



CITY OF ORLANDO POLICE OFFICERS' PENSION FUND

Actuarial Experience Study

October 1, 2004 Through September 30, 2009

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 SEGAL



THE SEGAL COMPANY
2018 Powers Ferry Road, Suite 850 Atlanta, GA 30339-5003

October 15, 2010

Board of Trustees
City of Orlando Police Officers' Pension Fund
Orlando, Florida

Dear Board Members:

We are pleased to present this report on our actuarial experience investigation of the Pension Fund covering the period from October 1, 2004 to September 30, 2009.

Based on our analysis of the plan's actuarial experience for the period, we offer for the Board's consideration certain changes in the actuarial assumptions and methods. We encourage the Board's comments and input on this study as we consider modifications to the actuarial assumptions and methods used to value the plan.

This study was performed under our supervision with the assistance of Ms. Jody Martin.

To the best of our knowledge, this report is complete and accurate and the calculations were performed in accordance with generally accepted actuarial principles and practices. The signing actuaries are members of the Society of Actuaries, the American Academy of Actuaries, and other professional actuarial organizations and collectively meet their Qualification Standards to render the actuarial opinion contained herein.

Sincerely,

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I. Executive Summary

A. Introduction

The annual actuarial valuation for the City of Orlando Police Officers' Pension Fund ("Fund" or "Plan") provides a projection of future benefit payments for all current participants, based upon actuarial assumptions adopted by the Board, that are discounted to the valuation date. The actuarial valuation methods are tools that develop long-term budget patterns to assure necessary contributions are systematically deposited in the Plan so that funds are available to pay promised benefits as they come due. The methods and assumptions must comply with generally accepted actuarial principles and practices, GASB accounting standards and state law.

The assumptions and methods used in the annual actuarial valuations are adopted by the Board of Trustees, based on recommendations of the actuary and the findings of actuarial experience studies. Pursuant to current industry standards, an actuarial experience study should be prepared at least every five years. The purpose of the study is to modify current assumptions to reflect emerging experience as well as expected experience in future years.

The experience study includes a complete review of all assumptions and methods used in the valuation. The assumptions can be broken down into two categories: economic and demographic assumptions. Economic assumptions include inflation, investment rate of return (or discount rate), salary scale, payroll growth rate and administrative expenses. Demographic assumptions include mortality, turnover (or withdrawal), retirement, disability, percent married, and spousal age difference.

The methods studied include the base actuarial cost method for determining allocation of liabilities to past and future years, the asset smoothing method, and amortization of unfunded liabilities.

Following the Executive Summary are three additional sections, which include detailed analysis, address specific issues, and provide recommendations related to the following:

- Economic assumptions;
- Demographic assumptions; and
- Actuarial methods.

An appendix at the end of the report details all of the current and proposed decrement rates.

A summary of the key points of our review and our recommendations follows on the next few pages.

B. Recommendations

At the direction of the City of Orlando Police Officers' Pension Fund Board of Trustees, we have performed a review of plan experience for the period October 1, 2004 through September 30, 2009.

The experience review affords an opportunity for the Board, staff, and actuary to consider how specific assumptions or methods may be affecting contribution rates and the proper funding of the Plan. We have reviewed both economic and demographic experience of the plan as it relates to the expected actuarial experience based on the current plan assumptions. Included are recommendations for changes in assumptions and methods that we believe will more accurately reflect the future experience of the Plan and will help to stabilize annual cost requirements from year to year.

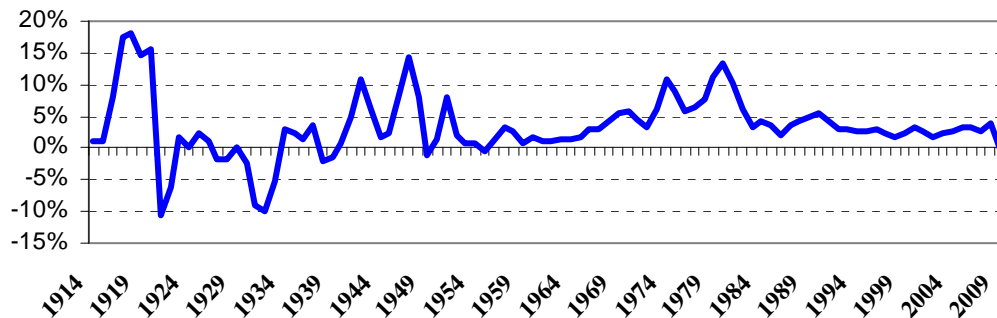
The detailed analysis of each individual assumption is discussed later in this report.

Economic Assumptions

Economic assumptions include inflation, investment rate of return (or discount rate), salary scale, payroll growth rates and administrative expenses.

Inflation

Inflation continues at relatively low levels from a historical perspective, as shown in the graph below.



There is an explicit assumption for inflation in the actuarial valuation of 4.00%. The outlook for inflation remains relatively low despite the volatile nature of energy and commodities prices. We recommend lowering the inflation component to 3.75%.

We utilized the “building block” approach to develop economic assumptions. Under the “building block” approach, inflation is the basis for all economic assumptions. The investment return assumption is comprised of inflation and the expected risk premium for each asset class. The underlying salary scale assumption is composed of inflation, a merit increase and productivity increases. Finally, payroll growth is a function of the inflation component of salary scale.

Investment Return

The Fund has averaged 6.33% investment return over the last five years based on a smoothed actuarial value of assets, compared to the assumption of 8.00%. Thus, on average the Fund has underperformed the assumption significantly over the study period. On a market value basis, the five-year average is 2.42%. However, it should be noted that if the year ending September 30, 2008 is removed from this five-year period, the average return for the other four years in the period was 7.21% based on a smoothed actuarial value of assets and 8.47% on a market value basis.

There has been a historical drop in the market and the short-to-mid-term outlook for stocks and bonds remains uncertain. Therefore, we recommend lowering the investment return assumption from 8.00% to 7.75%. The Fund's allocation as of September 30, 2009 valuation year was approximately 55% equities, 22% fixed income, 13% mortgage or asset backed securities, 5% real estate and 5% short-term investments. If the target investment mix is changed to lower exposure to stocks, then the investment return assumption may need to be lowered accordingly.

Salary Scale

The current assumption for salary increases is based on the age and service of the participant. Salary increases are assumed to be higher for younger participants, with a steady decline in the rates until a participant reaches 50 years of age. In addition, an additional increase for participants with less than 10 years of service is assumed, regardless of age.

We recommend removing the age-based component of the salary scale and basing the scale solely on years of service. We also recommend modifying the rates in the first 10 years of service. The current and proposed salary scale rates are shown in *Appendix E*.

Payroll Growth Rate

The payroll growth rate is used for determining the amortization amount of the unfunded actuarial accrued liability (UAAL) when the recommended contribution is determined as a level percentage of payroll. We recommend this assumption be lowered from 4.00% to 3.75% in conjunction with the decrease in the inflation assumption.

Administrative Expenses

State of Florida statutes mandate that the current plan year's administrative expenses be the actual administrative expenses from the prior plan year.

Demographic Assumptions

Demographic assumptions include mortality, turnover (or withdrawal), retirement, disability, percent married, spousal age difference, and survivor benefit experience.

Mortality

The predicted mortality experience for non-disabled lives is based on the 1994 Group Annuity Mortality Table (GAM94), with ages set forward one year. For annuitants who went into pay status prior to October 1, 2004, the assumed rates are based on the 1983 Group Annuity Mortality Table. For disabled annuitants, mortality is based on the applicable healthy life mortality table, set forward five years.

We recommend changing to a more modern mortality table: the RP-2000 Combined Healthy Mortality Table, set forward one year. We recommend this same table for both healthy lives and disabled annuitants. The current and proposed mortality tables are shown in *Appendices A and B*.

Turnover

The number of members terminating employment during the study period was lower than expected. The current assumption is based on age, with increased incidences of turnover expected in a member's first five years of service. We studied the terminations by age and service to determine if there is a better assumption to fit the actual experience. We recommend reducing the assumed rate of turnover by 10% during the five-year select period and reducing the ultimate (after five years) turnover assumption by 30% of the current assumption. The current and proposed turnover tables are shown in *Appendix C*.

Retirement

The current assumption includes rates of retirement between 10 and 30 years of service. We propose modifying the rates of retirement by removing the rates for less than 20 years of service. We are also proposing changes to the current rates of retirement for participants with at least 20 years of service. The current and proposed retirement tables are shown in *Appendix E*.

Disability

The current assumption expects relatively low incidences of disablement. We recommend that the rates be increased by removing the 80% modification to the current disability table and replacing it with a modification of 105% of the current disability table. The current and proposed disability tables are shown in *Appendix E*.

Other Demographic Assumptions

Other demographic assumptions that affect the valuation are the percent married and spousal age difference. The current percent-married assumption is 80%. No change is being recommended to the percent-married assumption or the three-year age difference between husbands and wives.

Based on recent conversations with the city and an analysis of the past ten years' experience, we are instituting an assumption that survivor benefits will be paid on only about 61% of current retirees whose data record includes an indication of a potential survivor beneficiary.

Methods

Actuarial methods include actuarial cost method, asset valuation method and amortization method of the unfunded actuarial accrued liability (UAAL).

Actuarial Cost Method

The actuarial cost method is a mechanism to orderly fund benefits over a participant's lifetime. The actuarial cost method allocates liability for service already accrued (i.e. Actuarial Accrued Liability) and future service (i.e. Normal Cost). The current actuarial cost method is the Segal "replacement life" Entry Age Normal actuarial cost method, which recognizes that every member that retires is likely to be *replaced* by a new member. Under this method, a normal cost is calculated for each employee which is the level annual contribution as a percent of pay required to be made from the employee's date of hire for as long as he/she remains active so that sufficient assets will be accumulated to provide his/her benefit. The normal cost reflects the ongoing plan for new hires and as such is expected to be reasonably level as a percent of payroll over time.

Given the Fund's desire for a stable funding pattern and ability to recognize plan changes when made, we do not suggest a change to the actuarial cost method.

Asset Valuation Method

The current asset valuation method is a four-year smoothed value of assets, with a 20% corridor around market value. The actuarial value of assets is calculated as the actuarial value of assets from the prior year plus net new money plus 25% of the asset appreciation/(depreciation) for the current year and each of the prior three years.

We recommend changing this method to a five-year smoothed value of assets. The difference between expected return and actual return on a market value of assets basis is recognized over a five-year period. We recommend maintaining the 20% corridor around market value. We also recommend implementing this change retroactively. Prior asset amounts will not change, but we recommend setting up gain/(loss) bases as if this method had been in effect for the prior five years.

Amortization Method

The amortization method for amortizing the unfunded actuarial accrued liability (UAAL) is based on a level percent-of-pay methodology. Gains and losses are amortized over 15 years, while changes in assumptions and methods, along with plan changes, are amortized over 25 years. Per Florida statute, separate bases are maintained for each year's gain or loss, or any assumption, plan, or method changes.

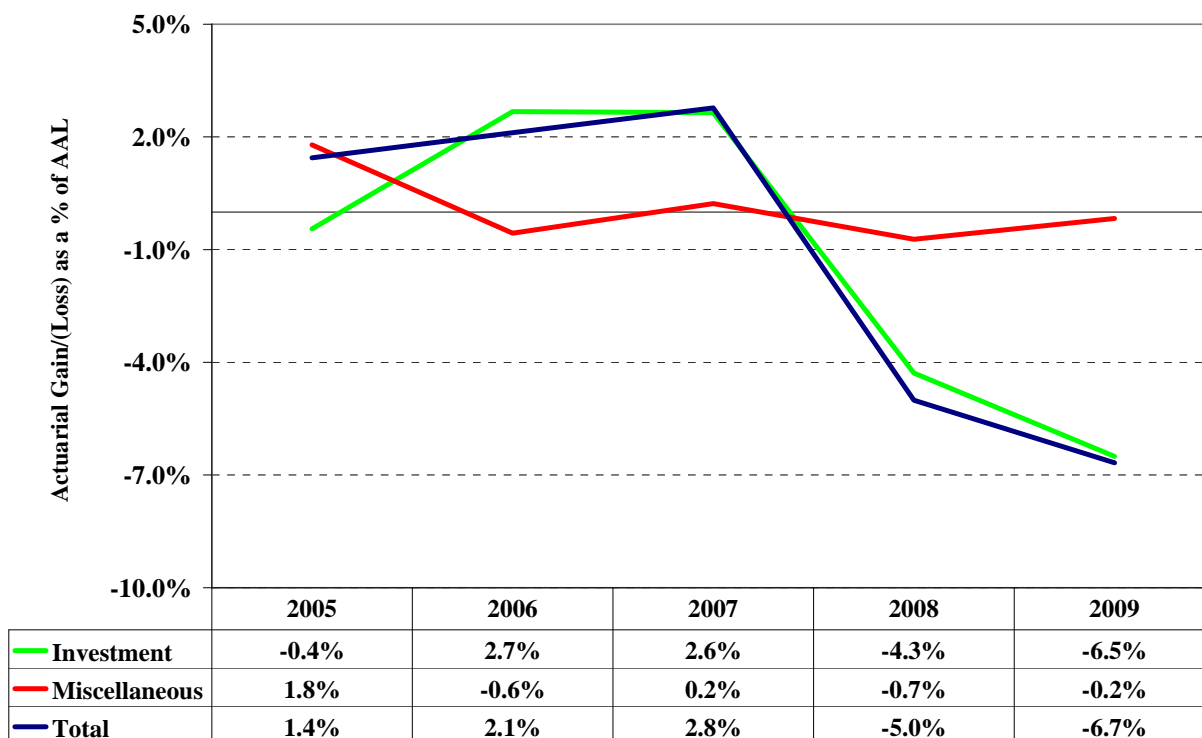
We do not suggest a change in the amortization period or amortization methodology for the UAAL at this time.

Summary of Actuarial Experience

For the past five years, investment experience has been the determining factor as to whether the Fund has experience an overall actuarial gain or loss. Total gains/(losses) were relatively small prior to investment experience in 2008. A summary of the historical gains and losses are shown below.

Valuation Date Oct. 1	Actuarial Accrued Liability (AAL)	Total Actuarial Gain/(Loss)		Investment Gain/(Loss)		Non-Investment Gain/(Loss)	
		Amount (in \$)	% of AAL	Amount (in \$)	% of AAL	Amount (in \$)	% of AAL
2005	\$308,378,026	\$4,451,127	1.4%	(\$1,068,653)	(0.4%)	\$5,519,780	1.8%
2006	332,996,556	7,033,755	2.1%	8,903,111	2.7%	(1,869,356)	(0.6%)
2007	354,666,691	9,822,841	2.8%	9,023,170	2.6%	799,671	0.2%
2008	381,002,165	(19,096,044)	(5.0%)	(16,323,449)	(4.3%)	(2,772,595)	(0.7%)
2009	406,398,791	(27,132,542)	(6.7%)	(26,434,589)	(6.5%)	(697,953)	(0.2%)

GAINS/(LOSSES) AS A PERCENT OF AAL



C. Impact of Assumption Changes on Valuation Results

The following table details the impact of the change in assumptions and asset method on the October 1, 2009 actuarial valuation results for illustrative purposes.

	October 1, 2009 Valuation Results	Proposed Assumption Changes, Current Asset Method	Proposed Assumption Changes, Proposed Asset Method
Normal Cost	\$13,656,280	\$14,538,891	\$14,538,891
Administrative Expenses	191,341	191,341	191,341
Expected Employee Contributions	(3,962,184)	(3,962,184)	(3,962,184)
Employer Normal Cost	9,885,437	10,768,048	10,768,048
Actuarial Accrued Liability*	406,398,791	429,933,948	429,933,948
Actuarial Value of Assets*	349,933,712	349,933,712	380,537,844
Unfunded Actuarial Accrued Liability (UAAL)	56,465,079	80,000,236	49,396,104
Amortization of UAAL	4,821,634	6,252,825	4,454,664
Funded Percentage	86.11%	81.39%	88.51%
Total Recommended Contribution, Projected to October 1, 2010	\$15,295,353	\$17,659,155	\$15,731,906
Recommended Contribution as a Percentage of Projected Payroll**	31.06%	35.95%	32.03%

* Excludes excess reserve for state contributions.

** Projected payroll is approximately \$49.2 million.

The primary driver of the increase in the actuarial accrued liability is the lowering of the investment return assumption from 8.00% to 7.75%. Lowering the investment return assumption increases the October 1, 2010 recommended contribution by approximately 3.74% of projected payroll. However, the increase in recommended contribution from lowering the investment return assumption is partially offset by modifications to the salary scale assumption.

Overall, the recommended economic and demographic changes would increase the October 1, 2010 recommended contribution by 4.89% of projected payroll, or approximately \$2.4 million.

The impact of the recommended asset method change would decrease the unfunded actuarial accrued liability by approximately \$30.6 million, resulting in a decrease of the October 1, 2010 recommended contribution by approximately 3.92% of projected payroll.

The net impact of all the recommended assumption and method changes increases the actuarial accrued liability by approximately \$23.5 million, decreases the unfunded actuarial accrued liability by approximately \$7.1 million, and increases the October 1, 2010 recommended contribution by approximately \$437,000, or 0.97% of projected payroll.

II. Economic Assumptions

The economic assumptions have a significant impact on the development of plan liabilities. Changes to these assumptions can substantially alter the results determined by the actuary. The goal of an experience study is to produce a consistent set of economic assumptions that appropriately reflect expected future economic trends.

The primary economic assumptions that affect the Plan's funding are:

- Inflation;
- Investment Rate of Return (or Discount Rate);
- Payroll Growth Rate;
- Salary Scale; and
- Administrative Expenses.

The Actuarial Standards Board (ASB) has adopted Actuarial Standard of Practice No. 27 (ASOP 27 - Selection of Economic Assumptions for Measuring Pension Obligations) to provide actuaries guidance in developing economic assumptions. A key feature of the ASB's guidance is the "building block" approach in developing economic assumptions.

The "building block" approach uses the actuary's best estimate for key components of economic assumptions. The actuary begins with reasonable range of each component then selects a specific point within the range based on historical data, plan specific data and future economic environment.

The inflation component is included in all economic assumptions, and therefore is key to developing a consistent set of actuarial assumptions. Under the "building block" approach, we consider the investment rate of return assumption as the combination of an inflation component and a real rate of return component. The components of the salary increase assumption are inflation, productivity, and merit increases.

A. Inflation

In developing the recommendation for the assumed inflation component, actuarial standards of practice suggest the actuary review appropriate inflation data. This data may include consumer price indexes, the implicit price deflator, forecasts of inflation, and yields on government securities of various maturities. For this study, we reviewed a commonly referenced historical measure of inflation, the Consumer Price Index for All Urban Consumers (CPI-U).

The table below shows how recent inflation experience is below the longer-term average rate. The following table is based on calendar years through 2009.

Average Annual Change in CPI-U	
Past 5 Years	2.6%
Past 20 Years	2.7%
Past 40 Years	4.5%

The average annual rate of increase in the CPI-U in the 2000s has been the lowest since the early 1960s. Inflation for 2009 was approximately -0.4%, which was the lowest rate for inflation in over 50 years. Even so, inflation is not expected to remain at this level in the long-term. Historical trend is an important consideration for the assumed rate of inflation, but is not the sole indicator in determining the reasonable bounds of expected inflation.

The typical range of expected inflation for actuarial assumptions in recent years is between 3.00% and 4.50%. A recent National Association of State Retirement Administrators (NASRA) survey of public plans indicated an average of 3.50%. Considering this trend, as well as the bond market's current low future expectation, we have determined the current reasonable range to be between 2.50% and 4.00%.

As a check of the validity of this reasonable range, we reference the *2009 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds (2009 OASDI Trustees Report)*. The range of inflation rates in this report was 1.8% for low-cost projection and 3.8% for high-cost projection.

Once the reasonable range is set, we determine the specific point in the range that is the best estimate of long-term future inflation rates. The current inflation assumption is 4.00%. Given the reasonable range and the current environment, we recommend lowering this assumption to 3.75%.

B. Investment Rate of Return

The discount rate is used to determine the present value of expected future plan payments. Generally, the appropriate discount rate is the same as the investment return assumption. The current assumption is 8.00%, net of investment expenses.

For the five years under review, Fund returns on an actuarial value basis have been less than the 8.00% return assumption for the year ending in 2005, and for the two years ending in 2008 and 2009. Recent poor asset performance is due to the historic market crash in the fall of 2008. The actuarial (and market value) rates of return for the past ten years are shown below. The average net investment return on the actuarial basis for the five-year period ending September 30, 2009 was 6.33% and the average return on a market basis was 2.42%. As previously stated, if the year 2008 is removed from this five-year period, the average return for the other four years in the period was 7.21% based on a smoothed actuarial value of assets basis and 8.47% based on a market value basis.

Year Ended September 30	Actuarial Value Investment Return	Market Value Investment Return	Assumed Return
2000	14.58%	15.14%	8.00%
2001	6.70%	-7.58%	8.00%
2002	2.46%	-7.43%	8.00%
2003	2.89%	17.63%	8.00%
2004	2.09%	9.42%	8.00%
2005	7.59%	11.29%	8.00%
2006	11.16%	8.77%	8.00%
2007	10.88%	13.31%	8.00%
2008	3.28%	-17.23%	8.00%
2009	0.55%	0.45%	8.00%
Five-Year Average	6.33%	2.42%	8.00%
Ten-Year Average	5.92%	3.50%	8.00%

Note: Actuarial returns will not match market returns recorded by the Plan since investment gains/losses are smoothed and are calculated based upon an average value of expected assets, which includes cash inflows and outflows. Market returns determined by the actuary also may not match recorded market returns by the Plan since the values are calculated based upon an average value of market assets that include cash inflows and outflows. Average returns are based on a dollar-weighted method. Time-weighted average rates of return are slightly higher than those shown.

The investment rate of return assumption is developed using the “building block” approach as outlined in ASOP 27. Under this approach, the investment rate of return assumption is made up of two components: the inflation component and the real investment rate of return component. The reasonable range of the inflation component determined above is combined with the reasonable range of the real rate of return component. This reasonable range is then evaluated and refined. The final recommendation is a specific point in this best-estimate range.

In developing the reasonable range for the real rate of return, we consider the historical returns of the Plan's major asset classes. The historical rates of return for stocks, bonds, and Treasuries over the last 70 years are shown below:

Asset Class	Average Return
Stocks (as measured by the S&P 500 Index)	9.1%
Bonds	5.7%
U.S. Treasury Bills	3.7%

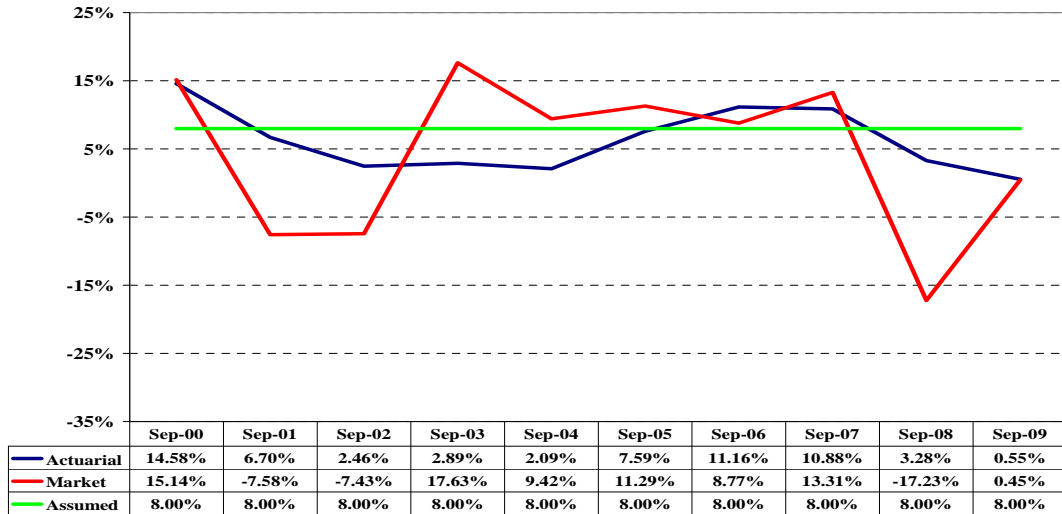
In developing the reasonable range for the real rate of return, we consider the historical returns of the Plan's major asset classes, along with projected market performance. First, over the long term, U.S. Stocks (S&P 500) have averaged an annual rate of return of 9.1%, while U.S. Bonds have averaged a 5.7% annual rate of return according to historical market data. Adjusting for the average annual rate of inflation over this period of 3.1%, and considering the range of common allocations (35% to 65% for both stocks and bonds), we determined the initial range for the total expected real rate of return to be 3.8% to 4.8% for a similarly diversified portfolio.

The Fund's allocation as of September 30, 2009 valuation year was approximately 55% equities 22% fixed income, 13% mortgage or asset backed securities, 5% real estate and 5% short-term investments. Based on the above allocation we expect the real rate of return to be about 4.00%.

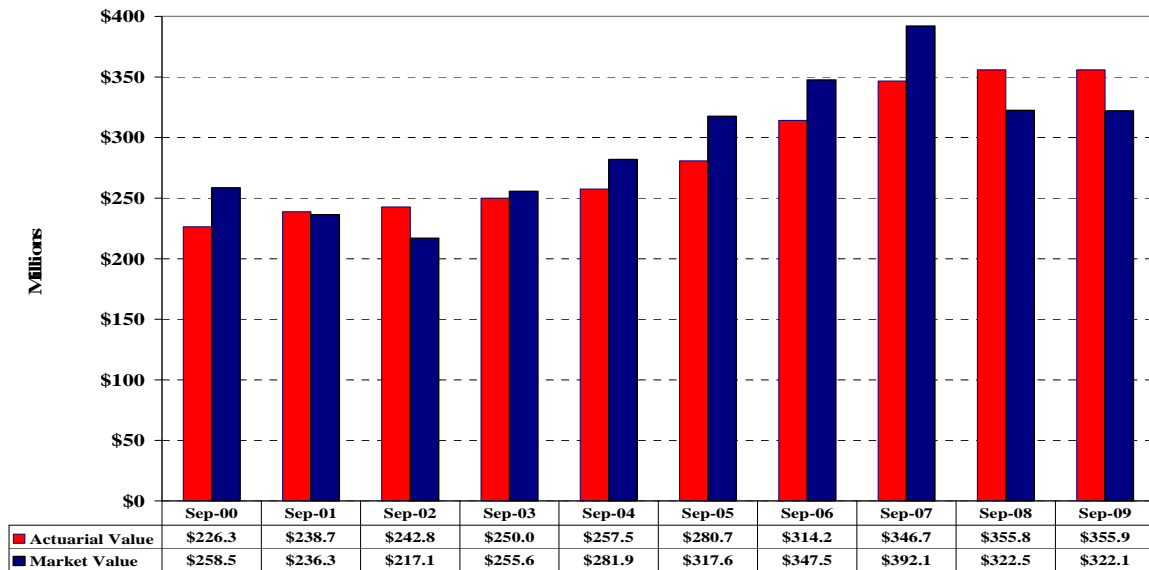
The 4.00% expected real rate of return falls within the reasonable range for the common allocations described above. Combining the best-estimate range with the assumed rate of inflation of 3.75% yields an investment rate of return assumption of 7.75%. Therefore, we recommend a net investment return assumption of 7.75%.

Graphs 1A and 1B display the rates of return and the asset changes over the last ten years.

**GRAPH 1A:
SUMMARY OF INVESTMENT RETURN
FOR THE PERIOD OCTOBER 1, 1999 THROUGH SEPTEMBER 30, 2009**



**GRAPH 1B:
MARKET VALUE VS. ACTUARIAL VALUE OF ASSETS
FOR THE PERIOD OCTOBER 1, 1999 THROUGH SEPTEMBER 30, 2009**



C. Payroll Growth

Payroll growth is used for determining the amortization amount of the unfunded actuarial accrued liability (UAAL), which is calculated as a level percentage of payroll. Currently the payroll growth assumption is 4.00% per year.

We recommend lowering this assumption to 3.75%, keeping the payroll growth assumption equivalent to the underlying inflation assumption.

D. Salary Scale

The salary scale is used to determine participants' ultimate benefits in the Plan. Generally, a participant's salary will change over the long term in accordance with inflation, productivity growth and merit scale. The actuary should review available compensation data when selecting this assumption, including plan sponsor's current compensation practices and any anticipated changes; historical compensation increases and practices of the plan sponsor and other sponsors in the same industry or geographic area; and historical national wage and productivity increases.

The current assumption is an age and service-based set of rates, with higher increases assumed in a member's first ten years of service. Since more rapid career progression often occurs within the first few years of employment, the highest percentage increases in salary tend to happen in the first few years of service.

Based on our review, age does not appear to be a determining factor for salary increases. Rather, with Police Officers, years of service and/or rank are generally the determining factors for salary increases. The salary patterns for those with fewer than ten years of service were isolated and reviewed independently.

We recommend removing the age-based component of the salary scale and have the scale based solely on years of service. We also recommend modifying the rates in the first 10 years of service to more accurately reflect experience.

Analysis of the distribution of salary by years of service for the current population has shown that the highest increases do in fact occur during the first ten years of service, but that after the first couple of years that increases are relatively stable in the 6.5% - 7.5% range during the rest of the first ten years of service.

Experience also has shown that longer-service employees, on average, are getting slightly less-than-inflationary increases. We suggest that the ultimate rates be lowered to the new inflation rate of 3.75%.

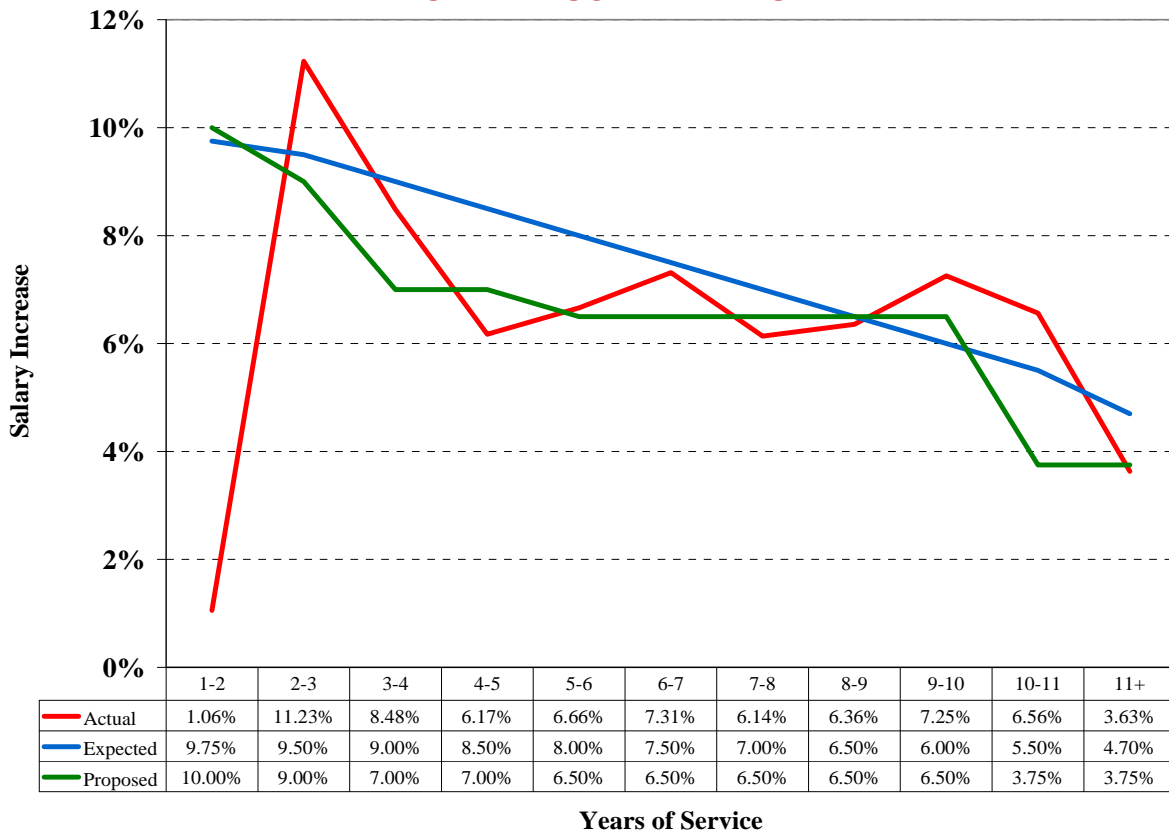
Table 2 displays the actual experience against the current assumption for participants with at least one full year of service. Graph 2 provides this information pictorially, along with the new proposed assumptions. The current and proposed salary scales are shown in *Appendix E*.

**TABLE 2:
SALARY SCALE EXPERIENCE
FOR THE PERIOD OCTOBER 1, 2004 THROUGH SEPTEMBER 30, 2009**

Service	Total Exposures	Actual Salary Increase For the Year Ended September 30,					5-Year Actual	5-Year Expected*
		2005	2006	2007	2008	2009		
1-2	177	-4.5%	-2.8%	6.8%	-3.8%	13.9%	1.1%	9.75%
2-3	171	10.1%	9.4%	10.5%	10.7%	12.7%	11.2%	9.50%
3-4	129	9.1%	9.0%	8.3%	7.0%	9.2%	8.5%	9.00%
4-5	142	7.8%	2.5%	5.2%	6.9%	7.6%	6.2%	8.50%
5-6	160	9.0%	3.1%	6.4%	7.0%	7.7%	6.7%	8.00%
6-7	180	9.6%	3.9%	8.5%	7.9%	8.3%	7.3%	7.50%
7-8	189	6.1%	3.5%	7.1%	7.1%	7.2%	6.1%	7.00%
8-9	197	7.1%	4.3%	5.8%	7.0%	7.2%	6.4%	6.50%
9-10	162	11.1%	4.9%	6.7%	9.3%	7.3%	7.3%	6.00%
10-11	133	7.0%	1.1%	5.0%	8.0%	6.6%	6.6%	5.50%
11 & over	1,755	5.3%	1.0%	2.9%	4.9%	4.0%	3.6%	4.70%
TOTAL	3,395	6.1%	2.1%	4.5%	5.5%	6.0%	4.9%	6.16%

* The expected increases are for the average Plan member.

**GRAPH 2:
SALARY SCALE RATES**



E. Administrative Expenses

Under Florida law, the current administration expense assumption is the actual expenses incurred for the prior Plan year. The following presents recent plan experience.

Year Ended September 30,	Actual Expenses
2005	\$218,790
2006	142,522
2007	161,106
2008	215,722
2009	191,341
TOTAL	\$929,481

III. Demographic Assumptions

The demographic assumptions used to value the plan reflect the expected occurrences of various events among participants of the plan. The assumptions should be reflect specific characteristics of the plan and produce reasonable results. A reasonable assumption is one that is expected to model the contingency being measured and not expected to produce significant gains and losses. The types of demographic assumptions used to measure pension obligations include, but are not limited to the following:

- Mortality;
- Disability;
- Termination of Employment (Withdrawal);
- Retirement; and
- Others, including percentage married, spousal age difference, and percentage of spouses expected to receive a benefit under a Joint & Survivor Annuity.

The Actuarial Standards Board (ASB) has adopted Actuarial Standard of Practice No. 35 (ASOP 35 - Selection of Demographic and Other Non-Economic Assumptions for Measuring Pension Obligations) to provide actuaries guidance in developing demographic assumptions. The standard recommends the actuary follow a general process for selecting demographic assumptions. The first step of the general procedure is to identify the types of assumptions to use. The actuary should consider relevant plan provisions that will affect timing and value of any potential benefit payments, all contingencies that give rise to benefits or loss of benefits and the characteristics of the covered group. The next step is to identify the relevant assumption universe. The assumption universe may include prior experience studies or general studies of trends relevant to the type of demographic assumption in addition to plan experience to the extent that it is credible. The final step is to select the specific assumption and evaluate the reasonableness of each assumption. The experience of the plan should be incorporated but not given undue weight to past experience if recent experience is attributable to a phenomenon that is unlikely to continue. For example, if recent rates of termination were due to a one-time reduction in workforce it may be unreasonable to assume that such rates will continue.

A. Mortality Rates

One of the most basic actuarial assumptions is the probability of death. The mortality assumption takes the form of a mortality table, which contains for each age in the table a probability of a person dying between that age and the next. There are three sets of mortality tables currently in use for the Fund. There are different mortality assumptions for non-disabled lives (which include members before retirement, and those that retired on or after October 1, 2004), for pre-October 1, 2004 non-disabled annuitants, and for disabled retirees. We studied the mortality rate for each of these groups individually but also combined the experience of the pre-retirement members with that of retirees and beneficiaries since the actual experience of the pre-retirement group alone did not yield enough credible experience.

Mortality was less than expected for active participants, pre-October 1, 2004 healthy annuitants, and disabled annuitants.

Currently, the Fund uses mortality rates based on the sex-distinct 1994 Group Annuity Mortality Table for participants prior to retirement and for non-disabled retirees/beneficiaries who retired on or after October 1, 2004. For pre-October 1, 2004 retirees, the mortality table is the 1983 Group Annuity Mortality Table. For disabled retirees, the mortality table is the applicable healthy mortality table set forward five years. In setting mortality assumptions, we generally take the approach that actual deaths will be 7% to 15% greater than assumed to allow for future improvements in life expectancy.

1. Pre-Retirement Mortality

The mortality experience of active members is important for several reasons. First, in combination with withdrawal and disability rates, the pre-retirement mortality table enables the actuary to estimate the number of individuals who will eventually be eligible for a retirement benefit, and thereby estimate the liability for those surviving individuals. In addition, the death of a member before retirement may result in a benefit payable to a beneficiary, and the liability for these benefits must be taken into account in the valuation.

As can be seen in the table below, mortality among active participants was even lower than expected, with the actual rates of pre-retirement death for the study period 23% of what the table predicted.

The following table provides a summary of pre-retirement mortality experience by gender for the study period:

Pre-Retirement Mortality	Exposures	Actual Deaths	Expected Deaths	Ratio of Actual Deaths to Expected Deaths
Males	2,972	0	3.86	0%
Females	590	1	0.44	227%
Total	3,562	1	4.30	23%

As shown above, the actual rates of pre-retirement death for the study period were about a quarter of what the table predicted. While the statistical sample is limited, we recommend changing from the current assumption of the 1994 Group Annuity Mortality table (1994 GAM)

to the sex-distinct RP-2000 Combined Healthy Mortality Table, set forward one year. This will provide a better expectation of future mortality patterns.

A complete table of current and proposed mortality rates is shown in *Appendix A*.

2. Post-Retirement Healthy Mortality

The mortality experience among the City of Orlando Police Officers' retirees and beneficiaries determines the durations over which retirement benefits are paid. Lower mortality rates mean longer benefit payment periods and, therefore, higher benefit costs.

The experience analysis for the past five years reveals that post-retirement participants have been dying at a rate slightly less than expected, implying we should anticipate longer life expectancies (or fewer deaths) than are currently being assumed. The actual mortality rate for pre-October 1, 2004 post-retirement males is about 6% lower than expected while the rate for females has been about 33% higher than expected. Overall, the actual number of retiree and beneficiary deaths was about 1% lower than the expected number.

The following table provides a summary of retiree and beneficiary experience by gender for the study period for the pre-October 1, 2004 annuitants:

Post-Retirement Healthy Mortality	Exposures	Actual Deaths	Expected Deaths	Ratio of Actual Deaths to Expected Deaths
Male	1,289	16	16.97	94%
Female	232	3	2.26	133%
Total	1,521	19	19.23	99%

The following table provides a summary of retiree and beneficiary experience by gender for the study period for the post-September 30, 2004 annuitants:

Post-Retirement Healthy Mortality	Exposures	Actual Deaths	Expected Deaths	Ratio of Actual Deaths to Expected Deaths
Male	111	1	0.43	233%
Female	45	1	0.47	213%
Total	156	2	0.90	222%

As previously discussed, when setting mortality assumptions we generally take the approach that actual deaths should be 7% to 15% greater than assumed to allow for future improvements in life expectancy. When the number of deaths assumed is too low, the cost of the plan is overstated.

The current assumption for annuitants that went into pay status prior to October 1, 2004 is the 1983 Group Annuity Mortality Table and for annuitants that went into pay status on or after October 1, 2004 the assumption is the 1994 Group Annuity Mortality Table. We recommend changing to the sex-distinct RP-2000 Combined Healthy Mortality Table, set forward one year, for all in-pay annuitants. This table will decrease the expected number of pre-retirement deaths, if the historical data for this group over the study period is an accurate predictor of the future, and add a margin for retirees and beneficiaries. *Due to the limited amount of post-October 1, 2004 retirement experience, pre-October 1, 2004 experience was the basis for the assumption change.*

On the following pages, Table 3 shows the post-retirement healthy mortality experience for the study period for the pre-October 1, 2004 annuitants. Graphs 3A and 3B illustrate this information for males and females. A complete table of current and proposed mortality rates is shown in *Appendix A*.

TABLE 3:
POST-RETIREMENT HEALTHY MORTALITY
For the Period October 1, 2004 through September 30, 2009

Male Annuitants prior to October 1, 2004

Average Age	Number Exposed	Actual Deaths	Actual Mortality Rate	Expected Deaths	Current Mortality Rate	Ratio of Actual Rate to Expected Rate	Proposed Mortality Rate
Under 55	231	0	0.00%	1.03	0.45%	0.00%	0.28%
55-59	440	1	0.23%	3.20	0.73%	31.25%	0.55%
60-64	352	4	1.14%	3.84	1.09%	104.17%	0.96%
65-69	134	3	2.24%	2.57	1.92%	116.73%	1.74%
70-74	83	1	1.20%	2.78	3.35%	35.97%	3.06%
75-79	29	2	6.90%	1.51	5.21%	132.45%	4.97%
80-84	12	2	16.67%	1.05	8.75%	190.48%	8.83%
85-89	8	3	37.50%	0.99	12.38%	303.03%	13.63%
90 & Over	0	0	0.00%	0.00	0.00%	0.00%	0.00%
Total	1,289	16	1.24%	16.97	1.32%	94.28%	1.16%

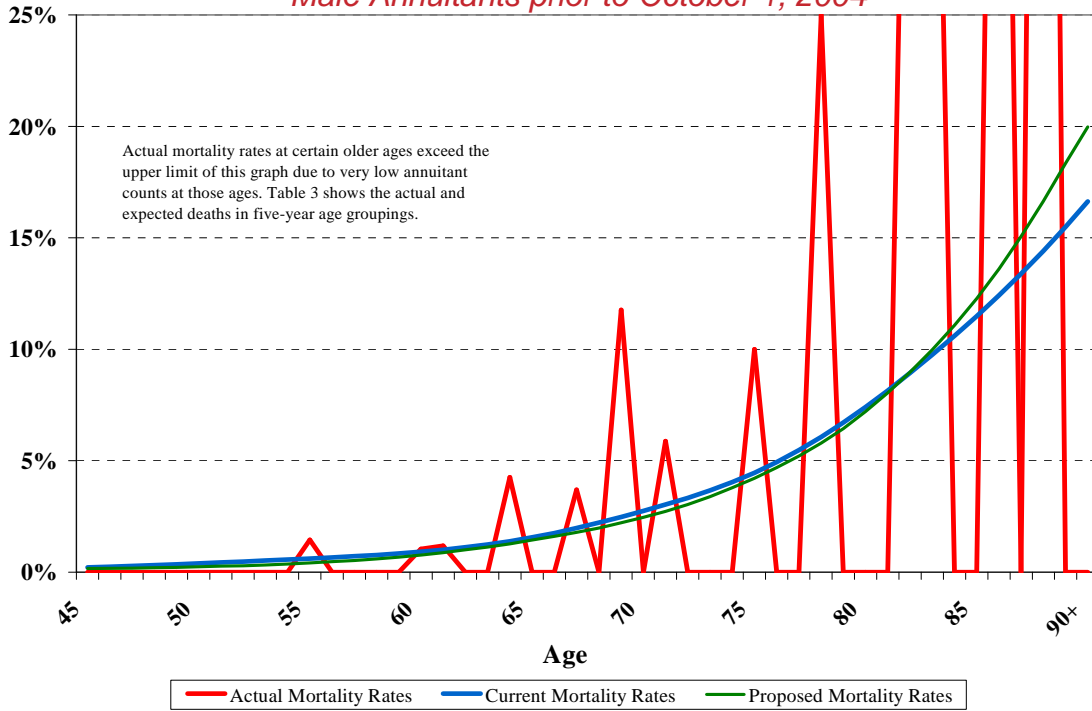
Female Annuitants prior to October 1, 2004

Average Age	Number Exposed	Actual Deaths	Actual Mortality Rate	Expected Deaths	Current Mortality Rate	Ratio of Actual Rate to Expected Rate	Proposed Mortality Rate
Under 55	109	0	0.00%	0.16	0.15%	0.00%	0.17%
55-59	29	3	10.34%	0.09	0.31%	3333.33%	0.41%
60-64	37	0	0.00%	0.19	0.51%	0.00%	0.73%
65-69	12	0	0.00%	0.11	0.92%	0.00%	1.33%
70-74	21	0	0.00%	0.34	1.62%	0.00%	2.29%
75-79	9	0	0.00%	0.28	3.11%	0.00%	3.78%
80-84	9	0	0.00%	0.47	5.22%	0.00%	6.22%
85-89	2	0	0.00%	0.17	8.50%	0.00%	11.00%
90 & Over	4	0	0.00%	0.45	11.25%	0.00%	14.50%
Total	232	3	1.29%	2.26	0.97%	132.74%	1.25%

Grand Total	1,521	19	1.25%	19.23	1.26%	98.80%	1.17%
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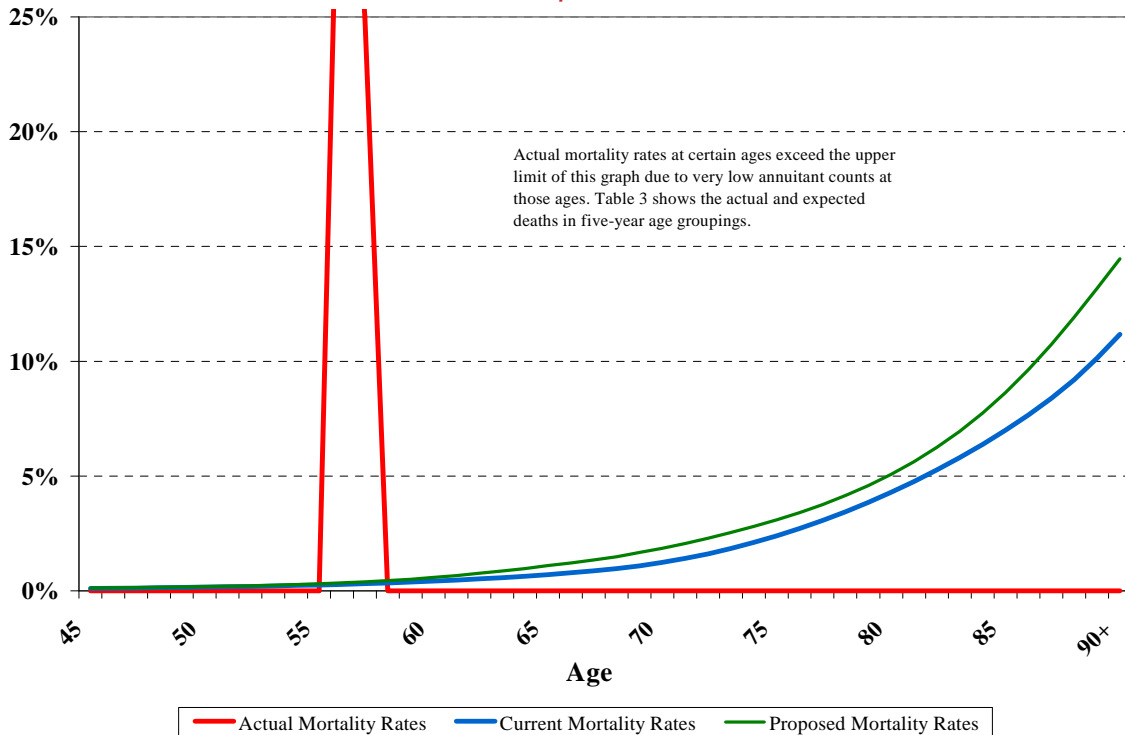
**GRAPH 3A:
POST-RETIREMENT HEALTHY MORTALITY RATES
For the Period October 1, 2004 through September 30, 2009**

Male Annuitants prior to October 1, 2004



**GRAPH 3B:
POST-RETIREMENT HEALTHY MORTALITY RATES
For the Period October 1, 2004 through September 30, 2009**

Female Annuitants prior to October 1, 2004



3. Disabled Annuitant Mortality

Mortality experience among disabled annuitants is studied separately from other retirees because disabled retirees generally exhibit higher levels of mortality. The current assumption is the sex-distinct 1983 Group Annuity Mortality Table with ages set forward 5 years for annuitants retiring prior to October 1, 2004 and the sex-distinct 1994 Group Annuity Mortality Table with ages set forward 5 years for annuitants retiring on or after October 1, 2004.

For the study period, the number of deaths among disabled retirees was less than expected. The following table summarizes the disabled annuitant mortality experience:

Disabled Annuitant Mortality	Exposures	Actual Deaths	Expected Deaths	Ratio of Actual Deaths to Expected Deaths
Male	443	3	6.13	49%
Female	81	0	0.20	0%
Total	524	3	6.33	47%

We recommend changing the mortality assumption for disabled lives to the RP-2000 Combined Mortality Table, set forward one year for both males and females. We are recommending this same table for active and healthy in-pay annuitants. Based on recent mortality experience, we are not recommending a set forward of the rates.

A complete table of current and proposed mortality rates is shown in *Appendix B*.

B. Turnover Rates

The assumed turnover rates used in annual actuarial valuations project the percentage of employees at each age or service duration that will terminate employment before retirement. These rates take into account possible terminations for all causes other than retirement, death, or disability. They include both voluntary and involuntary withdrawals from service.

Terminations before retirement give rise to some benefit rights, but may also involve the forfeiture of a portion of previously accrued benefits. Forfeitures resulting from turnover are anticipated in advance and help finance benefits which become payable to other employees.

Currently, the turnover assumption used in the valuation is based on the members' age, with an additive adjustment for each of the first five years of service. We recommend the continuation of this basic structure. The current and proposed assumptions are gender-neutral.

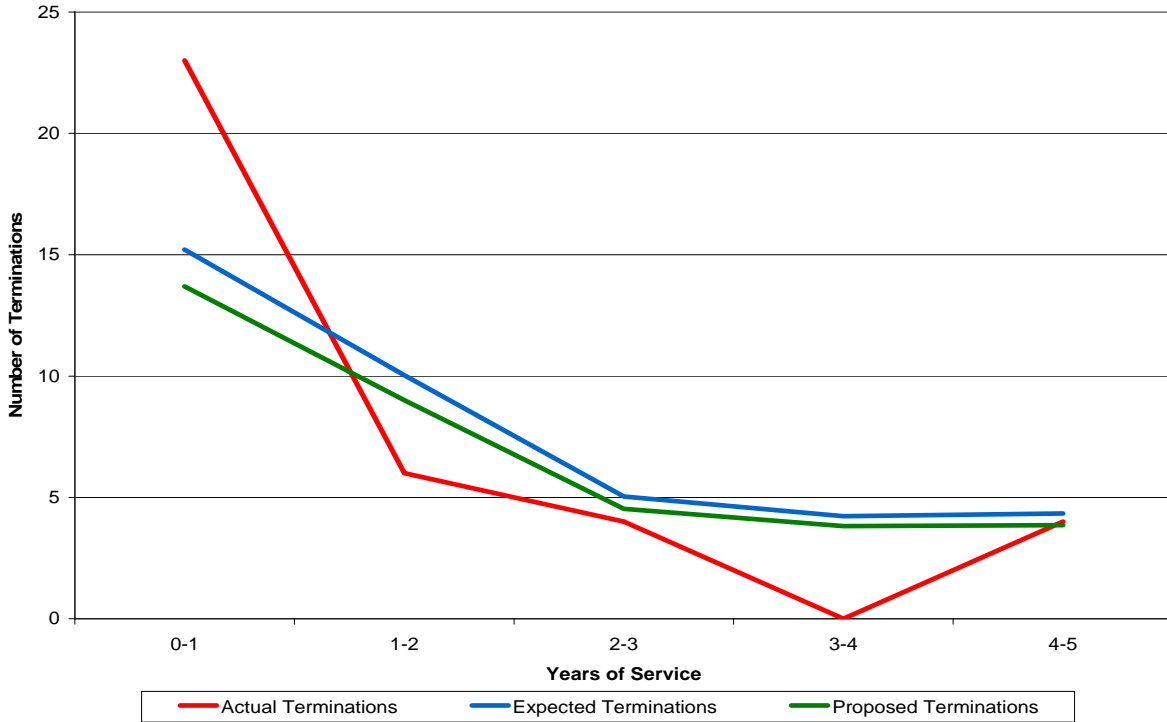
The actual number of terminations during both the select (five years) and ultimate (greater than five years) periods were slightly less than expected. We recommend that the select period rates be reduced by 10% of the current assumption and the ultimate period rates be reduced by 30% of the current assumption.

The following table summarizes turnover experience by age and service:

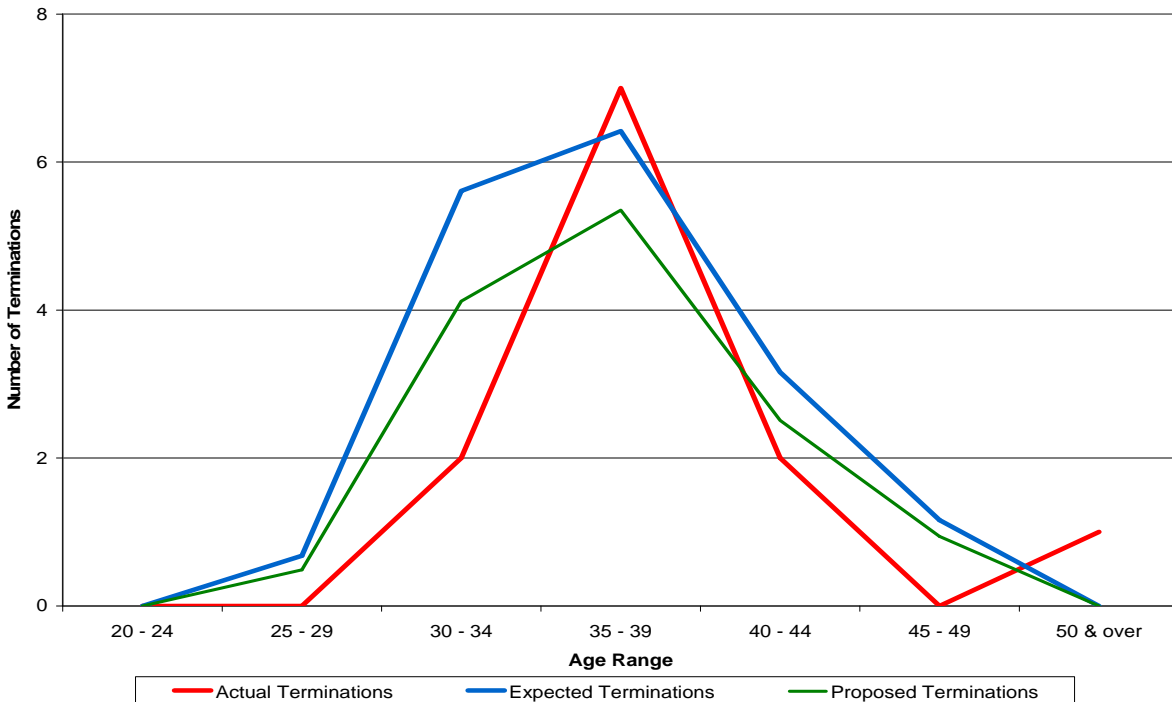
Age Range	Less Than 5 Years of Service		At Least 5 Years of Service	
	Actual	Expected	Actual	Expected
20 – 24	3	3.77	0	0.00
25 – 29	13	15.53	0	0.68
30 – 34	11	10.70	2	5.61
35 – 39	6	6.16	7	6.42
40 – 44	4	2.31	2	3.16
45 – 49	0	0.36	0	1.16
50 & over	0	0.03	1	0.00
Total	37	38.86	12	17.03

A comparison of the actual experience, expected experience, and proposed experience, i.e., what the expected experience would have been under the proposed rates, is illustrated in Graphs 4A and 4B. A complete table of current and proposed turnover rates is shown in *Appendix C*.

**GRAPH 4A:
ACTUAL VS EXPECTED TURNOVER RATES
For Participants with Less than Five Years of Service
For the Period October 1, 2004 through September 30, 2009**



**GRAPH 4B:
ACTUAL VS EXPECTED TURNOVER RATES
For Participants with at least Five Years of Service
For the Period October 1, 2004 through September 30, 2009**

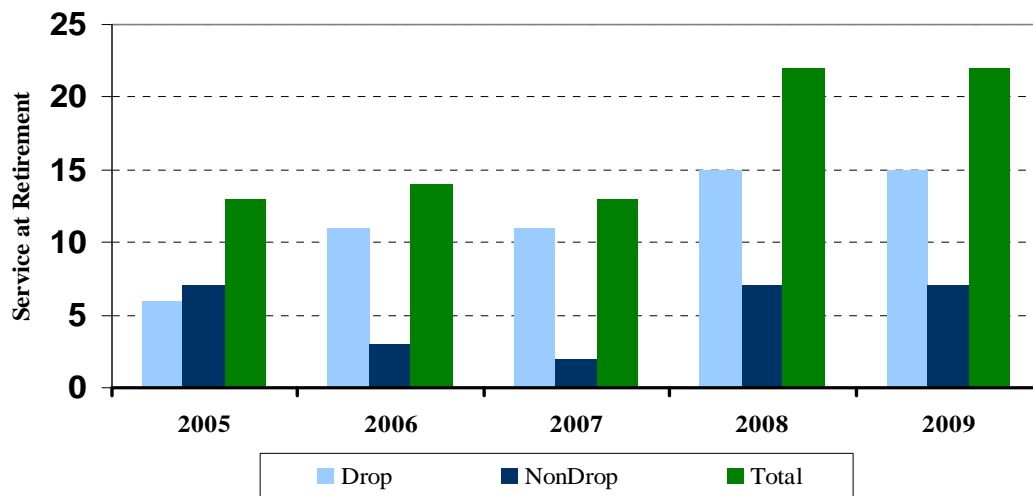


C. Retirement Rates

Under the Plan, participants are eligible to retire with an unreduced benefit after they have attained 20 years of service, regardless of age, or with a reduced benefit once they have reached 47 years of age with 10 years of service. Participants are eligible to retire with a BACKDROP of up to three years anytime after completing 21 years of service, but may not drop back prior to 20 years of service. The majority of participants now retire with the BACKDROP.

Retirement is heavily subsidized due a member’s ability to leave at any age with 20 years of service. Therefore, an accurate prediction of the ages at which members will retire is essential in order to obtain a realistic assessment of the system's liabilities for retirement benefits. Since the retirement decrement accounts for the bulk of the plan’s active liability, it is essential to review this assumption thoroughly in order to predict the relative importance of retirement benefits versus ancillary (i.e., death and disability) benefits, and to properly measure the overall magnitude of retirement liabilities.

There were 84 retirements from active service during the study period. As the graph below illustrates, the actual total number of DROP retirements far exceeded the number of non-DROP retirements during this period.



The actual number of retirements has been greater than expected as shown by the table below.

Exposures	Actual Retirements	Expected Retirements	Ratio of Actual Retirements to Expected Retirements
1,869	84	77	109%

There were no non-disability retirements for participants with less than 20 years of experience in the study period. As a result, we have removed the assumed rates of retirement for members with less than 20 years of service. We have also modified the existing retirement rates for 20 or more years of service to better reflect the shift in retirement patterns that has developed after the inclusion of the BACKDROP in 2003.

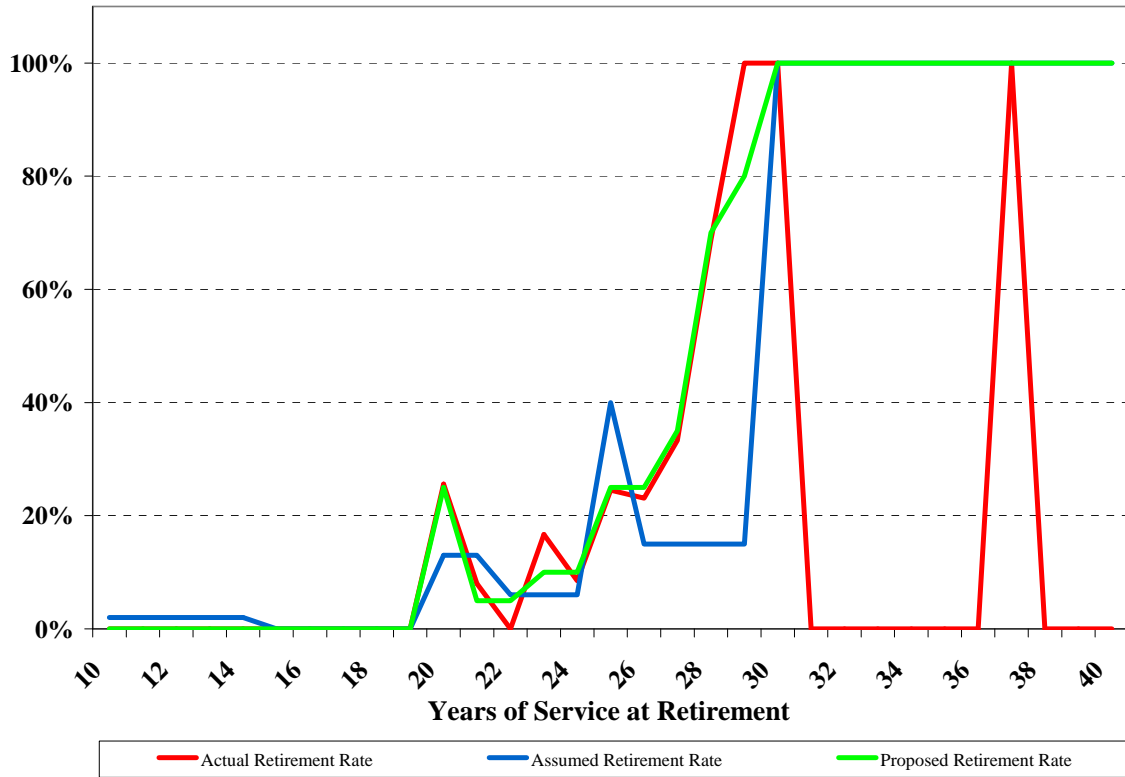
Table 5 shows the actual, expected, and proposed number of retirements.

Graph 5 displays the actual, expected, and new proposed retirement rates. A complete table of proposed retirement rates is shown in *Appendix D*.

Table 5:
RETIREMENT RATES
For the Period October 1, 2004 through September 30, 2009

Years of Service at Retirement	Exposures	Actual Non-Disability Retirements	Actual Retirement Rate	Expected Retirements	Current Retirement Rate	Ratio of Actual to Expected Retirements	Proposed Rate	Proposed Retirements
10-14	741	0	0.00%	14.82	2.00%	0.00%	0.00%	0.00
15-19	715	0	0.00%	0.00	0.00%	0.00%	0.00%	0.00
20	86	22	25.58%	11.18	13.00%	196.78%	25.00%	21.50
21	50	4	8.00%	6.50	13.00%	61.54%	5.00%	2.50
22	48	0	0.00%	2.88	6.00%	0.00%	5.00%	2.40
23	48	8	16.67%	2.88	6.00%	277.78%	10.00%	4.80
24	47	4	8.51%	2.82	6.00%	141.84%	10.00%	4.70
25	53	13	24.53%	21.20	40.00%	61.32%	25.00%	13.25
26	39	9	23.08%	5.85	15.00%	153.85%	25.00%	9.75
27	18	6	33.33%	2.70	15.00%	222.22%	35.00%	6.30
28	16	11	68.75%	2.40	15.00%	458.33%	70.00%	11.20
29	5	5	100.00%	0.75	15.00%	666.67%	80.00%	4.00
30	1	1	100.00%	1.00	100.00%	100.00%	100.00%	1.00
31	0	0	0.00%	0.00	100.00%	0.00%	100.00%	0.00
32	0	0	0.00%	0.00	100.00%	0.00%	100.00%	0.00
33	0	0	0.00%	0.00	100.00%	0.00%	100.00%	0.00
34	0	0	0.00%	0.00	100.00%	0.00%	100.00%	0.00
35	0	0	0.00%	0.00	100.00%	0.00%	100.00%	0.00
36	1	0	0.00%	1.00	100.00%	0.00%	100.00%	1.00
37	1	1	100.00%	1.00	100.00%	100.00%	100.00%	1.00
38	0	0	0.00%	0.00	100.00%	0.00%	100.00%	0.00
39	0	0	0.00%	0.00	100.00%	0.00%	100.00%	0.00
40	0	0	0.00%	0.00	100.00%	0.00%	100.00%	0.00
Total	1,869	84	4.49%	76.98	4.12%	109.12%	4.46%	83.40

**Graph 5:
RETIREMENT RATES
For the Period October 1, 2004 through September 30, 2009**



D. Disability Rates

Participants are eligible for immediate disability benefits, regardless of whether they become disabled in the line of duty or outside the line of duty.

Disability rate tables function in the same way as mortality tables. The rate at each age indicates the probability of becoming disabled before the next age. Disability rates add liability for the value of the disability benefits, but lessen the value of retirement benefits ultimately payable, since anyone who becomes disabled will not receive normal retirement benefits.

The current disability table is based on rates developed in previous experience studies. There is no distinction made based on gender. There were 33 disabilities during the study period, compared to 25 expected. As a result, we are recommending an increase in the existing disability assumption by removing the 80% modification of the current disability table and replacing it with a modification of 105% of the current table. This recommendation increases the disability rates by 31.25%.

Chart 6 and Graph 6 summarize the experience during the five-year period. Table 9 shows the actual, expected, and proposed rates of disability and Graph 9 illustrates this information.

A complete table of current and proposed disability rates is shown in *Appendix D*.

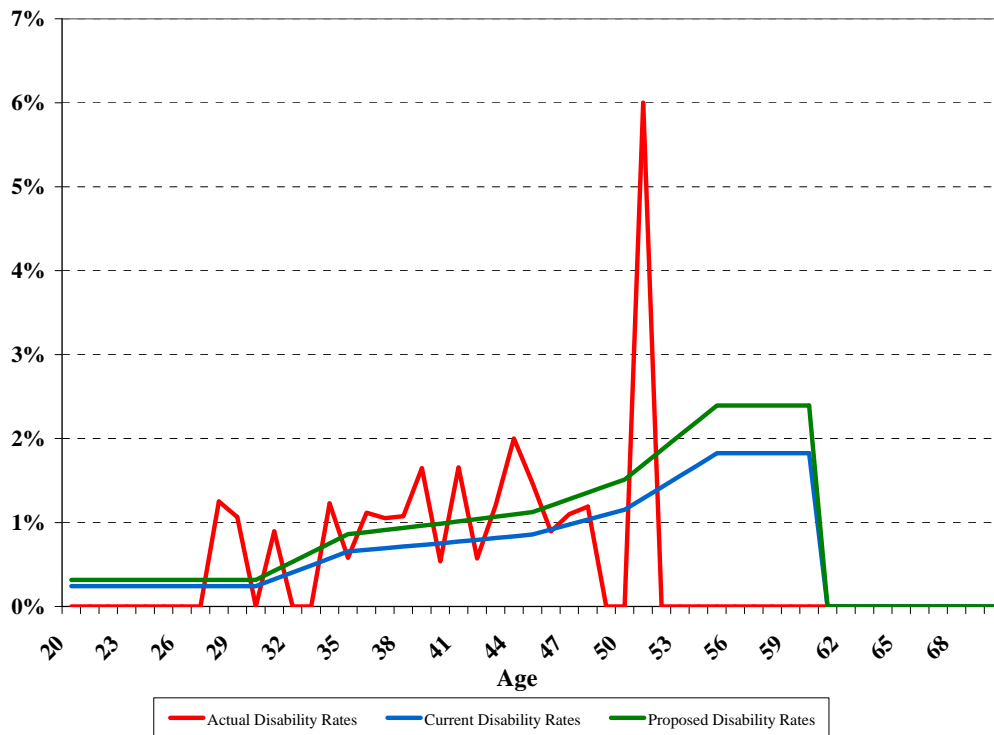
E. Other Assumptions

A review of the retiree data indicates approximately 80% of retirees have spousal information on record at retirement, so we recommend retention of the 80% married assumption. After retirement, it does not appear that spousal information is updated annually to reflect changes in spouse status, including spousal deaths. Consequently, over the last ten years, only about 61% of the retirees who died with spouse or beneficiary data in their valuation record were actually due a survivor benefit. Therefore, we are introducing a 61% factor into the calculation of liabilities for retirees entitled to a 75% survivor benefit. We will effectively value the 75% benefit at $75\% \times 61\% = 46\%$ until a death occurs and the status of the survivor benefit is clarified.

**TABLE 6:
DISABILITY RATES
For the Period October 1, 2004 through September 30, 2009**

Average Age	Number Exposed	Actual Disabilities	Actual Disability Rate	Expected Disabilities	Current Disability Rate	Ratio of Actual Rate to Expected Rate	Proposed Disability Rate
Under 25	55	0	0.00%	0.13	0.24%	0.00%	0.32%
25-29	344	2	0.58%	0.83	0.24%	242.25%	0.32%
30-34	646	3	0.46%	2.77	0.43%	108.36%	0.56%
35-39	910	10	1.10%	6.32	0.69%	158.13%	0.91%
40-44	859	10	1.16%	6.80	0.79%	147.08%	1.04%
45-49	490	5	1.02%	4.68	0.95%	106.92%	1.25%
50-54	194	3	1.55%	2.63	1.36%	113.89%	1.78%
55-59	51	0	0.00%	0.93	1.82%	0.00%	2.39%
60-64	8	0	0.00%	0.07	0.91%	0.00%	1.20%
65-69	2	0	0.00%	0.00	0.00%	0.00%	0.00%
Total	3,559	33	0.93%	25.16	0.71%	131.15%	0.93%

**GRAPH 6:
DISABILITY RATES
For the Period October 1, 2004 through September 30, 2009**



IV. Actuarial Methods

A. Actuarial Cost Method

Actuarial cost methods are the means by which the present value of future benefits are allocated over the working lifetime of plan participants. The most commonly used method for public sector plans is the Entry Age Normal Method.

Under the Entry Age Normal method, the annual normal cost is a function of the member's plan entry age and represents the share of the cost of the expected retirement benefit that is allocated to each year. The allocation is designed to produce a normal cost that remains level as a percentage of payroll for the working career of the member. The Entry Age Normal method develops a normal cost that stays constant as a percentage of payroll for each member.

The Segal Company uses a variation of the Entry Age Normal method called the Replacement Life method. It recognizes that every member that retires is likely to be replaced by a new member. This method bases the normal cost exclusively on the most recent plan provisions, and allows historical plan structures to flow into the actuarial accrued liability calculation. We have found that this approach provides a more stable and level normal cost calculation, because the normal cost for current members and new members are based on exactly the same plan design.

We are not recommending a change in the Actuarial Cost Method.

B. Asset Smoothing

The current asset valuation method is a four-year smoothed value of assets, with a 20% corridor around market value. The actuarial value of assets is calculated as the actuarial value of assets from the prior year plus net new money plus 25% of the asset appreciation/(depreciation) for the current year and each of the prior three years.

We recommend changing this method to a five-year smoothed value of assets. The difference between expected return and actual return on a market value of assets basis is recognized over a five-year period. We recommend maintaining the 20% corridor around market value. We also recommend implementing this change retroactively. Prior asset amounts will not change, but we recommend setting up gain/(loss) bases as if this method had been in effect for the prior five years.

We believe this method complies with the spirit and letter of ASOP 44, which governs for Actuaries the reasonableness of asset smoothing methods.

C. Amortization of Unfunded Actuarial Accrued Liability

The amortization method for amortizing the unfunded actuarial accrued liability (UAAL) is based on a level percent-of-pay methodology. Gains and losses are amortized over 15 years, while changes in assumptions and methods, along with plan changes, are amortized over 25 years. Per Florida statute, separate bases are maintained for each year's gain or loss, or any assumption, plan, or method changes.

We do not suggest a change in the amortization periods or amortization methodology for the UAAL at this time.

V. Appendix

Appendix A. Proposed Mortality Rates

Age	Pre-Retirement Healthy Mortality			
	Current		Proposed	
	Male	Female	Male	Female
20	0.05%	0.03%	0.04%	0.02%
21	0.05%	0.03%	0.04%	0.02%
22	0.06%	0.03%	0.04%	0.02%
23	0.06%	0.03%	0.04%	0.02%
24	0.06%	0.03%	0.04%	0.02%
25	0.07%	0.03%	0.04%	0.02%
26	0.07%	0.03%	0.04%	0.02%
27	0.07%	0.03%	0.04%	0.02%
28	0.08%	0.03%	0.04%	0.02%
29	0.08%	0.03%	0.04%	0.03%
30	0.08%	0.04%	0.05%	0.03%
31	0.08%	0.04%	0.06%	0.04%
32	0.08%	0.04%	0.06%	0.04%
33	0.08%	0.04%	0.07%	0.04%
34	0.08%	0.04%	0.08%	0.05%
35	0.09%	0.05%	0.08%	0.05%
36	0.09%	0.05%	0.09%	0.06%
37	0.09%	0.06%	0.10%	0.06%
38	0.09%	0.06%	0.10%	0.06%
39	0.10%	0.07%	0.11%	0.07%
40	0.11%	0.07%	0.11%	0.08%
41	0.12%	0.08%	0.12%	0.09%
42	0.13%	0.08%	0.13%	0.09%
43	0.14%	0.09%	0.14%	0.10%
44	0.15%	0.09%	0.15%	0.11%
45	0.16%	0.10%	0.16%	0.12%
46	0.17%	0.10%	0.17%	0.13%
47	0.19%	0.11%	0.19%	0.14%
48	0.21%	0.12%	0.20%	0.16%
49	0.23%	0.13%	0.21%	0.17%
50	0.26%	0.14%	0.24%	0.19%
51	0.29%	0.16%	0.27%	0.20%
52	0.32%	0.17%	0.29%	0.22%
53	0.36%	0.19%	0.32%	0.24%
54	0.40%	0.21%	0.36%	0.27%
55	0.44%	0.23%	0.42%	0.31%
56	0.49%	0.26%	0.47%	0.35%
57	0.56%	0.29%	0.53%	0.39%
58	0.63%	0.34%	0.59%	0.44%
59	0.71%	0.39%	0.67%	0.51%
60	0.80%	0.44%	0.77%	0.58%
61	0.90%	0.51%	0.88%	0.67%
62	1.01%	0.58%	1.00%	0.76%
63	1.15%	0.67%	1.13%	0.86%
64	1.29%	0.76%	1.27%	0.97%
65	1.45%	0.86%	1.44%	1.10%
66	1.62%	0.97%	1.61%	1.22%
67	1.80%	1.08%	1.79%	1.34%
68	1.99%	1.18%	1.98%	1.49%
69	2.17%	1.27%	2.22%	1.67%
70	2.37%	1.37%	2.46%	1.86%

Age	Post-Retirement Healthy Mortality for					
	Current				Proposed	
	Annuitants Retiring Prior to October 1, 2004		Annuitants Retiring On or After October 1, 2004		All Annuitants	
Age	Male	Female	Male	Female	Male	Female
40	0.12%	0.07%	0.11%	0.07%	0.11%	0.08%
41	0.14%	0.07%	0.12%	0.08%	0.12%	0.09%
42	0.15%	0.08%	0.13%	0.08%	0.13%	0.09%
43	0.17%	0.08%	0.14%	0.09%	0.14%	0.10%
44	0.19%	0.09%	0.15%	0.09%	0.15%	0.11%
45	0.22%	0.10%	0.16%	0.10%	0.16%	0.12%
46	0.25%	0.11%	0.17%	0.10%	0.17%	0.13%
47	0.28%	0.12%	0.19%	0.11%	0.19%	0.14%
48	0.31%	0.14%	0.21%	0.12%	0.20%	0.16%
49	0.35%	0.15%	0.23%	0.13%	0.21%	0.17%
50	0.39%	0.16%	0.26%	0.14%	0.24%	0.19%
51	0.43%	0.18%	0.29%	0.16%	0.27%	0.20%
52	0.48%	0.19%	0.32%	0.17%	0.29%	0.22%
53	0.52%	0.21%	0.36%	0.19%	0.32%	0.24%
54	0.57%	0.23%	0.40%	0.21%	0.36%	0.27%
55	0.61%	0.25%	0.44%	0.23%	0.42%	0.31%
56	0.66%	0.28%	0.49%	0.26%	0.47%	0.35%
57	0.71%	0.31%	0.56%	0.29%	0.53%	0.39%
58	0.77%	0.34%	0.63%	0.34%	0.59%	0.44%
59	0.84%	0.38%	0.71%	0.39%	0.67%	0.51%
60	0.92%	0.42%	0.80%	0.44%	0.77%	0.58%
61	1.01%	0.47%	0.90%	0.51%	0.88%	0.67%
62	1.11%	0.52%	1.01%	0.58%	1.00%	0.76%
63	1.24%	0.58%	1.15%	0.67%	1.13%	0.86%
64	1.39%	0.64%	1.29%	0.76%	1.27%	0.97%
65	1.56%	0.71%	1.45%	0.86%	1.44%	1.10%
66	1.76%	0.78%	1.62%	0.97%	1.61%	1.22%
67	1.98%	0.87%	1.80%	1.08%	1.79%	1.34%
68	2.22%	0.97%	1.99%	1.18%	1.98%	1.49%
69	2.48%	1.09%	2.17%	1.27%	2.22%	1.67%
70	2.75%	1.24%	2.37%	1.37%	2.46%	1.86%
71	3.04%	1.41%	2.60%	1.50%	2.73%	2.07%
72	3.34%	1.62%	2.85%	1.65%	3.04%	2.30%
73	3.67%	1.85%	3.12%	1.83%	3.39%	2.55%
74	4.04%	2.11%	3.41%	2.04%	3.78%	2.81%
75	4.46%	2.40%	3.72%	2.27%	4.22%	3.10%
76	4.94%	2.72%	4.09%	2.53%	4.69%	3.41%
77	5.48%	3.07%	4.52%	2.84%	5.21%	3.76%
78	6.07%	3.45%	5.02%	3.17%	5.79%	4.15%
79	6.71%	3.85%	5.59%	3.54%	6.44%	4.59%
80	7.41%	4.29%	6.20%	3.94%	7.20%	5.08%
81	8.15%	4.77%	6.86%	4.40%	8.05%	5.63%
82	8.93%	5.27%	7.55%	4.92%	8.97%	6.25%
83	9.75%	5.81%	8.25%	5.49%	9.98%	6.95%
84	10.60%	6.38%	8.96%	6.10%	11.08%	7.74%
85	11.48%	6.99%	9.72%	6.77%	12.28%	8.64%
86	12.42%	7.66%	10.58%	7.53%	13.60%	9.63%
87	13.39%	8.39%	11.57%	8.40%	15.06%	10.73%
88	14.41%	9.19%	12.70%	9.38%	16.64%	11.92%
89	15.49%	10.14%	13.95%	10.46%	18.34%	13.17%
90	16.63%	11.18%	15.29%	11.63%	19.98%	14.46%

Mortality rates are based on RP-2000 Combined Mortality table set forward 1 year.

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Appendix B. Proposed Disability Mortality Rates

Age	Disabled Annuitant Mortality					
	Current				Proposed	
	Annuitants Disabled Prior to October 1, 2004		Annuitants Disabled On or After October 1, 2004		All Annuitants	
	Male	Female	Male	Female	Male	Female
40	0.22%	0.10%	0.16%	0.10%	0.11%	0.08%
41	0.25%	0.11%	0.17%	0.10%	0.12%	0.09%
42	0.28%	0.12%	0.19%	0.11%	0.13%	0.09%
43	0.31%	0.14%	0.21%	0.12%	0.14%	0.10%
44	0.35%	0.15%	0.23%	0.13%	0.15%	0.11%
45	0.39%	0.16%	0.26%	0.14%	0.16%	0.12%
46	0.43%	0.18%	0.29%	0.16%	0.17%	0.13%
47	0.48%	0.19%	0.32%	0.17%	0.19%	0.14%
48	0.52%	0.21%	0.36%	0.19%	0.20%	0.16%
49	0.57%	0.23%	0.40%	0.21%	0.21%	0.17%
50	0.61%	0.25%	0.44%	0.23%	0.24%	0.19%
51	0.66%	0.28%	0.49%	0.26%	0.27%	0.20%
52	0.71%	0.31%	0.56%	0.29%	0.29%	0.22%
53	0.77%	0.34%	0.63%	0.34%	0.32%	0.24%
54	0.84%	0.38%	0.71%	0.39%	0.36%	0.27%
55	0.92%	0.42%	0.80%	0.44%	0.42%	0.31%
56	1.01%	0.47%	0.90%	0.51%	0.47%	0.35%
57	1.11%	0.52%	1.01%	0.58%	0.53%	0.39%
58	1.24%	0.58%	1.15%	0.67%	0.59%	0.44%
59	1.39%	0.64%	1.29%	0.76%	0.67%	0.51%
60	1.56%	0.71%	1.45%	0.86%	0.77%	0.58%
61	1.76%	0.78%	1.62%	0.97%	0.88%	0.67%
62	1.98%	0.87%	1.80%	1.08%	1.00%	0.76%
63	2.22%	0.97%	1.99%	1.18%	1.13%	0.86%
64	2.48%	1.09%	2.17%	1.27%	1.27%	0.97%
65	2.75%	1.24%	2.37%	1.37%	1.44%	1.10%
66	3.04%	1.41%	2.60%	1.50%	1.61%	1.22%
67	3.34%	1.62%	2.85%	1.65%	1.79%	1.34%
68	3.67%	1.85%	3.12%	1.83%	1.98%	1.49%
69	4.04%	2.11%	3.41%	2.04%	2.22%	1.67%
70	4.46%	2.40%	3.72%	2.27%	2.46%	1.86%
71	4.94%	2.72%	4.09%	2.53%	2.73%	2.07%
72	5.48%	3.07%	4.52%	2.84%	3.04%	2.30%
73	6.07%	3.45%	5.02%	3.17%	3.39%	2.55%
74	6.71%	3.85%	5.59%	3.54%	3.78%	2.81%
75	7.41%	4.29%	6.20%	3.94%	4.22%	3.10%
76	8.15%	4.77%	6.86%	4.40%	4.69%	3.41%
77	8.93%	5.27%	7.55%	4.92%	5.21%	3.76%
78	9.75%	5.81%	8.25%	5.49%	5.79%	4.15%
79	10.60%	6.38%	8.96%	6.10%	6.44%	4.59%
80	11.48%	6.99%	9.72%	6.77%	7.20%	5.08%
81	12.42%	7.66%	10.58%	7.53%	8.05%	5.63%
82	13.39%	8.39%	11.57%	8.40%	8.97%	6.25%
83	14.41%	9.19%	12.70%	9.38%	9.98%	6.95%
84	15.49%	10.14%	13.95%	10.46%	11.08%	7.74%
85	16.63%	11.18%	15.29%	11.63%	12.28%	8.64%
86	17.82%	12.31%	16.73%	12.88%	13.60%	9.63%
87	19.05%	13.56%	18.23%	14.20%	15.06%	10.73%
88	20.30%	14.96%	19.84%	15.59%	16.64%	11.92%
89	21.79%	16.51%	21.57%	17.07%	18.34%	13.17%
90	23.41%	18.24%	23.36%	18.62%	19.98%	14.46%

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Appendix C. Proposed Turnover Rates

Age	For Employees with Service Less Than 1 Year		For Employees With Service 1 to 2 Years		For Employees With Service 2 to 3 Years		For Employees With Service 3 to 4 Years		For Employees With Service 4 to 5 Years		For Employees With Service 5 or More Years	
	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed
20	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	7.50%	5.25%
21	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	5.63%	3.94%
22	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	3.75%	2.63%
23	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	3.00%	2.10%
24	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	2.63%	1.84%
25	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	1.88%	1.31%
26	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	1.84%	1.29%
27	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	1.80%	1.26%
28	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	1.76%	1.23%
29	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	1.73%	1.21%
30	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	1.69%	1.18%
31	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	1.62%	1.13%
32	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	1.55%	1.08%
33	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	1.47%	1.03%
34	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	1.40%	0.98%
35	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	1.33%	0.93%
36	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	1.17%	0.82%
37	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	1.02%	0.71%
38	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.86%	0.60%
39	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.70%	0.49%
40	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.54%	0.38%
41	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.49%	0.34%
42	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.44%	0.31%
43	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.39%	0.27%
44	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.33%	0.23%
45	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.28%	0.20%
46	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.28%	0.20%
47	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.28%	0.20%
48	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.28%	0.20%
49	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.28%	0.20%
50	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.00%	0.00%
51	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.00%	0.00%
52	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.00%	0.00%
53	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.00%	0.00%
54	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.00%	0.00%
55	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.00%	0.00%
56	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.00%	0.00%
57	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.00%	0.00%
58	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.00%	0.00%
59	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.00%	0.00%
60+	7.50%	6.75%	5.63%	5.07%	3.75%	3.38%	3.00%	2.70%	2.63%	2.37%	0.00%	0.00%

Note: Turnover rates cutout at eligibility for early retirement.

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Appendix D. Proposed Disability Rates and Retirement Rates

Age	Current Disability Rates	Proposed Disability Rates
20	0.24%	0.32%
21	0.24%	0.32%
22	0.24%	0.32%
23	0.24%	0.32%
24	0.24%	0.32%
25	0.24%	0.32%
26	0.24%	0.32%
27	0.24%	0.32%
28	0.24%	0.32%
29	0.24%	0.32%
30	0.24%	0.32%
31	0.32%	0.42%
32	0.41%	0.53%
33	0.49%	0.64%
34	0.57%	0.75%
35	0.66%	0.86%
36	0.68%	0.89%
37	0.69%	0.91%
38	0.71%	0.94%
39	0.73%	0.96%
40	0.75%	0.99%
41	0.77%	1.01%
42	0.79%	1.04%
43	0.81%	1.07%
44	0.84%	1.10%
45	0.86%	1.12%
46	0.92%	1.20%
47	0.97%	1.28%
48	1.03%	1.36%
49	1.09%	1.43%
50	1.15%	1.51%
51	1.29%	1.69%
52	1.42%	1.86%
53	1.56%	2.04%
54	1.69%	2.22%
55	1.82%	2.39%
56	1.82%	2.39%
57	1.82%	2.39%
58	1.82%	2.39%
59	1.82%	2.39%
60	1.82%	2.39%
61	0.00%	0.00%
62	0.00%	0.00%
63	0.00%	0.00%
64	0.00%	0.00%
65	0.00%	0.00%
66	0.00%	0.00%
67	0.00%	0.00%
68	0.00%	0.00%
69	0.00%	0.00%
70	0.00%	0.00%

Years of Service	Current Retirement Rates	Years of Service	Proposed Retirement Rates
Less than 10	0%	Less than 20	0%
10-14	2%	20	25%
15-19	0%	21-22	5%
20-21	13%	23-24	10%
22-24	6%	25-26	25%
25	40%	27	35%
26-29	15%	28	70%
30 or more	100%	29	80%
		30 or more	100%

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Appendix E. Proposed Salary Scale Rates

Less than 11 Years of Service		
Years of Service		
	Current*	Proposed
0-1	5.00%	11.00%
1-2	4.75%	10.00%
2-3	4.50%	9.00%
3-4	4.00%	7.00%
4-5	3.50%	7.00%
5-6	3.00%	6.50%
6-7	2.50%	6.50%
7-8	2.00%	6.50%
8-9	1.50%	6.50%
9-10	1.00%	6.50%
10-11	0.50%	3.75%

* Does not include age-based component of salary scale.

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11 or More Years of Service		
Age		
	Current	Proposed
20	7.00%	3.75%
21	6.90%	3.75%
22	6.80%	3.75%
23	6.70%	3.75%
24	6.60%	3.75%
25	6.50%	3.75%
26	6.40%	3.75%
27	6.30%	3.75%
28	6.20%	3.75%
29	6.10%	3.75%
30	6.00%	3.75%
31	5.90%	3.75%
32	5.80%	3.75%
33	5.70%	3.75%
34	5.60%	3.75%
35	5.50%	3.75%
36	5.40%	3.75%
37	5.30%	3.75%
38	5.20%	3.75%
39	5.10%	3.75%
40	5.00%	3.75%
41	4.90%	3.75%
42	4.80%	3.75%
43	4.70%	3.75%
44	4.60%	3.75%
45	4.50%	3.75%
46	4.40%	3.75%
47	4.30%	3.75%
48	4.20%	3.75%
49	4.10%	3.75%
50	4.00%	3.75%
51	4.00%	3.75%
52	4.00%	3.75%
53	4.00%	3.75%
54	4.00%	3.75%
55	4.00%	3.75%
56	4.00%	3.75%
57	4.00%	3.75%
58	4.00%	3.75%
59	4.00%	3.75%
60	4.00%	3.75%
61	4.00%	3.75%
62	4.00%	3.75%
63	4.00%	3.75%
64	4.00%	3.75%
65	4.00%	3.75%
66	4.00%	3.75%
67	4.00%	3.75%
68	4.00%	3.75%
69	4.00%	3.75%
70	4.00%	3.75%