratio close to the thresholds.

The following chart shows the exposures, actual deaths, expected deaths and actual to expected ratios for males and females for each of the five years in the experience study.

Healthy Post-retirement Mortality	Exposures	Actual Deaths	Current (June 30, 2011) Assumption	
			Expected Deaths	A/E Ratio
Males				
July 1, 2006 to June 30, 2007	621	12	17	70%
July 1, 2007 to June 30, 2008	638	20	18	110%
July 1, 2008 to June 30, 2009	650	13	18	71%
July 1, 2009 to June 30, 2010	661	11	19	57%
July 1, 2010 to June 30, 2011	670	13	20	66%
July 1, 2006 to June 30, 2011	3,240	69	93	74%
Females				
July 1, 2006 to June 30, 2007	184	6	6	99%
July 1, 2007 to June 30, 2008	196	6	7	89%
July 1, 2008 to June 30, 2009	204	7	7	94%
July 1, 2009 to June 30, 2010	203	8	8	101%
July 1, 2010 to June 30, 2011	204	13	8	157%
July 1, 2006 to June 30, 2011	991	40	37	110%

Not all numbers may add due to rounding.

The actual experience shows that the current assumption for male retirees is predicting too many retiree deaths and the current assumption for females is predicting too few retiree deaths. Due to the small numbers of retired males and females in the 5 year period, the mortality experience is not considered statistically credible. Given that the current table is based on experience that is over a quarter century old, we are proposing a change to the RP 2000 generational white collar mortality tables for annuitants, set back two years for males and set forward one year for females. This proposed table predicts fewer male deaths and slightly more female deaths than the current table, and automatically incorporates improvements in mortality each year in the future.

Demographic Assumptions

The following chart shows the exposures, actual deaths, expected deaths under the proposed assumption and actual to expected ratios for males and females for each of the five years in the experience study.

Healthy Post-retirement Mortality	Exposures	Actual Deaths	Proposed Assumption	
			Expected Deaths	A/E Ratio
Males				
July 1, 2006 to June 30, 2007	621	12	12	99%
July 1, 2007 to June 30, 2008	638	20	13	153%
July 1, 2008 to June 30, 2009	650	13	13	97%
July 1, 2009 to June 30, 2010	661	11	14	78%
July 1, 2010 to June 30, 2011	670	13	14	90%
July 1, 2006 to June 30, 2011	3,240	69	67	103%
Females				
July 1, 2006 to June 30, 2007	184	6	7	88%
July 1, 2007 to June 30, 2008	196	6	7	83%
July 1, 2008 to June 30, 2009	204	7	8	85%
July 1, 2009 to June 30, 2010	203	8	8	97%
July 1, 2010 to June 30, 2011	204	13	8	154%
July 1, 2006 to June 30, 2011	991	40	39	103%

Not all numbers may add due to rounding.

A summary of the current and proposed healthy retired mortality assumptions is shown below:

Healthy Post-retirement Mortality	Current (June 30, 2011) Assumption	Proposed Assumption
Basic Tables	1983 Group Annuity Mortality	RP 2000 annuitant generational mortality, white collar adjustment
Males	Set back 2 years	Set back 2 years
Females	Set back 1 year	Set forward 1 year

Disabled Retired Mortality

In general, disabled members are expected to have a shorter life expectancy than healthy retired members. In addition, future life expectancies for disabled members are not expected to increase as significantly as the future life expectancies for healthy retirees. As a result, A/E ratios for disabled retirees have been targeted near 100 percent.

Demographic Assumptions

The following chart shows the exposures, actual deaths, expected deaths and actual to expected ratios for males and females for each of the years in the experience study.

Disabled Retired Mortality	Exposures	Actual Deaths	Current (June 30, 2011) Assumption	
			Expected Deaths	A/E Ratio
Males				
July 1, 2006 to June 30, 2007	36	1	1	87%
July 1, 2007 to June 30, 2008	35	0	1	0%
July 1, 2008 to June 30, 2009	37	0	1	0%
July 1, 2009 to June 30, 2010	39	1	1	75%
July 1, 2010 to June 30, 2011	42	0	1	0%
July 1, 2006 to June 30, 2011	189	2	6	33%
Females				
July 1, 2006 to June 30, 2007	5	0	0	0%
July 1, 2007 to June 30, 2008	6	1	0	1,681%
July 1, 2008 to June 30, 2009	5	0	0	0%
July 1, 2009 to June 30, 2010	5	0	0	0%
July 1, 2010 to June 30, 2011	6	0	0	0%
July 1, 2006 to June 30, 2011	27	1	0	328%

Not all numbers may add due to rounding.

Discussion

The actual experience shows that the current assumption for disabled male retirees is predicting too many deaths. Due to the small numbers of disabled males and females in the 5 year period, the mortality experience is not considered statistically credible. We propose using the RP 2000 generational white collar mortality tables for annuitants, set back two years for males and set forward one year for females. This proposed mortality table is the same as the proposed post-retirement mortality table.

The following chart shows the exposures, actual deaths, expected deaths under the proposed assumption and actual to expected ratios for males and females for each of the five years in the experience study.

Demographic Assumptions

Disabled Retired Mortality	Exposures	Actual Deaths	Proposed Assumption		
			Expected Deaths	A/E Ratio	
Males					
July 1, 2006 to June 30, 2007	36	1	0	294%	
July 1, 2007 to June 30, 2008	35	0	0	0%	
July 1, 2008 to June 30, 2009	37	0	0	0%	
July 1, 2009 to June 30, 2010	39	1	0	243%	
July 1, 2010 to June 30, 2011	42	0	0	0%	
July 1, 2006 to June 30, 2011	189	2	2	110%	
Females					
July 1, 2006 to June 30, 2007	5	0	0	0%	
July 1, 2007 to June 30, 2008	6	1	0	11,138%	
July 1, 2008 to June 30, 2009	5	0	0	0%	
July 1, 2009 to June 30, 2010	5	0	0	0%	
July 1, 2010 to June 30, 2011	6	0	0	0%	
July 1, 2006 to June 30, 2011	27	1	0	1,969%	

Not all numbers may add due to rounding.

A summary of current and proposed disabled retiree mortality assumptions is shown below:

Disabled Retired Mortality	Current (June 30, 2011) Assumption	Proposed Assumption
Basic Tables	Combined Annuity Mortality	RP 2000 annuitant generational mortality, white collar adjustment
Males	No setbacks	Set back 2 years
Females	No setbacks	Set forward 1 year

Demographic Assumptions

Pre-retirement Mortality

The pre-retirement mortality assumption applies to active members and inactive members (those members who have terminated employment but are vested and entitled to a future benefit). The current pre-retirement mortality assumption is based on 1983 Group Annuity Mortality, with a set back of 5 years for males and 2 years for females. A/E ratios for non-retired members have been targeted around 100 percent.

The following chart shows the exposures, actual deaths, expected deaths and actual to expected ratios for active males and females for each of the years in the experience study.

Pre-retirement Mortality	Exposures	Actual Deaths	Current (June 30, 2011) Assumption	
			Expected Deaths	A/E Ratio
Males				
July 1, 2006 to June 30, 2007	763	1	1	99%
July 1, 2007 to June 30, 2008	758	0	1	0%
July 1, 2008 to June 30, 2009	753	0	1	0%
July 1, 2009 to June 30, 2010	783	0	1	0%
July 1, 2010 to June 30, 2011	757	0	1	0%
July 1, 2006 to June 30, 2011	3,814	1	5	19%
Females				
July 1, 2006 to June 30, 2007	87	0	0	0%
July 1, 2007 to June 30, 2008	86	0	0	0%
July 1, 2008 to June 30, 2009	87	0	0	0%
July 1, 2009 to June 30, 2010	93	0	0	0%
July 1, 2010 to June 30, 2011	91	0	0	0%
July 1, 2006 to June 30, 2011	444	0	0	0%

Not all numbers may add due to rounding.

Discussion

With the very limited number of deaths in the experience period, the A/E ratio tends to fluctuate year to year. Similar to our proposed change to healthy post-retirement mortality, we are proposing a change to the RP 2000 generational white collar mortality tables for non-annuitants.

Demographic Assumptions

Due to the small numbers of pre-retirement deaths in the 5 year period, the mortality experience is not considered statistically credible.

The following chart shows the exposures, actual deaths, expected deaths under the proposed assumption and actual to expected ratios for active males and females for each of the five years in the experience study.

Pre-retirement Mortality	Exposures	Actual Deaths	Proposed Assumption	
			Expected Deaths	A/E Ratio
Males				
July 1, 2006 to June 30, 2007	763	1	1	129%
July 1, 2007 to June 30, 2008	758	0	1	0%
July 1, 2008 to June 30, 2009	753	0	1	0%
July 1, 2009 to June 30, 2010	783	0	1	0%
July 1, 2010 to June 30, 2011	757	0	1	0%
July 1, 2006 to June 30, 2011	3,814	1	4	25%
Females				
July 1, 2006 to June 30, 2007	87	0	0	0%
July 1, 2007 to June 30, 2008	86	0	0	0%
July 1, 2008 to June 30, 2009	87	0	0	0%
July 1, 2009 to June 30, 2010	93	0	0	0%
July 1, 2010 to June 30, 2011	91	0	0	0%
July 1, 2006 to June 30, 2011	444	0	0	0%

Not all numbers may add due to rounding.

A summary of the current and proposed pre-retirement mortality assumptions is shown below:

Pre-retirement Mortality	Current (June 30, 2011) Assumption	Proposed Assumption
Basic Tables	1983 Group Annuity Mortality	RP 2000 non-annuitant generational mortality, white collar
Males	Set back 5 years	No set back
Females	Set back 2 years	No set back

Demographic Assumptions

Retirement Assumptions

The retirement assumptions used in the actuarial valuation include the following assumptions:

- Regular retirement from active status
- Retirement from inactive status

Members are eligible to retire as early as age 50 and vested (5 years if first hired after June 30, 2010).

The early and normal retirement dates under the plan are as follows:

Normal Retirement Age	Early Retirement Age
Age 55 and vested (5 years if first hired after June 30, 2010)	Age 50 and vested (5 years if first hired after June 30, 2010)

Retirement from Active Status

The following chart shows the exposures, actual retirements, expected retirements and actual to expected ratios for each of the years in the experience study. For purposes of this analysis, actives who are retirement eligible are counted as a retirement even if benefits do not commence immediately upon termination.

	Exposures	Actual Retirements	Current (June 30, 2011) Assumption	
			Expected Retirements	A/E Ratio
Total				
July 1, 2006 to June 30, 2007	159	30	25	121%
July 1, 2007 to June 30, 2008	158	34	28	119%
July 1, 2008 to June 30, 2009	162	26	27	97%
July 1, 2009 to June 30, 2010	168	21	24	87%
July 1, 2010 to June 30, 2011	194	30	33	91%
July 1, 2006 to June 30, 2011	841	141	137	103%

Not all numbers may add due to rounding.

Discussion

The actual number of retirements is close to predicted by the current table. Please refer to age by age retirement experience beginning on page 54 for additional details. Overall, the number of early retirements was lower than expected, and the number of retirements at ages 55 and older was greater than expected by the current rates. We are proposing minor adjustments at ages 51 through 57 to more closely match the actual experience.

Demographic Assumptions

The following chart shows the exposures, actual retirements, expected retirements under the proposed assumption and actual to expected ratios for each of the years in the experience study.

Retirements	Exposures	Actual Retirements	Proposed Assumption	
			Expected Retirements	A/E Ratio
Total				
July 1, 2006 to June 30, 2007	159	30	25	121%
July 1, 2007 to June 30, 2008	158	34	29	117%
July 1, 2008 to June 30, 2009	162	26	27	95%
July 1, 2009 to June 30, 2010	168	21	24	87%
July 1, 2010 to June 30, 2011	194	30	34	89%
July 1, 2006 to June 30, 2011	841	141	139	101%

Not all numbers may add due to rounding.

Summary of Proposed Retirement Rates

Age	Active Status	
	Current	Proposed
50	7%	7%
51	7%	6%
52	7%	6%
53	7%	6%
54	7%	3%
55	60%	65%
56	40%	50%
57	20%	30%
58	20%	20%
59	20%	20%
60+	100%	100%

Demographic Assumptions

Retirement from Inactive Status

Members who terminate after completing three years of service (five years if first hired after June 30, 2010) are vested and entitled to either a refund of their employee contributions with interest, or a deferred retirement benefit. The valuation currently assumes that members will elect a refund if it is more valuable than the deferred annuity. For those inactive members for whom the deferred retirement benefit is more valuable than a refund, the valuation assumes the benefit will commence at normal retirement age.

The following chart shows the exposures, actual retirements, actual percent retiring and expected percent retiring during the five years of the experience study.

Age	Exposures	Actual Retirements	Actual Percent Retiring	Current (June 30, 2011) Assumption
				Expected Percent Retiring
50	9	3	33%	0%
51	4	0	0%	0%
52	4	0	0%	0%
53	5	1	20%	0%
54	3	2	67%	0%
55+	8	1	13%	100%
Total	33	7	21%	88%

Not all numbers may add due to rounding.

Discussion

The actual experience shows that some inactive participants retired at ages other than normal retirement age. However, we are not proposing a change in this assumption at this time due to the small amount of experience during this five-year period. Also, the liability for deferred inactive vested members comprises less than 1% of the total actuarial accrued liability of the plan, and the added complexity may not be justified.

Demographic Assumptions

Retirement Statistics

The retirement statistics used in the actuarial valuation include the following assumptions:

- Marital status (% married)
- Age of children
- Age of beneficiary
- Annuity form elected at retirement

Marital Status

It is reasonable to assume that married members will make different annuity selections than non-married members. The current (June 30, 2011) valuation assumption is 100% of members are married. The following chart shows the current assumed rates of marriage and the observed experience.

	Total New Retirees	Actual Married New Retirees	Current (June 30, 2011) Assumption	
			Expected Married	A/E Ratio
Males				
July 1, 2006 to June 30, 2007	28	23	28	82%
July 1, 2007 to June 30, 2008	33	30	33	91%
July 1, 2008 to June 30, 2009	23	22	23	96%
July 1, 2009 to June 30, 2010	17	11	17	65%
July 1, 2010 to June 30, 2011	25	20	25	80%
July 1, 2006 to June 30, 2011	126	106	126	84%
Females				
July 1, 2006 to June 30, 2007	2	1	2	50%
July 1, 2007 to June 30, 2008	1	0	1	0%
July 1, 2008 to June 30, 2009	2	2	2	100%
July 1, 2009 to June 30, 2010	2	1	2	50%
July 1, 2010 to June 30, 2011	4	2	4	50%
July 1, 2006 to June 30, 2011	11	6	11	55%

Not all numbers may add due to rounding.

We propose changing the percent married assumption from 100% to 85% for both males and females.

Demographic Assumptions

Age of Children

Death benefits are provided to dependent children of active members. The current (June 30, 2011) valuation assumption is that active members have two children, born at the member's age 28 and 31. The data reported by MSRS for the valuation does not contain the necessary data to analyze this assumption. We recommend no change to the current assumption, and further, that MSRS review actual member data to determine if this assumption should be modified.

Age of Beneficiary

Joint & Survivor annuity benefit amounts are determined based on the member's and beneficiary's age. The current (June 30, 2011) valuation assumption is that males are three years older than females. The following chart shows the current assumed age difference and the observed experience for members that elected a joint and survivor annuity. For purposes of this analysis, we excluded age differences of 20 years or more on the assumption that the vast majority of those included child, not spouse, beneficiaries.

	Total New Retirees	Average Age Difference	Current (June 30, 2011) Assumption	
			Expected Age Difference	A - E
Males				
July 1, 2006 to June 30, 2007	28	3.26	3.00	0.26
July 1, 2007 to June 30, 2008	33	1.57	3.00	-1.43
July 1, 2008 to June 30, 2009	23	1.82	3.00	-1.18
July 1, 2009 to June 30, 2010	17	0.09	3.00	-2.91
July 1, 2010 to June 30, 2011	25	1.50	3.00	-1.50
July 1, 2006 to June 30, 2011	126	1.82	3.00	-1.18
Females				
July 1, 2006 to June 30, 2007	2	-1.00	-3.00	2.00
July 1, 2007 to June 30, 2008	1	N/A	N/A	N/A
July 1, 2008 to June 30, 2009	2	-2.50	-3.00	0.50
July 1, 2009 to June 30, 2010	2	-1.00	-3.00	2.00
July 1, 2010 to June 30, 2011	4	-3.00	-3.00	0.00
July 1, 2006 to June 30, 2011	11	-2.00	-3.00	1.00

Not all numbers may add due to rounding.

We propose changing the age difference assumption from 3 years to 2 years.

Demographic Assumptions

Annuity Form

Upon retirement, a member can elect any of the following forms of payment:

- Straight life annuity – the benefit is paid for the lifetime of the member. No benefit is payable to a beneficiary upon member's death.
- 15-Year Certain and Life – a reduced benefit is paid for the lifetime of the member. If the member dies before 180 payments have been made, the benefit continues to be paid to a beneficiary until 180 payments have been made.
- 50% Joint & Survivor – a reduced benefit is paid for the lifetime of the member. Upon death of the member, 50% of the benefit is paid to a beneficiary. If the beneficiary predeceases the member, the benefit reverts back to the straight life annuity amount.
- 75% Joint & Survivor – a reduced benefit is paid for the lifetime of the member. Upon death of the member, 75% of the benefit is paid to a beneficiary. If the beneficiary predeceases the member, the benefit reverts back to the straight life annuity amount.
- 100% Joint & Survivor – a reduced benefit is paid for the lifetime of the member. Upon death of the member, 100% of the benefit is paid to a beneficiary. If the beneficiary predeceases the member, the benefit reverts back to the straight life annuity amount.

The following chart shows the current assumed annuity selection and the observed experience:

New Retirees from July 1, 2006 to June 30, 2011	Actual Married New Retirees	Actual Electing Annuity Form	Actual Percent Electing Annuity Form	Current (June 30, 2011) Assumption
				Expected Percent Electing Annuity Form
Males				
15-Year Certain & Life	106	0	0%	0%
50% Joint & Survivor	106	20	19%	25%
75% Joint & Survivor	106	31	29%	0%
100% Joint & Survivor	106	43	41%	25%
Females				
15-Year Certain & Life	6	0	0%	0%
50% Joint & Survivor	6	2	33%	5%
75% Joint & Survivor	6	3	50%	0%
100% Joint & Survivor	6	0	0%	5%

Not all numbers may add due to rounding.

The assumed Straight Life annuity selection is the sum of 100% of the non-married retirees plus those married retirees that are not assumed to elect a joint and survivor form of payment.

Demographic Assumptions

Annuity Form

We propose the following changes to the annuity selection assumption:

Annuity Form	Percent of Married Members Electing			
	Current (June 30, 2011)		Proposed	
	Males	Females	Males	Females
Straight Life	50%	90%	25%	40%
15-Year Certain & Life	0%	0%	0%	0%
50% Joint & Survivor	25%	5%	15%	25%
75% Joint & Survivor	0%	0%	25%	30%
100% Joint & Survivor	25%	5%	35%	5%

Note that the increased utilization of the subsidized Joint and Survivor options would be expected to increase costs modestly.

Demographic Assumptions

Disability Assumptions

The Plan provides disability benefits to members. Members are eligible for disability benefits if they become physically or mentally unable to perform duties of the job prior to age 65.

Disability Retirement

The following chart shows the exposures, actual disability retirements, expected disability retirements under the current assumption and actual to expected ratios for males and females for each of the years in the experience study for disability retirements.

Disability Retirement	Exposures	Actual Retirements	Current (June 30, 2011) Assumption	
			Expected Retirements	A/E Ratio
Males				
July 1, 2006 to June 30, 2007	763	0	2	0%
July 1, 2007 to June 30, 2008	758	1	2	44%
July 1, 2008 to June 30, 2009	753	2	2	87%
July 1, 2009 to June 30, 2010	783	4	2	170%
July 1, 2010 to June 30, 2011	757	0	2	0%
July 1, 2006 to June 30, 2011	3,814	7	12	60%
Females				
July 1, 2006 to June 30, 2007	87	1	0	499%
July 1, 2007 to June 30, 2008	86	0	0	0%
July 1, 2008 to June 30, 2009	87	0	0	0%
July 1, 2009 to June 30, 2010	93	0	0	0%
July 1, 2010 to June 30, 2011	91	0	0	0%
July 1, 2006 to June 30, 2011	444	1	1	91%

Not all numbers may add due to rounding.

Demographic Assumptions

Discussion

The actual experience shows that the current assumption is predicting too many disabilities, which is consistent with the previous experience study for this plan. We propose changing this assumption to rates equal to 80% of the current rates. See page 38 for a summary of current and proposed disability rates.

The following chart shows the exposures, actual disability retirements, expected disability retirements under the proposed assumption and actual to expected ratios for each of the years in the experience study.

Disability Retirement	Exposures	Actual Retirements	Proposed Assumption	
			Expected Retirements	A/E Ratio
Males				
July 1, 2006 to June 30, 2007	763	0	2	0%
July 1, 2007 to June 30, 2008	758	1	2	55%
July 1, 2008 to June 30, 2009	753	2	2	109%
July 1, 2009 to June 30, 2010	783	4	2	213%
July 1, 2010 to June 30, 2011	757	0	2	0%
July 1, 2006 to June 30, 2011	3,814	7	9	76%
Females				
July 1, 2006 to June 30, 2007	87	1	0	499%
July 1, 2007 to June 30, 2008	86	0	0	0%
July 1, 2008 to June 30, 2009	87	0	0	0%
July 1, 2009 to June 30, 2010	93	0	0	0%
July 1, 2010 to June 30, 2011	91	0	0	0%
July 1, 2006 to June 30, 2011	444	1	1	114%

Not all numbers may add due to rounding.

Demographic Assumptions

Termination Assumptions

The termination assumptions used in the actuarial valuation include an assumption for termination from active status prior to retirement eligibility, since not all active members are expected to continue working until retirement. Termination rates represent the probabilities that a member at any given age will leave employment at that age. Current termination rates for members are developed on an ultimate basis with a three-year select period.

The following chart shows the exposures, actual terminations, expected terminations under the current assumption and actual to expected ratios for males and females for each of the years in the experience study during the three-year select period.

Terminations in three-year Select Period	Exposures	Actual Terminations	Current (June 30, 2011) Assumption	
			Expected Terminations	A/E Ratio
July 1, 2006 to June 30, 2007	153	3	4	78%
July 1, 2007 to June 30, 2008	119	2	3	67%
July 1, 2008 to June 30, 2009	95	4	2	168%
July 1, 2009 to June 30, 2010	126	7	3	222%
July 1, 2010 to June 30, 2011	78	1	2	51%
July 1, 2006 to June 30, 2011	571	17	14	119%

The following chart shows the exposures, actual terminations, expected terminations and actual to expected ratios for males and females for each of the years in the experience study for withdrawals beyond the three-year select period.

Terminations beyond three-year Select Period	Exposures	Actual Terminations	Current (June 30, 2011) Assumption	
			Expected Terminations	A/E Ratio
July 1, 2006 to June 30, 2007	539	1	2	40%
July 1, 2007 to June 30, 2008	567	4	3	150%
July 1, 2008 to June 30, 2009	583	6	3	217%
July 1, 2009 to June 30, 2010	582	0	3	0%
July 1, 2010 to June 30, 2011	576	0	3	0%
July 1, 2006 to June 30, 2011	2,847	11	13	83%

Not all numbers may add due to rounding.

Demographic Assumptions

Discussion

Our analysis of terminations indicates that the current assumption is predicting too few terminations during the three year select period, and that actual termination experience beyond the three year select period is very low and fairly close in total to the assumed numbers. Therefore, we are proposing increased rates during the select period, and no changes to the ultimate rates.

The proposed and current withdrawal rates during the select period are as follows:

Service	Current withdrawal rate	Proposed withdrawal rate
0	2.5%	5.0%
1	2.5%	2.0%
2	2.5%	2.0%

The following chart shows the exposures, actual terminations, expected terminations under the proposed assumption and actual to expected ratios for each of the select years in the experience study for withdrawals.

Terminations in 3-year Select Period	Exposures	Actual Terminations	Proposed Assumption	
			Expected Terminations	A/E Ratio
July 1, 2006 to June 30, 2007	153	3	4	73%
July 1, 2007 to June 30, 2008	119	2	3	67%
July 1, 2008 to June 30, 2009	95	4	2	182%
July 1, 2009 to June 30, 2010	126	7	5	151%
July 1, 2010 to June 30, 2011	78	1	2	64%
July 1, 2006 to June 30, 2011	571	17	16	110%

Not all numbers may add due to rounding.



Appendix

Data

The experience analysis uses member data from July 1, 2006, through June 30, 2011, which was supplied by MSRS. We have not verified the data, but have reviewed the information for internal consistency and have no reason to doubt its substantial accuracy.

The member data was summarized according to the actual and potential member decrements for each year in the study. Actual and potential decrements were grouped according to age or service depending on the demographic assumption.

Appendix

Methods and Procedures

Actuarial Cost Method

Liabilities and contributions are computed using the Individual Entry Age Normal Cost Method. This method is prescribed by Minnesota Statutes and is described on page 6.

Asset Valuation Method

The assets are valued based on a five-year moving average of expected and market values (five-year average actuarial value) determined as follows:

- At the end of each plan year, an average asset value is calculated as the average of the market asset value at the beginning and end of the fiscal year net of investment income for the fiscal year;
- The investment gain or (loss) is taken as the excess of actual investment income over the expected investment income based on the average asset value as calculated above;
- The investment gain or (loss) so determined is recognized over five years at 20% per year;
- The asset value is the sum of the expected asset value plus the scheduled recognition of investment gains or (losses) during the current and the preceding four plan years.

For the purpose of determining the actuarial value of assets, the Post Fund asset loss for the fiscal year ending June 30, 2011 is recognized incrementally over five years at 20% per year, similar to the smoothing of active fund assets. Prior to June 30, 2009, Post Fund asset gains and losses were not smoothed.

Payment on the Unfunded Actuarial Accrued Liability

A level percentage of payroll each year to the statutory amortization date of July 1, 2036 assuming payroll increases of 4.50% per annum. If there is a negative Unfunded Actuarial Accrued Liability, the surplus amount shall be amortized over 30 years as a level percentage of payroll.

Economic Assumptions

Inflation	3.00%
Real wage growth	1.50%
Payroll growth	4.50%
Salary scale	Age related table
Investment Return	8.50%

Appendix

Assumption Tables

The RP 2000 non-annuitant mortality table as published by the Society of Actuaries (SOA) contains mortality rates for ages 15 to 70 and the annuitant mortality table contains mortality rates for ages 50 to 95. Mercer applies the annuitant mortality table for active members beyond age 70 until the assumed retirement age and the non-annuitant mortality table for annuitants younger than age 50. Similarly, the SOA's white collar adjustment is published for ages 30 to 70 for non-annuitants and ages 50 to 95 for annuitants; Mercer applies the age 30 adjustment to active members younger than 30 and made no adjustment for annuitants past age 95. Rates shown in the table below under Proposed Assumption are RP 2000 projected to 2011.

Healthy Pre-retirement Mortality				
Age	Current Assumption		Proposed Assumption	
	Male	Female	Male	Female
20	0.03%	0.02%	0.02%	0.02%
21	0.03%	0.02%	0.02%	0.02%
22	0.03%	0.02%	0.02%	0.02%
23	0.04%	0.02%	0.03%	0.02%
24	0.04%	0.02%	0.03%	0.02%
25	0.04%	0.02%	0.03%	0.02%
26	0.04%	0.02%	0.03%	0.02%
27	0.04%	0.03%	0.03%	0.02%
28	0.04%	0.03%	0.03%	0.02%
29	0.04%	0.03%	0.03%	0.02%
30	0.05%	0.03%	0.03%	0.03%
31	0.05%	0.03%	0.04%	0.03%
32	0.05%	0.03%	0.04%	0.03%
33	0.05%	0.04%	0.05%	0.04%
34	0.06%	0.04%	0.05%	0.04%
35	0.06%	0.04%	0.06%	0.04%
36	0.06%	0.04%	0.06%	0.04%
37	0.07%	0.05%	0.07%	0.05%
38	0.07%	0.05%	0.07%	0.05%
39	0.08%	0.05%	0.08%	0.05%
40	0.09%	0.06%	0.08%	0.05%
41	0.09%	0.06%	0.09%	0.06%
42	0.10%	0.07%	0.09%	0.06%
43	0.10%	0.07%	0.10%	0.07%
44	0.11%	0.08%	0.11%	0.08%
45	0.12%	0.08%	0.02%	0.09%
46	0.14%	0.09%	0.02%	0.09%
47	0.15%	0.10%	0.13%	0.10%
48	0.17%	0.11%	0.14%	0.11%
49	0.19%	0.12%	0.15%	0.12%
50	0.22%	0.14%	0.16%	0.13%
51	0.25%	0.15%	0.17%	0.14%
52	0.28%	0.16%	0.18%	0.16%
53	0.31%	0.18%	0.19%	0.18%
54	0.35%	0.19%	0.21%	0.20%
55	0.39%	0.21%	0.22%	0.22%

Appendix

Assumption Tables

Healthy Pre-retirement Mortality

Age	<u>Current Assumption</u>		<u>Proposed Assumption</u>	
	Male	Female	Male	Female
56	0.43%	0.23%	0.24%	0.24%
57	0.48%	0.25%	0.27%	0.27%
58	0.52%	0.28%	0.30%	0.29%
59	0.57%	0.31%	0.33%	0.32%
60	0.61%	0.34%	0.36%	0.36%
61	0.66%	0.38%	0.40%	0.39%
62	0.71%	0.42%	0.44%	0.43%
63	0.77%	0.47%	0.48%	0.47%
64	0.84%	0.52%	0.53%	0.51%
65	0.92%	0.58%	0.58%	0.56%
66	1.01%	0.64%	0.63%	0.61%
67	1.11%	0.71%	0.68%	0.66%
68	1.24%	0.78%	0.73%	0.72%
69	1.39%	0.87%	0.79%	0.77%
70	1.56%	0.97%	0.83%	0.83%

Appendix

Assumption Tables

The RP 2000 non-annuitant mortality table as published by the Society of Actuaries (SOA) contains mortality rates for ages 15 to 70 and the annuitant mortality table contains mortality rates for ages 50 to 95. Mercer applies the annuitant mortality table for active members beyond age 70 until the assumed retirement age and the non-annuitant mortality table for annuitants younger than age 50. Similarly, the SOA's white collar adjustment is published for ages 30 to 70 for non-annuitants and ages 50 to 95 for annuitants; Mercer applies the age 30 adjustment to active members younger than 30 and made no adjustment for annuitants past age 95. Rates shown in the table below under Healthy Post-retirement Mortality Proposed Assumption are RP 2000 projected to 2011.

	Healthy Post-retirement Mortality				Disabled Mortality			
	Current Assumption		Proposed Assumption		Current Assumption		Proposed Assumption	
	Male	Female	Male	Female	Male	Female	Male	Female
50	0.31%	0.15%	0.14%	0.21%	1.04%	1.04%	0.14%	0.21%
51	0.35%	0.16%	0.15%	0.23%	1.12%	1.12%	0.15%	0.23%
52	0.39%	0.18%	0.49%	0.25%	1.22%	1.22%	0.49%	0.25%
53	0.43%	0.19%	0.48%	0.28%	1.32%	1.32%	0.48%	0.28%
54	0.48%	0.21%	0.47%	0.32%	1.43%	1.43%	0.47%	0.32%
55	0.52%	0.23%	0.46%	0.36%	1.55%	1.55%	0.46%	0.36%
56	0.57%	0.25%	0.45%	0.40%	1.67%	1.67%	0.45%	0.40%
57	0.61%	0.28%	0.44%	0.44%	1.81%	1.81%	0.44%	0.44%
58	0.66%	0.31%	0.44%	0.49%	1.96%	1.96%	0.44%	0.49%
59	0.71%	0.34%	0.45%	0.53%	2.13%	2.13%	0.45%	0.53%
60	0.77%	0.38%	0.48%	0.58%	2.30%	2.30%	0.48%	0.58%
61	0.84%	0.42%	0.51%	0.64%	2.49%	2.49%	0.51%	0.64%
62	0.92%	0.47%	0.55%	0.70%	2.70%	2.70%	0.55%	0.70%
63	1.01%	0.52%	0.62%	0.78%	2.92%	2.92%	0.62%	0.78%
64	1.11%	0.58%	0.69%	0.86%	3.16%	3.16%	0.69%	0.86%
65	1.24%	0.64%	0.79%	0.96%	3.43%	3.43%	0.79%	0.96%
66	1.39%	0.71%	0.89%	1.06%	3.71%	3.71%	0.89%	1.06%
67	1.56%	0.78%	1.00%	1.17%	4.01%	4.01%	1.00%	1.17%
68	1.76%	0.87%	1.12%	1.30%	4.34%	4.34%	1.12%	1.30%
69	1.98%	0.97%	1.24%	1.44%	4.70%	4.70%	1.24%	1.44%
70	2.22%	1.09%	1.36%	1.58%	5.08%	5.08%	1.36%	1.58%
71	2.48%	1.24%	1.49%	1.76%	5.50%	5.50%	1.49%	1.76%
72	2.75%	1.41%	1.63%	1.93%	5.94%	5.94%	1.63%	1.93%
73	3.04%	1.62%	1.81%	2.15%	6.43%	6.43%	1.81%	2.15%
74	3.34%	1.85%	2.02%	2.35%	6.95%	6.95%	2.02%	2.35%
75	3.67%	2.11%	2.26%	2.61%	7.51%	7.51%	2.26%	2.61%
76	4.04%	2.40%	2.54%	2.92%	8.11%	8.11%	2.54%	2.92%
77	4.46%	2.72%	2.88%	3.24%	8.76%	8.76%	2.88%	3.24%
78	4.94%	3.07%	3.24%	3.59%	9.46%	9.46%	3.24%	3.59%
79	5.48%	3.45%	3.67%	3.99%	10.21%	10.21%	3.67%	3.99%
80	6.07%	3.85%	4.16%	4.44%	11.02%	11.02%	4.16%	4.44%
81	6.71%	4.29%	4.71%	4.94%	11.89%	11.89%	4.71%	4.94%
82	7.41%	4.77%	5.32%	5.51%	12.82%	12.82%	5.32%	5.51%
83	8.15%	5.27%	6.05%	6.15%	13.81%	13.81%	6.05%	6.15%
84	8.93%	5.81%	6.86%	6.94%	14.88%	14.88%	6.86%	6.94%
85	9.75%	6.38%	7.69%	7.84%	16.03%	16.03%	7.69%	7.84%
86	10.60%	6.99%	8.68%	8.85%	17.25%	17.25%	8.68%	8.85%
87	11.48%	7.66%	9.69%	9.86%	18.55%	18.55%	9.69%	9.86%
88	12.42%	8.39%	10.81%	11.06%	19.94%	19.94%	10.81%	11.06%
89	13.39%	9.19%	12.19%	12.21%	21.43%	21.43%	12.19%	12.21%
90	14.41%	10.14%	13.71%	13.40%	23.00%	23.00%	13.71%	13.40%
91	15.49%	11.18%	15.25%	14.61%	24.67%	24.67%	15.25%	14.61%
92	16.63%	12.31%	17.06%	15.99%	26.44%	26.44%	17.06%	15.99%
93	17.82%	13.56%	18.66%	17.17%	28.31%	28.31%	18.66%	17.17%

Appendix

Assumption Tables

	Healthy Post-retirement Mortality				Disabled Mortality			
	Current Assumption		Proposed Assumption		Current Assumption		Proposed Assumption	
	Male	Female	Male	Female	Male	Female	Male	Female
94	19.05%	14.96%	20.52%	18.29%	30.29%	30.29%	20.52%	18.29%
95	20.30%	16.51%	22.20%	20.09%	32.36%	32.36%	22.20%	20.09%
96	21.79%	18.24%	23.84%	21.29%	34.55%	34.55%	23.84%	21.29%
97	23.41%	20.18%	25.75%	22.15%	36.84%	36.84%	25.75%	22.15%
98	24.84%	22.20%	27.77%	22.89%	39.23%	39.23%	27.77%	22.89%
99	26.40%	24.39%	29.33%	23.49%	41.71%	41.71%	29.33%	23.49%
100	28.08%	26.82%	31.18%	24.48%	44.29%	44.29%	31.18%	24.48%

Appendix

Assumption Tables

Disability Rates

Age	Current Assumption	Proposed Assumption
20	0.04%	0.03%
21	0.04%	0.03%
22	0.05%	0.04%
23	0.05%	0.04%
24	0.06%	0.05%
25	0.06%	0.05%
26	0.06%	0.05%
27	0.07%	0.06%
28	0.07%	0.06%
29	0.08%	0.06%
30	0.08%	0.06%
31	0.09%	0.07%
32	0.09%	0.07%
33	0.10%	0.08%
34	0.10%	0.08%
35	0.11%	0.09%
36	0.12%	0.10%
37	0.13%	0.10%
38	0.15%	0.12%
39	0.16%	0.13%
40	0.18%	0.14%
41	0.20%	0.16%
42	0.22%	0.18%
43	0.24%	0.19%
44	0.26%	0.21%
45	0.29%	0.23%
46	0.32%	0.26%
47	0.36%	0.29%
48	0.41%	0.33%
49	0.46%	0.37%
50	0.50%	0.40%
51	0.57%	0.46%
52	0.64%	0.51%
53	0.72%	0.58%
54	0.80%	0.64%
55	0.88%	0.70%
56	0.98%	0.78%
57	1.08%	0.86%
58	1.18%	0.94%
59	1.29%	1.03%
60	1.41%	1.13%
61	1.54%	1.23%
62	1.67%	1.34%
63+	0.00%	0.00%

Appendix

Assumption Tables

Ultimate Withdrawal Rates			Select Withdrawal Rates		
Age	Current Assumption	Proposed Assumption	Years of Service	Current Assumption	Proposed Assumption
20	1.47%	1.47%	1	2.50%	5.00%
21	1.40%	1.40%	2	2.50%	2.00%
22	1.33%	1.33%	3	2.50%	2.00%
23	1.27%	1.27%			
24	1.20%	1.20%			
25	1.13%	1.13%			
26	1.07%	1.07%			
27	1.00%	1.00%			
28	0.93%	0.93%			
29	0.87%	0.87%			
30	0.80%	0.80%			
31	0.73%	0.73%			
32	0.67%	0.67%			
33	0.60%	0.60%			
34	0.53%	0.53%			
35	0.47%	0.47%			
36	0.40%	0.40%			
37	0.40%	0.40%			
38	0.40%	0.40%			
39	0.40%	0.40%			
40	0.40%	0.40%			
41	0.40%	0.40%			
42	0.40%	0.40%			
43	0.40%	0.40%			
44	0.40%	0.40%			
45	0.40%	0.40%			
46	0.40%	0.40%			
47	0.40%	0.40%			
48	0.40%	0.40%			
49	0.20%	0.20%			
50	0.00%	0.00%			
51	0.00%	0.00%			
52	0.00%	0.00%			
53	0.00%	0.00%			
54	0.00%	0.00%			
55	0.00%	0.00%			
56	0.00%	0.00%			
57	0.00%	0.00%			
58	0.00%	0.00%			
59	0.00%	0.00%			
60+	0.00%	0.00%			

Appendix Assumption Tables

Active Retirement Rates		
Age	Current Assumption	Proposed Assumption
50	7%	7%
51	7%	6%
52	7%	6%
53	7%	6%
54	7%	3%
55	60%	65%
56	40%	50%
57	20%	30%
58	20%	20%
59	20%	20%
60+	100%	100%

Appendix

Assumption Tables

Salary Scale				
Current Assumption		Proposed Assumption		
Age	Rate	Service	Rate	
20	7.75%	1	8.00%	
21	7.15%	2	7.50%	
22	7.07%	3	7.00%	
23	7.05%	4	6.75%	
24	7.04%	5	6.50%	
25	7.00%	6	6.25%	
26	7.00%	7	6.00%	
27	7.00%	8	5.85%	
28	7.00%	9	5.70%	
29	7.00%	10	5.55%	
30	7.00%	11	5.40%	
31	7.00%	12	5.25%	
32	7.00%	13	5.10%	
33	7.00%	14	4.95%	
34	7.00%	15	4.80%	
35	7.00%	16	4.65%	
36	6.90%	17	4.50%	
37	6.81%	18	4.35%	
38	6.71%	19	4.20%	
39	6.61%	20	4.05%	
40	6.50%	21	4.00%	
41	6.35%	22	4.00%	
42	6.21%	23	4.00%	
43	6.06%	24	4.00%	
44	5.90%	25	4.00%	
45	5.75%	26	4.00%	
46	5.69%	27	4.00%	
47	5.64%	28	4.00%	
48	5.58%	29	4.00%	
49	5.54%	30+	4.00%	
50	5.50%			
51	5.44%			
52	5.38%			
53	5.32%			
54	5.28%			
55+	5.25%			

Appendix

Detailed Experience Analysis

Salary Increases

2006-2011 Experience

Age Group	Observed Average	Expected Average
<25	4.87%	7.04%
25 – 29	5.99%	7.00%
30 – 34	5.35%	7.00%
35 – 39	3.97%	6.81%
40 – 44	3.80%	6.20%
45 – 49	3.36%	5.64%
50 – 54	2.93%	5.39%
55 – 59	3.08%	5.25%
60 – 64	-1.62%	5.25%
65+	N/A	N/A
Total	3.97%	6.23%

2006-2007 Experience

Age Group	Observed Average	Expected Average
<25	11.76%	7.04%
25 – 29	9.97%	7.00%
30 – 34	10.03%	7.00%
35 – 39	7.66%	6.80%
40 – 44	7.65%	6.18%
45 – 49	5.73%	5.64%
50 – 54	6.35%	5.40%
55 – 59	5.50%	5.25%
60 – 64	0.00%	0.00%
65+	N/A	N/A
Total	7.64%	6.26%

Appendix

Detailed Experience Analysis

Salary Increases

2007-2008 Experience

Age Group	Observed Average	Expected Average
<25	0.00%	0.00%
25 – 29	7.86%	7.00%
30 – 34	7.31%	7.00%
35 – 39	4.59%	6.82%
40 – 44	4.74%	6.22%
45 – 49	4.57%	5.64%
50 – 54	3.54%	5.40%
55 – 59	6.44%	5.25%
60 – 64	(1.62%)	5.25%
65+	N/A	N/A
Total	5.16%	6.25%

2008-2009 Experience

Age Group	Observed Average	Expected Average
<25	9.35%	7.04%
25 – 29	6.45%	7.00%
30 – 34	6.39%	7.00%
35 – 39	5.99%	6.81%
40 – 44	4.35%	6.17%
45 – 49	4.30%	5.64%
50 – 54	3.72%	5.40%
55 – 59	7.08%	5.25%
60 – 64	N/A	N/A
65+	N/A	N/A
Total	5.06%	6.22%

Appendix

Detailed Experience Analysis

Salary Increases

2009-2010 Experience

Age Group	Observed Average	Expected Average
<25	1.33%	7.05%
25 – 29	3.07%	7.00%
30 – 34	1.86%	7.00%
35 – 39	1.66%	6.79%
40 – 44	0.64%	6.21%
45 – 49	0.44%	5.64%
50 – 54	0.76%	5.38%
55 – 59	(0.75%)	5.25%
60 – 64	N/A	N/A
65+	N/A	N/A
Total	1.12%	6.21%

2010-2011 Experience

Age Group	Observed Average	Expected Average
<25	1.94%	7.05%
25 – 29	1.80%	7.00%
30 – 34	0.34%	7.00%
35 – 39	0.43%	6.81%
40 – 44	1.27%	6.23%
45 – 49	1.79%	5.64%
50 – 54	0.99%	5.39%
55 – 59	0.55%	5.25%
60 – 64	N/A	N/A
65+	N/A	N/A
Total	1.05%	6.23%

Appendix

Detailed Experience Analysis

Post-retirement Mortality

2006-2011 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<50	0	0.01	0.0%	0	0.03	0.0%	0	0.04	0.0%
50-54	1	0.45	222.0%	0	0.08	0.0%	1	0.53	187.3%
55-59	1	3.46	28.9%	2	0.25	810.8%	3	3.70	81.0%
60-64	2	6.73	29.7%	0	0.57	0.0%	2	7.30	27.4%
65-69	2	9.25	21.6%	0	0.67	0.0%	2	9.92	20.2%
70-74	5	11.03	45.4%	2	1.09	183.3%	7	12.12	57.8%
75-79	15	15.42	97.3%	5	4.41	113.5%	20	19.82	100.9%
80-84	19	20.86	91.1%	4	7.00	57.2%	23	27.86	82.6%
85-89	15	17.26	86.9%	16	10.12	158.0%	31	27.38	113.2%
90-94	8	7.30	109.6%	6	6.75	88.8%	14	14.06	99.6%
95+	1	0.96	103.7%	5	5.56	89.9%	6	6.53	91.9%
Total	69	92.72	74.4%	40	36.54	109.5%	109	129.26	84.3%

2006-2007 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<50	0	0.00	0.0%	0	0.01	0.0%	0	0.01	0.00%
50-54	0	0.09	0.0%	0	0.02	0.0%	0	0.10	0.00%
55-59	0	0.74	0.0%	1	0.05	2,094.5%	1	0.79	127.1%
60-64	1	1.37	73.0%	0	0.09	0.0%	1	1.46	68.4%
65-69	1	1.49	66.9%	0	0.10	0.0%	1	1.59	62.7%
70-74	1	1.98	50.6%	1	0.34	296.1%	2	2.31	86.4%
75-79	5	3.52	142.1%	1	0.96	103.7%	6	4.48	133.9%
80-84	1	3.74	26.7%	0	0.79	0.0%	1	4.53	22.1%
85-89	3	3.06	97.9%	2	1.90	105.2%	5	4.97	100.7%
90-94	0	0.88	0.0%	1	1.18	84.4%	1	2.06	48.5%
95+	0	0.22	0.0%	0	0.63	0.0%	0	0.84	0.0%
Total	12	17.08	70.2%	6	6.07	98.9%	18	23.15	77.7%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Post-retirement Mortality

2007-2008 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<50	0	0.00	0.0%	0	0.01	0.0%	0	0.01	0.0%
50-54	0	0.09	0.0%	0	0.02	0.0%	0	0.11	0.0%
55-59	1	0.71	141.0%	0	0.05	0.0%	1	0.76	131.8%
60-64	1	1.36	73.5%	0	0.11	0.0%	1	1.47	67.9%
65-69	0	1.72	0.0%	0	0.13	0.0%	0	1.84	0.0%
70-74	1	2.15	46.5%	1	0.26	388.1%	2	2.41	83.1%
75-79	4	3.16	126.7%	1	0.89	112.0%	5	4.05	123.4%
80-84	7	4.24	165.3%	0	1.23	0.0%	7	5.46	128.1%
85-89	5	3.29	152.1%	2	1.88	106.2%	7	5.17	135.4%
90-94	1	1.23	81.4%	1	1.16	86.5%	2	2.39	83.8%
95+	0	0.23	0.0%	1	1.02	98.0%	1	1.25	79.7%
Total	20	18.18	110.0%	6	6.75	88.8%	26	24.93	104.3%

2008-2009 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<50	0	0.00	0.0%	0	0.01	0.0%	0	0.01	0.0%
50-54	0	0.11	0.0%	0	0.02	0.0%	0	0.12	0.0%
55-59	0	0.68	0.0%	0	0.05	0.0%	0	0.72	0.0%
60-64	0	1.34	0.0%	0	0.13	0.0%	0	1.47	0.0%
65-69	0	1.92	0.0%	0	0.14	0.0%	0	2.05	0.0%
70-74	1	2.14	46.8%	0	0.17	0.0%	1	2.30	43.4%
75-79	4	3.17	126.1%	0	0.93	0.0%	4	4.10	97.5%
80-84	5	4.03	124.2%	3	1.54	194.3%	8	5.57	143.6%
85-89	2	3.39	59.1%	4	2.19	182.9%	6	5.57	107.7%
90-94	1	1.44	69.4%	0	1.37	0.0%	1	2.81	35.6%
95+	0	0.25	0.0%	0	0.94	0.0%	0	1.19	0.0%
Total	13	18.45	70.5%	7	7.48	93.6%	20	25.93	77.1%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Post-retirement Mortality

2009-2010 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<50	0	0.00	0.0%	0	0.01	0.0%	0	0.01	0.0%
50-54	0	0.09	0.0%	0	0.01	0.0%	0	0.10	0.0%
55-59	0	0.65	0.0%	1	0.05	1,956.1%	1	0.70	142.3%
60-64	0	1.37	0.0%	0	0.12	0.0%	0	1.49	0.0%
65-69	0	2.00	0.0%	0	0.16	0.0%	0	2.16	0.0%
70-74	0	2.29	0.0%	0	0.16	0.0%	0	2.45	0.0%
75-79	1	2.64	37.8%	0	0.83	0.0%	1	3.47	28.8%
80-84	2	4.44	45.1%	1	1.71	58.4%	3	6.15	48.8%
85-89	4	3.76	106.4%	3	1.84	163.5%	7	5.59	125.1%
90-94	3	1.80	166.7%	2	1.68	118.9%	5	3.48	143.6%
95+	1	0.26	378.9%	1	1.37	72.9%	2	1.64	122.3%
Total	11	19.30	57.0%	8	7.94	100.7%	19	27.25	69.7%

2010-2011 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<50	0	0.00	0.0%	0	0.01	0.0%	0	0.01	0.0%
50-54	1	0.08	1,257.8%	0	0.02	0.0%	1	0.09	1,057.6%
55-59	0	0.68	0.0%	0	0.05	0.0%	0	0.73	0.0%
60-64	0	1.29	0.0%	0	0.11	0.0%	0	1.40	0.0%
65-69	1	2.12	47.2%	0	0.15	0.0%	1	2.27	44.0%
70-74	2	2.47	80.9%	0	0.17	0.0%	2	2.64	75.8%
75-79	1	2.93	34.2%	3	0.79	380.7%	4	3.71	107.7%
80-84	4	4.42	90.4%	0	1.72	0.0%	4	6.15	65.1%
85-89	1	3.76	26.6%	5	2.32	215.7%	6	6.08	98.7%
90-94	3	1.96	153.4%	2	1.36	146.5%	5	3.32	150.6%
95+	0	0	0.0%	3	1.60	187.6%	3	1.60	187.6%
Total	13	19.71	66.0%	13	8.30	156.7%	26	28.01	92.8%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Pre-retirement Mortality

2006-2011 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<25	0	0.02	0.0%	0	0.00	0.0%	0	0.02	0.0%
25-29	0	0.11	0.0%	0	0.01	0.0%	0	0.12	0.0%
30-34	0	0.31	0.0%	0	0.02	0.0%	0	0.34	0.0%
35-39	0	0.49	0.0%	0	0.04	0.0%	0	0.53	0.0%
40-44	0	0.65	0.0%	0	0.06	0.0%	0	0.71	0.0%
45-49	0	1.11	0.0%	0	0.10	0.0%	0	1.21	0.0%
50-54	1	1.77	56.5%	0	0.08	0.0%	1	1.85	54.2%
55-59	0	0.71	0.0%	0	0.01	0.0%	0	0.72	0.0%
60-64	0	0.06	0.0%	0	0.00	N/A	0	0.06	0.0%
Total	1	5.22	19.1%	0	0.32	0.0%	1	5.55	18.0%

2006-2007 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<25	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
25-29	0	0.03	0.0%	0	0.00	0.0%	0	0.03	0.0%
30-34	0	0.07	0.0%	0	0.00	0.0%	0	0.07	0.0%
35-39	0	0.09	0.0%	0	0.01	0.0%	0	0.10	0.0%
40-44	0	0.13	0.0%	0	0.01	0.0%	0	0.15	0.0%
45-49	0	0.22	0.0%	0	0.02	0.0%	0	0.24	0.0%
50-54	1	0.35	289.4%	0	0.01	0.0%	1	0.35	282.2%
55-59	0	0.12	0.0%	0	0.00	0.0%	0	0.12	0.0%
60-64	0	0.01	0.0%	0	0.00	0.0%	0	0.01	0.0%
Total	1	1.01	98.9%	0	0.06	0.0%	1	1.07	93.4%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Pre-retirement Mortality

2007-2008 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<25	0	0.00	0.0%	0	0.00	N/A	0	0.00	0.0%
25-29	0	0.02	0.0%	0	0.00	0.0%	0	0.02	0.0%
30-34	0	0.07	0.0%	0	0.01	0.0%	0	0.07	0.0%
35-39	0	0.09	0.0%	0	0.01	0.0%	0	0.10	0.0%
40-44	0	0.13	0.0%	0	0.01	0.0%	0	0.14	0.0%
45-49	0	0.24	0.0%	0	0.02	0.0%	0	0.26	0.0%
50-54	0	0.33	0.0%	0	0.01	0.0%	0	0.34	0.0%
55-59	0	0.15	0.0%	0	0.00	N/A	0	0.15	0.0%
60-64	0	0.01	0.0%	0	0.00	N/A	0	0.01	0.0%
Total	0	1.04	0.0%	0	0.06	0.0%	0	1.10	0.0%

2008-2009 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<25	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
25-29	0	0.02	0.0%	0	0.00	0.0%	0	0.02	0.0%
30-34	0	0.06	0.0%	0	0.01	0.0%	0	0.07	0.0%
35-39	0	0.10	0.0%	0	0.01	0.0%	0	0.12	0.0%
40-44	0	0.13	0.0%	0	0.01	0.0%	0	0.14	0.0%
45-49	0	0.22	0.0%	0	0.02	0.0%	0	0.24	0.0%
50-54	0	0.35	0.0%	0	0.02	0.0%	0	0.36	0.0%
55-59	0	0.12	0.0%	0	0.00	0.0%	0	0.12	0.0%
60-64	0	0.03	0.0%	0	0.00	N/A	0	0.03	0.0%
Total	0	1.03	0.0%	0	0.06	0.0%	0	1.09	0.0%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Pre-retirement Mortality

2009-2010 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<25	0	0.01	0.0%	0	0.00	0.0%	0	0.01	0.0%
25-29	0	0.02	0.0%	0	0.00	0.0%	0	0.03	0.0%
30-34	0	0.06	0.0%	0	0.01	0.0%	0	0.07	0.0%
35-39	0	0.11	0.0%	0	0.01	0.0%	0	0.12	0.0%
40-44	0	0.12	0.0%	0	0.01	0.0%	0	0.13	0.0%
45-49	0	0.23	0.0%	0	0.02	0.0%	0	0.26	0.0%
50-54	0	0.38	0.0%	0	0.02	0.0%	0	0.39	0.0%
55-59	0	0.13	0.0%	0	0.00	N/A	0	0.13	0.0%
60-64	0	0.01	0.0%	0	0.00	N/A	0	0.01	0.0%
Total	0	1.06	0.0%	0	0.07	0.0%	0	1.13	0.0%

2010-2011 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<25	0	0.00	0.0%	0	0.00	N/A	0	0.00	0.0%
25-29	0	0.02	0.0%	0	0.00	0.0%	0	0.02	0.0%
30-34	0	0.05	0.0%	0	0.00	0.0%	0	0.06	0.0%
35-39	0	0.10	0.0%	0	0.01	0.0%	0	0.11	0.0%
40-44	0	0.14	0.0%	0	0.01	0.0%	0	0.15	0.0%
45-49	0	0.20	0.0%	0	0.02	0.0%	0	0.22	0.0%
50-54	0	0.37	0.0%	0	0.02	0.0%	0	0.40	0.0%
55-59	0	0.19	0.0%	0	0.00	0.0%	0	0.19	0.0%
60-64	0	0.01	0.0%	0	0.00	N/A	0	0.01	0.0%
Total	0	1.09	0.0%	0	0.07	0.0%	0	1.16	0.0%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Disability Mortality

2006-2011 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<50	0	0.16	0.0%	1	0.08	1,213.0%	1	0.24	413.0%
50-54	0	0.32	0.0%	0	0.10	0.0%	0	0.42	0.0%
55-59	0	0.76	0.0%	0	0.12	0.0%	0	0.88	0.0%
60-64	0	1.20	0.0%	0	0.00	N/A	0	1.20	0.0%
65-69	0	0.85	0.0%	0	0.00	N/A	0	0.85	0.0%
70-74	0	0.58	0.0%	0	0.00	N/A	0	0.58	0.0%
75-79	0	0.81	0.0%	0	0.00	N/A	0	0.81	0.0%
80-84	1	1.15	86.8%	0	0.00	N/A	1	1.15	86.8%
85-89	1	0.33	300.5%	0	0.00	N/A	1	0.33	300.5%
90-94	0	0.00	N/A	0	0.00	N/A	0	0.00	N/A
95+	0	0.00	N/A	0	0.00	N/A	0	0.00	N/A
Total	2	6.16	32.5%	1	0.30	328.3%	3	6.46	46.4%

2006-2007 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<50	0	0.03	0.0%	0	0.01	0.0%	0	0.04	0.0%
50-54	0	0.10	0.0%	0	0.04	0.0%	0	0.14	0.0%
55-59	0	0.13	0.0%	0	0.00	N/A	0	0.13	0.0%
60-64	0	0.21	0.0%	0	0.00	N/A	0	0.21	0.0%
65-69	0	0.12	0.0%	0	0.00	N/A	0	0.12	0.0%
70-74	0	0.05	0.0%	0	0.00	N/A	0	0.05	0.0%
75-79	0	0.16	0.0%	0	0.00	N/A	0	0.16	0.0%
80-84	1	0.36	278.9%	0	0.00	N/A	1	0.36	278.9%
85-89	0	0.00	N/A	0	0.00	N/A	0	0.00	N/A
90-94	0	0.00	N/A	0	0.00	N/A	0	0.00	N/A
95+	0	0.00	N/A	0	0.00	N/A	0	0.00	N/A
Total	1	1.15	86.7%	0	0.05	0.0%	1	1.20	83.2%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Disability Mortality

2007-2008 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<50	0	0.02	0.0%	1	0.02	5,339.0%	1	0.04	2,716.7%
50-54	0	0.06	0.0%	0	0.03	0.0%	0	0.09	0.0%
55-59	0	0.16	0.0%	0	0.02	0.0%	0	0.17	0.0%
60-64	0	0.27	0.0%	0	0.00	N/A	0	0.27	0.0%
65-69	0	0.08	0.0%	0	0.00	N/A	0	0.08	0.0%
70-74	0	0.11	0.0%	0	0.00	N/A	0	0.11	0.0%
75-79	0	0.17	0.0%	0	0.00	N/A	0	0.17	0.0%
80-84	0	0.27	0.0%	0	0.00	N/A	1	0.27	0.0%
85-89	0	0.00	N/A	0	0.00	N/A	0	0.00	N/A
90-94	0	0.00	N/A	0	0.00	N/A	0	0.00	N/A
95+	0	0.00	N/A	0	0.00	N/A	0	0.00	N/A
Total	0	1.13	0.0%	1	0.06	1,681.0%	1	1.19	84.2%

2008-2009 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<50	0	0.03	0.0%	0	0.01	0.0%	0	0.04	0.0%
50-54	0	0.05	0.0%	0	0.03	0.0%	0	0.08	0.0%
55-59	0	0.14	0.0%	0	0.02	0.0%	0	0.16	0.0%
60-64	0	0.27	0.0%	0	0.00	N/A	0	0.27	0.0%
65-69	0	0.15	0.0%	0	0.00	N/A	0	0.15	0.0%
70-74	0	0.11	0.0%	0	0.00	N/A	0	0.11	0.0%
75-79	0	0.18	0.0%	0	0.00	N/A	0	0.18	0.0%
80-84	0	0.13	0.0%	0	0.00	N/A	0	0.13	0.0%
85-89	0	0.16	0.0%	0	0.00	N/A	0	0.16	0.0%
90-94	0	0.00	N/A	0	0.00	N/A	0	0.00	N/A
95+	0	0.00	N/A	0	0.00	N/A	0	0.00	N/A
Total	0	1.23	0.0%	0	0.06	0.0%	0	1.29	0.0%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Disability Mortality

2009-2010 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<50	0	0.03	0.0%	0	0.02	0.0%	0	0.05	0.0%
50-54	0	0.05	0.0%	0	0.01	0.0%	0	0.07	0.0%
55-59	0	0.17	0.0%	0	0.03	0.0%	0	0.20	0.0%
60-64	0	0.19	0.0%	0	0.00	N/A	0	0.19	0.0%
65-69	0	0.27	0.0%	0	0.00	N/A	0	0.27	0.0%
70-74	0	0.12	0.0%	0	0.00	N/A	0	0.12	0.0%
75-79	0	0.20	0.0%	0	0.00	N/A	0	0.20	0.0%
80-84	0	0.14	0.0%	0	0.00	N/A	0	0.14	0.0%
85-89	1	0.17	579.7%	0	0.00	N/A	1	0.17	579.7%
90-94	0	0.00	N/A	0	0.00	N/A	0	0.00	N/A
95+	0	0.00	N/A	0	0.00	N/A	0	0.00	N/A
Total	1	1.34	74.6%	0	0.06	0.0%	1	1.40	71.2%

2010-2011 Experience

Age Group	Males			Females			Total		
	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected	Actual Deaths	Expected Deaths	Actual/Expected
<50	0	0.05	0.0%	0	0.02	0.0%	0	0.08	0.0%
50-54	0	0.05	0.0%	0	0.00	N/A	0	0.05	0.0%
55-59	0	0.17	0.0%	0	0.05	0.0%	0	0.22	0.0%
60-64	0	0.25	0.0%	0	0.00	N/A	0	0.25	0.0%
65-69	0	0.24	0.0%	0	0.00	N/A	0	0.24	0.0%
70-74	0	0.18	0.0%	0	0.00	N/A	0	0.18	0.0%
75-79	0	0.10	0.0%	0	0.00	N/A	0	0.10	0.0%
80-84	0	0.26	0.0%	0	0.00	N/A	0	0.26	0.0%
85-89	0	0.00	N/A	0	0.00	N/A	0	0.00	N/A
90-94	0	0.00	N/A	0	0.00	N/A	0	0.00	N/A
95+	0	0.00	N/A	0	0.00	N/A	0	0.00	N/A
Total	0	1.30	0.0%	0	0.08	0.0%	0	1.38	0.0%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Retirement

2006-2011 Experience

Age	Actual Retirements	Expected Retirements	Actual/Expected
50	12	11.69	102.7%
51	8	10.29	77.7%
52	6	9.17	65.4%
53	7	8.89	78.7%
54	1	6.51	15.4%
55	70	60.60	115.5%
56	22	14.00	157.1%
57	5	2.80	178.6%
58	0	1.80	0.0%
59	1	1.40	71.4%
60	7	8.00	87.5%
61	1	1.00	100.0%
62	0	0.00	N/A
63	0	0.00	N/A
64	0	0.00	N/A
65	0	0.00	N/A
66	1	1.00	100.0%
67	0	0.00	N/A
68	0	0.00	N/A
69	0	0.00	N/A
70+	0	0.00	N/A
Total	141	137.15	102.8%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Retirement

2006-2007 Experience

Age	Actual Retirements	Expected Retirements	Actual/Expected
50	5	2.45	204.1%
51	3	2.31	129.9%
52	1	1.12	89.3%
53	2	1.82	109.9%
54	0	1.26	0.0%
55	11	10.80	101.9%
56	4	1.60	250.0%
57	2	0.60	333.3%
58	0	0.40	0.0%
59	0	0.40	0.0%
60	1	1.00	100.0%
61	0	0.00	N/A
62	0	0.00	N/A
63	0	0.00	N/A
64	0	0.00	N/A
65	0	0.00	N/A
66	1	1.00	100.0%
67	0	0.00	N/A
68	0	0.00	N/A
69	0	0.00	N/A
70+	0	0.00	N/A
Total	30	24.76	121.2%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Retirement

2007-2008 Experience

Age	Actual Retirements	Expected Retirements	Actual/Expected
50	1	2.03	49.3%
51	3	2.10	142.9%
52	1	2.03	49.3%
53	3	1.12	267.9%
54	0	1.19	0.0%
55	20	13.80	144.9%
56	5	3.60	138.9%
57	0	0.00	N/A
58	0	0.20	0.0%
59	0	0.40	0.0%
60	1	2.00	50.0%
61	0	0.00	N/A
62	0	0.00	N/A
63	0	0.00	N/A
64	0	0.00	N/A
65	0	0.00	N/A
66	0	0.00	N/A
67	0	0.00	N/A
68	0	0.00	N/A
69	0	0.00	N/A
70+	0	0.00	N/A
Total	34	28.47	119.4%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Retirement

2008-2009 Experience

Age	Actual Retirements	Expected Retirements	Actual/Expected
50	2	2.31	86.6%
51	1	1.96	51.0%
52	1	1.96	51.0%
53	1	2.10	47.6%
54	0	0.77	0.0%
55	12	10.20	117.6%
56	4	2.40	166.7%
57	1	1.00	100.0%
58	0	0.00	N/A
59	0	0.00	N/A
60	3	3.00	100.0%
61	1	1.00	100.0%
62	0	0.00	N/A
63	0	0.00	N/A
64	0	0.00	N/A
65	0	0.00	N/A
66	0	0.00	N/A
67	0	0.00	N/A
68	0	0.00	N/A
69	0	0.00	N/A
70+	0	0.00	N/A
Total	26	26.70	97.4%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Retirement

2009-2010 Experience

Age	Actual Retirements	Expected Retirements	Actual/Expected
50	2	1.96	102.0%
51	1	2.10	47.6%
52	1	1.89	52.9%
53	1	2.03	49.3%
54	1	1.68	59.5%
55	10	9.60	104.2%
56	4	2.80	142.9%
57	0	0.40	0.0%
58	0	0.80	0.0%
59	0	0.00	N/A
60	1	1.00	100.0%
61	0	0.00	N/A
62	0	0.00	N/A
63	0	0.00	N/A
64	0	0.00	N/A
65	0	0.00	N/A
66	0	0.00	N/A
67	0	0.00	N/A
68	0	0.00	N/A
69	0	0.00	N/A
70+	0	0.00	N/A
Total	21	24.26	86.6%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Retirement

2010-2011 Experience

Age	Actual Retirements	Expected Retirements	Actual/Expected
50	2	2.94	68.0%
51	0	1.82	0.0%
52	2	2.17	92.2%
53	0	1.82	0.0%
54	0	1.61	0.0%
55	17	16.20	104.9%
56	5	3.60	138.9%
57	2	0.80	250.0%
58	0	0.40	0.0%
59	1	0.60	166.7%
60	1	1.00	100.0%
61	0	0.00	N/A
62	0	0.00	N/A
63	0	0.00	N/A
64	0	0.00	N/A
65	0	0.00	N/A
66	0	0.00	N/A
67	0	0.00	N/A
68	0	0.00	N/A
69	0	0.00	N/A
70+	0	0.00	N/A
Total	30	32.96	91.0%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Disability Retirements

2006-2011 Experience

Age Group	Males			Females			Total		
	Actual Disabilities	Expected Disabilities	Actual/Expected	Actual Disabilities	Expected Disabilities	Actual/Expected	Actual Disabilities	Expected Disabilities	Actual/Expected
<25	0	0.03	0.0%	0	0.00	0.0%	0	0.03	0.0%
25-29	0	0.18	0.0%	0	0.03	0.0%	0	0.21	0.0%
30-34	0	0.56	0.0%	0	0.07	0.0%	0	0.63	0.0%
35-39	1	0.95	105.5%	0	0.13	0.0%	1	1.07	93.2%
40-44	1	1.46	68.7%	1	0.19	531.3%	2	1.64	121.6%
45-49	4	2.62	152.5%	0	0.36	0.0%	4	2.99	133.9%
50-54	1	4.06	24.6%	0	0.29	0.0%	1	4.35	23.0%
55-59	0	1.60	0.0%	0	0.04	0.0%	0	1.64	0.0%
60-64	0	0.13	0.0%	0	0.00	N/A	0	0.13	0.0%
Total	7	11.59	60.4%	1	1.10	91.0%	8	12.69	63.1%

2006-2007 Experience

Age Group	Males			Females			Total		
	Actual Disabilities	Expected Disabilities	Actual/Expected	Actual Disabilities	Expected Disabilities	Actual/Expected	Actual Disabilities	Expected Disabilities	Actual/Expected
<25	0	0.00	0.0%	0	0.00	0.0%	0	0.01	0.0%
25-29	0	0.04	0.0%	0	0.01	0.0%	0	0.05	0.0%
30-34	0	0.13	0.0%	0	0.01	0.0%	0	0.14	0.0%
35-39	0	0.17	0.0%	0	0.02	0.0%	0	0.20	0.0%
40-44	0	0.29	0.0%	1	0.05	2,092.1%	1	0.34	291.9%
45-49	0	0.53	0.0%	0	0.06	0.0%	0	0.58	0.0%
50-54	0	0.79	0.0%	0	0.03	0.0%	0	0.83	0.0%
55-59	0	0.27	0.0%	0	0.02	0.0%	0	0.29	0.0%
60-64	0	0.01	0.0%	0	0.00	N/A	0	0.01	0.0%
Total	0	2.24	0.0%	1	0.20	499.0%	1	2.44	41.0%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Disability Retirements

2007-2008 Experience

Age Group	Males			Females			Total		
	Actual Disabilities	Expected Disabilities	Actual/Expected	Actual Disabilities	Expected Disabilities	Actual/Expected	Actual Disabilities	Expected Disabilities	Actual/Expected
<25	0	0.00	0.0%	0	0.00	N/A	0	0.00	0.0%
25-29	0	0.04	0.0%	0	0.00	0.0%	0	0.04	0.0%
30-34	0	0.12	0.0%	0	0.01	0.0%	0	0.14	0.0%
35-39	0	0.17	0.0%	0	0.03	0.0%	0	0.20	0.0%
40-44	1	0.28	351.1%	0	0.04	0.0%	1	0.32	311.7%
45-49	0	0.56	0.0%	0	0.07	0.0%	0	0.63	0.0%
50-54	0	0.75	0.0%	0	0.05	0.0%	0	0.80	0.0%
55-59	0	0.35	0.0%	0	0.00	N/A	0	0.35	0.0%
60-64	0	0.03	0.0%	0	0.00	N/A	0	0.03	0.0%
Total	1	2.30	43.5%	0	0.20	0.0%	1	2.50	40.0%

2008-2009 Experience

Age Group	Males			Females			Total		
	Actual Disabilities	Expected Disabilities	Actual/Expected	Actual Disabilities	Expected Disabilities	Actual/Expected	Actual Disabilities	Expected Disabilities	Actual/Expected
<25	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
25-29	0	0.03	0.0%	0	0.00	0.0%	0	0.04	0.0%
30-34	0	0.11	0.0%	0	0.01	0.0%	0	0.12	0.0%
35-39	1	0.20	494.1%	0	0.03	0.0%	1	0.23	428.6%
40-44	0	0.30	0.0%	0	0.03	0.0%	0	0.32	0.0%
45-49	1	0.52	192.7%	0	0.07	0.0%	1	0.59	168.7%
50-54	0	0.80	0.0%	0	0.06	0.0%	0	0.86	0.0%
55-59	0	0.27	0.0%	0	0.01	0.0%	0	0.27	0.0%
60-64	0	0.06	0.0%	0	0.00	N/A	0	0.06	0.0%
Total	2	2.29	87.4%	0	0.22	0.0%	2	2.50	79.8%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Disability Retirements

2009-2010 Experience

Age Group	Males			Females			Total		
	Actual Disabilities	Expected Disabilities	Actual/Expected	Actual Disabilities	Expected Disabilities	Actual/Expected	Actual Disabilities	Expected Disabilities	Actual/Expected
<25	0	0.01	0.0%	0	0.00	0.0%	0	0.01	0.0%
25-29	0	0.04	0.0%	0	0.01	0.0%	0	0.05	0.0%
30-34	0	0.11	0.0%	0	0.01	0.0%	0	0.12	0.0%
35-39	0	0.21	0.0%	0	0.03	0.0%	0	0.24	0.0%
40-44	0	0.27	0.0%	0	0.03	0.0%	0	0.31	0.0%
45-49	3	0.55	547.0%	0	0.09	0.0%	3	0.63	472.7%
50-54	1	0.86	116.3%	0	0.07	0.0%	1	0.93	108.0%
55-59	0	0.29	0.0%	0	0.00	N/A	0	0.29	0.0%
60-64	0	0.01	0.0%	0	0.00	N/A	0	0.01	0.0%
Total	4	2.35	170.3%	0	0.23	0.0%	4	2.58	154.9%

2010-2011 Experience

Age Group	Males			Females			Total		
	Actual Disabilities	Expected Disabilities	Actual/Expected	Actual Disabilities	Expected Disabilities	Actual/Expected	Actual Disabilities	Expected Disabilities	Actual/Expected
<25	0	0.01	0.0%	0	0.00	N/A	0	0.01	0.0%
25-29	0	0.03	0.0%	0	0.01	0.0%	0	0.04	0.0%
30-34	0	0.10	0.0%	0	0.01	0.0%	0	0.11	0.0%
35-39	0	0.20	0.0%	0	0.02	0.0%	0	0.21	0.0%
40-44	0	0.30	0.0%	0	0.05	0.0%	0	0.35	0.0%
45-49	0	0.47	0.0%	0	0.07	0.0%	0	0.55	0.0%
50-54	0	0.86	0.0%	0	0.08	0.0%	0	0.94	0.0%
55-59	0	0.43	0.0%	0	0.01	0.0%	0	0.44	0.0%
60-64	0	0.01	0.0%	0	0.00	N/A	0	0.01	0.0%
Total	0	2.41	0.0%	0	0.25	0.0%	0	2.66	0.0%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Terminations

2006-2011 Experience

Select				Ultimate			
Service Group	Actual Terminations	Expected Terminations	Actual/Expected	Age Group	Actual Terminations	Expected Terminations	Actual/Expected
0-1	12	3.40	352.9%	<25	0	0.02	0.0%
1-2	4	5.60	71.4%	25-29	1	1.27	78.5%
2-3	1	5.28	19.0%	30-34	3	3.42	87.6%
Total	17	14.28	119.1%	35-39	2	2.86	69.9%
				40-44	4	2.81	142.5%
				45-49	1	2.84	35.2%
				50-54	0	0.00	N/A
				55-59	0	0.00	N/A
				60-64	0	0.00	N/A
				Total	11	13.23	83.1%

2006-2007 Experience

Select				Ultimate			
Service Group	Actual Terminations	Expected Terminations	Actual/Expected	Age Group	Actual Terminations	Expected Terminations	Actual/Expected
0-1	3	0.88	342.9%	<25	0	0.01	0.0%
1-2	0	1.50	0.0%	25-29	0	0.20	0.0%
2-3	0	1.45	0.0%	30-34	0	0.63	0.0%
Total	3	3.83	78.4%	35-39	0	0.51	0.0%
				40-44	1	0.57	176.1%
				45-49	0	0.55	0.0%
				50-54	0	0.00	N/A
				55-59	0	0.00	N/A
				60-64	0	0.00	N/A
				Total	1	2.48	40.4%

2007-2008 Experience

Select				Ultimate			
Service Group	Actual Terminations	Expected Terminations	Actual/Expected	Age Group	Actual Terminations	Expected Terminations	Actual/Expected
0-1	1	0.50	200.0%	<25	0	0.00	N/A
1-2	1	1.00	100.0%	25-29	1	0.32	313.6%
2-3	0	1.48	0.0%	30-34	1	0.69	142.5%
Total	2	2.98	67.2%	35-39	1	0.52	191.5%
				40-44	0	0.56	0.0%
				45-49	1	0.59	170.6%
				50-54	0	0.00	N/A
				55-59	0	0.00	N/A
				60-64	0	0.00	N/A
				Total	4	2.68	149.5%

Not all numbers may add due to rounding.

Appendix

Detailed Experience Analysis

Terminations

2008-2009 Experience

Select				Ultimate			
Service Group	Actual Terminations	Expected Terminations	Actual/Expected	Age Group	Actual Terminations	Expected Terminations	Actual/Expected
0-1	1	0.25	400.0%	<25	0	0.00	N/A
1-2	2	1.15	173.9%	25-29	0	0.30	0.0%
2-3	1	0.98	102.6%	30-34	2	0.75	266.4%
Total	4	2.38	168.4%	35-39	1	0.59	169.6%
				40-44	3	0.56	531.9%
				45-49	0	0.57	0.0%
				50-54	0	0.00	N/A
				55-59	0	0.00	N/A
				60-64	0	0.00	N/A
				Total	6	2.77	216.5%

2009-2010 Experience

Select				Ultimate			
Service Group	Actual Terminations	Expected Terminations	Actual/Expected	Age Group	Actual Terminations	Expected Terminations	Actual/Expected
0-1	7	1.78	394.4%	<25	0	0.00	N/A
1-2	0	0.30	0.0%	25-29	0	0.25	0.0%
2-3	0	1.08	0.0%	30-34	0	0.69	0.0%
Total	7	3.15	222.2%	35-39	0	0.61	0.0%
				40-44	0	0.51	0.0%
				45-49	0	0.59	0.0%
				50-54	0	0.00	N/A
				55-59	0	0.00	N/A
				60-64	0	0.00	N/A
				Total	0	2.66	0.0%

2010-2011 Experience

Select				Ultimate			
Service Group	Actual Terminations	Expected Terminations	Actual/Expected	Age Group	Actual Terminations	Expected Terminations	Actual/Expected
0-1	0	0	N/A	<25	0	0.01	0.0%
1-2	1	1.65	60.6%	25-29	0	0.21	0.0%
2-3	0	0.30	0.0%	30-34	0	0.67	0.0%
Total	1	1.95	51.3%	35-39	0	0.62	0.0%
				40-44	0	0.60	0.0%
				45-49	0	0.54	0.0%
				50-54	0	0.00	N/A
				55-59	0	0.00	N/A
				60-64	0	0.00	N/A
				Total	0	2.65	0.0%

Not all numbers may add due to rounding.

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