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CORRESPONDENCE MEMORANDUM

DATE: December 1, 2015
TO: Employee Trust Funds Board
FROM: Robert C. Willett, CPA
Chief Trust Financial Officer
SUBJECT: Three-Year Experience Study

Staff requests that the Employee Trust Funds (ETF) Board accept the *Three-Year Experience Study January 1, 2012 – December 31, 2014*, including the updated actuarial assumptions contained in the report.

Wisconsin statutes require the Board's actuary to conduct an experience study at least every three years to determine if updates to actuarial assumptions are needed. This study reviews current actuarial assumptions and methods and compares them to actual experience of the WRS during the years 2012 – 2014.

Actuarial assumptions are critical in measuring the value of benefits being earned and the contributions needed to fund those benefits. Some assumptions represent voluntary participant behavior, such as the age at which a member retires. Other assumptions relate to involuntary behavior, notably the age when a member dies. Economic assumptions relate to more general economic conditions, including long-term investment returns and wage inflation. All of these assumptions change over time and need to be reviewed and updated regularly to assure they continue to match plan experience.

If approved, the updated assumptions will be used in the December 31, 2015, actuarial valuations and be the basis for 2017 contribution rates. These will be used in calculating new annuities beginning January 1, 2017.

Actuaries from Gabriel Roeder Smith & Company will be at the Board meeting to present their report and answer any questions.

Attachment: Three-Year Experience Study January 1, 2012 – December 31, 2014

Reviewed and approved by A. John Voelker, Deputy Secretary

Electronically Signed 12/1/15

| Board | Mtg Date | Item # |
|-------|----------|--------|
| JM | 12.10.15 | 3C |
| ETF | 12.10.15 | 4A |

WISCONSIN RETIREMENT SYSTEM
THREE-YEAR EXPERIENCE STUDY
JANUARY 1, 2012 – DECEMBER 31, 2014

TABLE OF CONTENTS

| SECTION | PAGE | ITEM |
|----------------|-------------|--|
| | -- | Cover Letter |
| | 1 | Executive Summary |
| | 2-17 | Summary of Findings |
| A | 1-18 | Withdrawal Experience |
| B | 1-9 | Disability Experience |
| C | 1-6 | Pay Increases – Merit & Longevity Portion |
| D | 1-16 | Normal & Reduced Retirement Experience |
| E | 1-6 | Mortality Experience |
| F | 1-8 | Complete Lists of Proposed Decrement Assumptions |

November 24, 2015

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, 2012 to December 31, 2014**, 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. Mark Buis, James D. Anderson and Brian B. Murphy 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. The signing actuaries are independent of the plan sponsor.

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.

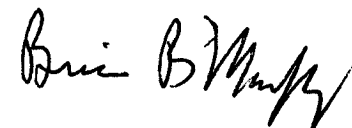
Respectfully submitted,



Mark Buis, FSA, EA, FCA, MAAA



James D. Anderson, FSA, EA, MAAA



Brian B. Murphy, FSA, EA, FCA, MAAA

MB/JDA/BBM:rmn:dj

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, 2009 to December 31, 2011. 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 2012-2014.

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 | Higher Rates | Decrease |
| 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 |
| Total | Various | Increase |

The overall impact on the contribution rate would be an increase of approximately 0.3% of payroll.

New assumptions will be first used in the December 31, 2015 actuarial valuations, at which time experience gains or losses incurred during 2015 will also be recognized. This would first impact rates in 2017. Consequently, no rate changes are recommended for 2016 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, 2011 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. 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 on the following pages. 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 downward 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 Reduced Retirement Experience: Overall, there were fewer normal retirements and fewer reduced retirements than expected in most groups, although it’s possible that this is somewhat related to the high number of retirements during 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. 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. These rates mortality rates are used to develop liabilities for both current retirees and future retirees (active members). Additionally, and perhaps consequently, the Actuarial Standards of Practice with regard to the mortality assumption has 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.”* While the current mortality table did provide some margin for future improvement, the current tables used a static (1 dimensional) projection for future improvement in life expectancy. The Society of Actuaries recently released a new set of mortality tables (RP-2014) and recommended the use of a ‘fully generational’ (2 dimensional) projection scale (MP-2015). Because the RP-2014 table did not match current WRS experience and in light of the credibility of WRS experience, we are recommending the use of a WRS specific mortality table. The current WRS specific mortality table provided a good match to current experience and is therefore proposed as the base table. Furthermore, the current WRS mortality table results in fewer projected deaths during the experience period than the RP-2014 table (7% fewer deaths for females and 2% fewer deaths for males). Therefore, we are recommending the use of the MP-2015 fully generational improvement scale (multiplied by 50%) to account for future improvements in mortality. For retired lives, we recommend phasing into the new mortality table over a 3-year period (an increase in the mortality reserve of about 0.5% per year). This is similar to past practice with the intention 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 above, we recommend using the current mortality table, Wisconsin 2012 Mortality table (multiplied by 50% for males and females) as the base table and project future improvements with MP-2015 generational improvement scale (multiplied by 50%). 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) | 21,826 | 18,130 | 19,582 |
| Public Schools and University | 11,054 | 9,593 | 10,129 |
| Protective | | | |
| With Social Security | 1,639 | 1,186 | 1,362 |
| Without Social Security | 83 | 61 | 59 |
| Executive and Elected | 175 | 180 | 165 |
| <u>Withdrawal - Service Greater than 10</u> | | | |
| General (Without Schools) | 2,829 | 1,673 | 2,063 |
| Public Schools and University | 2,299 | 1,358 | 1,598 |
| Protective | | | |
| With Social Security | 491 | 312 | 342 |
| Without Social Security | 42 | 22 | 22 |
| Executive and Elected | 25 | 27 | 23 |
| <u>Disability</u> | | | |
| General (Without Schools) | 319 | 567 | 461 |
| Public Schools and University | 127 | 210 | 168 |
| Protective | | | |
| With Social Security | 30 | 73 | 53 |
| Without Social Security | 9 | 15 | 13 |
| Executive and Elected | - | 2 | 2 |
| <u>Reduced Retirement</u> | | | |
| General (Without Schools) | 6,262 | 6,942 | 7,667 |
| Public Schools and University | 4,910 | 4,721 | 5,174 |
| Executive and Elected | 20 | 37 | 28 |
| <u>Normal Retirement</u> | | | |
| General (Without Schools) ** | 5,604 | 6,146 | 6,336 |
| Public Schools and University ** | 3,307 | 3,424 | 3,547 |
| Protective* | | | |
| With Social Security | 1,491 | 1,506 | 1,610 |
| Without Social Security | 252 | 274 | 274 |
| Executive and Elected | 125 | 182 | 168 |
| <u>Mortality - Retired Lives</u> | | | |
| Normal Retirement | | | |
| Male | 5,906 | 5,856 | 5,856 |
| Female | 6,827 | 6,716 | 6,716 |
| Disabled Retirement | | | |
| Male | 339 | 332 | 332 |
| Female | 429 | 403 | 403 |
| <u>Mortality - Active Lives</u> | | | |
| Male | 352 | 411 | 373 |
| Female | 362 | 419 | 381 |

* Includes Reduced Retirements.

** Figures shown are for people below age 75.

Proposed rates for withdrawal and retirement decrements are based on liability weighting and therefore comparisons based on population counts alone may not be appropriate. Expected Mortality rates are based on Base Mortality table only and do not include mortality improvement projections.

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.

Sources considered in the analysis of the economic assumptions included:

- Actual System experience over the last 3 years (i.e., merit and seniority pay increases)
- Future expectations of the investment consultant for WRS and future expectations of other investment consultants
- 2015 Social Security Trustees Report
- Historical observations of inflation statistics (both price and wage) and investment returns

Current economic assumptions for WRS are as follows:

| | |
|-----------------------|--------------|
| Net Investment Return | 7.2% |
| Wage Inflation | 3.2% |
| Price Inflation | 2.0% to 2.7% |

ECONOMIC ASSUMPTIONS – ASOP No. 27

Guidance regarding the selection of economic assumptions for measuring pension obligations is provided by Actuarial Standards of Practice (ASOP) No. 27. The standard requires that the selected economic assumptions be consistent with each other. That is, the selection of the investment return assumption should be consistent with the selection of the wage inflation and price inflation assumptions.

The current version of ASOP No. 27 (applicable to valuation dates on or after September 30, 2014) defines a reasonable economic assumption as an assumption that has the following characteristics:

- (a) It is appropriate for the purpose of the measurement;
- (b) It reflects the actuary's professional judgment;
- (c) It takes into account historical and current economic data that is relevant as of the valuation date;
- (d) It reflects the actuary's estimate of future experience, the actuary's observation of the estimates inherent in market data, or a combination thereof; and
- (e) It has no significant bias (i.e., it is not significantly optimistic or pessimistic), except when provisions for adverse deviation or plan provisions that are difficult to measure are included and disclosed under Section 3.5.1, or when alternative assumptions are used for the assessment of risk.

ECONOMIC ASSUMPTIONS

Price Inflation: Price inflation underlies both the wage inflation and investment return assumptions. Therefore, we recommend that a specific price inflation assumption be adopted in conjunction with this Experience Study. The chart below shows historical averages of both price and wage inflation. Over the past 50 years, price inflation has averaged 4.1%. This result is heavily affected by the high inflationary period of the 1970's and early 1980's. During the past decade, price inflation averaged 2.4%. The 2015 Social Security Trustees report uses 2.7% as the long-range intermediate price inflation assumption. The low-cost assumption is 3.4%, and the high-cost assumption is 2.0%. **Based upon the reviewed data, we suggest that the Board adopt a price inflation assumption of 2.7%.** (Remember that the selected wage inflation and investment return assumptions should be consistent with the final selected price inflation assumption.)

| Year | Annual Increase in | | |
|-------------|--------------------|-------------|------------|
| | Prices (CPI-U) | Wages (NAE) | Difference |
| 1955-1964 | 1.6% | 3.8% | 2.2% |
| 1965-1974 | 5.2% | 5.8% | 0.6% |
| 1975-1984 | 7.3% | 7.2% | -0.1% |
| 1985-1994 | 3.6% | 3.9% | 0.3% |
| 1995-2004 | 2.4% | 4.1% | 1.7% |
| 2005-2014 | 2.1% | 2.8% | 0.7% |
| 3-Year Avg | 1.3% | 2.9% | 1.6% |
| 5-Year Avg | 1.7% | 2.8% | 1.1% |
| 10-Year Avg | 2.1% | 2.8% | 0.7% |
| 20-Year Avg | 2.3% | 3.4% | 1.1% |
| 30-Year Avg | 2.7% | 3.6% | 0.9% |
| 50-Year Avg | 4.1% | 4.8% | 0.7% |

ECONOMIC ASSUMPTIONS

Wage Inflation: Wage inflation consists of two components, 1) a portion due to pure price inflation (i.e., increases due to changes in the CPI), and 2) increases in average salary levels in excess of pure price inflation (i.e., increases due to changes in productivity levels, supply and demand in the labor market and other macroeconomic factors). The long-term rate of increase in National Average Earnings over the last 50 years is somewhat higher than the current WRS assumption, 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. Average salaries in WRS have risen at approximately 2.8% a year since 1990. While the historical average is slightly lower than the assumed 3.2% a year, lowering this assumption below 3.2% might not be consistent with the price inflation and investment return assumptions. **We believe a reasonable range within which to set this assumption is from 3.0% to 3.5% a year and recommend no change to the current wage inflation assumption at this time.**

ECONOMIC ASSUMPTIONS

Investment Return: The investment return assumption is the actuarial assumption that has the largest impact on actuarial valuation results. As more of the actuarial accrued liabilities are related to non-active members, the nominal (as opposed to real) investment return assumption becomes a more prominent factor. Since one of WRS's fundamental financial objectives is the receipt of level contributions over time, the discount rate assumption is set equal to the investment return assumption (with perhaps an adjustment for conservatism).

Presented below is the approximate current asset allocation for WRS:

| Asset Class | Approximate Asset Allocation |
|-------------------------|------------------------------|
| Domestic Equity | 26.0% |
| International Equity | 23.0 |
| Fixed Income | 27.0 |
| Real Estate | 7.0 |
| Alternative Investments | 24.0 |
| Cash Equivalents | -7.0 |

Based upon the approximate asset allocation, future expectations of various investment consultants were analyzed. The next few exhibits show the results of this analysis. Final expected nominal investment return results are based upon a 2.7% price inflation assumption. We used the actuarial assumption for price inflation rather than the consultant assumption, in order to be consistent with the calculation of liabilities. Investment results presented are net of expenses.

ECONOMIC ASSUMPTIONS

The exhibits presented below are based upon the approximate asset allocation and the capital market assumptions of various investment consultants (identified by numbers 1 through 8 below).

| Investment Consultant | Investment Consultant Expected Nominal Return | Investment Consultant Inflation Assumption | Expected Real Return (2)-(3) | Actuary Inflation Assumption | Expected Nominal Return (4)+(5) | Plan Incurred Administrative Expenses | Expected Nominal Return Net of Expenses (6)-(7) | Standard Deviation of Expected Return (1-Year) |
|-----------------------|---|--|------------------------------|------------------------------|---------------------------------|---------------------------------------|---|--|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 1 | 6.37% | 2.12% | 4.25% | 2.70% | 6.95% | 0.03% | 6.92% | 14.10% |
| 2 | 7.30% | 2.50% | 4.80% | 2.70% | 7.50% | 0.03% | 7.47% | 15.00% |
| 3 | 7.61% | 2.50% | 5.11% | 2.70% | 7.81% | 0.03% | 7.78% | 14.40% |
| 4 | 7.46% | 2.25% | 5.21% | 2.70% | 7.91% | 0.03% | 7.88% | 14.80% |
| 5 | 7.75% | 2.11% | 5.64% | 2.70% | 8.34% | 0.03% | 8.31% | 15.10% |
| 6 | 8.05% | 2.26% | 5.79% | 2.70% | 8.49% | 0.03% | 8.46% | 14.20% |
| 7 | 8.13% | 2.20% | 5.93% | 2.70% | 8.63% | 0.03% | 8.60% | 14.30% |
| 8 | 8.44% | 2.20% | 6.24% | 2.70% | 8.94% | 0.03% | 8.91% | 15.50% |
| Average | 7.64% | 2.27% | 5.37% | 2.70% | 8.07% | 0.03% | 8.04% | 14.68% |

| Investment Consultant | Distribution of 20-Year Average Geometric Net Nominal Return | | | Probability of exceeding 7.20% |
|-----------------------|--|--------------|--------------|--------------------------------|
| | 25th | 50th | 75th | |
| (1) | (2) | (3) | (4) | (5) |
| 1 | 3.91% | 5.98% | 8.10% | 34.8% |
| 2 | 4.22% | 6.42% | 8.67% | 40.7% |
| 3 | 4.70% | 6.81% | 8.97% | 45.1% |
| 4 | 4.68% | 6.86% | 9.08% | 45.8% |
| 5 | 5.04% | 7.26% | 9.52% | 50.7% |
| 6 | 5.42% | 7.51% | 9.65% | 54.0% |
| 7 | 5.55% | 7.65% | 9.79% | 55.7% |
| 8 | 5.51% | 7.79% | 10.12% | 56.9% |
| Average | 4.88% | 7.03% | 9.24% | 48.0% |

ECONOMIC ASSUMPTIONS

The current version of ASOP No. 27 (applicable to valuation dates on or after September 30, 2014) suggests that either the expected geometric return (i.e., 50th percentile) or the expected arithmetic return are suitable for use as a reasonable investment return assumption. Based on the average of each of the investment consultants' expectations, this would result in a range of 7.03% to 8.02%. While the current assumption of 7.2% is at the lower end of this range, keep in mind that this analysis is based on broad ranges and average of averages. Additionally, analysis performed by NEPC (SWIB's investment consultant) indicates a 5-7 year expected return of 6.1% and a 30 year expected return of 7.4%. The investment return assumption was last changed from 7.8% to 7.2% for the December 31, 2010 valuation. **We believe the current assumption is reasonable and are not recommending any change to the investment return assumption at this time.**

ECONOMIC ASSUMPTIONS

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) | | | | | | |
| 1960-1969 | 1.4 % | 1.7 % | 3.9 % | 7.8 % | 2.5 % | 4.3 % | 6.2 % | 1.6 % |
| 1970-1979 | 5.5 % | 6.2 % | 6.3 % | 5.9 % | 7.4 % | 6.9 % | 6.1 % | (1.2)% |
| 1980-1989 | 12.6 % | 13.0 % | 8.9 % | 17.5 % | 5.1 % | 5.8 % | 16.3 % | 10.2 % |
| 1990-1999 | 8.8 % | 8.4 % | 4.9 % | 18.2 % | 2.9 % | 4.2 % | 15.4 % | 10.9 % |
| 2000-2009 | 7.7 % | 7.6 % | 2.8 % | (0.9)% | 2.5 % | 2.9 % | 2.4 % | (0.9)% |
| 2010 | 10.1 % | 12.4 % | 0.1 % | 15.1 % | 1.5 % | 2.4 % | 13.8 % | 11.1 % |
| 2011 | 28.2 % | 18.0 % | 0.0 | 2.1 % | 3.0 % | 3.1 % | 8.2 % | 4.8 % |
| 2012 | 3.3 % | 10.7 % | 0.1 % | 16.0 % | 1.7 % | 3.1 % | 13.2 % | 9.8 % |
| 2013 | (11.4)% | (7.1)% | 0.0 | 32.4 % | 1.5 % | 1.3 % | 20.0 % | 18.4 % |
| 2014 | 23.9 % | 17.3 % | 0.0 | 13.7 % | 0.8 % | 4.2 % | 15.6 % | 11.1 % |
| Last 5 Years | 9.9 % | 9.9 % | 0.1 % | 15.5 % | 1.7 % | 2.8 % | 14.1 % | 11.0 % |
| Last 10 Years | 7.5 % | 7.2 % | 1.4 % | 7.7 % | 2.1 % | 2.8 % | 8.3 % | 5.2 % |
| Last 55 Years | 7.4 % | 7.5 % | 4.8 % | 10.0 % | 3.9 % | 4.6 % | 9.6 % | 4.7 % |

| Sample Balanced Fund | |
|----------------------|-----------|
| Equities | 70% |
| Bonds - Government | 15% |
| - Corporate | 14% |
| Cash Equivalents | <u>1%</u> |
| | 100% |
| Fund expenses(e) | 0.35% |

| Historical Spread | |
|--|--------|
| Observed spread is very sensitive to the observation period, even over long periods, as illustrated below: | |
| Observation Period | Spread |
| 55 years | 4.7% |
| 45 years | 5.4% |
| 35 years | 7.2% |

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. In particular, the chart does not discuss the volatility embedded in a 70% allocation. Asset volatility can lead to dividend volatility, and even to negative dividends.

SUMMARY OF VALUATION RESULTS

The table below describes hypothetical valuation results at December 31, 2014 with new and old actuarial assumptions. The rate changes are illustrative only since 2016 contribution rates have already been set based upon the actual December 31, 2014 valuation results.

| | General and Executive & Elected | Protective | |
|---|--|-------------------|---------------------|
| | | With S.S. | Without S.S. |
| Present 2016 Normal Cost Rate | 13.2% | 16.0% | 19.8% |
| Hypothetical Rate Change Due to New Assumptions | 0.3% | 1.0% | 1.1% |

New assumptions will be first used in the December 31, 2015 actuarial valuations, at which time experience gains or losses incurred during 2015 will also be recognized. This would first impact rates in 2017. Consequently, no rate changes are recommended for 2016 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. Typically we recommend updating the option factors when updating the mortality assumption. However, with the introduction of generational mortality, we usually recommend projecting the improvement scale to the middle of the next experience study period (2018) for the purposes of option factors. After reviewing selected rates, this produced very little change in option factors. Therefore, we recommend no change to the option factors at this time and will re-evaluate the factors during the next experience study.

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: | 12/31/2015 Valuation |
| Retired Lives Valuation: | 12/31/2015 Valuation |
| Option Factors: | Not applicable |

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 | 1,092 | 6,181 | 0.1767 | 0.1614 | 0.1750 | 0.1680 | 1,082 | 1,038 |
| 2 | 1,501 | 11,006 | 0.1364 | 0.1238 | 0.1300 | 0.1270 | 1,431 | 1,398 |
| 3 | 853 | 8,053 | 0.1059 | 0.0944 | 0.0850 | 0.0900 | 685 | 725 |
| 4 | 546 | 6,313 | 0.0865 | 0.0787 | 0.0680 | 0.0730 | 429 | 461 |
| 5 | 466 | 5,282 | 0.0882 | 0.0807 | 0.0600 | 0.0700 | 317 | 370 |
| 6 | 267 | 4,653 | 0.0574 | 0.0510 | 0.0450 | 0.0480 | 209 | 223 |
| 7 | 228 | 4,316 | 0.0528 | 0.0470 | 0.0400 | 0.0430 | 173 | 186 |
| 8 | 198 | 3,772 | 0.0525 | 0.0490 | 0.0350 | 0.0420 | 132 | 158 |
| 9 | 146 | 3,235 | 0.0451 | 0.0388 | 0.0300 | 0.0340 | 97 | 110 |
| 10 | 129 | 3,072 | 0.0420 | 0.0363 | 0.0250 | 0.0310 | 77 | 95 |
| Totals (10 and under) | 5,426 | 55,883 | 0.0971 | 0.0596 | 0.0499 | 0.0546 | 4,632 | 4,764 |

| | <u>Actual</u> | | <u>Proposed</u> |
|---------------------------------------|---------------|--------|-----------------|
| Current | 0.0971 | 0.0596 | 0.0546 |
| Previous Investigation Results | | | |
| 2009-2011 | 0.0870 | | 0.0790 |
| 2006-2008 | 0.0883 | | 0.0808 |
| 2003-2005 | 0.1494 | | 0.1307 |

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 | - | 16 | 0.0000 | 0.0000 | 0.0250 | 0.0250 | - | - |
| 30-34 | 31 | 1,074 | 0.0289 | 0.0261 | 0.0250 | 0.0250 | 25 | 26 |
| 35-39 | 119 | 4,138 | 0.0288 | 0.0273 | 0.0180 | 0.0225 | 75 | 93 |
| 40-44 | 207 | 7,578 | 0.0273 | 0.0242 | 0.0150 | 0.0200 | 113 | 149 |
| 45-49 | 267 | 11,492 | 0.0232 | 0.0199 | 0.0120 | 0.0160 | 140 | 187 |
| 50-54 | 375 | 17,569 | 0.0213 | 0.0185 | 0.0110 | 0.0150 | 195 | 265 |
| Totals | 999 | 41,867 | 0.0239 | 0.0202 | 0.0124 | 0.0165 | 548 | 720 |

| | <u>Actual</u> | <u>Proposed</u> |
|--|---------------|-----------------|
| Current | 0.0239 | 0.0202 |
| Previous Investigation Results (combined) | | |
| 2009-2011 | 0.0547 | 0.0495 |
| 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 |

* 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 | 2,591 | 13,880 | 0.1867 | 0.2038 | 0.1950 | 0.2000 | 2,707 | 2,776 |
| 2 | 3,622 | 24,336 | 0.1488 | 0.1465 | 0.1350 | 0.1410 | 3,285 | 3,431 |
| 3 | 2,132 | 17,691 | 0.1205 | 0.1197 | 0.1000 | 0.1100 | 1,769 | 1,946 |
| 4 | 1,431 | 14,674 | 0.0975 | 0.0979 | 0.0800 | 0.0890 | 1,174 | 1,306 |
| 5 | 1,180 | 12,330 | 0.0957 | 0.0965 | 0.0740 | 0.0850 | 912 | 1,048 |
| 6 | 794 | 10,311 | 0.0770 | 0.0749 | 0.0600 | 0.0670 | 619 | 691 |
| 7 | 592 | 9,106 | 0.0650 | 0.0627 | 0.0500 | 0.0560 | 455 | 510 |
| 8 | 456 | 8,011 | 0.0569 | 0.0545 | 0.0450 | 0.0500 | 360 | 401 |
| 9 | 416 | 7,246 | 0.0574 | 0.0549 | 0.0400 | 0.0470 | 290 | 341 |
| 10 | 357 | 6,775 | 0.0527 | 0.0499 | 0.0375 | 0.0450 | 254 | 305 |
| Totals (10 and under) | 13,571 | 124,360 | 0.1091 | 0.0769 | 0.0622 | 0.0697 | 11,825 | 12,755 |

| | <u>Actual</u> | | <u>Proposed</u> |
|---------------------------------------|---------------|--------|-----------------|
| Current | 0.1091 | 0.0769 | 0.0697 |
| Previous Investigation Results | | | |
| 2009-2011 | 0.0903 | | 0.0937 |
| 2006-2008 | 0.0980 | | 0.0940 |
| 2003-2005 | 0.1497 | | 0.1404 |

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 | 5 | 60 | 0.0833 | 0.0885 | 0.0375 | 0.0450 | 2 | 3 |
| 30-34 | 100 | 1,745 | 0.0573 | 0.0542 | 0.0300 | 0.0420 | 52 | 69 |
| 35-39 | 237 | 6,353 | 0.0373 | 0.0345 | 0.0260 | 0.0300 | 162 | 193 |
| 40-44 | 334 | 10,496 | 0.0318 | 0.0276 | 0.0200 | 0.0250 | 212 | 260 |
| 45-49 | 465 | 16,789 | 0.0277 | 0.0213 | 0.0170 | 0.0200 | 286 | 338 |
| 50-54 | 689 | 27,014 | 0.0255 | 0.0197 | 0.0150 | 0.0175 | 411 | 480 |
| Totals | 1,830 | 62,457 | 0.0293 | 0.0225 | 0.0171 | 0.0203 | 1,125 | 1,343 |

| | <u>Actual</u> | | <u>Proposed</u> |
|--|---------------|--------|-----------------|
| Current | 0.0293 | 0.0225 | 0.0203 |
| Previous Investigation Results (combined) | | | |
| 2009-2011 | 0.0665 | | 0.0686 |
| 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 |

* 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 | 202 | 1,767 | 0.1143 | 0.1900 | 0.1770 | 0.1830 | 313 | 323 |
| 2 | 295 | 3,197 | 0.0923 | 0.1125 | 0.1140 | 0.1100 | 364 | 352 |
| 3 | 226 | 2,708 | 0.0835 | 0.0833 | 0.0730 | 0.0780 | 198 | 211 |
| 4 | 146 | 2,317 | 0.0630 | 0.0650 | 0.0520 | 0.0590 | 120 | 137 |
| 5 | 117 | 2,085 | 0.0561 | 0.0587 | 0.0390 | 0.0490 | 81 | 102 |
| 6 | 91 | 2,086 | 0.0436 | 0.0410 | 0.0300 | 0.0360 | 63 | 75 |
| 7 | 78 | 2,067 | 0.0377 | 0.0363 | 0.0280 | 0.0320 | 58 | 66 |
| 8 | 59 | 2,126 | 0.0278 | 0.0263 | 0.0250 | 0.0260 | 53 | 55 |
| 9 | 70 | 2,113 | 0.0331 | 0.0320 | 0.0200 | 0.0260 | 42 | 55 |
| 10 | 66 | 2,069 | 0.0319 | 0.0296 | 0.0180 | 0.0240 | 37 | 50 |
| Totals (10 and under) | 1,350 | 22,535 | 0.0599 | 0.0420 | 0.0321 | 0.0371 | 1,329 | 1,426 |

| | <u>Actual</u> | | <u>Proposed</u> |
|---------------------------------------|---------------|--------|-----------------|
| Current | 0.0599 | 0.0420 | 0.0371 |
| Previous Investigation Results | | | |
| 2009-2011 | 0.0509 | | 0.0553 |
| 2006-2008 | 0.0522 | | 0.0540 |
| 2003-2005 | 0.1057 | | 0.0993 |

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 | 0.0180 | 0.0125 | - | - |
| 30-34 | 12 | 730 | 0.0164 | 0.0150 | 0.0120 | 0.0125 | 9 | 9 |
| 35-39 | 102 | 5,647 | 0.0181 | 0.0159 | 0.0115 | 0.0125 | 64 | 71 |
| 40-44 | 140 | 7,817 | 0.0179 | 0.0156 | 0.0105 | 0.0125 | 82 | 98 |
| 45-49 | 146 | 7,951 | 0.0184 | 0.0147 | 0.0100 | 0.0125 | 80 | 99 |
| 50-54 | 146 | 7,455 | 0.0196 | 0.0162 | 0.0095 | 0.0125 | 71 | 93 |
| Totals | 546 | 29,600 | 0.0184 | 0.0156 | 0.0101 | 0.0125 | 306 | 370 |

| | <u>Actual</u> | <u>Proposed</u> |
|--|---------------|-----------------|
| Current | 0.0184 | 0.0156 |
| Previous Investigation Results (combined) | | 0.0125 |
| 2009-2011 | 0.0298 | 0.0309 |
| 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 |

* 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 | 532 | 5,165 | 0.1030 | 0.1692 | 0.1500 | 0.1600 | 775 | 826 |
| 2 | 834 | 9,125 | 0.0914 | 0.1119 | 0.1050 | 0.1080 | 958 | 986 |
| 3 | 622 | 7,761 | 0.0801 | 0.0834 | 0.0710 | 0.0770 | 551 | 598 |
| 4 | 446 | 6,944 | 0.0642 | 0.0607 | 0.0550 | 0.0580 | 382 | 403 |
| 5 | 388 | 6,728 | 0.0577 | 0.0548 | 0.0460 | 0.0500 | 309 | 336 |
| 6 | 333 | 6,716 | 0.0496 | 0.0465 | 0.0400 | 0.0430 | 269 | 289 |
| 7 | 291 | 6,723 | 0.0433 | 0.0402 | 0.0350 | 0.0380 | 235 | 255 |
| 8 | 242 | 6,425 | 0.0377 | 0.0370 | 0.0300 | 0.0340 | 193 | 218 |
| 9 | 212 | 6,158 | 0.0344 | 0.0317 | 0.0250 | 0.0280 | 154 | 172 |
| 10 | 177 | 6,081 | 0.0291 | 0.0269 | 0.0230 | 0.0250 | 140 | 152 |
| Totals (10 and under) | 4,077 | 67,826 | 0.0601 | 0.0429 | 0.0365 | 0.0397 | 3,966 | 4,235 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0601 | 0.0429 |
| Previous Investigation Results | | |
| 2009-2011 | 0.0520 | 0.0565 |
| 2006-2008 | 0.0564 | 0.0563 |
| 2005-2007 | 0.0713 | 0.0705 |

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 | - | - | N\A | N\A | 0.0220 | 0.0220 | - | - |
| 30-34 | 43 | 2,182 | 0.0197 | 0.0180 | 0.0170 | 0.0175 | 34 | 36 |
| 35-39 | 297 | 13,985 | 0.0212 | 0.0193 | 0.0120 | 0.0150 | 170 | 208 |
| 40-44 | 300 | 18,290 | 0.0164 | 0.0142 | 0.0095 | 0.0120 | 178 | 223 |
| 45-49 | 307 | 19,718 | 0.0156 | 0.0126 | 0.0092 | 0.0110 | 182 | 217 |
| 50-54 | 358 | 19,262 | 0.0186 | 0.0153 | 0.0090 | 0.0100 | 174 | 195 |
| Totals | 1,305 | 73,437 | 0.0178 | 0.0147 | 0.0096 | 0.0113 | 738 | 879 |

| | <u>Actual</u> | <u>Proposed</u> |
|--|---------------|-----------------|
| Current | 0.0178 | 0.0147 |
| Previous Investigation Results (combined) | | |
| 2009-2011 | 0.0313 | 0.0336 |
| 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 |

* 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 | 196 | 1,073 | 0.1827 | 0.1048 | 0.1830 | 0.1600 | 196 | 172 |
| 2 | 333 | 2,013 | 0.1654 | 0.1379 | 0.1500 | 0.1400 | 302 | 282 |
| 3 | 292 | 1,931 | 0.1512 | 0.1252 | 0.1130 | 0.1200 | 218 | 232 |
| 4 | 210 | 1,568 | 0.1339 | 0.1108 | 0.0960 | 0.1000 | 151 | 157 |
| 5 | 122 | 1,364 | 0.0894 | 0.0782 | 0.0850 | 0.0850 | 116 | 116 |
| 6 | 112 | 1,155 | 0.0970 | 0.0878 | 0.0750 | 0.0800 | 87 | 92 |
| 7 | 100 | 1,074 | 0.0931 | 0.0958 | 0.0700 | 0.0750 | 75 | 81 |
| 8 | 62 | 892 | 0.0695 | 0.0590 | 0.0550 | 0.0570 | 49 | 51 |
| 9 | 48 | 844 | 0.0569 | 0.0482 | 0.0430 | 0.0460 | 36 | 39 |
| 10 | 34 | 801 | 0.0424 | 0.0434 | 0.0320 | 0.0400 | 26 | 32 |
| Totals (10 and under) | 1,509 | 12,715 | 0.1187 | 0.0771 | 0.0683 | 0.0720 | 1,256 | 1,254 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.1187 | 0.0771 |
| Previous Investigation Results | | |
| 2009-2011 | 0.1050 | 0.0967 |
| 2006-2008 | 0.1114 | 0.0981 |
| 2003-2005 | 0.1102 | 0.1051 |

**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 | 0.0320 | 0.0400 | - | - |
| 30-34 | 4 | 77 | 0.0519 | 0.0723 | 0.0320 | 0.0375 | 2 | 3 |
| 35-39 | 26 | 541 | 0.0481 | 0.0420 | 0.0310 | 0.0350 | 16 | 18 |
| 40-44 | 47 | 1,469 | 0.0320 | 0.0290 | 0.0250 | 0.0275 | 36 | 40 |
| 45-49 | 59 | 2,263 | 0.0261 | 0.0226 | 0.0180 | 0.0200 | 41 | 46 |
| 50-54 | 68 | 2,714 | 0.0251 | 0.0232 | 0.0140 | 0.0175 | 39 | 48 |
| Totals | 204 | 7,064 | 0.0289 | 0.0248 | 0.0176 | 0.0206 | 134 | 155 |

| | <u>Actual</u> | | <u>Proposed</u> |
|--|---------------|--------|-----------------|
| Current | 0.0289 | 0.0248 | 0.0206 |
| Previous Investigation Results (combined) | | | |
| 2009-2011 | 0.0749 | | 0.0695 |
| 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 |

* 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 | 216 | 1,317 | 0.1640 | 0.0909 | 0.2200 | 0.1600 | 290 | 211 |
| 2 | 408 | 2,408 | 0.1694 | 0.1515 | 0.1500 | 0.1500 | 361 | 361 |
| 3 | 361 | 2,260 | 0.1597 | 0.1328 | 0.1250 | 0.1300 | 283 | 294 |
| 4 | 230 | 1,944 | 0.1183 | 0.1060 | 0.1000 | 0.1000 | 194 | 194 |
| 5 | 188 | 1,740 | 0.1080 | 0.1028 | 0.0950 | 0.0990 | 165 | 172 |
| 6 | 151 | 1,543 | 0.0979 | 0.0875 | 0.0800 | 0.0840 | 123 | 130 |
| 7 | 88 | 1,405 | 0.0626 | 0.0588 | 0.0700 | 0.0640 | 98 | 90 |
| 8 | 70 | 1,196 | 0.0585 | 0.0549 | 0.0600 | 0.0570 | 72 | 68 |
| 9 | 56 | 1,132 | 0.0495 | 0.0440 | 0.0500 | 0.0470 | 57 | 53 |
| 10 | 51 | 1,015 | 0.0502 | 0.0437 | 0.0400 | 0.0420 | 41 | 43 |
| Totals (10 and under) | 1,819 | 15,960 | 0.1140 | 0.0734 | 0.0741 | 0.0735 | 1,684 | 1,616 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.1140 | 0.0734 |
| Previous Investigation Results | | |
| 2009-2011 | 0.0999 | 0.1054 |
| 2006-2008 | 0.1176 | 0.1137 |
| 2003-2005 | 0.1281 | 0.1186 |

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 | - | - | N/A | N/A | 0.0500 | 0.0500 | - | - |
| 30-34 | 7 | 157 | 0.0446 | 0.0456 | 0.0420 | 0.0440 | 6 | 7 |
| 35-39 | 42 | 824 | 0.0510 | 0.0490 | 0.0390 | 0.0400 | 31 | 32 |
| 40-44 | 52 | 1,554 | 0.0335 | 0.0263 | 0.0310 | 0.0300 | 47 | 46 |
| 45-49 | 67 | 2,277 | 0.0294 | 0.0233 | 0.0230 | 0.0230 | 52 | 53 |
| 50-54 | 76 | 2,770 | 0.0274 | 0.0238 | 0.0150 | 0.0200 | 44 | 56 |
| Totals | 244 | 7,582 | 0.0322 | 0.0256 | 0.0215 | 0.0238 | 180 | 194 |

| | <u>Actual</u> | | <u>Proposed</u> |
|--|---------------|--------|-----------------|
| Current | 0.0322 | 0.0256 | 0.0238 |
| Previous Investigation Results (combined) | | | |
| 2009-2011 | 0.0765 | | 0.0799 |
| 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 |

* 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 | 181 | 1,274 | 0.1421 | 0.1968 | 0.1500 | 0.1700 | 191 | 217 |
| 2 | 227 | 2,737 | 0.0829 | 0.0910 | 0.0700 | 0.0800 | 192 | 219 |
| 3 | 136 | 2,220 | 0.0613 | 0.0559 | 0.0430 | 0.0500 | 95 | 111 |
| 4 | 108 | 2,035 | 0.0531 | 0.0488 | 0.0380 | 0.0430 | 77 | 88 |
| 5 | 103 | 2,164 | 0.0476 | 0.0425 | 0.0340 | 0.0380 | 74 | 82 |
| 6 | 91 | 2,401 | 0.0379 | 0.0369 | 0.0260 | 0.0310 | 62 | 74 |
| 7 | 91 | 2,392 | 0.0380 | 0.0338 | 0.0250 | 0.0300 | 60 | 72 |
| 8 | 83 | 2,175 | 0.0382 | 0.0342 | 0.0230 | 0.0290 | 50 | 63 |
| 9 | 72 | 2,024 | 0.0356 | 0.0308 | 0.0200 | 0.0250 | 40 | 51 |
| 10 | 56 | 1,948 | 0.0287 | 0.0266 | 0.0170 | 0.0220 | 33 | 43 |
| Totals (10 and under) | 1,148 | 21,370 | 0.0537 | 0.0366 | 0.0259 | 0.0313 | 874 | 1,020 |

| | <u>Actual</u> | | <u>Proposed</u> |
|---------------------------------------|---------------|--------|-----------------|
| Current | 0.0537 | 0.0366 | 0.0313 |
| Previous Investigation Results | | | |
| 2009-2011 | 0.0357 | | 0.0390 |
| 2006-2008 | 0.0440 | | 0.0402 |
| 2003-2005 | 0.0429 | | 0.0390 |

**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 | - | 29 | 0.0000 | 0.0000 | 0.0170 | 0.0200 | - | 1 |
| 30-34 | 44 | 2,026 | 0.0217 | 0.0187 | 0.0150 | 0.0170 | 30 | 34 |
| 35-39 | 125 | 6,191 | 0.0202 | 0.0172 | 0.0130 | 0.0150 | 80 | 92 |
| 40-44 | 132 | 8,843 | 0.0149 | 0.0128 | 0.0110 | 0.0120 | 99 | 108 |
| 45-49 | 133 | 8,254 | 0.0161 | 0.0127 | 0.0105 | 0.0110 | 87 | 91 |
| 50-54 | 57 | 1,610 | 0.0354 | 0.0576 | 0.0100 | 0.0100 | 16 | 16 |
| Totals | 491 | 26,953 | 0.0182 | 0.0163 | 0.0112 | 0.0121 | 312 | 342 |

| | <u>Actual</u> | <u>Proposed</u> |
|--|---------------|-----------------|
| Current | 0.0182 | 0.0163 |
| Previous Investigation Results (combined) | | |
| 2009-2011 | 0.0238 | 0.0249 |
| 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 |

* 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 | 6 | 101 | 0.0594 | 0.2197 | 0.0400 | 0.0400 | 4 | 4 |
| 2 | 7 | 270 | 0.0259 | 0.0369 | 0.0350 | 0.0350 | 9 | 9 |
| 3 | 4 | 264 | 0.0152 | 0.0119 | 0.0210 | 0.0150 | 6 | 4 |
| 4 | 2 | 275 | 0.0073 | 0.0063 | 0.0130 | 0.0130 | 4 | 4 |
| 5 | 4 | 296 | 0.0135 | 0.0083 | 0.0120 | 0.0120 | 4 | 4 |
| 6 | 6 | 285 | 0.0211 | 0.0178 | 0.0110 | 0.0110 | 3 | 3 |
| 7 | 1 | 297 | 0.0034 | 0.0028 | 0.0100 | 0.0100 | 3 | 3 |
| 8 | 5 | 260 | 0.0192 | 0.0161 | 0.0090 | 0.0090 | 2 | 2 |
| 9 | 1 | 255 | 0.0039 | 0.0004 | 0.0080 | 0.0080 | 2 | 2 |
| 10 | 5 | 239 | 0.0209 | 0.0211 | 0.0070 | 0.0070 | 2 | 2 |
| Totals (10 and under) | 41 | 2,542 | 0.0161 | 0.0119 | 0.0102 | 0.0100 | 39 | 37 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0161 | 0.0119 |
| Previous Investigation Results | | |
| 2009-2011 | 0.0129 | 0.0148 |
| 2006-2008 | 0.0150 | 0.0150 |
| 2003-2005 | 0.0128 | 0.0136 |

**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 | 0.0070 | 0.0070 | - | - |
| 30-34 | 2 | 174 | 0.0115 | 0.0094 | 0.0070 | 0.0070 | 1 | 1 |
| 35-39 | 4 | 843 | 0.0047 | 0.0040 | 0.0065 | 0.0065 | 5 | 5 |
| 40-44 | 13 | 1,359 | 0.0096 | 0.0088 | 0.0060 | 0.0060 | 8 | 8 |
| 45-49 | 5 | 1,344 | 0.0037 | 0.0041 | 0.0055 | 0.0055 | 7 | 7 |
| 50-54 | 18 | 215 | 0.0837 | 0.1670 | 0.0050 | 0.0050 | 1 | 1 |
| Totals | 42 | 3,935 | 0.0107 | 0.0160 | 0.0058 | 0.0058 | 22 | 22 |

| | <u>Actual</u> | | <u>Proposed</u> |
|---------------------------------------|---------------|--------|-----------------|
| Current | 0.0107 | 0.0160 | 0.0058 |
| Previous Investigation Results | | | |
| 2009-2011 | 0.0108 | | 0.0094 |
| 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 |

* 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 | 23 | 148 | 0.1554 | 0.1450 | 0.2000 | 0.1800 | 30 | 27 |
| 2 | 40 | 329 | 0.1216 | 0.1038 | 0.1400 | 0.1400 | 46 | 46 |
| 3 | 39 | 194 | 0.2010 | 0.1601 | 0.1400 | 0.1200 | 27 | 23 |
| 4 | 12 | 149 | 0.0805 | 0.0672 | 0.1000 | 0.1000 | 15 | 15 |
| 5 | 15 | 83 | 0.1807 | 0.1130 | 0.1000 | 0.1000 | 8 | 8 |
| 6 | 3 | 68 | 0.0441 | 0.0175 | 0.0900 | 0.0800 | 6 | 5 |
| 7 | 6 | 65 | 0.0923 | 0.0872 | 0.0850 | 0.0700 | 6 | 5 |
| 8 | 3 | 62 | 0.0484 | 0.0357 | 0.0800 | 0.0600 | 5 | 4 |
| 9 | 4 | 60 | 0.0667 | 0.0742 | 0.0750 | 0.0600 | 5 | 4 |
| 10 | 5 | 75 | 0.0667 | 0.0444 | 0.0700 | 0.0600 | 5 | 5 |
| Totals(10 and under) | 150 | 1,233 | 0.1217 | 0.0801 | 0.1011 | 0.0913 | 153 | 142 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.1217 | 0.0801 |
| Previous Investigation Results | | |
| 2009-2011 | 0.1212 | 0.1246 |
| 2006-2008 | 0.1257 | 0.1211 |
| 2003-2005 | 0.1226 | 0.1142 |

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 | 0.0600 | 0.0600 | - | - |
| 30-34 | - | - | N\A | N\A | 0.0450 | 0.0450 | - | - |
| 35-39 | 1 | 52 | 0.0192 | 0.0427 | 0.0400 | 0.0420 | 2 | 2 |
| 40-44 | 6 | 143 | 0.0420 | 0.0547 | 0.0350 | 0.0400 | 5 | 5 |
| 45-49 | 7 | 237 | 0.0295 | 0.0205 | 0.0320 | 0.0260 | 8 | 6 |
| 50-54 | 11 | 401 | 0.0274 | 0.0243 | 0.0300 | 0.0240 | 12 | 10 |
| Totals | 25 | 833 | 0.0300 | 0.0273 | 0.0314 | 0.0268 | 27 | 23 |

| | <u>Actual</u> | | <u>Proposed</u> |
|--|---------------|--------|-----------------|
| Current | 0.0300 | 0.0273 | 0.0268 |
| Previous Investigation Results (combined) | | | |
| 2009-2011 | 0.0797 | | 0.0855 |
| 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 |

* 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 | - | 40 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 20-24 | - | 2,475 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 25-29 | - | 8,258 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 30-34 | - | 11,116 | 0.0000 | 0.0001 | 0.0001 | 1 | 1 |
| 35-39 | - | 12,051 | 0.0000 | 0.0002 | 0.0002 | 2 | 2 |
| 40-44 | 2 | 14,994 | 0.0001 | 0.0005 | 0.0005 | 8 | 7 |
| 45-49 | 13 | 18,670 | 0.0007 | 0.0007 | 0.0006 | 17 | 14 |
| 50-54 | 33 | 24,771 | 0.0013 | 0.0020 | 0.0017 | 50 | 42 |
| 55-59 | 51 | 22,099 | 0.0023 | 0.0035 | 0.0030 | 77 | 64 |
| 60-64 | 39 | 13,173 | 0.0030 | 0.0070 | 0.0059 | 79 | 66 |
| 65-69 | 2 | 2,369 | 0.0008 | 0.0027 | 0.0023 | 8 | 7 |
| 70-74 | - | 615 | 0.0000 | 0.0024 | 0.0020 | 1 | 1 |
| 75 and over | - | - | N\A | 0.0024 | 0.0020 | - | - |
| Totals | 140 | 130,631 | 0.0011 | 0.0019 | 0.0016 | 243 | 204 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0011 | 0.0016 |
| Previous Investigation Results | | |
| 2009-2011 | 0.0011 | 0.0018 |
| 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 |

* 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 | - | 103 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 20-24 | - | 4,964 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 25-29 | - | 15,914 | 0.0000 | 0.0001 | 0.0001 | 2 | 2 |
| 30-34 | - | 19,543 | 0.0000 | 0.0003 | 0.0002 | 6 | 5 |
| 35-39 | 1 | 22,193 | 0.0000 | 0.0004 | 0.0003 | 9 | 7 |
| 40-44 | 3 | 28,075 | 0.0001 | 0.0006 | 0.0004 | 17 | 13 |
| 45-49 | 7 | 37,559 | 0.0002 | 0.0008 | 0.0006 | 31 | 25 |
| 50-54 | 52 | 48,511 | 0.0011 | 0.0013 | 0.0010 | 68 | 54 |
| 55-59 | 66 | 43,099 | 0.0015 | 0.0025 | 0.0020 | 103 | 81 |
| 60-64 | 46 | 24,809 | 0.0019 | 0.0032 | 0.0025 | 74 | 58 |
| 65-69 | 4 | 4,735 | 0.0008 | 0.0025 | 0.0020 | 12 | 10 |
| 70-74 | - | 970 | 0.0000 | 0.0021 | 0.0017 | 2 | 2 |
| 75 and over | - | - | N/A | 0.0021 | 0.0017 | - | - |
| Totals | 179 | 250,475 | 0.0007 | 0.0013 | 0.0010 | 324 | 257 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0007 | 0.0010 |
| Previous Investigation Results | | |
| 2009-2011 | 0.0007 | 0.0013 |
| 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 |

* 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 | - | 3 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 20-24 | - | 413 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 25-29 | - | 5,027 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 30-34 | - | 7,983 | 0.0000 | 0.0001 | 0.0001 | 1 | - |
| 35-39 | - | 9,398 | 0.0000 | 0.0001 | 0.0001 | 1 | 1 |
| 40-44 | 1 | 10,090 | 0.0001 | 0.0002 | 0.0002 | 3 | 2 |
| 45-49 | 2 | 9,585 | 0.0002 | 0.0005 | 0.0004 | 5 | 4 |
| 50-54 | 10 | 8,737 | 0.0011 | 0.0018 | 0.0013 | 14 | 11 |
| 55-59 | 11 | 5,978 | 0.0018 | 0.0023 | 0.0017 | 14 | 11 |
| 60-64 | 6 | 2,623 | 0.0023 | 0.0041 | 0.0031 | 10 | 8 |
| 65-69 | 1 | 426 | 0.0023 | 0.0058 | 0.0043 | 2 | 2 |
| 70-74 | - | 76 | 0.0000 | 0.0060 | 0.0045 | - | - |
| 75 and over | - | - | N/A | 0.0060 | 0.0045 | - | - |
| Totals | 31 | 60,339 | 0.0005 | 0.0008 | 0.0006 | 50 | 39 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0005 | 0.0006 |
| Previous Investigation Results | | |
| 2009-2011 | 0.0006 | 0.0009 |
| 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 |

* 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 | - | 1,856 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 25-29 | - | 17,185 | 0.0000 | 0.0001 | 0.0001 | 2 | 1 |
| 30-34 | - | 22,907 | 0.0000 | 0.0001 | 0.0001 | 2 | 2 |
| 35-39 | - | 23,208 | 0.0000 | 0.0001 | 0.0001 | 2 | 2 |
| 40-44 | - | 25,014 | 0.0000 | 0.0003 | 0.0002 | 9 | 7 |
| 45-49 | 9 | 25,471 | 0.0004 | 0.0010 | 0.0008 | 23 | 19 |
| 50-54 | 27 | 23,826 | 0.0011 | 0.0014 | 0.0011 | 33 | 27 |
| 55-59 | 39 | 17,160 | 0.0023 | 0.0021 | 0.0017 | 34 | 29 |
| 60-64 | 6 | 8,174 | 0.0007 | 0.0029 | 0.0024 | 22 | 18 |
| 65-69 | 1 | 1,026 | 0.0010 | 0.0016 | 0.0014 | 2 | 2 |
| 70-74 | - | 160 | 0.0000 | 0.0014 | 0.0011 | - | - |
| 75 and over | - | - | N/A | 0.0014 | 0.0011 | - | - |
| Totals | 82 | 165,988 | 0.0005 | 0.0008 | 0.0006 | 129 | 107 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0005 | 0.0006 |
| Previous Investigation Results | | |
| 2009-2011 | 0.0006 | 0.0008 |
| 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 |

* 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 | 0.0000 | - | - |
| 20-24 | - | 133 | 0.0000 | 0.0001 | 0.0000 | - | - |
| 25-29 | - | 1,093 | 0.0000 | 0.0001 | 0.0000 | - | - |
| 30-34 | - | 2,437 | 0.0000 | 0.0001 | 0.0000 | - | - |
| 35-39 | - | 3,562 | 0.0000 | 0.0001 | 0.0000 | - | - |
| 40-44 | - | 4,081 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 45-49 | - | 3,971 | 0.0000 | 0.0003 | 0.0001 | 1 | 1 |
| 50-54 | - | 3,865 | 0.0000 | 0.0005 | 0.0002 | 2 | 1 |
| 55-59 | 1 | 3,928 | 0.0003 | 0.0015 | 0.0007 | 5 | 3 |
| 60-64 | - | 2,696 | 0.0000 | 0.0014 | 0.0007 | 4 | 2 |
| 65-69 | - | 611 | 0.0000 | 0.0017 | 0.0009 | 1 | - |
| 70-74 | - | 106 | 0.0000 | 0.0015 | 0.0008 | - | - |
| 75 and over | - | - | N\A | 0.0015 | 0.0008 | - | - |
| Totals | 1 | 26,483 | 0.0000 | 0.0005 | 0.0003 | 13 | 7 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0000 | 0.0003 |
| Previous Investigation Results | | |
| 2009-2011 | 0.0004 | 0.0005 |
| 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 |

* 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 | - | 1 | 0.0000 | 0.0001 | 0.0000 | - | - |
| 20-24 | - | 216 | 0.0000 | 0.0001 | 0.0000 | - | - |
| 25-29 | - | 1,868 | 0.0000 | 0.0001 | 0.0000 | - | - |
| 30-34 | - | 3,649 | 0.0000 | 0.0001 | 0.0000 | - | - |
| 35-39 | - | 4,278 | 0.0000 | 0.0004 | 0.0003 | 1 | 1 |
| 40-44 | - | 4,297 | 0.0000 | 0.0005 | 0.0004 | 2 | 1 |
| 45-49 | - | 4,163 | 0.0000 | 0.0004 | 0.0003 | 2 | 1 |
| 50-54 | 3 | 4,356 | 0.0007 | 0.0009 | 0.0007 | 4 | 3 |
| 55-59 | 7 | 3,812 | 0.0018 | 0.0012 | 0.0010 | 4 | 4 |
| 60-64 | 3 | 2,459 | 0.0012 | 0.0018 | 0.0015 | 4 | 4 |
| 65-69 | - | 451 | 0.0000 | 0.0012 | 0.0010 | 1 | 1 |
| 70-74 | - | 85 | 0.0000 | 0.0010 | 0.0009 | - | - |
| 75 and over | - | - | N/A | 0.0010 | 0.0009 | - | - |
| Totals | 13 | 29,635 | 0.0004 | 0.0006 | 0.0005 | 18 | 15 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0004 | 0.0005 |
| Previous Investigation Results | | |
| 2009-2011 | 0.0004 | 0.0006 |
| 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 |

* 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 | - | 2 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 20-24 | - | 1,208 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 25-29 | - | 6,410 | 0.0000 | 0.0001 | 0.0001 | 1 | 1 |
| 30-34 | - | 8,732 | 0.0000 | 0.0001 | 0.0001 | 1 | 1 |
| 35-39 | - | 9,275 | 0.0000 | 0.0003 | 0.0002 | 3 | 2 |
| 40-44 | 1 | 10,717 | 0.0001 | 0.0004 | 0.0003 | 4 | 3 |
| 45-49 | 8 | 9,398 | 0.0009 | 0.0006 | 0.0004 | 5 | 4 |
| 50-54 | 20 | 6,049 | 0.0033 | 0.0009 | 0.0007 | 12 | 8 |
| 55-59 | 1 | 1,795 | 0.0006 | 0.0196 | 0.0140 | 31 | 22 |
| 60-64 | - | 802 | 0.0000 | 0.0210 | 0.0150 | 15 | 11 |
| 65-69 | - | 153 | 0.0000 | 0.0014 | 0.0010 | 1 | 1 |
| 70-74 | - | 15 | 0.0000 | 0.0014 | 0.0010 | - | - |
| 75 and over | - | 4 | 0.0000 | 0.0014 | 0.0010 | - | - |
| Totals | 30 | 54,560 | 0.0005 | 0.0013 | 0.0010 | 73 | 53 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0005 | 0.0010 |
| Previous Investigation Results | | |
| 2009-2011 | 0.0007 | 0.0011 |
| 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 | |

* 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 | 0.0004 | 0.0004 | - | - |
| 20-24 | - | 102 | 0.0000 | 0.0004 | 0.0004 | - | - |
| 25-29 | - | 739 | 0.0000 | 0.0004 | 0.0004 | - | - |
| 30-34 | - | 1,117 | 0.0000 | 0.0004 | 0.0004 | - | - |
| 35-39 | - | 1,280 | 0.0000 | 0.0005 | 0.0004 | 1 | 1 |
| 40-44 | - | 1,568 | 0.0000 | 0.0008 | 0.0007 | 1 | 1 |
| 45-49 | 3 | 1,415 | 0.0021 | 0.0016 | 0.0014 | 4 | 3 |
| 50-54 | 6 | 1,021 | 0.0059 | 0.0112 | 0.0098 | 9 | 8 |
| 55-59 | - | 96 | 0.0000 | 0.0016 | 0.0014 | - | - |
| 60-64 | - | 16 | 0.0000 | 0.0016 | 0.0014 | - | - |
| 65-69 | - | 3 | 0.0000 | 0.0016 | 0.0014 | - | - |
| 70-74 | - | - | N\A | 0.0016 | 0.0014 | - | - |
| 75 and over | - | - | N\A | 0.0016 | 0.0014 | - | - |
| Totals | 9 | 7,357 | 0.0012 | 0.0020 | 0.0018 | 15 | 13 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0012 | 0.0018 |
| Previous Investigation Results | | |
| 2009-2011 | 0.0014 | 0.0019 |
| 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 |

* 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 | - | 1 | 0.0000 | 0.0000 | 0.0000 | - | - |
| 25-29 | - | 38 | 0.0000 | 0.0000 | 0.0000 | - | - |
| 30-34 | - | 77 | 0.0000 | 0.0000 | 0.0000 | - | - |
| 35-39 | - | 211 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 40-44 | - | 346 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 45-49 | - | 452 | 0.0000 | 0.0002 | 0.0002 | - | - |
| 50-54 | - | 688 | 0.0000 | 0.0003 | 0.0003 | - | - |
| 55-59 | - | 693 | 0.0000 | 0.0012 | 0.0012 | 1 | 1 |
| 60-64 | - | 485 | 0.0000 | 0.0011 | 0.0011 | 1 | 1 |
| 65-69 | - | 190 | 0.0000 | 0.0009 | 0.0009 | - | - |
| 70-74 | - | 79 | 0.0000 | 0.0009 | 0.0009 | - | - |
| 75 and over | - | - | N/A | 0.0009 | 0.0009 | - | - |
| Totals | - | 3,260 | 0.0000 | 0.0006 | 0.0006 | 2 | 2 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0000 | 0.0006 |
| Previous Investigation Results | | |
| 2009-2011 | 0.0000 | 0.0003 |
| 2006-2008 | 0.0000 | 0.0004 |
| 2003-2005 | 0.0004 | 0.0008 |
| 2000-2002 | 0.0006 | 0.0012 |
| 1997-1999 | 0.0007 | 0.0012 |

* 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 | | |
|-------------------|---------|----------------------------|-----------|----------|
| Beginning of Year | Number | Actual | Expected* | |
| | | | Present | Proposed |
| 1-5 | 108,215 | 4.35 % | 3.45 % | 3.45 % |
| 6-10 | 74,829 | 2.10 % | 1.90 % | 1.90 % |
| 11-15 | 65,814 | 1.15 % | 1.25 % | 1.25 % |
| 16-20 | 42,925 | 0.96 % | 1.00 % | 1.00 % |
| 21-25 | 33,044 | 0.66 % | 0.75 % | 0.75 % |
| 26-30 | 20,078 | 0.52 % | 0.50 % | 0.50 % |
| 31-35 | 11,724 | 0.18 % | 0.30 % | 0.30 % |
| 36-40 | 4,206 | 0.19 % | 0.20 % | 0.20 % |
| Over 40 | 651 | 0.09 % | 0.10 % | 0.10 % |
| Total | 361,486 | | | |

* 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 | | |
|----------------------|---------|----------------------------|-----------|----------|
| Beginning of Year | Number | Actual | Expected* | |
| | | | Present | Proposed |
| 1-5 | 44,694 | 5.52 % | 5.75 % | 5.60 % |
| 6-10 | 44,144 | 2.71 % | 4.00 % | 3.40 % |
| 11-15 | 46,112 | 1.43 % | 2.70 % | 2.10 % |
| 16-20 | 35,907 | 0.64 % | 1.25 % | 1.00 % |
| 21-25 | 26,030 | 0.20 % | 0.55 % | 0.35 % |
| 26-30 | 14,073 | 0.14 % | 0.25 % | 0.20 % |
| 31-35 | 5,697 | 0.07 % | 0.20 % | 0.15 % |
| 36-40 | 1,314 | 0.14 % | 0.10 % | 0.10 % |
| Over 40 | 242 | (1.44)% | 0.05 % | 0.05 % |
| Total | 218,213 | | | |

* 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 | | |
|----------------------|--------|----------------------------|-----------|----------|
| Beginning of Year | Number | Actual | Expected* | |
| | | | Present | Proposed |
| 1-5 | 15,218 | 2.60 % | 3.15 % | 3.00 % |
| 6-10 | 11,856 | 2.30 % | 2.75 % | 2.50 % |
| 11-15 | 10,200 | 1.80 % | 2.10 % | 2.00 % |
| 16-20 | 6,394 | 1.52 % | 1.50 % | 1.50 % |
| 21-25 | 4,884 | 1.00 % | 0.90 % | 0.95 % |
| 26-30 | 3,164 | 0.85 % | 0.75 % | 0.80 % |
| 31-35 | 1,608 | 0.69 % | 0.50 % | 0.60 % |
| 36-40 | 641 | 0.13 % | 0.35 % | 0.20 % |
| Over 40 | 257 | 0.08 % | 0.20 % | 0.10 % |
| Total | 54,222 | | | |

* 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 | | |
|----------------------|--------|----------------------------|-----------|----------|
| Beginning of Year | Number | Actual | Expected* | |
| | | | Present | Proposed |
| 1-5 | 9,409 | 6.19 % | 4.75 % | 4.75 % |
| 6-10 | 10,828 | 2.07 % | 1.50 % | 1.50 % |
| 11-15 | 12,464 | 0.98 % | 0.90 % | 0.90 % |
| 16-20 | 10,125 | 0.50 % | 0.80 % | 0.80 % |
| 21-25 | 6,850 | 0.64 % | 0.70 % | 0.70 % |
| 26-30 | 3,195 | 0.38 % | 0.60 % | 0.60 % |
| 31-35 | 884 | (0.02)% | 0.50 % | 0.50 % |
| 36-40 | 211 | 0.10 % | 0.40 % | 0.40 % |
| Over 40 | 25 | 0.59 % | 0.20 % | 0.20 % |
| Total | 53,991 | | | |

* 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 | | |
|----------------------|--------|----------------------------|-----------|----------|
| Beginning of Year | Number | Actual | Expected* | |
| | | | Present | Proposed |
| 1-5 | 1,175 | 8.32 % | 5.50 % | 5.50 % |
| 6-10 | 1,325 | 1.60 % | 1.30 % | 1.30 % |
| 11-15 | 1,600 | 1.30 % | 0.60 % | 0.60 % |
| 16-20 | 1,527 | 1.34 % | 0.50 % | 0.50 % |
| 21-25 | 1,317 | 1.26 % | 0.40 % | 0.40 % |
| 26-30 | 670 | 1.03 % | 0.30 % | 0.30 % |
| 31-35 | 170 | 0.28 % | 0.20 % | 0.20 % |
| 36-40 | 14 | (0.33)% | 0.10 % | 0.10 % |
| Over 40 | - | 0.00 % | 0.05 % | 0.05 % |
| Total | 7,798 | | | |

* 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 | | |
|----------------------|--------|----------------------------|-----------|----------|
| Beginning of Year | Number | Actual | Expected* | |
| | | | Present | Proposed |
| 1-5 | 1,102 | 4.65 % | 2.00 % | 2.50 % |
| 6-10 | 601 | 1.35 % | 1.75 % | 0.20 % |
| 11-15 | 465 | 1.78 % | 1.50 % | 0.20 % |
| 16-20 | 484 | 2.65 % | 1.00 % | 0.20 % |
| 21-25 | 421 | 1.20 % | 0.50 % | 0.20 % |
| 26-30 | 325 | 1.69 % | 0.40 % | 0.20 % |
| 31-35 | 229 | 0.20 % | 0.30 % | 0.20 % |
| 36-40 | 123 | 0.21 % | 0.20 % | 0.20 % |
| Over 40 | 29 | 1.18 % | 0.10 % | 0.20 % |
| Total | 3,779 | | | |

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

SECTION D

NORMAL & REDUCED 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 | 154 | 892 | 0.1726 | 0.1732 | 0.2000 | 0.1800 | 178 | 161 |
| 58 | 158 | 871 | 0.1814 | 0.1819 | 0.2000 | 0.1800 | 174 | 157 |
| 59 | 112 | 817 | 0.1371 | 0.1373 | 0.2000 | 0.1800 | 163 | 147 |
| 60 | 144 | 820 | 0.1756 | 0.1713 | 0.2000 | 0.1800 | 164 | 148 |
| 61 | 126 | 736 | 0.1712 | 0.1739 | 0.2000 | 0.1800 | 147 | 132 |
| 62 | 161 | 659 | 0.2443 | 0.2360 | 0.2700 | 0.2500 | 178 | 165 |
| 63 | 146 | 492 | 0.2967 | 0.2835 | 0.3200 | 0.3000 | 157 | 148 |
| 64 | 96 | 360 | 0.2667 | 0.2600 | 0.2400 | 0.2500 | 86 | 90 |
| 65 | 356 | 1,708 | 0.2084 | 0.2800 | 0.2400 | 0.2500 | 410 | 427 |
| 66 | 335 | 1,318 | 0.2542 | 0.3454 | 0.3000 | 0.3200 | 395 | 422 |
| 67 | 162 | 862 | 0.1879 | 0.2784 | 0.2400 | 0.2600 | 207 | 224 |
| 68 | 83 | 613 | 0.1354 | 0.2243 | 0.1700 | 0.1900 | 104 | 116 |
| 69 | 76 | 483 | 0.1573 | 0.2726 | 0.1700 | 0.1900 | 82 | 92 |
| 70 | 62 | 406 | 0.1527 | 0.2968 | 0.1700 | 0.1900 | 69 | 77 |
| 71 | 37 | 336 | 0.1101 | 0.2205 | 0.1700 | 0.1900 | 57 | 64 |
| 72 | 24 | 268 | 0.0896 | 0.1627 | 0.1700 | 0.1900 | 46 | 51 |
| 73 | 18 | 212 | 0.0849 | 0.0991 | 0.1700 | 0.1900 | 36 | 40 |
| 74 | 13 | 181 | 0.0718 | 0.3483 | 0.1700 | 0.1900 | 31 | 34 |
| Sub Totals | 2,286 | 12,034 | 0.1900 | 0.2166 | 0.2257 | 0.2163 | 2,684 | 2,695 |
| 75 & Over | 81 | 798 | 0.1015 | 0.2283 | | | 798 | 798 |
| Total | 2,367 | 12,832 | 0.1845 | 0.2167 | | | 3,482 | 3,493 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.1900 | 0.2166 |
| Previous Investigation Results | | |
| 2009-2011 | 0.2103 | 0.2196 |
| 2006-2008 | 0.1840 | 0.2251 |
| 2003-2005 | 0.1768 | 0.2089 |
| 2000-2002 | 0.2753 | 0.2820 |

**GENERAL MALES
REDUCED RETIREMENT EXPERIENCE**

Male Age-Based Reduced Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates | | Expected Retirements | |
|--------|-------------|----------|---------------------------|--------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 55 | 289 | 4,723 | 0.0612 | 0.1001 | 0.0800 | 0.0900 | 378 | 425 |
| 56 | 264 | 4,534 | 0.0582 | 0.0817 | 0.0800 | 0.0900 | 363 | 408 |
| 57 | 139 | 3,415 | 0.0407 | 0.0528 | 0.0425 | 0.0475 | 145 | 162 |
| 58 | 164 | 3,287 | 0.0499 | 0.0639 | 0.0525 | 0.0580 | 173 | 191 |
| 59 | 184 | 3,032 | 0.0607 | 0.0750 | 0.0550 | 0.0650 | 167 | 197 |
| 60 | 208 | 2,875 | 0.0723 | 0.0930 | 0.0750 | 0.0850 | 216 | 244 |
| 61 | 178 | 2,608 | 0.0683 | 0.0857 | 0.0800 | 0.0850 | 209 | 222 |
| 62 | 352 | 2,297 | 0.1532 | 0.1759 | 0.1400 | 0.1600 | 322 | 368 |
| 63 | 249 | 1,733 | 0.1437 | 0.1713 | 0.1600 | 0.1700 | 277 | 295 |
| 64 | 169 | 1,393 | 0.1213 | 0.1460 | 0.1700 | 0.1700 | 237 | 237 |
| Totals | 2,196 | 29,897 | 0.0735 | 0.0946 | 0.0824 | 0.0913 | 2,487 | 2,749 |

| | <u>Actual</u> | | <u>Proposed</u> |
|---------------------------------------|---------------|--------|-----------------|
| Current | 0.0735 | 0.0946 | 0.0913 |
| Previous Investigation Results | | | |
| 2009-2011 | 0.0736 | | 0.0819 |
| 2006-2008 | 0.0663 | | 0.0821 |
| 2003-2005 | 0.0741 | | 0.0777 |
| 2000-2002 | 0.0874 | | 0.0868 |

**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 | 163 | 1,121 | 0.1454 | 0.1439 | 0.1700 | 0.1500 | 191 | 168 |
| 58 | 180 | 994 | 0.1811 | 0.1875 | 0.1700 | 0.1500 | 169 | 149 |
| 59 | 112 | 885 | 0.1266 | 0.1257 | 0.1700 | 0.1500 | 150 | 133 |
| 60 | 130 | 813 | 0.1599 | 0.1657 | 0.2000 | 0.1500 | 163 | 122 |
| 61 | 113 | 740 | 0.1527 | 0.1511 | 0.2000 | 0.1500 | 148 | 111 |
| 62 | 142 | 634 | 0.2240 | 0.2279 | 0.2700 | 0.2500 | 171 | 159 |
| 63 | 139 | 512 | 0.2715 | 0.2573 | 0.2800 | 0.2500 | 143 | 128 |
| 64 | 102 | 388 | 0.2629 | 0.2574 | 0.2500 | 0.2500 | 97 | 97 |
| 65 | 790 | 3,032 | 0.2606 | 0.3093 | 0.2500 | 0.2800 | 758 | 849 |
| 66 | 574 | 2,099 | 0.2735 | 0.3595 | 0.2900 | 0.3200 | 609 | 672 |
| 67 | 299 | 1,330 | 0.2248 | 0.2798 | 0.2000 | 0.2600 | 266 | 346 |
| 68 | 170 | 918 | 0.1852 | 0.2647 | 0.1800 | 0.2200 | 165 | 202 |
| 69 | 113 | 706 | 0.1601 | 0.2034 | 0.1800 | 0.2000 | 127 | 141 |
| 70 | 120 | 614 | 0.1954 | 0.2837 | 0.1800 | 0.2000 | 111 | 123 |
| 71 | 66 | 443 | 0.1490 | 0.2086 | 0.1800 | 0.2000 | 80 | 89 |
| 72 | 42 | 334 | 0.1257 | 0.2177 | 0.1500 | 0.2000 | 50 | 67 |
| 73 | 34 | 228 | 0.1491 | 0.2631 | 0.1500 | 0.2000 | 34 | 46 |
| 74 | 18 | 197 | 0.0914 | 0.1886 | 0.1500 | 0.2000 | 30 | 39 |
| Sub Totals | 3,318 | 15,988 | 0.2075 | 0.2147 | 0.2116 | 0.2029 | 3,462 | 3,641 |
| 75 & Over | 118 | 873 | 0.1352 | 0.2354 | | | 873 | 873 |
| Total | 3,436 | 16,861 | 0.2038 | 0.2150 | | | 4,335 | 4,514 |

| | <u>Actual</u> | | <u>Proposed</u> |
|---------------------------------------|---------------|--------|-----------------|
| Current | 0.2075 | 0.2147 | 0.2029 |
| Previous Investigation Results | | | |
| 2009-2011 | 0.2198 | | 0.2125 |
| 2006-2008 | 0.1904 | | 0.2047 |
| 2003-2005 | 0.1773 | | 0.1849 |
| 2000-2002 | 0.2149 | | 0.2378 |

**GENERAL FEMALES
REDUCED RETIREMENT EXPERIENCE**

Female Age-Based Reduced Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates | | Expected Retirements | |
|--------|-------------|----------|---------------------------|--------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 55 | 385 | 8,735 | 0.0441 | 0.0746 | 0.0610 | 0.0700 | 533 | 611 |
| 56 | 360 | 8,347 | 0.0431 | 0.0708 | 0.0640 | 0.0700 | 534 | 584 |
| 57 | 263 | 6,865 | 0.0383 | 0.0539 | 0.0420 | 0.0500 | 288 | 343 |
| 58 | 291 | 6,509 | 0.0447 | 0.0638 | 0.0550 | 0.0600 | 358 | 391 |
| 59 | 331 | 6,131 | 0.0540 | 0.0699 | 0.0530 | 0.0600 | 325 | 368 |
| 60 | 378 | 5,616 | 0.0673 | 0.0869 | 0.0810 | 0.0850 | 455 | 477 |
| 61 | 416 | 5,011 | 0.0830 | 0.0996 | 0.0700 | 0.0850 | 351 | 426 |
| 62 | 699 | 4,375 | 0.1598 | 0.1882 | 0.1500 | 0.1600 | 656 | 700 |
| 63 | 498 | 3,459 | 0.1440 | 0.1697 | 0.1500 | 0.1600 | 519 | 553 |
| 64 | 445 | 2,905 | 0.1532 | 0.1823 | 0.1500 | 0.1600 | 436 | 465 |
| Totals | 4,066 | 57,953 | 0.0702 | 0.0910 | 0.0755 | 0.0835 | 4,455 | 4,918 |

| | <u>Actual</u> | | <u>Proposed</u> |
|---------------------------------------|---------------|--------|-----------------|
| Current | 0.0702 | 0.0910 | 0.0835 |
| Previous Investigation Results | | | |
| 2009-2011 | 0.0669 | | 0.0768 |
| 2006-2008 | 0.0636 | | 0.0765 |
| 2003-2005 | 0.0682 | | 0.0696 |
| 2000-2002 | 0.0783 | | 0.0785 |

**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 | 141 | 430 | 0.3279 | 0.3293 | 0.4000 | 0.3600 | 172 | 155 |
| 58 | 87 | 316 | 0.2753 | 0.2801 | 0.3500 | 0.3100 | 111 | 98 |
| 59 | 66 | 276 | 0.2391 | 0.2344 | 0.2500 | 0.2400 | 69 | 66 |
| 60 | 74 | 229 | 0.3231 | 0.3263 | 0.2800 | 0.3000 | 64 | 69 |
| 61 | 59 | 193 | 0.3057 | 0.3117 | 0.2500 | 0.2800 | 48 | 54 |
| 62 | 67 | 176 | 0.3807 | 0.3875 | 0.3600 | 0.3700 | 63 | 65 |
| 63 | 36 | 118 | 0.3051 | 0.3204 | 0.3200 | 0.3200 | 38 | 38 |
| 64 | 28 | 95 | 0.2947 | 0.2975 | 0.2400 | 0.2700 | 23 | 26 |
| 65 | 99 | 380 | 0.2605 | 0.3471 | 0.2400 | 0.2900 | 91 | 110 |
| 66 | 85 | 278 | 0.3058 | 0.4088 | 0.2500 | 0.3300 | 70 | 92 |
| 67 | 30 | 183 | 0.1639 | 0.3029 | 0.2400 | 0.2700 | 44 | 49 |
| 68 | 22 | 132 | 0.1667 | 0.2308 | 0.2400 | 0.2400 | 32 | 32 |
| 69 | 13 | 92 | 0.1413 | 0.2379 | 0.2400 | 0.2400 | 22 | 22 |
| 70 | 9 | 74 | 0.1216 | 0.1992 | 0.2000 | 0.2000 | 15 | 15 |
| 71 | 14 | 52 | 0.2692 | 0.6437 | 0.2000 | 0.2000 | 10 | 10 |
| 72 | 4 | 38 | 0.1053 | 0.1664 | 0.2000 | 0.2000 | 8 | 8 |
| 73 | 2 | 26 | 0.0769 | 0.1089 | 0.2000 | 0.2000 | 5 | 5 |
| 74 | 2 | 26 | 0.0769 | 0.2803 | 0.2000 | 0.2000 | 5 | 5 |
| Totals | 847 | 3,114 | 0.2720 | 0.3163 | 0.2998 | 0.3024 | 890 | 919 |
| 75 & Over | 7 | 61 | 0.1148 | 0.2535 | | | 61 | 61 |
| Total | 854 | 3,175 | 0.2690 | 0.3158 | | | 951 | 980 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.2720 | 0.3163 |
| Previous Investigation Results | | |
| 2009-2011 | 0.3295 | 0.3000 |
| 2006-2008 | 0.2907 | 0.3216 |
| 2003-2005 | 0.3376 | 0.3360 |
| 2000-2002 | 0.3552 | 0.3371 |

**PUBLIC SCHOOL MALES
REDUCED RETIREMENT EXPERIENCE**

Male Age-Based Reduced Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates | | Expected Retirements | |
|--------|-------------|----------|---------------------------|--------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 55 | 205 | 1,727 | 0.1187 | 0.1489 | 0.1200 | 0.1300 | 207 | 225 |
| 56 | 188 | 1,482 | 0.1269 | 0.1483 | 0.1200 | 0.1300 | 178 | 193 |
| 57 | 89 | 870 | 0.1023 | 0.1239 | 0.1200 | 0.1200 | 104 | 104 |
| 58 | 95 | 771 | 0.1232 | 0.1463 | 0.1200 | 0.1300 | 93 | 100 |
| 59 | 89 | 646 | 0.1378 | 0.1660 | 0.1200 | 0.1400 | 78 | 90 |
| 60 | 80 | 577 | 0.1386 | 0.1675 | 0.1200 | 0.1400 | 69 | 81 |
| 61 | 82 | 522 | 0.1571 | 0.1877 | 0.1200 | 0.1500 | 63 | 78 |
| 62 | 86 | 450 | 0.1911 | 0.2297 | 0.2000 | 0.2100 | 90 | 95 |
| 63 | 76 | 376 | 0.2021 | 0.2219 | 0.2000 | 0.2100 | 75 | 79 |
| 64 | 56 | 281 | 0.1993 | 0.2334 | 0.2000 | 0.2100 | 56 | 59 |
| Totals | 1,046 | 7,702 | 0.1358 | 0.1596 | 0.1292 | 0.1407 | 1,013 | 1,104 |

| | <u>Actual</u> | | <u>Proposed</u> |
|---------------------------------------|---------------|--------|-----------------|
| Current | 0.1358 | 0.1596 | 0.1407 |
| Previous Investigation Results | | | |
| 2009-2011 | 0.1316 | | 0.1307 |
| 2006-2008 | 0.1190 | | 0.1499 |
| 2003-2005 | 0.1592 | | 0.1514 |
| 2000-2002 | 0.1642 | | 0.1511 |

**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 | 242 | 838 | 0.2888 | 0.2867 | 0.2700 | 0.2800 | 226 | 235 |
| 58 | 201 | 724 | 0.2776 | 0.2807 | 0.2700 | 0.2800 | 195 | 203 |
| 59 | 152 | 596 | 0.2550 | 0.2516 | 0.2700 | 0.2800 | 161 | 167 |
| 60 | 147 | 483 | 0.3043 | 0.3063 | 0.2700 | 0.2800 | 130 | 135 |
| 61 | 109 | 369 | 0.2954 | 0.2988 | 0.2700 | 0.2800 | 100 | 103 |
| 62 | 123 | 326 | 0.3773 | 0.3827 | 0.3400 | 0.3600 | 111 | 117 |
| 63 | 74 | 210 | 0.3524 | 0.3486 | 0.2700 | 0.3000 | 57 | 63 |
| 64 | 46 | 156 | 0.2949 | 0.3059 | 0.2300 | 0.2700 | 36 | 42 |
| 65 | 264 | 871 | 0.3031 | 0.3833 | 0.2800 | 0.3500 | 244 | 305 |
| 66 | 182 | 547 | 0.3327 | 0.4318 | 0.3000 | 0.3500 | 164 | 191 |
| 67 | 84 | 337 | 0.2493 | 0.3425 | 0.2800 | 0.3000 | 94 | 101 |
| 68 | 57 | 227 | 0.2511 | 0.3908 | 0.2600 | 0.3000 | 59 | 68 |
| 69 | 40 | 152 | 0.2632 | 0.3550 | 0.2000 | 0.3000 | 30 | 46 |
| 70 | 25 | 102 | 0.2451 | 0.4990 | 0.2000 | 0.3500 | 20 | 36 |
| 71 | 11 | 72 | 0.1528 | 0.3990 | 0.2000 | 0.3000 | 14 | 22 |
| 72 | 4 | 57 | 0.0702 | 0.2539 | 0.2000 | 0.2200 | 11 | 13 |
| 73 | 7 | 53 | 0.1321 | 0.2387 | 0.2000 | 0.2200 | 11 | 12 |
| 74 | 6 | 48 | 0.1250 | 0.2306 | 0.2000 | 0.2200 | 10 | 11 |
| Totals | 1,776 | 6,168 | 0.2879 | 0.3166 | 0.2742 | 0.2972 | 1,673 | 1,870 |
| 75 & Over | 16 | 137 | 0.1168 | 0.3402 | | | 137 | 137 |
| Total | 1,792 | 6,305 | 0.2842 | 0.3168 | | | 1,810 | 2,007 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.2879 | 0.3166 |
| Previous Investigation Results | | |
| 2009-2011 | 0.3323 | 0.2716 |
| 2006-2008 | 0.2719 | 0.2932 |
| 2003-2005 | 0.2975 | 0.2940 |
| 2000-2002 | 0.3024 | 0.2961 |

**PUBLIC SCHOOL FEMALES
REDUCED RETIREMENT EXPERIENCE**

Female Age-Based Reduced Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates | | Expected Retirements | |
|--------|-------------|----------|---------------------------|--------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 55 | 465 | 4,584 | 0.1014 | 0.1349 | 0.1100 | 0.1200 | 504 | 550 |
| 56 | 452 | 4,051 | 0.1116 | 0.1493 | 0.1100 | 0.1200 | 446 | 486 |
| 57 | 294 | 2,752 | 0.1068 | 0.1386 | 0.1100 | 0.1200 | 303 | 330 |
| 58 | 270 | 2,464 | 0.1096 | 0.1417 | 0.1100 | 0.1200 | 271 | 296 |
| 59 | 282 | 2,230 | 0.1265 | 0.1584 | 0.1100 | 0.1300 | 245 | 290 |
| 60 | 327 | 2,088 | 0.1566 | 0.1888 | 0.1500 | 0.1700 | 313 | 355 |
| 61 | 302 | 1,830 | 0.1650 | 0.1940 | 0.1500 | 0.1700 | 275 | 311 |
| 62 | 384 | 1,586 | 0.2421 | 0.2825 | 0.2000 | 0.2300 | 317 | 365 |
| 63 | 270 | 1,142 | 0.2364 | 0.2799 | 0.2000 | 0.2300 | 228 | 263 |
| 64 | 210 | 812 | 0.2586 | 0.2918 | 0.2000 | 0.2300 | 162 | 187 |
| Totals | 3,256 | 23,539 | 0.1383 | 0.1691 | 0.1279 | 0.1429 | 3,064 | 3,433 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.1383 | 0.1691 |
| Previous Investigation Results | | |
| 2009-2011 | 0.1357 | 0.1286 |
| 2006-2008 | 0.1124 | 0.1354 |
| 2003-2005 | 0.1245 | 0.1236 |
| 2000-2002 | 0.1245 | 0.1241 |

**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 | 7 | 67 | 0.1045 | 0.1208 | 0.1300 | 0.1200 | 9 | 8 |
| 58 | 4 | 86 | 0.0465 | 0.0312 | 0.1300 | 0.1200 | 11 | 10 |
| 59 | 12 | 104 | 0.1154 | 0.1065 | 0.1300 | 0.1200 | 14 | 12 |
| 60 | 15 | 127 | 0.1181 | 0.1045 | 0.1300 | 0.1200 | 17 | 15 |
| 61 | 11 | 133 | 0.0827 | 0.0853 | 0.1300 | 0.1200 | 17 | 16 |
| 62 | 17 | 161 | 0.1056 | 0.0901 | 0.1500 | 0.1200 | 24 | 19 |
| 63 | 16 | 159 | 0.1006 | 0.0826 | 0.1500 | 0.1200 | 24 | 19 |
| 64 | 13 | 147 | 0.0884 | 0.0840 | 0.1500 | 0.1200 | 22 | 18 |
| 65 | 73 | 486 | 0.1502 | 0.1471 | 0.1500 | 0.1500 | 73 | 73 |
| 66 | 59 | 404 | 0.1460 | 0.1418 | 0.2000 | 0.1700 | 81 | 69 |
| 67 | 47 | 314 | 0.1497 | 0.1356 | 0.1800 | 0.1600 | 57 | 50 |
| 68 | 29 | 237 | 0.1224 | 0.1470 | 0.1800 | 0.1600 | 43 | 38 |
| 69 | 31 | 196 | 0.1582 | 0.1555 | 0.1800 | 0.1600 | 35 | 31 |
| 70 | 21 | 153 | 0.1373 | 0.1060 | 0.2000 | 0.1600 | 31 | 24 |
| 71 | 18 | 109 | 0.1651 | 0.1669 | 0.2000 | 0.1800 | 22 | 20 |
| 72 | 11 | 81 | 0.1358 | 0.1411 | 0.1500 | 0.1400 | 12 | 11 |
| 73 | 10 | 67 | 0.1493 | 0.1350 | 0.1500 | 0.1400 | 10 | 9 |
| 74 | 4 | 45 | 0.0889 | 0.0683 | 0.1500 | 0.1000 | 7 | 5 |
| Sub Totals | 400 | 3,076 | 0.1300 | 0.1199 | 0.1630 | 0.1430 | 509 | 447 |
| 75 & Over | 20 | 153 | 0.1307 | 0.1071 | | | 153 | 153 |
| Total | 420 | 3,229 | 0.1301 | 0.1189 | | | 662 | 600 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.1300 | 0.1199 |
| Previous Investigation Results | | |
| 2009-2011 | 0.1947 | 0.1617 |
| 2006-2008 | 0.1712 | 0.1789 |
| 2003-2005 | 0.1698 | 0.1809 |
| 2000-2002 | 0.2033 | 0.2022 |

**UNIVERSITY MALES
REDUCED RETIREMENT EXPERIENCE**

Male Age-Based Reduced Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates | | Expected Retirements | |
|--------|-------------|----------|---------------------------|--------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 55 | 24 | 772 | 0.0311 | 0.0328 | 0.0475 | 0.0400 | 37 | 31 |
| 56 | 20 | 762 | 0.0262 | 0.0319 | 0.0300 | 0.0300 | 23 | 23 |
| 57 | 19 | 703 | 0.0270 | 0.0270 | 0.0200 | 0.0250 | 14 | 18 |
| 58 | 17 | 682 | 0.0249 | 0.0255 | 0.0250 | 0.0250 | 17 | 17 |
| 59 | 17 | 652 | 0.0261 | 0.0195 | 0.0400 | 0.0300 | 26 | 20 |
| 60 | 26 | 595 | 0.0437 | 0.0448 | 0.0400 | 0.0425 | 24 | 25 |
| 61 | 16 | 541 | 0.0296 | 0.0227 | 0.0750 | 0.0500 | 41 | 27 |
| 62 | 31 | 498 | 0.0622 | 0.0491 | 0.0700 | 0.0600 | 35 | 30 |
| 63 | 34 | 432 | 0.0787 | 0.0664 | 0.0750 | 0.0700 | 32 | 30 |
| 64 | 25 | 350 | 0.0714 | 0.0608 | 0.0800 | 0.0700 | 28 | 25 |
| Totals | 229 | 5,987 | 0.0382 | 0.0355 | 0.0469 | 0.0413 | 277 | 246 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0382 | 0.0355 |
| Previous Investigation Results | | 0.0413 |
| 2009-2011 | 0.0402 | 0.0451 |
| 2006-2008 | 0.0507 | 0.0539 |
| 2003-2005 | 0.0498 | 0.0520 |
| 2000-2002 | 0.0547 | 0.0541 |

**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 | 9 | 66 | 0.1364 | 0.1369 | 0.1400 | 0.1400 | 9 | 9 |
| 58 | 8 | 84 | 0.0952 | 0.1062 | 0.1400 | 0.1200 | 12 | 10 |
| 59 | 5 | 86 | 0.0581 | 0.0546 | 0.1300 | 0.1000 | 11 | 9 |
| 60 | 14 | 107 | 0.1308 | 0.1000 | 0.1300 | 0.1150 | 14 | 12 |
| 61 | 13 | 112 | 0.1161 | 0.1331 | 0.1900 | 0.1600 | 21 | 18 |
| 62 | 10 | 112 | 0.0893 | 0.0812 | 0.1900 | 0.1400 | 21 | 16 |
| 63 | 19 | 94 | 0.2021 | 0.1800 | 0.1900 | 0.1850 | 18 | 17 |
| 64 | 7 | 69 | 0.1014 | 0.0711 | 0.1800 | 0.1300 | 12 | 9 |
| 65 | 45 | 325 | 0.1385 | 0.1420 | 0.2200 | 0.1800 | 71 | 59 |
| 66 | 52 | 244 | 0.2131 | 0.1842 | 0.2300 | 0.2200 | 56 | 54 |
| 67 | 31 | 180 | 0.1722 | 0.1695 | 0.1700 | 0.1700 | 31 | 31 |
| 68 | 24 | 119 | 0.2017 | 0.1429 | 0.1700 | 0.1550 | 20 | 18 |
| 69 | 11 | 93 | 0.1183 | 0.0981 | 0.1700 | 0.1350 | 16 | 13 |
| 70 | 13 | 65 | 0.2000 | 0.1715 | 0.2000 | 0.1800 | 13 | 12 |
| 71 | 9 | 47 | 0.1915 | 0.1671 | 0.2000 | 0.1800 | 9 | 8 |
| 72 | 6 | 35 | 0.1714 | 0.1691 | 0.2000 | 0.1800 | 7 | 6 |
| 73 | 5 | 33 | 0.1515 | 0.1806 | 0.2000 | 0.1800 | 7 | 6 |
| 74 | 3 | 21 | 0.1429 | 0.1612 | 0.2000 | 0.1800 | 4 | 4 |
| Totals | 284 | 1,892 | 0.1501 | 0.1332 | 0.1826 | 0.1561 | 352 | 311 |
| 75 & Over | 9 | 41 | 0.2195 | 0.2773 | | | 41 | 41 |
| Total | 293 | 1,933 | 0.1516 | 0.1396 | | | 393 | 352 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.1501 | 0.1332 |
| Previous Investigation Results | | |
| 2009-2011 | 0.2185 | 0.1811 |
| 2006-2008 | 0.1840 | 0.1831 |
| 2003-2005 | 0.1777 | 0.1901 |
| 2000-2002 | 0.1964 | 0.2296 |

**UNIVERSITY FEMALES
REDUCED RETIREMENT EXPERIENCE**

Female Age-Based Reduced Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates | | Expected Retirements | |
|--------|-------------|----------|---------------------------|--------------------------|--------------|----------|----------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 55 | 37 | 760 | 0.0487 | 0.0534 | 0.0550 | 0.0550 | 42 | 42 |
| 56 | 30 | 698 | 0.0430 | 0.0515 | 0.0550 | 0.0550 | 38 | 38 |
| 57 | 27 | 641 | 0.0421 | 0.0411 | 0.0400 | 0.0400 | 26 | 26 |
| 58 | 34 | 643 | 0.0529 | 0.0663 | 0.0400 | 0.0550 | 26 | 35 |
| 59 | 31 | 618 | 0.0502 | 0.0651 | 0.0650 | 0.0650 | 40 | 40 |
| 60 | 54 | 584 | 0.0925 | 0.0972 | 0.0650 | 0.0800 | 38 | 47 |
| 61 | 24 | 499 | 0.0481 | 0.0515 | 0.0750 | 0.0600 | 37 | 30 |
| 62 | 59 | 443 | 0.1332 | 0.1314 | 0.1000 | 0.1200 | 44 | 53 |
| 63 | 54 | 377 | 0.1432 | 0.1510 | 0.1000 | 0.1200 | 38 | 45 |
| 64 | 29 | 294 | 0.0986 | 0.1147 | 0.1300 | 0.1200 | 38 | 35 |
| Totals | 379 | 5,557 | 0.0682 | 0.0749 | 0.0659 | 0.0704 | 367 | 391 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0682 | 0.0749 |
| Previous Investigation Results | | |
| 2009-2011 | 0.0651 | 0.0647 |
| 2006-2008 | 0.0682 | 0.0748 |
| 2003-2005 | 0.0803 | 0.0767 |
| 2000-2002 | 0.0667 | 0.0689 |

**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 | 58 | 1,034 | 0.0561 | 0.0540 | 0.0600 | 0.0575 | 62 | 59 |
| 51 | 83 | 1,009 | 0.0823 | 0.0736 | 0.0700 | 0.0700 | 71 | 71 |
| 52 | 109 | 969 | 0.1125 | 0.1073 | 0.0800 | 0.0900 | 78 | 87 |
| 53 | 190 | 861 | 0.2207 | 0.2305 | 0.2300 | 0.2300 | 198 | 198 |
| 54 | 177 | 1,097 | 0.1613 | 0.2078 | 0.1800 | 0.1900 | 197 | 208 |
| 55 | 162 | 920 | 0.1761 | 0.2259 | 0.1700 | 0.1900 | 156 | 175 |
| 56 | 129 | 786 | 0.1641 | 0.2176 | 0.1600 | 0.1900 | 126 | 149 |
| 57 | 112 | 665 | 0.1684 | 0.2263 | 0.1600 | 0.1900 | 106 | 126 |
| 58 | 83 | 568 | 0.1461 | 0.1903 | 0.1600 | 0.1750 | 91 | 99 |
| 59 | 55 | 454 | 0.1211 | 0.1541 | 0.1600 | 0.1600 | 73 | 73 |
| 60 | 75 | 403 | 0.1861 | 0.2365 | 0.1800 | 0.2000 | 73 | 81 |
| 61 | 68 | 342 | 0.1988 | 0.2203 | 0.1800 | 0.2000 | 62 | 68 |
| 62 | 53 | 259 | 0.2046 | 0.2225 | 0.2200 | 0.2200 | 57 | 57 |
| 63 | 38 | 188 | 0.2021 | 0.2322 | 0.2900 | 0.2600 | 55 | 49 |
| 64 | 25 | 132 | 0.1894 | 0.1891 | 0.1600 | 0.1700 | 21 | 22 |
| 65 | 29 | 91 | 0.3187 | 0.3119 | 0.3000 | 0.3000 | 27 | 27 |
| 66 | 18 | 58 | 0.3103 | 0.2920 | 0.2000 | 0.2500 | 12 | 15 |
| 67 | 12 | 30 | 0.4000 | 0.4127 | 0.1500 | 0.3000 | 5 | 9 |
| 68 | 4 | 18 | 0.2222 | 0.1574 | 0.2500 | 0.3000 | 5 | 5 |
| 69 | 4 | 11 | 0.3636 | 0.3959 | 0.2000 | 0.3000 | 2 | 3 |
| 70 | 2 | 7 | 0.2857 | 0.5808 | 1.0000 | 1.0000 | 7 | 7 |
| 71 | 1 | 5 | 0.2000 | 0.2103 | 1.0000 | 1.0000 | 5 | 5 |
| 72 | 1 | 6 | 0.1667 | 0.3102 | 1.0000 | 1.0000 | 6 | 6 |
| 73 | 1 | 7 | 0.1429 | 0.1869 | 1.0000 | 1.0000 | 7 | 7 |
| 74 | 2 | 4 | 0.5000 | 0.4475 | 1.0000 | 1.0000 | 4 | 4 |
| Totals | 1,491 | 9,924 | 0.1502 | 0.1683 | 0.1453 | 0.1552 | 1,506 | 1,610 |
| 75 & Over | - | 6 | 0.0000 | 0.0000 | | | 6 | 6 |
| Total | 1,491 | 9,930 | 0.1502 | 0.1683 | | | 1,512 | 1,616 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.1502 | 0.1683 |
| Previous Investigation Results | | 0.1552 |
| 2009-2011 | 0.1468 | 0.1534 |
| 2006-2008 | 0.1220 | 0.1579 |
| 2003-2005 | 0.1447 | 0.1619 |
| 2000-2002 | 0.1434 | 0.1566 |

**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 | 226 | 0.0177 | 0.0112 | 0.0350 | 0.0350 | 8 | 8 |
| 51 | 9 | 221 | 0.0407 | 0.0459 | 0.0375 | 0.0375 | 8 | 8 |
| 52 | 12 | 219 | 0.0548 | 0.0570 | 0.0450 | 0.0450 | 10 | 10 |
| 53 | 44 | 213 | 0.2066 | 0.2140 | 0.1700 | 0.1700 | 36 | 36 |
| 54 | 38 | 200 | 0.1900 | 0.2110 | 0.2500 | 0.2500 | 50 | 50 |
| 55 | 25 | 155 | 0.1613 | 0.1910 | 0.2100 | 0.2100 | 33 | 33 |
| 56 | 33 | 118 | 0.2797 | 0.3166 | 0.2700 | 0.2700 | 32 | 32 |
| 57 | 22 | 103 | 0.2136 | 0.2195 | 0.3000 | 0.3000 | 31 | 31 |
| 58 | 17 | 79 | 0.2152 | 0.2430 | 0.3000 | 0.3000 | 24 | 24 |
| 59 | 20 | 67 | 0.2985 | 0.3418 | 0.3000 | 0.3000 | 20 | 20 |
| 60 | 12 | 46 | 0.2609 | 0.2669 | 0.2600 | 0.2600 | 12 | 12 |
| 61 | 4 | 23 | 0.1739 | 0.1945 | 0.1500 | 0.1500 | 3 | 3 |
| 62 | 6 | 15 | 0.4000 | 0.4115 | 0.2000 | 0.2000 | 3 | 3 |
| 63 | 2 | 5 | 0.4000 | 0.3303 | 0.4000 | 0.4000 | 2 | 2 |
| 64 | 1 | 1 | 1.0000 | 1.0000 | 0.4000 | 0.4000 | - | - |
| 65 | 3 | 5 | 0.6000 | 0.7873 | 0.4000 | 0.4000 | 2 | 2 |
| 66 | - | 1 | 0.0000 | 0.0000 | 0.4000 | 0.4000 | - | - |
| 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 | 252 | 1,697 | 0.1485 | 0.1630 | 0.1626 | 0.1626 | 274 | 274 |
| 75 & Over | - | - | N\A | N\A | | | - | - |
| Total | 252 | 1,697 | 0.1485 | 0.1630 | | | 274 | 274 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.1485 | 0.1630 |
| Previous Investigation Results | | |
| 2009-2011 | 0.1196 | 0.1632 |
| 2006-2008 | 0.1487 | 0.1766 |
| 2003-2005 | 0.1372 | 0.1606 |
| 2000-2002 | 0.1870 | 0.1863 |

**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 | 3 | 35 | 0.0857 | 0.1105 | 0.1500 | 0.1200 | 5 | 4 |
| 58 | 5 | 35 | 0.1429 | 0.1676 | 0.1500 | 0.1200 | 5 | 4 |
| 59 | 1 | 36 | 0.0278 | 0.0140 | 0.1500 | 0.1200 | 5 | 4 |
| 60 | 5 | 36 | 0.1389 | 0.1493 | 0.1000 | 0.1200 | 4 | 4 |
| 61 | 6 | 30 | 0.2000 | 0.1451 | 0.1300 | 0.1200 | 4 | 4 |
| 62 | 6 | 167 | 0.0359 | 0.0291 | 0.1300 | 0.1200 | 22 | 20 |
| 63 | 8 | 156 | 0.0513 | 0.0892 | 0.1200 | 0.1200 | 19 | 19 |
| 64 | 18 | 137 | 0.1314 | 0.1555 | 0.1200 | 0.1200 | 16 | 16 |
| 65 | 14 | 128 | 0.1094 | 0.1012 | 0.1200 | 0.1200 | 15 | 15 |
| 66 | 18 | 113 | 0.1593 | 0.2463 | 0.2000 | 0.2000 | 23 | 23 |
| 67 | 13 | 94 | 0.1383 | 0.1300 | 0.1700 | 0.1500 | 16 | 14 |
| 68 | 9 | 68 | 0.1324 | 0.1538 | 0.1500 | 0.1500 | 10 | 10 |
| 69 | 2 | 57 | 0.0351 | 0.0205 | 0.1500 | 0.1000 | 9 | 6 |
| 70 | 5 | 49 | 0.1020 | 0.0875 | 0.1300 | 0.1000 | 6 | 5 |
| 71 | 4 | 48 | 0.0833 | 0.1158 | 0.1300 | 0.1000 | 6 | 5 |
| 72 | 3 | 42 | 0.0714 | 0.0503 | 0.2500 | 0.1500 | 11 | 6 |
| 73 | 3 | 39 | 0.0769 | 0.2227 | 0.1000 | 0.1500 | 4 | 6 |
| 74 | 2 | 23 | 0.0870 | 0.1007 | 0.1000 | 0.1500 | 2 | 3 |
| Totals | 125 | 1,293 | 0.0967 | 0.1151 | 0.1409 | 0.1307 | 182 | 168 |
| 75 & Over | 7 | 101 | 0.0693 | 0.1129 | | | 101 | 101 |
| Total | 132 | 1,394 | 0.0947 | 0.1150 | | | 283 | 269 |

| | <u>Actual</u> | <u>Proposed</u> |
|---------------------------------------|---------------|-----------------|
| Current | 0.0967 | 0.1151 |
| Previous Investigation Results | | |
| 2009-2011 | 0.1341 | 0.1408 |
| 2006-2008 | 0.0892 | 0.1278 |
| 2003-2005 | 0.1204 | 0.1299 |
| 2000-2002 | 0.0972 | 0.1769 |

**EXECUTIVE AND ELECTIVE
REDUCED RETIREMENT EXPERIENCE**

Male and Female Age-Based Reduced Retirement Experience

| Age | Retirements | Exposure | Population Weighted Rates | Liability Weighted Rates | Sample Rates | | Expected Retirements | |
|--------|-------------|----------|---------------------------------|--------------------------------|--------------|----------|-------------------------|----------|
| | | | | | Present | Proposed | Present | Proposed |
| 55 | 2 | 126 | 0.0159 | 0.0230 | 0.0450 | 0.0300 | 6 | 4 |
| 56 | 2 | 134 | 0.0149 | 0.0107 | 0.0450 | 0.0300 | 6 | 4 |
| 57 | 2 | 86 | 0.0233 | 0.0294 | 0.0450 | 0.0300 | 4 | 3 |
| 58 | 1 | 97 | 0.0103 | 0.0024 | 0.0450 | 0.0300 | 4 | 3 |
| 59 | 1 | 87 | 0.0115 | 0.0163 | 0.0450 | 0.0300 | 4 | 3 |
| 60 | 5 | 103 | 0.0485 | 0.0511 | 0.0450 | 0.0500 | 5 | 5 |
| 61 | 7 | 105 | 0.0667 | 0.0771 | 0.0450 | 0.0500 | 5 | 5 |
| 62 | - | 31 | 0.0000 | 0.0000 | 0.0450 | 0.0200 | 1 | 1 |
| 63 | - | 24 | 0.0000 | 0.0000 | 0.0450 | 0.0200 | 1 | - |
| 64 | - | 23 | 0.0000 | 0.0000 | 0.0450 | 0.0200 | 1 | - |
| Totals | 20 | 816 | 0.0245 | 0.0309 | 0.0450 | 0.0361 | 37 | 28 |

| | <u>Actual</u> | | <u>Proposed</u> |
|---------------------------------------|---------------|--------|-----------------|
| Current | 0.0245 | 0.0309 | 0.0361 |
| Previous Investigation Results | | | |
| 2009-2011 | 0.0459 | | 0.0449 |
| 2006-2008 | 0.0517 | | 0.0537 |
| 2003-2005 | 0.0595 | | 0.0551 |
| 2000-2002 | 0.0411 | | 0.0437 |

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 | 18,472 | 82.0 | 92.0 | 92.0 | 0.0044 | 0.0050 | 0.0050 | 0.8913 | 0.8913 |
| 60-64 | 41,145 | 246.0 | 277.0 | 277.0 | 0.0060 | 0.0067 | 0.0067 | 0.8881 | 0.8881 |
| 65-69 | 51,166 | 492.0 | 550.0 | 550.0 | 0.0096 | 0.0107 | 0.0107 | 0.8945 | 0.8945 |
| 70-74 | 38,061 | 655.0 | 674.0 | 674.0 | 0.0172 | 0.0177 | 0.0177 | 0.9718 | 0.9718 |
| 75-79 | 27,877 | 898.0 | 869.0 | 869.0 | 0.0322 | 0.0312 | 0.0312 | 1.0334 | 1.0334 |
| 80-84 | 20,326 | 1,224.0 | 1,182.0 | 1,182.0 | 0.0602 | 0.0582 | 0.0582 | 1.0355 | 1.0355 |
| 85-89 | 11,532 | 1,251.0 | 1,209.0 | 1,209.0 | 0.1085 | 0.1048 | 0.1048 | 1.0347 | 1.0347 |
| 90-94 | 4,297 | 804.0 | 746.0 | 746.0 | 0.1871 | 0.1736 | 0.1736 | 1.0777 | 1.0777 |
| 95-99 | 857 | 248.0 | 250.0 | 250.0 | 0.2894 | 0.2917 | 0.2917 | 0.9920 | 0.9920 |
| Totals | 216,009 | 5,906 | 5,856 | 5,856 | 0.0273 | 0.0271 | 0.0271 | 1.0085 | 1.0085 |

| | | |
|---------------------------------------|--------|--------|
| Current | 0.0273 | 0.0271 |
| Previous Investigation Results | | |
| 2009-2011 | 0.0286 | 0.0264 |
| 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 | |

**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 | 24,354 | 102 | 72.0 | 72.0 | 0.0042 | 0.0030 | 0.0030 | 1.4167 | 1.4167 |
| 60-64 | 60,065 | 227 | 256.0 | 256.0 | 0.0038 | 0.0043 | 0.0043 | 0.8867 | 0.8867 |
| 65-69 | 66,729 | 412 | 437.0 | 437.0 | 0.0062 | 0.0065 | 0.0065 | 0.9428 | 0.9428 |
| 70-74 | 47,222 | 556 | 547.0 | 547.0 | 0.0118 | 0.0116 | 0.0116 | 1.0165 | 1.0165 |
| 75-79 | 34,877 | 799 | 742.0 | 742.0 | 0.0229 | 0.0213 | 0.0213 | 1.0768 | 1.0768 |
| 80-84 | 27,000 | 1,147 | 1,102.0 | 1,102.0 | 0.0425 | 0.0408 | 0.0408 | 1.0408 | 1.0408 |
| 85-89 | 18,712 | 1,442 | 1,497.0 | 1,497.0 | 0.0771 | 0.0800 | 0.0800 | 0.9633 | 0.9633 |
| 90-94 | 9,773 | 1,409 | 1,345.0 | 1,345.0 | 0.1442 | 0.1376 | 0.1376 | 1.0476 | 1.0476 |
| 95-99 | 3,046 | 733 | 718.0 | 718.0 | 0.2406 | 0.2357 | 0.2357 | 1.0209 | 1.0209 |
| Totals | 291,778 | 6,827 | 6,716 | 6,716.0 | 0.0234 | 0.0230 | 0.0230 | 1.0165 | 1.0165 |

| | | |
|---------------------------------------|--------|--------|
| Current | 0.0234 | 0.0230 |
| Previous Investigation Results | | |
| 2009-2011 | 0.0256 | 0.0239 |
| 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 | |

**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 | 518 | 12 | 3.0 | 3.0 | 0.0232 | 0.0053 | 0.0053 | 4.0000 | 4.0000 |
| 55-59 | 1,198 | 21 | 9.0 | 9.0 | 0.0175 | 0.0074 | 0.0074 | 2.3333 | 2.3333 |
| 60-64 | 1,549 | 46 | 20.0 | 20.0 | 0.0297 | 0.0128 | 0.0128 | 2.3000 | 2.3000 |
| 65-69 | 1,495 | 45 | 32.0 | 32.0 | 0.0301 | 0.0213 | 0.0213 | 1.4063 | 1.4063 |
| 70-74 | 1,148 | 50 | 43.0 | 43.0 | 0.0436 | 0.0378 | 0.0378 | 1.1628 | 1.1628 |
| 75-79 | 874 | 59 | 63.0 | 63.0 | 0.0675 | 0.0715 | 0.0715 | 0.9365 | 0.9365 |
| 80-84 | 571 | 52 | 73.0 | 73.0 | 0.0911 | 0.1282 | 0.1282 | 0.7123 | 0.7123 |
| 85-89 | 258 | 35 | 54.0 | 54.0 | 0.1357 | 0.2107 | 0.2107 | 0.6481 | 0.6481 |
| 90-94 | 81 | 14 | 28.0 | 28.0 | 0.1728 | 0.3422 | 0.3422 | 0.5000 | 0.5000 |
| 95-99 | 13 | 5 | 5.0 | 5.0 | 0.3846 | 0.3830 | 0.3830 | 1.0000 | 1.0000 |
| 100 & Up | 4 | 0 | 2.0 | 2.0 | 0.0000 | 0.4000 | 0.4000 | 0.0000 | 0.0000 |
| Totals | 7,709 | 339 | 332.0 | 332.0 | 0.0440 | 0.0431 | 0.0431 | 1.0211 | 1.0211 |

**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 | 753 | 15 | 2.0 | 2.0 | 0.0199 | 0.0031 | 0.0031 | 7.5000 | 7.5000 |
| 55-59 | 1,696 | 36 | 8.0 | 8.0 | 0.0212 | 0.0048 | 0.0048 | 4.5000 | 4.5000 |
| 60-64 | 2,382 | 46 | 18.0 | 18.0 | 0.0193 | 0.0077 | 0.0077 | 2.5556 | 2.5556 |
| 65-69 | 1,997 | 45 | 28.0 | 28.0 | 0.0225 | 0.0139 | 0.0139 | 1.6071 | 1.6071 |
| 70-74 | 1,631 | 54 | 42.0 | 42.0 | 0.0331 | 0.0256 | 0.0256 | 1.2857 | 1.2857 |
| 75-79 | 1,330 | 55 | 66.0 | 66.0 | 0.0414 | 0.0494 | 0.0494 | 0.8333 | 0.8333 |
| 80-84 | 887 | 68 | 87.0 | 87.0 | 0.0767 | 0.0977 | 0.0977 | 0.7816 | 0.7816 |
| 85-89 | 538 | 65 | 89.0 | 89.0 | 0.1208 | 0.1645 | 0.1645 | 0.7303 | 0.7303 |
| 90-94 | 175 | 34 | 48.0 | 48.0 | 0.1943 | 0.2768 | 0.2768 | 0.7083 | 0.7083 |
| 95-99 | 38 | 10 | 12.0 | 12.0 | 0.2632 | 0.3158 | 0.3158 | 0.8333 | 0.8333 |
| 100 & Up | 10 | 1 | 3.0 | 3.0 | 0.1000 | 0.3426 | 0.3426 | 0.3333 | 0.3333 |
| Totals | 11,437 | 429 | 403.0 | 403.0 | 0.0375 | 0.0352 | 0.0352 | 1.0645 | 1.0645 |

MALE DEATH-IN-SERVICE EXPERIENCE

| Age | Deaths | Exposure | Crude Rates | Sample Rates* | | Expected Deaths | |
|-------------|--------|----------|-------------|---------------|--------|-----------------|-----|
| | | | | Old | New | Old | New |
| Under 20 | - | 99 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 20-24 | 3 | 5,291 | 0.0006 | 0.0002 | 0.0002 | 1 | 1 |
| 25-29 | 3 | 21,678 | 0.0001 | 0.0002 | 0.0002 | 4 | 4 |
| 30-34 | 11 | 30,463 | 0.0004 | 0.0003 | 0.0003 | 9 | 8 |
| 35-39 | 18 | 33,880 | 0.0005 | 0.0005 | 0.0004 | 16 | 14 |
| 40-44 | 35 | 39,970 | 0.0009 | 0.0006 | 0.0005 | 24 | 22 |
| 45-49 | 31 | 41,734 | 0.0007 | 0.0008 | 0.0007 | 34 | 31 |
| 50-54 | 61 | 45,227 | 0.0013 | 0.0014 | 0.0012 | 63 | 57 |
| 55-59 | 63 | 38,474 | 0.0016 | 0.0027 | 0.0024 | 100 | 91 |
| 60-64 | 69 | 22,889 | 0.0030 | 0.0035 | 0.0032 | 81 | 73 |
| 65-69 | 34 | 7,121 | 0.0048 | 0.0060 | 0.0054 | 40 | 36 |
| 70-74 | 15 | 2,043 | 0.0073 | 0.0097 | 0.0088 | 19 | 18 |
| 75 and over | 9 | 978 | 0.0092 | 0.0170 | 0.0154 | 20 | 18 |
| Totals | 352 | 289,847 | 0.0012 | 0.0014 | 0.0013 | 411 | 373 |

* 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 | - | 223 | 0.0000 | 0.0001 | 0.0001 | - | - |
| 20-24 | - | 9,746 | 0.0000 | 0.0001 | 0.0001 | 1 | 1 |
| 25-29 | 5 | 37,937 | 0.0001 | 0.0001 | 0.0001 | 4 | 4 |
| 30-34 | 6 | 48,753 | 0.0001 | 0.0002 | 0.0002 | 9 | 8 |
| 35-39 | 12 | 52,009 | 0.0002 | 0.0003 | 0.0002 | 14 | 13 |
| 40-44 | 22 | 61,064 | 0.0004 | 0.0004 | 0.0004 | 25 | 22 |
| 45-49 | 38 | 70,024 | 0.0005 | 0.0006 | 0.0005 | 43 | 39 |
| 50-54 | 76 | 79,099 | 0.0010 | 0.0009 | 0.0009 | 76 | 69 |
| 55-59 | 80 | 68,038 | 0.0012 | 0.0016 | 0.0014 | 105 | 96 |
| 60-64 | 73 | 37,621 | 0.0019 | 0.0023 | 0.0021 | 84 | 76 |
| 65-69 | 31 | 9,482 | 0.0033 | 0.0036 | 0.0032 | 32 | 29 |
| 70-74 | 10 | 2,085 | 0.0048 | 0.0064 | 0.0058 | 13 | 12 |
| 75 and over | 9 | 953 | 0.0094 | 0.0116 | 0.0106 | 13 | 12 |
| Totals | 362 | 477,034 | 0.0008 | 0.0009 | 0.0008 | 419 | 381 |

* Sample rates are taken from midpoint of age group.

SECTION F

COMPLETE LISTS OF PROPOSED DECREMENT ASSUMPTIONS

**ACTUARIAL ASSUMPTIONS
BASED ON 2012-2014 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 | |
| | 0-1 | 16.8% | 20.0% | 18.3% | 16.0% | 16.0% | 16.0% | 17.0% | 4.0% | 18.0% |
| | 1-2 | 12.7% | 14.1% | 11.0% | 10.8% | 14.0% | 15.0% | 8.0% | 3.5% | 14.0% |
| | 2-3 | 9.0% | 11.0% | 7.8% | 7.7% | 12.0% | 13.0% | 5.0% | 1.5% | 12.0% |
| | 3-4 | 7.3% | 8.9% | 5.9% | 5.8% | 10.0% | 10.0% | 4.3% | 1.3% | 10.0% |
| | 4-5 | 7.0% | 8.5% | 4.9% | 5.0% | 8.5% | 9.9% | 3.8% | 1.2% | 10.0% |
| | 5-6 | 4.8% | 6.7% | 3.6% | 4.3% | 8.0% | 8.4% | 3.1% | 1.1% | 8.0% |
| | 6-7 | 4.3% | 5.6% | 3.2% | 3.8% | 7.5% | 6.4% | 3.0% | 1.0% | 7.0% |
| | 7-8 | 4.2% | 5.0% | 2.6% | 3.4% | 5.7% | 5.7% | 2.9% | 0.9% | 6.0% |
| | 8-9 | 3.4% | 4.7% | 2.6% | 2.8% | 4.6% | 4.7% | 2.5% | 0.8% | 6.0% |
| | 9-10 | 3.1% | 4.5% | 2.4% | 2.5% | 4.0% | 4.2% | 2.2% | 0.7% | 6.0% |
| Under 30 | 10 & Up | 2.5% | 4.3% | 1.3% | 1.9% | 3.9% | 4.6% | 1.8% | 0.7% | 5.1% |
| | 31 | 2.5% | 4.3% | 1.3% | 1.8% | 3.8% | 4.5% | 1.8% | 0.7% | 4.8% |
| | 32 | 2.5% | 4.2% | 1.3% | 1.8% | 3.8% | 4.4% | 1.7% | 0.7% | 4.5% |
| | 33 | 2.5% | 4.0% | 1.3% | 1.7% | 3.7% | 4.3% | 1.7% | 0.7% | 4.4% |
| | 34 | 2.4% | 3.7% | 1.3% | 1.7% | 3.7% | 4.2% | 1.6% | 0.7% | 4.4% |
| | 35 | 2.4% | 3.5% | 1.3% | 1.6% | 3.6% | 4.2% | 1.6% | 0.7% | 4.3% |
| | 36 | 2.3% | 3.2% | 1.3% | 1.6% | 3.6% | 4.1% | 1.5% | 0.7% | 4.3% |
| | 37 | 2.3% | 3.0% | 1.3% | 1.5% | 3.5% | 4.0% | 1.5% | 0.7% | 4.2% |
| | 38 | 2.2% | 2.9% | 1.3% | 1.4% | 3.4% | 3.8% | 1.4% | 0.6% | 4.2% |
| | 39 | 2.2% | 2.8% | 1.3% | 1.4% | 3.2% | 3.6% | 1.4% | 0.6% | 4.1% |
| | 40 | 2.1% | 2.7% | 1.3% | 1.3% | 3.1% | 3.4% | 1.3% | 0.6% | 4.1% |
| | 41 | 2.1% | 2.6% | 1.3% | 1.3% | 2.9% | 3.2% | 1.3% | 0.6% | 4.0% |
| | 42 | 2.0% | 2.5% | 1.3% | 1.2% | 2.8% | 3.0% | 1.2% | 0.6% | 4.0% |
| | 43 | 1.9% | 2.4% | 1.3% | 1.2% | 2.6% | 2.9% | 1.2% | 0.6% | 3.7% |
| | 44 | 1.8% | 2.3% | 1.3% | 1.2% | 2.5% | 2.7% | 1.2% | 0.6% | 3.4% |
| | 45 | 1.8% | 2.2% | 1.3% | 1.1% | 2.3% | 2.6% | 1.1% | 0.6% | 3.2% |
| | 46 | 1.7% | 2.1% | 1.3% | 1.1% | 2.2% | 2.4% | 1.1% | 0.6% | 2.9% |
| | 47 | 1.6% | 2.0% | 1.3% | 1.1% | 2.0% | 2.3% | 1.1% | 0.6% | 2.6% |
| | 48 | 1.6% | 2.0% | 1.3% | 1.1% | 2.0% | 2.2% | 1.1% | 0.5% | 2.6% |
| | 49 | 1.6% | 1.9% | 1.3% | 1.1% | 1.9% | 2.2% | 1.1% | 0.5% | 2.5% |
| | 50 | 1.5% | 1.9% | 1.3% | 1.0% | 1.9% | 2.1% | 1.0% | 0.5% | 2.5% |
| | 51 | 1.5% | 1.8% | 1.3% | 1.0% | 1.8% | 2.1% | 1.0% | 0.5% | 2.4% |
| | 52 | 1.5% | 1.8% | 1.3% | 1.0% | 1.8% | 2.0% | 1.0% | 0.5% | 2.4% |
| | 53 | 1.5% | 1.8% | 1.3% | 1.0% | 1.8% | 2.0% | 1.0% | 0.5% | 2.4% |
| | 54 | 1.5% | 1.8% | 1.3% | 1.0% | 1.8% | 2.0% | 1.0% | 0.5% | 2.4% |

**ACTUARIAL ASSUMPTIONS
BASED ON 2012-2014 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% | 0.00% | 0.00% | 0.01% | 0.04% | 0.00% |
| 21 | 0.01% | 0.01% | 0.01% | 0.01% | 0.00% | 0.00% | 0.01% | 0.04% | 0.00% |
| 22 | 0.01% | 0.01% | 0.01% | 0.01% | 0.00% | 0.00% | 0.01% | 0.04% | 0.00% |
| 23 | 0.01% | 0.01% | 0.01% | 0.01% | 0.00% | 0.00% | 0.01% | 0.04% | 0.00% |
| 24 | 0.01% | 0.01% | 0.01% | 0.01% | 0.00% | 0.00% | 0.01% | 0.04% | 0.00% |
| 25 | 0.01% | 0.01% | 0.01% | 0.01% | 0.00% | 0.00% | 0.01% | 0.04% | 0.00% |
| 26 | 0.01% | 0.01% | 0.01% | 0.01% | 0.00% | 0.00% | 0.01% | 0.04% | 0.00% |
| 27 | 0.01% | 0.01% | 0.01% | 0.01% | 0.00% | 0.00% | 0.01% | 0.04% | 0.00% |
| 28 | 0.01% | 0.02% | 0.01% | 0.01% | 0.00% | 0.00% | 0.01% | 0.04% | 0.00% |
| 29 | 0.01% | 0.02% | 0.01% | 0.01% | 0.00% | 0.00% | 0.01% | 0.04% | 0.00% |
| 30 | 0.01% | 0.02% | 0.01% | 0.01% | 0.00% | 0.00% | 0.01% | 0.04% | 0.00% |
| 31 | 0.01% | 0.02% | 0.01% | 0.01% | 0.00% | 0.00% | 0.01% | 0.04% | 0.00% |
| 32 | 0.01% | 0.02% | 0.01% | 0.01% | 0.00% | 0.00% | 0.01% | 0.04% | 0.00% |
| 33 | 0.01% | 0.02% | 0.01% | 0.01% | 0.00% | 0.01% | 0.01% | 0.04% | 0.00% |
| 34 | 0.01% | 0.03% | 0.01% | 0.01% | 0.00% | 0.02% | 0.01% | 0.04% | 0.00% |
| 35 | 0.01% | 0.03% | 0.01% | 0.01% | 0.00% | 0.02% | 0.02% | 0.04% | 0.01% |
| 36 | 0.01% | 0.03% | 0.01% | 0.01% | 0.00% | 0.03% | 0.02% | 0.04% | 0.01% |
| 37 | 0.02% | 0.03% | 0.01% | 0.01% | 0.00% | 0.03% | 0.02% | 0.04% | 0.01% |
| 38 | 0.02% | 0.03% | 0.01% | 0.01% | 0.00% | 0.03% | 0.02% | 0.05% | 0.01% |
| 39 | 0.03% | 0.04% | 0.01% | 0.02% | 0.00% | 0.03% | 0.02% | 0.05% | 0.01% |
| 40 | 0.03% | 0.04% | 0.01% | 0.02% | 0.01% | 0.03% | 0.02% | 0.06% | 0.01% |
| 41 | 0.04% | 0.04% | 0.02% | 0.02% | 0.01% | 0.03% | 0.02% | 0.06% | 0.01% |
| 42 | 0.05% | 0.04% | 0.02% | 0.02% | 0.01% | 0.04% | 0.03% | 0.07% | 0.01% |
| 43 | 0.05% | 0.05% | 0.02% | 0.04% | 0.01% | 0.03% | 0.03% | 0.08% | 0.01% |
| 44 | 0.06% | 0.06% | 0.03% | 0.05% | 0.01% | 0.03% | 0.03% | 0.10% | 0.01% |
| 45 | 0.06% | 0.06% | 0.03% | 0.05% | 0.01% | 0.03% | 0.03% | 0.11% | 0.01% |
| 46 | 0.06% | 0.06% | 0.04% | 0.07% | 0.01% | 0.03% | 0.04% | 0.13% | 0.02% |
| 47 | 0.06% | 0.06% | 0.04% | 0.08% | 0.01% | 0.03% | 0.04% | 0.14% | 0.02% |
| 48 | 0.09% | 0.07% | 0.05% | 0.08% | 0.02% | 0.04% | 0.05% | 0.31% | 0.02% |
| 49 | 0.11% | 0.08% | 0.06% | 0.09% | 0.02% | 0.05% | 0.05% | 0.48% | 0.02% |
| 50 | 0.13% | 0.09% | 0.08% | 0.10% | 0.02% | 0.06% | 0.06% | 0.64% | 0.02% |
| 51 | 0.15% | 0.09% | 0.11% | 0.11% | 0.02% | 0.06% | 0.06% | 0.81% | 0.03% |
| 52 | 0.17% | 0.10% | 0.13% | 0.11% | 0.02% | 0.07% | 0.07% | 0.98% | 0.03% |
| 53 | 0.19% | 0.12% | 0.14% | 0.12% | 0.03% | 0.08% | 0.33% | 0.81% | 0.05% |
| 54 | 0.21% | 0.14% | 0.14% | 0.14% | 0.04% | 0.08% | 0.60% | 0.64% | 0.08% |
| 55 | 0.24% | 0.16% | 0.16% | 0.14% | 0.05% | 0.09% | 0.87% | 0.48% | 0.09% |
| 56 | 0.27% | 0.18% | 0.17% | 0.16% | 0.06% | 0.09% | 1.13% | 0.31% | 0.11% |
| 57 | 0.30% | 0.20% | 0.17% | 0.17% | 0.07% | 0.10% | 1.40% | 0.14% | 0.12% |
| 58 | 0.33% | 0.21% | 0.20% | 0.19% | 0.07% | 0.11% | 1.42% | 0.14% | 0.12% |
| 59 | 0.36% | 0.21% | 0.23% | 0.20% | 0.07% | 0.12% | 1.44% | 0.14% | 0.11% |
| 60 | 0.43% | 0.23% | 0.26% | 0.21% | 0.07% | 0.13% | 1.46% | 0.14% | 0.11% |

**ACTUARIAL ASSUMPTIONS
BASED ON 2012-2014 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% | 3.0% | 5.6% | 4.8% | 5.5% | 2.5% |
| 2 | 3.5% | 3.0% | 5.6% | 4.8% | 5.5% | 2.5% |
| 3 | 3.1% | 2.9% | 5.2% | 4.1% | 4.7% | 2.0% |
| 4 | 2.8% | 2.8% | 4.7% | 3.5% | 3.8% | 1.6% |
| 5 | 2.5% | 2.7% | 4.3% | 2.8% | 3.0% | 1.1% |
| 6 | 2.2% | 2.6% | 3.8% | 2.2% | 2.1% | 0.7% |
| 7 | 1.9% | 2.5% | 3.4% | 1.5% | 1.3% | 0.2% |
| 8 | 1.8% | 2.4% | 3.1% | 1.4% | 1.2% | 0.2% |
| 9 | 1.6% | 2.3% | 2.9% | 1.3% | 1.0% | 0.2% |
| 10 | 1.5% | 2.2% | 2.6% | 1.1% | 0.9% | 0.2% |
| 11 | 1.4% | 2.1% | 2.4% | 1.0% | 0.7% | 0.2% |
| 12 | 1.3% | 2.0% | 2.1% | 0.9% | 0.6% | 0.2% |
| 13 | 1.2% | 1.9% | 1.9% | 0.9% | 0.6% | 0.2% |
| 14 | 1.2% | 1.8% | 1.7% | 0.9% | 0.6% | 0.2% |
| 15 | 1.1% | 1.7% | 1.4% | 0.8% | 0.5% | 0.2% |
| 16 | 1.1% | 1.6% | 1.2% | 0.8% | 0.5% | 0.2% |
| 17 | 1.0% | 1.5% | 1.0% | 0.8% | 0.5% | 0.2% |
| 18 | 1.0% | 1.4% | 0.9% | 0.8% | 0.5% | 0.2% |
| 19 | 0.9% | 1.3% | 0.7% | 0.8% | 0.5% | 0.2% |
| 20 | 0.9% | 1.2% | 0.6% | 0.7% | 0.4% | 0.2% |
| 21 | 0.8% | 1.1% | 0.5% | 0.7% | 0.4% | 0.2% |
| 22 | 0.8% | 1.0% | 0.4% | 0.7% | 0.4% | 0.2% |
| 23 | 0.7% | 0.9% | 0.3% | 0.7% | 0.4% | 0.2% |
| 24 | 0.7% | 0.9% | 0.3% | 0.7% | 0.4% | 0.2% |
| 25 | 0.6% | 0.9% | 0.3% | 0.6% | 0.3% | 0.2% |
| 26 | 0.6% | 0.8% | 0.2% | 0.6% | 0.3% | 0.2% |
| 27 | 0.5% | 0.8% | 0.2% | 0.6% | 0.3% | 0.2% |
| 28 | 0.5% | 0.8% | 0.2% | 0.6% | 0.3% | 0.2% |
| 29 | 0.4% | 0.7% | 0.2% | 0.6% | 0.3% | 0.2% |
| 30 | 0.4% | 0.7% | 0.2% | 0.5% | 0.2% | 0.2% |
| 31 | 0.3% | 0.6% | 0.2% | 0.5% | 0.2% | 0.2% |
| 32 | 0.3% | 0.6% | 0.2% | 0.5% | 0.2% | 0.2% |
| 33 | 0.3% | 0.5% | 0.1% | 0.5% | 0.2% | 0.2% |
| 34 | 0.3% | 0.4% | 0.1% | 0.5% | 0.2% | 0.2% |
| 35 | 0.2% | 0.4% | 0.1% | 0.4% | 0.1% | 0.2% |
| 36 | 0.2% | 0.3% | 0.1% | 0.4% | 0.1% | 0.2% |
| 37 | 0.2% | 0.2% | 0.1% | 0.4% | 0.1% | 0.2% |
| 38 | 0.2% | 0.2% | 0.1% | 0.4% | 0.1% | 0.2% |
| 39 | 0.2% | 0.2% | 0.1% | 0.3% | 0.1% | 0.2% |
| 40 | 0.1% | 0.1% | 0.1% | 0.3% | 0.1% | 0.2% |

**ACTUARIAL ASSUMPTIONS
BASED ON 2012-2014 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 | | | | | | | 9% | 5% | |
| 53 | | | | | | | 23% | 17% | |
| 54 | | | | | | | 19% | 25% | |
| 55 | | | | | | | 19% | 21% | |
| 56 | | | | | | | 19% | 27% | |
| 57 | 18% | 15% | 36% | 28% | 12% | 14% | 19% | 30% | 12% |
| 58 | 18% | 15% | 31% | 28% | 12% | 12% | 18% | 30% | 12% |
| 59 | 18% | 15% | 24% | 28% | 12% | 10% | 16% | 30% | 12% |
| 60 | 18% | 15% | 30% | 28% | 12% | 12% | 20% | 26% | 12% |
| 61 | 18% | 15% | 28% | 28% | 12% | 16% | 20% | 15% | 12% |
| 62 | 25% | 25% | 37% | 36% | 12% | 14% | 22% | 20% | 12% |
| 63 | 30% | 25% | 32% | 30% | 12% | 19% | 26% | 40% | 12% |
| 64 | 25% | 25% | 27% | 27% | 12% | 13% | 17% | 40% | 12% |
| 65 | 25% | 28% | 29% | 35% | 15% | 18% | 30% | 40% | 12% |
| 66 | 32% | 32% | 33% | 35% | 17% | 22% | 25% | 40% | 20% |
| 67 | 26% | 26% | 27% | 30% | 16% | 17% | 30% | 40% | 15% |
| 68 | 19% | 22% | 24% | 30% | 16% | 16% | 30% | 40% | 15% |
| 69 | 19% | 20% | 24% | 30% | 16% | 14% | 30% | 40% | 10% |
| 70 | 19% | 20% | 20% | 35% | 16% | 18% | 100% | 100% | 10% |
| 71 | 19% | 20% | 20% | 30% | 18% | 18% | 100% | 100% | 10% |
| 72 | 19% | 20% | 20% | 22% | 14% | 18% | 100% | 100% | 15% |
| 73 | 19% | 20% | 20% | 22% | 14% | 18% | 100% | 100% | 15% |
| 74 | 19% | 20% | 20% | 22% | 10% | 18% | 100% | 100% | 15% |
| 75 | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

* Includes Reduced Retirement.

**ACTUARIAL ASSUMPTIONS
BASED ON 2012-2014 EXPERIENCE STUDY**

Reduced Retirement Pattern

| Age | % of Active Participants Retiring | | | | | | |
|-----|-----------------------------------|--------|----------------|--------|------------|--------|---------------------|
| | General | | Public Schools | | University | | Executive & Elected |
| | Male | Female | Male | Female | Male | Female | |
| 55 | 9% | 7% | 13% | 12% | 4% | 6% | 3% |
| 56 | 9% | 7% | 13% | 12% | 3% | 6% | 3% |
| 57 | 5% | 5% | 12% | 12% | 3% | 4% | 3% |
| 58 | 6% | 6% | 13% | 12% | 3% | 6% | 3% |
| 59 | 7% | 6% | 14% | 13% | 3% | 7% | 3% |
| 60 | 9% | 9% | 14% | 17% | 4% | 8% | 5% |
| 61 | 9% | 9% | 15% | 17% | 5% | 6% | 5% |
| 62 | 16% | 16% | 21% | 23% | 6% | 12% | 2% |
| 63 | 17% | 16% | 21% | 23% | 7% | 12% | 2% |
| 64 | 17% | 16% | 21% | 23% | 7% | 12% | 2% |

**ACTUARIAL ASSUMPTIONS
BASED ON 2012-2014 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 2012-2014 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 | 0.0356% | 0.0190% | 60 | 1.0394% | 0.6292% | 100 | 40.0000% | 33.0147% |
| 21 | 0.0363% | 0.0198% | 61 | 1.1620% | 0.6893% | 101 | 40.0000% | 33.5879% |
| 22 | 0.0374% | 0.0208% | 62 | 1.2831% | 0.7742% | 102 | 40.0000% | 34.2569% |
| 23 | 0.0392% | 0.0220% | 63 | 1.4169% | 0.8695% | 103 | 40.0000% | 35.1544% |
| 24 | 0.0422% | 0.0239% | 64 | 1.5647% | 0.9766% | 104 | 40.0000% | 36.4617% |
| 25 | 0.0475% | 0.0283% | 65 | 1.7278% | 1.0968% | 105 | 40.0000% | 37.6246% |
| 26 | 0.0535% | 0.0323% | 66 | 1.9079% | 1.2318% | 106 | 40.0000% | 38.6015% |
| 27 | 0.0600% | 0.0360% | 67 | 2.1320% | 1.3895% | 107 | 40.0000% | 39.3507% |
| 28 | 0.0668% | 0.0393% | 68 | 2.3823% | 1.5674% | 108 | 40.0000% | 39.8308% |
| 29 | 0.0735% | 0.0425% | 69 | 2.6621% | 1.7681% | 109 | 100.0000% | 100.0000% |
| 30 | 0.0800% | 0.0456% | 70 | 2.9746% | 1.9945% | 110 | 100.0000% | 100.0000% |
| 31 | 0.0860% | 0.0486% | 71 | 3.3239% | 2.2498% | 111 | 100.0000% | 100.0000% |
| 32 | 0.0908% | 0.0519% | 72 | 3.7810% | 2.5571% | 112 | 100.0000% | 100.0000% |
| 33 | 0.0952% | 0.0557% | 73 | 4.3009% | 2.9063% | 113 | 100.0000% | 100.0000% |
| 34 | 0.0996% | 0.0607% | 74 | 4.8923% | 3.3032% | 114 | 100.0000% | 100.0000% |
| 35 | 0.1043% | 0.0665% | 75 | 5.5650% | 3.7543% | 115 | 100.0000% | 100.0000% |
| 36 | 0.1099% | 0.0732% | 76 | 6.3302% | 4.2670% | 116 | 100.0000% | 100.0000% |
| 37 | 0.1163% | 0.0806% | 77 | 7.1516% | 4.9361% | 117 | 100.0000% | 100.0000% |
| 38 | 0.1238% | 0.0885% | 78 | 8.0795% | 5.7101% | 118 | 100.0000% | 100.0000% |
| 39 | 0.1323% | 0.0957% | 79 | 9.1278% | 6.6055% | 119 | 100.0000% | 100.0000% |
| 40 | 0.1403% | 0.1030% | 80 | 10.3121% | 7.6414% | 120 | 100.0000% | 100.0000% |
| 41 | 0.1491% | 0.1106% | 81 | 11.6501% | 8.8396% | | | |
| 42 | 0.1583% | 0.1196% | 82 | 12.8173% | 9.7666% | | | |
| 43 | 0.1681% | 0.1293% | 83 | 14.1014% | 10.7909% | | | |
| 44 | 0.1783% | 0.1412% | 84 | 15.5142% | 11.9225% | | | |
| 45 | 0.2022% | 0.1576% | 85 | 17.0685% | 13.1729% | | | |
| 46 | 0.2512% | 0.1753% | 86 | 18.7785% | 14.5543% | | | |
| 47 | 0.3022% | 0.1956% | 87 | 21.0679% | 16.4543% | | | |
| 48 | 0.3532% | 0.2192% | 88 | 23.6364% | 18.6023% | | | |
| 49 | 0.4111% | 0.2507% | 89 | 26.5181% | 21.0308% | | | |
| 50 | 0.4551% | 0.2750% | 90 | 29.7511% | 23.7762% | | | |
| 51 | 0.4982% | 0.2950% | 91 | 32.4589% | 25.8801% | | | |
| 52 | 0.5279% | 0.3134% | 92 | 34.2182% | 27.6845% | | | |
| 53 | 0.5593% | 0.3405% | 93 | 35.1569% | 28.7569% | | | |
| 54 | 0.5926% | 0.3700% | 94 | 36.1245% | 30.0123% | | | |
| 55 | 0.6280% | 0.4021% | 95 | 36.5879% | 30.4325% | | | |
| 56 | 0.6654% | 0.4369% | 96 | 37.1685% | 31.0012% | | | |
| 57 | 0.7439% | 0.4786% | 97 | 38.3040% | 31.5786% | | | |
| 58 | 0.8316% | 0.5243% | 98 | 39.2003% | 32.0124% | | | |
| 59 | 0.9297% | 0.5744% | 99 | 39.7886% | 32.6189% | | | |

**ACTUARIAL ASSUMPTIONS
BASED ON 2012-2014 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 | 0.0141% | 0.0081% | 60 | 0.2861% | 0.1760% | 100 | 17.7930% | 14.7824% |
| 21 | 0.0147% | 0.0080% | 61 | 0.3017% | 0.1903% | 101 | 18.1118% | 15.0647% |
| 22 | 0.0152% | 0.0081% | 62 | 0.3180% | 0.2057% | 102 | 18.3992% | 15.3462% |
| 23 | 0.0158% | 0.0083% | 63 | 0.3537% | 0.2253% | 103 | 19.0565% | 15.7105% |
| 24 | 0.0163% | 0.0085% | 64 | 0.3935% | 0.2468% | 104 | 19.5024% | 15.9264% |
| 25 | 0.0168% | 0.0089% | 65 | 0.4376% | 0.2704% | 105 | 19.8943% | 16.3095% |
| 26 | 0.0176% | 0.0094% | 66 | 0.4868% | 0.2962% | 106 | 20.0000% | 16.5074% |
| 27 | 0.0179% | 0.0098% | 67 | 0.5415% | 0.3245% | 107 | 20.0000% | 16.7940% |
| 28 | 0.0184% | 0.0103% | 68 | 0.5949% | 0.3644% | 108 | 20.0000% | 17.1285% |
| 29 | 0.0193% | 0.0109% | 69 | 0.6569% | 0.4093% | 109 | 20.0000% | 17.5772% |
| 30 | 0.0208% | 0.0118% | 70 | 0.7254% | 0.4597% | 110 | 20.0000% | 18.2309% |
| 31 | 0.0234% | 0.0140% | 71 | 0.8010% | 0.5163% | 111 | 20.0000% | 18.8123% |
| 32 | 0.0264% | 0.0159% | 72 | 0.8845% | 0.5798% | 112 | 20.0000% | 19.3008% |
| 33 | 0.0296% | 0.0178% | 73 | 0.9884% | 0.6541% | 113 | 20.0000% | 19.6754% |
| 34 | 0.0329% | 0.0194% | 74 | 1.1045% | 0.7378% | 114 | 20.0000% | 19.9154% |
| 35 | 0.0362% | 0.0210% | 75 | 1.2342% | 0.8323% | 115 | 20.0000% | 20.0000% |
| 36 | 0.0394% | 0.0225% | 76 | 1.3791% | 0.9389% | 116 | 20.0000% | 20.0000% |
| 37 | 0.0424% | 0.0240% | 77 | 1.5410% | 1.0590% | 117 | 20.0000% | 20.0000% |
| 38 | 0.0447% | 0.0256% | 78 | 1.7529% | 1.2037% | 118 | 20.0000% | 20.0000% |
| 39 | 0.0469% | 0.0275% | 79 | 1.9940% | 1.3681% | 119 | 20.0000% | 20.0000% |
| 40 | 0.0491% | 0.0299% | 80 | 2.2681% | 1.5549% | 120 | 100.0000% | 100.0000% |
| 41 | 0.0514% | 0.0328% | 81 | 2.5800% | 1.7672% | | | |
| 42 | 0.0542% | 0.0361% | 82 | 2.9348% | 2.0086% | | | |
| 43 | 0.0573% | 0.0397% | 83 | 3.3156% | 2.3235% | | | |
| 44 | 0.0610% | 0.0436% | 84 | 3.7457% | 2.6878% | | | |
| 45 | 0.0652% | 0.0472% | 85 | 4.2317% | 3.1093% | | | |
| 46 | 0.0691% | 0.0508% | 86 | 4.7808% | 3.5969% | | | |
| 47 | 0.0735% | 0.0545% | 87 | 5.4286% | 4.1609% | | | |
| 48 | 0.0780% | 0.0589% | 88 | 6.0028% | 4.5973% | | | |
| 49 | 0.0828% | 0.0637% | 89 | 6.6377% | 5.0794% | | | |
| 50 | 0.0878% | 0.0696% | 90 | 7.3398% | 5.6405% | | | |
| 51 | 0.0996% | 0.0777% | 91 | 8.1160% | 6.2637% | | | |
| 52 | 0.1238% | 0.0864% | 92 | 8.9743% | 6.9555% | | | |
| 53 | 0.1489% | 0.0964% | 93 | 10.1193% | 7.9033% | | | |
| 54 | 0.1740% | 0.1075% | 94 | 11.4103% | 8.9802% | | | |
| 55 | 0.2025% | 0.1223% | 95 | 12.8660% | 10.2037% | | | |
| 56 | 0.2242% | 0.1334% | 96 | 14.5074% | 11.5939% | | | |
| 57 | 0.2442% | 0.1424% | 97 | 15.9075% | 12.6833% | | | |
| 58 | 0.2574% | 0.1506% | 98 | 16.7697% | 13.5676% | | | |
| 59 | 0.2714% | 0.1628% | 99 | 17.3164% | 14.1641% | | | |

November 24, 2015

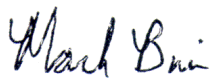
Mr. Bob Conlin
Wisconsin Department of Employee
Trust Funds
801 West Badger Road
Madison, Wisconsin 53707

Re: 2012 – 2014 WRS Experience Study

Dear Bob:

Enclosed are 40 bound color copies and 20 stapled black and white copies of the 2012 – 2014 Wisconsin Retirement System Experience Study.

Sincerely,



Mark Buis, FSA, EA, MAAA

MB:rmn:dj

Enclosures