

WISCONSIN RETIREMENT SYSTEM
THREE-YEAR EXPERIENCE STUDY
JANUARY 1, 2009 – DECEMBER 31, 2011

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November 20, 2012

The Employee Trust Funds Board
801 West Badger Road
Madison, Wisconsin 53707

Ladies and Gentlemen:

The results of the *3-year investigation of experience* of the Wisconsin Retirement System are presented in this report. The investigation was made for the purpose of updating the actuarial assumptions used in valuing the actuarial liabilities of the Wisconsin Retirement System in compliance with Section 40.03(5)(b) of the Wisconsin Statutes.

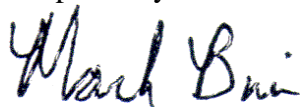
The investigation was based upon the statistical data furnished for annual active member and retired life actuarial valuations, supplemental information furnished by your Secretary and his staff, concerning Participants who died, withdrew, became disabled or retired during the last 3 years and on published historical economic data.

The investigation covered the 3-year period from **January 1, 2009 to December 31, 2011**, and was carried out using generally accepted actuarial principles and techniques.

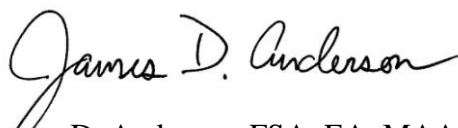
To the best of our knowledge, this report is complete and accurate and was made in accordance with generally recognized actuarial methods. The actuaries submitting this statement are Members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

We believe that the new actuarial assumptions that are the result of this investigation represent a reasonable estimate of past and possible future experience of the Wisconsin Retirement System.

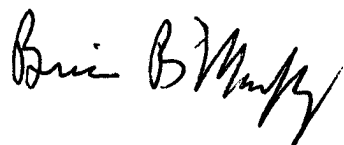
Respectfully submitted,



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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The Wisconsin Statutes require reviewing the actuarial assumptions every three years. The last review was prepared for the period from January 1, 2006 to December 31, 2008. In this report, we review the current actuarial assumptions and methods and compare them to the actual experience of the Retirement System for the years 2009-2011.

The table below lists each of the primary assumptions and methods that we analyzed, including our recommendations for each item, and the overall financial impact of any recommended changes.

| Assumption | Recommendation | Financial Impact |
|---|-----------------------|-------------------------|
| Withdrawal rates | Lower Rates | Increase |
| Disability rates | Lower Rates | Decrease |
| Pay increases due to seniority | Lower Rates | Decrease |
| Retirement rates | Lower Rates | Decrease |
| Pre and post-retirement mortality rates | Lower Rates | Increase |
| Interest rate | No Change | N/A |
| Wage inflation | No Change | N/A |
| Price inflation | No Change | N/A |
| Miscellaneous adjustments | Higher | Increase |
| Total | Various | Increase |

The overall impact on the contribution rate would be an increase of approximately 0.2% of payroll.

New assumptions will be first used in the December 31, 2012 actuarial valuations, at which time experience gains or losses incurred during 2012 will also be recognized. This would first impact rates in 2014. Consequently, no rate changes are recommended for 2013 based upon this study.

SUMMARY OF FINDINGS

INTRODUCTION

Each year, as of December 31, the liabilities of the Wisconsin Retirement System are valued. In order to perform the valuation, assumptions must be made regarding the future experience of the system with regard to the following risk areas:

- Rates of **withdrawal** of active participants.
- Rates of **disability** among active participants.
- Patterns of **salary increases** to active participants.
- Rates of **retirement** among active participants.
- Rates of **mortality** among active participants, retirees, and beneficiaries.
- Long-term rates of **investment return** to be generated by the assets of the Fund.

Assumptions should be carefully chosen and continually monitored. A poor initial choice of assumptions or continued use of outdated assumptions can lead to:

- Understated costs resulting in either an inability to pay benefits when due, or sharp increases in required contributions at some point in the future;
- Overstated costs resulting in either benefit levels that are kept below the level that could be supported by the computed rate or an unnecessarily large burden on the current generation of participants, employers and taxpayers.

A single set of assumptions will not be suitable indefinitely. Conditions change, and our understanding of conditions (whether or not they are changing) also changes.

In recognition of this, Wisconsin statutes require that assumptions used to value the liabilities of the Wisconsin Retirement System be studied in-depth every three years. The package of assumptions is then adjusted to reflect basic experience trends -- but not random year-to-year fluctuations. Actuarial assumptions were last revised following the December 31, 2008 regular actuarial valuation.

SUMMARY OF DECREMENT EXPERIENCE

Background: With the exception of mortality and disability, the decrements that we study tend to relate to voluntary human behavior. Human behavior in any short period can be influenced by economic and societal factors that change from time to time. In 2011, there were an unusually large number of retirements. Due to the perceived one-time nature of this event, we decided to remove this year from the study of retirement rates. Observed data will very often contain anomalies that cannot be assumed to continue into the future. This happens particularly in smaller groups.

In most cases, when adjustments are indicated, the proposed assumptions give partial recognition to present assumptions as well as to results from actual experience. Complete recognition is rarely given to actual experience over a limited period. This would cause contribution rates to be unduly sensitive to short-term experience fluctuations. In general, we moved about half way to the observed experience, except for the mortality experience which is discussed in detail on page 5.

In the past few experience studies, we have noticed that sometimes the use of new assumptions did not always reduce the size of the gain or loss in a particular decrement. Our experience with similar systems has shown that sometimes this is due to the relative magnitude of the liability of the members that decrement, rather than to number counts alone. For example, consider a plan with only two members who are both the same age and assume member one has a liability of \$10,000 and member two has a liability of \$90,000. If one of the members leaves and forfeits all of the liability, the net rate of decrement is one out of two for a rate of 50%. However, the net effect on liabilities will be 10% if member one leaves versus 90% if member two leaves.

As a result, we have continued the use of the ‘liability weighted rate’ for certain decrements. This represents the crude rate of decrement on a liability weighted basis as opposed to strictly a number count basis. The liability weighted rates were found to be more highly correlated with withdrawal and retirement decrements than with the population related rates. This makes some intuitive sense, since retirement and termination decisions are often made based on how much the members have to gain or lose if they retire or change jobs, whereas death and disability is typically not a decision at all, rather an event that happens. Comments on specific assumptions are provided below. Tabular results are presented in summary form on page 6.

SUMMARY OF DECREMENT EXPERIENCE

Withdrawal Rates: In general, there were fewer withdrawals (terminations) than expected. However, this varied by, age, service and group. Additionally, the operation of the withdrawal decrement is impacted by the operation of a ‘forfeiture’ assumption. The current assumption is that 25% of members at age 35 will forfeit a withdrawal benefit (graded down to zero percent at retirement eligibility). We recommend that the forfeiture assumption remain unchanged and that the withdrawal (termination) rates be modified to move closer to the liability weighted rates (see discussion on page 3). This change had a small upward effect on liabilities. Detailed information is presented beginning on page A-1.

Disability Rates: Overall, there were fewer disabilities than expected and we recommend lowering the incidence of disability for most groups. This change had a small downward effect on liabilities. Detailed information begins on page B-1.

Pay Increase Rate (Merit and Longevity Portion): Rates varied by group and provide a fairly reasonable match. In general, rates were adjusted slightly to move closer to actual experience. This change had a small downward effect on liabilities. Detailed information begins on page C-1.

Normal and Early Retirement Experience: Overall, there many more normal retirements and fewer early retirements than expected in most groups. However, these results were distorted by the unusually high number of retirements in 2011. Additionally, retirement experience was found to be more highly correlated with the liability weighted method described on page 3. As such, we modified the normal retirement rates slightly for all groups to move closer to the observed liability weighted rates over the 2009 and 2010 calendar years. As more experience emerges, we will monitor these rates to see if further adjustments are necessary. This change has a minimal effect on liabilities. Detailed information begins on page D-1.

SUMMARY OF DECREMENT EXPERIENCE

Mortality Among Retirees: Mortality rates among retired public employees have been declining for years. Additionally, and perhaps consequently, the Actuarial Standards of Practice with regard to the mortality assumption has recently been revised. ASOP No. 35 Disclosure Section 4.1.1 now states: *“...The disclosure of the mortality assumption should contain sufficient detail to permit another qualified actuary to understand the provision made for future mortality improvement. If the actuary assumes zero mortality improvement after the measurement date, the actuary should state that no provision was made for future mortality improvement.”* Based on the current experience, there appears to be no margin for future improvement in the current mortality assumption for males and females. Therefore, we are recommending a change in mortality table that builds in margin for future improvements in mortality. For active members, we recommend projecting rates based on current experience 5 years into the future with scale BB. We will refer to this table as the Wisconsin 2012 Mortality table. For retired lives, we recommend phasing into the new mortality table over a 3 year period (an increase in the mortality reserve of about 0.3% per year). The intention is to preserve equity in the operation of the dividend program. Detailed information begins on page E-1.

Mortality Among Active Members: Active member deaths were slightly above assumed rates. In conjunction with the change in post-retirement mortality to a mortality table that projects future improvements in mortality, we recommend a change in the pre-retirement mortality table to the Wisconsin 2012 Mortality table (multiplied by 55% for males and females). A lower multiplier is typically used for pre-retirement mortality because active members often first leave employment due to disability, sickness, or retirement prior to dying (and hence they are retirees when they die). Detailed information begins on page E-1.

Complete listings of all assumptions begin on page F-1.

SUMMARY OF DECREMENT EXPERIENCE

| Decrement Risk Area | Actual | Expected | |
|--|--------|----------|----------|
| | | Current | Proposed |
| <u>Withdrawal - Total</u> | | | |
| General (Without Schools) | 18,720 | 19,517 | 18,627 |
| Public Schools and University | 9,175 | 9,806 | 9,533 |
| Protective | | | |
| With Social Security | 1,193 | 1,300 | 1,248 |
| Without Social Security | 71 | 73 | 62 |
| Executive and Elected | 166 | 181 | 178 |
| <u>Withdrawal - Service greater than 10</u> | | | |
| General (Without Schools) | 1,859 | 2,040 | 1,765 |
| Public Schools and University | 1,336 | 1,463 | 1,287 |
| Protective | | | |
| With Social Security | 324 | 338 | 299 |
| Without Social Security | 38 | 29 | 24 |
| Executive and Elected | 21 | 37 | 29 |
| <u>Disability</u> | | | |
| General (Without Schools) | 338 | 725 | 571 |
| Public Schools and University | 154 | 276 | 224 |
| Protective | | | |
| With Social Security | 37 | 81 | 62 |
| Without Social Security | 10 | 17 | 14 |
| Executive and Elected | - | 2 | 1 |
| <u>Early Retirement</u> | | | |
| General (Without Schools) | 5,934 | 6,817 | 6,738 |
| Public Schools and University | 5,623 | 6,054 | 5,444 |
| Executive and Elected | 44 | 51 | 43 |
| <u>Normal Retirement</u> | | | |
| General (Without Schools) ** | 6,123 | 6,044 | 6,126 |
| Public Schools and University ** | 5,422 | 4,921 | 4,588 |
| Protective* | | | |
| With Social Security | 1,491 | 1,716 | 1,558 |
| Without Social Security | 195 | 307 | 266 |
| Executive and Elected | 160 | 157 | 168 |
| <u>Mortality - Retired Lives</u> | | | |
| Normal Retirement | | | |
| Male | 5,551 | 5,685 | 5,125 |
| Female | 6,343 | 6,380 | 5,923 |
| Disabled Retirement | | | |
| Male | 377 | 438 | 334 |
| Female | 388 | 407 | 370 |
| <u>Mortality - Active Lives</u> | | | |
| Male | 438 | 401 | 397 |
| Female | 410 | 390 | 397 |

* Includes Early Retirements.

** Figures shown are for people below age 75.

ECONOMIC ASSUMPTIONS

Economic assumptions include long-term rates of investment return and wage inflation (the across-the-board portion of salary increases). Unlike demographic activities, economic activities do not lend themselves to analysis solely on the basis of internal historical patterns because both salary increases and investment return are driven by external forces; and in particular by inflation which defies accurate long-term prediction. Estimates of investment return and pay increases are generally selected on the basis of expectations in an inflation-free environment and then both are increased by some provision for long-term inflation.

If inflation and/or productivity increases are higher than expected, actual rates of salary increase and investment return are likely to exceed the assumed rates. Salaries increasing faster than expected produce unexpected liabilities. Investment return exceeding the assumed rates (whether due to manager performance, change in the mix of assets, or general inflation) results in unanticipated assets. To the extent that inflation, productivity, and other factors have about the same effect on both sides of the balance sheet, these additional assets and liabilities can offset one another over the long-term.

Current economic assumptions for WRS are as follows:

| | |
|-----------------------|--------------|
| Net Investment Return | 7.2% |
| Wage Inflation | 3.2% |
| Price Inflation | 2.0% to 2.8% |

Price Inflation. In past years, no specific price inflation assumption was necessary in order to perform the actuarial valuation. However, price inflation is a key component of the underlying wage inflation and interest rate assumptions and must now be disclosed in actuarial reports. The chart on the following page shows historical averages of both price and wage inflation. While long term historical averages approach 4.0%, short term averages are generally between 2.0% and 3.0%. Most investment firms expect inflation to be between 2.0% and 3.0% (see chart on page 10), and the 2012 annual report of the Social Security Trustees uses 2.8% as the intermediate assumption. **We believe the current assumption is reasonable and recommend no change at this time.**

ECONOMIC ASSUMPTIONS

| Year | Annual Increase in | | |
|-------------|--------------------|-------------|------------|
| | Prices (CPI-U) | Wages (NAE) | Difference |
| 3-Year Avg | 1.4% | 2.1% | 0.7% |
| 5-Year Avg | 2.2% | 3.1% | 0.9% |
| 10-Year Avg | 2.3% | 3.0% | 0.7% |
| 20-Year Avg | 2.7% | 3.7% | 1.0% |
| 30-Year Avg | 3.4% | 4.4% | 1.0% |
| 50-Year Avg | 4.0% | 4.8% | 0.8% |

Wage Inflation. The long-term rate of increase in National Average Earnings over the last 50 years is somewhat higher than the current WRS assumption of 3.2%, although shorter term averages are below it. It is expected that, in the long run, salary increases in all parts of the country will be close to the national averages. However, few economists are forecasting a repeat of the high inflation rates experienced in the 1970s. In addition, average salaries in WRS have risen at approximately 3.0% a year since 1987 - a slower pace than the assumed 3.2% a year, although, the active member group has increased in size, which distorts this statistic. **We believe a reasonable range within which to set this assumption is anywhere from 3.0% to 4.0% a year and recommend no change to the current wage inflation assumption at this time.**

ECONOMIC ASSUMPTIONS

Investment Return and Spread. The current WRS Core asset portfolio is a diversified mix of equity and fixed income investments. Market returns for portfolios with equity holdings at levels similar to the Core portfolio have exceeded 7.2% since the early 1980s, although prior to that, returns were much weaker, and real returns were actually negative in some years. Of course, the results of the past decade are causing investment professionals to reconsider their longer term views of the investment markets. Each Retirement System will have a unique asset allocation and risk tolerance. We have modeled WRS' current investment portfolio by the expectations of various investment consulting firms. The results shown below range from a median 20 year geometric return of 7.16% to a mean return of 8.05%. Keep in mind that we are not investment experts and this analysis is based on broad ranges and averages of averages. GRS recommends seeking advice from WRS' investment consultants prior to making a significant change in the 7.2% investment return assumption. **We believe that the current investment rate of return is reasonable and recommend no change at this time.**

| Investment Consultant | Distribution of 20-Year Average Geometric Net Nominal Return | | | Probability of exceeding 7.20% * | Expected Nominal Rate of Return** |
|-----------------------|--|--------------|--------------|----------------------------------|-----------------------------------|
| | 25th | 50th | 75th | | |
| (1) | (2) | (3) | (4) | (5) | (6) |
| 1 | 4.21% | 6.19% | 8.21% | 36.7% | 7.04% |
| 2 | 4.60% | 6.67% | 8.79% | 43.3% | 7.61% |
| 3 | 5.63% | 7.30% | 9.00% | 51.6% | 7.90% |
| 4 | 5.16% | 7.12% | 9.13% | 49.0% | 7.95% |
| 5 | 4.44% | 6.84% | 9.29% | 46.0% | 8.09% |
| 6 | 5.67% | 7.60% | 9.56% | 55.5% | 8.39% |
| 7 | 5.44% | 7.53% | 9.67% | 54.2% | 8.47% |
| 8 | 5.96% | 8.03% | 10.13% | 60.6% | 8.94% |
| Average | 5.14% | 7.16% | 9.22% | 49.6% | 8.05% |

*Plan's current return assumption net of expenses.

** Based on 2.8% Price Inflation

ECONOMIC ASSUMPTIONS

Relationship between assumed investment return and liabilities. There is an inverse relationship between the assumed investment return and the liabilities of the System. That is, a decrease in the assumed interest rate results in an increase in System liabilities. In most systems, the liabilities are very sensitive to a change in interest rate. For example, a typical rule of thumb estimates that a 1% decrease in the interest rate will result in a 15% to 20% increase in liabilities. However, due to the cost sharing nature of the WRS, liabilities are not nearly as sensitive to a change in the interest rate as we would otherwise expect. Shown below are sample increases in present value for a 55 year old person attributable to a hypothetical 1% decrease in the interest rate. Under the WRS System, when the assumed interest rate changes, the assumed dividend also changes. This results in a much more dampened impact for the WRS (about half as much as for a typical system).

WRS Example of Hypothetical Change in Interest Rate for 55 Year Old

| | Current Assumption WRS System | Hypothetical Assumption WRS System | Hypothetical Assumption Typical System |
|--------------------------------|-------------------------------------|--|--|
| Interest Rate | 7.2% | 6.2% | 6.2% |
| Assumed Dividend | 2.1% | 1.1% | 2.1% |
| Age 65 Present Value Factor | 11.37 | 11.37 | 12.35 |
| Discounted to Age 55 | 0.5 | 0.55 | 0.55 |
| Present Value of \$1 at age 55 | 5.685 | 6.2535 | 6.7925 |
| % Increase in Present Value | | 10.0% | 19.5% |

This is due to the fact that the 7.2% interest assumption is really a pre-retirement assumption. The effective post-retirement assumption is 5.0%. As a result, the net effective interest rate for the WRS as a whole is really a blend of three different components (7.2% for actives pre-retirement, 5.0% for actives post-retirement and 5.0% for retirees). Based on Entry Age Normal Actuarial Liability, an overall effective rate of 5.5% would produce an equivalent result. This rate will be disclosed in future valuation reports. It is important to note however, that this is not an investment target. The SWIB targets a higher rate of return in order to return a dividend to retirees. This dividend however, is not guaranteed. Due to the non-guaranteed nature of the dividend program, this concept has not been widely understood, and the disclosure of a single interest rate assumption could result in misuse of information.

HISTORICAL PATTERNS OF INVESTMENT RETURN, PAY INCREASES & INFLATION

| Calendar Year Period | Gross Market Returns | | | Stocks (S&P 500) | Price Inflation (CPI) | National Average Earnings | Sample Balanced Fund* | |
|----------------------|----------------------|----------------|-----------------------|------------------|-----------------------|---------------------------|-----------------------|---------------------|
| | Bonds (Long) | | Cash Equiv. (T Bills) | | | | Total Return (I) | Spread: I - NAE - e |
| | U.S. Treasury | Corp. (S&P AA) | | | | | | |
| 1952-61 | 1.7 % | 2.4 % | 2.1 % | 16.4 % | 1.3 % | 3.9 % | 12.5 % | 8.1 % |
| 1962-71 | 2.5 % | 3.1 % | 4.5 % | 7.1 % | 3.2 % | 4.7 % | 6.0 % | 0.8 % |
| 1972-81 | 2.8 % | 3.0 % | 7.8 % | 6.5 % | 8.6 % | 7.8 % | 5.8 % | (2.5)% |
| 1982-91 | 15.6 % | 16.2 % | 7.7 % | 17.6 % | 3.9 % | 4.7 % | 17.1 % | 11.9 % |
| 1992-01 | 8.7 % | 8.1 % | 4.6 % | 12.9 % | 2.5 % | 4.2 % | 11.8 % | 7.1 % |
| 2002-11 | 8.9 % | 8.3 % | 1.8 % | 2.9 % | 2.5 % | 2.8 % | 5.4 % | 2.1 % |
| Last 60 Years | 6.6 % | 6.7 % | 4.7 % | 10.4 % | 3.6 % | 4.7 % | 9.7 % | 4.5 % # |

| * Sample Balanced Fund | |
|------------------------|-------|
| Equities | 70% |
| Bonds - Government | 15% |
| - Corporate | 14% |
| Cash Equivalents | 1% |
| | 100% |
| Fund expenses(e) | 0.50% |

| # Historical Spread | |
|--|--------|
| # Observed spread is very sensitive to the observation period, even over long periods, as illustrated below: | |
| Observation Period | Spread |
| 60 years | 4.5% |
| 50 years | 3.8% |
| 40 years | 4.5% |
| 30 years | 7.0% |

This page should not be interpreted as a recommendation for a 70% equity allocation. It is just an illustration showing what a 70% allocation to equities could have achieved in the past. The future could be very different.

SUMMARY OF VALUATION RESULTS

The table below describes hypothetical valuation results at December 31, 2011 with new and old decrement assumptions with indicated wage inflation. The rate changes are illustrative only since 2013 contribution rates have already been set based upon the actual December 31, 2011 valuation results.

| | General | Executive & Elected | Protective With S.S. | Protective Without S.S. |
|---|----------------|------------------------------------|---------------------------------|------------------------------------|
| Present 2013 Contribution Rate | 13.3% | 14.0% | 16.4% | 19.0% |
| Hypothetical Rate Change Due to New Assumptions | 0.2% | 0.6% | 0.1% | 0.2% |

New assumptions will be first used in the December 31, 2012 actuarial valuations, at which time experience gains or losses incurred during 2012 will also be recognized. This would first impact rates in 2014. Consequently, no rate changes are recommended for 2013 based upon this study.

OTHER RECOMMENDATIONS

Option Factors are calculated using a 5% interest assumption and the assumed rates of mortality with a blended mortality table consisting of 50% male rates and 50% female rates. If a retiring member elects an optional form of benefit, the straight life benefit is multiplied by the appropriate option factor to produce the benefit actually payable. Examples of option factors calculated using the present and proposed mortality assumptions are shown below. The factors shown illustrate that when mortality experience is improved (i.e., members live longer), than option factors generally increase. The revised factors will usually result in slightly higher benefits being paid when an optional form is elected. Option factors can be changed based upon this study since the mortality table has been changed. We recommend changing these factors not later than January 1, 2014.

| Age | | 5 Year C&L | | 15 Year C&L | | Joint and 75% | |
|---------|-------------|------------|----------|-------------|----------|---------------|----------|
| Retiree | Beneficiary | Current | Proposed | Current | Proposed | Current | Proposed |
| 50 | 45 | 0.999 | 0.999 | 0.987 | 0.988 | 0.923 | 0.927 |
| 55 | 50 | 0.997 | 0.998 | 0.977 | 0.979 | 0.905 | 0.910 |
| 60 | 55 | 0.996 | 0.996 | 0.962 | 0.967 | 0.885 | 0.891 |
| 65 | 60 | 0.992 | 0.993 | 0.932 | 0.941 | 0.859 | 0.866 |
| 75 | 70 | 0.967 | 0.974 | 0.781 | 0.804 | 0.791 | 0.800 |

When calculating formula benefit amounts for people beyond normal retirement age, the factor applicable to normal retirement age is used. Money purchase calculations are based upon the factor at the member's actual age.

Recommended Implementation Schedule. It is recommended that the results of this experience study be implemented in accordance with the following schedule.

| | |
|--------------------------------------|--------------------------------|
| Active and Inactive Lives Valuation: | 12/31/2012 Valuation |
| Retired Lives Valuation: | 12/31/2012 Valuation |
| Option Factors: | Not later than January 1, 2014 |

OTHER RECOMMENDATIONS

Recommendations from Actuarial Audit. An actuarial audit was completed in the fall of 2011. In our response, we commented that some of the technical items would be reviewed in the course of the upcoming experience study and are discussed further below.

- 1. Include an assumption for election of optional forms of payment to capture the subsidy in conversion factors for members retiring after normal retirement age and death in service benefits.** Our 2010 Reserve Transfer Loss study identified this activity as a source of unexplained loss. We currently apply a load of 2.0% to the formula benefit to account for various sources of unexplained losses including the subsidized optional form of payment. Although the pattern of unexplained losses has been significantly reduced over the past three years due to refinements made in the gain/loss procedures, there is still a pattern of losses. After analyzing the potential impact of this item, along with the other sources of loss, we are recommending increasing this load from 2.0% to 2.5% for general members (3.0% for executive and elected and 3.5% for protective members).
- 2. Review the methodology for post-65 LTDI benefit.** We have reviewed the methodology for the post-65 LTDI benefit. Although in some cases, the simplification approach used may overstate the cost for this benefit, the overall impact to the system is very minor and we have recommended no changes at this time.
- 3. Test recommended mortality assumptions from future experience studies against rates from then-current mortality tables for consistency in the pattern of rates.** We have tested the recommended mortality tables (discussed on page 5) and have determined that the pattern of rates provides a reasonable fit to past experience and also contains a margin for future improvement as prescribed by the Actuarial Standards of Practice.
- 4. Consider an age 54 commencement assumption for protective employees with a deferred vested benefit.** Deferred vested members are currently assumed to retire at age 55. We reviewed the experience and agree that we should assume age 54 commencement for these members. This change had no impact on contribution rates.
- 5. Aggregate some of the groups with like characteristics in order to have a larger experience base to set the disability incidence assumption.** We reviewed the characteristics of the employee groups and recommend that the current groups should not be combined. For example, it would not make sense to combine policemen with executives or teachers. The current classifications (General employees, University, Public School, Police, Fire and Executive and Elected) all have unique characteristics and experience.

OTHER RECOMMENDATIONS

- 6. Review marital status and spouse age actual differences in the next experience study.** We currently assume 100% of members are married and a 3 year spouse age difference for the death in service benefit. We reviewed the experience of recent retirees and determined that approximately 70% of males are married at the time of retirement, 50% of females are married at the time of retirement and the age difference is approximately 2 years on average. We think that these results might be slightly understated, since spousal information is not always available for members who do not select a joint and survivor form of payment. For the purpose of the death in service benefit, we have assumed 80% of males are married and 70% of females are married with a 2 year spouse age difference. This change resulted in slight downward pressure on liabilities, but will provide a more accurate model of operation of the system.

SECTION A

WITHDRAWAL EXPERIENCE

GENERAL MALES WITHDRAWAL EXPERIENCE

Male Service-Based Withdrawals

| Service Index | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates | | Expected Withdrawals | |
|-----------------------|------------|----------|---------------------------|--------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 1 | 1,176 | 5,630 | 0.2089 | 0.1610 | 0.2100 | 0.1750 | 1,182 | 985 |
| 2 | 1,382 | 9,629 | 0.1435 | 0.1328 | 0.1300 | 0.1300 | 1,252 | 1,252 |
| 3 | 743 | 7,977 | 0.0931 | 0.0825 | 0.0900 | 0.0850 | 731 | 678 |
| 4 | 555 | 7,013 | 0.0791 | 0.0673 | 0.0700 | 0.0680 | 502 | 477 |
| 5 | 369 | 5,367 | 0.0688 | 0.0623 | 0.0580 | 0.0600 | 306 | 322 |
| 6 | 174 | 4,100 | 0.0424 | 0.0421 | 0.0470 | 0.0450 | 190 | 185 |
| 7 | 151 | 3,816 | 0.0396 | 0.0365 | 0.0430 | 0.0400 | 160 | 153 |
| 8 | 131 | 3,767 | 0.0348 | 0.0299 | 0.0400 | 0.0350 | 147 | 132 |
| 9 | 84 | 4,230 | 0.0199 | 0.0174 | 0.0350 | 0.0300 | 148 | 127 |
| 10 | 108 | 4,460 | 0.0242 | 0.0228 | 0.0300 | 0.0250 | 138 | 112 |
| Totals (10 and under) | 4,873 | 55,989 | 0.0870 | 0.0427 | 0.0849 | 0.0790 | 4,756 | 4,423 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0870 | 0.0790 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0883 | 0.0808 |
| 2003-2005 | 0.1494 | 0.1307 |
| 2000-2002 | 0.1070 | 0.1073 |

GENERAL MALES WITHDRAWAL EXPERIENCE

Male Age-Based Withdrawals with 10 or More Years of Service

| Age | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates* | | Expected Withdrawals | |
|--------|------------|----------|---------------------------|--------------------------|---------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 25-29 | - | 24 | 0.0000 | 0.0000 | 0.0300 | 0.0250 | 1 | 1 |
| 30-34 | 22 | 1,052 | 0.0209 | 0.0205 | 0.0300 | 0.0250 | 30 | 25 |
| 35-39 | 71 | 4,055 | 0.0175 | 0.0154 | 0.0210 | 0.0180 | 88 | 74 |
| 40-44 | 129 | 8,101 | 0.0159 | 0.0128 | 0.0170 | 0.0150 | 140 | 121 |
| 45-49 | 169 | 13,299 | 0.0127 | 0.0104 | 0.0135 | 0.0120 | 184 | 162 |
| 50-54 | 261 | 18,873 | 0.0138 | 0.0109 | 0.0120 | 0.0110 | 236 | 210 |
| Totals | 652 | 45,404 | 0.0144 | 0.0113 | 0.0150 | 0.0131 | 679 | 593 |

Ref

1140

1260

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current - combined tables | 0.0545 | 0.0495 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0547 | 0.0509 |
| 2003-2005 | 0.0564 | 0.0506 |
| 2000-2002 | 0.0527 | 0.0529 |
| 1997-1999 | 0.0531 | 0.0520 |
| 1994-1996 | 0.0499 | 0.0478 |
| 1991-1993 | 0.0451 | 0.0478 |
| 1988-1990 | 0.0412 | 0.0505 |
| 1985-1987 | 0.0477 | 0.0523 |

* Sample rates are taken from midpoint of age group.

**GENERAL FEMALES
WITHDRAWAL EXPERIENCE**

Female Service-Based Withdrawals

| Service Index | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates | | Expected Withdrawals | |
|-----------------------|------------|----------|---------------------------|--------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 1 | 2,757 | 15,161 | 0.1818 | 0.1899 | 0.2000 | 0.1950 | 3,032 | 2,956 |
| 2 | 3,196 | 23,704 | 0.1348 | 0.1334 | 0.1400 | 0.1350 | 3,319 | 3,200 |
| 3 | 1,857 | 18,922 | 0.0981 | 0.0970 | 0.1000 | 0.1000 | 1,892 | 1,892 |
| 4 | 1,289 | 16,150 | 0.0798 | 0.0783 | 0.0820 | 0.0800 | 1,314 | 1,292 |
| 5 | 956 | 12,506 | 0.0764 | 0.0759 | 0.0720 | 0.0740 | 892 | 925 |
| 6 | 512 | 10,108 | 0.0507 | 0.0525 | 0.0620 | 0.0600 | 620 | 606 |
| 7 | 454 | 9,602 | 0.0473 | 0.0445 | 0.0530 | 0.0500 | 499 | 480 |
| 8 | 362 | 9,133 | 0.0396 | 0.0387 | 0.0470 | 0.0450 | 423 | 411 |
| 9 | 326 | 9,037 | 0.0361 | 0.0345 | 0.0440 | 0.0400 | 393 | 361 |
| 10 | 279 | 8,423 | 0.0331 | 0.0313 | 0.0400 | 0.0375 | 337 | 316 |
| Totals (10 and under) | 11,988 | 132,746 | 0.0903 | 0.0554 | 0.0958 | 0.0937 | 12,721 | 12,439 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0903 | 0.0937 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0980 | 0.0940 |
| 2003-2005 | 0.1497 | 0.1404 |
| 2000-2002 | 0.1184 | 0.1175 |

GENERAL FEMALES WITHDRAWAL EXPERIENCE

Female Age-Based Withdrawals with 10 or More Years of Service

| Age | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates* | | Expected Withdrawals | |
|--------|------------|----------|---------------------------------|--------------------------------|---------------|----------|-------------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 25-29 | 1 | 41 | 0.0244 | 0.0506 | 0.0400 | 0.0375 | 2 | 1 |
| 30-34 | 50 | 1,681 | 0.0297 | 0.0277 | 0.0350 | 0.0300 | 57 | 50 |
| 35-39 | 142 | 5,809 | 0.0244 | 0.0215 | 0.0300 | 0.0260 | 172 | 148 |
| 40-44 | 198 | 10,888 | 0.0182 | 0.0155 | 0.0240 | 0.0200 | 264 | 220 |
| 45-49 | 330 | 18,631 | 0.0177 | 0.0149 | 0.0190 | 0.0170 | 364 | 317 |
| 50-54 | 486 | 28,620 | 0.0170 | 0.0140 | 0.0170 | 0.0150 | 502 | 436 |
| Totals | 1,207 | 65,670 | 0.0184 | 0.0150 | 0.0207 | 0.0178 | 1,361 | 1,172 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current - combined tables | 0.0665 | 0.0686 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0731 | 0.0699 |
| 2003-2005 | 0.0734 | 0.0695 |
| 2000-2002 | 0.0730 | 0.0723 |
| 1997-1999 | 0.0722 | 0.0714 |
| 1994-1996 | 0.0650 | 0.0680 |
| 1991-1993 | 0.0663 | 0.0761 |
| 1988-1990 | 0.0700 | 0.0867 |

* Sample rates are taken from midpoint of age group.

**PUBLIC SCHOOL MALES
WITHDRAWAL EXPERIENCE**

Male Service-Based Withdrawals

| Service Index | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates | | Expected Withdrawals | |
|-----------------------|------------|----------|---------------------------|--------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 1 | 208 | 1,636 | 0.1271 | 0.1894 | 0.1650 | 0.1770 | 256 | 290 |
| 2 | 313 | 2,917 | 0.1073 | 0.1170 | 0.1100 | 0.1140 | 321 | 333 |
| 3 | 200 | 2,684 | 0.0745 | 0.0742 | 0.0710 | 0.0730 | 190 | 196 |
| 4 | 147 | 2,589 | 0.0568 | 0.0514 | 0.0520 | 0.0520 | 135 | 135 |
| 5 | 100 | 2,453 | 0.0408 | 0.0354 | 0.0420 | 0.0390 | 101 | 96 |
| 6 | 67 | 2,295 | 0.0292 | 0.0235 | 0.0340 | 0.0300 | 77 | 69 |
| 7 | 62 | 2,287 | 0.0271 | 0.0276 | 0.0290 | 0.0280 | 65 | 64 |
| 8 | 64 | 2,312 | 0.0277 | 0.0240 | 0.0250 | 0.0250 | 58 | 58 |
| 9 | 33 | 2,434 | 0.0136 | 0.0129 | 0.0225 | 0.0200 | 55 | 49 |
| 10 | 38 | 2,592 | 0.0147 | 0.0150 | 0.0200 | 0.0180 | 52 | 47 |
| Totals (10 and under) | 1,232 | 24,199 | 0.0509 | 0.0274 | 0.0541 | 0.0553 | 1,310 | 1,337 |

| | | |
|---------------------------------------|----------------------|------------------------|
| | <u>Actual</u> | <u>Proposed</u> |
| Current | 0.0509 | 0.0553 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0522 | 0.0540 |
| 2003-2005 | 0.1057 | 0.0993 |
| 2000-2002 | 0.0683 | 0.0657 |

PUBLIC SCHOOL MALES WITHDRAWAL EXPERIENCE

Male Age-Based Withdrawals with 10 or More Years of Service

| Age | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates* | | Expected Withdrawals | |
|--------|------------|----------|---------------------------------|--------------------------------|---------------|----------|-------------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 25-29 | - | - | N/A | N/A | 0.0200 | 0.0180 | - | - |
| 30-34 | 6 | 737 | 0.0081 | 0.0067 | 0.0150 | 0.0120 | 11 | 9 |
| 35-39 | 60 | 5,488 | 0.0109 | 0.0097 | 0.0120 | 0.0115 | 68 | 63 |
| 40-44 | 83 | 7,468 | 0.0111 | 0.0100 | 0.0110 | 0.0105 | 83 | 79 |
| 45-49 | 102 | 7,284 | 0.0140 | 0.0113 | 0.0090 | 0.0100 | 69 | 73 |
| 50-54 | 96 | 7,831 | 0.0123 | 0.0094 | 0.0080 | 0.0095 | 66 | 75 |
| Totals | 347 | 28,808 | 0.0120 | 0.0100 | 0.0103 | 0.0104 | 297 | 299 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current - combined tables | 0.0298 | 0.0309 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0301 | 0.0316 |
| 2003-2005 | 0.0334 | 0.0316 |
| 2000-2002 | 0.0285 | 0.0276 |
| 1997-1999 | 0.0233 | 0.0241 |
| 1994-1996 | 0.0198 | 0.0238 |
| 1991-1993 | 0.0193 | 0.0318 |
| 1988-1990 | 0.0218 | 0.0411 |

* Sample rates are taken from midpoint of age group.

PUBLIC SCHOOL FEMALES WITHDRAWAL EXPERIENCE

Female Service-Based Withdrawals

| Service Index | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates | | Expected Withdrawals | |
|-----------------------|------------|----------|---------------------------|--------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 1 | 545 | 4,779 | 0.1140 | 0.1687 | 0.1300 | 0.1500 | 587 | 717 |
| 2 | 883 | 8,630 | 0.1023 | 0.1176 | 0.0950 | 0.1050 | 804 | 906 |
| 3 | 571 | 8,329 | 0.0686 | 0.0706 | 0.0720 | 0.0710 | 594 | 591 |
| 4 | 445 | 8,131 | 0.0547 | 0.0491 | 0.0610 | 0.0550 | 493 | 447 |
| 5 | 340 | 7,521 | 0.0452 | 0.0420 | 0.0500 | 0.0460 | 376 | 346 |
| 6 | 256 | 6,966 | 0.0367 | 0.0329 | 0.0430 | 0.0400 | 298 | 279 |
| 7 | 223 | 6,789 | 0.0328 | 0.0284 | 0.0370 | 0.0350 | 252 | 238 |
| 8 | 184 | 6,763 | 0.0272 | 0.0231 | 0.0320 | 0.0300 | 218 | 203 |
| 9 | 155 | 6,915 | 0.0224 | 0.0191 | 0.0270 | 0.0250 | 188 | 173 |
| 10 | 136 | 7,013 | 0.0194 | 0.0175 | 0.0250 | 0.0230 | 175 | 161 |
| Totals (10 and under) | 3,738 | 71,836 | 0.0520 | 0.0304 | 0.0555 | 0.0565 | 3,985 | 4,061 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0520 | 0.0565 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0564 | 0.0563 |
| 2005-2007 | 0.0713 | 0.0705 |
| 2002-2004 | 0.0640 | 0.0677 |

PUBLIC SCHOOL FEMALES WITHDRAWAL EXPERIENCE

Female Age-Based Withdrawals with 10 or More Years of Service

| Age | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates* | | Expected Withdrawals | |
|--------|------------|----------|---------------------------------|--------------------------------|---------------|----------|-------------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 25-29 | - | 2 | 0.0000 | 0.0000 | 0.0200 | 0.0220 | - | - |
| 30-34 | 34 | 2,166 | 0.0157 | 0.0146 | 0.0190 | 0.0170 | 39 | 33 |
| 35-39 | 125 | 12,716 | 0.0098 | 0.0087 | 0.0150 | 0.0120 | 194 | 154 |
| 40-44 | 151 | 17,693 | 0.0085 | 0.0067 | 0.0120 | 0.0095 | 220 | 173 |
| 45-49 | 165 | 17,409 | 0.0095 | 0.0068 | 0.0100 | 0.0092 | 182 | 160 |
| 50-54 | 213 | 19,637 | 0.0108 | 0.0086 | 0.0090 | 0.0090 | 186 | 177 |
| Totals | 688 | 69,623 | 0.0099 | 0.0078 | 0.0118 | 0.0100 | 821 | 697 |

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1143

1263

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current - combined tables | 0.0313 | 0.0336 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0353 | 0.0353 |
| 2003-2005 | 0.0373 | 0.0348 |
| 2000-2002 | 0.0315 | 0.0332 |
| 1997-1999 | 0.0315 | 0.0332 |
| 1994-1996 | 0.0270 | 0.0352 |
| 1991-1993 | 0.0277 | 0.0501 |
| 1988-1990 | 0.0327 | 0.0711 |

* Sample rates are taken from midpoint of age group.

UNIVERSITY MALES WITHDRAWAL EXPERIENCE

Male Service-Based Withdrawals

| Service Index | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates | | Expected Withdrawals | |
|-----------------------|------------|----------|---------------------------|--------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 1 | 192 | 1,074 | 0.1788 | 0.1858 | 0.1800 | 0.1830 | 200 | 197 |
| 2 | 325 | 1,897 | 0.1713 | 0.1387 | 0.1600 | 0.1500 | 304 | 285 |
| 3 | 240 | 1,805 | 0.1330 | 0.1003 | 0.1250 | 0.1130 | 229 | 204 |
| 4 | 161 | 1,591 | 0.1012 | 0.0869 | 0.1050 | 0.0960 | 169 | 153 |
| 5 | 112 | 1,255 | 0.0892 | 0.0810 | 0.0880 | 0.0850 | 111 | 107 |
| 6 | 89 | 1,127 | 0.0790 | 0.0714 | 0.0760 | 0.0750 | 85 | 85 |
| 7 | 80 | 1,036 | 0.0772 | 0.0754 | 0.0620 | 0.0700 | 64 | 73 |
| 8 | 65 | 1,014 | 0.0641 | 0.0572 | 0.0530 | 0.0550 | 53 | 56 |
| 9 | 44 | 967 | 0.0455 | 0.0449 | 0.0410 | 0.0430 | 39 | 42 |
| 10 | 31 | 990 | 0.0313 | 0.0270 | 0.0360 | 0.0320 | 35 | 32 |
| Totals (10 and under) | 1,339 | 12,756 | 0.1050 | 0.0625 | 0.1011 | 0.0967 | 1,289 | 1,234 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.1050 | 0.0967 |
| Previous Investigation Results | | |
| 2006-2008 | 0.1114 | 0.0981 |
| 2003-2005 | 0.1102 | 0.1051 |
| 2000-2002 | 0.1203 | 0.1226 |

UNIVERSITY MALES WITHDRAWAL EXPERIENCE

Male Age-Based Withdrawals with 10 or More Years of Service

| Age | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates* | | Expected Withdrawals | |
|--------|------------|----------|---------------------------------|--------------------------------|---------------|----------|-------------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 25-29 | - | - | N\A | N\A | 0.0350 | 0.0320 | - | - |
| 30-34 | 2 | 78 | 0.0256 | 0.0205 | 0.0350 | 0.0320 | 3 | 2 |
| 35-39 | 19 | 543 | 0.0350 | 0.0357 | 0.0350 | 0.0310 | 19 | 16 |
| 40-44 | 30 | 1,327 | 0.0226 | 0.0192 | 0.0300 | 0.0250 | 40 | 33 |
| 45-49 | 34 | 2,076 | 0.0164 | 0.0109 | 0.0240 | 0.0180 | 49 | 38 |
| 50-54 | 46 | 2,849 | 0.0161 | 0.0121 | 0.0150 | 0.0140 | 45 | 41 |
| Totals | 131 | 6,873 | 0.0191 | 0.0136 | 0.0227 | 0.0189 | 156 | 130 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current - Combined | 0.0749 | 0.0695 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0827 | 0.0725 |
| 2003-2005 | 0.0771 | 0.0747 |
| 2000-2002 | 0.0719 | 0.0733 |
| 1997-1999 | 0.0734 | 0.0732 |
| 1994-1996 | 0.0552 | 0.0707 |
| 1991-1993 | 0.0657 | 0.0844 |
| 1988-1990 | 0.0655 | 0.1028 |

* Sample rates are taken from midpoint of age group.

UNIVERSITY FEMALES WITHDRAWAL EXPERIENCE

Female Service-Based Withdrawals

| Service Index | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates | | Expected Withdrawals | |
|-----------------------|------------|----------|---------------------------|--------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 1 | 240 | 1,276 | 0.1881 | 0.2325 | 0.2000 | 0.2200 | 255 | 281 |
| 2 | 337 | 2,241 | 0.1504 | 0.1387 | 0.1600 | 0.1500 | 367 | 336 |
| 3 | 283 | 2,242 | 0.1262 | 0.1076 | 0.1400 | 0.1250 | 314 | 280 |
| 4 | 199 | 2,002 | 0.0994 | 0.0863 | 0.1200 | 0.1000 | 240 | 200 |
| 5 | 161 | 1,620 | 0.0994 | 0.0901 | 0.0975 | 0.0950 | 159 | 154 |
| 6 | 100 | 1,386 | 0.0722 | 0.0620 | 0.0915 | 0.0800 | 126 | 111 |
| 7 | 78 | 1,211 | 0.0644 | 0.0561 | 0.0775 | 0.0700 | 95 | 85 |
| 8 | 62 | 1,174 | 0.0528 | 0.0485 | 0.0675 | 0.0600 | 80 | 70 |
| 9 | 42 | 1,087 | 0.0386 | 0.0379 | 0.0600 | 0.0500 | 66 | 54 |
| 10 | 28 | 1,069 | 0.0262 | 0.0270 | 0.0525 | 0.0400 | 57 | 43 |
| Totals (10 and under) | 1,530 | 15,308 | 0.0999 | 0.0596 | 0.1149 | 0.1054 | 1,759 | 1,614 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0999 | 0.1054 |
| Previous Investigation Results | | |
| 2006-2008 | 0.1176 | 0.1137 |
| 2003-2005 | 0.1281 | 0.1186 |
| 2000-2002 | 0.1385 | 0.1377 |

UNIVERSITY FEMALES WITHDRAWAL EXPERIENCE

Female Age-Based Withdrawals with 10 or More Years of Service

| Age | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates* | | Expected Withdrawals | |
|--------|------------|----------|---------------------------------|--------------------------------|---------------|----------|-------------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 25-29 | - | 1 | 0.0000 | 0.0000 | 0.0525 | 0.0500 | - | - |
| 30-34 | 3 | 99 | 0.0303 | 0.0308 | 0.0525 | 0.0420 | 5 | 4 |
| 35-39 | 16 | 631 | 0.0254 | 0.0252 | 0.0525 | 0.0390 | 32 | 24 |
| 40-44 | 40 | 1,371 | 0.0292 | 0.0244 | 0.0375 | 0.0310 | 53 | 42 |
| 45-49 | 56 | 2,087 | 0.0268 | 0.0217 | 0.0250 | 0.0230 | 54 | 48 |
| 50-54 | 55 | 2,724 | 0.0202 | 0.0166 | 0.0150 | 0.0150 | 45 | 43 |
| Totals | 170 | 6,913 | 0.0246 | 0.0197 | 0.0273 | 0.0233 | 189 | 161 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current - Combined | 0.0765 | 0.0799 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0883 | 0.0865 |
| 2003-2005 | 0.0941 | 0.0885 |
| 2000-2002 | 0.0878 | 0.0876 |
| 1997-1999 | 0.0827 | 0.0887 |
| 1994-1996 | 0.0887 | 0.0967 |
| 1991-1993 | 0.0952 | 0.1178 |
| 1988-1990 | 0.0917 | 0.1472 |

* Sample rates are taken from midpoint of age group.

PROTECTIVE WITH SOCIAL SECURITY WITHDRAWAL EXPERIENCE

Male and Female Service-Based Withdrawals

| Service Index | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates | | Expected Withdrawals | |
|-----------------------|------------|----------|---------------------------|--------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 1 | 125 | 1,153 | 0.1084 | 0.1709 | 0.1300 | 0.1500 | 145 | 173 |
| 2 | 182 | 2,751 | 0.0662 | 0.0702 | 0.0700 | 0.0700 | 187 | 193 |
| 3 | 116 | 2,910 | 0.0399 | 0.0396 | 0.0460 | 0.0430 | 133 | 125 |
| 4 | 106 | 2,794 | 0.0379 | 0.0354 | 0.0415 | 0.0380 | 116 | 106 |
| 5 | 90 | 2,416 | 0.0373 | 0.0350 | 0.0325 | 0.0340 | 79 | 82 |
| 6 | 49 | 2,234 | 0.0219 | 0.0210 | 0.0300 | 0.0260 | 67 | 58 |
| 7 | 55 | 2,180 | 0.0252 | 0.0222 | 0.0275 | 0.0250 | 60 | 55 |
| 8 | 52 | 2,375 | 0.0219 | 0.0203 | 0.0250 | 0.0230 | 59 | 55 |
| 9 | 49 | 2,690 | 0.0182 | 0.0176 | 0.0225 | 0.0200 | 61 | 54 |
| 10 | 45 | 2,828 | 0.0159 | 0.0141 | 0.0190 | 0.0170 | 55 | 48 |
| Totals (10 and under) | 869 | 24,331 | 0.0357 | 0.0227 | 0.0395 | 0.0390 | 962 | 949 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0357 | 0.0390 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0440 | 0.0402 |
| 2003-2005 | 0.0429 | 0.0390 |
| 2000-2002 | 0.0546 | 0.0551 |

**PROTECTIVE WITH SOCIAL SECURITY
WITHDRAWAL EXPERIENCE**

**Male and Female Age-Based Withdrawals
with 10 or More Years of Service**

| Age | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates* | | Expected Withdrawals | |
|--------|------------|----------|---------------------------------|--------------------------------|---------------|----------|-------------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 25-29 | 1 | 54 | 0.0185 | 0.0168 | 0.0190 | 0.0170 | 1 | 1 |
| 30-34 | 26 | 2,068 | 0.0126 | 0.0111 | 0.0190 | 0.0150 | 38 | 30 |
| 35-39 | 76 | 6,365 | 0.0119 | 0.0106 | 0.0150 | 0.0130 | 97 | 82 |
| 40-44 | 81 | 8,426 | 0.0096 | 0.0076 | 0.0120 | 0.0110 | 106 | 94 |
| 45-49 | 95 | 7,348 | 0.0129 | 0.0107 | 0.0110 | 0.0105 | 81 | 77 |
| 50-54 | 45 | 1,512 | 0.0298 | 0.0513 | 0.0100 | 0.0100 | 15 | 15 |
| Totals | 324 | 25,773 | 0.0126 | 0.0122 | 0.0131 | 0.0116 | 338 | 299 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current - Combined | 0.0238 | 0.0249 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0293 | 0.0276 |
| 2003-2005 | 0.0302 | 0.0275 |
| 2000-2002 | 0.0256 | 0.0258 |
| 1997-1999 | 0.0269 | 0.0248 |
| 1994-1996 | 0.0212 | 0.0246 |
| 1991-1993 | 0.0208 | 0.0273 |
| 1988-1990 | 0.0238 | 0.0332 |

* Sample rates are taken from midpoint of age group.

**PROTECTIVE WITHOUT SOCIAL SECURITY
WITHDRAWAL EXPERIENCE**

Male and Female Service-Based Withdrawals

| Service Index | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates | | Expected Withdrawals | |
|-----------------------|------------|----------|---------------------------|--------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 1 | 5 | 113 | 0.0442 | 0.0016 | 0.0520 | 0.0400 | 6 | 5 |
| 2 | 10 | 267 | 0.0375 | 0.0362 | 0.0340 | 0.0350 | 9 | 9 |
| 3 | 4 | 268 | 0.0149 | 0.0201 | 0.0210 | 0.0210 | 6 | 6 |
| 4 | 2 | 301 | 0.0066 | 0.0070 | 0.0150 | 0.0130 | 5 | 4 |
| 5 | 2 | 263 | 0.0076 | 0.0079 | 0.0140 | 0.0120 | 4 | 3 |
| 6 | 2 | 258 | 0.0078 | 0.0090 | 0.0130 | 0.0110 | 3 | 3 |
| 7 | 4 | 238 | 0.0168 | 0.0176 | 0.0120 | 0.0100 | 3 | 2 |
| 8 | - | 237 | 0.0000 | 0.0000 | 0.0100 | 0.0090 | 2 | 2 |
| 9 | 2 | 286 | 0.0070 | 0.0050 | 0.0090 | 0.0080 | 3 | 2 |
| 10 | 2 | 329 | 0.0061 | 0.0064 | 0.0085 | 0.0070 | 3 | 2 |
| Totals (10 and under) | 33 | 2,560 | 0.0129 | 0.0078 | 0.0172 | 0.0148 | 44 | 38 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0129 | 0.0148 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0150 | 0.0150 |
| 2003-2005 | 0.0128 | 0.0136 |
| 2000-2002 | 0.0227 | 0.0260 |

PROTECTIVE WITHOUT SOCIAL SECURITY WITHDRAWAL EXPERIENCE

Male and Female Age-Based Withdrawals with 10 or More Years of Service

| Age | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates* | | Expected Withdrawals* | |
|--------|------------|----------|---------------------------------|--------------------------------|---------------|----------|--------------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 25-29 | - | - | N\A | N\A | 0.0085 | 0.0070 | - | - |
| 30-34 | 3 | 228 | 0.0132 | 0.0092 | 0.0080 | 0.0070 | 2 | 2 |
| 35-39 | 4 | 930 | 0.0043 | 0.0035 | 0.0075 | 0.0065 | 7 | 6 |
| 40-44 | 5 | 1,225 | 0.0041 | 0.0034 | 0.0070 | 0.0060 | 9 | 7 |
| 45-49 | 4 | 1,428 | 0.0028 | 0.0019 | 0.0065 | 0.0055 | 10 | 8 |
| 50-54 | 22 | 210 | 0.1048 | 0.1999 | 0.0060 | 0.0050 | 1 | 1 |
| Totals | 38 | 4,021 | 0.0095 | 0.0140 | 0.0072 | 0.0060 | 29 | 24 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0108 | 0.0094 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0143 | 0.0103 |
| 2003-2005 | 0.0116 | 0.0105 |
| 2000-2002 | 0.0117 | 0.0117 |
| 1997-1999 | 0.0112 | 0.0115 |
| 1994-1996 | 0.0080 | 0.0102 |
| 1991-1993 | 0.0111 | 0.0130 |
| 1988-1990 | 0.0108 | 0.0150 |

* Sample rates are taken from midpoint of age group.

EXECUTIVE AND ELECTIVE WITHDRAWAL EXPERIENCE

Male and Female Service-Based Withdrawals

| Service Index | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates | | Expected Withdrawals | |
|----------------------|------------|----------|---------------------------|--------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 1 | 15 | 170 | 0.0882 | 0.0512 | 0.2000 | 0.2000 | 32 | 34 |
| 2 | 36 | 257 | 0.1401 | 0.1427 | 0.1450 | 0.1400 | 37 | 36 |
| 3 | 32 | 206 | 0.1553 | 0.1401 | 0.1250 | 0.1400 | 25 | 29 |
| 4 | 18 | 141 | 0.1277 | 0.0937 | 0.1050 | 0.1000 | 15 | 14 |
| 5 | 16 | 111 | 0.1441 | 0.1288 | 0.1000 | 0.1000 | 11 | 11 |
| 6 | 5 | 55 | 0.0909 | 0.1229 | 0.0950 | 0.0900 | 5 | 5 |
| 7 | 6 | 76 | 0.0789 | 0.0647 | 0.0900 | 0.0850 | 7 | 6 |
| 8 | 7 | 58 | 0.1207 | 0.1047 | 0.0750 | 0.0800 | 4 | 5 |
| 9 | 7 | 61 | 0.1148 | 0.0889 | 0.0700 | 0.0750 | 4 | 5 |
| 10 | 3 | 61 | 0.0492 | 0.0649 | 0.0650 | 0.0700 | 4 | 4 |
| Totals(10 and under) | 145 | 1,196 | 0.1212 | 0.0997 | 0.1204 | 0.1246 | 144 | 149 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.1212 | 0.1246 |
| Previous Investigation Results | | |
| 2006-2008 | 0.1257 | 0.1211 |
| 2003-2005 | 0.1226 | 0.1142 |
| 2000-2002 | 0.0874 | 0.0786 |

EXECUTIVE AND ELECTIVE WITHDRAWAL EXPERIENCE

Male and Female Age-Based Withdrawals with 10 or More Years of Service

| Age | Withdrawal | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates* | | Expected Withdrawals* | |
|--------|------------|----------|---------------------------------|--------------------------------|---------------|----------|--------------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 25-29 | - | - | N\A | N\A | 0.0650 | 0.0600 | - | - |
| 30-34 | - | 2 | 0.0000 | 0.0000 | 0.0650 | 0.0450 | - | - |
| 35-39 | 1 | 46 | 0.0217 | 0.0214 | 0.0600 | 0.0400 | 3 | 2 |
| 40-44 | 3 | 131 | 0.0229 | 0.0376 | 0.0450 | 0.0350 | 6 | 5 |
| 45-49 | 6 | 250 | 0.0240 | 0.0237 | 0.0400 | 0.0320 | 10 | 8 |
| 50-54 | 11 | 457 | 0.0241 | 0.0212 | 0.0375 | 0.0300 | 18 | 14 |
| Totals | 21 | 886 | 0.0237 | 0.0232 | 0.0418 | 0.0327 | 37 | 29 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current - combined | 0.0797 | 0.0855 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0861 | 0.0870 |
| 2003-2005 | 0.0901 | 0.0832 |
| 2000-2002 | 0.0504 | 0.0477 |
| 1997-1999 | 0.0489 | 0.0450 |
| 1994-1996 | 0.0498 | 0.0398 |
| 1991-1993 | 0.0582 | 0.0511 |
| 1988-1990 | 0.0615 | 0.0455 |

* Sample rates are taken from midpoint of age group.

SECTION B

DISABILITY EXPERIENCE

GENERAL MALES DISABILITY EXPERIENCE

Male Disability Experience

| Age | Disabilities | Exposure | Crude Rates | Sample Rates* | | Expected Disabilities | |
|-------------|--------------|----------|-------------|---------------|----------|-----------------------|----------|
| | | | | Present | Proposed | Present | Proposed |
| Under 20 | - | 82 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 20-24 | - | 2,785 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 25-29 | - | 7,674 | 0.0000 | 0.0001 | 0.0001 | 1 | - |
| 30-34 | - | 10,023 | 0.0000 | 0.0001 | 0.0001 | 1 | 1 |
| 35-39 | - | 11,920 | 0.0000 | 0.0002 | 0.0002 | 3 | 2 |
| 40-44 | 1 | 16,014 | 0.0001 | 0.0006 | 0.0005 | 11 | 9 |
| 45-49 | 14 | 21,337 | 0.0007 | 0.0008 | 0.0007 | 25 | 19 |
| 50-54 | 42 | 26,453 | 0.0016 | 0.0023 | 0.0020 | 68 | 53 |
| 55-59 | 60 | 22,848 | 0.0026 | 0.0041 | 0.0035 | 102 | 80 |
| 60-64 | 33 | 12,133 | 0.0027 | 0.0082 | 0.0070 | 93 | 73 |
| 65-69 | - | 1,699 | 0.0000 | 0.0032 | 0.0027 | 7 | 6 |
| 70-74 | - | 591 | 0.0000 | 0.0028 | 0.0024 | 2 | 1 |
| 75 and over | - | - | N/A | 0.0028 | 0.0024 | - | - |
| Totals | 150 | 133,559 | 0.0011 | 0.0023 | 0.0018 | 313 | 244 |

Ref

283

283

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0011 | 0.0018 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0016 | 0.0022 |
| 2003-2005 | 0.0024 | 0.0026 |
| 2000-2002 | 0.0029 | 0.0030 |
| 1997-1999 | 0.0024 | 0.0026 |
| 1994-1996 | 0.0025 | 0.0027 |
| 1991-1993 | 0.0034 | 0.0033 |
| 1988-1990 | 0.0032 | |

* Sample rates are taken from midpoint of age group.

GENERAL FEMALES DISABILITY EXPERIENCE

Female Disability Experience

| Age | Disabilities | Exposure | Crude Rates | Sample Rates* | | Expected Disabilities | |
|-------------|--------------|----------|-------------|---------------|----------|-----------------------|----------|
| | | | | Present | Proposed | Present | Proposed |
| Under 20 | - | 166 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 20-24 | - | 5,753 | 0.0000 | 0.0001 | 0.0001 | 1 | - |
| 25-29 | - | 15,102 | 0.0000 | 0.0001 | 0.0001 | 3 | 2 |
| 30-34 | - | 18,632 | 0.0000 | 0.0003 | 0.0003 | 7 | 5 |
| 35-39 | 1 | 21,896 | 0.0000 | 0.0004 | 0.0004 | 11 | 9 |
| 40-44 | 2 | 31,336 | 0.0001 | 0.0007 | 0.0006 | 24 | 19 |
| 45-49 | 13 | 44,034 | 0.0003 | 0.0009 | 0.0008 | 46 | 37 |
| 50-54 | 51 | 51,818 | 0.0010 | 0.0016 | 0.0013 | 91 | 73 |
| 55-59 | 76 | 41,808 | 0.0018 | 0.0031 | 0.0025 | 126 | 100 |
| 60-64 | 43 | 23,728 | 0.0018 | 0.0038 | 0.0032 | 89 | 71 |
| 65-69 | 2 | 3,571 | 0.0006 | 0.0031 | 0.0025 | 12 | 9 |
| 70-74 | - | 810 | 0.0000 | 0.0026 | 0.0021 | 2 | 2 |
| 75 and over | - | - | N/A | 0.0026 | 0.0021 | - | - |
| Totals | 188 | 258,654 | 0.0007 | 0.0016 | 0.0013 | 412 | 327 |
| | Ref | | | 284 | 284 | | |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0007 | 0.0013 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0014 | 0.0017 |
| 2003-2005 | 0.0017 | 0.0018 |
| 2000-2002 | 0.0020 | 0.0017 |
| 1997-1999 | 0.0014 | 0.0017 |
| 1994-1996 | 0.0018 | 0.0021 |
| 1991-1993 | 0.0018 | 0.0023 |
| 1988-1990 | 0.0021 | |

* Sample rates are taken from midpoint of age group.

PUBLIC SCHOOL MALES DISABILITY EXPERIENCE

Male Disability Experience

| Age | Disabilities | Exposure | Crude Rates | Sample Rates* | | Expected Disabilities | |
|---------------|--------------|---------------|---------------|---------------|---------------|-----------------------|-----------|
| | | | | Present | Proposed | Present | Proposed |
| Under 20 | - | 1 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 20-24 | - | 354 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 25-29 | - | 5,230 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 30-34 | - | 8,580 | 0.0000 | 0.0001 | 0.0001 | 1 | 1 |
| 35-39 | - | 9,523 | 0.0000 | 0.0001 | 0.0001 | 1 | 1 |
| 40-44 | - | 9,964 | 0.0000 | 0.0003 | 0.0002 | 3 | 3 |
| 45-49 | 2 | 9,169 | 0.0002 | 0.0005 | 0.0005 | 6 | 5 |
| 50-54 | 11 | 9,254 | 0.0012 | 0.0020 | 0.0018 | 18 | 15 |
| 55-59 | 17 | 7,145 | 0.0024 | 0.0026 | 0.0023 | 20 | 17 |
| 60-64 | 7 | 2,969 | 0.0024 | 0.0046 | 0.0041 | 14 | 12 |
| 65-69 | 3 | 284 | 0.0106 | 0.0065 | 0.0058 | 2 | 2 |
| 70-74 | - | 66 | 0.0000 | 0.0068 | 0.0060 | - | - |
| 75 and over | - | - | N/A | 0.0068 | 0.0060 | - | - |
| Totals | 40 | 62,539 | 0.0006 | 0.0010 | 0.0009 | 65 | 56 |

Ref

281

281

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0006 | 0.0009 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0010 | 0.0011 |
| 2003-2005 | 0.0012 | 0.0013 |
| 2000-2002 | 0.0017 | 0.0016 |
| 1997-1999 | 0.0013 | 0.0014 |
| 1994-1996 | 0.0016 | 0.0016 |
| 1991-1993 | 0.0014 | 0.0015 |
| 1988-1990 | 0.0010 | |

* Sample rates are taken from midpoint of age group.

PUBLIC SCHOOL FEMALES DISABILITY EXPERIENCE

Female Disability Experience

| Age | Disabilities | Exposure | Crude Rates | Sample Rates* | | Expected Disabilities | |
|-------------|--------------|----------|-------------|---------------|----------|-----------------------|----------|
| | | | | Present | Proposed | Present | Proposed |
| Under 20 | - | 1 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 20-24 | - | 1,529 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 25-29 | - | 17,818 | 0.0000 | 0.0001 | 0.0001 | 2 | 2 |
| 30-34 | - | 23,033 | 0.0000 | 0.0001 | 0.0001 | 3 | 2 |
| 35-39 | - | 22,781 | 0.0000 | 0.0001 | 0.0001 | 3 | 2 |
| 40-44 | 2 | 25,380 | 0.0001 | 0.0003 | 0.0003 | 11 | 9 |
| 45-49 | 15 | 24,011 | 0.0006 | 0.0012 | 0.0010 | 26 | 22 |
| 50-54 | 21 | 25,001 | 0.0008 | 0.0016 | 0.0014 | 42 | 34 |
| 55-59 | 40 | 20,930 | 0.0019 | 0.0024 | 0.0021 | 52 | 42 |
| 60-64 | 15 | 9,137 | 0.0016 | 0.0034 | 0.0029 | 30 | 24 |
| 65-69 | 1 | 690 | 0.0014 | 0.0019 | 0.0016 | 2 | 1 |
| 70-74 | - | 141 | 0.0000 | 0.0016 | 0.0014 | - | - |
| 75 and over | - | - | N/A | 0.0016 | 0.0014 | - | - |
| Totals | 94 | 170,452 | 0.0006 | 0.0010 | 0.0008 | 171 | 138 |

Ref

282

282

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0006 | 0.0008 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0010 | 0.0011 |
| 2003-2005 | 0.0012 | 0.0013 |
| 2000-2002 | 0.0016 | 0.0013 |
| 1997-1999 | 0.0010 | 0.0010 |
| 1994-1996 | 0.0011 | 0.0011 |
| 1991-1993 | 0.0009 | 0.0011 |
| 1988-1990 | 0.0009 | |

* Sample rates are taken from midpoint of age group.

UNIVERSITY MALES DISABILITY EXPERIENCE

Male Disability Experience

| Age | Disabilities | Exposure | Crude Rates | Sample Rates* | | Expected Disabilities | |
|-------------|--------------|----------|-------------|---------------|----------|-----------------------|----------|
| | | | | Present | Proposed | Present | Proposed |
| Under 20 | - | - | N\A | 0.0001 | 0.0001 | - | - |
| 20-24 | - | 155 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 25-29 | - | 1,022 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 30-34 | - | 2,346 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 35-39 | - | 3,430 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 40-44 | 1 | 3,973 | 0.0003 | 0.0001 | 0.0001 | 1 | - |
| 45-49 | - | 3,912 | 0.0000 | 0.0003 | 0.0003 | 1 | 1 |
| 50-54 | 2 | 4,171 | 0.0005 | 0.0006 | 0.0005 | 3 | 2 |
| 55-59 | 3 | 4,026 | 0.0007 | 0.0019 | 0.0015 | 7 | 5 |
| 60-64 | 4 | 2,532 | 0.0016 | 0.0018 | 0.0014 | 5 | 4 |
| 65-69 | - | 329 | 0.0000 | 0.0022 | 0.0017 | 1 | 1 |
| 70-74 | - | 75 | 0.0000 | 0.0020 | 0.0015 | - | - |
| 75 and over | - | - | N\A | 0.0020 | 0.0015 | - | - |
| Totals | 10 | 25,971 | 0.0004 | 0.0007 | 0.0005 | 18 | 13 |

Ref

279

279

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0004 | 0.0005 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0007 | 0.0007 |
| 2003-2005 | 0.0009 | 0.0008 |
| 2000-2002 | 0.0008 | 0.0010 |
| 1997-1999 | 0.0008 | 0.0011 |
| 1994-1996 | 0.0010 | 0.0011 |
| 1991-1993 | 0.0009 | 0.0015 |
| 1988-1990 | 0.0012 | |

* Sample rates are taken from midpoint of age group.

UNIVERSITY FEMALES DISABILITY EXPERIENCE

Female Disability Experience

| Age | Disabilities | Exposure | Crude Rates | Sample Rates* | | Expected Disabilities | |
|-------------|--------------|----------|-------------|---------------|----------|-----------------------|----------|
| | | | | Present | Proposed | Present | Proposed |
| Under 20 | - | - | N/A | 0.0001 | 0.0001 | - | - |
| 20-24 | - | 232 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 25-29 | - | 1,767 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 30-34 | - | 3,318 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 35-39 | - | 3,740 | 0.0000 | 0.0005 | 0.0004 | 2 | 1 |
| 40-44 | - | 4,018 | 0.0000 | 0.0006 | 0.0005 | 2 | 2 |
| 45-49 | 2 | 4,203 | 0.0005 | 0.0005 | 0.0004 | 2 | 2 |
| 50-54 | 3 | 4,267 | 0.0007 | 0.0011 | 0.0009 | 5 | 3 |
| 55-59 | 4 | 3,980 | 0.0010 | 0.0015 | 0.0012 | 6 | 5 |
| 60-64 | 1 | 2,152 | 0.0005 | 0.0023 | 0.0018 | 5 | 4 |
| 65-69 | - | 276 | 0.0000 | 0.0016 | 0.0012 | - | - |
| 70-74 | - | 59 | 0.0000 | 0.0013 | 0.0010 | - | - |
| 75 and over | - | - | N/A | 0.0013 | 0.0010 | - | - |
| Totals | 10 | 28,012 | 0.0004 | 0.0008 | 0.0006 | 22 | 17 |
| Ref | | | | 280 | 280 | | |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0004 | 0.0006 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0007 | 0.0009 |
| 2003-2005 | 0.0010 | 0.0011 |
| 2000-2002 | 0.0006 | 0.0011 |
| 1997-1999 | 0.0010 | 0.0012 |
| 1994-1996 | 0.0003 | 0.0014 |
| 1991-1993 | 0.0010 | 0.0018 |
| 1988-1990 | 0.0016 | |

* Sample rates are taken from midpoint of age group.

**PROTECTIVE WITH SOCIAL SECURITY
DISABILITY EXPERIENCE**

Male and Female Disability Experience

| Age | Disabilities | Exposure | Crude Rates | Sample Rates* | | Expected Disabilities | |
|-------------|--------------|----------|-------------|---------------|----------|-----------------------|----------|
| | | | | Present | Proposed | Present | Proposed |
| Under 20 | - | 9 | 0.0000 | 0.0002 | 0.0001 | - | - |
| 20-24 | - | 1,635 | 0.0000 | 0.0002 | 0.0001 | - | - |
| 25-29 | - | 7,092 | 0.0000 | 0.0002 | 0.0001 | 1 | 1 |
| 30-34 | - | 8,900 | 0.0000 | 0.0002 | 0.0001 | 2 | 1 |
| 35-39 | - | 10,153 | 0.0000 | 0.0003 | 0.0003 | 4 | 3 |
| 40-44 | 2 | 10,656 | 0.0002 | 0.0004 | 0.0004 | 5 | 4 |
| 45-49 | 8 | 8,853 | 0.0009 | 0.0007 | 0.0006 | 7 | 5 |
| 50-54 | 25 | 6,001 | 0.0042 | 0.0011 | 0.0009 | 15 | 11 |
| 55-59 | 2 | 1,435 | 0.0014 | 0.0238 | 0.0196 | 31 | 24 |
| 60-64 | - | 598 | 0.0000 | 0.0255 | 0.0210 | 15 | 12 |
| 65-69 | - | 133 | 0.0000 | 0.0017 | 0.0014 | 1 | 1 |
| 70-74 | - | 12 | 0.0000 | 0.0017 | 0.0014 | - | - |
| 75 and over | - | 3 | 0.0000 | 0.0017 | 0.0014 | - | - |
| Totals | 37 | 55,480 | 0.0007 | 0.0015 | 0.0011 | 81 | 62 |

Ref

391

391

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0007 | 0.0011 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0009 | 0.0011 |
| 2003-2005 | 0.0009 | 0.0009 |
| 2000-2002 | 0.0012 | 0.0017 |
| 1997-1999 | 0.0016 | 0.0019 |
| 1994-1996 | 0.0019 | 0.0019 |
| 1991-1993 | 0.0013 | 0.0018 |
| 1988-1990 | 0.0015 | |
| 1985-1987 | 0.0015 | |

* Sample rates are taken from midpoint of age group.

PROTECTIVE WITHOUT SOCIAL SECURITY DISABILITY EXPERIENCE

Male and Female Disability Experience

| Age | Disabilities | Exposure | Crude Rates | Sample Rates* | | Expected Disabilities | |
|---------------|--------------|--------------|---------------|---------------|---------------|-----------------------|-----------|
| | | | | Present | Proposed | Present | Proposed |
| Under 20 | - | - | N\A | 0.0005 | 0.0004 | - | - |
| 20-24 | - | 143 | 0.0000 | 0.0005 | 0.0004 | - | - |
| 25-29 | - | 675 | 0.0000 | 0.0005 | 0.0004 | - | - |
| 30-34 | - | 1,123 | 0.0000 | 0.0005 | 0.0004 | 1 | - |
| 35-39 | - | 1,421 | 0.0000 | 0.0006 | 0.0005 | 1 | 1 |
| 40-44 | - | 1,487 | 0.0000 | 0.0010 | 0.0008 | 1 | 2 |
| 45-49 | - | 1,496 | 0.0000 | 0.0020 | 0.0016 | 4 | 3 |
| 50-54 | 10 | 953 | 0.0105 | 0.0140 | 0.0112 | 10 | 8 |
| 55-59 | - | 53 | 0.0000 | 0.0020 | 0.0016 | - | - |
| 60-64 | - | 14 | 0.0000 | 0.0020 | 0.0016 | - | - |
| 65-69 | - | 2 | 0.0000 | 0.0020 | 0.0016 | - | - |
| 70-74 | - | - | N\A | 0.0020 | 0.0016 | - | - |
| 75 and over | - | - | N\A | 0.0020 | 0.0016 | - | - |
| Totals | 10 | 7,367 | 0.0014 | 0.0023 | 0.0019 | 17 | 14 |

Ref

392

392

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0014 | 0.0019 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0028 | 0.0025 |
| 2003-2005 | 0.0027 | 0.0025 |
| 2000-2002 | 0.0030 | 0.0025 |
| 1997-1999 | 0.0017 | 0.0021 |
| 1994-1996 | 0.0031 | 0.0029 |
| 1991-1993 | 0.0013 | 0.0024 |
| 1988-1990 | 0.0024 | |

* Sample rates are taken from midpoint of age group.

EXECUTIVE AND ELECTED DISABILITY EXPERIENCE

Male and Female Disability Experience

| Age | Disabilities | Exposure | Crude Rates | Sample Rates* | | Expected Disabilities | |
|-------------|--------------|----------|-------------|---------------|----------|-----------------------|----------|
| | | | | Present | Proposed | Present | Proposed |
| Under 20 | - | - | N\A | 0.0000 | 0.0000 | - | - |
| 20-24 | - | 5 | 0.0000 | 0.0000 | 0.0000 | - | - |
| 25-29 | - | 12 | 0.0000 | 0.0000 | 0.0000 | - | - |
| 30-34 | - | 73 | 0.0000 | 0.0000 | 0.0000 | - | - |
| 35-39 | - | 211 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 40-44 | - | 330 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 45-49 | - | 498 | 0.0000 | 0.0002 | 0.0002 | - | - |
| 50-54 | - | 715 | 0.0000 | 0.0004 | 0.0003 | - | - |
| 55-59 | - | 813 | 0.0000 | 0.0016 | 0.0012 | 1 | 1 |
| 60-64 | - | 463 | 0.0000 | 0.0014 | 0.0011 | 1 | - |
| 65-69 | - | 143 | 0.0000 | 0.0012 | 0.0009 | - | - |
| 70-74 | - | 49 | 0.0000 | 0.0012 | 0.0009 | - | - |
| 75 and over | - | - | N\A | 0.0012 | 0.0009 | - | - |
| Totals | - | 3,312 | 0.0000 | 0.0006 | 0.0003 | 2 | 1 |

Ref

275

275

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0000 | 0.0003 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0000 | 0.0004 |
| 2003-2005 | 0.0004 | 0.0008 |
| 2000-2002 | 0.0006 | 0.0012 |
| 1997-1999 | 0.0007 | 0.0012 |
| 1994-1996 | 0.0003 | 0.0007 |

* Sample rates are taken from midpoint of age group.

SECTION C

**PAY INCREASES
MERIT & LONGEVITY PORTION**

GENERAL
MERIT & LONGEVITY PAY INCREASE ASSUMPTION

Service Based Pay Increase Experience

| Service Group | | Merit/Seniority % Increase | | | Total % Increase | | |
|-------------------|---------|----------------------------|-----------|----------|------------------|-----------|----------|
| Beginning of Year | Number | Actual | Expected* | | Actual | Expected* | |
| | | | Present | Proposed | | Present | Proposed |
| 1-5 | 113,136 | 3.37 % | 3.50 % | 3.45 % | 6.57 % | 6.70 % | 6.65 % |
| 6-10 | 82,873 | 1.81 % | 2.00 % | 1.90 % | 5.01 % | 5.20 % | 5.10 % |
| 11-15 | 65,006 | 1.13 % | 1.40 % | 1.25 % | 4.33 % | 4.60 % | 4.45 % |
| 16-20 | 44,916 | 0.81 % | 1.20 % | 1.00 % | 4.01 % | 4.40 % | 4.20 % |
| 21-25 | 34,263 | 0.47 % | 1.00 % | 0.75 % | 3.67 % | 4.20 % | 3.95 % |
| 26-30 | 21,115 | 0.24 % | 0.80 % | 0.50 % | 3.44 % | 4.00 % | 3.70 % |
| 31-35 | 14,376 | (0.01)% | 0.60 % | 0.30 % | 3.19 % | 3.80 % | 3.50 % |
| 36-40 | 3,928 | (0.05)% | 0.40 % | 0.20 % | 3.15 % | 3.60 % | 3.40 % |
| Over 40 | 538 | (0.36)% | 0.40 % | 0.10 % | 2.84 % | 3.60 % | 3.30 % |
| Total | 380,151 | | | | | | |

* Sample values are selected from mid-point of service group.

**PUBLIC SCHOOLS
MERIT & LONGEVITY PAY INCREASE ASSUMPTION**

Service Based Pay Increase Experience

| Service Group | | Merit/Seniority % Increase | | | Total % Increase | | |
|----------------------|---------|----------------------------|-----------|----------|------------------|-----------|----------|
| Beginning of Year | Number | Actual | Expected* | | Actual | Expected* | |
| | | | Present | Proposed | | Present | Proposed |
| 1-5 | 46,674 | 5.56 % | 6.00 % | 5.75 % | 8.76 % | 9.20 % | 8.95 % |
| 6-10 | 49,218 | 4.01 % | 4.00 % | 4.00 % | 7.21 % | 7.20 % | 7.20 % |
| 11-15 | 46,639 | 2.63 % | 2.80 % | 2.70 % | 5.83 % | 6.00 % | 5.90 % |
| 16-20 | 35,220 | 1.33 % | 1.20 % | 1.25 % | 4.53 % | 4.40 % | 4.45 % |
| 21-25 | 25,149 | 0.41 % | 0.70 % | 0.55 % | 3.61 % | 3.90 % | 3.75 % |
| 26-30 | 14,012 | 0.25 % | 0.30 % | 0.25 % | 3.45 % | 3.50 % | 3.45 % |
| 31-35 | 9,051 | 0.08 % | 0.30 % | 0.20 % | 3.28 % | 3.50 % | 3.40 % |
| 36-40 | 2,374 | 0.01 % | 0.20 % | 0.10 % | 3.21 % | 3.40 % | 3.30 % |
| Over 40 | 317 | (0.35)% | 0.20 % | 0.05 % | 2.85 % | 3.40 % | 3.25 % |
| Total | 228,654 | | | | | | |

* Sample values are selected from mid-point of service group.

**UNIVERSITY
MERIT & LONGEVITY PAY INCREASE ASSUMPTION**

Service Based Pay Increase Experience

| Service Group | | Merit/Seniority % Increase | | | Total % Increase | | |
|----------------------|--------|----------------------------|-----------|----------|------------------|-----------|----------|
| Beginning of Year | Number | Actual | Expected* | | Actual | Expected* | |
| | | | Present | Proposed | | Present | Proposed |
| 1-5 | 15,000 | 2.81 % | 3.50 % | 3.15 % | 6.01 % | 6.70 % | 6.35 % |
| 6-10 | 12,182 | 2.46 % | 3.00 % | 2.75 % | 5.66 % | 6.20 % | 5.95 % |
| 11-15 | 9,281 | 1.59 % | 2.50 % | 2.10 % | 4.79 % | 5.70 % | 5.30 % |
| 16-20 | 5,949 | 1.09 % | 2.00 % | 1.50 % | 4.29 % | 5.20 % | 4.70 % |
| 21-25 | 4,864 | 0.33 % | 1.50 % | 0.90 % | 3.53 % | 4.70 % | 4.10 % |
| 26-30 | 3,060 | 0.28 % | 1.20 % | 0.75 % | 3.48 % | 4.40 % | 3.95 % |
| 31-35 | 1,623 | (0.03)% | 1.00 % | 0.50 % | 3.17 % | 4.20 % | 3.70 % |
| 36-40 | 664 | 0.02 % | 0.70 % | 0.35 % | 3.22 % | 3.90 % | 3.55 % |
| Over 40 | 236 | (0.71)% | 0.60 % | 0.20 % | 2.49 % | 3.80 % | 3.40 % |
| Total | 52,859 | | | | | | |

* Sample values are selected from mid-point of service group.

**PROTECTIVE WITH SOCIAL SECURITY
MERIT & LONGEVITY PAY INCREASE ASSUMPTION**

Service Based Pay Increase Experience

| Service Group | | Merit/Seniority % Increase | | | Total % Increase | | |
|----------------------|--------|----------------------------|-----------|----------|------------------|-----------|----------|
| Beginning of Year | Number | Actual | Expected* | | Actual | Expected* | |
| | | | Present | Proposed | | Present | Proposed |
| 1-5 | 11,320 | 4.61 % | 5.00 % | 4.75 % | 7.81 % | 8.20 % | 7.95 % |
| 6-10 | 12,745 | 1.15 % | 1.80 % | 1.50 % | 4.35 % | 5.00 % | 4.70 % |
| 11-15 | 12,790 | 0.78 % | 1.20 % | 0.90 % | 3.98 % | 4.40 % | 4.10 % |
| 16-20 | 9,429 | 0.61 % | 1.00 % | 0.80 % | 3.81 % | 4.20 % | 4.00 % |
| 21-25 | 6,195 | 0.79 % | 0.90 % | 0.70 % | 3.99 % | 4.10 % | 3.90 % |
| 26-30 | 3,252 | 0.69 % | 0.70 % | 0.60 % | 3.89 % | 3.90 % | 3.80 % |
| 31-35 | 1,222 | 0.78 % | 0.60 % | 0.50 % | 3.98 % | 3.80 % | 3.70 % |
| 36-40 | 180 | 0.78 % | 0.50 % | 0.40 % | 3.98 % | 3.70 % | 3.60 % |
| Over 40 | 16 | 0.01 % | 0.40 % | 0.20 % | 3.21 % | 3.60 % | 3.40 % |
| Total | 57,149 | | | | | | |

* Sample values are selected from mid-point of service group.

**PROTECTIVE WITHOUT SOCIAL SECURITY
MERIT & LONGEVITY PAY INCREASE ASSUMPTION**

Service Based Pay Increase Experience

| Service Group | | Merit/Seniority % Increase | | | Total % Increase | | |
|-------------------|--------|----------------------------|-----------|----------|------------------|-----------|----------|
| Beginning of Year | Number | Actual | Expected* | | Actual | Expected* | |
| | | | Present | Proposed | | Present | Proposed |
| 1-5 | 1,183 | 7.01 % | 4.75 % | 5.50 % | 10.21 % | 7.95 % | 8.70 % |
| 6-10 | 1,344 | 1.33 % | 1.30 % | 1.30 % | 4.53 % | 4.50 % | 4.50 % |
| 11-15 | 1,793 | 0.82 % | 0.50 % | 0.60 % | 4.02 % | 3.70 % | 3.80 % |
| 16-20 | 1,406 | 0.40 % | 0.40 % | 0.50 % | 3.60 % | 3.60 % | 3.70 % |
| 21-25 | 1,210 | 0.49 % | 0.30 % | 0.40 % | 3.69 % | 3.50 % | 3.60 % |
| 26-30 | 746 | 0.41 % | 0.20 % | 0.30 % | 3.61 % | 3.40 % | 3.50 % |
| 31-35 | 221 | (0.19)% | 0.10 % | 0.20 % | 3.01 % | 3.30 % | 3.40 % |
| 36-40 | 8 | 0.73 % | 0.00 % | 0.10 % | 3.93 % | 3.20 % | 3.30 % |
| Over 40 | - | 0.00 % | (0.10)% | 0.05 % | 3.20 % | 3.10 % | 3.25 % |
| Total | 7,911 | | | | | | |

* Sample values are selected from mid-point of service group.

**EXECUTIVE AND ELECTED
MERIT & LONGEVITY PAY INCREASE ASSUMPTION**

Service Based Pay Increase Experience

| Service Group | | Merit/Seniority % Increase | | | Total % Increase | | |
|-------------------|--------|----------------------------|-----------|----------|------------------|-----------|----------|
| Beginning of Year | Number | Actual | Expected* | | Actual | Expected* | |
| | | | Present | Proposed | | Present | Proposed |
| 1-5 | 1,105 | 4.48 % | 1.20 % | 2.00 % | 7.68 % | 4.40 % | 5.20 % |
| 6-10 | 564 | 1.56 % | 1.10 % | 1.75 % | 4.76 % | 4.30 % | 4.95 % |
| 11-15 | 517 | 2.00 % | 1.00 % | 1.50 % | 5.20 % | 4.20 % | 4.70 % |
| 16-20 | 465 | 1.02 % | 0.90 % | 1.00 % | 4.22 % | 4.10 % | 4.20 % |
| 21-25 | 417 | (0.31)% | 0.70 % | 0.50 % | 2.89 % | 3.90 % | 3.70 % |
| 26-30 | 329 | 0.34 % | 0.50 % | 0.40 % | 3.54 % | 3.70 % | 3.60 % |
| 31-35 | 252 | 0.25 % | 0.40 % | 0.30 % | 3.45 % | 3.60 % | 3.50 % |
| 36-40 | 96 | (0.10)% | 0.00 % | 0.20 % | 3.10 % | 3.20 % | 3.40 % |
| Over 40 | 29 | 0.02 % | 0.00 % | 0.10 % | 3.22 % | 3.20 % | 3.30 % |
| Total | 3,774 | | | | | | |

* Sample values are selected from mid-point of service group.

SECTION D

NORMAL & EARLY RETIREMENT EXPERIENCE

GENERAL MALES
NORMAL RETIREMENT EXPERIENCE

Male Age-Based Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates* | Sample Rates | | Expected Retirements | |
|------------|-------------|----------|---------------------------|---------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 57 | 224 | 1,163 | 0.1926 | 0.1454 | 0.2400 | 0.2000 | 283 | 233 |
| 58 | 240 | 1,140 | 0.2105 | 0.1748 | 0.2400 | 0.2000 | 278 | 228 |
| 59 | 217 | 1,057 | 0.2053 | 0.1574 | 0.2400 | 0.2000 | 257 | 211 |
| 60 | 240 | 986 | 0.2434 | 0.1749 | 0.2400 | 0.2000 | 240 | 197 |
| 61 | 219 | 855 | 0.2561 | 0.2061 | 0.2000 | 0.2000 | 171 | 171 |
| 62 | 231 | 733 | 0.3151 | 0.2068 | 0.3300 | 0.2700 | 247 | 198 |
| 63 | 214 | 570 | 0.3754 | 0.3087 | 0.3300 | 0.3200 | 191 | 182 |
| 64 | 125 | 355 | 0.3521 | 0.2437 | 0.2400 | 0.2400 | 86 | 85 |
| 65 | 280 | 1,442 | 0.1942 | 0.1933 | 0.2600 | 0.2400 | 371 | 346 |
| 66 | 237 | 1,044 | 0.2270 | 0.3261 | 0.2800 | 0.3000 | 282 | 313 |
| 67 | 147 | 783 | 0.1877 | 0.3289 | 0.1500 | 0.2400 | 106 | 188 |
| 68 | 77 | 606 | 0.1271 | 0.2062 | 0.1500 | 0.1700 | 82 | 103 |
| 69 | 57 | 497 | 0.1147 | 0.1889 | 0.1500 | 0.1700 | 67 | 84 |
| 70 | 48 | 394 | 0.1218 | 0.1801 | 0.1500 | 0.1700 | 54 | 67 |
| 71 | 31 | 322 | 0.0963 | 0.1622 | 0.1500 | 0.1700 | 43 | 55 |
| 72 | 23 | 271 | 0.0849 | 0.2081 | 0.1500 | 0.1700 | 36 | 46 |
| 73 | 23 | 260 | 0.0885 | 0.0676 | 0.1500 | 0.1700 | 34 | 44 |
| 74 | 19 | 222 | 0.0856 | 0.2519 | 0.1500 | 0.1700 | 30 | 38 |
| Sub Totals | 2,671 | 12,700 | 0.2103 | 0.1993 | 0.2250 | 0.2196 | 2,858 | 2,789 |
| 75 & Over | 73 | 857 | 0.0852 | 0.2462 | | | 857 | 857 |
| Total | 2,744 | 13,557 | 0.2024 | 0.1997 | | | 3,715 | 3,646 |

* Based on 2009 and 2010 retirements only.

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.2103 | 0.2196 |
| Previous Investigation Results | | |
| 2006-2008 | 0.1840 | 0.2251 |
| 2003-2005 | 0.1768 | 0.2089 |
| 2000-2002 | 0.2753 | 0.2820 |
| 1997-1999 | 0.2666 | 0.2732 |

GENERAL MALES

EARLY RETIREMENT EXPERIENCE

Male Age-Based Early Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates* | Sample Rates | | Expected Retirements | |
|--------|-------------|----------|---------------------------|---------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 55 | 292 | 5,034 | 0.0580 | 0.0771 | 0.0800 | 0.0800 | 394 | 403 |
| 56 | 306 | 4,817 | 0.0635 | 0.0787 | 0.0800 | 0.0800 | 378 | 385 |
| 57 | 133 | 3,577 | 0.0372 | 0.0402 | 0.0450 | 0.0425 | 155 | 152 |
| 58 | 160 | 3,339 | 0.0479 | 0.0563 | 0.0500 | 0.0525 | 167 | 175 |
| 59 | 165 | 3,111 | 0.0530 | 0.0561 | 0.0550 | 0.0550 | 166 | 171 |
| 60 | 187 | 2,645 | 0.0707 | 0.0719 | 0.0800 | 0.0750 | 208 | 198 |
| 61 | 181 | 2,318 | 0.0781 | 0.0775 | 0.0800 | 0.0800 | 178 | 185 |
| 62 | 276 | 2,063 | 0.1338 | 0.1308 | 0.1700 | 0.1400 | 357 | 289 |
| 63 | 281 | 1,712 | 0.1641 | 0.1816 | 0.1700 | 0.1600 | 296 | 274 |
| 64 | 217 | 1,260 | 0.1722 | 0.1697 | 0.1700 | 0.1700 | 208 | 214 |
| Totals | 2,198 | 29,876 | 0.0736 | 0.0797 | 0.0839 | 0.0819 | 2,507 | 2,446 |

* Based on 2009 and 2010 retirements only.

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0736 | 0.0819 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0663 | 0.0821 |
| 2003-2005 | 0.0741 | 0.0777 |
| 2000-2002 | 0.0874 | 0.0868 |
| 1997-1999 | 0.0755 | 0.0773 |

**GENERAL FEMALES
NORMAL RETIREMENT EXPERIENCE**

Female Age-Based Retirement Experience

| Age | Retirement | Exposure | Population Weighted Rates | Liability Weighted Rates* | Sample Rates | | Expected Retirements | |
|------------|------------|----------|---------------------------------|---------------------------------|--------------|----------|-------------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 57 | 230 | 1,159 | 0.1984 | 0.1319 | 0.1900 | 0.1700 | 224 | 197 |
| 58 | 224 | 1,116 | 0.2007 | 0.1523 | 0.1900 | 0.1700 | 216 | 190 |
| 59 | 239 | 1,017 | 0.2350 | 0.1585 | 0.1900 | 0.1700 | 196 | 173 |
| 60 | 238 | 932 | 0.2554 | 0.2131 | 0.1900 | 0.2000 | 180 | 186 |
| 61 | 212 | 752 | 0.2819 | 0.2096 | 0.1900 | 0.2000 | 145 | 150 |
| 62 | 224 | 652 | 0.3436 | 0.2565 | 0.2900 | 0.2700 | 191 | 176 |
| 63 | 162 | 484 | 0.3347 | 0.2698 | 0.2900 | 0.2800 | 142 | 136 |
| 64 | 109 | 341 | 0.3196 | 0.2561 | 0.2500 | 0.2500 | 85 | 85 |
| 65 | 580 | 2,558 | 0.2267 | 0.2392 | 0.2500 | 0.2500 | 640 | 640 |
| 66 | 439 | 1,816 | 0.2417 | 0.3021 | 0.2800 | 0.2900 | 491 | 527 |
| 67 | 263 | 1,316 | 0.1998 | 0.2581 | 0.1500 | 0.2000 | 197 | 263 |
| 68 | 150 | 961 | 0.1561 | 0.1902 | 0.1500 | 0.1800 | 132 | 173 |
| 69 | 116 | 731 | 0.1587 | 0.2220 | 0.1500 | 0.1800 | 98 | 132 |
| 70 | 101 | 538 | 0.1877 | 0.2807 | 0.1500 | 0.1800 | 72 | 97 |
| 71 | 63 | 421 | 0.1496 | 0.2109 | 0.1500 | 0.1800 | 56 | 76 |
| 72 | 41 | 342 | 0.1199 | 0.1607 | 0.1500 | 0.1500 | 46 | 51 |
| 73 | 27 | 304 | 0.0888 | 0.1421 | 0.1500 | 0.1500 | 40 | 46 |
| 74 | 24 | 263 | 0.0913 | 0.1559 | 0.1500 | 0.1500 | 35 | 39 |
| Sub Totals | 3,452 | 15,703 | 0.2198 | 0.2042 | 0.2029 | 0.2125 | 3,186 | 3,337 |
| 75 & Over | 105 | 928 | 0.1131 | 0.1761 | | | 928 | 928 |
| Total | 3,557 | 16,631 | 0.2139 | 0.2038 | | | 4,114 | 4,265 |

* Based on 2009 and 2010 retirements only.

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.2198 | 0.2125 |
| Previous Investigation Results | | |
| 2006-2008 | 0.1904 | 0.2047 |
| 2003-2005 | 0.1773 | 0.1849 |
| 2000-2002 | 0.2149 | 0.2378 |
| 1997-1999 | 0.2651 | 0.3218 |

**GENERAL FEMALES
EARLY RETIREMENT EXPERIENCE**

Female Age-Based Early Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates* | Sample Rates | | Expected Retirements | |
|--------|-------------|----------|---------------------------|---------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 55 | 335 | 8,557 | 0.0391 | 0.0613 | 0.0600 | 0.0610 | 492 | 522 |
| 56 | 404 | 8,281 | 0.0488 | 0.0680 | 0.0600 | 0.0640 | 477 | 530 |
| 57 | 226 | 6,718 | 0.0336 | 0.0388 | 0.0450 | 0.0420 | 292 | 282 |
| 58 | 279 | 6,261 | 0.0446 | 0.0549 | 0.0550 | 0.0550 | 334 | 344 |
| 59 | 277 | 5,698 | 0.0486 | 0.0511 | 0.0550 | 0.0530 | 304 | 302 |
| 60 | 383 | 5,216 | 0.0734 | 0.0821 | 0.0800 | 0.0810 | 409 | 422 |
| 61 | 311 | 4,733 | 0.0657 | 0.0650 | 0.0800 | 0.0700 | 371 | 331 |
| 62 | 608 | 4,314 | 0.1409 | 0.1380 | 0.1600 | 0.1500 | 676 | 647 |
| 63 | 537 | 3,509 | 0.1530 | 0.1430 | 0.1600 | 0.1500 | 551 | 526 |
| 64 | 376 | 2,570 | 0.1463 | 0.1426 | 0.1600 | 0.1500 | 404 | 386 |
| Totals | 3,736 | 55,857 | 0.0669 | 0.0734 | 0.0772 | 0.0768 | 4,310 | 4,292 |

* Based on 2009 and 2010 retirements only.

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0669 | 0.0768 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0636 | 0.0765 |
| 2003-2005 | 0.0682 | 0.0696 |
| 2000-2002 | 0.0783 | 0.0785 |
| 1997-1999 | 0.0879 | 0.0924 |

**PUBLIC SCHOOL MALES
NORMAL RETIREMENT EXPERIENCE**

Male Age-Based Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates* | Sample Rates | | Expected Retirements | |
|-----------|-------------|----------|---------------------------------|---------------------------------|--------------|----------|-------------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 57 | 301 | 801 | 0.3758 | 0.2922 | 0.4000 | 0.4000 | 320 | 320 |
| 58 | 250 | 688 | 0.3634 | 0.2515 | 0.3500 | 0.3500 | 241 | 241 |
| 59 | 187 | 596 | 0.3138 | 0.2232 | 0.2800 | 0.2500 | 171 | 149 |
| 60 | 191 | 511 | 0.3738 | 0.2800 | 0.2800 | 0.2800 | 146 | 143 |
| 61 | 130 | 382 | 0.3403 | 0.2187 | 0.2800 | 0.2500 | 109 | 96 |
| 62 | 131 | 308 | 0.4253 | 0.3443 | 0.3800 | 0.3600 | 119 | 111 |
| 63 | 86 | 216 | 0.3981 | 0.2893 | 0.3500 | 0.3200 | 79 | 69 |
| 64 | 49 | 137 | 0.3577 | 0.2322 | 0.2500 | 0.2400 | 34 | 33 |
| 65 | 82 | 335 | 0.2448 | 0.2101 | 0.2500 | 0.2400 | 84 | 80 |
| 66 | 55 | 217 | 0.2535 | 0.2828 | 0.2500 | 0.2500 | 54 | 54 |
| 67 | 34 | 153 | 0.2222 | 0.2916 | 0.2000 | 0.2400 | 28 | 37 |
| 68 | 20 | 105 | 0.1905 | 0.2385 | 0.2000 | 0.2400 | 19 | 25 |
| 69 | 12 | 81 | 0.1481 | 0.3029 | 0.2000 | 0.2400 | 16 | 19 |
| 70 | 6 | 51 | 0.1176 | 0.0182 | 0.2500 | 0.2000 | 12 | 10 |
| 71 | 2 | 42 | 0.0476 | 0.1687 | 0.2500 | 0.2000 | 10 | 8 |
| 72 | 4 | 38 | 0.1053 | 0.2403 | 0.2500 | 0.2000 | 9 | 8 |
| 73 | 4 | 30 | 0.1333 | 0.2702 | 0.2500 | 0.2000 | 7 | 6 |
| 74 | 2 | 16 | 0.1250 | 0.0000 | 0.2500 | 0.2000 | 4 | 3 |
| Totals | 1,551 | 4,707 | 0.3295 | 0.2641 | 0.3106 | 0.3000 | 1,462 | 1,412 |
| 75 & Over | 10 | 68 | 0.1471 | 0.5031 | | | 68 | 68 |
| Total | 1,561 | 4,775 | 0.3269 | 0.2651 | | | 1,530 | 1,480 |

* Based on 2009 and 2010 retirements only.

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.3295 | 0.3000 |
| Previous Investigation Results | | |
| 2006-2008 | 0.2907 | 0.3216 |
| 2003-2005 | 0.3376 | 0.3360 |
| 2000-2002 | 0.3552 | 0.3371 |
| 1997-1999 | 0.4213 | 0.3229 |

**PUBLIC SCHOOL MALES
EARLY RETIREMENT EXPERIENCE**

Male Age-Based Early Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates* | Sample Rates | | Expected Retirements | |
|--------|-------------|----------|---------------------------|---------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 55 | 226 | 1,961 | 0.1152 | 0.1070 | 0.1500 | 0.1200 | 294 | 235 |
| 56 | 286 | 1,898 | 0.1507 | 0.1298 | 0.1500 | 0.1200 | 285 | 228 |
| 57 | 96 | 1,006 | 0.0954 | 0.0830 | 0.1500 | 0.1200 | 151 | 121 |
| 58 | 107 | 916 | 0.1168 | 0.1075 | 0.1400 | 0.1200 | 132 | 110 |
| 59 | 94 | 825 | 0.1139 | 0.1049 | 0.1100 | 0.1200 | 88 | 99 |
| 60 | 96 | 737 | 0.1303 | 0.1143 | 0.1500 | 0.1200 | 111 | 88 |
| 61 | 86 | 610 | 0.1410 | 0.1032 | 0.1400 | 0.1200 | 87 | 73 |
| 62 | 99 | 530 | 0.1868 | 0.1692 | 0.2300 | 0.2000 | 125 | 106 |
| 63 | 69 | 405 | 0.1704 | 0.1614 | 0.2300 | 0.2000 | 96 | 81 |
| 64 | 49 | 294 | 0.1667 | 0.1693 | 0.1600 | 0.2000 | 46 | 59 |
| Totals | 1,208 | 9,182 | 0.1316 | 0.1171 | 0.1541 | 0.1307 | 1,415 | 1,200 |

* Based on 2009 and 2010 retirements only.

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.1316 | 0.1307 |
| Previous Investigation Results | | |
| 2006-2008 | 0.1190 | 0.1499 |
| 2003-2005 | 0.1592 | 0.1514 |
| 2000-2002 | 0.1642 | 0.1511 |
| 1997-1999 | 0.1034 | 0.1043 |

**PUBLIC SCHOOL FEMALES
NORMAL RETIREMENT EXPERIENCE**

Female Age-Based Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates* | Sample Rates | | Expected Retirements | |
|-----------|-------------|----------|---------------------------|---------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 57 | 474 | 1,509 | 0.3141 | 0.2423 | 0.3000 | 0.2700 | 453 | 407 |
| 58 | 447 | 1,325 | 0.3374 | 0.2199 | 0.3000 | 0.2700 | 398 | 358 |
| 59 | 416 | 1,120 | 0.3714 | 0.2565 | 0.3000 | 0.2700 | 336 | 302 |
| 60 | 342 | 897 | 0.3813 | 0.2440 | 0.3000 | 0.2700 | 269 | 242 |
| 61 | 235 | 652 | 0.3604 | 0.2452 | 0.3000 | 0.2700 | 205 | 176 |
| 62 | 224 | 504 | 0.4444 | 0.2946 | 0.3800 | 0.3400 | 195 | 171 |
| 63 | 121 | 310 | 0.3903 | 0.2299 | 0.3200 | 0.2700 | 101 | 84 |
| 64 | 80 | 209 | 0.3828 | 0.2060 | 0.2600 | 0.2300 | 54 | 48 |
| 65 | 223 | 753 | 0.2961 | 0.2520 | 0.3100 | 0.2800 | 231 | 211 |
| 66 | 145 | 486 | 0.2984 | 0.2914 | 0.2700 | 0.3000 | 129 | 146 |
| 67 | 95 | 314 | 0.3025 | 0.3984 | 0.2600 | 0.2800 | 81 | 88 |
| 68 | 39 | 181 | 0.2155 | 0.2784 | 0.2400 | 0.2600 | 41 | 47 |
| 69 | 19 | 132 | 0.1439 | 0.1795 | 0.2200 | 0.2000 | 28 | 26 |
| 70 | 16 | 111 | 0.1441 | 0.2728 | 0.1800 | 0.2000 | 21 | 22 |
| 71 | 19 | 91 | 0.2088 | 0.2863 | 0.1800 | 0.2000 | 17 | 18 |
| 72 | 4 | 74 | 0.0541 | 0.0699 | 0.1800 | 0.2000 | 14 | 15 |
| 73 | 9 | 55 | 0.1636 | 0.3118 | 0.1800 | 0.2000 | 10 | 11 |
| 74 | 4 | 44 | 0.0909 | 0.1798 | 0.1800 | 0.2000 | 8 | 9 |
| Totals | 2,913 | 8,767 | 0.3323 | 0.2469 | 0.2955 | 0.2716 | 2,591 | 2,381 |
| 75 & Over | 13 | 127 | 0.1024 | 0.0821 | | | 127 | 127 |
| Total | 2,926 | 8,894 | 0.3290 | 0.2462 | | | 2,718 | 2,508 |

* Based on 2009 and 2010 retirements only.

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.3323 | 0.2716 |
| Previous Investigation Results | | |
| 2006-2008 | 0.2719 | 0.2932 |
| 2003-2005 | 0.2975 | 0.2940 |
| 2000-2002 | 0.3024 | 0.2961 |
| 1997-1999 | 0.3297 | 0.2617 |

**PUBLIC SCHOOL FEMALES
EARLY RETIREMENT EXPERIENCE**

Female Age-Based Early Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates* | Sample Rates | | Expected Retirements | |
|--------|-------------|----------|---------------------------|---------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 55 | 451 | 5,102 | 0.0884 | 0.0917 | 0.1250 | 0.1100 | 611 | 561 |
| 56 | 617 | 5,015 | 0.1230 | 0.1119 | 0.1250 | 0.1100 | 600 | 552 |
| 57 | 358 | 3,438 | 0.1041 | 0.0970 | 0.1150 | 0.1100 | 389 | 378 |
| 58 | 342 | 3,241 | 0.1055 | 0.0827 | 0.1250 | 0.1100 | 399 | 357 |
| 59 | 360 | 2,960 | 0.1216 | 0.1030 | 0.1250 | 0.1100 | 365 | 326 |
| 60 | 442 | 2,566 | 0.1723 | 0.1439 | 0.1500 | 0.1500 | 385 | 385 |
| 61 | 351 | 2,097 | 0.1674 | 0.1455 | 0.1600 | 0.1500 | 329 | 315 |
| 62 | 414 | 1,714 | 0.2415 | 0.1976 | 0.2300 | 0.2000 | 405 | 343 |
| 63 | 308 | 1,220 | 0.2525 | 0.2069 | 0.2100 | 0.2000 | 253 | 244 |
| 64 | 178 | 809 | 0.2200 | 0.2036 | 0.1900 | 0.2000 | 146 | 162 |
| Totals | 3,821 | 28,162 | 0.1357 | 0.1162 | 0.1378 | 0.1286 | 3,882 | 3,623 |

* Based on 2009 and 2010 retirements only.

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.1357 | 0.1286 |
| Previous Investigation Results | | |
| 2006-2008 | 0.1124 | 0.1354 |
| 2003-2005 | 0.1245 | 0.1236 |
| 2000-2002 | 0.1245 | 0.1241 |
| 1997-1999 | 0.1110 | 0.1075 |

**UNIVERSITY MALES
NORMAL RETIREMENT EXPERIENCE**

Male Age-Based Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates* | Sample Rates | | Expected Retirements | |
|------------|-------------|----------|---------------------------------|---------------------------------|--------------|----------|-------------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 57 | 12 | 92 | 0.1304 | 0.0927 | 0.1500 | 0.1300 | 15 | 12 |
| 58 | 21 | 115 | 0.1826 | 0.1435 | 0.1500 | 0.1300 | 17 | 15 |
| 59 | 28 | 138 | 0.2029 | 0.1192 | 0.1500 | 0.1300 | 21 | 18 |
| 60 | 28 | 157 | 0.1783 | 0.0949 | 0.1500 | 0.1300 | 24 | 20 |
| 61 | 29 | 158 | 0.1835 | 0.1320 | 0.1500 | 0.1300 | 25 | 21 |
| 62 | 30 | 159 | 0.1887 | 0.1148 | 0.1700 | 0.1500 | 27 | 24 |
| 63 | 40 | 172 | 0.2326 | 0.1436 | 0.1700 | 0.1500 | 29 | 26 |
| 64 | 29 | 177 | 0.1638 | 0.0757 | 0.1700 | 0.1500 | 30 | 27 |
| 65 | 84 | 472 | 0.1780 | 0.1259 | 0.2000 | 0.1500 | 94 | 71 |
| 66 | 95 | 372 | 0.2554 | 0.1835 | 0.2200 | 0.2000 | 79 | 74 |
| 67 | 50 | 283 | 0.1767 | 0.1653 | 0.1800 | 0.1800 | 53 | 51 |
| 68 | 48 | 207 | 0.2319 | 0.2024 | 0.1800 | 0.1800 | 38 | 37 |
| 69 | 27 | 155 | 0.1742 | 0.1470 | 0.1800 | 0.1800 | 29 | 28 |
| 70 | 22 | 117 | 0.1880 | 0.1072 | 0.2000 | 0.2000 | 23 | 23 |
| 71 | 22 | 94 | 0.2340 | 0.2599 | 0.2000 | 0.2000 | 19 | 19 |
| 72 | 8 | 65 | 0.1231 | 0.0922 | 0.1800 | 0.1500 | 12 | 10 |
| 73 | 10 | 56 | 0.1786 | 0.1911 | 0.1800 | 0.1500 | 10 | 8 |
| 74 | 7 | 42 | 0.1667 | 0.0830 | 0.1800 | 0.1500 | 8 | 6 |
| Sub Totals | 590 | 3,031 | 0.1947 | 0.1406 | 0.1824 | 0.1617 | 553 | 490 |
| 75 & Over | 28 | 139 | 0.2014 | 0.1702 | | | 139 | 139 |
| Total | 618 | 3,170 | 0.1950 | 0.1423 | | | 692 | 629 |

* Based on 2009 and 2010 retirements only.

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.1947 | 0.1617 |
| Previous Investigation Results | | |
| 2006-2008 | 0.1712 | 0.1789 |
| 2003-2005 | 0.1698 | 0.1809 |
| 2000-2002 | 0.2033 | 0.2022 |
| 1997-1999 | 0.2229 | 0.2158 |

UNIVERSITY MALES EARLY RETIREMENT EXPERIENCE

Male Age-Based Early Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates | | Expected Retirements | |
|--------|-------------|----------|---------------------------|--------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 55 | 21 | 809 | 0.0260 | 0.0463 | 0.0500 | 0.0475 | 40 | 38 |
| 56 | 16 | 811 | 0.0197 | 0.0184 | 0.0450 | 0.0300 | 38 | 24 |
| 57 | 19 | 712 | 0.0267 | 0.0175 | 0.0250 | 0.0200 | 19 | 14 |
| 58 | 15 | 689 | 0.0218 | 0.0177 | 0.0350 | 0.0250 | 24 | 17 |
| 59 | 33 | 656 | 0.0503 | 0.0363 | 0.0400 | 0.0400 | 25 | 26 |
| 60 | 21 | 568 | 0.0370 | 0.0222 | 0.0550 | 0.0400 | 31 | 23 |
| 61 | 20 | 484 | 0.0413 | 0.0443 | 0.0750 | 0.0750 | 36 | 36 |
| 62 | 25 | 444 | 0.0563 | 0.0407 | 0.1000 | 0.0700 | 44 | 31 |
| 63 | 35 | 418 | 0.0837 | 0.0534 | 0.0950 | 0.0750 | 39 | 31 |
| 64 | 34 | 347 | 0.0980 | 0.0757 | 0.0850 | 0.0800 | 29 | 28 |
| Totals | 239 | 5,938 | 0.0402 | 0.0336 | 0.0547 | 0.0451 | 325 | 268 |

* Based on 2009 and 2010 retirements only.

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0402 | 0.0451 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0507 | 0.0539 |
| 2003-2005 | 0.0498 | 0.0520 |
| 2000-2002 | 0.0547 | 0.0541 |
| 1997-1999 | 0.0408 | 0.0500 |

**UNIVERSITY FEMALES
NORMAL RETIREMENT EXPERIENCE**

Female Age-Based Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates* | Sample Rates | | Expected Retirements | |
|-----------|-------------|----------|---------------------------|---------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 57 | 16 | 103 | 0.1553 | 0.1058 | 0.1700 | 0.1400 | 17 | 14 |
| 58 | 22 | 115 | 0.1913 | 0.1766 | 0.1400 | 0.1400 | 16 | 16 |
| 59 | 16 | 116 | 0.1379 | 0.0985 | 0.1400 | 0.1300 | 17 | 15 |
| 60 | 22 | 114 | 0.1930 | 0.1254 | 0.1400 | 0.1300 | 16 | 15 |
| 61 | 24 | 102 | 0.2353 | 0.1669 | 0.2200 | 0.1900 | 23 | 19 |
| 62 | 21 | 81 | 0.2593 | 0.1741 | 0.2000 | 0.1900 | 17 | 15 |
| 63 | 20 | 75 | 0.2667 | 0.0995 | 0.2000 | 0.1900 | 15 | 14 |
| 64 | 13 | 67 | 0.1940 | 0.1319 | 0.2000 | 0.1800 | 13 | 12 |
| 65 | 73 | 283 | 0.2580 | 0.2352 | 0.2200 | 0.2200 | 61 | 62 |
| 66 | 48 | 189 | 0.2540 | 0.2091 | 0.2000 | 0.2300 | 38 | 43 |
| 67 | 26 | 122 | 0.2131 | 0.1574 | 0.1800 | 0.1700 | 23 | 21 |
| 68 | 12 | 90 | 0.1333 | 0.1648 | 0.1800 | 0.1700 | 17 | 15 |
| 69 | 16 | 77 | 0.2078 | 0.1020 | 0.1800 | 0.1700 | 14 | 13 |
| 70 | 17 | 63 | 0.2698 | 0.2672 | 0.1800 | 0.2000 | 12 | 13 |
| 71 | 10 | 40 | 0.2500 | 0.1262 | 0.1800 | 0.2000 | 7 | 8 |
| 72 | 4 | 23 | 0.1739 | 0.0562 | 0.1800 | 0.2000 | 4 | 5 |
| 73 | 5 | 14 | 0.3571 | 0.6844 | 0.1800 | 0.2000 | 3 | 3 |
| 74 | 3 | 10 | 0.3000 | 0.2536 | 0.1800 | 0.2000 | 2 | 2 |
| Totals | 368 | 1,684 | 0.2185 | 0.1599 | 0.1871 | 0.1811 | 315 | 305 |
| 75 & Over | 8 | 44 | 0.1818 | 0.0960 | | | 44 | 44 |
| Total | 376 | 1,728 | 0.2176 | 0.1568 | | | 359 | 349 |

* Based on 2009 and 2010 retirements only.

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.2185 | 0.1811 |
| Previous Investigation Results | | |
| 2006-2008 | 0.1840 | 0.1831 |
| 2003-2005 | 0.1777 | 0.1901 |
| 2000-2002 | 0.1964 | 0.2296 |
| 1997-1999 | 0.2722 | 0.0257 |

**UNIVERSITY FEMALES
EARLY RETIREMENT EXPERIENCE**

Female Age-Based Early Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates* | Sample Rates | | Expected Retirements | |
|--------|-------------|----------|---------------------------|---------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 55 | 25 | 785 | 0.0318 | 0.0479 | 0.0600 | 0.0550 | 47 | 43 |
| 56 | 43 | 804 | 0.0535 | 0.0480 | 0.0600 | 0.0550 | 48 | 44 |
| 57 | 18 | 698 | 0.0258 | 0.0218 | 0.0600 | 0.0400 | 40 | 28 |
| 58 | 34 | 654 | 0.0520 | 0.0230 | 0.0600 | 0.0400 | 39 | 26 |
| 59 | 34 | 574 | 0.0592 | 0.0661 | 0.0600 | 0.0650 | 38 | 37 |
| 60 | 36 | 502 | 0.0717 | 0.0444 | 0.0700 | 0.0650 | 40 | 33 |
| 61 | 37 | 448 | 0.0826 | 0.0725 | 0.0750 | 0.0750 | 34 | 34 |
| 62 | 39 | 388 | 0.1005 | 0.0674 | 0.1400 | 0.1000 | 56 | 39 |
| 63 | 45 | 325 | 0.1385 | 0.0682 | 0.1400 | 0.1000 | 46 | 33 |
| 64 | 44 | 278 | 0.1583 | 0.1091 | 0.1600 | 0.1300 | 44 | 36 |
| Totals | 355 | 5,456 | 0.0651 | 0.0515 | 0.0792 | 0.0647 | 432 | 353 |

* Based on 2009 and 2010 retirements only.

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0651 | 0.0647 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0682 | 0.0748 |
| 2003-2005 | 0.0803 | 0.0767 |
| 2000-2002 | 0.0667 | 0.0689 |
| 1997-1999 | 0.0680 | 0.0750 |

**PROTECTIVE WITH SOCIAL SECURITY
NORMAL RETIREMENT EXPERIENCE**

Male and Female Age-Based Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates* | Sample Rates | | Expected Retirements | |
|-----------|-------------|----------|---------------------------|---------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 50 | 51 | 947 | 0.0539 | 0.0487 | 0.0750 | 0.0600 | 72 | 57 |
| 51 | 80 | 947 | 0.0845 | 0.0630 | 0.0800 | 0.0700 | 76 | 66 |
| 52 | 92 | 954 | 0.0964 | 0.0769 | 0.0850 | 0.0800 | 79 | 76 |
| 53 | 179 | 945 | 0.1894 | 0.1727 | 0.2800 | 0.2300 | 271 | 217 |
| 54 | 196 | 1,212 | 0.1617 | 0.1675 | 0.2000 | 0.1800 | 242 | 218 |
| 55 | 149 | 1,017 | 0.1465 | 0.1456 | 0.1700 | 0.1700 | 182 | 173 |
| 56 | 125 | 831 | 0.1504 | 0.1683 | 0.1700 | 0.1600 | 144 | 133 |
| 57 | 103 | 703 | 0.1465 | 0.1382 | 0.1700 | 0.1600 | 122 | 112 |
| 58 | 76 | 595 | 0.1277 | 0.1028 | 0.1700 | 0.1600 | 103 | 95 |
| 59 | 80 | 523 | 0.1530 | 0.1307 | 0.1700 | 0.1600 | 90 | 84 |
| 60 | 74 | 418 | 0.1770 | 0.1965 | 0.1700 | 0.1800 | 72 | 75 |
| 61 | 68 | 307 | 0.2215 | 0.1682 | 0.2000 | 0.1800 | 60 | 55 |
| 62 | 61 | 244 | 0.2500 | 0.2333 | 0.2000 | 0.2200 | 49 | 54 |
| 63 | 52 | 183 | 0.2842 | 0.2796 | 0.3000 | 0.2900 | 55 | 53 |
| 64 | 29 | 124 | 0.2339 | 0.1400 | 0.1800 | 0.1600 | 23 | 20 |
| 65 | 34 | 89 | 0.3820 | 0.3948 | 0.3000 | 0.3000 | 27 | 27 |
| 66 | 21 | 46 | 0.4565 | 0.1561 | 0.3000 | 0.2000 | 13 | 9 |
| 67 | 6 | 20 | 0.3000 | 0.1499 | 0.2300 | 0.1500 | 5 | 3 |
| 68 | 5 | 15 | 0.3333 | 0.5014 | 0.2300 | 0.2500 | 4 | 4 |
| 69 | 3 | 11 | 0.2727 | 0.1427 | 0.2000 | 0.2000 | 2 | 2 |
| 70 | 4 | 13 | 0.3077 | 0.6516 | 1.0000 | 1.0000 | 13 | 13 |
| 71 | 1 | 7 | 0.1429 | 0.5500 | 1.0000 | 1.0000 | 7 | 7 |
| 72 | 1 | 4 | 0.2500 | N\A | 1.0000 | 1.0000 | 4 | 4 |
| 73 | 1 | - | N\A | N\A | 1.0000 | 1.0000 | - | - |
| 74 | - | 1 | 0.0000 | 0.0000 | 1.0000 | 1.0000 | 1 | 1 |
| Totals | 1,491 | 10,156 | 0.1468 | 0.1288 | 0.1690 | 0.1534 | 1,716 | 1,558 |
| 75 & Over | - | 2 | 0.0000 | 0.0000 | | | 2 | 2 |
| Total | 1,491 | 10,158 | 0.1468 | 0.1288 | | | 1,718 | 1,560 |

* Based on 2009 and 2010 retirements only.

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.1468 | 0.1534 |
| Previous Investigation Results | | |
| 2006-2008 | 0.1220 | 0.1579 |
| 2003-2005 | 0.1447 | 0.1619 |
| 2000-2002 | 0.1434 | 0.1566 |
| 1997-1999 | 0.1715 | 0.1509 |

PROTECTIVE WITHOUT SOCIAL SECURITY NORMAL RETIREMENT EXPERIENCE

Male and Female Age-Based Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates* | Sample Rates | | Expected Retirements | |
|-----------|-------------|----------|---------------------------------|---------------------------------|--------------|----------|-------------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 50 | 4 | 219 | 0.0183 | 0.0089 | 0.0350 | 0.0350 | 7 | 8 |
| 51 | 7 | 213 | 0.0329 | 0.0394 | 0.0350 | 0.0375 | 7 | 8 |
| 52 | 8 | 206 | 0.0388 | 0.0320 | 0.0600 | 0.0450 | 13 | 9 |
| 53 | 25 | 208 | 0.1202 | 0.1033 | 0.2300 | 0.1700 | 49 | 35 |
| 54 | 44 | 217 | 0.2028 | 0.2180 | 0.2800 | 0.2500 | 62 | 54 |
| 55 | 24 | 157 | 0.1529 | 0.1346 | 0.2800 | 0.2100 | 45 | 33 |
| 56 | 29 | 139 | 0.2086 | 0.2525 | 0.2800 | 0.2700 | 40 | 38 |
| 57 | 10 | 94 | 0.1064 | 0.1160 | 0.3700 | 0.3000 | 34 | 28 |
| 58 | 19 | 71 | 0.2676 | 0.2898 | 0.3200 | 0.3000 | 22 | 21 |
| 59 | 8 | 44 | 0.1818 | 0.1685 | 0.3500 | 0.3000 | 13 | 13 |
| 60 | 7 | 22 | 0.3182 | 0.3070 | 0.2200 | 0.2600 | 5 | 6 |
| 61 | 2 | 9 | 0.2222 | 0.0000 | 0.1500 | 0.1500 | 1 | 1 |
| 62 | - | 8 | 0.0000 | 0.0000 | 0.2000 | 0.2000 | 2 | 2 |
| 63 | 3 | 10 | 0.3000 | 0.2771 | 0.2000 | 0.4000 | 2 | 4 |
| 64 | 2 | 9 | 0.2222 | 0.6864 | 0.2000 | 0.4000 | 2 | 4 |
| 65 | 1 | 2 | 0.5000 | 0.0000 | 0.4000 | 0.4000 | 1 | 1 |
| 66 | 2 | 2 | 1.0000 | 1.0000 | 0.4000 | 0.4000 | 1 | 1 |
| 67 | - | - | N\A | N\A | 0.4000 | 0.4000 | - | - |
| 68 | - | - | N\A | N\A | 0.4000 | 0.4000 | - | - |
| 69 | - | - | N\A | N\A | 0.4000 | 0.4000 | - | - |
| 70 | - | - | N\A | N\A | 1.0000 | 1.0000 | - | - |
| 71 | - | - | N\A | N\A | 1.0000 | 1.0000 | - | - |
| 72 | - | - | N\A | N\A | 1.0000 | 1.0000 | - | - |
| 73 | - | - | N\A | N\A | 1.0000 | 1.0000 | - | - |
| 74 | - | - | N\A | N\A | 1.0000 | 1.0000 | - | - |
| Totals | 195 | 1,630 | 0.1196 | 0.1189 | 0.1882 | 0.1632 | 307 | 266 |
| 75 & Over | - | - | N\A | N\A | | | - | - |
| Total | 195 | 1,630 | 0.1196 | 0.1189 | | | 307 | 266 |

* Based on 2009 and 2010 retirements only.

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.1196 | 0.1632 |
| Previous Investigation Results | | |
| 2006-2008 | 0.1487 | 0.1766 |
| 2003-2005 | 0.1372 | 0.1606 |
| 2000-2002 | 0.1870 | 0.1863 |
| 1997-1999 | 0.1989 | 0.1679 |

**EXECUTIVE AND ELECTIVE
NORMAL RETIREMENT EXPERIENCE**

Male and Female Age-Based Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates* | Sample Rates | | Expected Retirements | |
|-----------|-------------|----------|---------------------------------|---------------------------------|--------------|----------|-------------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 57 | 4 | 39 | 0.1026 | 0.0288 | 0.1700 | 0.1500 | 6 | 5 |
| 58 | 4 | 38 | 0.1053 | 0.0748 | 0.1700 | 0.1500 | 6 | 6 |
| 59 | 6 | 35 | 0.1714 | 0.1283 | 0.1700 | 0.1500 | 6 | 5 |
| 60 | 7 | 30 | 0.2333 | 0.0938 | 0.1100 | 0.1000 | 4 | 3 |
| 61 | 9 | 36 | 0.2500 | 0.1489 | 0.1100 | 0.1300 | 5 | 5 |
| 62 | 21 | 163 | 0.1288 | 0.1580 | 0.1100 | 0.1300 | 18 | 21 |
| 63 | 18 | 156 | 0.1154 | 0.1256 | 0.1100 | 0.1200 | 17 | 19 |
| 64 | 12 | 137 | 0.0876 | 0.1231 | 0.0800 | 0.1200 | 11 | 16 |
| 65 | 17 | 115 | 0.1478 | 0.1522 | 0.0800 | 0.1200 | 9 | 14 |
| 66 | 15 | 93 | 0.1613 | 0.1336 | 0.2000 | 0.2000 | 19 | 19 |
| 67 | 17 | 80 | 0.2125 | 0.2979 | 0.1700 | 0.1700 | 14 | 14 |
| 68 | 4 | 58 | 0.0690 | 0.0000 | 0.1700 | 0.1500 | 10 | 9 |
| 69 | 5 | 51 | 0.0980 | 0.1437 | 0.1700 | 0.1500 | 9 | 8 |
| 70 | 3 | 47 | 0.0638 | 0.1236 | 0.1500 | 0.1300 | 7 | 6 |
| 71 | 4 | 39 | 0.1026 | 0.1138 | 0.1500 | 0.1300 | 6 | 5 |
| 72 | 6 | 37 | 0.1622 | 0.5774 | 0.1500 | 0.2500 | 6 | 9 |
| 73 | 2 | 19 | 0.1053 | 0.0000 | 0.1000 | 0.1000 | 2 | 2 |
| 74 | 2 | 20 | 0.1000 | 0.0000 | 0.1000 | 0.1000 | 2 | 2 |
| Totals | 160 | 1,193 | 0.1341 | 0.1515 | 0.1312 | 0.1408 | 157 | 168 |
| 75 & Over | 12 | 122 | 0.0984 | 0.0666 | | | 122 | 122 |
| Total | 172 | 1,315 | 0.1308 | 0.1470 | | | 279 | 290 |

* Based on 2009 and 2010 retirements only.

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.1341 | 0.1408 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0892 | 0.1278 |
| 2003-2005 | 0.1204 | 0.1299 |
| 2000-2002 | 0.0972 | 0.1769 |
| 1997-1999 | 0.1221 | 0.1769 |

EXECUTIVE AND ELECTIVE EARLY RETIREMENT EXPERIENCE

Male and Female Age-Based Early Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates* | Sample Rates | | Expected Retirements | |
|--------|-------------|----------|---------------------------------|---------------------------------|--------------|----------|-------------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 55 | 3 | 132 | 0.0227 | 0.0103 | 0.0550 | 0.0450 | 7 | 6 |
| 56 | 7 | 134 | 0.0522 | 0.0163 | 0.0550 | 0.0450 | 7 | 6 |
| 57 | 4 | 118 | 0.0339 | 0.0058 | 0.0550 | 0.0450 | 6 | 5 |
| 58 | 9 | 123 | 0.0732 | 0.0750 | 0.0550 | 0.0450 | 7 | 6 |
| 59 | 4 | 126 | 0.0317 | 0.0216 | 0.0550 | 0.0450 | 7 | 6 |
| 60 | 8 | 132 | 0.0606 | 0.0266 | 0.0550 | 0.0450 | 7 | 6 |
| 61 | 8 | 113 | 0.0708 | 0.1096 | 0.0550 | 0.0450 | 6 | 5 |
| 62 | - | 26 | 0.0000 | 0.0000 | 0.0550 | 0.0450 | 1 | 1 |
| 63 | 1 | 26 | 0.0385 | 0.1781 | 0.0550 | 0.0450 | 1 | 1 |
| 64 | - | 28 | 0.0000 | 0.0000 | 0.0550 | 0.0450 | 2 | 1 |
| Totals | 44 | 958 | 0.0459 | 0.0391 | 0.0532 | 0.0449 | 51 | 43 |

* Based on 2009 and 2010 retirements only.

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0459 | 0.0449 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0517 | 0.0537 |
| 2003-2005 | 0.0595 | 0.0551 |
| 2000-2002 | 0.0411 | 0.0437 |
| 1997-1999 | 0.0490 | 0.0600 |

SECTION E

MORTALITY EXPERIENCE

**MALE RETIRED-LIFE MORTALITY EXPERIENCE
(NORMAL RETIREMENT, ORIGINAL ANNUITANTS ONLY)**

| Age | Life Years Exposure | Post - Retirement Death | | | Post - Retirement Death Rates | | | A/E Ratio | |
|---------------|---------------------------|-------------------------|--------------|--------------|-------------------------------|---------------|---------------|---------------|---------------|
| | | Actual Experience | Expected | | Actual | Expected | | Present | Proposed |
| | | | Present | Proposed | | Present | Proposed | | |
| 55-59 | 18,668 | 93.0 | 96.0 | 93.0 | 0.0050 | 0.0051 | 0.0050 | 0.9688 | 1.0000 |
| 60-64 | 41,630 | 277.0 | 294.0 | 278.0 | 0.0067 | 0.0071 | 0.0067 | 0.9422 | 0.9964 |
| 65-69 | 41,395 | 481.0 | 488.0 | 447.0 | 0.0116 | 0.0118 | 0.0108 | 0.9857 | 1.0761 |
| 70-74 | 32,286 | 616.0 | 665.0 | 576.0 | 0.0191 | 0.0206 | 0.0178 | 0.9263 | 1.0694 |
| 75-79 | 25,542 | 849.0 | 984.0 | 798.0 | 0.0332 | 0.0385 | 0.0312 | 0.8628 | 1.0639 |
| 80-84 | 18,309 | 1,159.0 | 1,217.0 | 1,063.0 | 0.0633 | 0.0665 | 0.0581 | 0.9523 | 1.0903 |
| 85-89 | 9,957 | 1,160.0 | 1,114.0 | 1,039.0 | 0.1165 | 0.1119 | 0.1043 | 1.0413 | 1.1165 |
| 90-94 | 3,504 | 658.0 | 633.0 | 608.0 | 0.1878 | 0.1807 | 0.1735 | 1.0395 | 1.0822 |
| 95-99 | 743 | 248.0 | 186.0 | 216.0 | 0.3338 | 0.2503 | 0.2907 | 1.3333 | 1.1481 |
| Totals | 194,262 | 5,551 | 5,685 | 5,125 | 0.0286 | 0.0293 | 0.0264 | 0.9764 | 1.0831 |

| | | |
|---------------------------------------|--------|--------|
| Current | 0.0286 | 0.0264 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0280 | 0.0281 |
| 2003-2005 | 0.0296 | 0.0296 |
| 2000-2002 | 0.0322 | 0.0356 |
| 1997-1999 | 0.0352 | |
| 1994-1996 | 0.0375 | |
| 1991-1993 | 0.0365 | |
| 1988-1990 | 0.0372 | |
| 1985-1987 | 0.0393 | |
| 1982-1984 | 0.0430 | |
| 1979-1981 | 0.0489 | |

**FEMALE RETIRED-LIFE MORTALITY EXPERIENCE
(NORMAL RETIREMENT, ORIGINAL ANNUITANTS ONLY)**

| Age | Life Years Exposure | Post - Retirement Death | | | Post - Retirement Death Rates | | | A/E Ratio | |
|---------------|---------------------|-------------------------|--------------|----------------|-------------------------------|---------------|---------------|---------------|---------------|
| | | Actual Experience | Expected | | Actual | Expected | | Present | Proposed |
| | | | Present | Proposed | | Present | Proposed | | |
| 55-59 | 23,575 | 68 | 86.0 | 70.0 | 0.0029 | 0.0036 | 0.0030 | 0.7907 | 0.9714 |
| 60-64 | 51,962 | 227 | 268.0 | 219.0 | 0.0044 | 0.0052 | 0.0042 | 0.8470 | 1.0365 |
| 65-69 | 49,178 | 339 | 385.0 | 325.0 | 0.0069 | 0.0078 | 0.0066 | 0.8805 | 1.0431 |
| 70-74 | 38,804 | 478 | 531.0 | 453.0 | 0.0123 | 0.0137 | 0.0117 | 0.9002 | 1.0552 |
| 75-79 | 30,580 | 688 | 742.0 | 656.0 | 0.0225 | 0.0243 | 0.0215 | 0.9272 | 1.0488 |
| 80-84 | 24,795 | 1,058 | 1,097.0 | 1,010.0 | 0.0427 | 0.0442 | 0.0407 | 0.9644 | 1.0475 |
| 85-89 | 17,003 | 1,503 | 1,410.0 | 1,368.0 | 0.0884 | 0.0829 | 0.0805 | 1.0660 | 1.0987 |
| 90-94 | 8,829 | 1,285 | 1,275.0 | 1,209.0 | 0.1455 | 0.1444 | 0.1369 | 1.0078 | 1.0629 |
| 95-99 | 2,593 | 697 | 586.0 | 613.0 | 0.2688 | 0.2260 | 0.2364 | 1.1894 | 1.1370 |
| Totals | 247,319 | 6,343 | 6,380 | 5,923.0 | 0.0256 | 0.0258 | 0.0239 | 0.9942 | 1.0709 |

| | | |
|---------------------------------------|--------|--------|
| Current | 0.0256 | 0.0239 |
| Previous Investigation Results | | |
| 2006-2008 | 0.0267 | 0.0267 |
| 2003-2005 | 0.0271 | 0.0271 |
| 2000-2002 | 0.0320 | 0.0314 |
| 1997-1999 | 0.0330 | |
| 1994-1996 | 0.0321 | |
| 1991-1993 | 0.0302 | |
| 1988-1990 | 0.0295 | |
| 1985-1987 | 0.0284 | |
| 1982-1984 | 0.0267 | |
| 1979-1981 | 0.0273 | |

**MALE RETIRED-LIFE MORTALITY EXPERIENCE
(DISABLED RETIREMENT, ORIGINAL ANNUITANTS ONLY)**

| Age | Life Years Exposure | Post - Retirement Death | | | Post - Retirement Death Rates | | | A/E Ratio | |
|---------------|---------------------------|-------------------------|--------------|--------------|-------------------------------|---------------|---------------|---------------|---------------|
| | | Actual Experience | Expected | | Actual | Expected | | Present | Proposed |
| | | | Present | Proposed | | Present | Proposed | | |
| 50-54 | 688 | 25 | 6.0 | 4.0 | 0.0363 | 0.0080 | 0.0056 | 4.1667 | 6.2500 |
| 55-59 | 1,359 | 35 | 18.0 | 11.0 | 0.0258 | 0.0132 | 0.0083 | 1.9444 | 3.1818 |
| 60-64 | 1,619 | 50 | 29.0 | 23.0 | 0.0309 | 0.0178 | 0.0142 | 1.7241 | 2.1739 |
| 65-69 | 1,379 | 42 | 43.0 | 33.0 | 0.0305 | 0.0313 | 0.0238 | 0.9767 | 1.2727 |
| 70-74 | 1,112 | 52 | 60.0 | 48.0 | 0.0468 | 0.0535 | 0.0430 | 0.8667 | 1.0833 |
| 75-79 | 857 | 74 | 88.0 | 69.0 | 0.0863 | 0.1028 | 0.0808 | 0.8409 | 1.0725 |
| 80-84 | 506 | 52 | 90.0 | 71.0 | 0.1028 | 0.1780 | 0.1410 | 0.5778 | 0.7324 |
| 85-89 | 243 | 41 | 74.0 | 57.0 | 0.1687 | 0.3062 | 0.2364 | 0.5541 | 0.7193 |
| 90-94 | 37 | 5 | 19.0 | 13.0 | 0.1351 | 0.5082 | 0.3516 | 0.2632 | 0.3846 |
| 95-99 | 6 | 1 | 4.0 | 2.0 | 0.1667 | 0.6991 | 0.3920 | 0.2500 | 0.5000 |
| 100 & Up | 8 | 0 | 7.0 | 3.0 | 0.0000 | 0.9092 | 0.4000 | 0.0000 | 0.0000 |
| Totals | 7,814 | 377 | 438.0 | 334.0 | 0.0482 | 0.0561 | 0.0427 | 0.8607 | 1.1287 |

**FEMALE RETIRED-LIFE MORTALITY EXPERIENCE
(DISABLED RETIREMENT, ORIGINAL ANNUITANTS ONLY)**

| Age | Life Years Exposure | Post - Retirement Death | | | Post - Retirement Death Rates | | | A/E Ratio | |
|---------------|---------------------------|-------------------------|--------------|--------------|-------------------------------|---------------|---------------|---------------|---------------|
| | | Actual Experience | Expected | | Actual | Expected | | Present | Proposed |
| | | | Present | Proposed | | Present | Proposed | | |
| 50-54 | 959 | 15 | 3.0 | 3.0 | 0.0156 | 0.0034 | 0.0031 | 5.0000 | 5.0000 |
| 55-59 | 1,999 | 38 | 14.0 | 10.0 | 0.0190 | 0.0072 | 0.0048 | 2.7143 | 3.8000 |
| 60-64 | 2,233 | 49 | 24.0 | 17.0 | 0.0219 | 0.0106 | 0.0077 | 2.0417 | 2.8824 |
| 65-69 | 1,784 | 41 | 28.0 | 25.0 | 0.0230 | 0.0159 | 0.0139 | 1.4643 | 1.6400 |
| 70-74 | 1,553 | 37 | 44.0 | 40.0 | 0.0238 | 0.0286 | 0.0256 | 0.8409 | 0.9250 |
| 75-79 | 1,167 | 54 | 60.0 | 58.0 | 0.0463 | 0.0511 | 0.0494 | 0.9000 | 0.9310 |
| 80-84 | 850 | 55 | 79.0 | 83.0 | 0.0647 | 0.0927 | 0.0977 | 0.6962 | 0.6627 |
| 85-89 | 462 | 53 | 80.0 | 76.0 | 0.1147 | 0.1739 | 0.1645 | 0.6625 | 0.6974 |
| 90-94 | 164 | 31 | 51.0 | 45.0 | 0.1890 | 0.3135 | 0.2768 | 0.6078 | 0.6889 |
| 95-99 | 25 | 13 | 12.0 | 8.0 | 0.5200 | 0.4857 | 0.3158 | 1.0833 | 1.6250 |
| 100 & Up | 15 | 2 | 12.0 | 5.0 | 0.1333 | 0.7937 | 0.3426 | 0.1667 | 0.4000 |
| Totals | 11,211 | 388 | 407.0 | 370.0 | 0.0346 | 0.0363 | 0.0330 | 0.9533 | 1.0486 |

MALE DEATH-IN-SERVICE EXPERIENCE

| Age | Deaths | Exposure | Crude Rates | Sample Rates* | | Expected Deaths | |
|-------------|--------|----------|-------------|---------------|--------|-----------------|-----|
| | | | | Old | New | Old | New |
| Under 20 | - | 174 | 0.0000 | 0.0002 | 0.0001 | - | - |
| 20-24 | 3 | 5,863 | 0.0005 | 0.0003 | 0.0002 | 2 | 1 |
| 25-29 | 6 | 21,715 | 0.0003 | 0.0003 | 0.0002 | 7 | 4 |
| 30-34 | 12 | 29,140 | 0.0004 | 0.0004 | 0.0003 | 11 | 9 |
| 35-39 | 11 | 36,981 | 0.0003 | 0.0004 | 0.0005 | 15 | 17 |
| 40-44 | 15 | 40,000 | 0.0004 | 0.0006 | 0.0006 | 23 | 24 |
| 45-49 | 50 | 46,387 | 0.0011 | 0.0009 | 0.0008 | 41 | 38 |
| 50-54 | 85 | 50,595 | 0.0017 | 0.0015 | 0.0014 | 77 | 71 |
| 55-59 | 104 | 41,934 | 0.0025 | 0.0025 | 0.0027 | 102 | 109 |
| 60-64 | 74 | 17,826 | 0.0042 | 0.0033 | 0.0035 | 60 | 62 |
| 65-69 | 33 | 4,777 | 0.0069 | 0.0059 | 0.0060 | 27 | 27 |
| 70-74 | 26 | 1,750 | 0.0149 | 0.0100 | 0.0097 | 17 | 17 |
| 75 and over | 19 | 890 | 0.0213 | 0.0193 | 0.0170 | 19 | 18 |
| Totals | 438 | 298,032 | 0.0015 | 0.0013 | 0.0013 | 401 | 397 |

* Sample rates are taken from midpoint of age group.

FEMALE DEATH-IN-SERVICE EXPERIENCE

| Age | Deaths | Exposure | Crude Rates | Sample Rates* | | Expected Deaths | |
|-------------|--------|----------|-------------|---------------|--------|-----------------|-----|
| | | | | Old | New | Old | New |
| Under 20 | - | 445 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 20-24 | 2 | 10,694 | 0.0002 | 0.0001 | 0.0001 | 1 | 1 |
| 25-29 | 2 | 38,573 | 0.0001 | 0.0001 | 0.0001 | 4 | 4 |
| 30-34 | 4 | 44,157 | 0.0001 | 0.0002 | 0.0002 | 7 | 8 |
| 35-39 | 14 | 53,793 | 0.0003 | 0.0002 | 0.0003 | 12 | 14 |
| 40-44 | 31 | 65,189 | 0.0005 | 0.0003 | 0.0004 | 23 | 26 |
| 45-49 | 72 | 79,326 | 0.0009 | 0.0005 | 0.0006 | 40 | 48 |
| 50-54 | 61 | 84,179 | 0.0007 | 0.0008 | 0.0009 | 70 | 81 |
| 55-59 | 104 | 69,633 | 0.0015 | 0.0017 | 0.0016 | 115 | 107 |
| 60-64 | 76 | 28,470 | 0.0027 | 0.0025 | 0.0023 | 70 | 63 |
| 65-69 | 22 | 6,762 | 0.0033 | 0.0038 | 0.0036 | 25 | 23 |
| 70-74 | 11 | 1,937 | 0.0057 | 0.0068 | 0.0064 | 13 | 12 |
| 75 and over | 11 | 790 | 0.0139 | 0.0122 | 0.0116 | 10 | 10 |
| Totals | 410 | 483,948 | 0.0008 | 0.0008 | 0.0008 | 390 | 397 |

* Sample rates are taken from midpoint of age group.

SECTION F

COMPLETE LISTS OF PROPOSED DECREMENT ASSUMPTIONS

**ACTUARIAL ASSUMPTIONS
BASED ON 2009-2011 EXPERIENCE STUDY**

Select and Ultimate Withdrawal

| Age | Service | % of Active Participants Withdrawing | | | | | | | | |
|----------|---------|--------------------------------------|--------|----------------|--------|------------|--------|------------|------------|---------------------|
| | | General | | Public Schools | | University | | Protective | | Executive & Elected |
| | | Male | Female | Male | Female | Male | Female | With SS | Without SS | |
| Under 30 | 0-1 | 17.5% | 19.5% | 17.7% | 15.0% | 18.3% | 22.0% | 15.0% | 4.0% | 20.0% |
| | 1-2 | 13.0% | 13.5% | 11.4% | 10.5% | 15.0% | 15.0% | 7.0% | 3.5% | 14.0% |
| | 2-3 | 8.5% | 10.0% | 7.3% | 7.1% | 11.3% | 12.5% | 4.3% | 2.1% | 14.0% |
| | 3-4 | 6.8% | 8.0% | 5.2% | 5.5% | 9.6% | 10.0% | 3.8% | 1.3% | 10.0% |
| | 4-5 | 6.0% | 7.4% | 3.9% | 4.6% | 8.5% | 9.5% | 3.4% | 1.2% | 10.0% |
| | 5-6 | 4.5% | 6.0% | 3.0% | 4.0% | 7.5% | 8.0% | 2.6% | 1.1% | 9.0% |
| | 6-7 | 4.0% | 5.0% | 2.8% | 3.5% | 7.0% | 7.0% | 2.5% | 1.0% | 8.5% |
| | 7-8 | 3.5% | 4.5% | 2.5% | 3.0% | 5.5% | 6.0% | 2.3% | 0.9% | 8.0% |
| | 8-9 | 3.0% | 4.0% | 2.0% | 2.5% | 4.3% | 5.0% | 2.0% | 0.8% | 7.5% |
| | 9-10 | 2.5% | 3.8% | 1.8% | 2.3% | 3.2% | 4.0% | 1.7% | 0.7% | 7.0% |
| | 10 & Up | 2.5% | 3.3% | 1.4% | 1.9% | 3.2% | 4.5% | 1.6% | 0.7% | 5.1% |
| | 31 | 2.5% | 3.2% | 1.3% | 1.8% | 3.2% | 4.4% | 1.5% | 0.7% | 4.8% |
| | 32 | 2.5% | 3.0% | 1.2% | 1.7% | 3.2% | 4.2% | 1.5% | 0.7% | 4.5% |
| | 33 | 2.4% | 2.9% | 1.2% | 1.6% | 3.2% | 4.1% | 1.5% | 0.7% | 4.4% |
| | 34 | 2.2% | 2.8% | 1.2% | 1.5% | 3.2% | 4.1% | 1.4% | 0.7% | 4.3% |
| | 35 | 2.1% | 2.8% | 1.2% | 1.4% | 3.1% | 4.0% | 1.4% | 0.7% | 4.2% |
| | 36 | 1.9% | 2.7% | 1.2% | 1.3% | 3.1% | 4.0% | 1.3% | 0.7% | 4.1% |
| | 37 | 1.8% | 2.6% | 1.2% | 1.2% | 3.1% | 3.9% | 1.3% | 0.7% | 4.0% |
| | 38 | 1.7% | 2.5% | 1.1% | 1.2% | 3.0% | 3.7% | 1.3% | 0.6% | 3.9% |
| | 39 | 1.7% | 2.4% | 1.1% | 1.1% | 2.9% | 3.6% | 1.2% | 0.6% | 3.8% |
| | 40 | 1.6% | 2.2% | 1.1% | 1.1% | 2.7% | 3.4% | 1.2% | 0.6% | 3.7% |
| | 41 | 1.6% | 2.1% | 1.1% | 1.0% | 2.6% | 3.3% | 1.1% | 0.6% | 3.6% |
| | 42 | 1.5% | 2.0% | 1.1% | 1.0% | 2.5% | 3.1% | 1.1% | 0.6% | 3.5% |
| | 43 | 1.4% | 1.9% | 1.0% | 0.9% | 2.4% | 2.9% | 1.1% | 0.6% | 3.4% |
| | 44 | 1.4% | 1.9% | 1.0% | 0.9% | 2.2% | 2.8% | 1.1% | 0.6% | 3.4% |
| | 45 | 1.3% | 1.8% | 1.0% | 0.9% | 2.1% | 2.6% | 1.1% | 0.6% | 3.3% |
| | 46 | 1.3% | 1.8% | 1.0% | 0.9% | 1.9% | 2.5% | 1.1% | 0.6% | 3.3% |
| 47 | 1.2% | 1.7% | 1.0% | 0.9% | 1.8% | 2.3% | 1.1% | 0.6% | 3.2% | |
| 48 | 1.2% | 1.7% | 1.0% | 0.9% | 1.7% | 2.1% | 1.0% | 0.5% | 3.2% | |
| 49 | 1.2% | 1.6% | 1.0% | 0.9% | 1.6% | 2.0% | 1.0% | 0.5% | 3.1% | |
| 50 | 1.1% | 1.6% | 1.0% | 0.9% | 1.6% | 1.8% | 1.0% | 0.5% | 3.1% | |
| 51 | 1.1% | 1.5% | 1.0% | 0.9% | 1.5% | 1.7% | 1.0% | 0.5% | 3.0% | |
| 52 | 1.1% | 1.5% | 1.0% | 0.9% | 1.4% | 1.5% | 1.0% | 0.5% | 3.0% | |
| 53 | 1.1% | 1.5% | 1.0% | 0.9% | 1.4% | 1.5% | 1.0% | 0.5% | 3.0% | |
| 54 | 1.1% | 1.5% | 1.0% | 0.9% | 1.4% | 1.5% | 1.0% | 0.5% | 3.0% | |

**ACTUARIAL ASSUMPTIONS
BASED ON 2009-201 EXPERIENCE STUDY**

Disability Rates

| Age | % of Active Participants Withdrawing | | | | | | | | Executive & Elected |
|-----|--------------------------------------|--------|----------------|--------|------------|--------|------------|---------------|---------------------------|
| | General | | Public Schools | | University | | Protective | | |
| | Male | Female | Male | Female | Male | Female | With SS | Without SS | |
| 20 | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.04% | 0.00% |
| 21 | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.04% | 0.00% |
| 22 | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.04% | 0.00% |
| 23 | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.04% | 0.00% |
| 24 | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.04% | 0.00% |
| 25 | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.04% | 0.00% |
| 26 | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.04% | 0.00% |
| 27 | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.04% | 0.00% |
| 28 | 0.01% | 0.02% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.04% | 0.00% |
| 29 | 0.01% | 0.02% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.04% | 0.00% |
| 30 | 0.01% | 0.03% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.04% | 0.00% |
| 31 | 0.01% | 0.03% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.04% | 0.00% |
| 32 | 0.01% | 0.03% | 0.01% | 0.01% | 0.01% | 0.01% | 0.01% | 0.04% | 0.00% |
| 33 | 0.01% | 0.03% | 0.01% | 0.01% | 0.01% | 0.02% | 0.02% | 0.04% | 0.00% |
| 34 | 0.01% | 0.04% | 0.01% | 0.01% | 0.01% | 0.02% | 0.02% | 0.04% | 0.00% |
| 35 | 0.01% | 0.04% | 0.01% | 0.01% | 0.01% | 0.03% | 0.02% | 0.04% | 0.01% |
| 36 | 0.01% | 0.04% | 0.01% | 0.01% | 0.01% | 0.03% | 0.03% | 0.05% | 0.01% |
| 37 | 0.02% | 0.04% | 0.01% | 0.01% | 0.01% | 0.04% | 0.03% | 0.05% | 0.01% |
| 38 | 0.02% | 0.04% | 0.01% | 0.01% | 0.01% | 0.04% | 0.03% | 0.05% | 0.01% |
| 39 | 0.03% | 0.05% | 0.02% | 0.02% | 0.01% | 0.04% | 0.03% | 0.06% | 0.01% |
| 40 | 0.04% | 0.05% | 0.02% | 0.02% | 0.01% | 0.04% | 0.03% | 0.07% | 0.01% |
| 41 | 0.05% | 0.06% | 0.02% | 0.03% | 0.01% | 0.04% | 0.03% | 0.07% | 0.01% |
| 42 | 0.05% | 0.06% | 0.02% | 0.03% | 0.01% | 0.05% | 0.04% | 0.08% | 0.01% |
| 43 | 0.06% | 0.06% | 0.03% | 0.05% | 0.02% | 0.04% | 0.04% | 0.10% | 0.01% |
| 44 | 0.07% | 0.07% | 0.04% | 0.05% | 0.02% | 0.04% | 0.04% | 0.11% | 0.01% |
| 45 | 0.07% | 0.07% | 0.04% | 0.06% | 0.02% | 0.04% | 0.05% | 0.13% | 0.01% |
| 46 | 0.07% | 0.08% | 0.05% | 0.08% | 0.03% | 0.04% | 0.05% | 0.14% | 0.02% |
| 47 | 0.07% | 0.08% | 0.05% | 0.10% | 0.03% | 0.04% | 0.06% | 0.16% | 0.02% |
| 48 | 0.10% | 0.09% | 0.06% | 0.10% | 0.03% | 0.05% | 0.06% | 0.35% | 0.02% |
| 49 | 0.13% | 0.10% | 0.08% | 0.11% | 0.03% | 0.06% | 0.07% | 0.54% | 0.02% |
| 50 | 0.15% | 0.11% | 0.11% | 0.12% | 0.04% | 0.07% | 0.08% | 0.74% | 0.02% |
| 51 | 0.17% | 0.12% | 0.14% | 0.13% | 0.04% | 0.08% | 0.08% | 0.93% | 0.03% |
| 52 | 0.20% | 0.13% | 0.18% | 0.14% | 0.05% | 0.09% | 0.09% | 1.12% | 0.03% |
| 53 | 0.23% | 0.15% | 0.18% | 0.14% | 0.07% | 0.09% | 0.46% | 0.93% | 0.05% |
| 54 | 0.25% | 0.18% | 0.19% | 0.16% | 0.09% | 0.10% | 0.84% | 0.74% | 0.08% |
| 55 | 0.29% | 0.20% | 0.21% | 0.17% | 0.11% | 0.10% | 1.21% | 0.54% | 0.09% |
| 56 | 0.32% | 0.22% | 0.22% | 0.19% | 0.13% | 0.11% | 1.59% | 0.35% | 0.11% |
| 57 | 0.35% | 0.25% | 0.23% | 0.21% | 0.15% | 0.12% | 1.96% | 0.16% | 0.12% |
| 58 | 0.39% | 0.27% | 0.27% | 0.23% | 0.15% | 0.13% | 1.99% | 0.16% | 0.12% |
| 59 | 0.43% | 0.27% | 0.31% | 0.24% | 0.14% | 0.14% | 2.02% | 0.16% | 0.11% |
| 60 | 0.51% | 0.29% | 0.34% | 0.25% | 0.14% | 0.15% | 2.04% | 0.16% | 0.11% |

**ACTUARIAL ASSUMPTIONS
BASED ON 2009-2011 EXPERIENCE STUDY**

Salary Scale – Service Based Rates

| Service | % Merit Increases in Salaries Next Year | | | | | |
|---------|---|------------------------|---------------------------|--------------------------|-----------------------------|---------------------------|
| | General (Not Including Schools) | University Teachers | Public School Teachers | Protective With SS | Protective Without SS | Executive & Elected |
| 1 | 3.5% | 3.2% | 5.8% | 4.8% | 5.5% | 2.0% |
| 2 | 3.5% | 3.2% | 5.8% | 4.8% | 5.5% | 2.0% |
| 3 | 3.1% | 3.1% | 5.4% | 4.1% | 4.7% | 2.0% |
| 4 | 2.8% | 3.0% | 5.1% | 3.5% | 3.8% | 1.9% |
| 5 | 2.5% | 2.9% | 4.7% | 2.8% | 3.0% | 1.9% |
| 6 | 2.2% | 2.8% | 4.4% | 2.2% | 2.1% | 1.8% |
| 7 | 1.9% | 2.8% | 4.0% | 1.5% | 1.3% | 1.8% |
| 8 | 1.8% | 2.6% | 3.7% | 1.4% | 1.2% | 1.7% |
| 9 | 1.6% | 2.5% | 3.5% | 1.3% | 1.0% | 1.7% |
| 10 | 1.5% | 2.4% | 3.2% | 1.1% | 0.9% | 1.6% |
| 11 | 1.4% | 2.2% | 3.0% | 1.0% | 0.7% | 1.6% |
| 12 | 1.3% | 2.1% | 2.7% | 0.9% | 0.6% | 1.5% |
| 13 | 1.2% | 2.0% | 2.4% | 0.9% | 0.6% | 1.4% |
| 14 | 1.2% | 1.9% | 2.1% | 0.9% | 0.6% | 1.3% |
| 15 | 1.1% | 1.7% | 1.8% | 0.8% | 0.5% | 1.2% |
| 16 | 1.1% | 1.6% | 1.5% | 0.8% | 0.5% | 1.1% |
| 17 | 1.0% | 1.5% | 1.3% | 0.8% | 0.5% | 1.0% |
| 18 | 1.0% | 1.4% | 1.1% | 0.8% | 0.5% | 0.9% |
| 19 | 0.9% | 1.3% | 1.0% | 0.8% | 0.5% | 0.8% |
| 20 | 0.9% | 1.1% | 0.8% | 0.7% | 0.4% | 0.7% |
| 21 | 0.8% | 1.0% | 0.7% | 0.7% | 0.4% | 0.6% |
| 22 | 0.8% | 0.9% | 0.6% | 0.7% | 0.4% | 0.5% |
| 23 | 0.7% | 0.9% | 0.5% | 0.7% | 0.4% | 0.5% |
| 24 | 0.7% | 0.8% | 0.4% | 0.7% | 0.4% | 0.5% |
| 25 | 0.6% | 0.8% | 0.4% | 0.6% | 0.3% | 0.4% |
| 26 | 0.6% | 0.8% | 0.3% | 0.6% | 0.3% | 0.4% |
| 27 | 0.5% | 0.8% | 0.3% | 0.6% | 0.3% | 0.4% |
| 28 | 0.5% | 0.7% | 0.2% | 0.6% | 0.3% | 0.4% |
| 29 | 0.4% | 0.7% | 0.2% | 0.6% | 0.3% | 0.4% |
| 30 | 0.4% | 0.6% | 0.2% | 0.5% | 0.2% | 0.3% |
| 31 | 0.3% | 0.6% | 0.2% | 0.5% | 0.2% | 0.3% |
| 32 | 0.3% | 0.5% | 0.2% | 0.5% | 0.2% | 0.3% |
| 33 | 0.3% | 0.5% | 0.2% | 0.5% | 0.2% | 0.3% |
| 34 | 0.3% | 0.4% | 0.2% | 0.5% | 0.2% | 0.3% |
| 35 | 0.2% | 0.4% | 0.1% | 0.4% | 0.1% | 0.2% |
| 36 | 0.2% | 0.4% | 0.1% | 0.4% | 0.1% | 0.2% |
| 37 | 0.2% | 0.4% | 0.1% | 0.4% | 0.1% | 0.2% |
| 38 | 0.2% | 0.3% | 0.1% | 0.4% | 0.1% | 0.2% |
| 39 | 0.2% | 0.3% | 0.1% | 0.3% | 0.1% | 0.2% |
| 40 | 0.1% | 0.3% | 0.1% | 0.3% | 0.1% | 0.1% |

**ACTUARIAL ASSUMPTIONS
BASED ON 2009-2011 EXPERIENCE STUDY**

Normal Retirement Pattern

| Age | % of Active Participants Retiring | | | | | | | | |
|-----|-----------------------------------|--------|----------------|--------|------------|--------|--------------|-----------------|---------------------------|
| | General | | Public Schools | | University | | Protective | | Executive & Elected |
| | Male | Female | Male | Female | Male | Female | With SS * | Without SS * | |
| 50 | % | | | | | | 6% | 4% | |
| 51 | | | | | | | 7% | 4% | |
| 52 | | | | | | | 8% | 5% | |
| 53 | | | | | | | 23% | 17% | |
| 54 | | | | | | | 18% | 25% | |
| 55 | | | | | | | 17% | 21% | |
| 56 | | | | | | | 16% | 27% | |
| 57 | 20% | 17% | 40% | 27% | 13% | 14% | 16% | 30% | 5% |
| 58 | 20% | 17% | 35% | 27% | 13% | 14% | 16% | 30% | 5% |
| 59 | 20% | 17% | 25% | 27% | 13% | 13% | 16% | 30% | 5% |
| 60 | 20% | 20% | 28% | 27% | 13% | 13% | 18% | 26% | 5% |
| 61 | 20% | 20% | 25% | 27% | 13% | 19% | 18% | 15% | 5% |
| 62 | 27% | 27% | 36% | 34% | 15% | 19% | 22% | 20% | 5% |
| 63 | 32% | 28% | 32% | 27% | 15% | 19% | 29% | 40% | 5% |
| 64 | 24% | 25% | 24% | 23% | 15% | 18% | 16% | 40% | 5% |
| 65 | 24% | 25% | 24% | 28% | 15% | 22% | 30% | 40% | 5% |
| 66 | 30% | 29% | 25% | 30% | 20% | 23% | 20% | 40% | 5% |
| 67 | 24% | 20% | 24% | 28% | 18% | 17% | 15% | 40% | 5% |
| 68 | 17% | 18% | 24% | 26% | 18% | 17% | 25% | 40% | 5% |
| 69 | 17% | 18% | 24% | 20% | 18% | 17% | 20% | 40% | 5% |
| 70 | 17% | 18% | 20% | 20% | 20% | 20% | 100% | 100% | 5% |
| 71 | 17% | 18% | 20% | 20% | 20% | 20% | 100% | 100% | 100% |
| 72 | 17% | 15% | 20% | 20% | 15% | 20% | 100% | 100% | 100% |
| 73 | 17% | 15% | 20% | 20% | 15% | 20% | 100% | 100% | 100% |
| 74 | 17% | 15% | 20% | 20% | 15% | 20% | 100% | 100% | 100% |
| 75 | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

* Includes Early Retirement.

**ACTUARIAL ASSUMPTIONS
BASED ON 2009-2011 EXPERIENCE STUDY**

Early Retirement Pattern

| Age | % of Active Participants Retiring | | | | | | Executive & Elected |
|-----|-----------------------------------|--------|----------------|--------|------------|--------|---------------------------|
| | General | | Public Schools | | University | | |
| | Male | Female | Male | Female | Male | Female | |
| 55 | 8% | 6% | 12% | 11% | 5% | 6% | 5% |
| 56 | 8% | 6% | 12% | 11% | 3% | 6% | 5% |
| 57 | 4% | 4% | 12% | 11% | 2% | 4% | 5% |
| 58 | 5% | 6% | 12% | 11% | 3% | 4% | 5% |
| 59 | 6% | 5% | 12% | 11% | 4% | 7% | 5% |
| 60 | 8% | 8% | 12% | 15% | 4% | 7% | 5% |
| 61 | 8% | 7% | 12% | 15% | 8% | 8% | 5% |
| 62 | 14% | 15% | 20% | 20% | 7% | 10% | 5% |
| 63 | 16% | 15% | 20% | 20% | 8% | 10% | 5% |
| 64 | 17% | 15% | 20% | 20% | 8% | 13% | 5% |

**ACTUARIAL ASSUMPTIONS
BASED ON 2009-2011 EXPERIENCE STUDY**

**Post-Retirement
Mortality Rates – Healthy Lives**

| Age | % Dying Next Year | | Age | % Dying Next Year | | Age | % Dying Next Year | |
|-----|-------------------|---------|-----|-------------------|----------|-----|-------------------|-----------|
| | Male | Female | | Male | Female | | Male | Female |
| 20 | 0.0281% | 0.0161% | 60 | 0.5721% | 0.3519% | 100 | 35.5859% | 29.5648% |
| 21 | 0.0294% | 0.0160% | 61 | 0.6033% | 0.3805% | 101 | 36.2235% | 30.1294% |
| 22 | 0.0303% | 0.0161% | 62 | 0.6360% | 0.4113% | 102 | 36.7983% | 30.6924% |
| 23 | 0.0316% | 0.0165% | 63 | 0.7074% | 0.4506% | 103 | 38.1129% | 31.4210% |
| 24 | 0.0325% | 0.0170% | 64 | 0.7869% | 0.4936% | 104 | 39.0047% | 31.8527% |
| 25 | 0.0335% | 0.0177% | 65 | 0.8752% | 0.5408% | 105 | 39.7886% | 32.6189% |
| 26 | 0.0351% | 0.0187% | 66 | 0.9736% | 0.5923% | 106 | 40.0000% | 33.0147% |
| 27 | 0.0358% | 0.0195% | 67 | 1.0829% | 0.6489% | 107 | 40.0000% | 33.5879% |
| 28 | 0.0368% | 0.0205% | 68 | 1.1897% | 0.7288% | 108 | 40.0000% | 34.2569% |
| 29 | 0.0386% | 0.0217% | 69 | 1.3138% | 0.8186% | 109 | 40.0000% | 35.1544% |
| 30 | 0.0416% | 0.0235% | 70 | 1.4508% | 0.9194% | 110 | 40.0000% | 36.4617% |
| 31 | 0.0468% | 0.0279% | 71 | 1.6020% | 1.0326% | 111 | 40.0000% | 37.6246% |
| 32 | 0.0527% | 0.0318% | 72 | 1.7690% | 1.1596% | 112 | 40.0000% | 38.6015% |
| 33 | 0.0591% | 0.0355% | 73 | 1.9768% | 1.3081% | 113 | 40.0000% | 39.3507% |
| 34 | 0.0658% | 0.0387% | 74 | 2.2089% | 1.4756% | 114 | 40.0000% | 39.8308% |
| 35 | 0.0724% | 0.0419% | 75 | 2.4683% | 1.6645% | 115 | 40.0000% | 40.0000% |
| 36 | 0.0788% | 0.0449% | 76 | 2.7581% | 1.8777% | 116 | 40.0000% | 40.0000% |
| 37 | 0.0847% | 0.0479% | 77 | 3.0820% | 2.1180% | 117 | 40.0000% | 40.0000% |
| 38 | 0.0894% | 0.0511% | 78 | 3.5058% | 2.4073% | 118 | 40.0000% | 40.0000% |
| 39 | 0.0938% | 0.0549% | 79 | 3.9879% | 2.7361% | 119 | 40.0000% | 40.0000% |
| 40 | 0.0981% | 0.0598% | 80 | 4.5362% | 3.1097% | 120 | 100.0000% | 100.0000% |
| 41 | 0.1027% | 0.0655% | 81 | 5.1600% | 3.5344% | | | |
| 42 | 0.1083% | 0.0721% | 82 | 5.8695% | 4.0171% | | | |
| 43 | 0.1146% | 0.0794% | 83 | 6.6311% | 4.6470% | | | |
| 44 | 0.1220% | 0.0872% | 84 | 7.4914% | 5.3756% | | | |
| 45 | 0.1303% | 0.0943% | 85 | 8.4634% | 6.2186% | | | |
| 46 | 0.1382% | 0.1015% | 86 | 9.5615% | 7.1938% | | | |
| 47 | 0.1469% | 0.1090% | 87 | 10.8571% | 8.3218% | | | |
| 48 | 0.1559% | 0.1178% | 88 | 12.0056% | 9.1945% | | | |
| 49 | 0.1656% | 0.1274% | 89 | 13.2754% | 10.1588% | | | |
| 50 | 0.1756% | 0.1391% | 90 | 14.6795% | 11.2810% | | | |
| 51 | 0.1992% | 0.1553% | 91 | 16.2320% | 12.5273% | | | |
| 52 | 0.2475% | 0.1727% | 92 | 17.9485% | 13.9110% | | | |
| 53 | 0.2977% | 0.1927% | 93 | 20.2386% | 15.8066% | | | |
| 54 | 0.3479% | 0.2149% | 94 | 22.8206% | 17.9603% | | | |
| 55 | 0.4050% | 0.2445% | 95 | 25.7320% | 20.4074% | | | |
| 56 | 0.4483% | 0.2668% | 96 | 29.0147% | 23.1877% | | | |
| 57 | 0.4883% | 0.2848% | 97 | 31.8149% | 25.3666% | | | |
| 58 | 0.5148% | 0.3011% | 98 | 33.5393% | 27.1352% | | | |
| 59 | 0.5427% | 0.3255% | 99 | 34.6327% | 28.3281% | | | |

**ACTUARIAL ASSUMPTIONS
BASED ON 2009-2011 EXPERIENCE STUDY**

Mortality Rates – Disabled Lives

| Age | % Dying Next Year | | Age | % Dying Next Year | | Age | % Dying Next Year | |
|-----|-------------------|---------|-----|-------------------|----------|-----|-------------------|-----------|
| | Male | Female | | Male | Female | | Male | Female |
| 20 | 0.0363% | 0.0190% | 60 | 1.1620% | 0.6292% | 100 | 40.0000% | 33.0147% |
| 21 | 0.0374% | 0.0198% | 61 | 1.2831% | 0.6893% | 101 | 40.0000% | 33.5879% |
| 22 | 0.0392% | 0.0208% | 62 | 1.4169% | 0.7742% | 102 | 40.0000% | 34.2569% |
| 23 | 0.0422% | 0.0220% | 63 | 1.5647% | 0.8695% | 103 | 40.0000% | 35.1544% |
| 24 | 0.0475% | 0.0239% | 64 | 1.7278% | 0.9766% | 104 | 40.0000% | 36.4617% |
| 25 | 0.0535% | 0.0283% | 65 | 1.9079% | 1.0968% | 105 | 40.0000% | 37.6246% |
| 26 | 0.0600% | 0.0323% | 66 | 2.1320% | 1.2318% | 106 | 40.0000% | 38.6015% |
| 27 | 0.0668% | 0.0360% | 67 | 2.3823% | 1.3895% | 107 | 40.0000% | 39.3507% |
| 28 | 0.0735% | 0.0393% | 68 | 2.6621% | 1.5674% | 108 | 40.0000% | 39.8308% |
| 29 | 0.0800% | 0.0425% | 69 | 2.9746% | 1.7681% | 109 | 100.0000% | 100.0000% |
| 30 | 0.0860% | 0.0456% | 70 | 3.3239% | 1.9945% | 110 | 100.0000% | 100.0000% |
| 31 | 0.0908% | 0.0486% | 71 | 3.7810% | 2.2498% | 111 | 100.0000% | 100.0000% |
| 32 | 0.0952% | 0.0519% | 72 | 4.3009% | 2.5571% | 112 | 100.0000% | 100.0000% |
| 33 | 0.0996% | 0.0557% | 73 | 4.8923% | 2.9063% | 113 | 100.0000% | 100.0000% |
| 34 | 0.1043% | 0.0607% | 74 | 5.5650% | 3.3032% | 114 | 100.0000% | 100.0000% |
| 35 | 0.1099% | 0.0665% | 75 | 6.3302% | 3.7543% | 115 | 100.0000% | 100.0000% |
| 36 | 0.1163% | 0.0732% | 76 | 7.1516% | 4.2670% | 116 | 100.0000% | 100.0000% |
| 37 | 0.1238% | 0.0806% | 77 | 8.0795% | 4.9361% | 117 | 100.0000% | 100.0000% |
| 38 | 0.1323% | 0.0885% | 78 | 9.1278% | 5.7101% | 118 | 100.0000% | 100.0000% |
| 39 | 0.1403% | 0.0957% | 79 | 10.3121% | 6.6055% | 119 | 100.0000% | 100.0000% |
| 40 | 0.1491% | 0.1030% | 80 | 11.6501% | 7.6414% | 120 | 100.0000% | 100.0000% |
| 41 | 0.1583% | 0.1106% | 81 | 12.8173% | 8.8396% | | | |
| 42 | 0.1681% | 0.1196% | 82 | 14.1014% | 9.7666% | | | |
| 43 | 0.1783% | 0.1293% | 83 | 15.5142% | 10.7909% | | | |
| 44 | 0.2022% | 0.1412% | 84 | 17.0685% | 11.9225% | | | |
| 45 | 0.2512% | 0.1576% | 85 | 18.7785% | 13.1729% | | | |
| 46 | 0.3022% | 0.1753% | 86 | 21.0679% | 14.5543% | | | |
| 47 | 0.3532% | 0.1956% | 87 | 23.6364% | 16.4543% | | | |
| 48 | 0.4111% | 0.2192% | 88 | 26.5181% | 18.6023% | | | |
| 49 | 0.4551% | 0.2507% | 89 | 29.7511% | 21.0308% | | | |
| 50 | 0.4982% | 0.2750% | 90 | 32.4589% | 23.7762% | | | |
| 51 | 0.5279% | 0.2950% | 91 | 34.2182% | 25.8801% | | | |
| 52 | 0.5593% | 0.3134% | 92 | 35.1569% | 27.6845% | | | |
| 53 | 0.5926% | 0.3405% | 93 | 36.1245% | 28.7569% | | | |
| 54 | 0.6280% | 0.3700% | 94 | 36.5879% | 30.0123% | | | |
| 55 | 0.6654% | 0.4021% | 95 | 37.1685% | 30.4325% | | | |
| 56 | 0.7439% | 0.4369% | 96 | 38.3040% | 31.0012% | | | |
| 57 | 0.8316% | 0.4786% | 97 | 39.2003% | 31.5786% | | | |
| 58 | 0.9297% | 0.5243% | 98 | 39.7886% | 32.0124% | | | |
| 59 | 1.0394% | 0.5744% | 99 | 40.0000% | 32.6189% | | | |

**ACTUARIAL ASSUMPTIONS
BASED ON 2009-2011 EXPERIENCE STUDY**

Mortality Rates – Death-in-Service

| Age | % Dying Next Year | | Age | % Dying Next Year | | Age | % Dying Next Year | |
|-----|-------------------|---------|-----|-------------------|----------|-----|-------------------|-----------|
| | Male | Female | | Male | Female | | Male | Female |
| 20 | 0.0155% | 0.0089% | 60 | 0.3147% | 0.1935% | 100 | 19.5722% | 16.2606% |
| 21 | 0.0162% | 0.0088% | 61 | 0.3318% | 0.2093% | 101 | 19.9229% | 16.5712% |
| 22 | 0.0167% | 0.0089% | 62 | 0.3498% | 0.2262% | 102 | 20.2391% | 16.8808% |
| 23 | 0.0174% | 0.0091% | 63 | 0.3891% | 0.2478% | 103 | 20.9621% | 17.2816% |
| 24 | 0.0179% | 0.0094% | 64 | 0.4328% | 0.2715% | 104 | 21.4526% | 17.5190% |
| 25 | 0.0184% | 0.0097% | 65 | 0.4814% | 0.2974% | 105 | 21.8837% | 17.9404% |
| 26 | 0.0193% | 0.0103% | 66 | 0.5355% | 0.3258% | 106 | 22.0000% | 18.1581% |
| 27 | 0.0197% | 0.0107% | 67 | 0.5956% | 0.3569% | 107 | 22.0000% | 18.4733% |
| 28 | 0.0202% | 0.0113% | 68 | 0.6543% | 0.4008% | 108 | 22.0000% | 18.8413% |
| 29 | 0.0212% | 0.0119% | 69 | 0.7226% | 0.4502% | 109 | 22.0000% | 19.3349% |
| 30 | 0.0229% | 0.0129% | 70 | 0.7979% | 0.5057% | 110 | 22.0000% | 20.0539% |
| 31 | 0.0257% | 0.0153% | 71 | 0.8811% | 0.5679% | 111 | 22.0000% | 20.6935% |
| 32 | 0.0290% | 0.0175% | 72 | 0.9730% | 0.6378% | 112 | 22.0000% | 21.2308% |
| 33 | 0.0325% | 0.0195% | 73 | 1.0872% | 0.7195% | 113 | 22.0000% | 21.6429% |
| 34 | 0.0362% | 0.0213% | 74 | 1.2149% | 0.8116% | 114 | 22.0000% | 21.9069% |
| 35 | 0.0398% | 0.0230% | 75 | 1.3576% | 0.9155% | 115 | 22.0000% | 22.0000% |
| 36 | 0.0433% | 0.0247% | 76 | 1.5170% | 1.0327% | 116 | 22.0000% | 22.0000% |
| 37 | 0.0466% | 0.0263% | 77 | 1.6951% | 1.1649% | 117 | 22.0000% | 22.0000% |
| 38 | 0.0492% | 0.0281% | 78 | 1.9282% | 1.3240% | 118 | 22.0000% | 22.0000% |
| 39 | 0.0516% | 0.0302% | 79 | 2.1933% | 1.5049% | 119 | 22.0000% | 22.0000% |
| 40 | 0.0540% | 0.0329% | 80 | 2.4949% | 1.7103% | 120 | 100.0000% | 100.0000% |
| 41 | 0.0565% | 0.0360% | 81 | 2.8380% | 1.9439% | | | |
| 42 | 0.0596% | 0.0397% | 82 | 3.2282% | 2.2094% | | | |
| 43 | 0.0630% | 0.0437% | 83 | 3.6471% | 2.5559% | | | |
| 44 | 0.0671% | 0.0480% | 84 | 4.1203% | 2.9566% | | | |
| 45 | 0.0717% | 0.0519% | 85 | 4.6549% | 3.4202% | | | |
| 46 | 0.0760% | 0.0558% | 86 | 5.2588% | 3.9566% | | | |
| 47 | 0.0808% | 0.0600% | 87 | 5.9714% | 4.5770% | | | |
| 48 | 0.0857% | 0.0648% | 88 | 6.6031% | 5.0570% | | | |
| 49 | 0.0911% | 0.0701% | 89 | 7.3015% | 5.5873% | | | |
| 50 | 0.0966% | 0.0765% | 90 | 8.0737% | 6.2046% | | | |
| 51 | 0.1096% | 0.0854% | 91 | 8.9276% | 6.8900% | | | |
| 52 | 0.1361% | 0.0950% | 92 | 9.8717% | 7.6511% | | | |
| 53 | 0.1637% | 0.1060% | 93 | 11.1312% | 8.6936% | | | |
| 54 | 0.1913% | 0.1182% | 94 | 12.5513% | 9.8782% | | | |
| 55 | 0.2228% | 0.1345% | 95 | 14.1526% | 11.2241% | | | |
| 56 | 0.2466% | 0.1467% | 96 | 15.9581% | 12.7532% | | | |
| 57 | 0.2686% | 0.1566% | 97 | 17.4982% | 13.9516% | | | |
| 58 | 0.2831% | 0.1656% | 98 | 18.4466% | 14.9244% | | | |
| 59 | 0.2985% | 0.1790% | 99 | 19.0480% | 15.5805% | | | |



November 20, 2012

Mr. Bob Conlin
Wisconsin Department of Employee
Trust Funds
801 West Badger Road
Madison, Wisconsin 53707

Re: 2009 – 2011 WRS Experience Study

Dear Bob:

Enclosed are 40 bound color copies and 20 stapled black and white copies of the 2009 – 2011 Wisconsin Retirement System Experience Study.

Sincerely,

Mark Buis, FSA, EA, MAAA

MB:rmn

Enclosures