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**State of Mississippi Retirement Systems
Experience Investigation – Economic
for the Four-Year Period Ending
June 30, 2010**





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August 15, 2011

The Board of Trustees
Public Employees' Retirement System of Mississippi
429 Mississippi Street
Jackson, MS 39201

Members of the Board:

We are pleased to submit the results of an investigation of the economic experience for the Public Employees' Retirement System. The purpose of the investigation was to assess the reasonability of the actuarial assumptions.

The experience investigation was performed by, and under the supervision of, independent actuaries who are members of the American Academy of Actuaries with experience in performing valuations for public retirement systems. The undersigned meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

Thomas J. Cavanaugh, FSA, EA, FCA, MAAA
Chief Executive Officer

Edward J. Koebel, EA, FCA, MAAA
Principal and Consulting Actuary

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Section I Executive Summary

The following summarizes the findings and recommendations with regard to the assumptions utilized for the State of Mississippi Retirement Systems. Detailed explanations for the recommendations are found in the sections that follow.

Economic Assumption Changes

The table below lists the three economic assumptions used in the actuarial valuations and their current and recommended rates.

Item	Current	Recommended
Price Inflation	3.50%	3.50%
Investment Return	8.00%	7.50%
Wage Inflation	4.25%	4.25%



Financial Impact

The following table highlights the impact of the recommended changes on the unfunded accrued liabilities (UAL) and employer contribution rates for each System. The demographic changes were discussed in our report dated April 20, 2011.

Change in Unfunded Accrued Liability (\$ in Thousands)

System	Valuation Results 2010	Demographic Changes Only	Demographic and Investment Return Change to 7.50%
PERS	\$11,256,562	\$11,034,463	\$12,894,825
HSPRS	130,189	129,965	153,988
SLRP	3,840	3,844	4,648
MRS	196,909	197,023	212,359

Change in Funding Ratio

System	Valuation Results 2010	Demographic Changes Only	Demographic and Investment Return Change to 7.50%
PERS	64.2%	64.6%	61.0%
HSPRS	68.4%	68.4%	64.6%
SLRP	77.5%	77.5%	74.0%
MRS	47.2%	47.2%	45.3%



Change in Employer Annual Required Contribution

System	Valuation Results 2010	Demographic Changes Only	Demographic and Investment Return Change to 7.50%
PERS	12.93%	12.85%	15.29%
HSPRS	35.21%	35.15%	41.45%
SLRP	7.40%	7.42%	8.60%
MRS	N/A	N/A	N/A

Change in Amortization Period (in years)

System	Valuation Results 2010	Demographic Changes Only	Demographic and Investment Return Change to 7.50%
PERS	30.0	30.0	30.0
HSPRS	30.0	30.0	29.9
SLRP	29.7	29.9	29.8
MRS	N/A	N/A	N/A



Section II Economic Assumptions

There are three economic assumptions used in the actuarial valuations performed for the Mississippi Retirement Systems. They are:

- Price Inflation
- Investment Return
- Wage Inflation

The Actuarial Standards Board has issued Actuarial Standard of Practice (ASOP) No. 27, “*Selection of Economic Assumptions for Measuring Pension Obligations*”, which provides guidance to actuaries in selecting economic assumptions for measuring obligations under defined benefit plans. As noted in ASOP No. 27, because no one knows what the future holds, the best an actuary can do is to use professional judgment to estimate possible future economic outcomes based on a mixture of past experience and future expectations. These estimates therefore are best stated as a range utilizing the actuary’s professional judgment. In setting the range and the single point within that range to use, the actuary should consider a number of factors, including the purpose and nature of the measurement, and appropriate recent and long-term historical economic data. However, the standard explicitly advises the actuary not to give undue weight to recent experience.

Each economic assumption should individually satisfy this standard. Furthermore, with respect to any particular valuation, each economic assumption should be consistent with every other economic assumption over the measurement period.

In our opinion, the economic assumptions recommended in this report have been developed in accordance with ASOP No. 27. The following table shows our recommendations followed by detailed discussions of each assumption.

Item	Current	Recommended
Price Inflation	3.50%	3.50%
Real Rate of Return	<u>4.50</u>	<u>4.00</u>
Investment Return	8.00%	7.50%
Price Inflation	3.50%	3.50%
Real Wage Growth	<u>0.75</u>	<u>0.75</u>
Wage Inflation	4.25%	4.25%



Price Inflation

Background: As can be seen from the table on the previous page, assumed price inflation is used as the basis for both the investment return assumption and the wage inflation assumption. These latter two assumptions will be discussed in detail in the following sections.

It is important that the price inflation assumption be consistently applied throughout the economic assumptions utilized in an actuarial valuation. This is called for in ASOP No. 27 and is also required to meet the parameters for determining pension liabilities and expense under Governmental Accounting Standards Board (GASB) Statements No. 25 and 27.

The current price inflation assumption is 3.50% per year.

Past Experience: The Consumer Price Index, US City Average, All Urban Consumers, CPI (U), has been used as the basis for reviewing historical levels of price inflation. The level of that index in June of each of the last 50 years is provided in Appendix A.

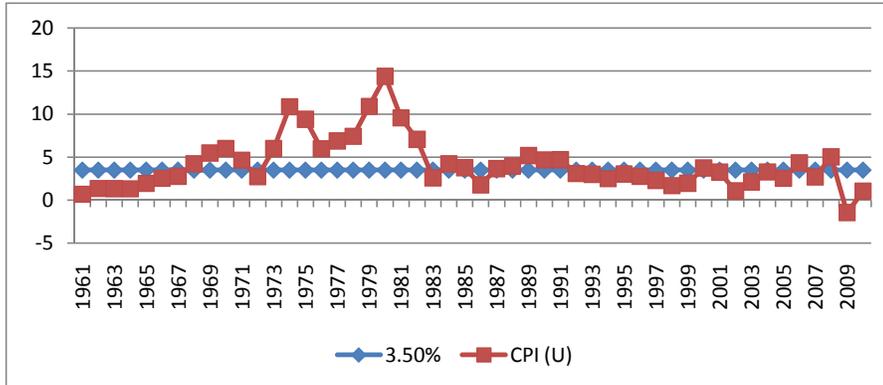
In analyzing this data, annual rates of inflation have been determined by measuring the compound growth rate of the CPI (U) over various time periods. The results are as follows:

Period	Inflation
2001-2010	2.4%
1991-2000	2.9%
1981-1990	4.6%
1971-1980	7.9%
1961-1970	2.7%
1991-2010	2.6%
1981-2010	3.3%
1971-2010	4.4%
1961-2010	4.1%

The graph below shows the annual increases in the CPI (U) over the entire 50 year period.



Annual CPI (U) Increases



Recommendation: It is difficult to accurately predict inflation. Inflation’s short-term volatility is illustrated by comparing its average rate over the last 10, 30 and 50 years. Although the 10-year average of 2.4% is significantly lower than Mississippi’s assumed rate of 3.50%, the longer 40 and 50-year averages of 4.4% and 4.1% respectively, are all higher than Mississippi’s rate. The validity of Mississippi’s assumption is, therefore, dependent upon the emphasis one assigns to the short and long-terms.

Current economic forecasts suggest lower inflation but are generally looking at a shorter time period than appropriate for our purposes. In the 2010 OASDI Trustees Report, the Chief Actuary for Social Security bases the 75 year cost projections on an intermediate inflation assumption of 2.8% with a range of 1.8% to 3.8%. We concur in general with a range of 2.0% - 4.0%, and recommend continued use of a 3.50% per year rate recognizing the likely inflation pressures built into the economy at the current time.

Price Inflation Assumption	
Current	3.50%
Reasonable Range	2.00% - 4.00%
Recommended	3.50%



Investment Return

Background: The assumed investment return is one of the most significant assumptions in the annual actuarial valuation process as it is used to discount the expected benefit payments for all active, inactive and retired members of the divisions. Minor changes in this assumption can have a major impact on valuation results. The investment return assumption should reflect the asset allocation target for the funds set by the Board of Trustees.

The current assumption is 8.00%, consisting of a price inflation assumption of 3.50% and a real rate of return assumption of 4.50%. The return is net of all investment and administrative expenses.

Past Experience: The assets for Mississippi are valued using a widely accepted asset-smoothing methodology that fully recognizes the expected investment income and also recognizes 20% of each year's investment gain or loss (the difference between actual and expected investment income). The recent experience over the last four years is shown in the table below.

Year Ending 6/30	Actuarial Value	Market Value
2007	10.15%	18.76%
2008	7.14%	(8.15)%
2009	(10.93)%	(19.51)%
2010	0.20%	14.43%
Average	1.31%	0.12%

Because of the significant variability in past year-to-year results and the inter-play of inflation on those results in the short term, we prefer to base our investment return assumption on the capital market assumptions utilized by the Board in setting investment policy and the asset allocation established by the Board as a result of that policy. This approach is referred to as the building block method in ASOP No. 27.



Analysis: The current capital market assumptions and asset allocation are shown in Appendix B. Using stochastic projection results provides an expected range of real rates of return over a 50 year time horizon. Looking at one year results produces an expected mean real return of 4.88% but also has a high standard deviation or measurement of volatility. By expanding the time horizon, the average return does not change much but the volatility declines significantly. The following table provides a summary of results.

Time Span In Years	Mean Real Return	Standard Deviation	Real Returns by Percentile				
			5 th	25 th	50 th	75 th	95 th
1	4.88%	13.20%	(15.09)%	(4.24)%	4.08%	13.42%	27.80%
5	4.28	5.85	(5.08)	0.22	4.27	8.15	14.17
10	4.13	4.12	(2.39)	1.29	4.06	6.89	11.13
20	4.06	2.94	(0.74)	2.08	4.07	6.03	8.94
30	4.06	2.39	0.25	2.36	4.06	5.71	8.03
40	4.06	2.05	0.75	2.66	4.04	5.48	7.46
50	4.08	1.83	1.09	2.83	4.07	5.33	7.11

The percentile results are percentage of the 5,000 random series that produce returns over the time span shown of less than the amount indicated. Thus for the 10 year time span, 5% of the resulting real rates of return were below -2.39% and 95% were above that. As the time span increases, the results begin to merge. Over a 50 year time span, the results indicate there is a 25% chance that real returns will be below 2.83% and a 25% chance they will be above 5.33%. In other words there is a 50% chance the real returns will be between 2.83% and 5.33%.

Administrative and Investment Expenses: The investment return is assumed to be net of administrative and investment expenses. The table below compares, for the last four years, the expense levels during the fiscal year to the market value of assets for the PERS System at the end of the fiscal year (all \$ in thousands).

FY Ending June 30	Administrative Expenses	Investment Expenses	Total Expenses	Market Value of Assets	Expense Ratio
2007	\$9,846	\$35,727	\$45,573	\$21,353,016	0.21%
2008	11,078	35,719	46,797	19,251,069	0.24%
2009	11,823	25,937	37,760	15,134,487	0.25%
2010	11,739	33,121	44,860	16,788,214	0.27%

The increase in expense ratio in 2008 through 2010 reflects the market loss during those years. We would not expect the expense ratio long term to exceed 0.22% and are recommending that level in setting the net investment return assumption.



Recommendation: Using the building block approach of ASOP No. 27 and the projection results outlined above, we are recommending a range for the investment return assumption of the 25th to 75th percentile real returns over the 50 year time span plus the recommended inflation assumption less the recommended expense ratio. The following table details the range.

Item	25 th Percentile	50 th Percentile	75 th Percentile
Real Rate of Return	2.83%	4.07%	5.33%
Inflation	3.50	3.50	3.50
Expenses	<u>(0.22)</u>	<u>(0.22)</u>	<u>(0.22)</u>
New Investment Return	6.11%	7.35%	8.61%

There is a less than 50% chance that the net return will be 7.50% or more over a 50-year period. The current net return of 8.00% is at the 63rd percentile. Our experience study from two years ago indicated that the 50th percentile of the investment return projection was 7.89%. The target asset portfolio, as provided by your office, seems to have shifted to a more conservative balance between equities and fixed income at the same time that the capital market assumptions have shifted to lower expected returns for all asset classes. This has resulted in a significantly lower return as shown in the table above. Since the 50th percentile is much lower than 8.00%, we recommend PERS consider lowering the investment return assumption from 8.00% to 7.50%.

Investment Return Assumption	
Current	8.00%
Reasonable Range	6.09% - 8.62%
Recommended	7.50%



Wage Inflation

Background: The assumed future increases in salaries consist of an inflation component and a component for promotion and longevity, often called merit increases. The latter are generally age and or service related, and will be dealt with in the demographic assumption section of the report. Wage inflation normally is above price inflation as a reflection of the overall return on labor in the economy.

The current wage inflation assumption is 4.25%, or 0.75% above price inflation.

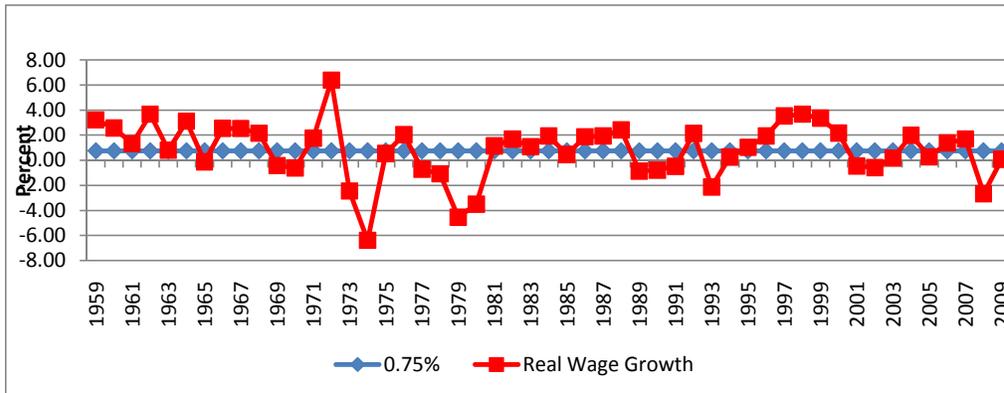
Past Experience: The Social Security Administration publishes data on wage growth in the United States. Appendix C shows the last 50 calendar years' data. As with our analysis of inflation, we provide below wage inflation and a comparison with price inflation over various time periods. Since wage data is only available through 2009 we use that year as the starting point.

Period	Wage Inflation	Price Inflation	Real Wage Growth
2000-2009	2.94%	2.55%	0.39%
1990-1999	4.25	2.99	1.26
1980-1989	5.76	5.30	0.46
1970-1979	6.89	7.23	(0.34)
1960-1969	4.33	2.39	1.94
1990-2009	3.59	2.77	0.82
1980-2009	4.31	3.61	0.70
1970-2009	4.95	4.50	0.45
1960-2009	4.83	4.08	0.75

Thus over the last 50 years, annual real wage growth has averaged 0.75%.



Annual Real Wage Growth



Recommendation: As with price inflation, we again look at the 2010 OASDI Trustees Report. The Chief Actuary for Social Security bases the 75 year cost projections on a national wage growth assumption 1.2% greater than the price inflation assumption of 2.8%. We concur in general with a range of .5% to 1.5%, and recommend continued use of a 0.75% per year rate at the current time.

Wage Inflation Assumption		
Current	4.25%	
	Reasonable Range	
Real Wage Growth	0.50%	1.50%
Inflation	<u>3.50</u>	<u>3.50</u>
Total	4.00%	5.00%
Recommended	4.25%	



Appendix A

Historical June CPI (U) Index

Year	CPI (U)	Year	CPI (U)
1960	29.6	1986	109.5
1961	29.8	1987	113.5
1962	30.2	1988	118.0
1963	30.6	1989	124.1
1964	31.0	1990	129.9
1965	31.6	1991	136.0
1966	32.4	1992	140.2
1967	33.3	1993	144.4
1968	35.7	1994	148.0
1969	34.7	1995	152.5
1970	38.8	1996	156.7
1971	40.6	1997	160.3
1972	41.7	1998	163.0
1973	44.2	1999	166.2
1974	49.0	2000	172.4
1975	53.6	2001	178.0
1976	56.8	2002	179.9
1977	60.7	2003	183.7
1978	65.2	2004	189.7
1979	72.3	2005	194.5
1980	82.7	2006	202.9
1981	90.6	2007	208.352
1982	97.0	2008	218.815
1983	99.5	2009	215.693
1984	103.7	2010	217.965
1985	107.6		



Appendix B

Capital Market Assumptions and Asset Allocation

Geometric Rates of Return and Standard Deviations by Asset Class

Asset Class	Expected Geometric Real Rates of Return	Standard Deviation
Broad Domestic Equity – Russell 3000	5.50%	18.10%
U.S. Equity – Large Cap – S&P 500	5.35%	17.25%
U.S. Equity – Sm/Mid Cap – Russell 2500	5.75%	23.00%
International Equity – Developed	5.35%	19.75%
International Equity – Emerging	5.85%	27.50%
Global ex-US Equity	5.70%	20.90%
Defensive	0.75%	2.50%
Domestic Fixed Income	1.25%	4.50%
TIPs	1.00%	5.90%
Real Estate	4.25%	16.35%
Private Equity	6.50%	30.00%
Absolute Return – Hedge Funds	3.40%	10.00%

Long Term Asset Allocation Targets

Asset Class	Asset Allocation
U.S. Equity	18.00%
International Equity – Developed	18.00%
International Equity – Emerging	8.00%
Global ex-US Equity	9.00%
Defensive	2.00%
Domestic Fixed Income	20.00%
TIPs	5.00%
Real Estate	10.00%
Private Equity	5.00%
Absolute Return – Hedge Funds	5.00%



Correlation Coefficient Matrix

Correlation	Broad	Large Cap	Sm/Mid Cap	Int'l Equity	Emerging	Global Ex-US	Defensive	Domestic Fixed	Long Duration	TIPS	High Yield	NonUS Fixed	Real Estate	Private Equity	Absolute Return	T-Bill
Broad	1.000															
Large Cap	0.995	1.000														
Sm/Mid	0.954	0.920	1.000													
Int'l Eq	0.802	0.800	0.760	1.000												
Emerging	0.838	0.830	0.810	0.830	1.000											
Global xUS	0.845	0.841	0.806	0.983	0.918	1.000										
Defensive	-0.109	-0.100	-0.130	-0.080	-0.120	-0.096	1.000									
Dom Fixed	0.010	0.020	-0.020	0.000	-0.030	-0.010	0.820	1.000								
Long Dur	0.164	0.168	0.145	0.125	0.094	0.120	0.760	0.913	1.000							
TIPS	-0.103	-0.095	-0.120	-0.090	-0.115	-0.102	0.460	0.660	0.610	1.000						
High Yield	0.612	0.610	0.580	0.530	0.530	0.551	0.050	0.160	0.230	0.060	1.000					
NonUS Fix	-0.071	-0.060	-0.100	0.050	-0.090	0.006	0.420	0.430	0.350	0.300	0.000	1.000				
Real Estate	0.736	0.730	0.710	0.640	0.620	0.658	0.000	0.080	0.191	-0.020	0.540	0.000	1.000			
Private Eq	0.947	0.940	0.910	0.870	0.890	0.910	-0.160	-0.070	0.114	-0.160	0.600	-0.070	0.730	1.000		
Abs Ret	0.741	0.740	0.700	0.680	0.670	0.703	0.050	0.230	0.340	0.100	0.510	0.000	0.560	0.710	1.000	
T-Bill	-0.043	-0.030	-0.080	-0.010	-0.100	-0.040	0.350	0.100	0.043	0.070	-0.110	0.000	-0.060	-0.150	0.150	1.000



Appendix C

Social Security Administration Wage Index

Year	Wage Index	Annual Increase	Year	Wage Index	Annual Increase
1957	\$3,641.72		1984	\$16,135.07	5.88%
1958	3,673.80	0.88%	1985	16,822.51	4.26
1959	3,855.80	4.95	1986	17,321.82	2.97
1960	4,007.12	3.92	1987	18,426.51	6.38
1961	4,086.76	1.99	1988	19,334.04	4.93
1962	4,291.40	5.01	1989	20,099.55	3.96
1963	4,396.64	2.45	1990	21,027.98	4.62
1964	4,576.32	4.09	1991	21,811.60	3.73
1965	4,658.72	1.80	1992	22,935.42	5.15
1966	4,938.36	6.00	1993	23,132.67	0.86
1967	5,213.44	5.57	1994	23,753.53	2.68
1968	5,571.76	6.87	1995	24,705.66	4.01
1969	5,893.76	5.78	1996	25,913.90	4.89
1970	6,186.24	4.96	1997	27,426.00	5.84
1971	6,497.08	5.02	1998	28,861.44	5.23
1972	7,133.80	9.80	1999	30,469.84	5.57
1973	7,580.16	6.26	2000	32,154.82	5.53
1974	8,030.76	5.94	2001	32,921.92	2.39
1975	8,630.92	7.47	2002	33,252.09	1.00
1976	9,226.48	6.90	2003	34,064.95	2.44
1977	9,779.44	5.99	2004	35,648.55	4.65
1978	10,556.03	7.94	2005	36,952.94	3.66
1979	11,479.46	8.75	2006	38,651.41	4.60
1980	12,513.46	9.01	2007	40,405.48	4.54
1981	13,773.10	10.07	2008	41,334.97	2.30
1982	14,531.34	5.51	2009	40,711.61	(1.50)
1983	15,239.24	4.87			



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**State of Mississippi Retirement Systems
Demographic Experience Investigation
for the Four-Year Period
Ending June 30, 2010**





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CONSULTING, LLC

The experience and dedication you deserve

April 20, 2011

The Board of Trustees
Public Employees' Retirement System of Mississippi
429 Mississippi Street
Jackson, MS 39201

Members of the Board:

We are pleased to submit the results of an investigation of the demographic experience for the Public Employees' Retirement System, the Highway Patrol Retirement System, the Supplemental Legislative Retirement Plan and the Municipal Retirement Systems. The purpose of the investigation was to assess the reasonability of the demographic actuarial assumptions for each Retirement System. This investigation covers the four-year period from July 1, 2006 to June 30, 2010. As a result of the investigation, it is recommended that revised tables be adopted by the Board for future use.

The investigation of the experience of members of each System includes all active and retired members as well as beneficiaries of deceased members. The experience was investigated separately for males and females since different tables are used for each of these groups.

The number of members expected to separate from active service and the expected number of post-retirement deaths was obtained by use of the rates determined in the last experience investigation and adopted by the Board of Trustees in August, 2009. The results of the investigation indicate that the assumed rates of separation from active service due to withdrawal, disability, death and retirement, and rates of salary increase and post-retirement mortality do not accurately reflect the actual and anticipated experience of the Retirement System. As a result of the investigation, new withdrawal, disability, retirement, salary increase and mortality tables have been developed which reflect more closely the actual experience of the membership.

This report shows a comparison of the actual and expected cases of separation from active service, actual and expected number of deaths, and actual and expected salary increases. These tables are shown based on current assumed expected rates and based on new proposed expected rates. A comparison between the rates of separation and mortality presently in use and the recommended revised rates are also shown in this report.

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All rates of separation, mortality and salary increase at each age for each system are shown in the attached tables in Appendix A of this report. In the actuary's judgment, the rates recommended are suitable for use until further experience indicates that modifications are desirable.

The experience investigation was performed by, and under the supervision of, independent actuaries who are members of the American Academy of Actuaries with experience in performing valuations for public retirement systems. The undersigned meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

A handwritten signature in blue ink, reading 'Thomas J. Cavanaugh'.

Thomas J. Cavanaugh, FSA, EA, FCA, MAAA
Chief Executive Officer

A handwritten signature in blue ink, reading 'Edward J. Koebel'.

Edward J. Koebel, EA, FCA, MAAA
Principal and Consulting Actuary

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**Section I
Executive Summary**

The following summarizes the findings and recommendations with regard to the demographic assumptions utilized for the State of Mississippi Retirement Systems. Detailed explanations for the recommendations are found in the sections that follow.

Recommended Demographic Assumption Changes

The table below lists, for each System, the demographic assumptions that should be changed based on the experience of the last four years.

System	Assumption Changes
PERS	Withdrawal, Disability Retirement, Pre-Retirement Mortality, Salary Scale, Disabled Post-Retirement Mortality
HSPRS	Withdrawal, Disabled Post-Retirement Mortality
SLRP	Disabled Post-Retirement Mortality
MRS	Disabled Post-Retirement Mortality

Financial Impact

The following table highlights the impact of the recommended changes on the unfunded accrued liabilities (UAL) and employer contribution rates for each System.

Change in Unfunded Accrued Liability
(\$ in Thousands)

System	Valuation Results 2010	Demographic Changes
PERS	\$11,256,562	\$11,034,463
HSPRS	130,189	129,965
SLRP	3,840	3,844
MRS	196,909	197,023



Change in Funding Ratio

System	Valuation Results 2010	Demographic Changes
PERS	64.2%	64.6%
HSPRS	68.4%	68.4%
SLRP	77.5%	77.5%
MRS	47.2%	47.2%

Change in Employer Annual Required Contribution

System	Valuation Results 2010	Demographic Changes
PERS	12.93%	12.85%
HSPRS	35.21%	35.15%
SLRP	7.40%	7.42%
MRS	N/A	N/A

Change in Amortization Period (in years)

System	Valuation Results 2010	Demographic Changes
PERS	30.0	30.0
HSPRS	30.0	30.0
SLRP	29.7	29.9
MRS	N/A	N/A



Section II

Demographic Assumptions

There are several demographic assumptions used in the actuarial valuations performed for Mississippi. They are:

- Rates of Withdrawal
- Pre-retirement Mortality
- Rates of Disability Retirement
- Rates of Service Retirement
- Post-retirement Mortality
- Rates of Salary Increase

The Actuarial Standards Board has issued Actuarial Standard of Practice (ASOP) No. 35, “*Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*”, which provides guidance to actuaries in selecting demographic assumptions for measuring obligations under defined benefit plans. In our opinion, the demographic assumptions recommended in this report have been developed in accordance with ASOP No. 35.

The purpose of a study of demographic experience is to compare what actually happened to the membership during the study period (July 1, 2006, through June 30, 2010) with what was expected to happen based on the assumptions used in the most recent Actuarial Valuations.

Detailed tabulations by age, service and/or gender are performed over the entire study period. These tabulations look at all active and retired members during the period as well as separately annotating those who experience a demographic event, also referred to as a decrement. In addition the tabulation of all members together with the current assumptions permits the calculation of the number of expected decrements during the study period.

If the actual experience differs significantly from the overall expected results, or if the pattern of actual decrements, or rates of decrement, by age, gender, or service does not follow the expected pattern, new assumptions are recommended. Recommended changes usually do not follow the exact actual experience during the observation period. Judgment is required to extrapolate future experience from past trends and current member behavior. In addition non-recurring events, such as early retirement windows, need to be taken into account in determining the weight to give to recent experience.

The remainder of this section presents the results of the demographic study. We have prepared tables that show a comparison of the actual and expected decrements and the overall ratio of actual to expected results (A/E Ratios) under the current assumptions. If a change is being proposed, the revised A/E Ratios are shown as well. Salary adjustments, other than the economic assumption for wage inflation discussed in the previous section, are treated as demographic assumptions.



PUBLIC EMPLOYEES' RETIREMENT SYSTEM

RATES OF WITHDRAWAL

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

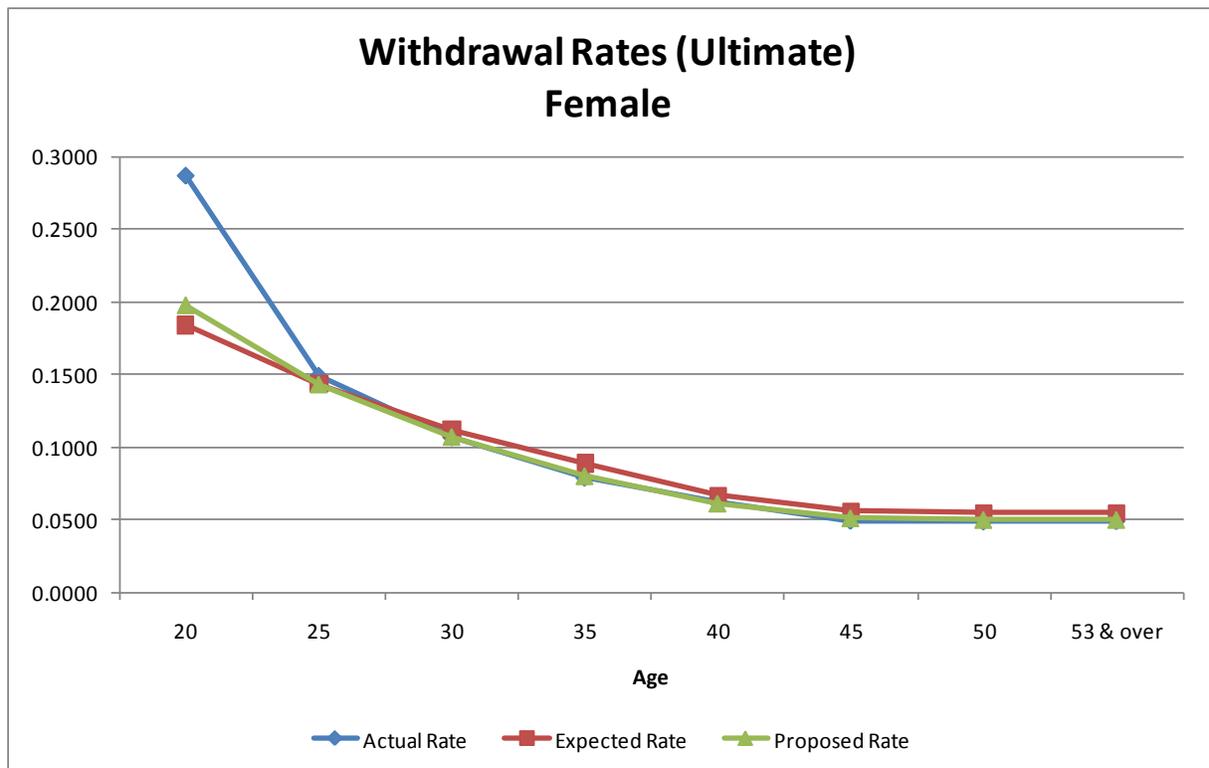
CENTRAL AGE OF GROUP	NUMBER OF WITHDRAWALS					
	MALES			FEMALES		
	Actual	Expected	Ratio of Actual to Expected	Actual	Expected	Ratio of Actual to Expected
	Withdrawals with more than 2 years of service					
20	152	134	1.134	179	115	1.557
25	1,324	1,384	0.957	2,386	2,292	1.041
30	1,930	2,181	0.885	3,731	3,911	0.954
35	1,714	2,125	0.807	3,252	3,642	0.893
40	1,562	1,825	0.856	2,918	3,113	0.937
45	1,360	1,608	0.846	2,598	2,929	0.887
50	1,277	1,459	0.875	2,450	2,734	0.896
53 & over	1,807	1,928	0.937	2,845	3,157	0.901
TOTAL	11,126	12,644	0.880	20,359	21,893	0.930

The following graphs show a comparison of the present, actual and proposed rates of withdrawal for withdrawals with more than 2 years of service.



PUBLIC EMPLOYEES' RETIREMENT SYSTEM

**RATES OF WITHDRAWAL FOR ACTIVE MEMBERS
WITH MORE THAN 2 YEARS OF SERVICE**





The rates of withdrawal adopted by the Board are used to determine the expected number of separations from active service which will occur as a result of resignation or dismissal. The preceding results indicate that for members with more than 2 years of service, the actual number of withdrawals is slightly less than expected. Therefore, we recommend that the rates of withdrawal be revised to more closely reflect the experience of the system.

Moreover, the actual rates of withdrawal during the select period (first 2 years) indicate that members are withdrawing at a lesser rate during the first year of employment and at a higher rate during the second year of employment than currently expected. We recommend changing the rate from 35% to 34% during the first year of employment and from 21% to 22% for the second year.

The following table shows a comparison between the present withdrawal rates and the proposed withdrawal rates for members with more than 2 years of service.

COMPARATIVE RATES OF WITHDRAWAL

AGE	RATES OF WITHDRAWAL			
	MALES		FEMALES	
	Present	Proposed	Present	Proposed
20	20.0%	22.0%	20.0%	22.0%
25	15.5	15.0	15.0	15.0
30	11.0	10.0	11.0	10.5
35	9.5	8.0	9.0	8.0
40	7.0	6.0	6.5	6.0
45	6.0	5.5	5.5	5.0
50	6.0	5.5	5.5	5.0
55	6.0	5.5	5.5	5.0
60	6.0	5.5	5.5	5.0
65	6.0	5.5	5.5	5.0
70	6.0	5.5	5.5	5.0
74	6.0	5.5	5.5	5.0



**COMPARISON OF ACTUAL AND EXPECTED WITHDRAWALS
FROM ACTIVE SERVICE BASED ON PROPOSED RATES**

CENTRAL AGE OF GROUP	NUMBER OF WITHDRAWALS					
	MALES			FEMALES		
	Actual	Expected	Ratio of Actual to Expected	Actual	Expected	Ratio of Actual to Expected
	Withdrawals with more than 2 years of service					
20	152	143	1.064	179	123	1.451
25	1,324	1,342	0.986	2,386	2,287	1.043
30	1,930	1,986	0.972	3,731	3,736	0.999
35	1,714	1,811	0.946	3,252	3,282	0.991
40	1,562	1,571	0.994	2,918	2,852	1.023
45	1,360	1,461	0.931	2,598	2,668	0.974
50	1,277	1,338	0.955	2,450	2,485	0.986
53 & over	1,807	1,767	1.023	2,845	2,870	0.991
TOTAL	11,126	11,419	0.974	20,359	20,304	1.003



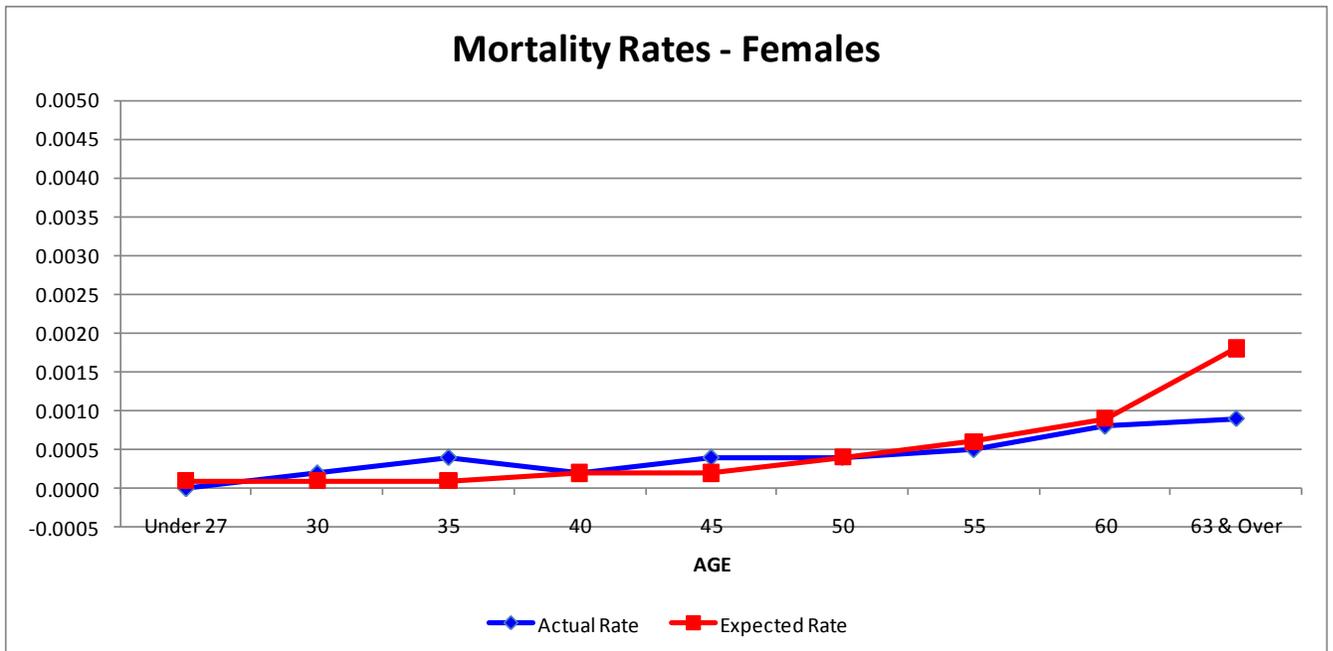
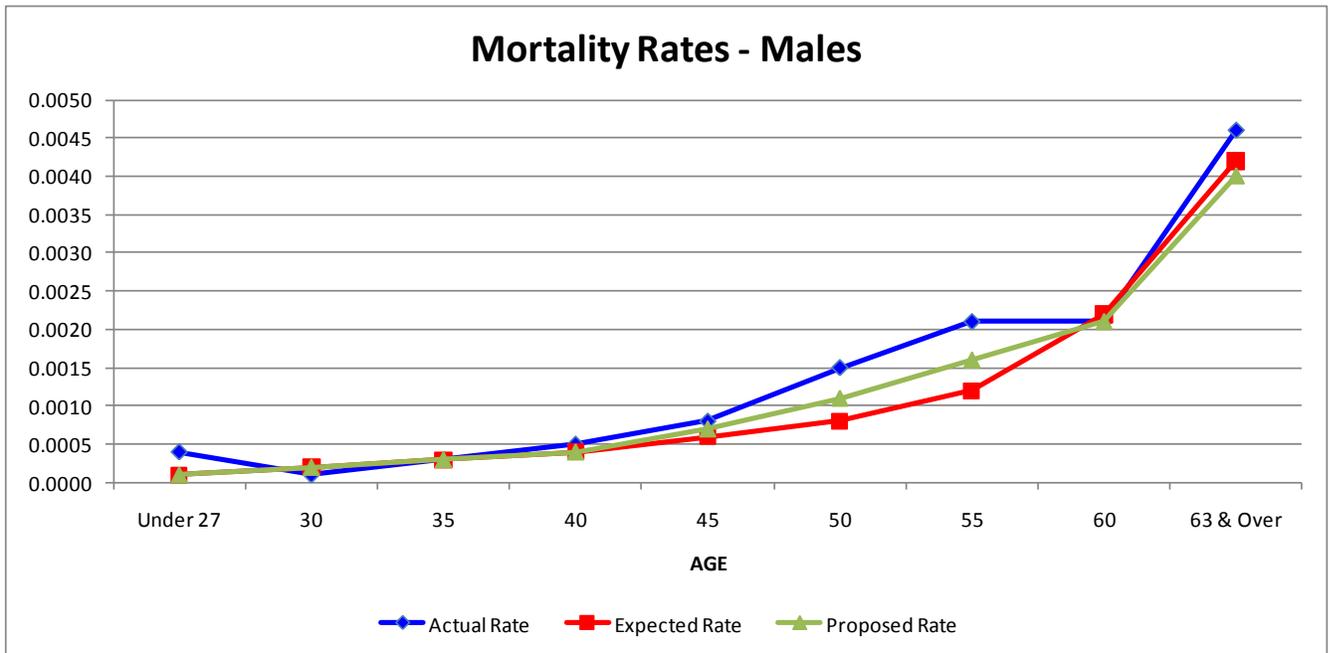
PUBLIC EMPLOYEES' RETIREMENT SYSTEM

RATES OF PRE-RETIREMENT MORTALITY

COMPARISON OF ACTUAL AND EXPECTED PRE-RETIREMENT DEATHS

CENTRAL AGE OF GROUP	NUMBER OF DEATHS					
	MALES			FEMALES		
	Actual	Expected	Ratio of Actual to Expected	Actual	Expected	Ratio of Actual to Expected
Below 27	9	3	3.000	1	2	0.500
30	3	5	0.600	7	4	1.750
35	7	7	1.000	18	6	3.000
40	14	11	1.273	11	9	1.222
45	25	19	1.316	23	15	1.533
50	47	26	1.808	28	23	1.217
55	61	35	1.743	30	31	0.968
60	52	55	0.945	32	35	0.914
63 & over	75	68	1.103	15	31	0.484
TOTAL	293	229	1.279	165	156	1.058

The following graphs show a comparison of the present, actual, and proposed rates of pre-retirement mortality.



Since there are more actual pre-retirement deaths than expected, we recommend that the rates of mortality in active service for males be revised to more closely reflect the experience of the system. The following table shows a comparison between the present death rates and the proposed rates.



COMPARATIVE RATES OF PRE-RETIREMENT MORTALITY

AGE	RATES OF DEATH			
	MALES		FEMALES	
	Present	Proposed	Present	Proposed
20	0.0120%	0.0100%	0.0045%	0.0045%
25	0.0150	0.0100	0.0060	0.0060
30	0.0187	0.0200	0.0083	0.0083
35	0.0263	0.0300	0.0113	0.0113
40	0.0375	0.0400	0.0158	0.0158
45	0.0645	0.0700	0.0240	0.0240
50	0.0833	0.1200	0.0368	0.0368
55	0.1140	0.1700	0.0555	0.0555
60	0.2235	0.2200	0.0915	0.0915
65	0.3593	0.4500	0.1612	0.1612

**COMPARISON OF ACTUAL AND EXPECTED PRE-RETIREMENT DEATHS
BASED ON PROPOSED RATES**

CENTRAL AGE OF GROUP	NUMBER OF DEATHS					
	MALES			FEMALES		
	Actual	Expected	Ratio of Actual to Expected	Actual	Expected	Ratio of Actual to Expected
Below 27	9	2	4.072	1	2	0.500
30	3	5	0.613	7	4	1.750
35	7	8	0.853	18	6	3.000
40	14	12	1.137	11	9	1.222
45	25	23	1.088	23	15	1.533
50	47	44	1.077	28	23	1.217
55	61	56	1.099	30	31	0.968
60	52	55	0.945	32	35	0.914
63 & over	75	65	1.154	15	31	0.484
TOTAL	293	270	1.086	165	156	1.058



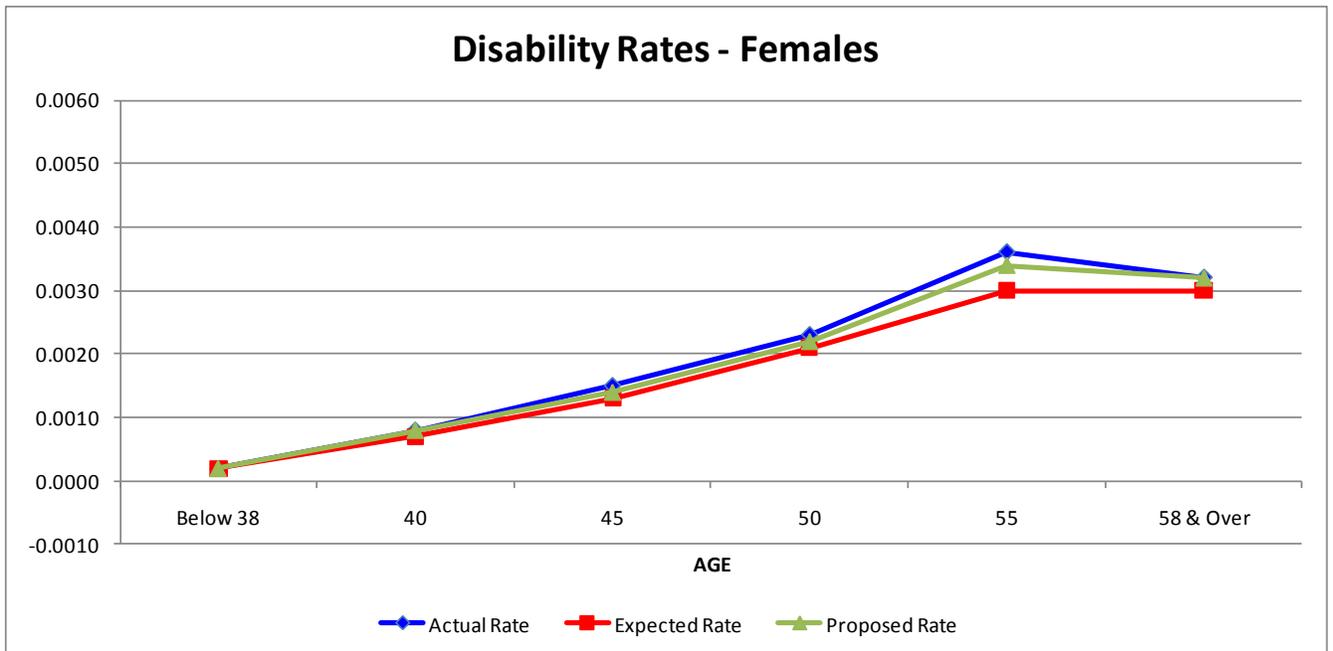
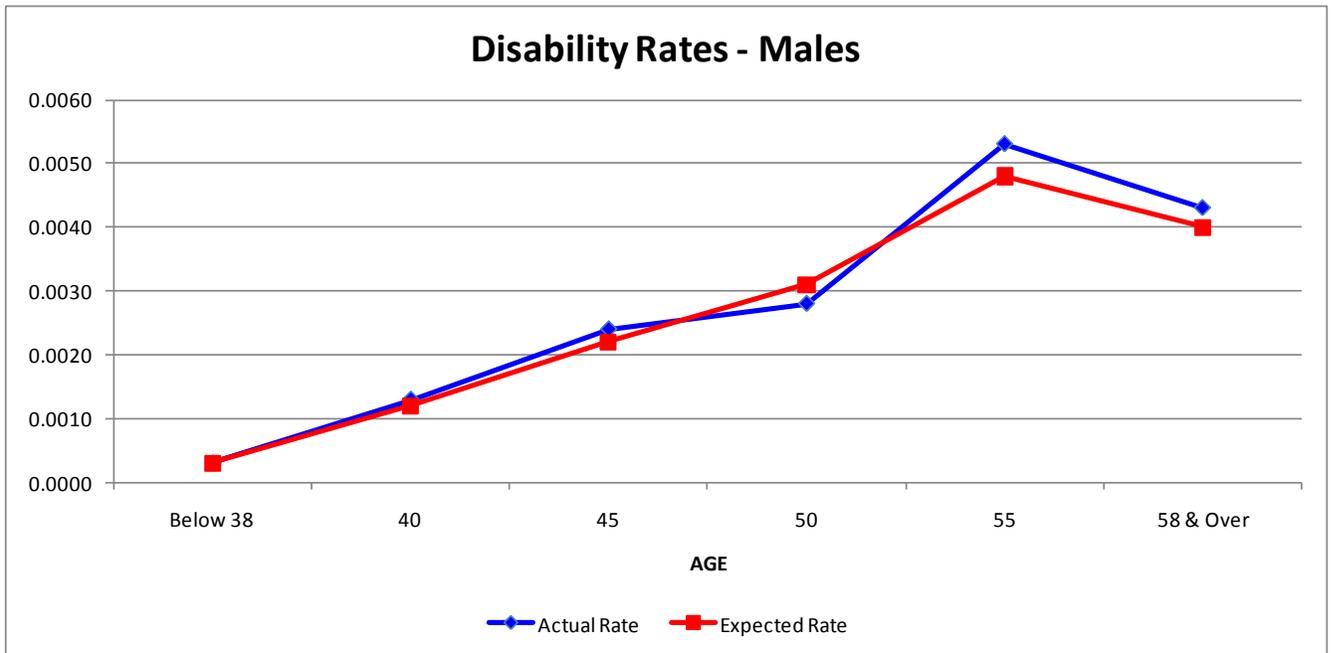
PUBLIC EMPLOYEES' RETIREMENT SYSTEM

RATES OF DISABILITY RETIREMENT

COMPARISON OF ACTUAL AND EXPECTED DISABILITY RETIREMENTS

CENTRAL AGE OF GROUP	NUMBER OF DISABILITY RETIREMENTS					
	MALES			FEMALES		
	Actual	Expected	Ratio of Actual to Expected	Actual	Expected	Ratio of Actual to Expected
Below 38	19	25	0.760	26	31	0.839
40	39	36	1.083	44	40	1.100
45	73	69	1.058	88	79	1.114
50	89	98	0.908	145	133	1.090
55	157	142	1.106	201	170	1.182
58 & over	174	162	1.074	178	165	1.079
TOTAL	551	532	1.036	682	618	1.104

The following graphs show a comparison of the present, actual, and, for females, proposed rates of disability retirements.



During the period under investigation, the actual rates of disability retirement were slightly more than expected over most age groups, especially females. Therefore, we recommend the rates of disability retirement for females be revised to more closely reflect the experience of the System.



The following table shows a comparison between the present disability retirement rates and the proposed rates.

COMPARATIVE RATES OF DISABILITY RETIREMENT

AGE	RATES OF DISABILITY			
	MALES		FEMALES	
	Present	Proposed	Present	Proposed
20	0.013%	0.013%	0.009%	0.009%
25	0.019	0.019	0.013	0.013
30	0.022	0.022	0.016	0.016
35	0.049	0.049	0.034	0.020
40	0.120	0.120	0.076	0.080
45	0.230	0.230	0.129	0.140
50	0.290	0.290	0.209	0.210
55	0.520	0.520	0.320	0.370
60	0.400	0.400	0.300	0.320
65	0.000	0.000	0.000	0.000

**COMPARISON OF ACTUAL AND EXPECTED DISABILITY RETIREMENTS
BASED ON PROPOSED RATES**

CENTRAL AGE OF GROUP	NUMBER OF DISABILITY RETIREMENTS					
	MALES			FEMALES		
	Actual	Expected	Ratio of Actual to Expected	Actual	Expected	Ratio of Actual to Expected
Below 38	19	25	0.760	26	25	1.040
40	39	36	1.083	44	43	1.023
45	73	69	1.058	88	84	1.048
50	89	98	0.908	145	139	1.043
55	157	142	1.106	201	193	1.041
58 & over	174	162	1.074	178	178	1.000
TOTAL	551	532	1.036	682	662	1.030



PUBLIC EMPLOYEES' RETIREMENT SYSTEM

RATES OF RETIREMENT

COMPARISON OF ACTUAL AND EXPECTED RETIREMENTS

Retirements with less than 25 years of service

AGE OF GROUP	NUMBER OF RETIREMENTS					
	MALES			FEMALES		
	Actual	Expected	Ratio of Actual to Expected	Actual	Expected	Ratio of Actual to Expected
60	371	361	1.028	672	707	0.950
61	302	311	0.971	467	443	1.054
62	484	469	1.032	625	651	0.960
63	322	298	1.081	455	461	0.987
64	208	205	1.015	337	306	1.101
65	276	253	1.091	438	411	1.066
66	205	200	1.025	273	280	0.975
67	140	148	0.946	165	174	0.948
68	82	111	0.739	120	126	0.952
69	113	102	1.108	94	101	0.931
70	113	91	1.242	87	81	1.074
71	65	76	0.855	71	64	1.109
72	61	72	0.847	51	48	1.063
73	63	59	1.068	35	38	0.921
74	52	49	1.061	29	32	0.906
Subtotal	2,857	2,805	1.019	3,919	3,923	0.999
75 & Over	194	950	0.204	101	530	0.191
GRAND TOTAL	3,051	3,755	0.813	4,020	4,453	0.903



COMPARISON OF ACTUAL AND EXPECTED RETIREMENTS

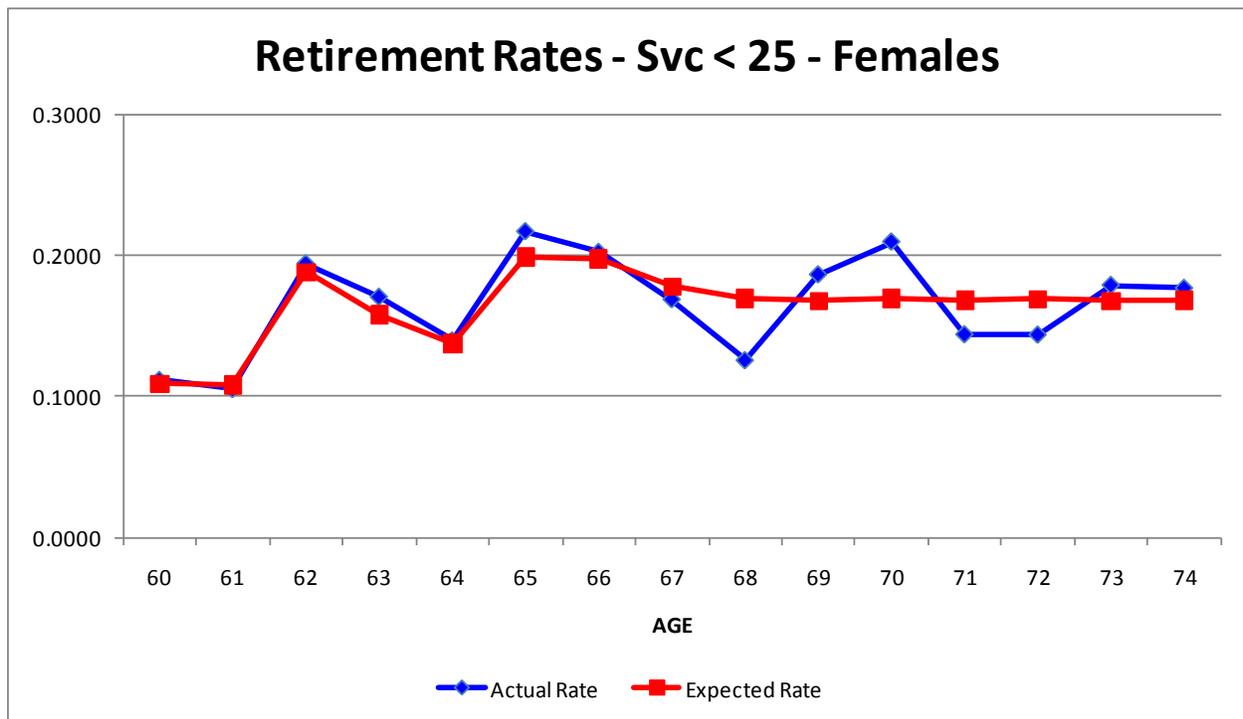
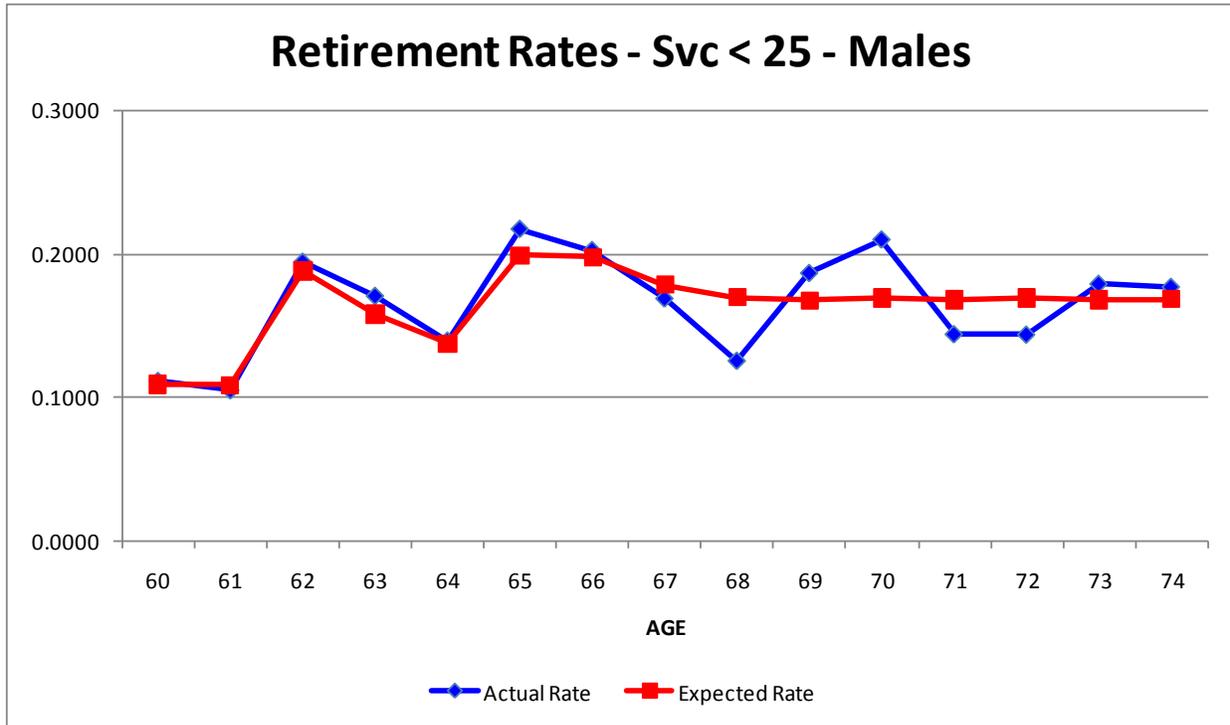
Retirements with 25 or more years of service

AGE OF GROUP	NUMBER OF RETIREMENTS					
	MALES			FEMALES		
	Actual	Expected	Ratio of Actual to Expected	Actual	Expected	Ratio of Actual to Expected
Below 48	169	120	1.408	161	115	1.400
48-51	408	417	0.978	683	682	1.001
52	144	139	1.036	251	269	0.933
53	132	146	0.904	285	286	0.997
54	149	153	0.974	332	296	1.122
55	189	174	1.086	400	405	0.988
56	169	165	1.024	351	389	0.902
57	173	162	1.068	385	416	0.925
58	151	158	0.956	330	385	0.857
59	183	158	1.158	381	363	1.050
60	167	156	1.071	334	328	1.018
61	207	197	1.051	345	336	1.027
62	271	246	1.102	389	354	1.099
63	143	158	0.905	235	217	1.083
64	107	108	0.991	169	173	0.977
65	101	99	1.020	218	204	1.069
66	85	76	1.118	135	119	1.134
67	50	45	1.111	75	60	1.250
68	47	42	1.119	41	47	0.872
69	27	26	1.038	45	43	1.047
70	23	22	1.045	28	33	0.848
71	19	21	0.905	25	28	0.893
72	17	18	0.944	26	24	1.083
73	14	15	0.933	17	16	1.063
74	14	12	1.167	12	13	0.923
Subtotal	3,159	3,033	1.042	5,653	5,601	1.009
75 & Over	53	214	0.248	58	214	0.271
GRAND TOTAL	3,212	3,247	0.989	5,711	5,815	0.982

The following graphs show a comparison of the present and actual rates of service retirements.

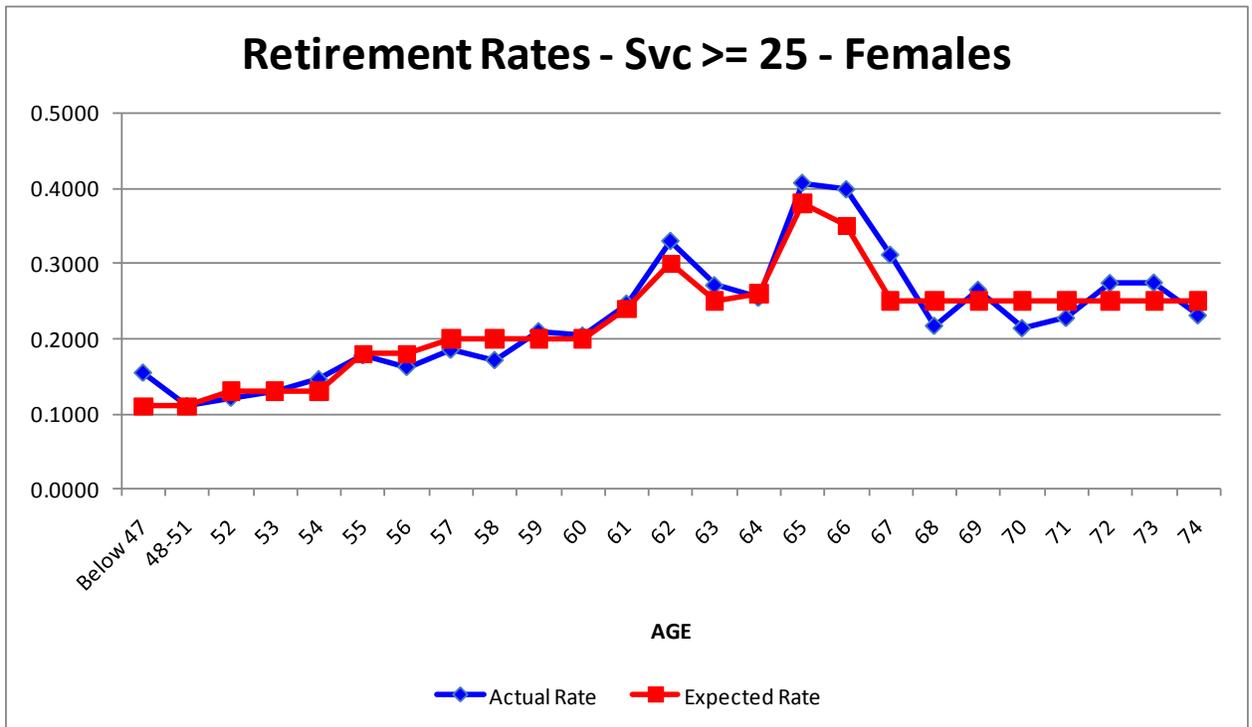
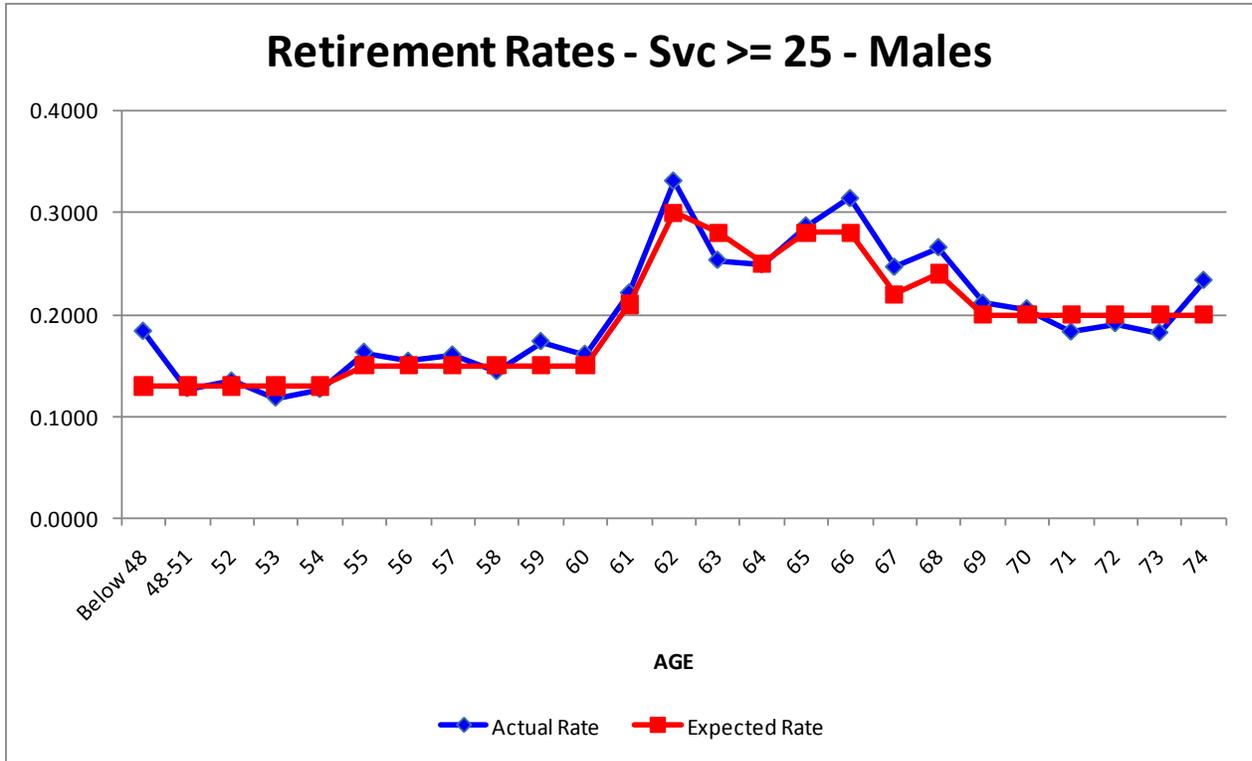


RATES OF RETIREMENT FOR ACTIVE MEMBERS WITH LESS THAN 25 YEARS OF SERVICE





RATES OF RETIREMENT FOR ACTIVE MEMBERS WITH 25 OR MORE YEARS OF SERVICE





The preceding results indicate that for most retirement ages the actual number of retirements is very close to the expected number for both males and females and for both service breakdowns, retirements for members with less than 25 years of service as well as retirements for members with 25 or more years of service. Therefore, we recommend no changes in the rates of retirement at this time.



PUBLIC EMPLOYEES' RETIREMENT SYSTEM

RATES OF POST-RETIREMENT MORTALITY

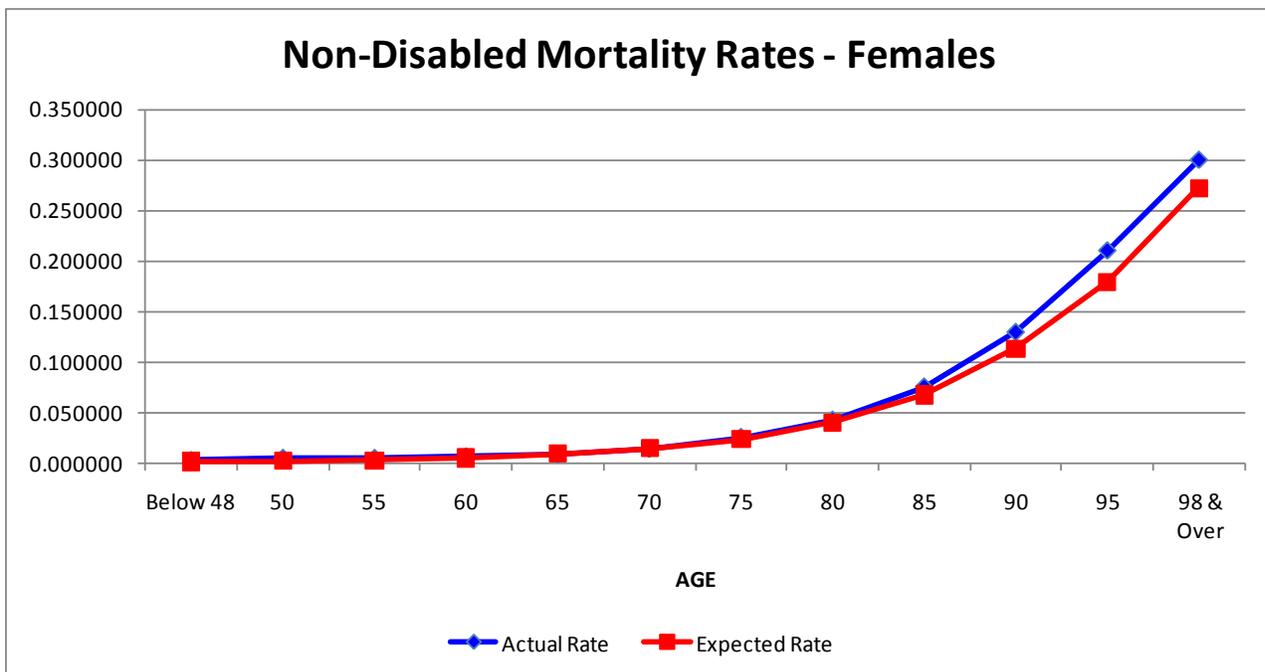
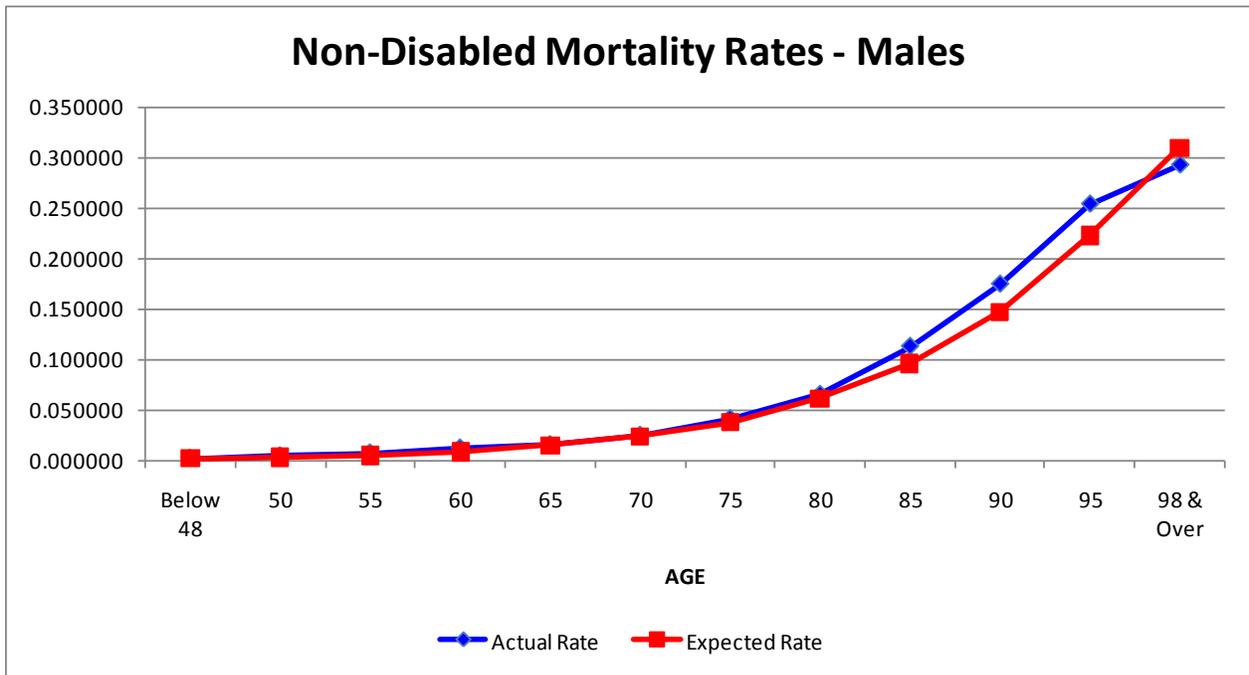
**COMPARISON OF ACTUAL AND EXPECTED CASES OF
POST-RETIREMENT DEATHS**

CENTRAL AGE OF GROUP	NUMBER OF POST-RETIREMENT DEATHS					
	MALES			FEMALES		
	Actual	Expected	Ratio of Actual to Expected	Actual	Expected	Ratio of Actual to Expected
	SERVICE RETIREMENTS AND BENEFICIARIES					
52 and Under	40	10	4.000	56	8	7.000
55	42	29	1.451	55	31	1.774
60	144	103	1.393	140	114	1.228
65	283	280	1.011	264	286	0.923
70	438	431	1.016	386	397	0.972
75	598	547	1.094	594	543	1.094
80	686	649	1.058	848	791	1.072
85	641	546	1.175	959	858	1.118
90	378	318	1.187	870	762	1.142
95	139	122	1.139	504	430	1.172
98 & over	31	33	0.945	149	135	1.104
TOTAL	3,420	3,068	1.115	4,825	4,355	1.108
	DISABILITY RETIREMENTS					
47 and Under	18	37	0.486	17	22	0.773
50	25	45	0.556	43	28	1.536
55	45	70	0.643	45	49	0.918
60	82	97	0.845	71	73	0.973
65	74	78	0.949	55	66	0.833
70	45	57	0.789	41	55	0.745
75	45	37	1.216	40	40	1.000
80	29	26	1.115	25	27	0.926
85	14	12	1.167	11	20	0.550
88 & over	7	5	1.400	24	22	1.091
TOTAL	384	464	0.828	372	402	0.925



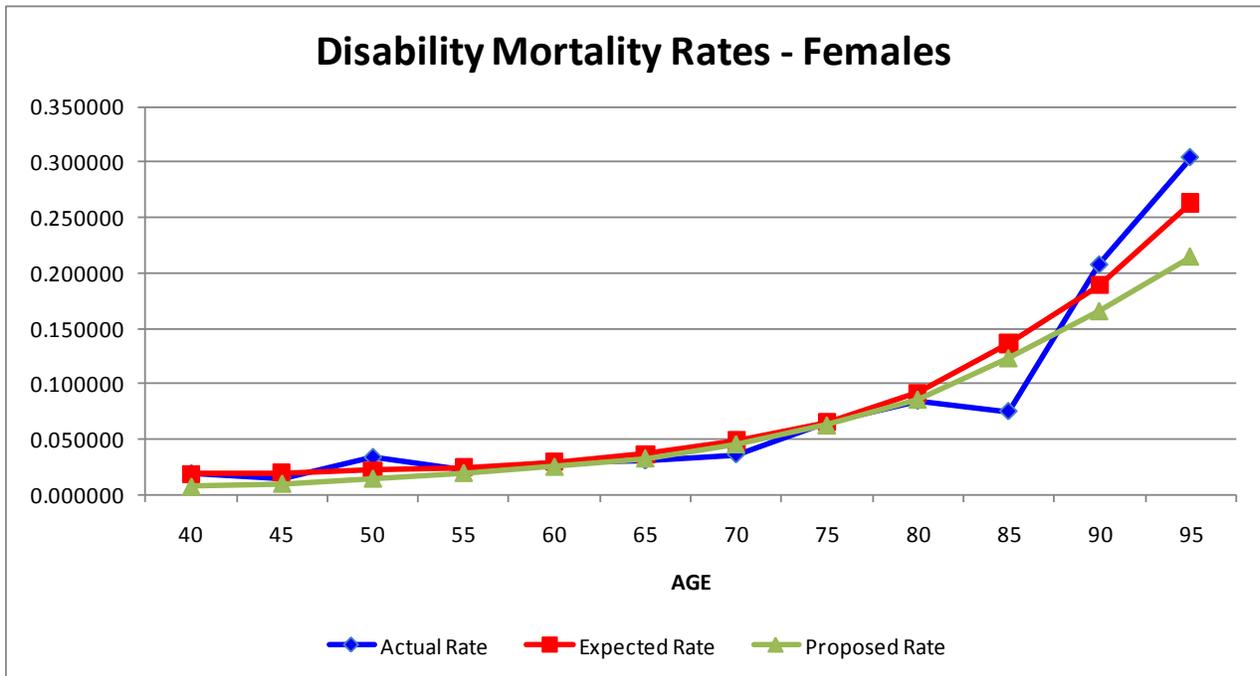
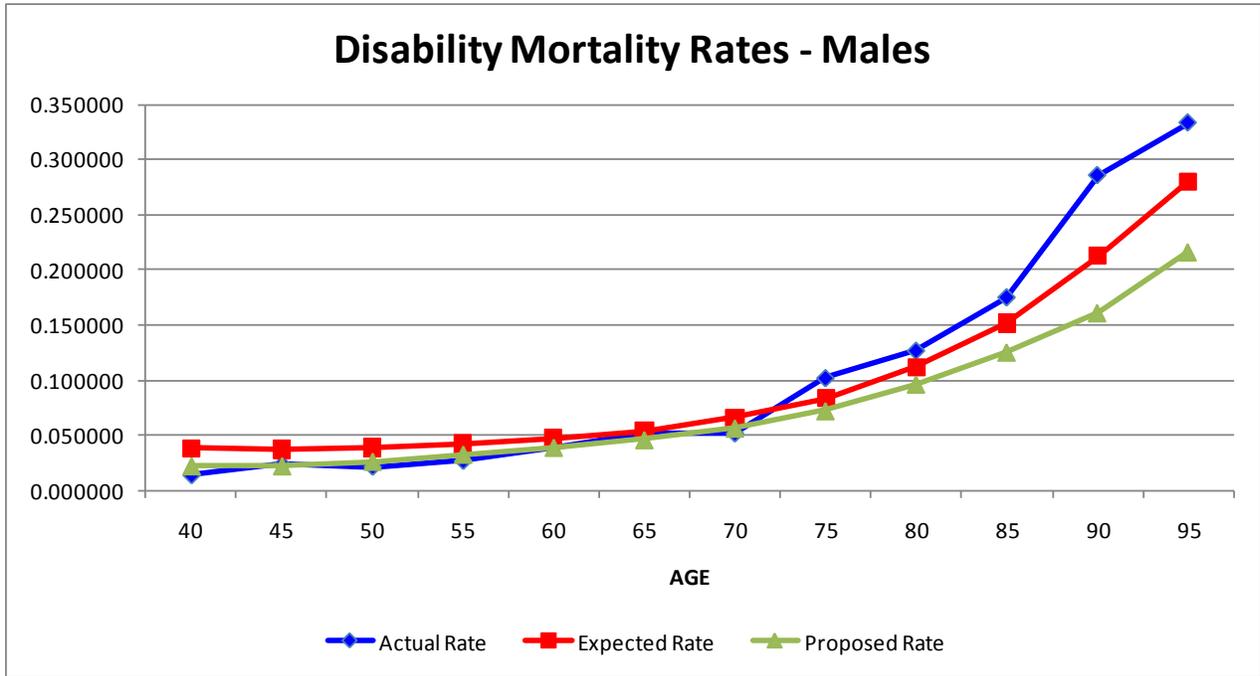
The following graphs show a comparison of the present, actual and, for disability retirements, proposed rates of post-retirement deaths.

POST-RETIREMENT DEATHS SERVICE RETIREMENTS AND BENEFICIARIES OF DECEASED MEMBERS





POST-RETIREMENT DEATHS DISABILITY RETIREMENTS





The preceding results indicate that the actual number of post-retirement deaths of service retirements for males and females was slightly more than expected. For disability retirements, the actual mortality rates were less than expected for males and females overall.

Since we need to allow for some improved mortality going forward, we recommend no change in the mortality after service retirement and for dependents of deceased pensioners. However, we do recommend that the rates of mortality be revised to the RP-2000 Disabled Mortality Table (set back 2 years for males and set forward 3 years for females) for disability retirements. The following table shows a comparison between the present and proposed rates of disability mortality.

COMPARATIVE RATES OF POST-RETIREMENT DISABILITY MORTALITY

AGE	RATES OF POST-RETIREMENT DEATH			
	MALES		FEMALES	
	Present	Proposed	Present	Proposed
	DISABILITY RETIREMENTS			
35	4.8460%	2.2571%	1.8280%	0.7450%
40	3.8190	2.2571	1.8560	0.7450
45	3.7030	2.2571	1.9740	0.9775
50	3.8860	2.6404	2.1640	1.4465
55	4.1930	3.2859	2.4640	1.9710
60	4.6750	3.9334	2.9350	2.5293
65	5.4370	4.6584	3.6760	3.3234
70	6.6180	5.6909	4.8380	4.5769
75	8.4490	7.3292	6.6350	6.3545
80	11.2690	9.7640	9.3960	8.7838
85	15.4730	12.8343	13.5520	12.2464
90	21.5920	16.2186	19.5590	17.0433



The following shows a comparison of the actual and expected post-retirement deaths based on new revised rates of disability mortality.

**COMPARISON OF ACTUAL AND EXPECTED CASES OF
POST-RETIREMENT DEATHS
BASED ON REVISED DISABILITY MORTALITY RATES**

CENTRAL AGE OF GROUP	NUMBER OF POST-RETIREMENT DEATHS					
	MALES			FEMALES		
	Actual	Expected	Ratio of Actual to Expected	Actual	Expected	Ratio of Actual to Expected
	DISABILITY RETIREMENTS					
47 and Under	18	21	0.857	17	10	1.700
50	25	31	0.806	43	19	2.263
55	45	55	0.818	45	39	1.154
60	82	81	1.012	71	63	1.127
65	74	67	1.104	55	60	0.917
70	45	49	0.918	41	52	0.788
75	45	32	1.406	40	39	1.026
80	29	22	1.318	25	25	1.000
85	14	10	1.400	11	18	0.611
88 & over	7	4	1.750	24	19	1.263
TOTAL	384	372	1.032	372	344	1.081



PUBLIC EMPLOYEES' RETIREMENT SYSTEM

SECTION 6 – RATES OF SALARY INCREASE

**COMPARISON OF ACTUAL AND EXPECTED SALARIES
OF ACTIVE MEMBERS**

SERVICE OF GROUP	SALARIES AT END OF YEAR (\$1,000's)		
	MALES AND FEMALES		
	Actual	Expected	Ratio of Actual to Expected
0	\$1,417,719	\$1,309,415	1.083
1	955,747	1,025,783	0.932
2	873,515	945,413	0.924
3	797,721	794,376	1.004
4	735,143	733,233	1.003
5-9	3,159,012	3,154,556	1.001
10-14	2,379,880	2,382,379	0.999
15-19	1,986,121	1,992,165	0.997
20-24	1,452,457	1,458,069	0.996
25-29	865,358	870,167	0.994
30-34	397,572	398,720	0.997
35 & Over	136,778	136,387	1.003
TOTAL	\$15,157,023	\$15,200,663	0.997

Because the salary increases for the 2009-2010 fiscal year were very small, we have removed that one year from our analysis. We have also broken down the service groups of members slightly differently than in years past. This year we have analyzed the salaries for the first 5 years of membership separately and have noticed large differences within the first 3 years from our expected assumptions and smaller differences for years 3 and 4. Therefore, we recommend adjusting the rates of salary increase for service periods 0 through 4 as shown on the next page.



COMPARATIVE RATES OF SALARY INCREASES

SERVICE OF GROUP	SALARY INCREASE RATES	
	MALES AND FEMALES	
	Present	Proposed
0	15.0%	20.0%
1	15.0%	10.0%
2	15.0%	7.5%
3	5.5%	6.5%
4	5.5%	6.0%
5-7	5.5%	5.5%
8-27	5.0%	5.0%
28 and Over	4.5%	4.5%

COMPARISON OF ACTUAL AND EXPECTED SALARIES OF ACTIVE MEMBERS BASED ON PROPOSED RATES

SERVICE OF GROUP	SALARIES AT END OF YEAR (\$1,000's)		
	MALES AND FEMALES		
	Actual	Expected	Ratio of Actual to Expected
0	\$1,417,719	\$1,353,265	1.048
1	955,747	977,444	0.978
2	873,515	880,387	0.992
3	797,721	801,449	0.995
4	735,143	736,290	0.998
5-9	3,159,012	3,152,976	1.002
10-14	2,379,880	2,381,472	0.999
15-19	1,986,121	1,991,406	0.997
20-24	1,452,457	1,457,513	0.997
25-29	865,358	869,893	0.995
30-34	397,572	398,644	0.997
35 & Over	136,778	136,361	1.003
TOTAL	\$15,157,023	\$15,137,100	1.001



HIGHWAY SAFETY PATROL RETIREMENT SYSTEM

SUMMARY OF RESULTS

Over the period of this investigation, we have noted the following observations:

- There were fewer withdrawals than expected over the four year period of this investigation. In the prior investigation, the number of actual withdrawals was also less than the number of expected withdrawals. Therefore, at this time, we recommend a slight change in the rates of withdrawal to match experience.
- There were 107 actual retirements versus 106 expected retirements over the four-year period of this investigation. We, therefore, recommend no change to the retirement decrements at this time.
- There was one death while in active service over the four-year period of this investigation and there were no deaths in the prior study. We recommend no changes in active death decrements at this time.
- There were 2 disability retirements over the four-year period of this investigation compared to 0 in the prior study. We recommend no change in disability rates at this time.
- Actual rates of salary increase were only about 0.1% more than expected over the four-year period. The prior study showed that actual increases were about 3.6% more than expected. Therefore, we recommend no changes at this time.
- As mentioned in the PERS section of this report, we recommend no change to the mortality table for post-retirement non-disabled mortality but a change in the disability mortality table to the RP-2000 Disabled Mortality Table (set forward 2 years for males



and set forward 3 years for females). We recommend each of the Systems have the same mortality table.



SUPPLEMENTAL LEGISLATIVE RETIREMENT PLAN

SUMMARY OF RESULTS

Over the period of this investigation, we have noted the following observations:

- We have reviewed the withdrawal rates for both non-election years and election years. The number of withdrawals during non-election years (1% of exposed) was not enough to warrant adding withdrawal rates during these years. The actual number of withdrawals during the election year was very close to expected (19 vs. 15) so, therefore, we recommend no change at this time.
- We also reviewed the service retirements rates for both non-election years and election years. The number of service retirements during non-election years (2% of exposed) was not enough to warrant adding rates during those years. The actual number of service retirements during the election year was close to expected (17 vs. 21), so therefore, we recommend no changes at this time.
- There were 3 deaths while in active service over the four-year period of this investigation which is very close to what was expected. Therefore, we recommend no change at this time.
- There were no disability retirements over the four-year period of this investigation which is close to what was expected. Therefore, we recommend no change at this time.
- The salary scale was lowered in the prior investigation from 5.0% to 4.5% for all ages. For this four-year period, actual salary increases were about 96% of expected. If we continue to see this trend, we may adjust the rates of salary increase further.
- As mentioned in the PERS section of this report, we recommend no change to the mortality table for post-retirement non-disabled mortality but a change in the disability



mortality table to the RP-2000 Disabled Mortality Table (set forward 2 years for males and set forward 3 years for females). We recommend each of the Systems have the same mortality table.



MUNICIPAL RETIREMENT SYSTEMS

SUMMARY OF RESULTS

Since this is a closed System with very few actives remaining, we have not investigated the active decrements, but have concentrated on the post-retirement mortality experience. Over the period of this investigation, we have found the following observations:

- As mentioned in the PERS section of this report, we recommend no change to the mortality table for post-retirement non-disabled mortality but a change in the disability mortality table to the RP-2000 Disabled Mortality Table (set forward 2 years for males and set forward 3 years for females). We recommend each of the Systems have the same mortality table. The current table provides a significant margin for mortality improvement among non-disabled retirees.



**APPENDIX A
TABLE 1**

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM
RATES OF SEPARATION FROM ACTIVE SERVICE – MALES**

AGE	ULTIMATE RATES OF WITHDRAWAL*	RATES OF DEATH	RATES OF DISABILITY	RATES OF RETIREMENT	
				LESS THAN 25 YRS OF SERVICE	25 OR MORE YEARS OF SERVICE
20	0.220	0.000100	0.00013		
21	0.206	0.000100	0.00013		
22	0.192	0.000100	0.00016		
23	0.178	0.000100	0.00016		
24	0.164	0.000100	0.00016		
25	0.150	0.000100	0.00019		
26	0.140	0.000100	0.00019		
27	0.130	0.000125	0.00022		
28	0.120	0.000150	0.00022		
29	0.110	0.000175	0.00022		
30	0.100	0.000200	0.00022		
31	0.096	0.000220	0.00026		
32	0.092	0.000240	0.00032		
33	0.088	0.000260	0.00040		
34	0.084	0.000280	0.00046		
35	0.080	0.000300	0.00049		
36	0.076	0.000320	0.00063		
37	0.072	0.000340	0.00077		
38	0.068	0.000360	0.00092		
39	0.064	0.000380	0.00106		
40	0.060	0.000400	0.00120		0.13
41	0.059	0.000460	0.00142		0.13
42	0.058	0.000520	0.00164		0.13
43	0.057	0.000580	0.00186		0.13
44	0.056	0.000640	0.00208		0.13
45	0.055	0.000700	0.00230		0.13
46	0.055	0.000800	0.00242		0.13
47	0.055	0.000900	0.00254		0.13
48	0.055	0.001000	0.00266		0.13
49	0.055	0.001100	0.00278		0.13
50	0.055	0.001200	0.00290		0.13
51	0.055	0.001300	0.00336		0.13
52	0.055	0.001400	0.00382		0.13
53	0.055	0.001500	0.00428		0.13
54	0.055	0.001600	0.00474		0.13
55	0.055	0.001700	0.00520		0.15
56	0.055	0.001800	0.00496		0.15
57	0.055	0.001900	0.00472		0.15
58	0.055	0.002000	0.00448		0.15
59	0.055	0.002100	0.00424		0.15
60	0.055	0.002200	0.00400	0.11	0.15
61	0.055	0.002660	0.00400	0.11	0.21
62	0.055	0.003120	0.00400	0.19	0.30
63	0.055	0.003580	0.00400	0.16	0.28
64	0.055	0.004040	0.00400	0.14	0.25
65	0.055	0.004500	0.00400	0.20	0.28
66	0.055	0.004500	0.00000	0.20	0.28
67	0.055	0.004500		0.18	0.22
68	0.055	0.004500		0.17	0.24
69	0.055	0.004500		0.17	0.20
70	0.055	0.004500		0.17	0.20
71	0.055	0.004500		0.17	0.20
72	0.055	0.004500		0.17	0.20
73	0.055	0.004500		0.17	0.20
74	0.055	0.004500		0.17	0.20
75	0.000	0.000000		1.00	1.00

*For all ages, rates of 34% for the first year of employment and 22% for the second year of employment.



TABLE 2
PUBLIC EMPLOYEES' RETIREMENT SYSTEM
RATES OF SEPARATION FROM ACTIVE SERVICE – FEMALES

AGE	ULTIMATE RATES OF WITHDRAWAL*	RATES OF DEATH	RATES OF DISABILITY	RATES OF RETIREMENT	
				LESS THAN 25 YRS OF SERVICE	25 OR MORE YEARS OF SERVICE
20	0.220	0.000045	0.00009		
21	0.206	0.000045	0.00009		
22	0.192	0.000045	0.00011		
23	0.178	0.000052	0.00011		
24	0.164	0.000052	0.00011		
25	0.150	0.000060	0.00013		
26	0.141	0.000068	0.00013		
27	0.132	0.000075	0.00016		
28	0.123	0.000075	0.00016		
29	0.114	0.000083	0.00016		
30	0.105	0.000083	0.00016		
31	0.100	0.000090	0.00017		
32	0.095	0.000097	0.00018		
33	0.090	0.000097	0.00018		
34	0.085	0.000105	0.00019		
35	0.080	0.000113	0.00020		
36	0.076	0.000120	0.00032		
37	0.072	0.000128	0.00044		
38	0.068	0.000143	0.00056		
39	0.064	0.000150	0.00068		
40	0.060	0.000158	0.00080		0.11
41	0.058	0.000173	0.00092		0.11
42	0.056	0.000195	0.00104		0.11
43	0.054	0.000210	0.00116		0.11
44	0.052	0.000225	0.00128		0.11
45	0.050	0.000240	0.00140		0.11
46	0.050	0.000263	0.00154		0.11
47	0.050	0.000285	0.00168		0.11
48	0.050	0.000307	0.00182		0.11
49	0.050	0.000338	0.00196		0.11
50	0.050	0.000368	0.00210		0.11
51	0.050	0.000405	0.00242		0.11
52	0.050	0.000435	0.00274		0.13
53	0.050	0.000473	0.00306		0.13
54	0.050	0.000510	0.00338		0.13
55	0.050	0.000555	0.00370		0.18
56	0.050	0.000615	0.00360		0.18
57	0.050	0.000667	0.00350		0.20
58	0.050	0.000743	0.00340		0.20
59	0.050	0.000825	0.00330		0.20
60	0.050	0.000915	0.00320	0.13	0.20
61	0.050	0.001028	0.00320	0.11	0.24
62	0.050	0.001155	0.00320	0.18	0.30
63	0.050	0.001290	0.00320	0.17	0.25
64	0.050	0.001448	0.00320	0.15	0.26
65	0.050	0.001612	0.00320	0.25	0.38
66	0.050	0.001793	0.00000	0.24	0.35
67	0.050	0.001980		0.20	0.25
68	0.050	0.002175		0.19	0.25
69	0.050	0.002415		0.19	0.25
70	0.050	0.002715		0.19	0.25
71	0.050	0.003090		0.19	0.25
72	0.050	0.003555		0.19	0.25
73	0.050	0.004110		0.19	0.25
74	0.050	0.004710		0.19	0.25
75	0.000	0.000000		1.00	1.000

*For all ages, rates of 34% for the first year of employment and 22% for the second year of employment.



TABLE 3

HIGHWAY SAFETY PATROL RETIREMENT SYSTEM
RATES OF SEPARATION FROM ACTIVE SERVICE

AGE	RATES OF WITHDRAWAL	RATES OF DEATH MALES & FEMALES	RATES OF DISABILITY	SERVICE	RATES OF RETIREMENT*
20	0.0800	0.000200	0.00090	0	0.00
21	0.0720	0.000200	0.00090	1	0.00
22	0.0640	0.000200	0.00090	2	0.00
23	0.0560	0.000250	0.00102	3	0.00
24	0.0480	0.000275	0.00102	4	0.00
25	0.0400	0.000275	0.00102	5	0.05
26	0.0390	0.000300	0.00102	6	0.05
27	0.0380	0.000325	0.00120	7	0.05
28	0.0370	0.000350	0.00120	8	0.05
29	0.0360	0.000375	0.00126	9	0.05
30	0.0350	0.000395	0.00138	10	0.05
31	0.0330	0.000420	0.00144	11	0.05
32	0.0310	0.000445	0.00162	12	0.05
33	0.0290	0.000470	0.00180	13	0.05
34	0.0270	0.000495	0.00186	14	0.05
35	0.0250	0.000515	0.00204	15	0.05
36	0.0220	0.000565	0.00210	16	0.05
37	0.0190	0.000590	0.00228	17	0.05
38	0.0160	0.000640	0.00240	18	0.05
39	0.0130	0.000685	0.00252	19	0.05
40	0.0100	0.000735	0.00270	20	0.10
41	0.0100	0.000760	0.00282	21	0.10
42	0.0100	0.000830	0.00306	22	0.10
43	0.0100	0.000930	0.00318	23	0.15
44	0.0100	0.001000	0.00342	24	0.15
45	0.0100	0.001050	0.00360	25	0.15
46	0.0090	0.001145	0.00396	26	0.15
47	0.0080	0.001295	0.00432	27	0.15
48	0.0070	0.001390	0.00462	28	0.25
49	0.0060	0.001490	0.00510	29	0.25
50	0.0050	0.001610	0.00552	30	0.25
51	0.0040	0.001730	0.00606	31	0.25
52	0.0030	0.001795	0.00672	32	0.25
53	0.0020	0.001910	0.00750	33	0.25
54	0.0010	0.002025	0.00822	34	0.25
55	0.0000	0.002145	0.00930	35+	0.25
56	0.0000	0.002265	0.01068		
57	0.0000	0.002385	0.01200		
58	0.0000	0.002510	0.01356		
59	0.0000	0.002635	0.01554		
60	0.0000	0.000000	0.00000		

* The annual rate of service retirement is 100% at age 60.



TABLE 4

SUPPLEMENTAL LEGISLATIVE RETIREMENT SYSTEM
RATES OF SEPARATION FROM ACTIVE SERVICE

AGE	RATES OF DEATH MALES	RATES OF DEATH FEMALES	RATES OF DISABILITY
20	0.00024	0.00012	0.0004
21	0.00026	0.00013	0.0004
22	0.00026	0.00014	0.0005
23	0.00027	0.00015	0.0005
24	0.00029	0.00016	0.0005
25	0.00030	0.00017	0.0005
26	0.00031	0.00017	0.0006
27	0.00033	0.00018	0.0006
28	0.00034	0.00019	0.0007
29	0.00036	0.00020	0.0007
30	0.00038	0.00022	0.0007
31	0.00040	0.00023	0.0008
32	0.00043	0.00026	0.0009
33	0.00046	0.00027	0.0010
34	0.00049	0.00029	0.0011
35	0.00052	0.00031	0.0011
36	0.00056	0.00033	0.0012
37	0.00060	0.00035	0.0013
38	0.00065	0.00037	0.0014
39	0.00070	0.00040	0.0016
40	0.00076	0.00044	0.0017
41	0.00082	0.00047	0.0018
42	0.00089	0.00050	0.0019
43	0.00100	0.00054	0.0021
44	0.00113	0.00060	0.0022
45	0.00129	0.00065	0.0023
46	0.00146	0.00070	0.0025
47	0.00166	0.00076	0.0026
48	0.00187	0.00083	0.0027
49	0.00212	0.00090	0.0028
50	0.00237	0.00099	0.0030
51	0.00264	0.00107	0.0031
52	0.00294	0.00116	0.0032
53	0.00324	0.00126	0.0033
54	0.00356	0.00137	0.0034
55	0.00390	0.00149	0.0035
56	0.00426	0.00163	0.0036
57	0.00463	0.00179	0.0037
58	0.00502	0.00198	0.0038
59	0.00545	0.00219	0.0039
60	0.00596	0.00245	0.0040
61	0.00656	0.00274	0.0041
62	0.00722	0.00308	0.0042
63	0.00793	0.00345	0.0044
64	0.00870	0.00385	0.0045
65	0.00959	0.00431	0.0000
66	0.01063	0.00478	0.0000
67	0.01182	0.00528	0.0000
68	0.01316	0.00581	0.0000
69	0.01460	0.00644	0.0000
70	0.01613	0.00717	0.0000
71	0.01775	0.00800	0.0000
72	0.01947	0.00893	0.0000
73	0.02129	0.00996	0.0000
74	0.02320	0.01109	0.0000
75	0.00000	0.00000	0.0000

- Withdrawal and Vesting: 15% in an election year, none in a non-election year
- Service Retirement: 25% in an election year, non in a non-election year. All members assumed to retire no later than age 75.



TABLE 5

MUNICIPAL RETIREMENT SYSTEM
RATES OF SEPARATION FROM ACTIVE SERVICE

AGE	RATES OF WITHDRAWAL	RATES OF DEATH	RATES OF DISABILITY	RATES OF RETIREMENT	
				SERVICE	RATE*
20	0.10650	0.00060	0.00140	20	0.450
21	0.10248	0.00064	0.00160	21	0.175
22	0.09846	0.00068	0.00180	22	0.175
23	0.09444	0.00072	0.00200	23	0.175
24	0.09042	0.00076	0.00220	24	0.175
25	0.08640	0.00080	0.00240	25	0.175
26	0.08286	0.00088	0.00280	26	0.175
27	0.07932	0.00096	0.00320	27	0.175
28	0.07578	0.00104	0.00360	28	0.175
29	0.07224	0.00112	0.00400	29	0.350
30	0.06870	0.00120	0.00440	30	0.350
31	0.06468	0.00128	0.00504	31	0.350
32	0.06066	0.00136	0.00568	32	0.350
33	0.05664	0.00144	0.00632	33	0.350
34	0.05262	0.00152	0.00696	34	0.200
35	0.04860	0.00160	0.00760	35+	0.200
36	0.04482	0.00172	0.00800		
37	0.04104	0.00184	0.00840		
38	0.03726	0.00196	0.00880		
39	0.03348	0.00208	0.00920		
40	0.02970	0.00220	0.00960		
41	0.02664	0.00238	0.01004		
42	0.02358	0.00256	0.01048		
43	0.02052	0.00274	0.01092		
44	0.01746	0.00292	0.01136		
45	0.01440	0.00310	0.01180		
46	0.01200	0.00344	0.01340		
47	0.00960	0.00378	0.01500		
48	0.00720	0.00412	0.01660		
49	0.00480	0.00446	0.01820		
50	0.00240	0.00480	0.01980		
51	0.00000	0.00512	0.02136		
52		0.00544	0.02292		
53		0.00576	0.02448		
54		0.00608	0.02604		
55		0.00640	0.02760		
56		0.00678	0.02908		
57		0.00716	0.03056		
58		0.00754	0.03204		
59		0.00792	0.03352		
60		0.00830	0.03500		
61		0.00870	0.03685		
62		0.00910	0.03870		
63		0.00950	0.04055		
64		0.00990	0.04240		
65		0.00000	0.00000		

* The annual rate of service retirement is 100% at age 65.



TABLE 6
RATES OF ANTICIPATED SALARY INCREASES*
(For Both Males and Females)

SERVICE	PERS	AGE	HSP	SLRP	MUNI
0	0.200	20	0.10091	0.045	0.060
1	0.100	21	0.09705	0.045	0.060
2	0.075	22	0.08298	0.045	0.060
3	0.065	23	0.07896	0.045	0.060
4	0.060	24	0.07462	0.045	0.060
5	0.055	25	0.06820	0.045	0.060
6	0.055	26	0.06500	0.045	0.060
7	0.055	27	0.06400	0.045	0.060
8	0.050	28	0.06000	0.045	0.060
9	0.050	29	0.06000	0.045	0.060
10	0.050	30	0.06000	0.045	0.060
11	0.050	31	0.06000	0.045	0.060
12	0.050	32	0.06000	0.045	0.060
13	0.050	33	0.06000	0.045	0.060
14	0.050	34	0.06000	0.045	0.060
15	0.050	35	0.06000	0.045	0.060
16	0.050	36	0.06000	0.045	0.060
17	0.050	37	0.06000	0.045	0.060
18	0.050	38	0.06000	0.045	0.060
19	0.050	39	0.06000	0.045	0.060
20	0.050	40	0.06000	0.045	0.060
21	0.050	41	0.06000	0.045	0.060
22	0.050	42	0.06000	0.045	0.060
23	0.050	43	0.05500	0.045	0.055
24	0.050	44	0.05500	0.045	0.055
25	0.050	45	0.05500	0.045	0.055
26	0.050	46	0.05500	0.045	0.055
27	0.050	47	0.05500	0.045	0.055
28	0.045	48	0.05000	0.045	0.050
29	0.045	49	0.05000	0.045	0.050
30	0.045	50	0.05000	0.045	0.050
31	0.045	51	0.05000	0.045	0.050
32	0.045	52	0.05000	0.045	0.050
33	0.045	53	0.05000	0.045	0.045
34	0.045	54	0.05000	0.045	0.045
35	0.045	55	0.05000	0.045	0.045
36	0.045	56	0.05000	0.045	0.045
37	0.045	57	0.05000	0.045	0.045
38	0.045	58	0.05000	0.045	0.045
39	0.045	59	0.05000	0.045	0.045
40	0.045	60	0.00000	0.045	0.045
		61		0.045	0.045
		62		0.045	0.045
		63		0.045	0.045
		64		0.045	0.045
		65		0.045	0.045
		66		0.045	0.045
		67		0.045	0.045
		68		0.045	0.045
		69		0.045	0.045
		70		0.045	0.045
		71		0.045	0.045
		72		0.045	0.045
		73		0.045	0.045
		74		0.045	0.045
		75		0.045	0.045

* Includes inflation of 4.25%



TABLE 7A

PUBLIC EMPLOYEE'S RETIREMENT SYSTEM

**RATES OF MORTALITY FOR MEMBERS RETIRED ON ACCOUNT OF SERVICE
AND BENEFICIARIES OF DECEASED MEMBERS**

AGE	MALES	FEMALES	AGE	MALES	FEMALES
19	0.000484	0.000280	71	0.025951	0.014953
20	0.000507	0.000284	72	0.028481	0.016506
21	0.000530	0.000286	73	0.031201	0.018344
22	0.000556	0.000289	74	0.034051	0.020381
23	0.000589	0.000292	75	0.037211	0.022686
24	0.000624	0.000291	76	0.040858	0.025325
25	0.000661	0.000291	77	0.045171	0.028366
26	0.000696	0.000294	78	0.050211	0.031727
27	0.000727	0.000302	79	0.055861	0.035362
28	0.000754	0.000314	80	0.062027	0.039396
29	0.000779	0.000331	81	0.068615	0.043952
30	0.000801	0.000351	82	0.075532	0.049153
31	0.000821	0.000373	83	0.082510	0.054857
32	0.000839	0.000397	84	0.089613	0.060979
33	0.000848	0.000422	85	0.097240	0.067738
34	0.000849	0.000449	86	0.105792	0.075347
35	0.000851	0.000478	87	0.115671	0.084023
36	0.000862	0.000512	88	0.126980	0.093820
37	0.000891	0.000551	89	0.139452	0.104594
38	0.000939	0.000598	90	0.152931	0.116265
39	0.000999	0.000652	91	0.167260	0.128751
40	0.001072	0.000709	92	0.182281	0.141973
41	0.001156	0.000768	93	0.198392	0.155931
42	0.001252	0.000825	94	0.215700	0.170677
43	0.001352	0.000877	95	0.233606	0.186213
44	0.001458	0.000923	96	0.251510	0.202538
45	0.001578	0.000973	97	0.266815	0.219655
46	0.001722	0.001033	98	0.285277	0.237713
47	0.001899	0.001112	99	0.301298	0.256712
48	0.002102	0.001206	100	0.317238	0.276427
49	0.002326	0.001310	101	0.333461	0.296629
50	0.002579	0.001428	102	0.350330	0.317093
51	0.002872	0.001568	103	0.368542	0.338505
52	0.003213	0.001734	104	0.387855	0.361016
53	0.003584	0.001907	105	0.407224	0.383597
54	0.003979	0.002084	106	0.425599	0.405217
55	0.004425	0.002294	107	0.441935	0.424846
56	0.004949	0.002563	108	0.457553	0.444368
57	0.005581	0.002919	109	0.473150	0.464469
58	0.006300	0.003359	110	0.486745	0.482325
59	0.007090	0.003863	111	0.496356	0.495110
60	0.007976	0.004439	112	0.500000	0.500000
61	0.008986	0.005093	113	0.500000	0.500000
62	0.010147	0.005832	114	0.500000	0.500000
63	0.011471	0.006677	115	0.500000	0.500000
64	0.012940	0.007621	116	0.500000	0.500000
65	0.014535	0.008636	117	0.500000	0.500000
66	0.016239	0.009694	118	0.500000	0.500000
67	0.018034	0.010764	119	0.500000	0.500000
68	0.019859	0.011763	120	1.000000	1.000000
69	0.021729	0.012709			
70	0.023730	0.013730			



TABLE 7B

HIGHWAY SAFETY PATROL RETIREMENT SYSTEM

**RATES OF MORTALITY FOR MEMBERS RETIRED ON ACCOUNT OF SERVICE
AND BENEFICIARIES OF DECEASED MEMBERS**

AGE	MALES	FEMALES	AGE	MALES	FEMALES
19	0.000484	0.000280	71	0.025951	0.014953
20	0.000507	0.000284	72	0.028481	0.016506
21	0.000530	0.000286	73	0.031201	0.018344
22	0.000556	0.000289	74	0.034051	0.020381
23	0.000589	0.000292	75	0.037211	0.022686
24	0.000624	0.000291	76	0.040858	0.025325
25	0.000661	0.000291	77	0.045171	0.028366
26	0.000696	0.000294	78	0.050211	0.031727
27	0.000727	0.000302	79	0.055861	0.035362
28	0.000754	0.000314	80	0.062027	0.039396
29	0.000779	0.000331	81	0.068615	0.043952
30	0.000801	0.000351	82	0.075532	0.049153
31	0.000821	0.000373	83	0.082510	0.054857
32	0.000839	0.000397	84	0.089613	0.060979
33	0.000848	0.000422	85	0.097240	0.067738
34	0.000849	0.000449	86	0.105792	0.075347
35	0.000851	0.000478	87	0.115671	0.084023
36	0.000862	0.000512	88	0.126980	0.093820
37	0.000891	0.000551	89	0.139452	0.104594
38	0.000939	0.000598	90	0.152931	0.116265
39	0.000999	0.000652	91	0.167260	0.128751
40	0.001072	0.000709	92	0.182281	0.141973
41	0.001156	0.000768	93	0.198392	0.155931
42	0.001252	0.000825	94	0.215700	0.170677
43	0.001352	0.000877	95	0.233606	0.186213
44	0.001458	0.000923	96	0.251510	0.202538
45	0.001578	0.000973	97	0.266815	0.219655
46	0.001722	0.001033	98	0.285277	0.237713
47	0.001899	0.001112	99	0.301298	0.256712
48	0.002102	0.001206	100	0.317238	0.276427
49	0.002326	0.001310	101	0.333461	0.296629
50	0.002579	0.001428	102	0.350330	0.317093
51	0.002872	0.001568	103	0.368542	0.338505
52	0.003213	0.001734	104	0.387855	0.361016
53	0.003584	0.001907	105	0.407224	0.383597
54	0.003979	0.002084	106	0.425599	0.405217
55	0.004425	0.002294	107	0.441935	0.424846
56	0.004949	0.002563	108	0.457553	0.444368
57	0.005581	0.002919	109	0.473150	0.464469
58	0.006300	0.003359	110	0.486745	0.482325
59	0.007090	0.003863	111	0.496356	0.495110
60	0.007976	0.004439	112	0.500000	0.500000
61	0.008986	0.005093	113	0.500000	0.500000
62	0.010147	0.005832	114	0.500000	0.500000
63	0.011471	0.006677	115	0.500000	0.500000
64	0.012940	0.007621	116	0.500000	0.500000
65	0.014535	0.008636	117	0.500000	0.500000
66	0.016239	0.009694	118	0.500000	0.500000
67	0.018034	0.010764	119	0.500000	0.500000
68	0.019859	0.011763	120	1.000000	1.000000
69	0.021729	0.012709			
70	0.023730	0.013730			



TABLE 7C

SUPPLEMENTAL LEGISLATIVE RETIREMENT PLAN

**RATES OF MORTALITY FOR MEMBERS RETIRED ON ACCOUNT OF SERVICE
AND BENEFICIARIES OF DECEASED MEMBERS**

AGE	MALES	FEMALES	AGE	MALES	FEMALES
19	0.000484	0.000280	71	0.025951	0.014953
20	0.000507	0.000284	72	0.028481	0.016506
21	0.000530	0.000286	73	0.031201	0.018344
22	0.000556	0.000289	74	0.034051	0.020381
23	0.000589	0.000292	75	0.037211	0.022686
24	0.000624	0.000291	76	0.040858	0.025325
25	0.000661	0.000291	77	0.045171	0.028366
26	0.000696	0.000294	78	0.050211	0.031727
27	0.000727	0.000302	79	0.055861	0.035362
28	0.000754	0.000314	80	0.062027	0.039396
29	0.000779	0.000331	81	0.068615	0.043952
30	0.000801	0.000351	82	0.075532	0.049153
31	0.000821	0.000373	83	0.082510	0.054857
32	0.000839	0.000397	84	0.089613	0.060979
33	0.000848	0.000422	85	0.097240	0.067738
34	0.000849	0.000449	86	0.105792	0.075347
35	0.000851	0.000478	87	0.115671	0.084023
36	0.000862	0.000512	88	0.126980	0.093820
37	0.000891	0.000551	89	0.139452	0.104594
38	0.000939	0.000598	90	0.152931	0.116265
39	0.000999	0.000652	91	0.167260	0.128751
40	0.001072	0.000709	92	0.182281	0.141973
41	0.001156	0.000768	93	0.198392	0.155931
42	0.001252	0.000825	94	0.215700	0.170677
43	0.001352	0.000877	95	0.233606	0.186213
44	0.001458	0.000923	96	0.251510	0.202538
45	0.001578	0.000973	97	0.266815	0.219655
46	0.001722	0.001033	98	0.285277	0.237713
47	0.001899	0.001112	99	0.301298	0.256712
48	0.002102	0.001206	100	0.317238	0.276427
49	0.002326	0.001310	101	0.333461	0.296629
50	0.002579	0.001428	102	0.350330	0.317093
51	0.002872	0.001568	103	0.368542	0.338505
52	0.003213	0.001734	104	0.387855	0.361016
53	0.003584	0.001907	105	0.407224	0.383597
54	0.003979	0.002084	106	0.425599	0.405217
55	0.004425	0.002294	107	0.441935	0.424846
56	0.004949	0.002563	108	0.457553	0.444368
57	0.005581	0.002919	109	0.473150	0.464469
58	0.006300	0.003359	110	0.486745	0.482325
59	0.007090	0.003863	111	0.496356	0.495110
60	0.007976	0.004439	112	0.500000	0.500000
61	0.008986	0.005093	113	0.500000	0.500000
62	0.010147	0.005832	114	0.500000	0.500000
63	0.011471	0.006677	115	0.500000	0.500000
64	0.012940	0.007621	116	0.500000	0.500000
65	0.014535	0.008636	117	0.500000	0.500000
66	0.016239	0.009694	118	0.500000	0.500000
67	0.018034	0.010764	119	0.500000	0.500000
68	0.019859	0.011763	120	1.000000	1.000000
69	0.021729	0.012709			
70	0.023730	0.013730			



TABLE 7D

MUNICIPAL RETIREMENT SYSTEM

**RATES OF MORTALITY FOR MEMBERS RETIRED ON ACCOUNT OF SERVICE
AND BENEFICIARIES OF DECEASED MEMBERS**

AGE	MALES	FEMALES	AGE	MALES	FEMALES
19	0.000484	0.000280	71	0.025951	0.014953
20	0.000507	0.000284	72	0.028481	0.016506
21	0.000530	0.000286	73	0.031201	0.018344
22	0.000556	0.000289	74	0.034051	0.020381
23	0.000589	0.000292	75	0.037211	0.022686
24	0.000624	0.000291	76	0.040858	0.025325
25	0.000661	0.000291	77	0.045171	0.028366
26	0.000696	0.000294	78	0.050211	0.031727
27	0.000727	0.000302	79	0.055861	0.035362
28	0.000754	0.000314	80	0.062027	0.039396
29	0.000779	0.000331	81	0.068615	0.043952
30	0.000801	0.000351	82	0.075532	0.049153
31	0.000821	0.000373	83	0.082510	0.054857
32	0.000839	0.000397	84	0.089613	0.060979
33	0.000848	0.000422	85	0.097240	0.067738
34	0.000849	0.000449	86	0.105792	0.075347
35	0.000851	0.000478	87	0.115671	0.084023
36	0.000862	0.000512	88	0.126980	0.093820
37	0.000891	0.000551	89	0.139452	0.104594
38	0.000939	0.000598	90	0.152931	0.116265
39	0.000999	0.000652	91	0.167260	0.128751
40	0.001072	0.000709	92	0.182281	0.141973
41	0.001156	0.000768	93	0.198392	0.155931
42	0.001252	0.000825	94	0.215700	0.170677
43	0.001352	0.000877	95	0.233606	0.186213
44	0.001458	0.000923	96	0.251510	0.202538
45	0.001578	0.000973	97	0.266815	0.219655
46	0.001722	0.001033	98	0.285277	0.237713
47	0.001899	0.001112	99	0.301298	0.256712
48	0.002102	0.001206	100	0.317238	0.276427
49	0.002326	0.001310	101	0.333461	0.296629
50	0.002579	0.001428	102	0.350330	0.317093
51	0.002872	0.001568	103	0.368542	0.338505
52	0.003213	0.001734	104	0.387855	0.361016
53	0.003584	0.001907	105	0.407224	0.383597
54	0.003979	0.002084	106	0.425599	0.405217
55	0.004425	0.002294	107	0.441935	0.424846
56	0.004949	0.002563	108	0.457553	0.444368
57	0.005581	0.002919	109	0.473150	0.464469
58	0.006300	0.003359	110	0.486745	0.482325
59	0.007090	0.003863	111	0.496356	0.495110
60	0.007976	0.004439	112	0.500000	0.500000
61	0.008986	0.005093	113	0.500000	0.500000
62	0.010147	0.005832	114	0.500000	0.500000
63	0.011471	0.006677	115	0.500000	0.500000
64	0.012940	0.007621	116	0.500000	0.500000
65	0.014535	0.008636	117	0.500000	0.500000
66	0.016239	0.009694	118	0.500000	0.500000
67	0.018034	0.010764	119	0.500000	0.500000
68	0.019859	0.011763	120	1.000000	1.000000
69	0.021729	0.012709			
70	0.023730	0.013730			



TABLE 8A

PUBLIC EMPLOYEES' RETIREMENT SYSTEM

RATES OF MORTALITY FOR MEMBERS RETIRED ON ACCOUNT OF DISABILITY

AGE	MALES	FEMALES	AGE	MALES	FEMALES
19	0.022571	0.007450	71	0.059613	0.048895
20	0.022571	0.007450	72	0.062583	0.052230
21	0.022571	0.007450	73	0.065841	0.055777
22	0.022571	0.007450	74	0.069405	0.059545
23	0.022571	0.007450	75	0.073292	0.063545
24	0.022571	0.007450	76	0.077512	0.067793
25	0.022571	0.007450	77	0.082067	0.072312
26	0.022571	0.007450	78	0.086951	0.077135
27	0.022571	0.007450	79	0.092149	0.082298
28	0.022571	0.007450	80	0.097640	0.087838
29	0.022571	0.007450	81	0.103392	0.093794
30	0.022571	0.007450	82	0.109372	0.100203
31	0.022571	0.007450	83	0.115544	0.107099
32	0.022571	0.007450	84	0.121877	0.114512
33	0.022571	0.007450	85	0.128343	0.122464
34	0.022571	0.007450	86	0.134923	0.130972
35	0.022571	0.007450	87	0.141603	0.140049
36	0.022571	0.007450	88	0.148374	0.149698
37	0.022571	0.007450	89	0.155235	0.159924
38	0.022571	0.007450	90	0.162186	0.170433
39	0.022571	0.007450	91	0.169233	0.182799
40	0.022571	0.007450	92	0.183408	0.194509
41	0.022571	0.007450	93	0.199769	0.205379
42	0.022571	0.007450	94	0.216605	0.215240
43	0.022571	0.008184	95	0.233662	0.223947
44	0.022571	0.008959	96	0.250693	0.231387
45	0.022571	0.009775	97	0.267491	0.237467
46	0.022571	0.010634	98	0.283905	0.244834
47	0.022571	0.011535	99	0.299852	0.254498
48	0.023847	0.012477	100	0.315296	0.266044
49	0.025124	0.013456	101	0.330207	0.279055
50	0.026404	0.014465	102	0.344556	0.293116
51	0.027687	0.015497	103	0.358628	0.307811
52	0.028975	0.016544	104	0.371685	0.322725
53	0.030268	0.017598	105	0.383040	0.337441
54	0.031563	0.018654	106	0.392003	0.351544
55	0.032859	0.019710	107	0.397886	0.364617
56	0.034152	0.020768	108	0.400000	0.376246
57	0.035442	0.021839	109	0.400000	0.386015
58	0.036732	0.022936	110	0.400000	0.393507
59	0.038026	0.024080	111	0.400000	0.398308
60	0.039334	0.025293	112	0.400000	0.400000
61	0.040668	0.026600	113	0.400000	0.400000
62	0.042042	0.028026	114	0.400000	0.400000
63	0.043474	0.029594	115	0.400000	0.400000
64	0.044981	0.031325	116	0.400000	0.400000
65	0.046584	0.033234	117	0.400000	1.000000
66	0.048307	0.035335	118	0.400000	1.000000
67	0.050174	0.037635	119	0.400000	1.000000
68	0.052213	0.040140	120	1.000000	1.000000
69	0.054450	0.042851			
70	0.056909	0.045769			



TABLE 8B

HIGHWAY SAFETY PATROL RETIREMENT SYSTEM

RATES OF MORTALITY FOR MEMBERS RETIRED ON ACCOUNT OF DISABILITY

AGE	MALES	FEMALES	AGE	MALES	FEMALES
19	0.022571	0.007450	71	0.059613	0.048895
20	0.022571	0.007450	72	0.062583	0.052230
21	0.022571	0.007450	73	0.065841	0.055777
22	0.022571	0.007450	74	0.069405	0.059545
23	0.022571	0.007450	75	0.073292	0.063545
24	0.022571	0.007450	76	0.077512	0.067793
25	0.022571	0.007450	77	0.082067	0.072312
26	0.022571	0.007450	78	0.086951	0.077135
27	0.022571	0.007450	79	0.092149	0.082298
28	0.022571	0.007450	80	0.097640	0.087838
29	0.022571	0.007450	81	0.103392	0.093794
30	0.022571	0.007450	82	0.109372	0.100203
31	0.022571	0.007450	83	0.115544	0.107099
32	0.022571	0.007450	84	0.121877	0.114512
33	0.022571	0.007450	85	0.128343	0.122464
34	0.022571	0.007450	86	0.134923	0.130972
35	0.022571	0.007450	87	0.141603	0.140049
36	0.022571	0.007450	88	0.148374	0.149698
37	0.022571	0.007450	89	0.155235	0.159924
38	0.022571	0.007450	90	0.162186	0.170433
39	0.022571	0.007450	91	0.169233	0.182799
40	0.022571	0.007450	92	0.183408	0.194509
41	0.022571	0.007450	93	0.199769	0.205379
42	0.022571	0.007450	94	0.216605	0.215240
43	0.022571	0.008184	95	0.233662	0.223947
44	0.022571	0.008959	96	0.250693	0.231387
45	0.022571	0.009775	97	0.267491	0.237467
46	0.022571	0.010634	98	0.283905	0.244834
47	0.022571	0.011535	99	0.299852	0.254498
48	0.023847	0.012477	100	0.315296	0.266044
49	0.025124	0.013456	101	0.330207	0.279055
50	0.026404	0.014465	102	0.344556	0.293116
51	0.027687	0.015497	103	0.358628	0.307811
52	0.028975	0.016544	104	0.371685	0.322725
53	0.030268	0.017598	105	0.383040	0.337441
54	0.031563	0.018654	106	0.392003	0.351544
55	0.032859	0.019710	107	0.397886	0.364617
56	0.034152	0.020768	108	0.400000	0.376246
57	0.035442	0.021839	109	0.400000	0.386015
58	0.036732	0.022936	110	0.400000	0.393507
59	0.038026	0.024080	111	0.400000	0.398308
60	0.039334	0.025293	112	0.400000	0.400000
61	0.040668	0.026600	113	0.400000	0.400000
62	0.042042	0.028026	114	0.400000	0.400000
63	0.043474	0.029594	115	0.400000	0.400000
64	0.044981	0.031325	116	0.400000	0.400000
65	0.046584	0.033234	117	0.400000	1.000000
66	0.048307	0.035335	118	0.400000	1.000000
67	0.050174	0.037635	119	0.400000	1.000000
68	0.052213	0.040140	120	1.000000	1.000000
69	0.054450	0.042851			
70	0.056909	0.045769			



TABLE 8C

SUPPLEMENTAL LEGISLATIVE RETIREMENT PLAN

RATES OF MORTALITY FOR MEMBERS RETIRED ON ACCOUNT OF DISABILITY

AGE	MALES	FEMALES	AGE	MALES	FEMALES
19	0.022571	0.007450	71	0.059613	0.048895
20	0.022571	0.007450	72	0.062583	0.052230
21	0.022571	0.007450	73	0.065841	0.055777
22	0.022571	0.007450	74	0.069405	0.059545
23	0.022571	0.007450	75	0.073292	0.063545
24	0.022571	0.007450	76	0.077512	0.067793
25	0.022571	0.007450	77	0.082067	0.072312
26	0.022571	0.007450	78	0.086951	0.077135
27	0.022571	0.007450	79	0.092149	0.082298
28	0.022571	0.007450	80	0.097640	0.087838
29	0.022571	0.007450	81	0.103392	0.093794
30	0.022571	0.007450	82	0.109372	0.100203
31	0.022571	0.007450	83	0.115544	0.107099
32	0.022571	0.007450	84	0.121877	0.114512
33	0.022571	0.007450	85	0.128343	0.122464
34	0.022571	0.007450	86	0.134923	0.130972
35	0.022571	0.007450	87	0.141603	0.140049
36	0.022571	0.007450	88	0.148374	0.149698
37	0.022571	0.007450	89	0.155235	0.159924
38	0.022571	0.007450	90	0.162186	0.170433
39	0.022571	0.007450	91	0.169233	0.182799
40	0.022571	0.007450	92	0.183408	0.194509
41	0.022571	0.007450	93	0.199769	0.205379
42	0.022571	0.007450	94	0.216605	0.215240
43	0.022571	0.008184	95	0.233662	0.223947
44	0.022571	0.008959	96	0.250693	0.231387
45	0.022571	0.009775	97	0.267491	0.237467
46	0.022571	0.010634	98	0.283905	0.244834
47	0.022571	0.011535	99	0.299852	0.254498
48	0.023847	0.012477	100	0.315296	0.266044
49	0.025124	0.013456	101	0.330207	0.279055
50	0.026404	0.014465	102	0.344556	0.293116
51	0.027687	0.015497	103	0.358628	0.307811
52	0.028975	0.016544	104	0.371685	0.322725
53	0.030268	0.017598	105	0.383040	0.337441
54	0.031563	0.018654	106	0.392003	0.351544
55	0.032859	0.019710	107	0.397886	0.364617
56	0.034152	0.020768	108	0.400000	0.376246
57	0.035442	0.021839	109	0.400000	0.386015
58	0.036732	0.022936	110	0.400000	0.393507
59	0.038026	0.024080	111	0.400000	0.398308
60	0.039334	0.025293	112	0.400000	0.400000
61	0.040668	0.026600	113	0.400000	0.400000
62	0.042042	0.028026	114	0.400000	0.400000
63	0.043474	0.029594	115	0.400000	0.400000
64	0.044981	0.031325	116	0.400000	0.400000
65	0.046584	0.033234	117	0.400000	1.000000
66	0.048307	0.035335	118	0.400000	1.000000
67	0.050174	0.037635	119	0.400000	1.000000
68	0.052213	0.040140	120	1.000000	1.000000
69	0.054450	0.042851			
70	0.056909	0.045769			



TABLE 8D

MUNICIPAL RETIREMENT SYSTEM

RATES OF MORTALITY FOR MEMBERS RETIRED ON ACCOUNT OF DISABILITY

AGE	MALES	FEMALES	AGE	MALES	FEMALES
19	0.022571	0.007450	71	0.059613	0.048895
20	0.022571	0.007450	72	0.062583	0.052230
21	0.022571	0.007450	73	0.065841	0.055777
22	0.022571	0.007450	74	0.069405	0.059545
23	0.022571	0.007450	75	0.073292	0.063545
24	0.022571	0.007450	76	0.077512	0.067793
25	0.022571	0.007450	77	0.082067	0.072312
26	0.022571	0.007450	78	0.086951	0.077135
27	0.022571	0.007450	79	0.092149	0.082298
28	0.022571	0.007450	80	0.097640	0.087838
29	0.022571	0.007450	81	0.103392	0.093794
30	0.022571	0.007450	82	0.109372	0.100203
31	0.022571	0.007450	83	0.115544	0.107099
32	0.022571	0.007450	84	0.121877	0.114512
33	0.022571	0.007450	85	0.128343	0.122464
34	0.022571	0.007450	86	0.134923	0.130972
35	0.022571	0.007450	87	0.141603	0.140049
36	0.022571	0.007450	88	0.148374	0.149698
37	0.022571	0.007450	89	0.155235	0.159924
38	0.022571	0.007450	90	0.162186	0.170433
39	0.022571	0.007450	91	0.169233	0.182799
40	0.022571	0.007450	92	0.183408	0.194509
41	0.022571	0.007450	93	0.199769	0.205379
42	0.022571	0.007450	94	0.216605	0.215240
43	0.022571	0.008184	95	0.233662	0.223947
44	0.022571	0.008959	96	0.250693	0.231387
45	0.022571	0.009775	97	0.267491	0.237467
46	0.022571	0.010634	98	0.283905	0.244834
47	0.022571	0.011535	99	0.299852	0.254498
48	0.023847	0.012477	100	0.315296	0.266044
49	0.025124	0.013456	101	0.330207	0.279055
50	0.026404	0.014465	102	0.344556	0.293116
51	0.027687	0.015497	103	0.358628	0.307811
52	0.028975	0.016544	104	0.371685	0.322725
53	0.030268	0.017598	105	0.383040	0.337441
54	0.031563	0.018654	106	0.392003	0.351544
55	0.032859	0.019710	107	0.397886	0.364617
56	0.034152	0.020768	108	0.400000	0.376246
57	0.035442	0.021839	109	0.400000	0.386015
58	0.036732	0.022936	110	0.400000	0.393507
59	0.038026	0.024080	111	0.400000	0.398308
60	0.039334	0.025293	112	0.400000	0.400000
61	0.040668	0.026600	113	0.400000	0.400000
62	0.042042	0.028026	114	0.400000	0.400000
63	0.043474	0.029594	115	0.400000	0.400000
64	0.044981	0.031325	116	0.400000	0.400000
65	0.046584	0.033234	117	0.400000	1.000000
66	0.048307	0.035335	118	0.400000	1.000000
67	0.050174	0.037635	119	0.400000	1.000000
68	0.052213	0.040140	120	1.000000	1.000000
69	0.054450	0.042851			
70	0.056909	0.045769			