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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

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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.

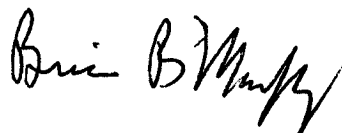
Respectfully submitted,



Mark Buis, FSA, EA, FCA, MAAA



James D. Anderson, FSA, EA, MAAA



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

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
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
Previous Investigation Results (combined)		0.0238
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
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		0.2972
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

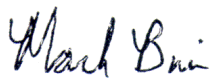
Mr. Bob Conlin
Wisconsin Department of Employee
Trust Funds
801 West Badger Road
Madison, Wisconsin 53707

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