

JACKSONVILLE POLICE & FIRE PENSION FUND

2011 Review of Actuarial Assumptions

October 1, 2006 through October 1, 2011

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2011 Review of Actuarial Assumptions

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JACKSONVILLE POLICE & FIRE PENSION FUND

2011 Review of Actuarial Assumptions

CURRENT ACTUARIAL ASSUMPTIONS

PROPOSED 10/1/11 CHANGES

- | | | |
|----|--|---|
| 1. | <u>Net Investment Yield:</u> 8.50% compounded annually. | Reduce to 7.75% |
| 2. | <u>Salary Scale:</u> 5.5% compounded annually applied to pay to allow for future salary increases reflecting inflation, productivity, and seniority. | Reduce to 5%. |
| 3. | <u>Mortality:</u> 1994 Group Annuity Mortality. Disability age increased 10 years. | Change to RP 2000 Combined Healthy and Disabled Retiree Mortality Table, projected by Scale AA to valuation date. |
| 4. | <u>Withdrawal:</u> Annual rates consistent with the following representative figures: | No change. |

<u>Age</u>	<u>Current Rate</u>
20	.024
25	.024
30	.012
35	.006
40	.000

- | | | |
|----|--|------------|
| 5. | <u>Disability:</u> Rates consistent with the following representative figures: | No change. |
|----|--|------------|

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.00036	45	.00120
25	.00036	50	.00264
30	.00036	55	.00540
35	.00048	60	.01080
40	.00060	65	.00000

- | | | | |
|----|---|-------------------------|--------------------|
| 6. | <u>Retirement (Including DROP):</u> Rates consistent with the following representative figures: | <u>Years of Service</u> | <u>Annual Rate</u> |
|----|---|-------------------------|--------------------|

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
40	.140	55	.340
45	.140	60	.800
50	.140	61	1.000

20	.40
21-29	.30
30	1.00

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2011 Review of the Actuarial Assumptions and Proposed Changes

CURRENT ACTUARIAL ASSUMPTIONS

PROPOSED CHANGES

- | | |
|--|------------------|
| 7. <u>Marriage</u> : 75% of active employees are assumed to be married. Tax reported status for inactives is used. | No change. |
| 8. <u>Payroll Increase Assumption</u> : 5.25% per year. | Reduce to 4.50%. |
| 9. <u>Expense Load</u> : Expenses, net of money manager fees, are estimated at \$2,200,000. | No change. |

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2011 Review of Actuarial Assumptions

Purpose of Experience Study

Experience studies are periodically needed to test the reasonableness of the actuarial assumptions. In many pension plans, with insufficient historical experience, or too small a participant group, many of the actuarial assumptions are derived from the experience of larger groups. However, this Fund's data is large enough that many of the actuarial assumptions can be heavily related to its actual experience.

The purpose of an experience study is to compare the actual experience of the Plan to the expected experience produced by the actuarial assumptions. In order to evaluate the actual experience of the Plan, an extensive and thorough review of the actuarial reports and data for the years October 1, 2006, through October 1, 2011, was performed. The expected experience was calculated by multiplying the number of employees who are expected to be exposed to a decrement by the probability of the decrement occurring. The expected experience in most cases is calculated based on five-year age brackets.

The results of an experience study are used to:

1. Update the actuarial assumptions and methods,
2. Establish a basis for valuing the Plan in the future, and
3. Provide an updated basis for valuing Plan changes.

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1. NET INVESTMENT YIELD

New Assumption: A 7.75% annual net investment yield assumption, about 8.15% gross, is proposed. Previously 8.5% net was used.

Theoretical Earnings of a Modern Pension Portfolio with Asset Mix Shown Below

Component	Expected Rate of Pay Increase	Expected Gross Rate of Investment Return			
		Bonds	Real Estate	Stocks	Total
		25.0%	15.0%	60%	100%
Rate of Inflation As measured by CPI	3.0%	3.0%	3.0%	3.0%	3.0%
Productivity	1.0%	*	*	*	*
Seniority/Merit	1.0%	*	*	*	*
Investment Premium		3.0%	3.0%	3.0%	3.0%
Risk Premium			3.0%	3.0%	2.25%
Total Assumption	5.0%	6.0%	9.0%	9.0%	8.25%

Investment Premium: Real rate of return with no inflation (i.e. reward for the use of money)

Risk Premium: Incremental return to compensate for risk over bonds.

Asset Mix: It is assumed that a future investment policy would find the fund invested as shown in each of the four investment categories.

A combination of economic theory and analysis of past rates of return, inflation, and wage increases suggest that the premiums defined above, although not precisely determinable, are real and persistent.

Conclusions

Based on actual pension portfolio history and our best estimate of the portfolio's future earnings, a net investment yield on the assets under 7.85% could be assumed with a salary increase assumption of 5.0%.

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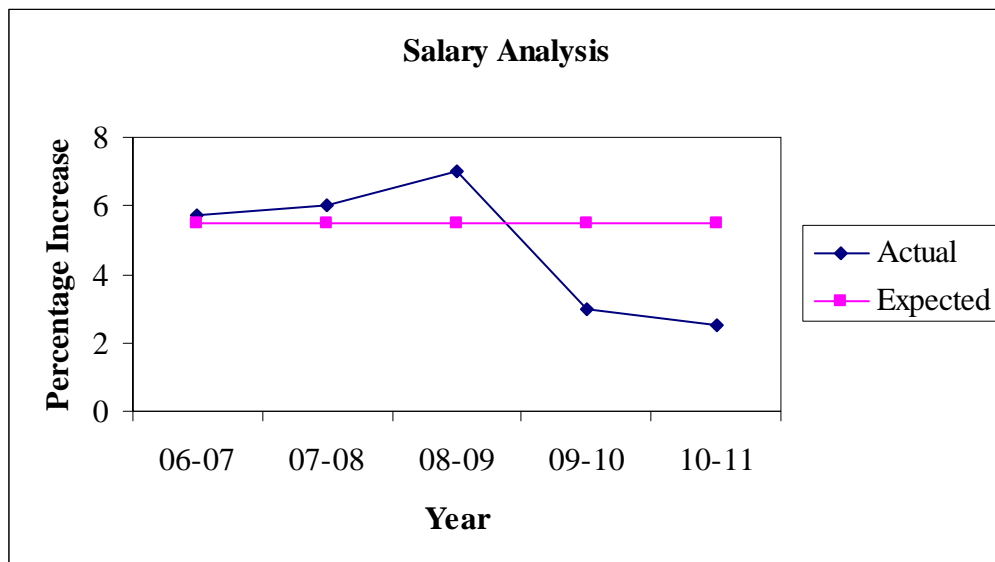
2011 Review of Actuarial Assumptions

2. SALARY SCALE

Current Assumption: The current salary scale is 5.5% compounded annually applied to pay to allow for future salary increases reflecting inflation, productivity, and seniority.

Salaries increased an average of 4.84% compared with 5.5% expected.

Recommendation: Reduce to 5%.



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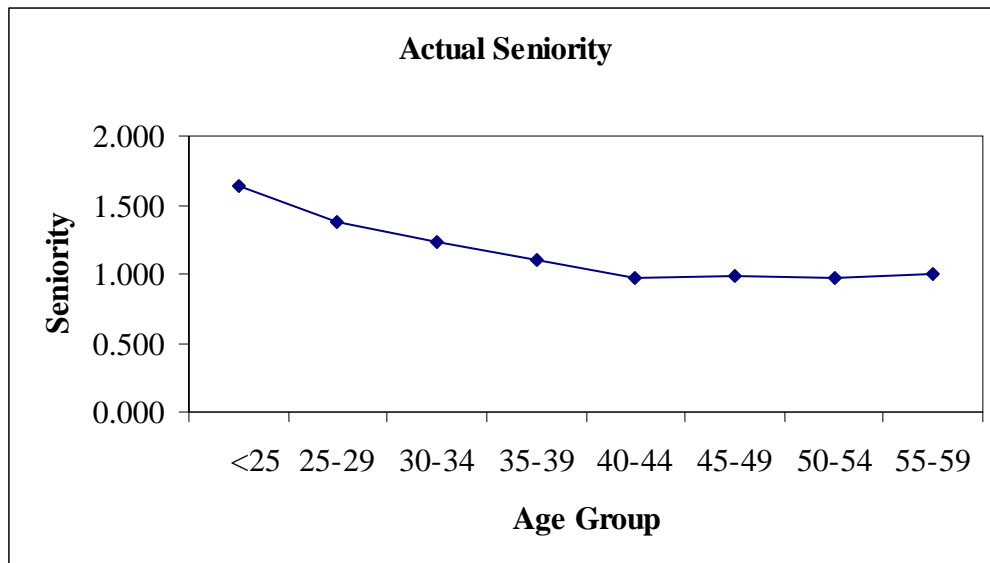
2011 Review of Actuarial Assumptions

2. SALARY SCALE (Continued)

Seniority

Seniority measures average pay changes for current employee age groups.

<u>Age Group</u>	<u>Average Pay</u>	<u>Average Actual Seniority</u>
<25	40,339	1.631
25-29	47,900	1.373
30-34	53,245	1.235
35-39	59,912	1.098
40-44	67,326	0.977
45-49	67,168	0.979
50-54	67,790	0.970
55-59	65,783	1.000



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2011 Review of Actuarial Assumptions

2. SALARY SCALE (Continued)

Inflation & Productivity

Average 2006 Pay	\$53,709
Average 2007 Pay	\$56,305
Actual Annual Increase	4.83%

Average 2007 Pay	\$56,305
Average 2008 Pay	\$58,541
Actual Annual Increase	3.97%

Average 2008 Pay	\$58,541
Average 2009 Pay	\$60,224
Actual Annual Increase	2.87%

Average 2009 Pay	\$60,224
Average 2010 Pay	\$60,323
Actual Annual Increase	0.16%

Average 2010 Pay	\$60,323
Average 2011 Pay	\$60,862
Actual Annual Increase	0.89%

Jacksonville Average from 2006 - 2011	2.53%
CPI Average from 2006 - 2011	2.26%

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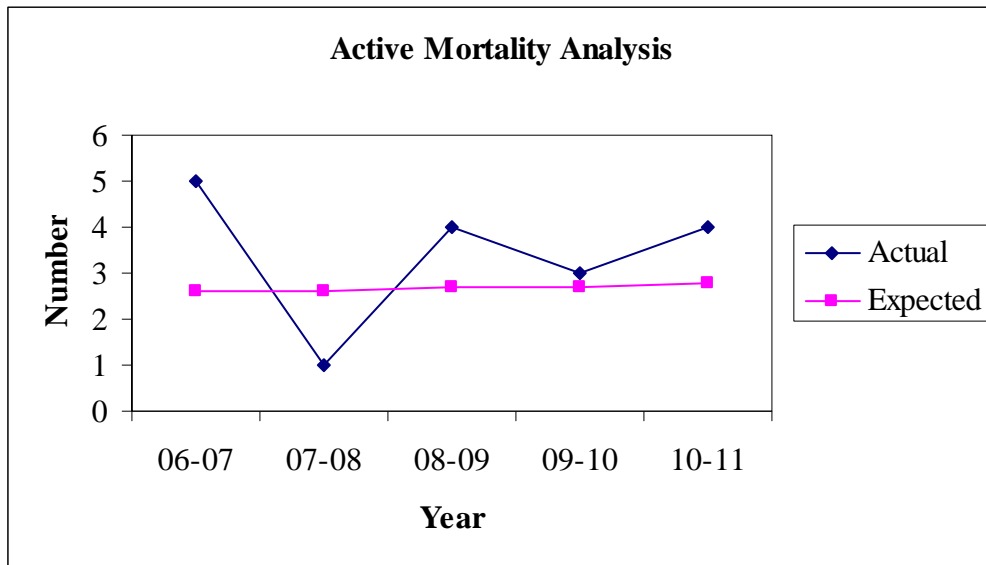
3. MORTALITY

Active Mortality

Current Assumption: 1994 Group Annuity Mortality Table.

Actual Experience: 17 deaths with 13.4 expected.

Recommendation: Change to RP 2000 Combined Healthy Mortality Table projected by Scale AA to valuation date.



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2011 Review of Actuarial Assumptions

3. MORTALITY (continued)

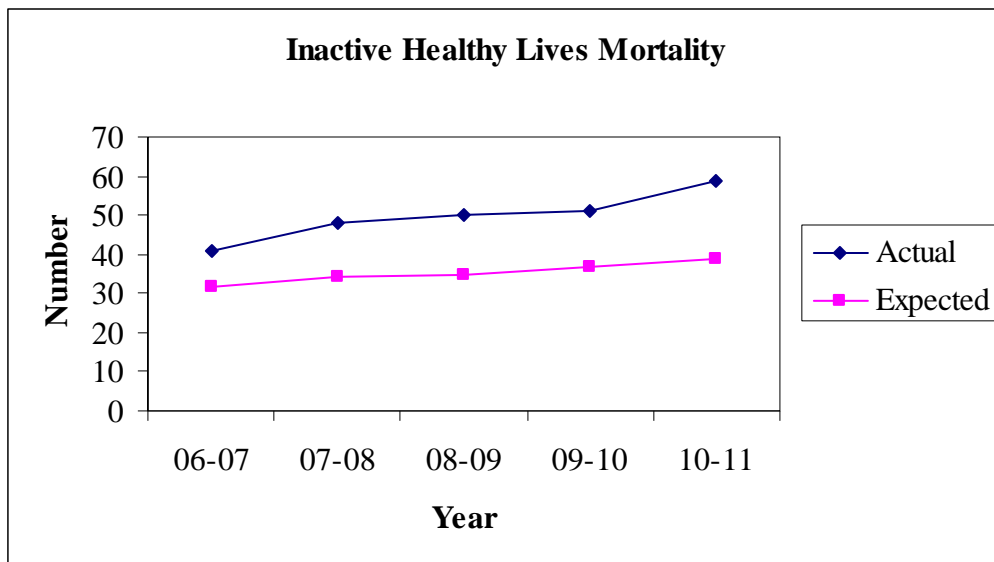
Inactive Healthy Lives Mortality

Retirees, Drops, Survivors and Terminated Vesteds

Current Assumption: 1994 Group Annuity Mortality Table.

Actual Experience: There were 249 deaths among retirees (including Drops), beneficiaries, and vested terminated employees compared with 176.3 expected during the five-year study period.

Recommendation: Change to RP 2000 Combined Healthy Mortality Table projected by Scale AA to valuation date.



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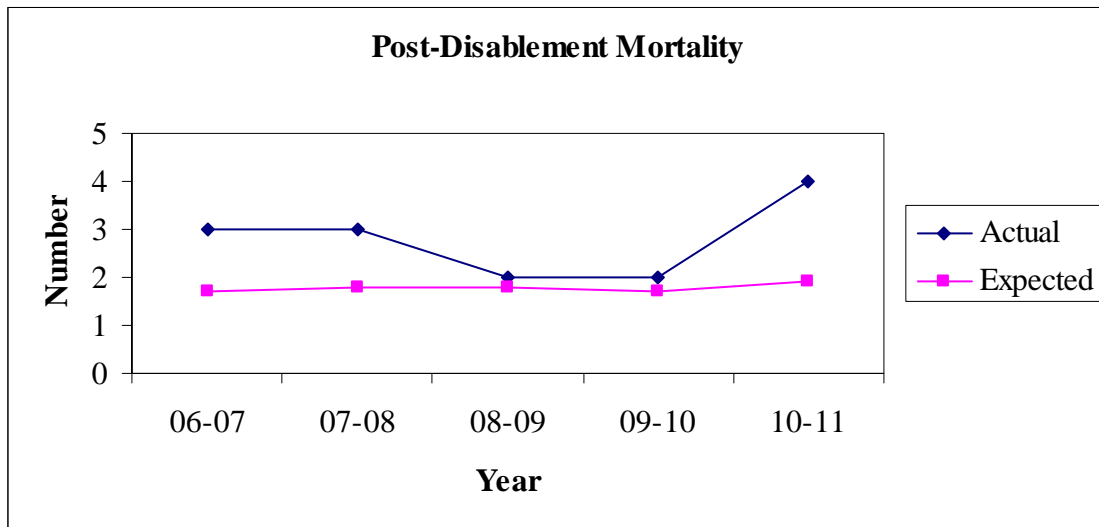
3. MORTALITY (continued)

Post-Disablement Mortality

Current Assumption: 1994 Group Annuity Mortality Table with 10 year age increase.

Actual Experience: There were 14 deaths among the disability retirees compared with 8.9 expected during the five-year study period.

Recommendation: Change to RP 2000 Disabled Retiree Mortality Table projected by scale AA to valuation date.



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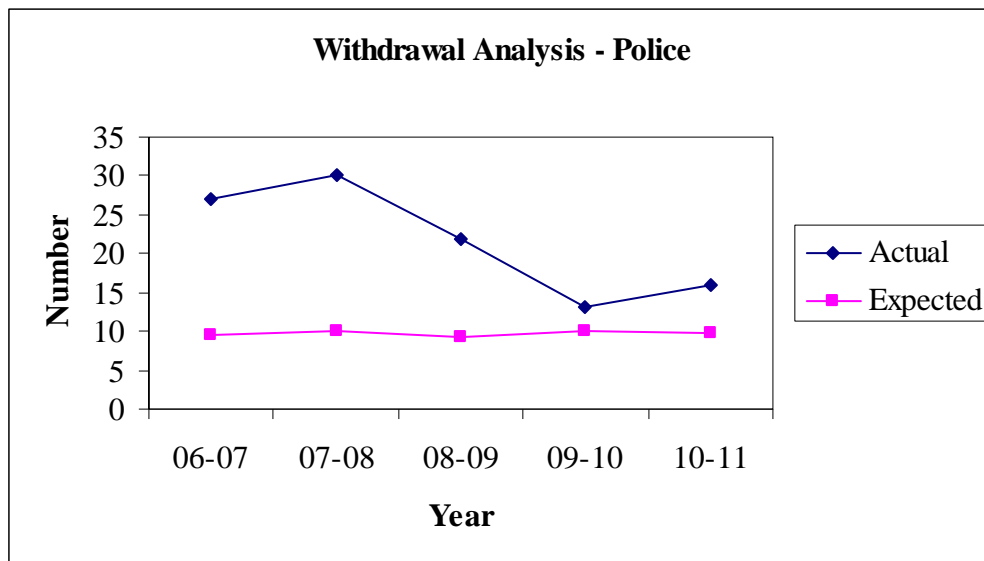
4. WITHDRAWALS - Police

Current Assumption: Annual rates consistent with the following representative figures:

<u>Age</u>	<u>Current Rate</u>
20	.024
25	.024
30	.012
35	.006
40	.000

Police Actual Experience: 108 terminations with 48.4 expected.

Recommendation: No change.



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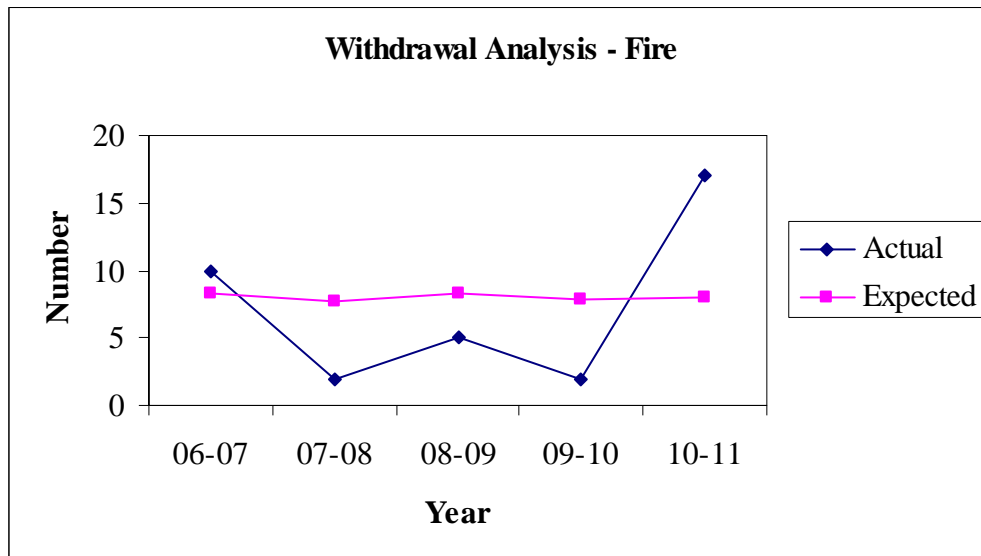
4. WITHDRAWALS (Continued) - Fire

Current Assumption: Annual rates consistent with the following representative figures:

<u>Age</u>	<u>Current Rate</u>
20	.024
25	.024
30	.012
35	.006
40	.000

Fire Actual Experience: 36 terminations with 40.2 expected.

Recommendation: No change.



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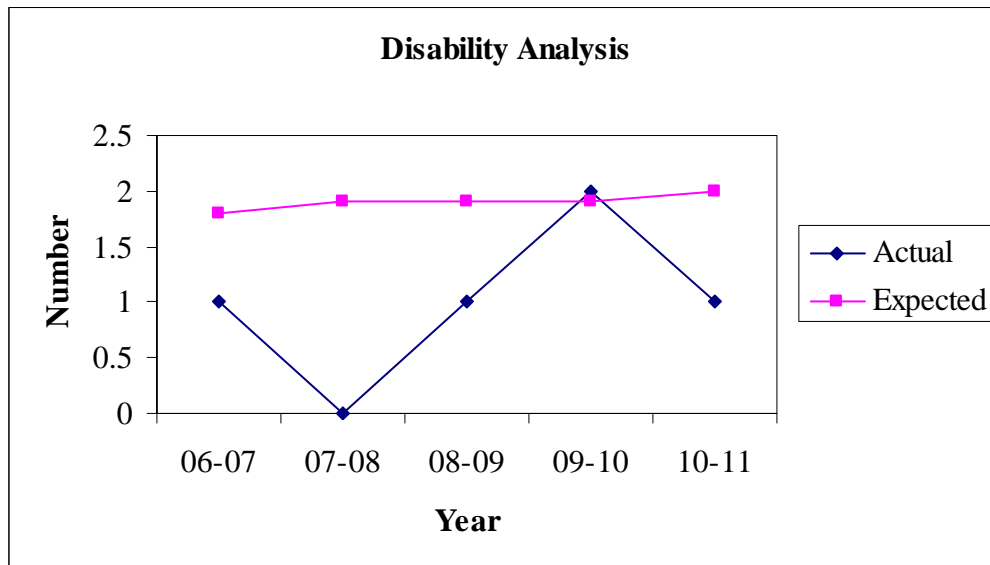
5. DISABILITY

Current Assumption: Rates consistent with the following representative figures:

<u>Age</u>	<u>Probability of Disability During Year of Age Shown</u>	<u>Age</u>	<u>Probability of Disability During Year of Age Shown</u>
20	.000360	45	.001200
25	.000360	50	.002640
30	.000360	55	.005400
35	.000480	60	.010800
40	.000600	65	.000000

Actual Experience: 5 disabilities with 9.5 expected.

Recommendation: No change.



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6. RETIREMENT (Including DROPs)

Current Assumption: Participants are assumed to retire or DROP (after reaching the 20 year service requirement) at the following rates.

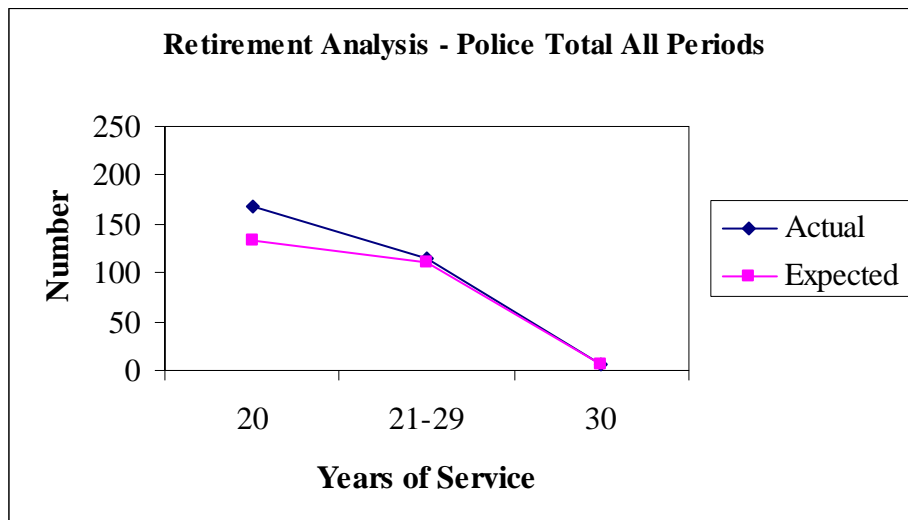
<u>Ages</u>	<u>Probability of Retirement During Year of Age Shown</u>
40	0.140
45	0.140
50	0.140
55	0.340
60	0.800
61	1.000

Actual retirements totaled 513, three times the expected number.

Recommendation: Increase probability of retirement or DROP for service as follows:

<u>Years of Service</u>	<u>Annual Rate</u>
20	.40
21-29	.30
30	1.00

Police Actual Experience (proposed rates): 288 retirements with about 250 expected new table, 89.2 (old).



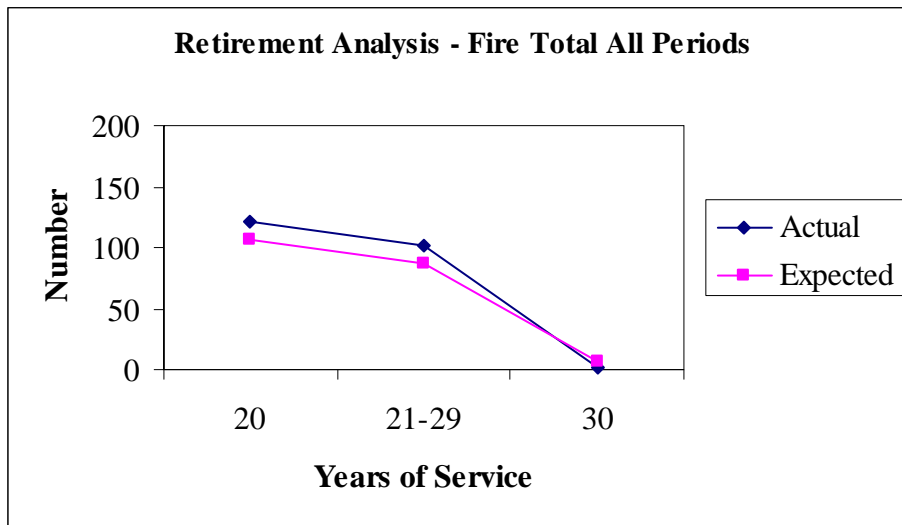
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6. RETIREMENT (Including DROPs) (continued)

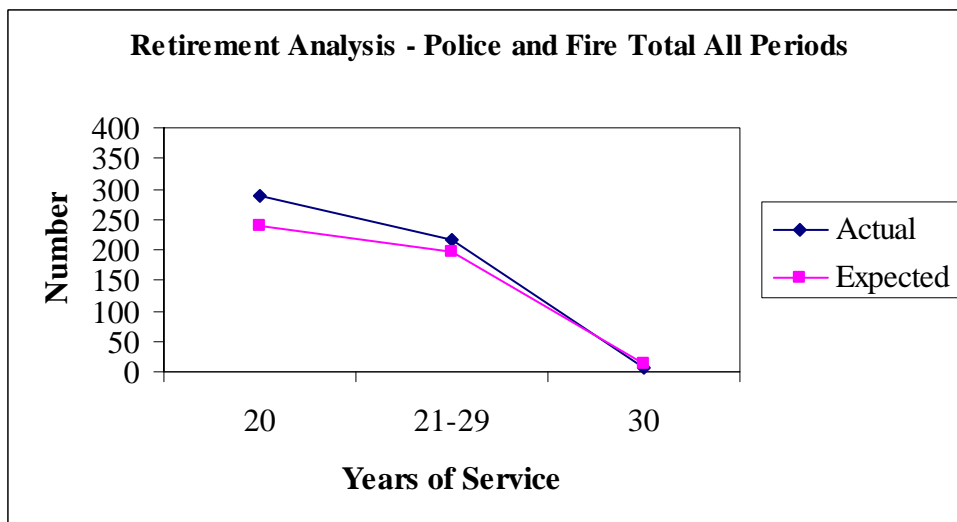
Fire Actual Experience (proposed rates): 225 retirements with about 200 expected new table, 80.4 (old).

Recommendation: Increase probability of retirement or DROP as shown for Police on page 14 (reflected in chart):



Police and Fire Actual Experience (proposed rates): 513 retirements (average age 48) with about 450 expected new table, 169.6 (old).

Recommendation: Increase probability of retirement or DROP as shown for Police on page 14 (reflected in chart):



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7. MARRIAGE

Assumptions: 75% of participants assumed to be married, with females assumed to be three years younger.

75% contingent annuity. For single participants: life annuity.

Recommendation: No change.

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8. PAYROLL INCREASE ASSUMPTION

<u>FY</u> <u>Ending</u>	<u>Covered Valuation Payroll</u> <u>(Excluding DROPs)</u>
9/30/01	\$96,198,772
9/30/02	\$101,698,016
9/30/03	\$109,636,548
9/30/04	\$118,510,432
9/30/05	\$130,392,283
9/30/06	\$134,674,392
9/30/07	\$143,006,154
9/30/08	\$148,276,743
9/30/09	\$155,558,592
9/30/10	\$158,046,260
9/30/11	\$149,172,762

Recommendation: Reduce current 5.25% per year assumed to 4.50% (average for last 10 years).

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9. EXPENSE LOAD

<u>FY Ending:</u>	<u>Actual Non-Manager Expenses</u>	<u>Actual Manager Expenses</u>
9/30/2007	\$2,398,790	\$4,708,635
9/30/2008	\$1,976,453	\$4,793,735
9/30/2009	\$1,779,313	\$4,255,232
9/30/2010	\$2,137,690	\$4,504,522
9/30/2011	\$2,634,508*	\$4,781,035

Current: \$2,200,000 expense load added to costs.

Recommendation: No change.

* Includes extraordinary levels on non-recurring legal charges.

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10. ACTUARIAL METHODS

Actuarial Cost Method

Individual Entry Age Actuarial Cost Method.

Recommendation: No change.

Asset Valuation Method

Five year smoothing of assets is used.

Recommendation: No change.