City of Clearwater Employees' Pension Plan

EXPERIENCE INVESTIGATION FOR THE FIVE YEARS
ENDED DECEMBER 31, 2017

GRS

December 6, 2018

Board of Trustees
City of Clearwater Employees' Pension Plan
Clearwater, Florida

Re: **Experience Investigation for the Five-Year Period Ending December 31, 2017**

Dear Board Members:

Gabriel, Roeder, Smith & Company is pleased to provide the results of our experience investigation for the City of Clearwater Employees' Pension Plan. The period covered by this study is January 1, 2013 through December 31, 2017. Based upon the results, certain changes in actuarial assumptions for valuation purposes are recommended.

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

This Report was prepared at the request of the Board and is intended for use by the Pension Plan (Plan) and those designated or approved by the Board. This Report may be provided to parties other than the Plan only in its entirety and only with the permission of the Board.

The purpose of this Report is to evaluate the assumptions and methods to be used for the January 1, 2019 and subsequent years' Actuarial Valuations, and to describe the financial effect of the recommended assumption and method changes based on our findings. This Report should not be relied on for any purpose other than the purpose described above.

The study was performed on the basis of participant data and financial information supplied by the City in connection with the valuations performed during the years studied. We checked for internal and year-to-year consistency, but did not audit this data. We are not responsible for the accuracy or completeness of the information provided by the City.

The enclosed calculations are based upon the Plan provisions as summarized in the January 1, 2018 Actuarial Valuation Report dated March 28, 2018. If you have reason to believe the assumptions used are unreasonable, the Plan provisions are incorrectly described or referenced, or that important Plan provisions relevant to this study are not described, you should contact the undersigned prior to relying on this information.

The valuation date used for calculating the financial effect of the assumption and method changes was January 1, 2018. Future actuarial measurements may differ significantly from the current measurements presented in this 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 or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.
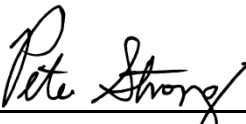
Peter N. Strong and Trisha Amrose are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The signing actuaries are independent of the plan sponsor.

This Report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of the Plan as of the valuation date. 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.

Gabriel, Roeder, Smith & Company will be pleased to review this Report with the Board of Trustees and to answer any questions pertaining to the valuation.

Respectfully submitted,

GABRIEL, ROEDER, SMITH & COMPANY

By   By
    Peter N. Strong, FSA, MAAA, FCA   Trisha Amrose, MAAA
    Enrolled Actuary No. 17-6975   Enrolled Actuary No. 17-8010

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SECTION A

SUMMARY OF FINDINGS

SUMMARY OF FINDINGS

The five-year period (January 1, 2013 to December 31, 2017) covered by this experience investigation period provided sufficient data to form a basis for recommending updates in the following demographic and financial assumptions used in the actuarial valuation of the Pension Plan.

Recommended changes in actuarial assumptions resulting from this experience investigation, including the approximate first-year impact on the required City contributions as a dollar amount and as a percent of covered payroll and the approximate first year impact on the funded ratio, are summarized below. If these changes are made in the January 1, 2019 Actuarial Valuation Report, the impact on the FY 2020 City contribution and funded ratio as of January 1, 2019 may vary to some extent from what is shown below.

For comparison purposes, the estimated net required City contribution for the fiscal year ending September 30, 2019 was 10.69% of covered payroll, or approximately $8.8 million, and the funded ratio as of January 1, 2018, not including the credit balance in the actuarial value of assets, was 104.47%. The credit balance as of January 1, 2018 was $22.8 million.

Our recommendations are as follows:

—Update the future salary increase assumption to reflect higher than expected real salary increases for hazardous employees and somewhat lower than expected real salary increases for non-hazardous employees.

Estimated First Year Impact on:	
Required Employer Contribution	Funded Ratio
+$565,380 or +0.65% of covered payroll	(0.02)%

—Update assumed future retirement rates to reflect generally lower observed retirement experience than expected.

Estimated First Year Impact on:	
Required Employer Contribution	Funded Ratio
($259,031) or (0.32)% of covered payroll	+0.74%

—Update assumed rates of future separation from employment to reflect generally higher than expected separation experience for hazardous employees and slightly lower than expected separation experience for non-hazardous employees.

Estimated First Year Impact on:	
Required Employer Contribution	Funded Ratio
($133,132) or (0.17)% of covered payroll	(0.16)%

–Update assumed rates of future disability to reflect somewhat higher observed disability experience than expected.

Estimated First Year Impact on:	
Required Employer Contribution	Funded Ratio
+$119,312 or +0.14% of covered payroll	+0.01%

–Update the assumed probability that a member is married when they retire to reflect lower observed rates of marriage than expected and adjust the assumed age difference between members and their spouses to reflect actual observed data for recent retirees.

Estimated First Year Impact on:	
Required Employer Contribution	Funded Ratio
($151,241) or (0.19)% of covered payroll	(0.38)%

–Combined effect of all of the above assumption changes (salary increase rates, retirement rates, separation rates, disability rates, and marriage rates and spouse age differences).

Estimated First Year Impact on:	
Required Employer Contribution	Funded Ratio
+$88,770 or +0.07% of covered payroll	+0.18%

–Combined effect above PLUS change the net investment return assumption from 7.0% to 6.5%. This includes a fresh start of the Unfunded Actuarial Accrued Liability amortization bases to avoid negative amortization.

Estimated First Year Impact on:	
Required Employer Contribution	Funded Ratio
+$3,081,009 or +3.70% of covered payroll	(5.82)%

–Combined effect above PLUS change the net investment return assumption from 7.0% to 6.25%. This includes a fresh start of the Unfunded Actuarial Accrued Liability amortization bases to avoid negative amortization.

Estimated First Year Impact on:	
Required Employer Contribution	Funded Ratio
+$6,514,360 or +7.86% of covered payroll	(8.77)%

Note: The sum of the individual cost impacts does not equal the impact of all changes combined due to the interaction of Plan provisions and actuarial assumptions with one another and the effect that one assumption change can have on the impact of another assumption change.

SECTION B

EXPERIENCE INVESTIGATION RESULTS

Methodology

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

The expected salaries at the end of each year were obtained by use of the salary scale assumption used in the January 1, 2018 actuarial valuation. The resulting expected salaries were then compared with the actual salaries reported.

The number of members exposed to risk during each period was tabulated (exposure) and the expected incidence of separation (separation of members not eligible for normal retirement), retirement and disability were obtained by use of the retirement, separation and disability rates employed in the January 1, 2018 actuarial valuation. The actual number of retirements, separations and disabilities was tabulated and compared with those expected.

For the marriage assumption and spouse age difference assumption, actual marital status and spouse/beneficiary data was collected for retirements that have occurred during the past 3 years. This data was tabulated and reviewed.

Finally, an evaluation of the Plan's investment return assumption was conducted, using forward-looking capital market assumptions (of expected investment returns and volatilities for various asset classes) collected from 13 different investment consultants.

Consideration was given to the size of the group. Over the 5-year experience study period reviewed, there were a total of 7,459 exposures (each active member compared from one year to the subsequent year). This number of exposures is sufficient to provide partial credibility to the observed experience, but it is insufficient to be considered **fully credible**. Therefore, some weight was given to the current assumptions while developing our recommended demographic assumptions going forward.

Basic Results and Conclusions

Rates of Salary Increase

Observed rates of real salary increases (net of inflation) during the experience investigation period were generally higher than expected for hazardous employees and somewhat lower than expected for non-hazardous employees based on the current salary increase assumption.

We propose revised assumed rates of salary increase based on completed years of service as shown in the tables below. Actual versus expected salary increase experience is shown in Appendix A starting on page 19.

SALARY INCREASE ASSUMPTION - HAZARDOUS EMPLOYEES						
	Current Salary Increase Rates			Proposed Salary Increase Rates		
Years of Service	Assumed Inflation	Promotion, Productivity & Seniority	Total Current Rates	Assumed Inflation	Promotion, Productivity & Seniority	Total Proposed Rates
1	2.50%	5.40%	7.90%	2.25%	5.35%	7.60%
2	2.50%	5.20%	7.70%	2.25%	5.35%	7.60%
3	2.50%	4.50%	7.00%	2.25%	4.00%	6.25%
4	2.50%	2.75%	5.25%	2.25%	4.00%	6.25%
5 - 9	2.50%	1.75%	4.25%	2.25%	3.25%	5.50%
10 - 14	2.50%	1.75%	4.25%	2.25%	3.00%	5.25%
15 & Over	2.50%	1.00%	3.50%	2.25%	2.25%	4.50%

SALARY INCREASE ASSUMPTION - NON-HAZARDOUS EMPLOYEES						
	Current Salary Increase Rates			Proposed Salary Increase Rates		
Years of Service	Assumed Inflation	Promotion, Productivity & Seniority	Total Current Rates	Assumed Inflation	Promotion, Productivity & Seniority	Total Proposed Rates
1	2.50%	5.40%	7.90%	2.25%	4.25%	6.50%
2	2.50%	3.25%	5.75%	2.25%	3.35%	5.60%
3	2.50%	2.50%	5.00%	2.25%	2.25%	4.50%
4	2.50%	2.00%	4.50%	2.25%	1.50%	3.75%
5 - 9	2.50%	1.50%	4.00%	2.25%	1.50%	3.75%
10 - 14	2.50%	1.00%	3.50%	2.25%	1.30%	3.55%
15 - 19	2.50%	1.00%	3.50%	2.25%	0.80%	3.05%
20 & Over	2.50%	1.00%	3.50%	2.25%	0.50%	2.75%

Rates of Retirement

The observed number of retirements (including DROP entries) during the experience investigation period was generally lower than expected based on the current assumed rates of retirement (in the January 1, 2018 actuarial valuation).

The current and proposed retirement rates are shown in the following tables. Actual versus expected experience is shown in Appendix B on page 21.

RETIREMENT RATES - HAZARDOUS EMPLOYEES			
Years of Service	Age	Expected Current	Expected Proposed
10 - 19	50 - 54	10%	5%
	55 - 59	10%	15%
	60 - 64	50%	40%
	65 & Over	100%	100%
20 & Over	Under 45	20%	15%
	45 - 49	15%	15%
	50 - 54	25%	15%
	55 - 59	35%	30%
	60 - 64	50%	40%
	65 & Over	100%	100%

RETIREMENT RATES - NON-HAZARDOUS EMPLOYEES			
Years of Service	Age	Expected Current	Expected Proposed
10 - 19	65 - 69	45%	30%
	70 - 74	50%	30%
	75 & Over	100%	100%
20 - 29	55 - 59	20%	20%
	60 - 64	25%	20%
	65 - 69	45%	30%
	70 & Over	100%	100%
30 & Over	Under 55	40%	45%
	55 - 59	40%	20%
	60 - 64	40%	30%
	65 - 69	50%	50%
	70 & Over	100%	100%

Rates of Employment Separation

The observed rates of employment separations during the experience investigation period were generally higher than expected for hazardous employees and slightly lower than expected for non-hazardous employees.

The current and proposed separation (withdrawal) rates are shown in the following table. Actual versus expected experience is shown in Appendix C starting on page 22.

SEPARATION RATES HAZARDOUS EMPLOYEES - Males			
Years of Service	Age	Current Rates	Proposed Rates
Under 1	All Ages	12.8%	8.5%
1	All Ages	5.7%	7.5%
2 - 5	Under 40 40 & Over	4.8% grading down to 1.0%	4.5% 2.5%
6 & Over	Under 40 40 & Over	1.0% - 4.0% 1.0%	2.0% 1.5%

SEPARATION RATES HAZARDOUS EMPLOYEES - Females			
Years of Service	Age	Current Rates	Proposed Rates
Under 1	All Ages	12.8%	20.0%
1 & Over	All Ages	5.7% grading down to 1.0%	4.0%

Rates of Employment Separation (Continued)

SEPARATION RATES NON-HAZARDOUS EMPLOYEES - Males			
Years of Service	Age	Current Rates	Proposed Rates
Under 1	Under 35 35 & Over	20.0% to 25.0% 5.0% to 15.0%	25.0% 11.0%
1 - 2	All Ages	15.0% grading down to 5.0%	16.0%
3 - 4	Under 40 40 & Over	15.0% grading down to 5.0%	11.0% 5.0%
5 - 9	Under 30 30 - 49 50 - 59 60 & Over	12.5% 3.5% to 7.0% 4.0% to 5.0% 7.5%	12.5% 5.0% 3.0% 7.5%
10 & Over	Under 35 35 - 39 40 - 44 45 - 49 50 - 54 55 - 59 60 & Over	7.0% to 12.5% 6.0% 5.0% 3.5% 4.0% 5.0% 7.5%	7.5% 4.0% 3.5% 3.5% 2.0% 3.0% 4.5%

Rates of Employment Separation (Continued)

SEPARATION RATES			
NON-HAZARDOUS EMPLOYEES - Females			
Years of Service	Age	Current Rates	Proposed Rates
Under 3	Under 30	15.0% to 35.0%	22.0%
	30 - 34	15.0% to 30.0%	15.0%
	35 - 44	15.0% to 25.0%	5.0%
	45 - 49	7.5% to 20.0%	14.0%
	50 - 59	7.5% to 15.0%	18.0%
	60 & Over	5.0% to 10.0%	25.0%
3 - 4	Under 30	15.0% to 20.0%	18.0%
	30 - 39	10.0% to 12.5%	14.0%
	40 - 59	5.0% to 10.0%	5.0%
	60 & Over	5.0%	20.0%
5 - 9	Under 35	6.5% to 7.5%	5.0%
	35 - 44	5.0% to 6.5%	6.0%
	45 - 59	4.0%	4.5%
	60 & Over	4.0%	3.0%
10 & Over	Under 40	6.5% to 7.5%	6.0%
	40 - 44	5.0%	5.0%
	45 - 49	4.0%	3.75%
	50 - 54	4.0%	3.25%
	55 - 59	4.0%	2.75%
	60 & Over	4.0%	6.0%

Rates of Disability

The actual number of disabilities was somewhat higher than the number of expected disabilities, more so for female hazardous employees than for any other group. As a result, we recommend modest changes to the assumed rates of disability, as shown below. Actual versus expected experience is shown in Appendix D on page 25.

DISABILITY RATES - HAZARDOUS EMPLOYEES				
	Expected Current Rates		Expected Proposed Rates	
Age	Males	Females	Males	Females
20	0.25%	0.38%	0.250%	0.500%
25	0.25%	0.38%	0.250%	0.500%
30	0.25%	0.38%	0.250%	0.750%
35	0.30%	0.45%	0.300%	1.000%
40	0.40%	0.60%	0.450%	1.250%
45	0.50%	0.75%	0.600%	1.500%
50	0.55%	0.83%	0.600%	1.500%
55	0.60%	0.90%	0.600%	1.500%
60	0.75%	1.13%	0.750%	1.500%
65	1.00%	1.50%	1.000%	1.500%
70	1.75%	2.63%	1.500%	1.500%

DISABILITY RATES - NON-HAZARDOUS EMPLOYEES				
	Expected Current Rates		Expected Proposed Rates	
Age	Males	Females	Males	Females
20	0.05%	0.05%	0.03%	0.03%
25	0.05%	0.05%	0.03%	0.03%
30	0.05%	0.05%	0.03%	0.03%
35	0.06%	0.06%	0.04%	0.04%
40	0.07%	0.07%	0.07%	0.07%
45	0.09%	0.09%	0.10%	0.10%
50	0.12%	0.12%	0.14%	0.14%
55	0.17%	0.17%	0.24%	0.24%
60	0.27%	0.27%	0.29%	0.29%
65	0.42%	0.42%	0.34%	0.34%
70	0.67%	0.67%	0.44%	0.44%

Rates of Marriage and Spouse Age Differences

For the purposes of determining eligibility for the Joint and Survivor normal form of payment for married members, an assumption for the probability that members are married when they retire is made. This assumption is also used to determine eligibility for death-in-service benefits. Under the current valuation assumptions, 85% of active members are assumed to be married.

Additionally, an assumption is made for the difference in ages between retirees and their beneficiaries. Under the current valuation assumptions, for all future retirees and for current retirees who became inactive after January 1, 2009, males are assumed to be five years older than their beneficiaries and female are assumed to be five years younger than their beneficiaries. For members who became inactive on or before January 1, 2009, beneficiary ages are based on the assumed beneficiary dates of birth provided by the prior actuary.

It is our understanding that beneficiary dates of birth for all retirees are not readily available and are not stored in a database that could be extracted. To analyze these assumptions, data was collected for retirements that have occurred during the past 3 years. This data included 189 retirees. Lower rates of marriage than expected were observed. According to the data, 68.3% of members who retired during the past 3 years were married. Generally, lower age differences between retirees and their beneficiaries were observed. According to the data, males retirees were an average of 1.4 years older than their beneficiaries and females retirees were an average of 0.3 years younger than their beneficiaries.

Since a small sample of the total retiree population was used in this analysis, we recommend giving some weight to the current assumptions and adjusting them to reflect the observed experience. We recommend the following assumptions for the probability that members are married when they retire and the difference in ages between retirees and their beneficiaries:

- Assume 75% of active members are married when they retire.

- Assume that male retirees are 3 years older than their beneficiaries and that female retirees are 3 years younger than their beneficiaries. For members who have retired during the past 3 years, use their actual beneficiaries' dates of birth and continue to use actual dates as members retire going forward.

Rates of Mortality

The mortality assumption used in the Plan's January 1, 2016 Actuarial Valuation was mandated under Florida state law to be the mortality assumption used by the Florida Retirement System (FRS) for Regular Class members. We are therefore not proposing any changes to the mortality assumption. FRS usually updates their mortality assumption once every five years after an experience study is completed. FRS' mortality assumption was last updated (with a minor change) effective with their July 1, 2016 actuarial valuation. The last FRS experience study covered the period 2008 – 2013, and the resulting changes in assumptions were effective in the July 1, 2014 actuarial valuation. The current FRS mortality assumption (and the mortality assumption used in the January 1, 2016 Actuarial Valuation) is described below:

Healthy Mortality

Hazardous Employees

RP-2000 Combined Healthy Participant Mortality Table (for pre-retirement mortality) and the RP-2000 Mortality Table for Annuitants (for post-retirement mortality), with mortality improvements projected to all future years after 2000 using Scale BB. For males, the base mortality rates include a 90% blue collar adjustment and a 10% white collar adjustment. For females, the base mortality rates include a 100% white collar adjustment.

Non-Hazardous Employees

RP-2000 Combined Healthy Participant Mortality Table (for pre-retirement mortality) and the RP-2000 Mortality Table for Annuitants (for post-retirement mortality), with mortality improvements projected to all future years after 2000 using Scale BB. For males, the base mortality rates include a 50% blue collar adjustment and a 50% white collar adjustment. For females, the base mortality rates include a 100% white collar adjustment.

Disabled Mortality

Hazardous Employees

For disabled retirees, 60% of the RP-2000 Mortality Table for Disabled Annuitants was used, with ages set back 4 years for males and set forward 2 years for females, and 40% of the RP-2000 Healthy Annuitant Mortality Table with a while collar adjustment and no age setback, both with no provision being made for future mortality improvements.

Non-Hazardous Employees

For disabled retirees, the RP-2000 Mortality Table for Disabled Annuitants was used, with ages set back 4 years for males and set forward 2 years for females, with no provision being made for future mortality improvements.

Rate of Investment Return

The selection of the actuarial assumed rate of return is a major decision. It has even been a controversial topic for many pension boards and outside observers at times.

HOW TO DETERMINE THE ACTUARIAL ASSUMED RATE OF RETURN

The assumed net long-term expected rate of return is the Plan fiduciaries' best estimate of the future compound investment return of the fund, net of investment-related expenses.

A building block approach should be used, in which the expected real returns (net of inflation) for each asset class in which the Plan is invested are estimated and multiplied by the asset allocation percentage of that asset class.

City of Clearwater Employees' Pension Plan Asset Allocation

The Plan's target asset allocation is as follows:

Asset Class	Target
Domestic Equity Securities	
Large Cap (equally divided between Value and Growth)	26.0%
Mid Cap (equally divided between Value and Growth)	8.0%
Small Cap (equally divided between Value and Growth)	5.0%
International Equity Securities	14.0%
Emerging Market Equity Securities	4.0%
Total Equity	**57.0%**
Broad Market Intermediate Term Fixed Income	28.0%
Total Fixed Income	**28.0%**
Private Real Estate (Core)	7.0%
U.S. REITS	1.5%
Alternative Assets – Global Infrastructure	3.0%
Alternative Assets – Timber	3.5%
Total Real Estate & Alternatives	**15.0%**

FORWARD-LOOKING CAPITAL MARKET ASSUMPTIONS

Best practice for selecting the net investment return assumption considers a fund's asset allocation and reliable forecasts for capital market assumptions for each relevant asset class.

GRS is not an investment consulting firm and does not provide investment consulting or forecasting services. But GRS maintains a survey of the forecasts of capital market assumptions from the following twelve (12) major national investment consulting and forecasting firms to obtain a consensus:

Twelve Major National Investment Consultants and Forecasters	
Aon/Hewitt	NEPC
BNY/Mellon	Pension Consulting Alliance
Callan	R. V. Kuhns & Associates
J. P.Morgan	Summit
Marquette Associates	VOYA
Mercer	Wilshire

In addition to the above, we also obtained the capital market assumptions from CapTrust, the investment consultant for the City of Clearwater Employees' Pension Plan. Of these 13 investment consultants, ten (including CapTrust) provided only short to mid-term capital market assumptions (over the next 5-15 years), while three (Aon/Hewitt, Mercer, and NEPC) provided long-term capital market assumptions (over the next 20-30 years). We have included the short to mid-term forecasts, the long-term forecasts, and a blend of the two (a "single equivalent" forecast using the projected cash flows for the City of Clearwater Employees' Pension Plan).

Mapping the Asset Allocation

The investment consultants do not all provide their capital market assumptions in exactly the same asset classes as expressed on the previous page, so we have mapped the Plan's target asset allocation to the "best fit" asset classes of each investment consultant.

Build-up of Comparable Net Expected Returns

The following tables show the results of applying the mapping and calculation process of the nominal returns for each of the investment consultants. The expected nominal returns are called the "arithmetic means". The first table shows the results of the short to mid-term capital market assumptions. The second table shows the results of the long-term capital market assumptions (from the three investment consultants who provided long-term assumptions). The results from using CapTrust's capital market assumptions are highlighted in yellow.

Short to Mid-Term Capital Market Assumptions

Investment Consultant	Investment Consultant Expected Nominal Return	Investment Consultant Inflation Assumption	Expected Real Return (2)–(3)	Actuary Inflation Assumption	Expected Nominal Return (4)+(5)	Investment Expenses	Expected Nominal Return Net of Expenses (6)-(7)	Standard Deviation of Expected Return (1-Year)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	5.52%	2.20%	3.32%	2.25%	5.57%	0.00%	5.57%	11.45%
2	5.78%	2.25%	3.53%	2.25%	5.78%	0.00%	5.78%	9.95%
3	5.92%	2.21%	3.70%	2.25%	5.95%	0.00%	5.95%	12.29%
4	6.26%	2.50%	3.76%	2.25%	6.01%	0.00%	6.01%	11.96%
5	6.14%	2.26%	3.88%	2.25%	6.13%	0.00%	6.13%	10.61%
6	6.05%	2.00%	4.05%	2.25%	6.30%	0.00%	6.30%	10.33%
7	6.62%	2.50%	4.12%	2.25%	6.37%	0.00%	6.37%	12.72%
8	6.25%	2.00%	4.25%	2.25%	6.50%	0.00%	6.50%	11.38%
9	6.55%	2.25%	4.30%	2.25%	6.55%	0.00%	6.55%	12.76%
10	6.63%	2.31%	4.32%	2.25%	6.57%	0.00%	6.57%	11.82%
11	7.03%	2.26%	4.77%	2.25%	7.02%	0.00%	7.02%	13.93%
12	6.91%	1.95%	4.96%	2.25%	7.21%	0.00%	7.21%	12.34%
13	7.45%	2.00%	5.45%	2.25%	7.70%	0.00%	7.70%	11.30%
Average	6.39%	2.21%	4.19%	2.25%	6.44%	0.00%	6.44%	11.76%

Long-Term Capital Market Assumptions

Investment Consultant	Investment Consultant Expected Nominal Return	Investment Consultant Inflation Assumption	Expected Real Return (2)–(3)	Actuary Inflation Assumption	Expected Nominal Return (4)+(5)	Investment Expenses	Expected Nominal Return Net of Expenses (6)-(7)	Standard Deviation of Expected Return (1-Year)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	6.93%	2.31%	4.62%	2.25%	6.87%	0.00%	6.87%	12.11%
2	6.83%	2.20%	4.63%	2.25%	6.88%	0.00%	6.88%	12.29%
3	8.18%	2.75%	5.43%	2.25%	7.68%	0.00%	7.68%	12.72%
Average	7.31%	2.42%	4.89%	2.25%	7.14%	0.00%	7.14%	12.37%

Normalizing for Inflation

Since each investment consultant uses slightly different inflation assumptions, in columns (3) through (6) the returns are normalized for inflation so that each investment consultant's gross 1-year returns includes the same inflation assumption.

Returns Net of Investment-related Expenses

Investment consultants and forecasters generally provide their expected returns gross of active management investment-related expenses. However, for funding and financial reporting purposes, the actuarial return assumption is net of investment-related expenses, so that the investment earnings assumed to accumulate over time are net of the fees and costs needed to generate the amounts available to pay benefits. The investment-related expenses for the Plan's fund are approximately 0.6%, including asset custody fees, investment consultant fees, hard dollar investment management fee from individually-managed portfolios and other investment fees.

The Actuarial Standards of Practice suggests the use of an assumption that is net of the expenses that would be required for an equivalent passive investment approach. Added value from active management can be recognized in excess of that, but not for more than the difference between active and passive management fees. While excess "alpha" returns may be expected by some to be achieved by the Plans' current and future investment managers and investment consultant, we cannot add alpha value in our assessment or development of our recommendation for the net investment return assumption. We have assumed excess returns will be generated by active management that are sufficient to cover the investment expenses incurred, and we have assumed that the fees that would be involved with a passive management approach are reflected in the expected returns provided.

Column (8) shows the expected nominal (i.e., including inflation) return for any given 1-year period, net of investment-related expenses. These are called the expected "arithmetic means".

Arithmetic and Geometric Returns

Arithmetic expected returns represent the investment forecaster's expectation for any one given year. Geometric expected returns represent the investment forecaster's expectation for the average compound return over a given horizon period. Everything in the tables on the previous page relates to arithmetic means.

Geometric compounded average returns are always lower than arithmetic average returns. Actuarial valuations use compounding for measuring costs and liabilities. That is why the expected compound average return (geometric mean) is more appropriate for an actuarial investment return assumption.

As an investment return assumption, the geometric expected return is the return assumption that has a 50% chance of being achieved as a compound average over time. The geometric expected returns for the investment consultants who provided capital market assumptions, including CapTrust (highlighted in yellow) are shown in the following tables. The first table shows the geometric expected returns using the short to mid-term capital market assumptions. The second table shows the geometric expected returns using the long-term capital market assumptions (from the three investment consultants who provided long-term assumptions).

Short to Mid-Term Capital Market Assumptions

| Investment Consultant | Distribution of 20-Year Average Geometric Net Nominal Return | | | Probability of exceeding 7.00% | Probability of exceeding 6.50% | Probability of exceeding 6.25% | Probability of exceeding 6.00% |
	40th	50th	60th				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	4.31%	4.95%	5.60%	21.20%	27.24%	30.55%	34.05%
2	4.75%	5.31%	5.87%	22.43%	29.64%	33.62%	37.81%
3	4.56%	5.25%	5.94%	26.16%	32.38%	35.71%	39.16%
4	4.67%	5.34%	6.01%	26.71%	33.17%	36.63%	40.20%
5	5.01%	5.61%	6.21%	27.85%	35.30%	39.29%	43.40%
6	5.22%	5.80%	6.38%	30.13%	38.03%	42.22%	46.51%
7	4.91%	5.62%	6.34%	31.31%	37.78%	41.17%	44.64%
8	5.26%	5.90%	6.54%	33.15%	40.55%	44.42%	48.34%
9	5.09%	5.80%	6.52%	33.60%	40.21%	43.65%	47.15%
10	5.26%	5.92%	6.59%	34.09%	41.27%	45.00%	48.79%
11	5.35%	6.13%	6.91%	38.88%	45.19%	48.41%	51.65%
12	5.82%	6.51%	7.20%	42.84%	50.09%	53.74%	57.36%
13	6.48%	7.11%	7.75%	51.82%	59.72%	63.55%	67.26%
Average	**5.13%**	**5.79%**	**6.45%**	**32.32%**	**39.27%**	**42.92%**	**46.64%**

Long-Term Capital Market Assumptions

| Investment Consultant | Distribution of 20-Year Average Geometric Net Nominal Return | | | Probability of exceeding 7.00% | Probability of exceeding 6.50% | Probability of exceeding 6.25% | Probability of exceeding 6.00% |
	40th	50th	60th				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	5.51%	6.19%	6.87%	38.17%	45.40%	49.10%	52.82%
2	5.50%	6.18%	6.88%	38.25%	45.38%	49.03%	52.69%
3	6.22%	6.93%	7.65%	49.08%	56.15%	59.64%	63.07%
Average	**5.74%**	**6.44%**	**7.13%**	**41.83%**	**48.98%**	**52.59%**	**56.19%**

As shown in the first table, the average short to mid-term expected geometric return (or the 50th percentile of long-term compound average returns) is 5.79%. The short to mid-term forecasting period is generally the next 10 years, so this means there is a 50-50 chance of achieving a 5.79% net compound average investment return over the next 10 years. Among the three investment consultants who provided long-term capital market assumptions, the average long-term expected geometric return is 6.44%. This means the consensus opinion is that there is a 50-50 chance of achieving a 6.44% net compound average investment return over the next 20 to 30 years.

Blend – Single Equivalent Expected Net Compound Average Investment Return

Of the three investment consultants who provided long-term capital market assumptions, two of them described them as 30-year assumptions and one described them as 20-year assumptions. The average long-term forecasting period is 27 years. If the next 10 years are expected to produce a net compound average return of 5.79% and the next 27 years are expected to produce a net compound average return of 6.44%, then the net compound average return in years 11 through 27 will need to be 6.82% per year in order to bring the overall 27-year compound average up to 6.44%.

Using the projected benefit payments from the City of Clearwater Employees' Pension Plan, a single equivalent rate can be calculated for the next 27 years which is neutral to the Plan earning 5.79% during the first 10 years and 6.82% in years 11 through 27. **This single equivalent rate is 6.22%**. We believe this assumed rate of return is the "most appropriate rate" for the City of Clearwater Employees' Pension Plan. Please see the following chart:

City of Clearwater Employees' Pension Plan
Single Equivalent Cashflow-adjusted Investment Return Forecast
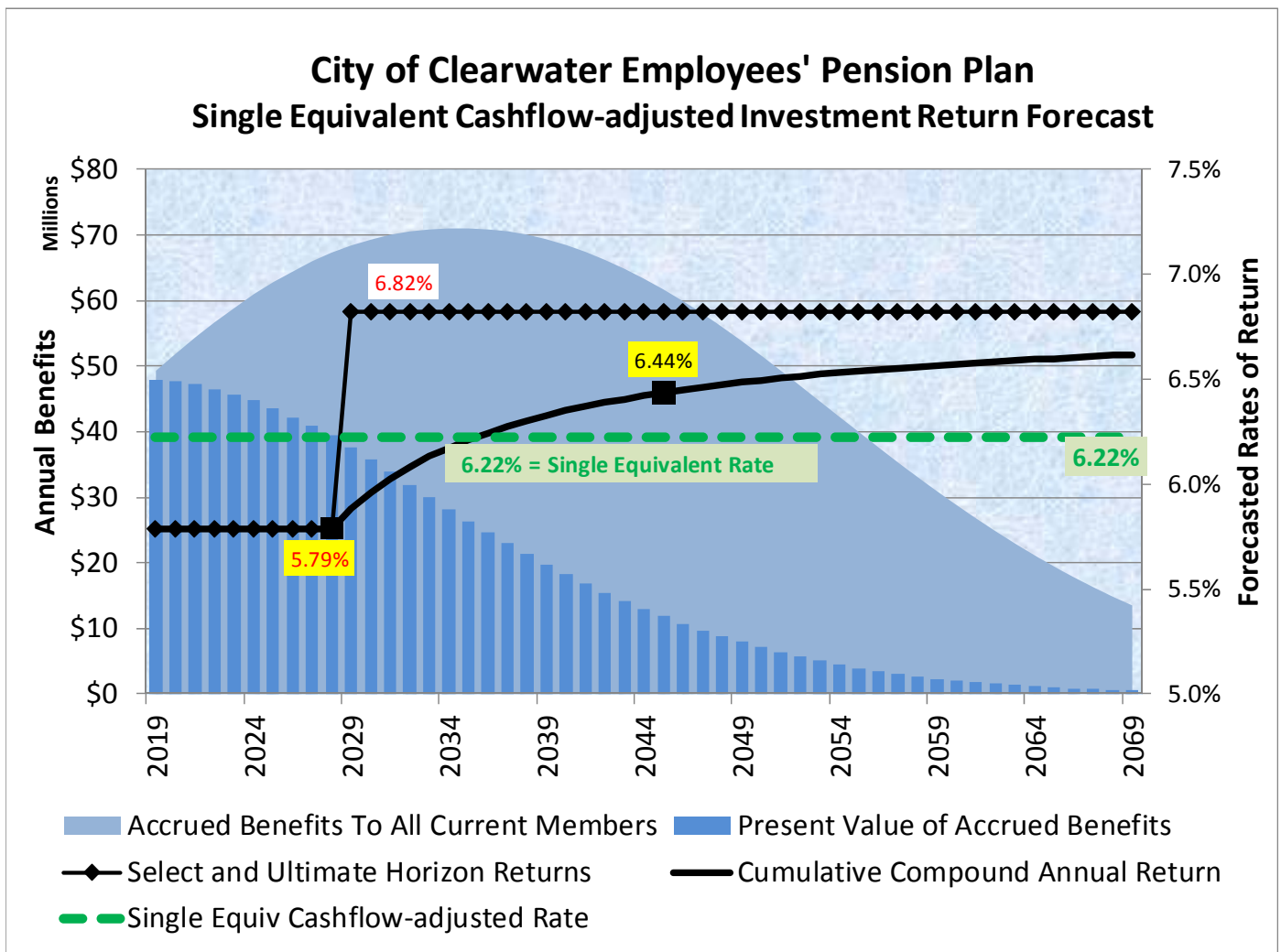
Recommendation

Based on the information provided above, including the short-term and long-term capital market assumptions and single-equivalent rate of return of 6.22% based on the Plan's benefit payment projections, our recommendation is to lower the investment return assumption from the current level of 7.0% to either 6.50% or 6.25%. We recognize that the capital market assumptions of each investment consultant surveyed vary by up to 50 basis points from the averages and that this analysis is not an exact science. Therefore, we have a range of reasonability around what we believe to be the "most appropriate rate" (6.25%) of +/- 50 basis points. This means we believe a reasonable range for the net compound average investment return is 5.75% to 6.75%.

The Plan's current investment return of 7.0%, net of investment expenses, does not fall significantly outside of this reasonable range, but our recommendation is to lower the assumption to at least 6.50% and to consider lowering it to what we consider to be the "most appropriate rate" of 6.25%. The cost impact of lowering the net investment return assumption to either 6.50% or 6.25% is shown on page 2.

SECTION C

APPENDICES

APPENDIX A

COMPARISON OF ACTUAL AND EXPECTED ANNUAL MEMBER SALARIES

ANNUAL SALARY INCREASES - HAZARDOUS EMPLOYEES By Years of Service									
		Current Assumption			Actual Experience				
Years of Service	Prior Year	Expected	% Incr	Assumed Real Incr	Actual	% Incr	Actual Inflation	Actual Real Incr	Proposed Real Incr
1 - 2	$8,027,167	$8,654,805	7.82%	5.32%	$8,572,483	6.79%	1.43%	5.36%	**5.35%**
3 - 4	6,097,316	6,470,673	6.12%	3.62%	6,442,513	5.66%	1.43%	4.23%	**4.00%**
5 - 9	35,056,224	36,546,113	4.25%	1.75%	36,785,572	4.93%	1.43%	3.50%	**3.25%**
10 - 14	36,356,005	37,901,135	4.25%	1.75%	38,024,586	4.59%	1.43%	3.16%	**3.00%**
15 & Over	48,726,966	50,432,410	3.50%	1.00%	50,609,116	3.86%	1.43%	2.43%	**2.25%**
Total	134,263,678	140,005,136	4.28%	1.78%	140,434,270	4.60%	1.43%	3.17%	**2.98%**

ANNUAL SALARY INCREASES - HAZARDOUS EMPLOYEES By Attained Age (For Informational Purposes only)								
		Current Assumption			Actual Experience			
Age	Prior Year	Expected	% Incr	Assumed Real Incr	Actual	% Incr	Actual Inflation	Actual Real Incr
Under 30	$10,312,240	$10,903,681	5.74%	3.24%	$11,015,871	6.82%	1.43%	5.39%
30 - 34	17,242,222	18,092,668	4.93%	2.43%	18,070,820	4.81%	1.43%	3.38%
35 - 39	26,725,550	27,891,683	4.36%	1.86%	27,926,559	4.49%	1.43%	3.06%
40 - 44	35,132,195	36,543,194	4.02%	1.52%	36,496,408	3.88%	1.43%	2.45%
45 - 49	28,371,698	29,450,178	3.80%	1.30%	29,677,398	4.60%	1.43%	3.17%
50 & Over	16,479,773	17,123,732	3.91%	1.41%	17,247,214	4.66%	1.43%	3.23%
Total	134,263,678	140,005,136	4.28%	1.78%	140,434,270	4.60%	1.43%	3.17%

APPENDIX A (Continued)

ANNUAL SALARY INCREASES - NON-HAZARDOUS EMPLOYEES By Years of Service									
		Current Assumption			Actual Experience				
Years of Service	Prior Year	Expected	% Incr	Assumed Real Incr	Actual	% Incr	Actual Inflation	Actual Real Incr	Proposed Real Incr
1	$9,524,629	$10,277,075	7.90%	5.40%	$10,045,962	5.47%	1.43%	4.04%	**4.25%**
2	8,030,759	8,492,528	5.75%	3.25%	8,417,351	4.81%	1.43%	3.38%	**3.35%**
3	6,776,048	7,114,850	5.00%	2.50%	7,021,322	3.62%	1.43%	2.19%	**2.25%**
4 - 9	44,611,739	46,428,861	4.07%	1.57%	45,920,880	2.93%	1.43%	1.50%	**1.50%**
10 - 14	37,192,213	38,493,941	3.50%	1.00%	38,217,874	2.76%	1.43%	1.33%	**1.30%**
15 - 19	34,427,457	35,632,418	3.50%	1.00%	35,161,306	2.13%	1.43%	0.70%	**0.80%**
20 & Over	35,440,976	36,681,410	3.50%	1.00%	36,060,123	1.75%	1.43%	0.32%	**0.50%**
Total	176,003,821	183,121,083	4.04%	1.54%	180,844,818	2.75%	1.43%	1.32%	**1.38%**

ANNUAL SALARY INCREASES - NON-HAZARDOUS EMPLOYEES By Attained Age (For Informational Purposes only)								
		Current Assumption			Actual Experience			
Age	Prior Year	Expected	% Incr	Assumed Real Incr	Actual	% Incr	Actual Inflation	Actual Real Incr
Under 30	$11,293,565	$11,908,505	5.45%	2.95%	$11,789,141	4.39%	1.43%	2.96%
30 - 34	12,991,273	13,583,526	4.56%	2.06%	13,475,430	3.73%	1.43%	2.30%
35 - 39	16,090,321	16,778,701	4.28%	1.78%	16,664,340	3.57%	1.43%	2.14%
40 - 44	21,721,655	22,621,752	4.14%	1.64%	22,350,843	2.90%	1.43%	1.47%
45 - 49	28,293,992	29,388,443	3.87%	1.37%	28,923,716	2.23%	1.43%	0.80%
50 - 54	35,158,625	36,494,287	3.80%	1.30%	35,843,680	1.95%	1.43%	0.52%
55 - 59	29,250,582	30,346,705	3.75%	1.25%	29,970,985	2.46%	1.43%	1.03%
60 & Over	21,203,808	21,999,164	3.75%	1.25%	21,826,683	2.94%	1.43%	1.51%
Total	176,003,821	183,121,083	4.04%	1.54%	180,844,818	2.75%	1.43%	1.32%

APPENDIX B

COMPARISON OF ACTUAL AND EXPECTED RETIREMENTS

RETIREMENT EXPERIENCE - HAZARDOUS EMPLOYEES								
Years of Service	Age	Exposure	Current Assumed Rates	Expected Ret.'s	Actual Ret.'s	Actual Rates	Proposed Retirement Rates	Expected Retirements (New Rates)
10 - 19	50 - 54	63	10%	6.3	2	3.2%	**5%**	**3.2**
	55 - 59	20	10%	2.0	3	15.0%	**15%**	**3.0**
	60 - 64	13	50%	6.5	5	38.5%	**40%**	**5.2**
	65 & Over	2	100%	2.0	1	50.0%	**100%**	**2.0**
20 +	Under 45	47	20%	9.4	7	14.9%	**15%**	**7.1**
	45 - 49	149	15%	22.4	22	14.8%	**15%**	**22.4**
	50 - 54	125	25%	31.3	16	12.8%	**15%**	**18.7**
	55 - 59	27	35%	9.5	7	25.9%	**30%**	**8.1**
	60 - 64	9	50%	4.5	3	33.3%	**40%**	**3.6**
	65 & Over	0	100%	0.0	0	N/A	**100%**	**0.0**
Total		**455**	**20.6%**	**93.9**	**66**	**14.5%**	**15.4%**	**73.3**

RETIREMENT EXPERIENCE - NON-HAZARDOUS EMPLOYEES								
Years of Service	Age	Exposure	Current Assumed Rates	Expected Ret.'s	Actual Ret.'s	Actual Rates	Proposed Retirement Rates	Expected Retirements (New Rates)
10 - 19	65 - 69	79	45%	35.6	20	25.3%	**30%**	**23.7**
	70 - 74	9	50%	4.5	1	11.1%	**30%**	**2.7**
	75 & Over	1	100%	1.0	0	0.0%	**100%**	**1.0**
20 - 29	55 - 59	268	20%	53.6	50	18.7%	**20%**	**53.6**
	60 - 64	161	25%	40.3	29	18.0%	**20%**	**32.2**
	65 - 69	46	45%	20.7	13	28.3%	**30%**	**13.8**
	70 & Over	12	100%	12.0	3	25.0%	**100%**	**12.0**
30 +	Under 55	35	40%	14.0	16	45.7%	**45%**	**15.8**
	55 - 59	28	40%	11.2	4	14.3%	**20%**	**5.6**
	60 - 64	23	40%	9.2	6	26.1%	**30%**	**6.9**
	65 - 69	5	50%	2.5	2	40.0%	**50%**	**2.5**
	70 & Over	2	100%	2.0	2	100.0%	**100%**	**2.0**
Total		**669**	**30.9%**	**206.6**	**146**	**21.8%**	**24.6%**	**171.8**

APPENDIX C

COMPARISON OF ACTUAL AND EXPECTED SEPARATIONS

SEPARATION / WITHDRAWAL (W/D) EXPERIENCE - HAZARDOUS EMPLOYEES (Males)								
Years of Service	Age	Exposures	Expected W/D's	Expected %	Actual W/D's	Actual %	Proposed %	Expected W/D's (Proposed Rates)
Under 1	All Ages	73	9.34	12.8%	6	8.2%	8.5%	**6.21**
1	All Ages	91	5.19	5.7%	7	7.7%	7.5%	**6.83**
2 - 5	Under 40	172	5.21	3.0%	8	4.7%	4.5%	**7.74**
	40 & Over	37	0.69	1.9%	1	2.7%	2.5%	**0.93**
6 & Over	Under 40	481	6.10	1.3%	11	2.3%	2.0%	**9.62**
	40 & Over	614	5.89	1.0%	12	2.0%	1.5%	**9.21**
Total		**1,468**	**32.42**	**2.2%**	**45**	**3.1%**	**2.8%**	**40.54**

SEPARATION / WITHDRAWAL (W/D) EXPERIENCE - HAZARDOUS EMPLOYEES (Females)								
Years of Service	Age	Exposures	Expected W/D's	Expected %	Actual W/D's	Actual %	Proposed %	Expected W/D's (Proposed Rates)
Under 1	All Ages	12	1.54	12.8%	4	33.3%	20.0%	**2.40**
1 & Over	All Ages	165	3.14	1.9%	7	4.2%	4.0%	**6.60**
Total		**177**	**4.68**	**2.6%**	**11**	**6.2%**	**5.1%**	**9.00**

APPENDIX C (Continued)

SEPARATION / WITHDRAWAL (W/D) EXPERIENCE - NON-HAZARDOUS EMPLOYEES (Males)								
Years of Service	Age	Exposures	Expected W/D's	Expected %	Actual W/D's	Actual %	Proposed %	Expected W/D's (Proposed Rates)
Under 1	Under 35	104	24.25	23.3%	28	26.9%	25.0%	**26.00**
	35 & Over	77	9.95	12.9%	8	10.4%	11.0%	**8.47**
1 - 2	All Ages	581	70.60	12.2%	97	16.7%	16.0%	**92.96**
3 - 4	Under 40	182	21.10	11.6%	19	10.4%	11.0%	**20.02**
	40 & Over	161	9.20	5.7%	7	4.3%	5.0%	**8.05**
5 - 9	Under 30	92	11.51	12.5%	12	13.0%	12.5%	**11.50**
	30 - 49	410	22.90	5.6%	19	4.6%	5.0%	**20.50**
	50 - 59	147	6.52	4.4%	4	2.7%	3.0%	**4.41**
	60 & Over	71	5.33	7.5%	6	8.5%	7.5%	**5.33**
10 & Over	Under 35	79	5.64	7.1%	6	7.6%	7.5%	**5.93**
	35 - 39	138	8.28	6.0%	4	2.9%	4.0%	**5.52**
	40 - 44	217	10.85	5.0%	6	2.8%	3.5%	**7.60**
	45 - 49	294	10.29	3.5%	12	4.1%	3.5%	**10.29**
	50 - 54	367	14.68	4.0%	6	1.6%	2.0%	**7.34**
	55 - 59	212	10.60	5.0%	6	2.8%	3.0%	**6.36**
	60 & Over	97	7.28	7.5%	4	4.1%	4.5%	**4.37**
Total		**3,229**	**248.98**		**244**			**244.65**

APPENDIX C (Continued)

SEPARATION / WITHDRAWAL (W/D) EXPERIENCE - NON-HAZARDOUS EMPLOYEES (Females)								
Years of Service	Age	Exposures	Expected W/D's	Expected %	Actual W/D's	Actual %	Proposed %	Expected W/D's (Proposed Rates)
Under 3	Under 30	111	27.15	24.5%	23	20.7%	22.0%	**24.42**
	30 - 34	48	9.15	19.1%	7	14.6%	15.0%	**7.20**
	35 - 44	58	9.35	16.1%	1	1.7%	5.0%	**2.90**
	45 - 49	42	5.75	13.7%	6	14.3%	14.0%	**5.88**
	50 - 59	71	9.01	12.7%	14	19.7%	18.0%	**12.78**
	60 & Over	16	1.14	7.1%	6	37.5%	25.0%	**4.00**
3 - 4	Under 30	21	3.75	17.9%	4	19.0%	18.0%	**3.78**
	30 - 39	33	3.45	10.5%	5	15.2%	14.0%	**4.62**
	40 - 59	61	5.00	8.2%	2	3.3%	5.0%	**3.05**
	60 & Over	7	0.35	5.0%	2	28.6%	20.0%	**1.40**
5 - 9	Under 35	64	4.32	6.8%	3	4.7%	5.0%	**3.20**
	35 - 44	83	4.72	5.7%	5	6.0%	6.0%	**4.98**
	45 - 59	135	5.40	4.0%	6	4.4%	4.5%	**6.08**
	60 & Over	33	1.32	4.0%	1	3.0%	3.0%	**0.99**
10 & Over	Under 40	79	5.18	6.6%	5	6.3%	6.0%	**4.74**
	40 - 44	60	3.00	5.0%	3	5.0%	5.0%	**3.00**
	45 - 49	138	5.52	4.0%	5	3.6%	3.75%	**5.18**
	50 - 54	188	7.52	4.0%	6	3.2%	3.25%	**6.11**
	55 - 59	119	4.76	4.0%	3	2.5%	2.75%	**3.27**
	60 & Over	93	3.72	4.0%	6	6.5%	6.0%	**5.58**
Total		**1,460**	**119.56**		**113**			**113.16**

APPENDIX D

COMPARISON OF ACTUAL AND EXPECTED DISABILITIES

DISABILITY EXPERIENCE - HAZARDOUS EMPLOYEES							
Gender	Exposure	Expected Disabilities	Expected Avg Rates	Actual Disabilities	Actual Rates	Average Proposed Rates	Expected Disabilities (New Rates)
Males	1,910	8.1	0.426%	9	0.471%	**0.466%**	**8.9**
Females	191	1.0	0.529%	3	1.571%	**1.046%**	**2.0**
Total	2,101	9.1	0.435%	12	0.571%	**0.519%**	**10.9**

DISABILITY EXPERIENCE - NON-HAZARDOUS EMPLOYEES							
Gender	Exposure	Expected Disabilities	Expected Avg Rates	Actual Disabilities	Actual Rates	Average Proposed Rates	Expected Disabilities (New Rates)
Males	3,649	4.9	0.133%	5	0.137%	**0.139%**	**5.1**
Females	1,709	2.7	0.160%	3	0.176%	**0.166%**	**2.8**
Total	5,358	7.6	0.142%	8	0.149%	**0.148%**	**7.9**

APPENDIX E

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 Retirement
3. Rates of Mortality
4. Rates of Employment Separation
5. Rates of Disability
6. Rate 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.

GRS Retirement Consulting

APPENDIX F

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this 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 due to changing conditions; 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, or additional cost or contribution requirements based on the Plan's funded status); and changes in Plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the Plan's future financial condition include:

1. Investment risk – actual investment returns may differ from the either assumed or forecasted returns;
2. Contribution risk – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the Plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
3. Salary and Payroll risk – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
4. Longevity risk – members may live longer or shorter than expected and receive pensions for a period of time other than assumed;
5. Other demographic risks – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example if the investment return is less (or more) than the assumed rate, the cost of the Plan can be expected to increase (or decrease). Likewise if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The computed contribution amounts may be considered as a minimum contribution that complies with the pension Board's funding policy and the State statutes. The timely receipt of the actuarially determined contributions is critical to support the financial health of the Plan. Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.

Risk Assessment

Risk assessment was outside the scope of this report. Risk assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability. We are prepared to perform such assessment to aid the Board in the decision making process.