

JACKSONVILLE POLICE & FIRE PENSION FUND

2007 Review of Actuarial Assumptions

October 1, 1996 through October 1, 2007

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JACKSONVILLE POLICE & FIRE PENSION FUND

2007 Review of Actuarial Assumptions

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JACKSONVILLE POLICE & FIRE PENSION FUND

2007 Review of Actuarial Assumptions

CURRENT ACTUARIAL ASSUMPTIONS

PROPOSED 10/1/07 CHANGES

1. Net Investment Yield: 8.50% compounded annually. Reduce to 8.0%.
2. Salary Scale: 5.0% compounded annually applied to pay to allow for future salary increases reflecting inflation, productivity, and seniority. No change.
3. Mortality: 1983 Group Annuity Mortality. Disability age increased 10 years. DOB before 1/1/47: 1983 GAM
DOB after 1/1/47: 1994 GAM
4. Withdrawal: Annual rates consistent with the following representative figures. Reduce rates as indicated on pages 12 and 13.

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.04	35	.01
25	.04	40	0
30	.02		

5. Disability: Rates consistent with the following representative figures: Reduce rates 1/3.

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
25	.00054	40	.00090
30	.00054	45	.00180
35	.00072	50	.00396

6. Retirement (Including DROP): Rates consistent with the following representative figures: Increase rates to average about 25% (over 6% previously) as shown on page 15.

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
40	.060	55	.085
45	.060	60	.200
50	.060	65	1.000

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2007 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. | No change. |
| 9. <u>Expense Load</u> : Expenses, net of money manager fees, are estimated at \$700,000. | To be discussed. |

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2007 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, 1996, through October 1, 2007, 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 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 improvements.

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2007 Review of Actuarial Assumptions

1. NET INVESTMENT YIELD

Current Assumption: An 8.5% annual net investment yield assumption, (about 9% gross), was last used.

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

Component	Expected Rate of Pay Increase	Expected Net Rate of Investment Return				
		Cash	Bonds	Real Estate	Stocks	Total
		0.4%	27.3%	8.3%	64%	100%
Rate of Inflation As measured by CPI	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Productivity	1.0%	*	*	*	*	*
Seniority/Merit	1.0%	*	*	*	*	*
Investment Premium		0.5%	3.0%	3.0%	3.0%	3.0%
Risk Premium				3.0%	3.0%	2.2%
Total Assumption	5.0%	3.5%	6.0%	9.0%	9.0%	8.2%

- 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 of holding stocks 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 8.0% could be assumed with a salary increase assumption of 5.0%.

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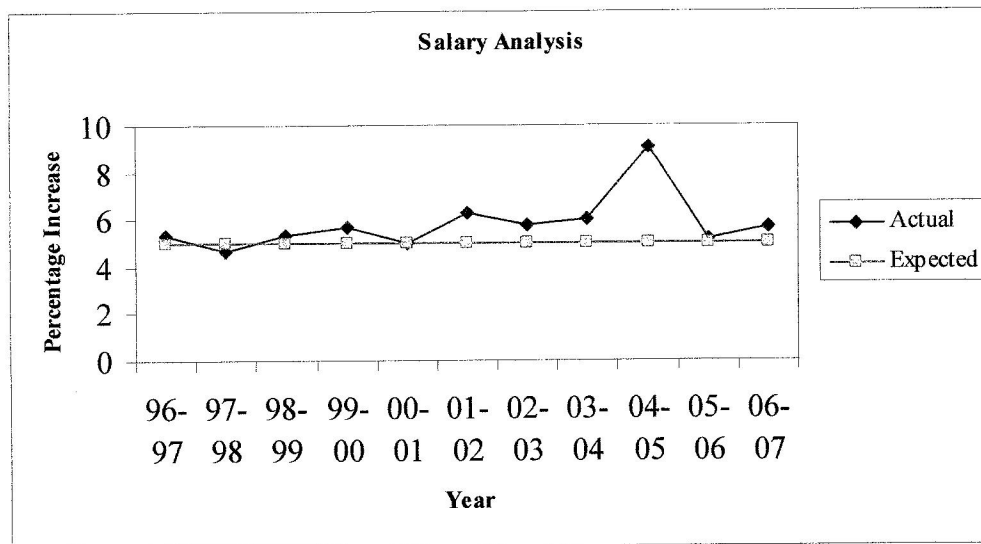
2007 Review of Actuarial Assumptions

2. SALARY SCALE

Current Assumption: The current salary scale is 5.0% compounded annually applied to pay to allow for future salary increases reflecting inflation, productivity, and seniority.

Salaries increased an average of 5.8% compared with 5.0% expected.

Recommendation: No change.



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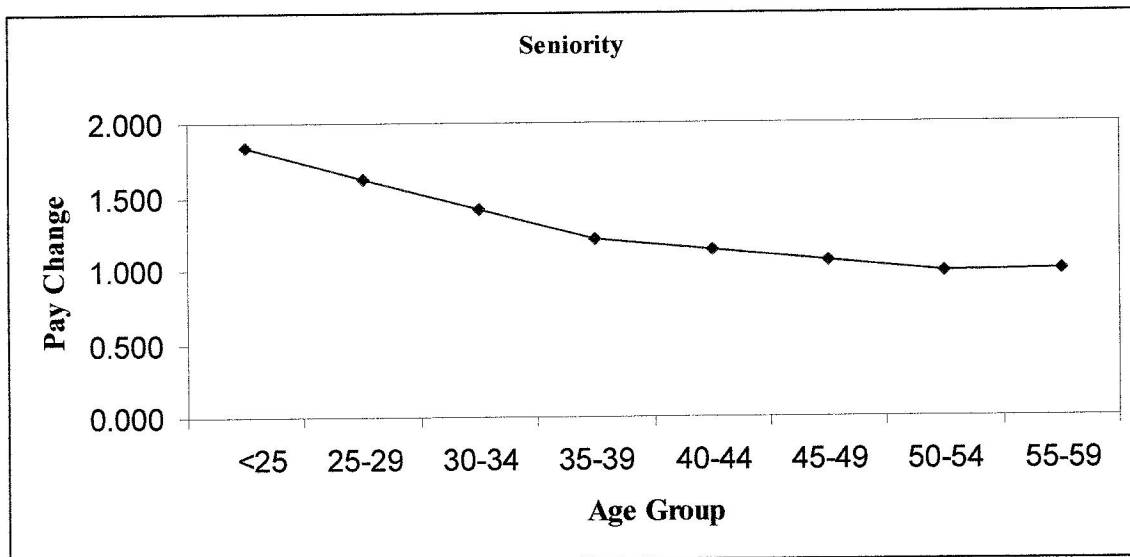
2007 Review of Actuarial Assumptions

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	38,264	1.831
25-29	43,106	1.625
30-34	49,573	1.413
35-39	57,821	1.211
40-44	61,497	1.139
45-49	65,796	1.065
50-54	70,554	0.993
55-59	70,047	1.000



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2007 Review of Actuarial Assumptions

2. SALARY SCALE (Continued)

Inflation & Productivity

Average 1996 Pay	\$45,683	Average 2003 Pay	\$50,246
Average 1997 Pay	\$45,319	Average 2004 Pay	\$50,494
Actual Annual Increase	-0.80%	Actual Annual Increase	0.49%
Average 1997 Pay	\$45,319	Average 2004 Pay	\$50,494
Average 1998 Pay	\$46,259	Average 2005 Pay	\$53,221
Actual Annual Increase	2.07%	Actual Annual Increase	5.40%
Average 1998 Pay	\$46,259	Average 2005 Pay	\$53,221
Average 1999 Pay	\$46,069	Average 2006 Pay	\$53,709
Actual Annual Increase	-0.41%	Actual Annual Increase	0.92%
Average 1999 Pay	\$46,069	Average 2006 Pay	\$53,709
Average 2000 Pay	\$47,441	Average 2007 Pay	\$56,305
Actual Annual Increase	2.98%	Actual Annual Increase	4.83%
Average 2000 Pay	\$47,441		
Average 2001 Pay	\$47,226		
Actual Annual Increase	-0.45%		
Average 2001 Pay	\$47,226		
Average 2002 Pay	\$49,177		
Actual Annual Increase	4.13%		
Average 2002 Pay	\$49,177		
Average 2003 Pay	\$50,246		
Actual Annual Increase	2.17%		
Jacksonville Average from 1996 - 2007		1.92%	
CPI Average from 1996 - 2007		2.56%	

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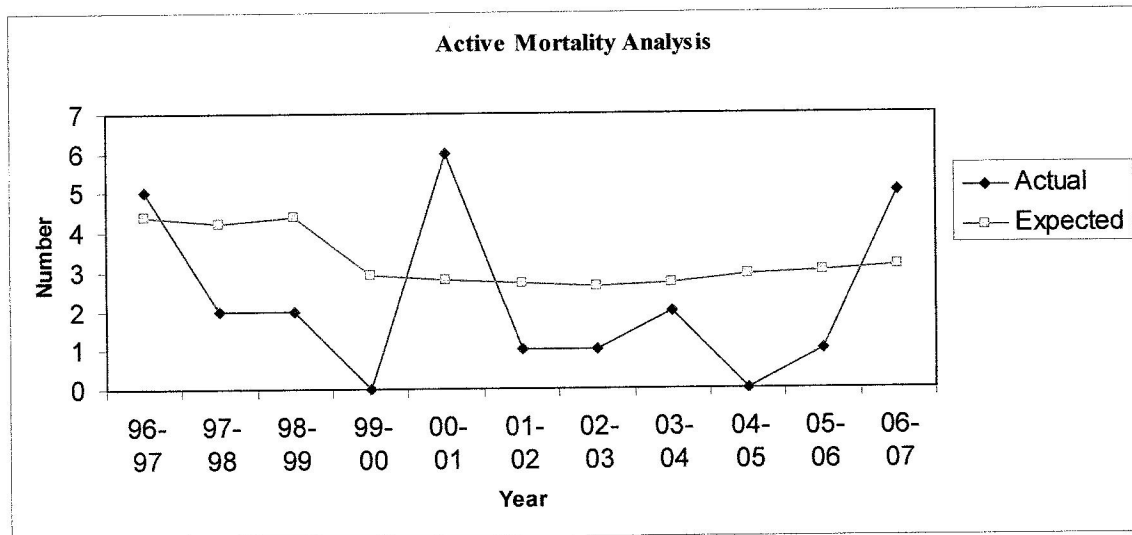
3. MORTALITY

Active Mortality

Current Assumption: 1983 Group Annuity Mortality Table.

Actual Experience: 25 deaths with 35.7 expected.

Recommendation: Change to the 1994 Group Annuity Mortality Table for DOB after 1/1/47.



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3. MORTALITY (continued)

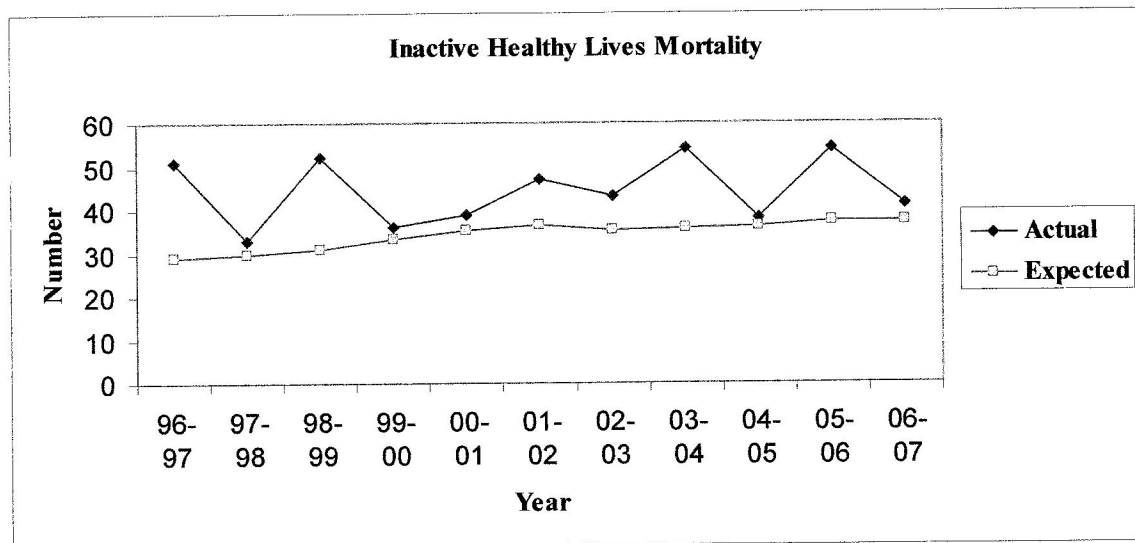
Inactive Healthy Lives Mortality

Retirees, Drops, Survivors and Terminated Vesteds

Current Assumption: 1983 Group Annuity Mortality Table.

Actual Experience: There were 488 deaths among retirees (including Drops), beneficiaries, and vested terminated employees compared with 377 expected during the eleven-year study period.

Recommendation: Change to 1994 GAM for DOB after 1/1/47 (to be consistent with change for actives).



JACKSONVILLE POLICE & FIRE PENSION FUND
2007 Review of Actuarial Assumptions

Inactive Healthy Lives & Post-Disablement Mortality
(Actual vs. Expected Deaths)

<u>Period</u>		<u>Retirees, Drops, Survivors & Terminated Vesteds</u>	<u>Disableds</u>	<u>Total</u>
10/06 - 10/07	Exposure	1979	66	2045
	Actual	41	3	44
	Expected	37.3	2.1	39.4
10/05 - 10/06	Exposure	1976	67	2043
	Actual	54	2	56
	Expected	37.2	2.1	39.3
10/04 - 10/05	Exposure	1923	67	1990
	Actual	38	1	39
	Expected	36.2	2.1	38.3
10/03 - 10/04	Exposure	1892	68	1960
	Actual	54	2	56
	Expected	35.6	2.1	37.7
10/02 - 10/03	Exposure	1,872	69	1,941
	Actual	43	2	45
	Expected	35.2	2.1	37.3
10/01 - 10/02	Exposure	1,775	73	1,848
	Actual	47	5	52
	Expected	36.6	2.1	38.7
10/00 - 10/01	Exposure	1,697	76	1,773
	Actual	39	3	42
	Expected	35.3	2.1	37.4
10/99 - 10/00	Exposure	1,589	77	1,666
	Actual	36	3	39
	Expected	33.2	2.2	35.4
10/98 - 10/99	Exposure	1,286	77	1,363
	Actual	52	2	54
	Expected	31.1	2.3	33.4
10/97 - 10/98	Exposure	1,256	78	1,334
	Actual	33	3	36
	Expected	29.9	2.3	32.2
10/96 - 10/97	Exposure	1,167	74	1,241
	Actual	51	2	53
	Expected	28.9	2.1	31.0
All Periods	Exposure	18,412	792	19,204
	Actual	488	28	516
	Expected	376.5	23.6	400.1

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2007 Review of Actuarial Assumptions

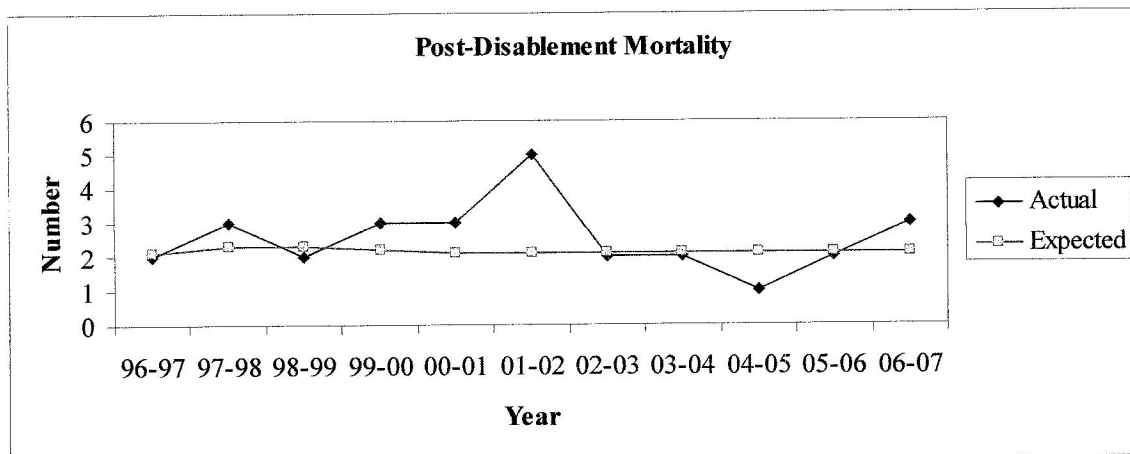
3. MORTALITY (continued)

Post-Disablement Mortality

Current Assumption: 1983 GAM with 10 year age increase.

Actual Experience: There were 28 deaths among the disability retirees compared with 24 expected during the eleven-year study period.

Recommendation: Change to 1994 GAM for DOB after 1/1/47, with 10 year age increase for post disablement mortality.



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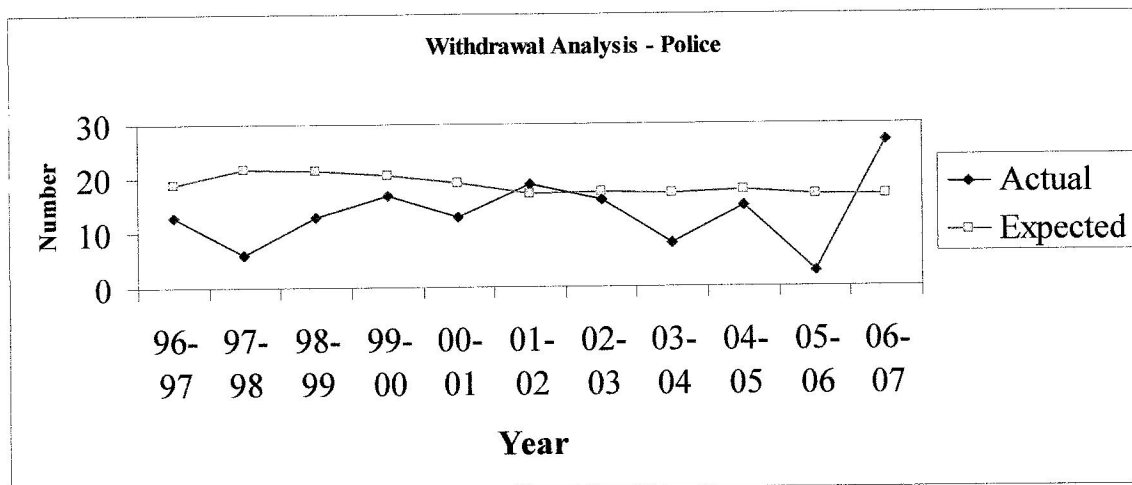
4. WITHDRAWALS - Police

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

<u>Age</u>	<u>Current Rate</u>	<u>Proposed Rate</u>
20	.04	.030
25	.04	.030
30	.02	.020
35	.01	.010
40	.00	.000

Police Actual Experience: 150 terminations with 205.0 expected

Recommendation: Change as indicated above.



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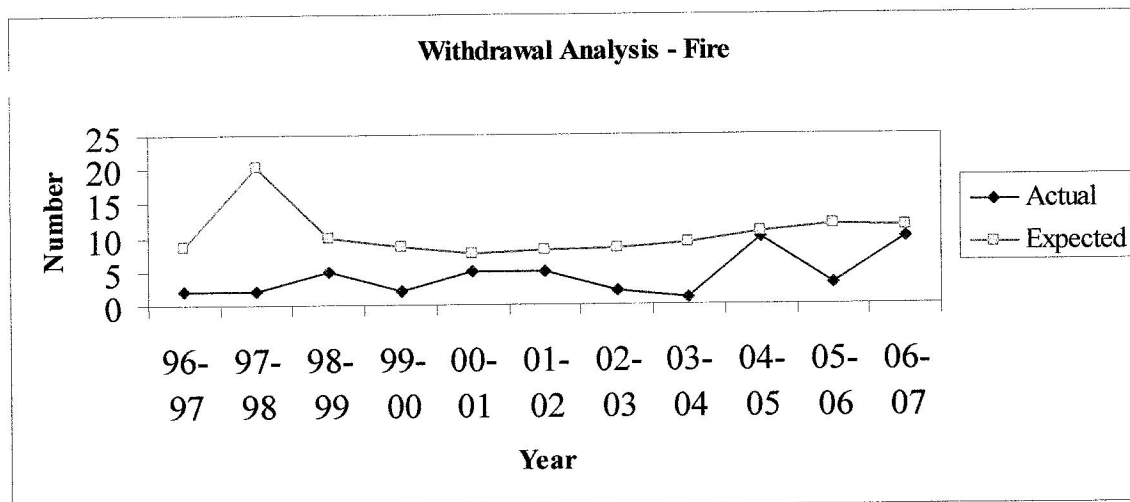
4. WITHDRAWALS (Continued) - Fire

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

<u>Age</u>	<u>Current Rate</u>	<u>Proposed Rate</u>
21	.04	.020
25	.04	.020
31	.02	.010
36	.01	.010
40	.00	.000

Fire Actual Experience: 47 terminations with 114.6 expected

Recommendation: Change as indicated above.



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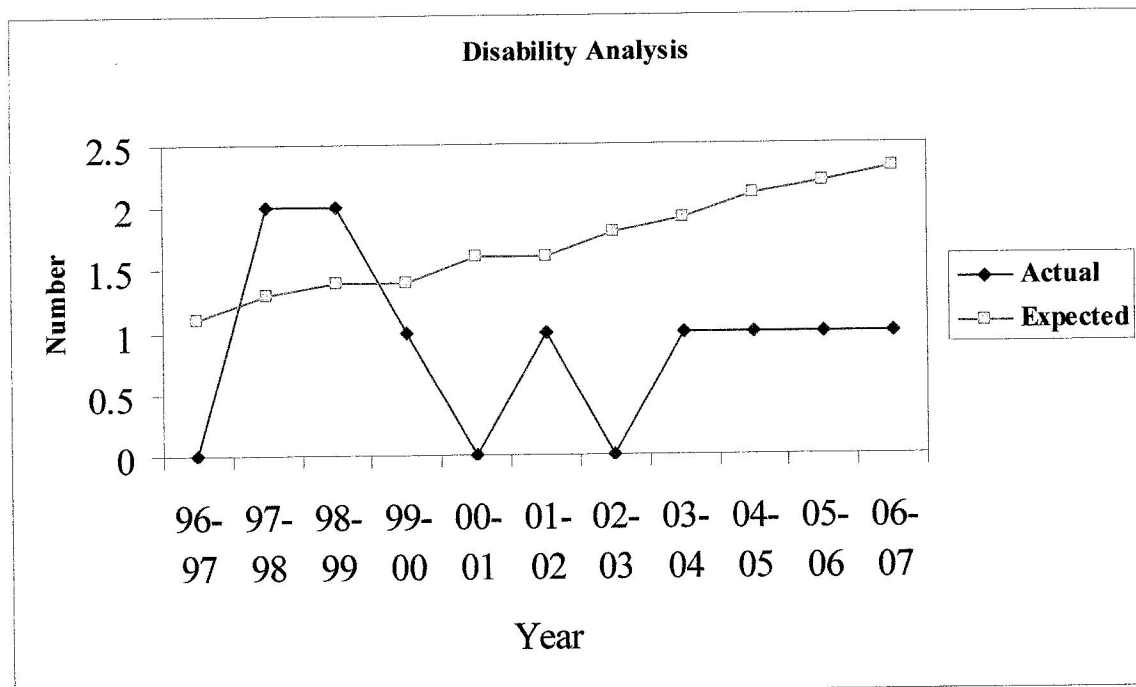
5. DISABILITY

Current Assumption: 50% of Third Railroad 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	.000540	45	.001800
25	.000540	50	.003960
30	.000540	55	.008100
35	.000720	60	.016200
40	.000900	65	.000000

Actual Experience: 10 disabilities with 18.7 expected

Recommendation: Reduce 1/3.



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6. RETIREMENT (Including DROPs)

Current Assumption: Participants are assumed to retire or DROP (after reaching the service requirement) at the following rates (average age of 58).

<u>Ages</u>	<u>Probability of Retirement During Year of Age Shown</u>
40	0.060
50	0.060
55	0.085
60	0.200
65	1.000

Police Actual Experience: 579 retirements with 146.9 expected

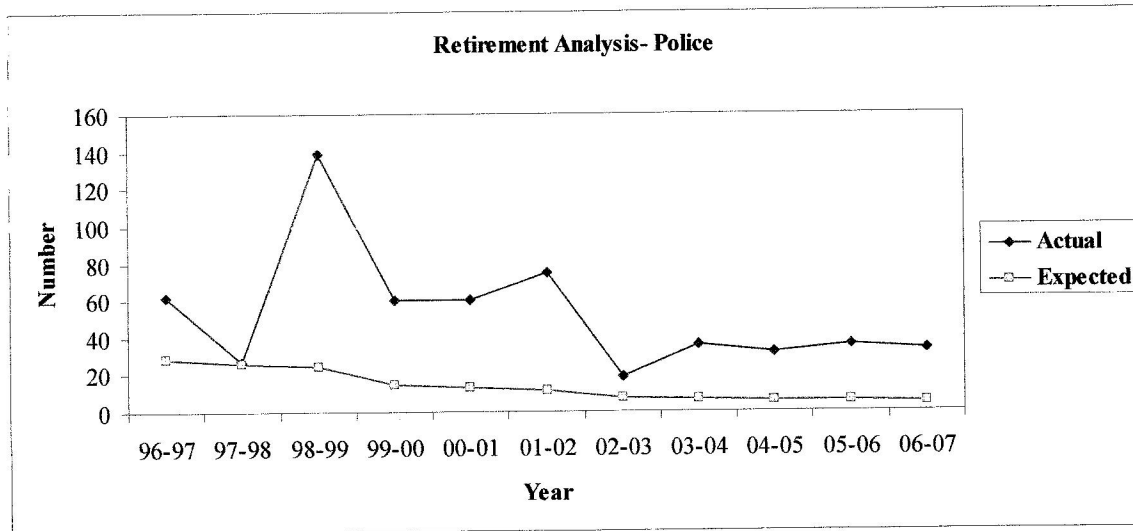
Recommendation: Increase probability of retirement or DROP for certain ages as follows:

<u>Years of Service</u>	<u>Proposed Rate</u>
20	.25
21	.10
22	.12
23	.14
24	.16
25	.25
26	.20
27	.25
28	.50
29	.75
30	1.00

JACKSONVILLE POLICE & FIRE PENSION FUND

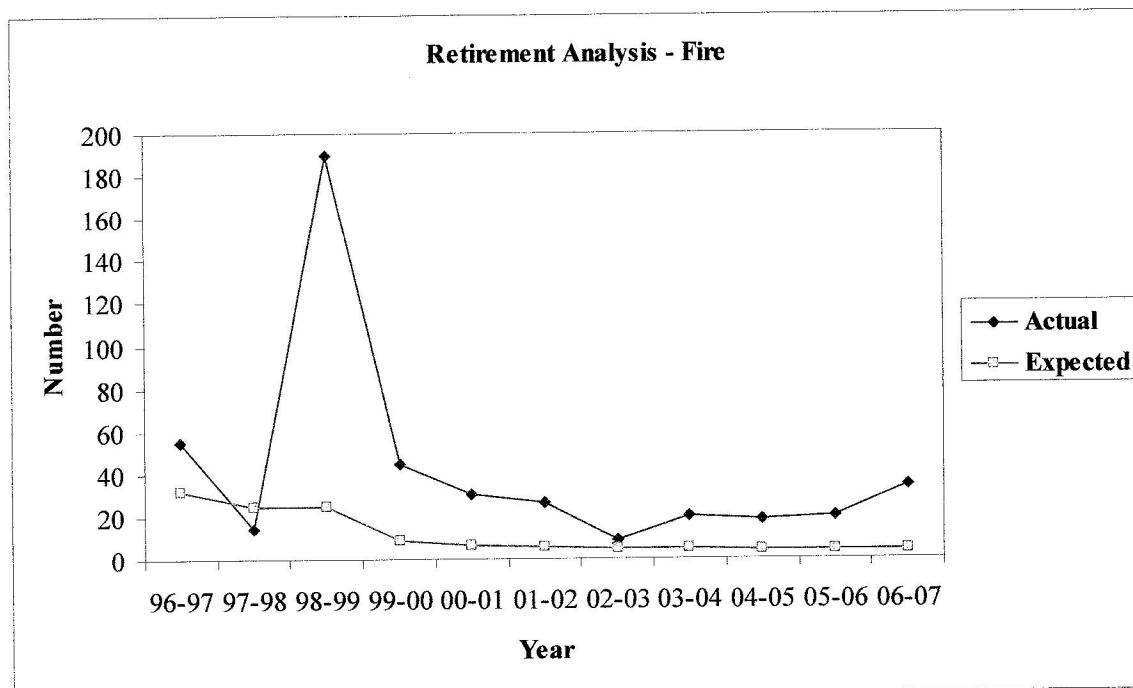
2007 Review of Actuarial Assumptions

6. RETIREMENT (Including DROPs) (continued)



Fire Actual Experience: 461 retirements with 123.5 expected

Recommendation: Increase probability of retirement or DROP as shown for Police on page 15.



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2007 Review of Actuarial Assumptions

New Retirees & Drops

Number by Service

Years of Service @ Ret	Year 03-04	Year 04-05	Year 05-06	Year 06-07	Total
16	1	1			2
17			2		2
18	1	1	2	1	5
19	1	1			2
20	10	6	12	28	56
21	2	4	2	7	15
22	5		6	4	15
23	6	5	2	3	16
24	4	3	5	2	14
25	8	8	4	10	30
26	3	3	5	1	12
27	4	2	1	6	13
28	5	2	2	1	10
29	6	6	4	2	18
30		8	5	3	16
31					
32			1		1
Total	56	50	53	68	227

JACKSONVILLE POLICE & FIRE PENSION FUND

2007 Review of Actuarial Assumptions

Jacksonville Police & Fire Pension Fund

New Retirees & Drops

Number by Age

Attained Age @ Ret	Year 03-04	Year 04-05	Year 05-06	Year 06-07	Total
38		1			1
39					0
40	1	2		1	4
41	1	1	1	1	4
42	4	1		4	9
43	3		2		5
44	2	1	3	5	11
45	5	7	6	3	21
46	1	1	4	7	13
47	5	7		2	14
48	6	3	7	8	24
49	6	3	4	4	17
50	6	2	8	8	24
51	4	7	3	4	18
52	2	3	5	1	11
53	4		3	8	15
54	1	2	2	3	8
55	2	6	1		9
56	2	1	2	2	7
57	1		1		2
58		1		1	2
59		1	1	3	5
60				1	1
61					0
62					0
63					0
64				2	2
Total	56	50	53	68	227
Average Retirement Age	48.8	49.5	49.7	49.3	49.3

JACKSONVILLE POLICE & FIRE PENSION FUND

2007 Review of Actuarial Assumptions

Taken from 10/1/06 data. Includes all eligible to retire in the 07 Plan Year. (Age 40 with 20 years credited service)

<u>Age @</u> <u>10/1/2006</u>	<u>Number</u> <u>Eligible</u>	<u>Assumed</u> <u>Rate</u>	<u>Expected # of</u> <u>Retirements & Drops</u>
39	2	0.060	0.1
40	2	0.060	0.1
41	12	0.060	0.7
42	10	0.060	0.6
43	16	0.060	1.0
44	15	0.060	0.9
45	14	0.060	0.8
46	11	0.060	0.7
47	18	0.060	1.1
48	15	0.060	0.9
49	27	0.060	1.6
50	13	0.060	0.8
51	8	0.060	0.5
52	13	0.060	0.8
53	5	0.065	0.3
54	1	0.075	0.1
55	5	0.085	0.4
56		0.085	0.0
57	1	0.085	0.1
58	3	0.100	0.3
59	1	0.150	0.2
60		0.200	0.0
61		0.250	0.0
62		0.300	0.0
63	<u>1</u>	0.350	<u>0.4</u>
	193		12.4

JACKSONVILLE POLICE & FIRE PENSION FUND

2007 Review of Actuarial Assumptions

Taken from 10/1/05 data. Includes all eligible to retire in the 06 Plan Year.
(Age 40 with 20 years credited service)

<u>Age @</u> <u>10/1/2005</u>	<u>Number</u> <u>eligible</u>	<u>Assumed</u> <u>Rate</u>	<u>Expected # of</u> <u>Retirements & Drops</u>
39	1	0.060	0.1
40	5	0.060	0.3
41	4	0.060	0.2
42	8	0.060	0.5
43	12	0.060	0.7
44	10	0.060	0.6
45	10	0.060	0.6
46	18	0.060	1.1
47	12	0.060	0.7
48	23	0.060	1.4
49	13	0.060	0.8
50	6	0.060	0.4
51	12	0.060	0.7
52	5	0.060	0.3
53		0.065	0.0
54	3	0.075	0.2
55		0.085	0.0
56	1	0.085	0.1
57	<u>3</u>	0.085	<u>0.3</u>
	146		9.0

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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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2007 Review of Actuarial Assumptions

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

Recommendation: Continue current 5.25% per year assumed. The actual increases have exceeded this in recent years.

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9. EXPENSE LOAD

<u>FY Ending:</u>	<u>Actual Non-Manager Expenses</u>	<u>Actual Manager Expenses</u>
9/30/2002	\$1,937,333	\$3,458,198
9/30/2003	\$1,402,522	\$3,269,680
9/30/2004	\$1,340,817	\$3,486,322
9/30/2005	\$1,550,460	\$3,670,575
9/30/2006	\$1,977,543	\$4,294,070
9/30/2007	\$2,390,157	\$4,708,635

Current: \$700,000 expense load added to costs.

Recommendation: To be discussed.

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10. ACTUARIAL METHODS

Actuarial Cost Method

Entry Age Actuarial Cost Method: Under this method, the excess of the Actuarial Present Value of Projected Benefits of the group included in the Actuarial Valuation, over the sum of the Actuarial Value of Assets plus the Unfunded Actuarial Accrued Liability, is allocated as a level amount over the earnings of the group as a whole, not as a sum of individual allocations. The portion of the excess Actuarial Present Value allocated to a valuation year is called the Normal Actuarial Cost. All ancillary benefits are funded under the same method as retirement benefits.

Asset Valuation Method

Market value of assets is used.