GRS Gabriel Roeder Smith & Company
Consultants & Actuaries

CITY OF JOLIET POLICE OFFICERS' AND FIREFIGHTERS' PENSION FUNDS

2010 Experience Review

For the Years January 1, 2005, to January 1, 2010

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The Pension Board
City of Joliet Police Officers' Pension Fund
City of Joliet Firefighters' Pension Fund
Joliet, Illinois

Subject: Experience Review for the Years January 1, 2005, to January 1, 2010

Dear Board Members:

At your request, we have performed a review of the actuarial assumptions used to value the City of Joliet Police Officers' and Firefighters' Pension Funds. The primary purpose of the study is to determine the continued appropriateness of the current actuarial assumptions by comparing actual experience to expected experience. Our study was based on census information for the period from January 1, 2005, to January 1, 2010.

Our study includes a review of the experience associated with the following actuarial assumptions:

- Investment Return
- Salary Increases
- Retirement
- Turnover
- Disability
- Mortality

The results of the experience study and recommended assumptions set forth in this report are based on the data and actuarial techniques and methods described above, and upon the provisions of the City of Joliet Police Officers' and Firefighters' Pension Funds as of the most recent valuation date, January 1, 2010. Based on these items, we certify these results to be true and correct.

The recommended assumptions would be applicable for the valuation as of January 1, 2011. Given the complexities of the new funding and benefits policies under Public Act 96-1495, the cost impact of the recommended assumption will be measured as part of the January 1, 2011, actuarial valuation process. However, the recommended changes in demographic assumptions are expected to increase the baseline cost, before adoption of Public Act 96-1495, by less than five percent.

One of the undersigned is a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sincerely,

Alex Rivera

Alex Rivera, F.S.A., E.A., M.A.A.A.
Senior Consultant

Paul T Wood

Paul Wood
Senior Analyst

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ECONOMIC ASSUMPTIONS

Economic assumptions reflect the effects of economic forces on the projections of retirement benefits payable from the plan and in the discounting of those benefits to present value.

These assumptions are based, at their core, on the assumed level of price inflation. Each economic assumption is then developed from expected spreads over price inflation. Since price inflation is relatively volatile and is subject to a number of influences not based on recent history, these assumptions are less reliably based on recent past experience than are the demographic assumptions.

The key economic assumptions in this analysis are:

1. Assumed Rate of Inflation – The rate of price inflation (as measured by the Consumer Price Index for all Urban consumers) which underlies the remainder of the economic assumptions.

2. Assumed Rate of Investment Return - The rate at which projected future benefits under the system are reduced to present value.

3. Rate of General Annual Pay Increases - This reflects inflationary forces on increases in pay for individual members.

Inflation

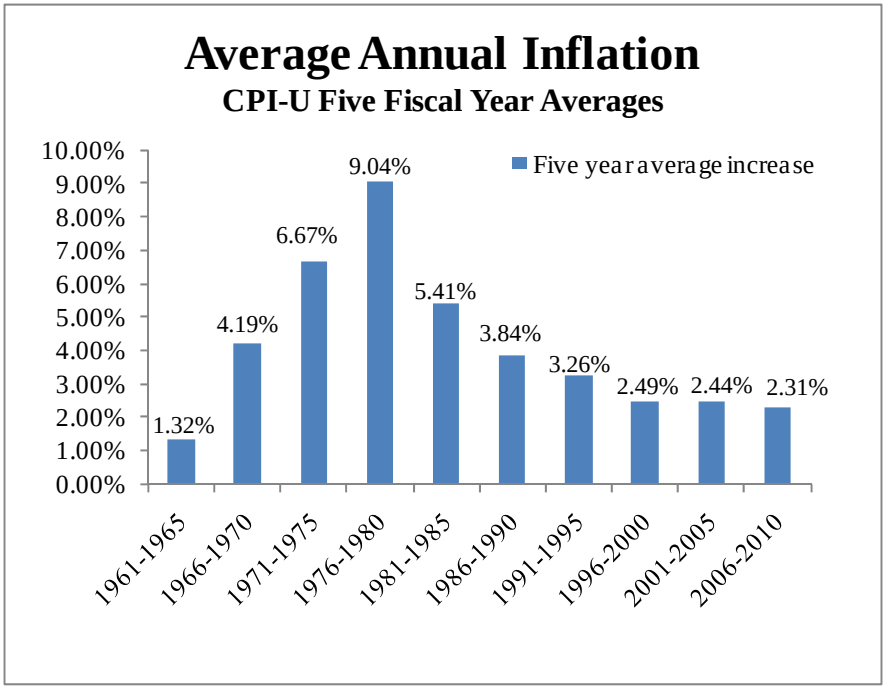
By "inflation," we mean price inflation, as measured by annual increases in the Consumer Price Index (CPI). This inflation assumption underlies all of the other economic assumptions we employ. It not only impacts investment return, but also salary increase rates, and the payroll growth assumption. Our current annual inflation assumption is 3.00 percent.

Over the five-year period from June 2005 through June 2010, the CPI-U has increased at an average rate of 2.31 percent. However, the assumed inflation rate is only weakly tied to past results.

The table below shows the average inflation over various periods, ending June 2010:

Fiscal Year	Annual Increase in CPI-U
2005-06	4.33%
2006-07	2.69%
2007-08	5.02%
2008-09	-1.43%
2009-10	1.05%
3-Year Average	1.51%
5-Year Average	2.31%
10-Year Average	2.37%
20-Year Average	2.62%
25-Year Average	2.86%
30-Year Average	3.28%
40-Year Average	4.41%
50-Year Average	4.07%

The graph below shows the average inflation over 5-year periods over the last 50 years:



We surveyed the inflation assumption used by investment consulting firms. In our sample of eight firms, the inflation assumption ranged from 2.00 percent to 3.25 percent, with an average of 2.54 percent.

In the Social Security Administration's 2010 Trustees Report, the Office of the Chief Actuary is projecting a long-term average annual inflation rate of 2.8 percent under the intermediate cost assumption. (The inflation assumption is 1.8 percent and 3.8 percent in the low cost and high cost projection scenarios, respectively.)

Therefore, we believe a reasonable long-term inflation assumption will likely fall in the range of 2.50 percent to 3.50 percent, although we recognize that inflation may fall outside this range over the next few years. We are recommending the inflation assumption remain at 3.00 percent. This is close to the average of 2.86 percent over the last 25-years and consistent with the assumption used by the SSA Office of the Chief Actuary for the intermediate cost projections.

Investment Return

ASOP 27

Actuaries are required to comply with Actuarial Standard of Practice No. 27 (ASOP 27) in setting economic assumptions for retirement plans, including the assumed investment return rate.

In public retirement system like the City of Joliet Police Officers' and Firefighters' Pension Funds, it is ultimately the Retirement Board's and the Finance Committee's responsibility to approve the actuarial assumptions used in the actuarial valuations. It is the actuary's duty to provide the Board and the City with information needed to make those decisions, and to make recommendations to the Board. Although the Board is the ultimate decision-making body, we are still bound by ASOP 27 in providing advice or recommendations to the Board.

The current standard requires the actuary to identify the components of each assumption, to evaluate relevant data, and to set a best-estimate range. Then the actuary selects a point within this best-estimate range. Alternatively, the actuary may simply set the assumption without specifying a best-estimate range. All economic assumptions are required to be individually reasonable and consistent in the aggregate.

The best-estimate range is "the narrowest range within which the actuary reasonably anticipates that the actual results, compounded over the measurement period, are more likely than not to fall." That is, there is a 50 percent likelihood that the compound rate of return will fall within the best estimate range. This is equivalent to establishing a confidence interval that ranges from the 25^{th} to 75^{th} percentile.

Please note that the provisions of ASOP 27 are currently being reviewed and may be revised. The revised standard is expected to be adopted by 2012. Since the revised standard is still pending, we have used the current provisions of ASOP 27. The proposed revisions to ASOP 27 are not expected to materially impact the recommendations contained in this report.

Real Return

The allocation of assets within the universe of investment options will significantly impact the overall performance. Therefore, it is meaningful to identify the range of expected returns based on the fund's targeted allocation of investments and an overall set of capital market assumptions.

CITY OF JOLIET – POLICE OFFICERS' AND FIREFIGHTERS' PENSION FUNDS
ECONOMIC ASSUMPTIONS

Based on information provided by Firefighters' Pension Fund as of February 2011, following is a table with the plan's current target asset allocation:

Asset Category	Current Target Asset Allocation
Large Cap Equity	13%
Mid Cap Equity	5%
Small Cap Equity	15%
International Equity	12%
Emerging Market Equity	0%
REITs	0%
High Yield Bond	0%
Long-term Bond	0%
Intermediate Term Bond	53%
International Bond	0%
Commodities	0%
Money Market	2%
Total	100%

Because GRS is a benefits consulting firm and does not provide investment advice, we reviewed capital market assumptions developed and published by eight independent investment consulting firms.

These investment consulting firms periodically issue reports that describe their capital market assumptions, that is, their estimates of expected returns, volatility, and correlations among the different asset classes. While some of these assumptions may be based upon historical analysis, many of these firms also incorporate forward looking adjustments to better reflect near-term and long-term expectations. The estimates for core investments (i.e. fixed income, equities, and real estate) are generally based on anticipated returns produced by passive index funds.

Given the plan's current target asset allocation and the capital market assumptions from the sample of investment consultants, the development of the average nominal return, net of investment expenses, is provided in the following table:

Investment Consultant	Date of Capital Market Assumptions	Investment Consultant Expected Nominal Return*	Investment Consultant Inflation Assumption	Expected Real Return* (3)–(4)	Actuary Inflation Assumption	Actuary Investment Expense Assumption	Expected Nominal Return** (5)+(6)-(7)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	1/1/2010	6.41%	3.00%	3.41%	3.00%	0.17%	6.24%
2	6/30/2010	6.50%	2.50%	4.00%	3.00%	0.17%	6.83%
3	9/30/2009	6.01%	2.00%	4.01%	3.00%	0.17%	6.84%
4	11/1/2009	7.39%	3.25%	4.14%	3.00%	0.17%	6.97%
5	3/1/2010	7.08%	2.75%	4.33%	3.00%	0.17%	7.16%
6	1/1/2010	6.94%	2.50%	4.44%	3.00%	0.17%	7.27%
7	12/1/2010	7.79%	2.10%	5.69%	3.00%	0.17%	8.52%
8	1/1/2010	5.65%	2.00%	3.65%	3.00%	0.17%	6.48%
Average		**6.72%**	**2.51%**	**4.21%**	**3.00%**	**0.17%**	**7.04%**

*Average real rate of return is 4.04% net of investment expenses.
**Based on arithmetic average.

Based on each firm's assumptions, we estimated the expected real return of the Funds' portfolio (col. (5)). Next, based on the actuary's recommended inflation and investment expense assumption, we estimated the nominal return net of investment expenses (col. (8)). As the table shows, the average one-year nominal return (net of expenses) of the eight firms is 7.04 percent, which is 0.04 percent more than the current assumption of 7.00 percent, assuming inflation of 3.00 percent.

In addition to examining the expected one-year return, it is important to review anticipated volatility of the investment portfolio and understand the range of long-term net return that could be expected to be produced by the investment portfolio. Therefore, the table on the following page provides the 25th, 50th, and 75th percentiles of the 30-year geometric average of the expected nominal return, net of expenses, as well as the probability of exceeding the current 7.00 percent assumption.

Investment Consultant	Distribution of 30-Year Average Geometric Net Nominal Return			Probability of exceeding
	25th	50th	75th	7.00%
(1)	(2)	(3)	(4)	(5)
1	4.83%	5.88%	6.95%	23.98%
2	5.52%	6.51%	7.51%	37.06%
3	5.53%	6.52%	7.52%	37.26%
4	5.38%	6.54%	7.71%	39.45%
5	5.67%	6.77%	7.88%	44.41%
6	5.95%	6.95%	7.96%	48.62%
7	6.66%	7.98%	9.30%	69.18%
8	5.15%	6.16%	7.17%	28.73%
Average	**5.59%**	**6.66%**	**7.75%**	**41.09%**

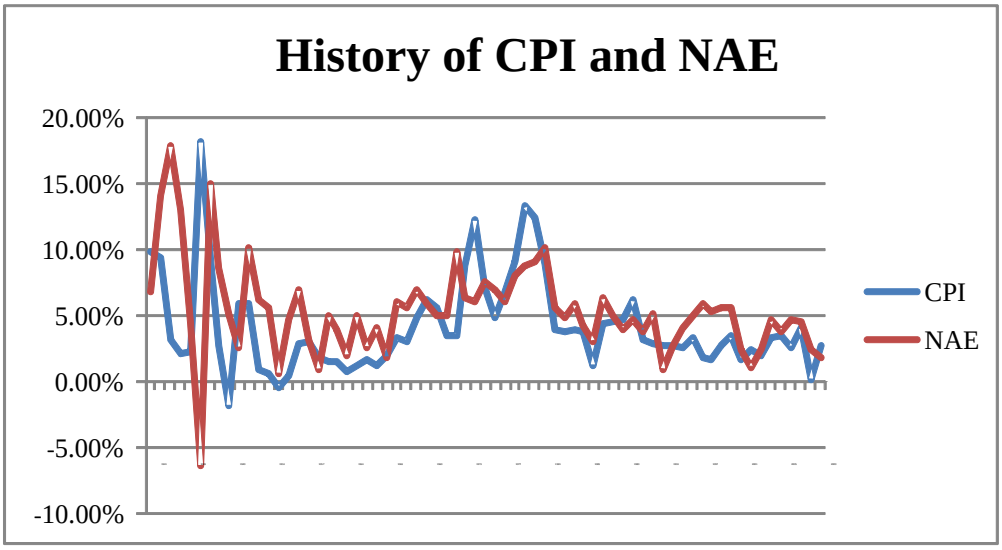
As the analysis shows, there is a 50 percent likelihood that the 30-year average net nominal return will be between 5.59 percent and 7.75 percent. This becomes the best-estimate range under ASOP 27. However, only one of the capital market assumptions provided by the sample of investment consulting firms indicate there is more than a 50 percent chance of exceeding the current assumption of 7.00 percent. Furthermore, the average results of all eight firms indicate there is about a 41 percent chance that the plan will produce an average return that exceeds 7.00 percent over the next 30 years.

Recommendation

Based on our analysis of the expected investment return and the current target asset allocation, we recommend a long-term investment return assumption of either 6.75 percent or 7.00 percent.

General Wage Increase and Payroll Growth Assumption

The assumptions make a distinction between price inflation (currently assumed to be 3.00 percent) and the rate of payroll growth (assumed to be 4.00 percent). The National Average Earnings (NAE) series published in connection with the operation of the Social Security program is a useful proxy for measuring general changes in wage levels in the economy. Increases in NAE typically exceed increases in the Consumer Price Index (CPI), although there are periods where the patterns are reversed. The economic argument for wages exceeding prices in the long run is that CPI is based on the prices of a fixed basket of goods whereas wages reflect innovations, real productivity growth, labor supply and demand, and other factors in addition to pure price inflation.



Over the last 59 years, NAE has exceeded CPI 51 times and the averages over that period are 5.3% for NAE and 4.0% for CPI. The last 25 years has had fewer cases of high inflation, but the distinction between prices and wages still appears. Over the last 25 years, the average increase in NAE is 3.9% and the average increase in CPI is 2.9%.

As with the investment return assumption, past experience does not dictate future expectations. Current expectations are mixed on whether price and wage inflation will remain low in the short term, particularly due to the aftereffects of recent federal government spending. For a long term view, the 2010 Annual Report from the Trustees of the Social Security Administration (SSA) assumes an intermediate average CPI of 2.8% over the next 75 years and an intermediate growth assumption for average wages in covered employment of 4.0%. The SSA report provides alternate "Low-cost" assumptions of 1.8% CPI/3.6% wages and "High-cost" assumptions of 3.8% CPI/4.4% wages.

With ongoing pressure on the ability of cities to sustain across the board increases in wages consistent with historical norms, we do not believe there is justification to increase the assumption for productivity increases; in other words, to increase the assumed gap between price increase and wage growth. The growing influence of the global economy also suggests that the roughly 1 percent historical differential between NAE and CPI may be difficult to sustain longer term. Therefore, we recommend maintaining the assumption for productivity increases at 1.00 percent. Combining the recommendation with a 3.00 percent inflation assumption, implies a wage growth assumption 4.00 percent.

Salary Increase

The components that determine the total salary increase are wage inflation, merit and longevity increases and promotion increases.

The observed experience in Table I for the period January 1, 2005 through January 1, 2010, shows significant increases in pay for the first two years of service which is consistent with the current assumptions. We recommend making a slight adjustment to salary increase assumptions in the first five years of service.

Table and Graph I compare the salary experience, current assumptions and recommended assumptions by years of service for each of the following:

- Table I – Salary Experience by Service – Police Officers' Pension Fund
- Graph I – Salary Experience by Service – Police Officers' Pension Fund
- Table II – Salary Experience by Service – Firefighters' Pension Fund
- Graph II – Salary Experience by Service – Firefighters' Pension Fund

Table I

City of Joliet – Police Officers' Pension Fund
Salary Experience
For the Period January 1, 2005 through January 1, 2010

Service at End of Year	Number	Actual		Actual Total Increase	Expected Total Increase	Proposed Total Increase
		Prior Year	Current Year			
1	29	1,151,384	1,480,966	28.62%	30.00%	30.00%
2	71	3,040,357	4,233,302	39.24%	25.00%	27.50%
3	70	4,053,896	4,757,809	17.36%	10.00%	18.00%
4	58	3,889,630	4,207,218	8.17%	5.25%	8.00%
5	61	4,177,684	4,257,722	1.92%	5.25%	5.25%
6	64	4,216,382	4,532,325	7.49%	5.25%	5.25%
7	60	4,138,765	4,505,993	8.87%	5.25%	5.25%
8	63	4,543,194	4,795,707	5.56%	5.25%	5.25%
9	68	4,988,882	5,262,863	5.49%	5.25%	5.25%
10	56	4,165,987	4,505,705	8.15%	5.25%	5.25%
11	58	4,375,027	4,583,066	4.76%	5.25%	5.25%
12	63	4,755,959	5,175,896	8.83%	5.25%	5.25%
13	61	4,839,485	5,179,067	7.02%	5.25%	5.25%
14	61	4,943,082	5,153,514	4.26%	5.25%	5.25%
15	58	4,760,805	5,102,526	7.18%	5.25%	5.25%
16	47	3,924,451	4,152,710	5.82%	5.25%	5.25%
17	44	3,694,582	3,862,722	4.55%	5.25%	5.25%
18	44	3,711,607	3,950,481	6.44%	5.25%	5.25%
19	37	3,164,647	3,344,555	5.68%	5.25%	5.25%
20	33	2,926,488	3,073,446	5.02%	5.25%	5.25%
21	29	2,565,871	2,637,268	2.78%	5.25%	5.25%
22	21	1,810,487	1,874,995	3.56%	5.25%	5.25%
23	14	1,218,583	1,313,721	7.81%	5.25%	5.25%
24	13	1,201,615	1,242,088	3.37%	5.25%	5.25%
25	17	1,546,280	1,597,666	3.32%	5.25%	5.25%
26	20	1,745,638	1,868,380	7.03%	5.25%	5.25%
27	22	1,983,821	2,087,391	5.22%	5.25%	5.25%
28	28	2,615,771	2,735,317	4.57%	5.25%	5.25%
29	27	2,612,450	2,739,787	4.87%	5.25%	5.25%
30+	89	8,577,940	8,943,422	4.26%	5.25%	5.25%
Total	**1,386**	**105,340,750**	**113,157,628**	**7.42%**	**6.27%**	**6.75%**

Graph I

City of Joliet – Police Officers' Pension Fund

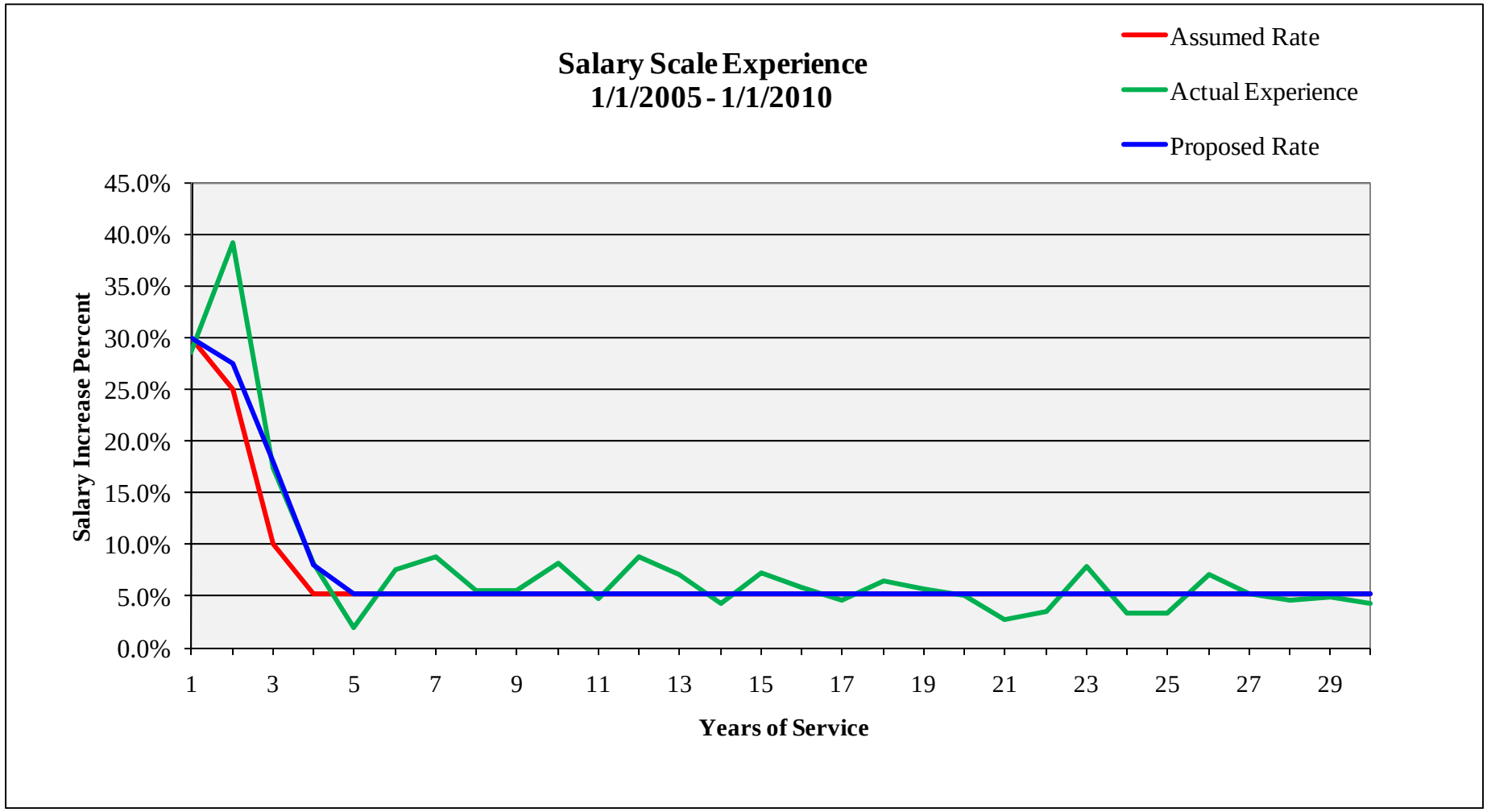


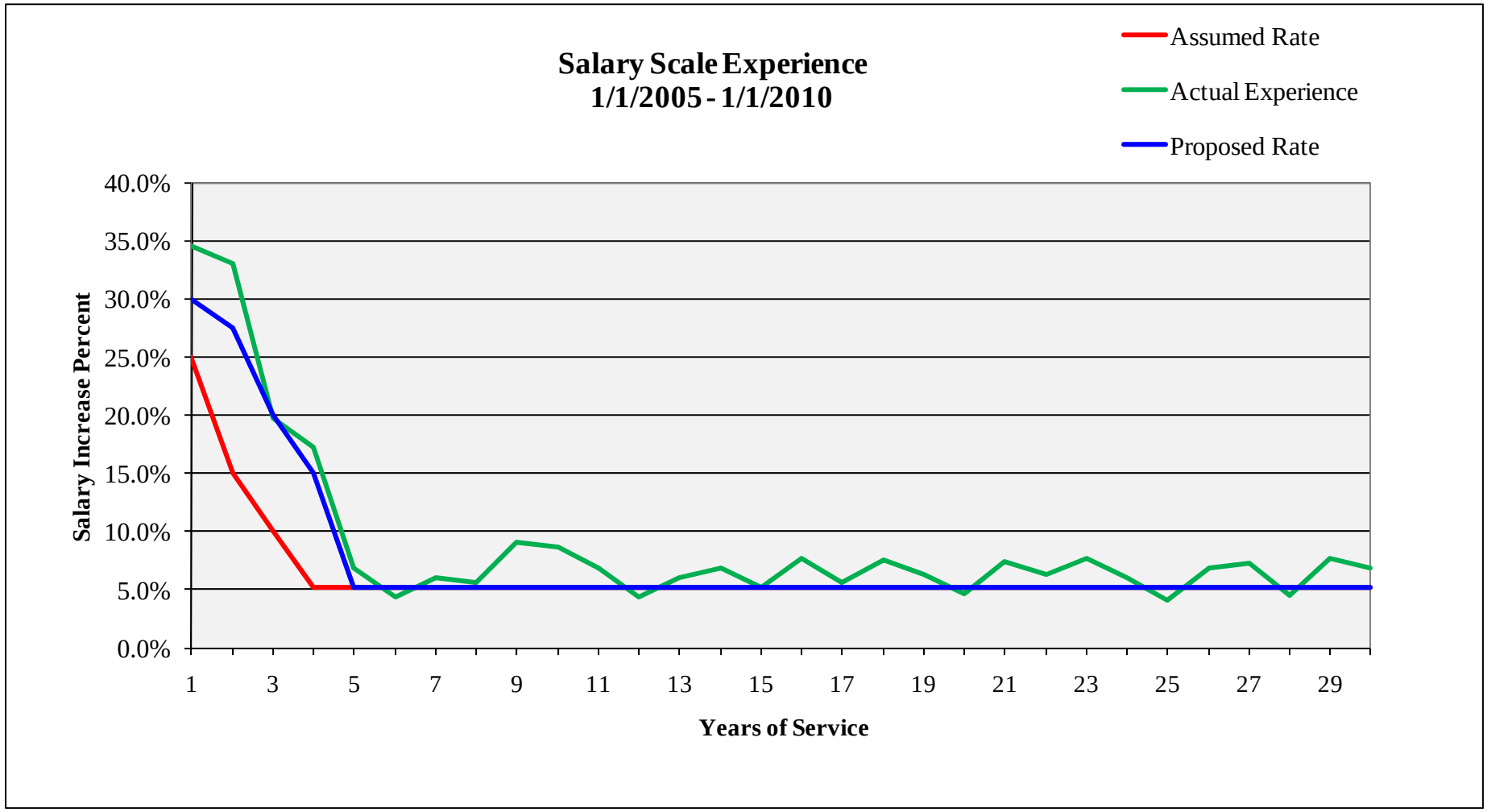
Table II

City of Joliet – Firefighters' Pension Fund
Salary Experience
For the Period January 1, 2005 through January 1, 2010

Service at End of Year	Number	Actual		Actual Total Increase	Expected Total Increase	Proposed Total Increase
		Prior Year	Current Year			
1	22	957,479	1,287,902	34.51%	25.00%	30.00%
2	58	2,772,032	3,688,382	33.06%	15.00%	27.50%
3	68	4,161,407	4,984,550	19.78%	10.00%	20.00%
4	63	4,356,569	5,109,594	17.28%	5.25%	15.00%
5	47	3,417,068	3,650,255	6.82%	5.25%	5.25%
6	52	3,949,518	4,122,450	4.38%	5.25%	5.25%
7	54	4,194,894	4,448,540	6.05%	5.25%	5.25%
8	46	3,660,797	3,866,587	5.62%	5.25%	5.25%
9	48	3,779,448	4,122,914	9.09%	5.25%	5.25%
10	43	3,412,060	3,708,588	8.69%	5.25%	5.25%
11	39	3,252,460	3,475,475	6.86%	5.25%	5.25%
12	39	3,336,378	3,479,981	4.30%	5.25%	5.25%
13	40	3,490,632	3,701,227	6.03%	5.25%	5.25%
14	43	3,639,833	3,888,034	6.82%	5.25%	5.25%
15	36	3,076,303	3,237,280	5.23%	5.25%	5.25%
16	37	3,235,348	3,482,019	7.62%	5.25%	5.25%
17	36	3,289,927	3,472,259	5.54%	5.25%	5.25%
18	33	3,079,521	3,311,019	7.52%	5.25%	5.25%
19	24	2,234,725	2,375,559	6.30%	5.25%	5.25%
20	20	1,895,102	1,983,781	4.68%	5.25%	5.25%
21	18	1,748,178	1,877,489	7.40%	5.25%	5.25%
22	11	1,131,911	1,203,052	6.29%	5.25%	5.25%
23	10	1,049,182	1,129,828	7.69%	5.25%	5.25%
24	6	634,567	673,130	6.08%	5.25%	5.25%
25	5	571,925	595,654	4.15%	5.25%	5.25%
26	3	323,993	345,978	6.79%	5.25%	5.25%
27	8	857,008	918,980	7.23%	5.25%	5.25%
28	7	730,463	763,819	4.57%	5.25%	5.25%
29	8	837,543	902,389	7.74%	5.25%	5.25%
30+	19	1,934,049	2,065,377	6.79%	5.25%	5.25%
Total	**943**	**75,010,320**	**81,872,092**	**9.15%**	**6.13%**	**7.77%**

Graph II

City of Joliet – Firemen's Pension Fund



CITY OF JOLIET – POLICE OFFICERS' AND FIREFIGHTERS' PENSION FUNDS
DEMOGRAPHIC ASSUMPTIONS

The following pages present the analysis of the demographic assumptions. These assumptions include assumed rates of mortality, retirement patterns, disability incidence, and turnover patterns. These patterns generally take the form of tables of rates of incidence based on age and/or years of service.

Absent any significant changes in benefit provisions, these assumptions generally exhibit reasonable consistency over periods of time. As a result, each demographic assumption is normally reviewed by relating actual experience to that assumed over the recent past.

The analysis of demographic experience is conducted for each assumption using a measure known as the "Actual to Expected (A/E) Ratio." The A/E Ratio is simply the ratio of the actual number of occurrences of the event to which the assumption applies (e.g., deaths or retirements) to the number expected to occur in accordance with the assumption. An A/E Ratio of 1.00 indicates that the assumption precisely predicted the number of occurrences. An A/E Ratio exceeding 1.00 indicates that the assumption underestimated actual experience. Conversely, an A/E Ratio lower than 1.00 indicates that the assumption overestimated actual experience.

These are statistical analyses. As a result, there are several considerations we must keep in mind as we analyze these ratios:

1. An actuarial assumption is designed to reflect average experience over long periods of time (30 - 50 years). As a result:

    a) A deviation between actual experience and that expected from our assumptions for one or two years does not necessarily mean that the assumption should be changed.

    b) A change in actuarial assumption should result if the experience indicates a consistent pattern which is different from that assumed over a period of years.

2. The larger the amount of data available, the more reliable are the statistics used in the analysis. As a result:

    a) Events that occur with great frequency (e.g., general employment turnover) are more credibly predictable than those occurring less frequently (e.g., active member death).

    b) In all cases, data covering the entire study period produce more credible results than data for a single year.

    c) Year by year experience is helpful only in identifying trends and determining whether the four-year data is truly reflective of the entire period.

This analysis is based on the valuation data for the five-year period from January 1, 2005, to January 1, 2010.

Retirement

Experience during the last five years was considered in the analysis shown on the following pages. The "Exposure" column shows the number of employees eligible to retire at various ages throughout the experience period. An individual could potentially be counted up to five times if eligible each year in the period. By tabulating employees in this fashion we are able to answer the question "For all employees eligible at condition X, how many retired?"

Current and past experience has shown that retirement rates under this plan are correlated with age.

Currently, the Plan uses age-based rates with higher rates with 100 percent retirement at age 65. We recommend the increasing the rates for certain ages to reflect a higher level of retirement

For members hired after January 1, 2011, the reduction for early retirement is much higher for retirements before age 55; therefore, we recommend that the retirement rates for ages 50 through 54 be reduced to 5.0 percent per year.

Tables I and II compare the retirement experience, current assumptions and recommended assumptions by age for the following:

- Table I – Retirement Experience by Age – Police Officers' Pension Fund
- Table II – Retirement Experience by Age – Firefighters' Pension Fund

Table I

City of Joliet – Police Officers' Pension Fund
Retirement Experience
For the Period January 1, 2005 through January 1, 2010

	Actual Experience			Current Assumptions			Proposed Assumptions		
Nearest Age @ Retirement	Exposures	Retirements	Actual Rate	Expected Retirements	Assumed Rate[1]	Actual / Expected	Expected Retirements	Proposed Rate[1]	Actual / Expected
50	29	2	6.9%	1	5.0%	1.4	2	7.5%	0.9
51	34	2	5.9%	2	5.0%	1.2	3	7.5%	0.8
52	40	9	22.5%	2	5.0%	4.5	6	15.0%	1.5
53	29	6	20.7%	3	10.0%	2.1	4	15.0%	1.4
54	26	4	15.4%	3	10.0%	1.5	4	15.0%	1.0
55	24	6	25.0%	2	10.0%	2.5	6	25.0%	1.0
56	19	8	42.1%	2	10.0%	4.2	5	25.0%	1.7
57	11	4	36.4%	1	10.0%	3.6	3	25.0%	1.5
58	9	2	22.2%	2	25.0%	0.9	2	25.0%	0.9
59	8	4	50.0%	2	25.0%	2.0	2	25.0%	2.0
60	3	0	0.0%	1	25.0%	0.0	1	25.0%	0.0
61	4	2	50.0%	2	50.0%	1.0	2	50.0%	1.0
62	2	2	100.0%	1	50.0%	2.0	1	50.0%	2.0
63	0	0		0	50.0%		0	50.0%	
64	0	0		0	50.0%		0	50.0%	
65	0	0		0	100.0%		0	100.0%	
66	0	0		0	100.0%		0	100.0%	
67	0	0		0	100.0%		0	100.0%	
68	0	0		0	100.0%		0	100.0%	
69	0	0		0	100.0%		0	100.0%	
70	0	0		0	100.0%		0	100.0%	
Totals:	**238**	**51**	**21.4%**	**24**	**10.1%**	**2.1**	**40**	**17.0%**	**1.3**

For members hired after January 1, 2011, the rates for ages 50 through 54 would be reduced to 5.0 percent per year.

Table II

City of Joliet – Firefighters' Pension Fund
Retirement Experience
For the Period January 1, 2005 through January 1, 2010

	Actual Experience			Current Assumptions			Proposed Assumptions		
Nearest Age @ Retirement	Exposures	Retirements	Actual Rate	Expected Retirements	Assumed Rate[1]	Actual / Expected	Expected Retirements	Proposed Rate[1]	Actual / Expected
50	6	1	16.7%	0	5.0%	3.3	0	5.0%	3.3
51	5	1	20.0%	0	5.0%	4.0	0	5.0%	4.0
52	6	0	0.0%	0	5.0%	0.0	0	5.0%	0.0
53	14	2	14.3%	1	10.0%	1.4	1	10.0%	1.4
54	13	4	30.8%	1	10.0%	3.1	3	20.0%	1.5
55	11	6	54.5%	1	10.0%	5.5	3	25.0%	2.2
56	8	6	75.0%	2	25.0%	3.0	2	30.0%	2.5
57	3	1	33.3%	1	25.0%	1.3	1	30.0%	1.1
58	3	1	33.3%	1	25.0%	1.3	1	30.0%	1.1
59	2	1	50.0%	1	25.0%	2.0	1	30.0%	1.7
60	2	0	0.0%	1	25.0%	0.0	1	30.0%	0.0
61	2	2	100.0%	1	25.0%	4.0	1	50.0%	2.0
62	1	0	0.0%	0	25.0%	0.0	1	50.0%	0.0
63	2	1	50.0%	1	50.0%	1.0	1	50.0%	1.0
64	1	1	100.0%	1	50.0%	2.0	1	50.0%	2.0
65	0	0		0	100.0%		0	100.0%	
66	0	0		0	100.0%		0	100.0%	
67	0	0		0	100.0%		0	100.0%	
68	0	0		0	100.0%		0	100.0%	
69	0	0		0	100.0%		0	100.0%	
70	0	0		0	100.0%		0	100.0%	
Totals:	**79**	**27**	**34.2%**	**11**	**14.4%**	**2.4**	**16**	**20.3%**	**1.7**

For members hired after January 1, 2011, the rates for ages 50 through 54 would be reduced to 5.0 percent per year.

Turnover

Turnover experience during the last five years was considered in the analysis shown on the following pages. The "Exposure" column shows the number of employees at various years of service throughout the experience period. The number of exposures excludes members that were eligible to retire with a minimum annuity formula benefit.

The "Turnover" column shows the number of employees at various years of service that have gone from active status for reasons other than retirement and death.

We recommend decreasing the turnover rates to reflect an overall lower level of turnover.

Tables I and II compare the turnover experience, current assumptions and recommended assumptions by age for the following:

- Table I – Turnover Experience by Age – Police Officers' Pension Fund
- Table II – Turnover Experience by Age – Firefighters' Pension Fund

Table I

City of Joliet – Police Officers' Pension Fund
Turnover Experience
For the Period January 1, 2005 through January 1, 2010

Service EOY	Actual Experience			Current Assumptions			Proposed Assumptions		
	Exposures	Turnover	Actual Rate	Expected Turnover	Assumed Rate	Actual / Expected[1]	Expected Turnover	Proposed Rate	Actual / Expected[2]
1	31	2	6.45%	1	3.80%	1.7	1	4.00%	1.6
2	74	3	4.05%	3	3.80%	1.1	3	4.00%	1.0
3	70	0	0.00%	3	3.60%	0.0	3	3.60%	0.0
4	61	3	4.92%	2	3.40%	1.4	2	3.20%	1.5
5	62	1	1.61%	2	3.10%	0.5	2	2.80%	0.6
6	64	0	0.00%	2	2.90%	0.0	2	2.40%	0.0
7	61	1	1.64%	2	2.70%	0.6	1	2.00%	0.8
8	63	0	0.00%	2	2.60%	0.0	1	1.60%	0.0
9	68	0	0.00%	2	2.40%	0.0	1	1.40%	0.0
10	56	0	0.00%	1	2.20%	0.0	1	1.20%	0.0
11	58	0	0.00%	1	2.00%	0.0	1	0.90%	0.0
12	63	0	0.00%	1	1.90%	0.0	1	0.90%	0.0
13	61	0	0.00%	1	1.70%	0.0	1	0.90%	0.0
14	62	1	1.61%	1	1.60%	1.0	1	0.90%	1.8
15	59	1	1.69%	1	1.40%	1.2	1	0.90%	1.9
16	47	0	0.00%	1	1.30%	0.0	0	0.90%	0.0
17	45	0	0.00%	1	1.20%	0.0	0	0.90%	0.0
18	45	1	2.22%	0	1.00%	2.2	0	0.90%	2.5
19	38	0	0.00%	0	0.90%	0.0	0	0.90%	0.0
20	33	0	0.00%	0	0.90%	0.0	0	0.90%	0.0
21	29	0	0.00%	0	0.90%	0.0	0	0.90%	0.0
22	23	0	0.00%	0	0.90%	0.0	0	0.90%	0.0
23	15	1	6.67%	0	0.90%	7.4	0	0.90%	7.4
24	13	0	0.00%	0	0.80%	0.0	0	0.80%	0.0
25	18	0	0.00%	0	0.70%	0.0	0	0.70%	0.0
26	22	0	0.00%	0	0.60%	0.0	0	0.60%	0.0
27	22	0	0.00%	0	0.60%	0.0	0	0.60%	0.0
28	30	0	0.00%	0	0.50%	0.0	0	0.50%	0.0
29	30	0	0.00%	0	0.50%	0.0	0	0.50%	0.0
30+	131	1	0.76%	0	0.00%		0	0.00%	
Totals:	**1,454**	**15**	**1.03%**	**27**	**1.88%**	**0.5**	**22**	**1.50%**	**0.7**

Table II

City of Joliet – Firefighters' Pension Fund
Turnover Experience
For the Period January 1, 2005 through January 1, 2010

Service EOY	Actual Experience			Current Assumptions			Proposed Assumptions		
	Exposures	Turnover	Actual Rate	Expected Turnover	Assumed Rate	Actual / Expected[1]	Expected Turnover	Proposed Rate	Actual / Expected[2]
1	22	0	0.00%	0	1.50%	0.0	0	1.40%	0.0
2	61	3	4.92%	1	1.30%	3.8	1	1.20%	4.1
3	68	0	0.00%	1	1.20%	0.0	1	1.10%	0.0
4	63	0	0.00%	1	1.10%	0.0	1	1.00%	0.0
5	47	0	0.00%	1	1.10%	0.0	0	1.00%	0.0
6	52	0	0.00%	1	1.00%	0.0	0	0.90%	0.0
7	54	0	0.00%	0	0.90%	0.0	0	0.80%	0.0
8	46	0	0.00%	0	0.80%	0.0	0	0.70%	0.0
9	48	0	0.00%	0	0.80%	0.0	0	0.70%	0.0
10	43	0	0.00%	0	0.70%	0.0	0	0.60%	0.0
11	39	0	0.00%	0	0.70%	0.0	0	0.60%	0.0
12	41	1	2.44%	0	0.60%	4.1	0	0.50%	4.9
13	40	0	0.00%	0	0.50%	0.0	0	0.40%	0.0
14	43	0	0.00%	0	0.50%	0.0	0	0.40%	0.0
15	36	0	0.00%	0	0.40%	0.0	0	0.30%	0.0
16	37	0	0.00%	0	0.40%	0.0	0	0.30%	0.0
17	38	0	0.00%	0	0.40%	0.0	0	0.30%	0.0
18	33	0	0.00%	0	0.30%	0.0	0	0.20%	0.0
19	24	0	0.00%	0	0.30%	0.0	0	0.20%	0.0
20	20	0	0.00%	0	0.30%	0.0	0	0.20%	0.0
21	19	0	0.00%	0	0.30%	0.0	0	0.20%	0.0
22	11	0	0.00%	0	0.20%	0.0	0	0.10%	0.0
23	10	0	0.00%	0	0.20%	0.0	0	0.10%	0.0
24	6	0	0.00%	0	0.20%	0.0	0	0.10%	0.0
25	5	0	0.00%	0	0.20%	0.0	0	0.10%	0.0
26	3	0	0.00%	0	0.20%	0.0	0	0.10%	0.0
27	8	0	0.00%	0	0.20%	0.0	0	0.10%	0.0
28	9	0	0.00%	0	0.20%	0.0	0	0.10%	0.0
29	10	0	0.00%	0	0.00%		0	0.00%	
30+	43	0	0.00%	0	0.00%		0	0.00%	
Totals:	**979**	**4**	**0.41%**	**7**	**0.71%**	**0.6**	**6**	**0.62%**	**0.7**

Disability

Disability experience during the last five years was considered in the analysis shown on the following pages. The "Exposure" column shows the number of employees at various ages throughout the experience period.

We recommend maintaining the current disability rates.

Tables I and II compare the disability experience, current assumptions and recommended assumptions by age for the following:

- Table I – Disability Experience by Age – Police Officers' Pension Fund
- Table II – Disability Experience by Age – Firefighters' Pension Fund

Table I

City of Joliet – Police Officers' Pension Fund
Disability Experience
For the Period January 1, 2005 through January 1, 2010

Age @ Disablement	Actual Experience			Current Assumptions			Proposed Assumptions		
	Exposures	Disabilities	Actual Rate	Expected Disabilities	Assumed Rate	Actual / Expected	Expected Disabilities	Proposed Rate	Actual / Expected
20-24	16.0	0.0	0.00%	0.0	0.04%	0.0	0.0	0.04%	0.0
25-29	163.0	0.0	0.00%	0.1	0.05%	0.0	0.1	0.05%	0.0
30-34	257.0	0.0	0.00%	0.1	0.06%	0.0	0.1	0.06%	0.0
35-39	339.0	0.0	0.00%	0.3	0.08%	0.0	0.3	0.08%	0.0
40-44	247.0	0.0	0.00%	0.3	0.12%	0.0	0.3	0.12%	0.0
45-49	170.0	0.0	0.00%	0.3	0.19%	0.0	0.3	0.19%	0.0
50-54	180.0	0.0	0.00%	0.6	0.33%	0.0	0.6	0.33%	0.0
55-59	73.0	0.0	0.00%	0.4	0.59%	0.0	0.4	0.59%	0.0
60-64	9.0	0.0	0.00%	0.1	0.95%	0.0	0.1	0.95%	0.0
Totals:	**1,454.0**	**0.0**	**0.00%**	**2.2**	**0.15%**	**0.0**	**2.2**	**0.15%**	**0.0**

Table II

City of Joliet – Firefighters' Pension Fund
Disability Experience
For the Period January 1, 2005 through January 1, 2010

Age @ Disablement	Actual Experience			Current Assumptions			Proposed Assumptions		
	Exposures	Disabilities	Actual Rate	Expected Disabilities	Assumed Rate	Actual / Expected	Expected Disabilities	Proposed Rate	Actual / Expected
20-24	13.0	0.0	0.00%	0.0	0.09%	0.0	0.0	0.09%	0.0
25-29	127.0	0.0	0.00%	0.1	0.10%	0.0	0.1	0.10%	0.0
30-34	187.0	0.0	0.00%	0.2	0.11%	0.0	0.2	0.11%	0.0
35-39	225.0	1.0	0.44%	0.3	0.13%	3.4	0.3	0.13%	3.4
40-44	195.0	1.0	0.51%	0.3	0.17%	3.0	0.3	0.17%	3.0
45-49	129.0	0.0	0.00%	0.3	0.24%	0.0	0.3	0.24%	0.0
50-54	68.0	0.0	0.00%	0.7	0.96%	0.0	0.7	0.96%	0.0
55-59	27.0	0.0	0.00%	0.4	1.57%	0.0	0.4	1.57%	0.0
60-64	8.0	1.0	12.50%	0.2	2.73%	4.6	0.2	2.73%	4.6
Totals:	**979.0**	**3.0**	**0.31%**	**2.6**	**0.26%**	**1.2**	**2.6**	**0.26%**	**1.2**

Mortality

Post-retirement mortality is an important, but relatively stable, component in cost calculations. This assumption should be updated from time to time to reflect current and expected future longevity improvements. Pre-retirement mortality is a relatively minor component in cost calculations. The frequency of pre-retirement deaths is so low that mortality assumptions based on actual experience can only be produced for very large retirement systems.

The trend of mortality improvement has been a long and relatively constant one in the United States over the past century. Most experts agree that overall mortality will improve in the near future. There are differing opinions on the long term trend in mortality improvement. In order to allow for expected future mortality improvements, we recommend adopting an assumption that would assume less deaths than actually occurred based on historical data.

We recommend updating the mortality tables form the 1983 Group Annuity Mortality tables to the 1994 Group Annuity Mortality table. The table on the following page compares annuity values and life expectancies under both the current tables and the recommended tables.

A Note about Mortality Rates

The recommended healthy mortality assumptions are based on the 1994 Group Annuity Mortality table. We are recommending the use of the 1994 Group Annuity Mortality table as a static table, which means that the probability of a 60-year-old male dying in the upcoming year is 0.7976 percent, whether the 60-year-old was born in 1948 or 1988.

The use of generational mortality tables is an emerging trend in the actuarial industry, and is based on the assumption that life expectancy increases from generation to generation. Simply put, this means that the life expectancy of someone born in 1988 is greater than that of someone born in 1948. Adopting a generational mortality table tends to increase liabilities, as future increases in life expectancy imply longer payment of retirement benefits. Should the assumption of increased life expectancy prove true, actuarial valuations that continue to use static mortality tables will be required to update their tables to reflect the improved life expectancy, resulting in liability increases in the future. To the extent that future mortality improvements can be reflected in a current valuation, retirement systems can begin to fund the increased liabilities, thereby reducing (or eliminating) future contribution rate increases that would eventually occur with the use of static tables.

Critics of generational mortality tables point to recent trends in declining health in the United States, such as increases in the incidence of childhood obesity and diabetes, as evidence against the premise of continued mortality improvements in the future.

We believe that the recommended mortality tables contain a sufficient level of conservatism to cover any increases in life expectancy in the near future. We will continue to monitor the use and acceptance of generational mortality tables by public retirement systems and keep the City and Pension Boards apprised of emerging trends.

Comparison of Mortality Tables

1983 Group Annuity Mortality Table

Sample Attained Ages	Single Life Retirement Values: Present Value of $1 Monthly for Life		Single Life Retirement Values: Future Life Expectancy (years)	
	Men	Women	Men	Women
50	$ 144.69	$ 155.06	29.18	34.92
55	135.45	147.81	24.83	30.24
60	124.06	138.53	20.64	25.67
65	110.40	126.98	16.69	21.29
70	95.57	112.91	13.18	17.13
75	80.25	97.07	10.15	13.38
80	65.26	81.04	7.64	10.20

1994 Group Annuity Mortality Table

Sample Attained Ages	Single Life Retirement Values: Present Value of $1 Monthly for Life		Single Life Retirement Values: Future Life Expectancy (years)	
	Men	Women	Men	Women
50	$ 147.78	$ 154.93	30.69	34.89
55	138.58	147.42	26.15	30.17
60	127.35	137.85	21.83	25.59
65	114.51	126.50	17.84	21.28
70	100.68	113.58	14.29	17.31
75	85.70	98.39	11.12	13.60
80	70.13	81.90	8.37	10.31

Change

Sample Attained Ages	Single Life Retirement Values: Present Value of $1 Monthly for Life		Single Life Retirement Values: Future Life Expectancy (years)	
	Men	Women	Men	Women
50	2.14%	-0.09%	1.51	(0.03)
55	2.31%	-0.26%	1.33	(0.06)
60	2.65%	-0.49%	1.19	(0.09)
65	3.72%	-0.38%	1.15	(0.01)
70	5.35%	0.60%	1.11	0.18
75	6.79%	1.37%	0.97	0.22
80	7.46%	1.06%	0.73	0.11