



March 12, 2019

Ms. Patti McLaughlin
Administrator
City of Key West
Employees' Retirement Plan
City of Key West
1300 White Street
Key West, Florida 33040

Re: Experience Study

Dear Patti:

As requested, we are pleased to enclose ten (10) copies of an experience study covering the five year period ending September 30, 2017 for the City of Key West Employees' Retirement Plan.

We appreciate the opportunity to work with the Board on this important project and look forward to presenting the results of our experience study at the Board Meeting on March 15th.

If you should have any questions concerning the above, please do not hesitate to contact us.

Sincerest regards,

A handwritten signature in black ink, appearing to read "L. F. Wilson". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Lawrence F. Wilson, A.S.A.
Senior Consultant and Actuary

Enclosures

Retirement Plan for the Employees of the City of Key West

EXPERIENCE STUDY FOR FIVE YEARS ENDED
SEPTEMBER 30, 2017

March 12, 2019



March 12, 2019

Pension Board
c/o Ms. Patti McLaughlin
Administrator - City of Key West Employee's Retirement Plan
City of Key West
1300 White Street
Key West, Florida 33040

Re: Experience Study

Dear Board Members:

Gabriel, Roeder, Smith & Company is pleased to provide the results of an Experience Study for the Retirement Plan for Employees of the City of Key West (Plan). The purpose of this report is to assist in assumption selection for future actuarial valuations by comparing actual to expected experience over a recent period of time and review economic assumptions based on current economic environment and forecasts.

This Experience Study covers the five-year period from October 1, 2012 through September 30, 2017. Based upon the results, certain changes in actuarial assumptions for actuarial valuation purposes are recommended.

The Table of Contents, which immediately follows, sets out the material contained in our report.

Our Experience Study is based upon assumptions regarding future events, which may or may not materialize and based upon Plan provisions as outlined in our October 1, 2017 Actuarial Valuation Report. Plan related documentation includes the relevant sections of the Teamster Union Local 769 Collective Bargaining Agreement for the three-year period October 1, 2017 through September 30, 2020. Should you have reason to believe the assumptions used are unreasonable, the Plan provisions are incorrectly described, the important and relevant Plan provisions are not described, or that conditions have changed since the date of the calculations, you should contact the undersigned prior to relying on information in the Experience Study.

As you may be aware, in the event that more than one change is being considered, it is important to note that separate valuations cannot generally be added together to produce a total. The total can be considerably greater or less than the sum of the parts due to interaction of various Plan provisions, actuarial assumptions and actuarial methods with each other.

This Experience Study is intended to describe the estimated future financial effects of the proposed assumption changes on the Plan.

Future actuarial measurements may differ significantly from the current measurements presented in our Report due to such factors as the following: Plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and changes in Plan provisions or applicable law. Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements.

Our Report should not be relied on for any purpose other than the purpose described in the primary communication. Determinations of the financial results associated with the benefits described in this Report in a manner other than the intended purpose may produce significantly different results.

This Experience Study has been prepared by actuaries who have substantial experience valuing public employee retirement plans. To the best of our knowledge the information contained in this Report is accurate and fairly presents the actuarial position of the Fund as of the date of this Experience Study. All calculations have been made in conformity with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable statutes.

Our Report may be provided to parties other than the Board only in its entirety and only with the permission of an approved representative of the Board.

The signing actuaries are independent of both the Plan and Board. The undersigned are Members of the American Academy of Actuaries and meet the qualification standards of the American Academy of Actuaries to render the actuarial opinions contained in this Report.

We are available to respond to any questions with regards to matters covered in this Report.

Respectfully submitted,
GABRIEL, ROEDER, SMITH & COMPANY



Lawrence F. Wilson, A.S.A., M.A.A.A., E.A., F.C.A.
Senior Consultant and Actuary



Shelly L. Jones, A.S.A., M.A.A.A., E.A., F.C.A.
Senior Analyst and Actuary

EXPERIENCE STUDY

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EXPERIENCE STUDY

SUMMARY OF FINDINGS

The five-year period (October 1, 2012 to September 30, 2017) covered by our Experience Study provided sufficient data to form a basis for recommending updates in the following demographic and financial assumptions used in the Actuarial Valuation of the Retirement Plan.

Recommended changes in actuarial assumptions resulting from this experience study including costs as a percentage of projected payroll (\$13,146,614) are summarized as follows:

- Update the future salary increase assumption to better reflect observed higher salary increases.

Cost
1.6%

- Update assumed rates of future retirement to better reflect observed retirement incidence.

Cost
(0.2%)

- Update assumed rates of future withdrawal to better reflect observed withdrawal incidence.

Cost
1.1%

- Lower the expected investment return assumption from an investment return assumption of 7.50% to 7.25%.

Cost
1.4%

- Combined effect of all of the above.

Cost
4.3%

EXPERIENCE STUDY RESULTS

The methodology, basic results and conclusions of the five-year experience study of the actuarial assumptions are described below.

Methodology

The expected salaries at the end of each year were obtained by use of the salary scale assumption (3.75% to 6.0%) used in the most recent actuarial valuation. The resulting expected salaries were then compared with the actual salaries reported.

The number of members exposed to risk during the period was tabulated (exposure) and the expected incidence of withdrawal (vested and non-vested) and retirement were obtained by use of the withdrawal and retirement rates employed in the most recent actuarial valuation. The actual number of separations and retirees were tabulated and compared with those expected.

EXPERIENCE STUDY RESULTS

Basic Results and Conclusions

Rates of Salary Increase

Observed rate of pay increases were generally higher than those expected based upon the current assumptions. Compensation increases during any years with partial pay were not included in the analysis, due to large fluctuations in pay and incomplete data.

We recommend a select and ultimate salary increase assumption where the select period reflects the current Collectively Bargained Agreement (October 1, 2017 through September 30, 2020).

Our recommended salary increase assumptions are based upon age.

We propose updated rates of salary increase as shown in the following table.

SALARY INCREASES										
Service	Current Salary Schedule			Age	Proposed Near Term Salary Schedule			Proposed Long Term Salary Schedule		
	Assumed Wage Inflation	Promotion & Seniority	Total Current Rates		Assumed Wage Inflation	Promotion & Seniority	Total Proposed Rates	Assumed Wage Inflation	Promotion & Seniority	Total Proposed Rates
0 - 1	3.75%	2.25%	6.00%	< 30	4.00%	2.75%	6.75%	3.25%	2.75%	6.00%
1 - 2	3.75%	2.25%	6.00%	30 - 39	4.00%	1.75%	5.75%	3.25%	1.75%	5.00%
2 - 3	3.75%	1.25%	5.00%	40 - 49	4.00%	1.75%	5.75%	3.25%	1.75%	5.00%
3 - 4	3.75%	1.25%	5.00%	50 - 59	4.00%	1.75%	5.75%	3.25%	1.75%	5.00%
4 - 5	3.75%	1.25%	5.00%	60 +	4.00%	0.75%	4.75%	3.25%	0.75%	4.00%
5 - 6	3.75%	1.00%	4.75%							
6 - 7	3.75%	1.00%	4.75%							
7 - 8	3.75%	0.75%	4.50%							
8 - 9	3.75%	0.50%	4.25%							
9 - 10	3.75%	0.25%	4.00%							
10 & over	3.75%	0.00%	3.75%							

EXPERIENCE STUDY RESULTS

Rates of Retirement

Observed experience indicates slightly more members retired under early retirement than expected under the assumed rates of early retirement used in the latest actuarial valuation.

Fewer normal and late retirements than expected were observed between ages 55 to 59 as well as ages 62 to 74 under the assumed rates of normal retirement used in the latest actuarial valuation.

Observed experience also indicates more members are working past age 65 than expected under the assumed rates of normal retirement used in the latest actuarial valuation.

We propose updated retirement rates as shown in the following table.

EARLY RETIREMENT RATES		
Age	Expected Current	Expected Proposed
55	15.0%	15.0%
56 - 59	5.0%	10.0%

NORMAL RETIREMENT RATES		
Age	Expected Current	Expected Proposed
less than 55	15.0%	20.0%
55	40.0%	20.0%
56 - 59	40.0%	30.0%
60 - 61	25.0%	30.0%
62 - 64	35.0%	30.0%
65 - 74	50.0%	35.0%
75 - 79	100.0%	50.0%
80 - 84	100.0%	100.0%
85 & Older	100.0%	100.0%

EXPERIENCE STUDY RESULTS

Rates of Withdrawal

The actual number of withdrawals was slightly lower than the expected number of withdrawals except in the first year.

We propose updated rates of withdrawal as shown in the following table.

WITHDRAWAL RATES		
Service	Current	Proposed
0 - 1	22.0%	25.0%
1 - 2	22.0%	22.0%
2 - 3	16.0%	16.0%
3 - 4	16.0%	14.0%
4 - 5	10.0%	10.0%
5 - 6	10.0%	10.0%
6 - 7	9.0%	9.0%
7 - 8	9.0%	8.0%
8 - 9	8.0%	6.0%
9 - 10	8.0%	6.0%
10+	4.0%	2.0%

EXPERIENCE STUDY RESULTS

Rates of Mortality

We recommend no changes to the assumed mortality rates for healthy or disabled lives. Mortality rates are currently based upon the assumptions used by the Florida Retirement System (FRS) as required under F.S., Chapter 2015-157.

EXPERIENCE STUDY RESULTS

Investment Return and Inflation

Economic assumptions include **long-term rates of investment return** (net after investment expenses), **inflation** and **wage inflation** (the across-the-board portion of salary increases). Unlike demographic activities, economic activities do not lend themselves to analysis solely on the basis of internal historical patterns because both salary increases and investment return are more affected by external forces; namely inflation (both wage and price), general productivity changes and the local economic environment which defy accurate long-term prediction. Estimates of economic activities are generally selected on the basis of the expectations in an inflation-free environment and then both are increased by some provision for anticipated long-term inflation.

If wage inflation and / or productivity increases are higher than expected, it will be expected to result in both actual rates of salary increases and investment return which exceed the assumed rates. Salaries increasing faster than expected produce unexpected liabilities. Investment return exceeding the assumed rates (whether due to manager performance, change in the mix of assets or general market conditions) results in unanticipated assets. To the extent inflation, productivity and other factors have about the same effect on both sides of the balance sheet, these additional assets and liabilities may offset one another over the long-term.

Wage Inflation. The average rate of increase in National Average Earnings over the 60 years ended December 31, 2017 is higher than the current 3.75% assumption (see schedule on page 11). The difference between the long-term averages and more recent experience is related to the excess rates of price and wage inflation during the 1970s, which most observers do not expect to see repeated. When the decade of high inflation is factored out, long term national averages are just above 4.0%. Most recently, during the last five years annual wage inflation has averaged 3.0%. We recommend a long term wage inflation assumption of 3.25%.

Inflation. The average rate of inflation as measured by the Consumer Price Index over the 60 years ended December 31, 2017 is higher than the current 2.75% assumption. The difference between the long-term averages and more recent experience is related to the excess rates of price and wage inflation during the 1970s, which most observers do not expect to see continue. Recent inflation remains below the current 2.75% assumption. We recommend an inflation assumption of 2.50%.

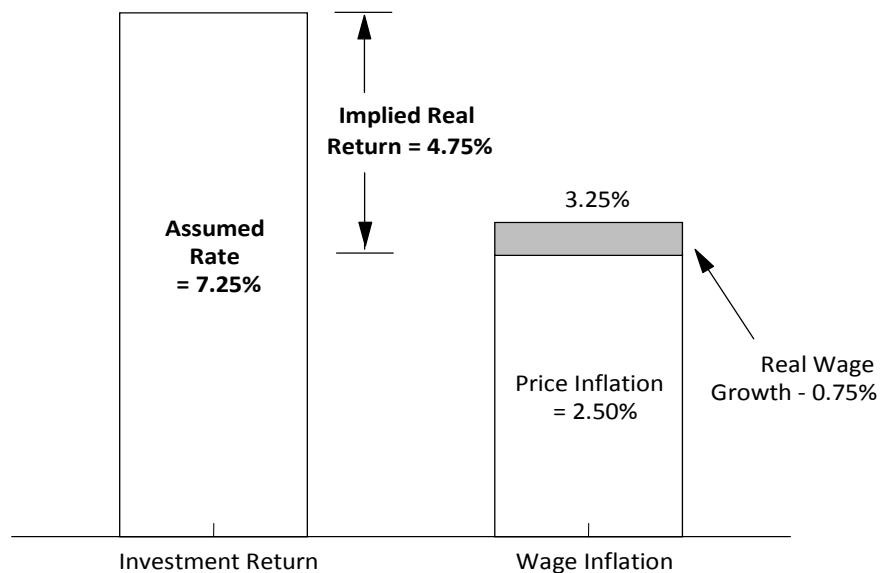
Investment Return and Spread. The current asset portfolio for the Plan is a diversified mix of equity and fixed income investments. Real market returns (the spread between recognized net investment return and inflation) for balanced portfolios have averaged 5.2% over the last 60 years ended December 31, 2017 (see schedule on page 11). Only hindsight will tell whether a particular combination of economic assumptions is optimal. If future economic patterns are as favorable as in the 1980's and 1990's, this spread would prove to be conservative. If, on the other hand, the investment markets produce lower real returns, contribution rate increases will become likely at some future date.

EXPERIENCE STUDY RESULTS

Investment Return and Inflation

The current real return assumption for the pension valuation is 4.75% (7.50% nominal return less 2.75% inflation). The inflation assumption would be considered by most observers applying current standards to be somewhat on the optimistic side of an acceptable range. We have modeled a different mixture of nominal rate and inflation for the same real return assumption of 4.75% (a 7.25% nominal rate less 2.50% inflation).

An example relationship between economic assumptions based on a 4.75% real return (7.25% investment return and 2.50% inflation) is illustrated below:



EXPERIENCE STUDY RESULTS

Investment Return and Inflation

Calendar Year Period	Gross Market Returns				Price Inflation (CPI)	National Average Earnings (NAE)	Sample Balanced Fund *	
	Bonds, Long		Cash Equivalents (T-Bills)	Stocks (S&P 500)			Total Return (I)	Spread: I - CPI - e
	U.S. Treasury	Corp. (S&P AA)						
1950-1959	(0.1)%	1.0 %	1.9 %	19.4 %	2.2 %	4.5 %	12.2 %	9.5 %
1960-1969	1.4 %	1.7 %	3.9 %	7.8 %	2.5 %	4.3 %	5.7 %	2.7 %
1970-1979	5.5 %	6.2 %	6.3 %	5.9 %	7.4 %	6.9 %	6.2 %	(1.7)%
1980-1989	12.6 %	13.0 %	8.9 %	17.5 %	5.1 %	5.8 %	15.7 %	10.1 %
1990-1999	8.8 %	8.4 %	4.9 %	18.2 %	2.9 %	4.2 %	14.4 %	11.0 %
2000-2009	7.7 %	7.6 %	2.8 %	(0.9)%	2.5 %	3.3 %	3.2 %	0.2 %
2000	21.5 %	12.9 %	5.9 %	(9.1)%	3.4 %	5.5 %	1.1 %	(2.8)%
2001	3.7 %	10.7 %	3.8 %	(11.9)%	1.6 %	2.4 %	(4.6)%	(6.7)%
2002	17.8 %	16.3 %	1.7 %	(22.1)%	2.4 %	1.0 %	(7.2)%	(10.1)%
2003	1.5 %	5.3 %	1.0 %	28.7 %	1.9 %	2.4 %	18.4 %	16.0 %
2004	8.5 %	8.7 %	1.2 %	10.9 %	3.3 %	4.7 %	9.6 %	5.8 %
2005	7.8 %	5.9 %	3.0 %	4.9 %	3.4 %	3.7 %	5.5 %	1.6 %
2006	1.2 %	3.2 %	4.8 %	15.8 %	2.5 %	4.6 %	10.4 %	7.4 %
2007	9.9 %	2.6 %	4.7 %	5.5 %	4.1 %	4.5 %	5.9 %	1.3 %
2008	25.9 %	8.8 %	1.6 %	(37.0)%	0.1 %	2.3 %	(15.6)%	(16.2)%
2009	(14.9)%	3.0 %	0.1 %	26.5 %	2.7 %	(1.5)%	13.4 %	10.2 %
2010	10.1 %	12.4 %	0.1 %	15.1 %	1.5 %	2.4 %	12.9 %	10.9 %
2011	28.2 %	18.0 %	0.0 %	2.1 %	3.0 %	3.1 %	9.6 %	6.1 %
2012	3.3 %	10.7 %	0.1 %	16.0 %	1.7 %	3.9 %	11.9 %	9.7 %
2013	(11.4)%	(7.1)%	0.0 %	32.4 %	1.5 %	1.3 %	16.1 %	14.1 %
2014	23.9 %	17.3 %	0.0 %	13.7 %	0.8 %	3.6 %	15.6 %	14.3 %
2015	(1.3)%	(4.8)%	0.5 %	1.4 %	0.7 %	3.5 %	(0.1)%	(1.3)%
2016	1.2 %	10.8 %	1.1 %	12.0 %	2.1 %	1.1 %	9.1 %	6.5 %
2017	8.6 %	11.7 %	(0.4)%	21.8 %	2.1 %	5.5 %	16.6 %	14.0 %
Last 5 Years	3.6 %	5.1 %	0.2 %	15.8 %	1.4 %	3.0 %	11.3 %	9.3 %
Last 60 Years	6.8 %	7.1 %	4.5 %	10.6 %	3.7 %	4.5 %	9.4 %	5.2 %

* Sample Balanced Fund	
Equities	60%
Bonds - Government	20%
- Corporate	15%
Cash Equivalents	5%
Total	100%
Fund expenses(e) ¹	0.5%

¹ Generally includes manager fees and transaction costs

EXPERIENCE STUDY RESULTS

Investment Return and Inflation

INVESTMENT RETURN EXPERIENCE

This Table sets forth the results of an analysis made of investment yields on the assets held by the Plan. The basic sources for this analysis were the Statements produced by the City.

Year Ending	Assumed Investment Yield	Smoothed Actuarial Value Yield ¹	Actual Market Value Yield ¹
9/30/2017	7.5%	8.5%	12.6%
9/30/2016	7.5%	8.7%	7.5%
9/30/2015	7.5%	7.7%	1.2%
9/30/2014	7.5%	9.3%	10.1%
9/30/2013	8.0%	8.8%	13.3%
9/30/2012	8.0%	3.6%	15.3%
9/30/2011	8.0%	3.7%	(1.1%)
9/30/2010	8.0%	5.4%	9.2%
9/30/2009	8.0%	5.5%	7.2%
9/30/2008	8.0%	7.5%	(10.7%)
Last 3 Years	7.5%	8.3%	7.0%
Last 5 Years	7.6%	8.6%	8.9%
Last 10 Years	7.8%	6.9%	6.2%
¹ Yield calculated as $2I/(A+B-I)$			

EXPERIENCE STUDY RESULTS

Investment Return and Inflation

LONG TERM INVESTMENT RETURN FORECASTS

This Table sets forth the results of an analysis made on the assets held by the Plan. Target allocations were obtained from the current target allocations as described in the December 31, 2018 investment performance review.

A total of three of the twelve national investment consultants included in our analysis provided long-term expectations (20 to 30 years). Each of these three investment consultants provided long term expectations differing than the short term expectations they provided. However, two of the three indicated return expectations after the 10th year were set based on historical return experience, as opposed to a market-based or forward-looking methodology predominately used in the development of the shorter term (10-year expectations). The third investment consultant did not indicate any difference in methodology for developing their long term expectations.

The long-term investment returns of these three investment consultants were used to project the rate of return of the Plan based on its target allocation. The table below shows the expected nominal return from each investment consultant based on the Plan's target allocation and long-run (20 to 30 year) assumptions.

Investment Consultant	Investment Consultant Expected Nominal Return	Investment Consultant Inflation Assumption	Expected Real Return	Plan Inflation Assumption	Expected Nominal Return	Standard Deviation of Expected Return (1-Year)
1	6.91%	2.31%	4.59%	2.50%	7.09%	12.50%
2	6.93%	2.20%	4.73%	2.50%	7.23%	12.63%
3	7.99%	2.75%	5.24%	2.50%	7.74%	12.49%
Average	7.27%	2.42%	4.85%	2.50%	7.35%	12.54%

The table below shows select percentiles of the distribution of average geometric returns over 20-years and the probability of exceeding the current and proposed investment return assumption based upon the long run assumptions.

Investment Consultant	Distribution of 20-Year Average Geometric Net Nominal Return			Probability of exceeding 7.00%	Probability of exceeding 7.25%	Probability of exceeding 7.35%	Probability of exceeding 7.50%
	40th	50th	60th				
1	5.67%	6.37%	7.08%	41.05%	37.60%	36.25%	34.26%
2	5.78%	6.49%	7.20%	42.79%	39.33%	37.97%	35.96%
3	6.32%	7.02%	7.72%	50.30%	46.70%	45.26%	43.13%
Average	5.93%	6.63%	7.33%	44.71%	41.21%	39.83%	37.79%

EXPERIENCE STUDY RESULTS

Investment Return and Inflation

SHORT TERM INVESTMENT RETURN FORECASTS

The forward-looking investment returns of twelve investment consultants were used to project the rate of return of the Plan based upon its target allocation. The table below shows the expected nominal return from each investment consultant based on the Plan's target allocation and short-run (mainly 10 year) assumptions.

Investment Consultant	Investment Consultant Expected Nominal Return	Investment Consultant Inflation Assumption	Expected Real Return	Plan Inflation Assumption	Expected Nominal Return	Standard Deviation of Expected Return (1-Year)
1	5.77%	2.20%	3.57%	2.50%	6.07%	13.41%
2	5.96%	2.21%	3.75%	2.50%	6.25%	12.63%
3	6.31%	2.50%	3.81%	2.50%	6.31%	12.18%
4	6.15%	2.26%	3.89%	2.50%	6.39%	10.50%
5	6.16%	2.25%	3.91%	2.50%	6.41%	11.67%
6	6.47%	2.50%	3.97%	2.50%	6.47%	12.49%
7	6.16%	2.00%	4.16%	2.50%	6.66%	11.61%
8	6.53%	2.31%	4.23%	2.50%	6.73%	12.18%
9	6.27%	2.00%	4.27%	2.50%	6.77%	10.63%
10	6.51%	1.95%	4.56%	2.50%	7.06%	12.01%
11	6.85%	2.26%	4.59%	2.50%	7.09%	13.28%
12	7.41%	2.00%	5.41%	2.50%	7.91%	11.45%
Average	6.38%	2.20%	4.18%	2.50%	6.68%	12.00%

EXPERIENCE STUDY RESULTS

Investment Return and Inflation

SHORT TERM INVESTMENT RETURN FORECASTS

The table below shows select percentiles of the distribution of average geometric returns over ten years and the probability of exceeding the current and proposed investment return assumption.

Investment Consultant	Distribution of 10-Year Average Geometric Net Nominal Return			Probability of exceeding 6.68%	Probability of exceeding 7.00%	Probability of exceeding 7.25%	Probability of exceeding 7.50%
	40th	50th	60th				
1	4.18%	5.23%	6.30%	36.59%	33.80%	31.69%	29.63%
2	4.51%	5.51%	6.51%	38.41%	35.39%	33.11%	30.88%
3	4.66%	5.62%	6.59%	39.11%	35.97%	33.58%	31.26%
4	5.05%	5.88%	6.72%	40.41%	36.73%	33.94%	31.25%
5	4.85%	5.77%	6.70%	40.24%	36.92%	34.41%	31.96%
6	4.76%	5.74%	6.74%	40.57%	37.46%	35.09%	32.79%
7	5.11%	6.03%	6.96%	42.96%	39.56%	36.97%	34.44%
8	5.08%	6.04%	7.01%	43.34%	40.09%	37.61%	35.18%
9	5.40%	6.24%	7.09%	44.81%	41.06%	38.20%	35.41%
10	5.44%	6.39%	7.35%	46.94%	43.59%	41.01%	38.47%
11	5.23%	6.27%	7.33%	46.10%	43.07%	40.73%	38.44%
12	6.40%	7.31%	8.22%	56.95%	53.41%	50.63%	47.86%
Average	5.06%	6.00%	6.96%	43.04%	39.76%	37.25%	34.80%

**APPENDIX
TABLE I**

**COMPARISON OF ACTUAL AND EXPECTED
ANNUAL MEMBER SALARIES**

Annual Salaries at End of Year By Age									
Age	Prior Year	Actual	% Incr	Expected	% Incr	Short Term		Long Term	
						Proposed	% Incr	Proposed	% Incr
< 30	2,902,197	3,124,198	7.65%	3,047,542	5.01%	3,098,095	6.75%	3,076,329	6.00%
30 - 39	6,618,115	6,982,563	5.51%	6,932,690	4.75%	6,998,657	5.75%	6,949,021	5.00%
40 - 49	13,939,945	14,698,062	5.44%	14,546,918	4.35%	14,741,492	5.75%	14,636,942	5.00%
50 - 59	13,453,086	14,251,538	5.94%	14,048,921	4.43%	14,226,638	5.75%	14,125,740	5.00%
60 +	5,734,562	5,953,429	3.82%	5,982,982	4.33%	6,006,954	4.75%	5,963,944	4.00%
Total	42,647,905	45,009,790	5.54%	44,559,052	4.48%	45,071,836	5.68%	44,751,977	4.93%

**APPENDIX
TABLE II**

**COMPARISON OF ACTUAL AND EXPECTED RETIREMENTS
(INCLUDES DROPS)**

NUMBER OF RETIREES - NORMAL							
Age	Exposure	Current Assumed Rates	Expected Current	Actual Ret.'s	Actual Rates	Proposed Retirement Rates	Expected Retirements (Proposed)
54 & younger	22	15.0%	3.3	5	22.7%	20.0%	4.4
55	1	40.0%	0.4	0	0.0%	20.0%	0.2
56 - 59	16	40.0%	6.4	2	12.5%	30.0%	4.8
60 - 61	22	25.0%	5.5	9	40.9%	30.0%	6.6
62 - 64	12	35.0%	4.2	2	16.7%	30.0%	3.6
65 - 74	41	50.0%	20.5	9	22.0%	35.0%	14.4
75 - 79	8	100.0%	8	1	12.5%	50.0%	4.0
80 - 84	4	100.0%	4	1	25.0%	100.0%	4.0
85 & older	1	100.0%	1	1	100.0%	100.0%	1.0
Total	127	42.0%	53.3	30	23.6%	33.9%	43.0

NUMBER OF RETIREES - EARLY							
Age	Exposure	Current Assumed Rates	Expected Current	Actual Ret.'s	Actual Rates	Proposed Retirement Rates	Expected Retirements (Proposed)
55	3	15.0%	2.0	0	0.0%	15.0%	0.5
56-59	33	5.0%	1.6	4	12.1%	10.0%	3.3
Total	36	10.0%	3.6	4	11.1%	10.6%	3.8

**APPENDIX
TABLE III**

**COMPARISON OF ACTUAL AND EXPECTED
WITHDRAWALS**

NUMBER OF WITHDRAWALS By Years of Service							
Service	Exposure	Current Assumed Rates	Expected Current	Actual	Actual Rates	Proposed Rates	Expected Proposed
0 - 1	162	22.0%	35.6	47	29.0%	25.0%	40.5
1 - 2	133	22.0%	29.3	29	21.8%	22.0%	29.3
2 - 3	100	16.0%	16.0	17	17.0%	16.0%	16.0
3 - 4	81	16.0%	13.0	10	12.3%	14.0%	11.3
4 - 5	75	10.0%	7.5	6	8.0%	10.0%	7.5
5 - 6	83	10.0%	8.3	7	8.4%	10.0%	8.3
6 - 7	80	9.0%	7.2	6	7.5%	9.0%	7.2
7 - 8	74	9.0%	6.7	5	6.8%	8.0%	5.9
8 - 9	67	8.0%	5.4	1	1.5%	6.0%	4.0
9 - 10	49	8.0%	3.9	3	6.1%	6.0%	2.9
10+	171	4.0%	6.8	1	0.6%	2.0%	3.4
Total	1075	13.0%	139.7	132	12.3%	12.7%	136.3

APPENDIX

Purpose of the Actuarial Valuation

In a defined benefit pension plan, an employer makes a promise to its employees of a lifetime pension. The amount of the monthly pension is determined by a *benefit formula* which is often based upon a multiplier percentage and the number of years of service and the average final earnings of the employee.

The employer must design and follow a systematic plan for advance-funding this obligation. That is accomplished by establishing a pension fund and performing annual actuarial valuations to measure the liabilities associated with the obligation and to calculate how much the employer must contribute to the pension fund in order to make good on its promise.

The calculations in the actuarial valuation are performed each year to re-measure the liabilities. The stakeholders need to know how the plan is doing in its goal of systematically financing the promised benefits. So it is important to make the actuarial calculations in accordance with the professional actuarial standards of practice and the accounting standards.

Role of Actuarial Assumptions

The nature of the pension promise and its systematic funding require long term projections of the employee workforce (using demographic assumptions) and long term projections of the salaries and investment returns (using economic assumptions). The entire actuarial valuation process depends on the selection and use of reasonable actuarial assumptions as to future demographics and future economics. There are many different actuarial assumptions employed in an actuarial valuation. The primary actuarial assumptions include:

1. Rates of Salary Increases
2. Rates of Withdrawal of Employment
3. Rates of Mortality
4. Rates of Retirement
5. Rates of Investment Return

The actuary and plan management must be comfortable with the actuarial assumptions. The assumptions must be reasonable. Without a level of confidence in the reasonableness of the actuarial assumptions, the stakeholders and users of the valuation results cannot have confidence in the results. However, there is no way to have confidence in the actuarial assumptions unless an actuarial experience study is performed to assess the reasonableness of the current assumptions or to change them to be more in line with past experience and with future expectations.

For this reason the Board has requested that we undertake an actuarial experience study to recommend changes to the actuarial assumptions used in the annual actuarial valuation.