

CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS PENSION TRUST FUND

Assumption Study and Experience Investigation for
the Seven Years Ended September 30, 2019





October 29, 2020

Board of Trustees
City of Boynton Beach Municipal
Firefighters Pension Trust Fund
Boynton Beach, Florida

Re: Assumption Study and Experience Investigation for the Seven-Year Period Ending September 30, 2019

Dear Board Members:

Gabriel, Roeder, Smith & Company is pleased to provide the results of our assumption study and experience investigation for the City of Boynton Beach Municipal Firefighters' Pension Trust Fund. The period covered by this study is October 1, 2012 through September 30, 2019. 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 Retirement 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 used for the October 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 Plan Administrator 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 Plan Administrator.

The enclosed calculations are based upon the Plan provisions as summarized in the October 1, 2019 Actuarial Valuation Report. 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 October 1, 2019. 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.

This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

This report was also prepared using ProVal's experience study tool, a software product of Winklevoss Technologies. We are relying on the ProVal model. We performed tests of the ProVal model with this assignment and made a reasonable attempt to understand the developer's intended purpose of, general operation of, major sensitivities and dependencies within, and key strengths and limitations of the ProVal model. In our professional judgment, the ProVal experience study tool has the capability to provide results that are consistent with the purposes of this study.

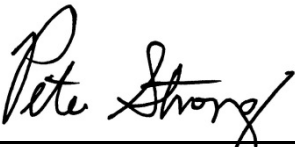
Peter N. Strong and Jeffrey S. Amrose are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The signing actuaries are independent of the plan sponsor.

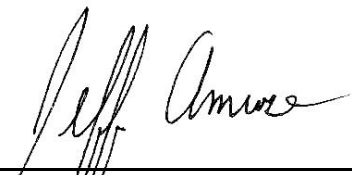
This Report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of the Plan as of the valuation date. All calculations have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

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CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND

ASSUMPTION STUDY AND SEVEN-YEAR EXPERIENCE INVESTIGATION

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**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION**

SUMMARY OF FINDINGS

The seven-year period (October 1, 2012 to September 30, 2019) covered by this assumption study and experience investigation 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 assumption study and experience investigation, including the first-year impact on required City contributions as a dollar amount and as a percent of covered payroll, and the first year impact on the funded ratio are summarized below. (Note: the amortization period for the change in accrued liability resulting from the assumption changes was 25 years.) If these changes are made in the October 1, 2020 Actuarial Valuation Report, the impact on the FY 2022 City contribution and funded ratio as of October 1, 2020 may vary to some extent from what is shown below.

For comparison purposes, the total required City contribution for the fiscal year ending September 30, 2021 (from the October 1, 2019 actuarial valuation), payable at the beginning of the year (October 1, 2020) was \$5,338,338, or 45.27% of covered payroll and the funded ratio as of October 1, 2019 was 67.8%.

Our recommendations are as follows:

- Update the future salary increase assumption to reflect somewhat higher overall observed salary increases, on average, than expected.

Estimated First Year Impact on Annual Contribution Requirement	Estimated First Year Impact on Funded Ratio
+ \$180,190 or 1.36% of covered payroll	+0.0%

- Update assumed rates of future retirement to reflect higher observed normal retirement experience and lower observed early retirement experience than expected.

Estimated First Year Impact on Annual Contribution Requirement	Estimated First Year Impact on Funded Ratio
+ \$150,938 or 1.28% of covered payroll	(0.5%)

- Update the mortality assumption to the latest Florida Retirement System (FRS) mortality assumption used in the July 1, 2019 FRS actuarial valuation. Florida Statutes Chapter 112.63(1)(f) mandates the use of the mortality tables used in either of the two most recently published actuarial valuation reports of FRS.

Estimated First Year Impact on Annual Contribution Requirement	Estimated First Year Impact on Funded Ratio
(\$285,367) or (2.42%) of covered payroll	+1.7%



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION**

SUMMARY OF FINDINGS (CONTINUED)

- Update assumed rates of future separation from employment based on actual experience.

Estimated First Year Impact on Annual Contribution Requirement	Estimated First Year Impact on Funded Ratio
+ \$15,330 or 0.13% of covered payroll	(0.2%)

- Combined effect of all of the above assumption changes (salary increase rates, retirement rates, mortality rates, and rates of separation from employment).

Estimated First Year Impact on Annual Contribution Requirement	Estimated First Year Impact on Funded Ratio
+ \$54,749 or 0.30% of covered payroll	+0.9%

- Combined effect of all assumption changes noted above PLUS a change in the investment return assumption from 7.50% to 7.25%, net of investment expenses.

Estimated First Year Impact on Annual Contribution Requirement	Estimated First Year Impact on Funded Ratio
+ \$489,059 or 3.97% of covered payroll	(1.1%)

- Combined effect of all assumption changes noted above PLUS a change in the investment return assumption from 7.50% to 7.00%, net of investment expenses.

Estimated First Year Impact on Annual Contribution Requirement	Estimated First Year Impact on Funded Ratio
+ \$941,119 or 7.79% of covered payroll	(3.0%)

- Combined effect of all assumption changes noted above PLUS a change in the investment return assumption from 7.50% to 6.50%, net of investment expenses.

Estimated First Year Impact on Annual Contribution Requirement*	Estimated First Year Impact on Funded Ratio*
+ \$2,073,637 or 17.36% of covered payroll	(7.4%)

*Results include a 1.6% load on Normal Retirement liabilities and a 4.6% load on DROP balances to value additional liabilities resulting from a 7.0% guaranteed interest crediting rate in the DROP for members hired before January 21, 2020 (with an assumed rate of return in the Fund of 6.5%).

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.



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION RESULTS**

The methodology, basic results and conclusions of the seven-year experience investigation 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 used in the October 1, 2019 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 separation, retirement and disability rates employed in the October 1, 2019 actuarial valuation. The actual number of separations, retirees and disabilities was tabulated and compared with those expected.

A comparison of the current mortality rates to the new mortality rates is included for informational purposes.

Consideration was given to the size of the group. Over the 7-year experience study period reviewed, there was a total of 718 exposures (each active member compared from one year to the subsequent year). This number of exposures is sufficient to provide partial, but not full credibility to the observed experience. Therefore, some weight was given to the current assumptions while developing the recommended changes to the demographic assumptions going forward. Giving some credibility to the experience in the study period covered by the previous experience study is important because they cover periods of time with varying economic landscapes which can, for instance, impact a member's decision to retire or separate from employment before becoming eligible for retirement.



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION RESULTS**

Basic Results and Conclusions

Rates of Salary Increase

Observed *real* pay increases (net of inflation) were somewhat higher (overall) than expected during the experience investigation period.

We propose revised assumed rates of salary increase with components as follows. Actual versus expected experience is shown in Appendix A on pages 20-21.

SALARY INCREASE ASSUMPTION						
Completed Years of Service	Current Salary Increase Rates			Proposed Salary Increase Rates		
	Assumed Inflation	Promotion, Productivity & Seniority	Total Current Rates	Assumed Inflation	Promotion, Productivity & Seniority	Total Proposed Rates
0	2.50%	12.00%	14.50%	2.25%	12.75%	15.00%
1	2.50%	9.50%	12.00%	2.25%	12.75%	15.00%
2	2.50%	9.50%	12.00%	2.25%	7.75%	10.00%
3	2.50%	7.00%	9.50%	2.25%	7.75%	10.00%
4	2.50%	2.50%	5.00%	2.25%	7.75%	10.00%
5	2.50%	5.00%	7.50%	2.25%	3.25%	5.50%
6 - 7	2.50%	2.50%	5.00%	2.25%	3.25%	5.50%
8	2.50%	5.00%	7.50%	2.25%	2.25%	4.50%
9 - 10	2.50%	1.50%	4.00%	2.25%	2.25%	4.50%
11 - 13	2.50%	1.50%	4.00%	2.25%	3.75%	6.00%
14	2.50%	1.50%	4.00%	2.25%	4.50%	6.75%
15	2.50%	6.00%	8.50%	2.25%	4.50%	6.75%
16 - 18	2.50%	6.00%	8.50%	2.25%	6.00%	8.25%
19	2.50%	1.00%	3.50%	2.25%	6.00%	8.25%
20 & Over	2.50%	1.00%	3.50%	2.25%	1.00%	3.25%



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION RESULTS**

Rates of Retirement

The observed number of normal retirements (or DROP entries) was generally higher than that expected under the assumed rates of retirement used in the October 1, 2019 actuarial valuation. The observed number of early retirements was lower than expected. The current and proposed retirement rates are shown in the following tables. Actual versus expected experience is shown in Appendix B on page 22.

RETIREMENT RATES			
Years of Service	Age	Expected Current	Expected Proposed
10 - 19	50 - 54	10%	5%
	55 - 59	40%	80%
	60 & Over	100%	100%
20	Under 50	40%	60%
	50 - 54	80%	90%
	55	80%	100%
	56 & Over	100%	100%
21	Under 50	40%	60%
	50 - 54	80%	90%
	55 & Over	100%	100%
22 - 24	Under 50	40%	80%
	50 - 54	80%	90%
	55 & Over	100%	100%
25 & Over	Under 50	50%	100%
	50 - 54	80%	100%
	55 & Over	100%	100%

We used the observed experience for members hired before February 5, 2019 (Tier 1 employees) to develop the proposed retirement rates shown in the table above. Members hired on or after February 5, 2019 (Tier 2 employees) need 25 years of service (instead of 20 years) to be eligible for normal retirement. For this reason, there was no experience for this group of employees during the study period. We recommend monitoring the proposed retirement rates for this group of employees as their experience emerges.



CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION RESULTS

Rates of Mortality

The current mortality assumption is the 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. For disabled retirees, the current mortality assumption is 60% of the RP-2000 for Disabled Annuitants with ages set back 4 years for males and set forward 2 years for females, and 40% of the RP2000 Annuitant Mortality Table with a white collar adjustment with no age setback, both with no provision being made for future mortality improvements. These are the same rates in use for Special Risk Class members of the Florida Retirement System (FRS) in the July 1, 2018 FRS Actuarial Valuation.

Florida Statutes Chapter 112.63(1)(f) mandates the use of the mortality tables used in either of the two most recently published actuarial valuation reports of FRS. FRS usually updates their mortality assumption once every five years after an experience study is completed. FRS' mortality assumption was last updated effective with their July 1, 2019 FRS Actuarial Valuation. The new FRS mortality assumption is based on the PUB-2010 Headcount Weighted Mortality Tables described below, with mortality improvements projected to all future years after 2010 using Scale MP-2018.

Healthy Mortality (Post-Retirement) for Special Risk Members

- Females: PUB-2010 Headcount Weighted Safety Healthy Retiree Female Table, set forward 1 year
- Males: PUB-2010 Headcount Weighted Safety Below Median Healthy Retiree Male Table, set forward 1 year

Healthy Mortality (Pre-Retirement) for Special Risk Members

- Females: PUB-2010 Headcount Weighted Safety Employee Female Table, set forward 1 year
- Males: PUB-2010 Headcount Weighted Safety Below Median Employee Male Table, set forward 1 year

Disabled Mortality for Special Risk Members

- Females: 80% of the PUB-2010 Headcount Weighted General Disabled Retiree Female Table; 20% of the PUB-2010 Headcount Weighted Safety Disabled Retiree Female Table; no projection scale
- Males: 80% of the PUB-2010 Headcount Weighted General Disabled Retiree Male Table; 20% of the PUB-2010 Headcount Weighted Safety Disabled Retiree Male Table; no projection scale

Comparisons of life expectancies with the current mortality rates versus the new mortality rates are shown in the following tables.



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION RESULTS**

Rates of Mortality (Continued)

**FRS Healthy Post-Retirement Mortality for Special Risk Class Members
Prior to July 1, 2019**

Sample Attained Ages (in 2020)	Probability of Dying Next Year			Future Life Expectancy (years)	
	Men	Women		Men	Women
50	0.53	0.23	%	34.24	38.59
55	0.66	0.32		29.60	33.58
60	0.88	0.46		25.03	28.68
65	1.26	0.72		20.62	23.92
70	1.92	1.19		16.46	19.44
75	3.12	2.02		12.70	15.34
80	5.13	3.38		9.44	11.68

**NEW FRS Healthy Post-Retirement Mortality for Special Risk Class Members
Effective July 1, 2019**

Sample Attained Ages (in 2020)	Probability of Dying Next Year			Future Life Expectancy (years)	
	Men	Women		Men	Women
50	0.42	0.20	%	32.40	36.24
55	0.56	0.36		27.63	31.21
60	0.93	0.61		23.05	26.43
65	1.32	0.92		18.80	21.93
70	2.09	1.45		14.80	17.68
75	3.56	2.44		11.21	13.75
80	6.35	4.19		8.14	10.30

**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION RESULTS**

Rates of Mortality (Continued)

**FRS Healthy Pre-Retirement Mortality for Special Risk Class Members
Prior to July 1, 2019**

Sample Attained Ages (in 2020)	Probability of Dying Next Year		Future Life Expectancy (years)	
	Men	Women	Men	Women
50	0.22	0.15	35.22	38.94
55	0.39	0.23	30.11	33.80
60	0.70	0.38	25.23	28.78
65	1.19	0.68	20.67	23.95
70	1.92	1.19	16.46	19.44
75	3.12	2.02	12.70	15.34
80	5.13	3.38	9.44	11.68

**NEW FRS Healthy Pre-Retirement Mortality for Special Risk Class Members
Effective July 1, 2019**

Sample Attained Ages (in 2020)	Probability of Dying Next Year			Future Life Expectancy (years)	
	Men	Women		Men	Women
50	0.17	0.11	%	35.58	39.50
55	0.26	0.16		30.50	34.36
60	0.43	0.22		25.55	29.30
65	0.69	0.30		20.80	24.29
70	1.18	0.55		16.28	19.39
75	2.09	1.08		12.05	14.69
80	6.35	4.19		8.14	10.30



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION RESULTS**

Rates of Mortality (Continued)

FRS Disabled Mortality for Special Risk Class Members

Prior to July 1, 2019

Sample Attained Ages (in 2020)	Probability of Dying Next Year			Future Life Expectancy (years)	
	Men	Women		Men	Women
50	1.67	0.91	%	23.74	27.06
55	2.03	1.26		20.77	23.37
60	2.47	1.67		17.91	19.90
65	3.07	2.24		15.15	16.62
70	3.90	3.18		12.52	13.58
75	5.30	4.60		10.02	10.86
80	7.59	6.66		7.80	8.48

NEW FRS Disabled Mortality for Special Risk Class Members

Effective July 1, 2019

Sample Attained Ages (in 2020)	Probability of Dying Next Year			Future Life Expectancy (years)	
	Men	Women		Men	Women
50	1.45	1.25	%	24.04	26.84
55	1.91	1.50		20.88	23.54
60	2.37	1.81		17.92	20.32
65	3.00	2.22		15.07	17.17
70	3.91	2.90		12.39	14.10
75	5.30	4.13		9.87	11.22
80	7.66	6.21		7.60	8.67



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION RESULTS**

Rates of Employment Separation (withdrawal)

The observed rate of employment separations were slightly higher (overall) than expected during the experience investigation period, but they were lower than expected at some key ages (ages 34-43).

The current and proposed separation (withdrawal) rates are shown in the following table. Actual versus expected experience is shown in Appendix C on page 23.

SEPARATION RATES		
Age	Current Rates	Proposed Rates
Under 27	1.5%	5.0%
27	1.5%	4.5%
28	1.5%	4.0%
29	1.5%	3.5%
30	1.5%	3.0%
31	1.5%	2.5%
32	1.5%	2.0%
33	1.5%	1.5%
34	1.5%	1.0%
35 - 39	1.5%	1.0%
40	2.5%	1.0%
41	2.5%	1.0%
42	2.5%	1.5%
43	2.5%	1.75%
44	2.0%	2.0%
45	1.5%	2.0%
46	1.5%	2.0%
47	1.5%	2.0%
48	1.5%	2.0%
49	1.5%	2.0%
50	1.0%	2.0%
51	0.8%	2.0%
52	0.6%	1.5%
53	0.4%	1.0%
54	0.2%	0.5%
55 & Over	0.0%	0.0%

**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION RESULTS**

Rates of Disability

The actual number of disabilities was not materially different than the number of expected disabilities, and given the limited experience available, no changes are recommended to the assumed rates of disability. The current disability rates are shown in the following table. Actual versus expected experience is shown in Appendix D on page 24.

DISABILITY RATES				
Age	Expected Current Rates		Expected Proposed Rates	
	Males	Females	Males	Females
20	0.09%	0.09%	0.09%	0.09%
25	0.10%	0.10%	0.10%	0.10%
30	0.12%	0.12%	0.12%	0.12%
35	0.15%	0.15%	0.15%	0.15%
40	0.20%	0.20%	0.20%	0.20%
45	0.34%	0.34%	0.34%	0.34%
50	0.67%	0.67%	0.67%	0.67%
55	1.03%	1.03%	1.03%	1.03%

**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION RESULTS**

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’s fiduciaries’ best estimate of the future compound average annual 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 Boynton Beach Municipal Firefighters’ Pension Trust Fund Asset Allocation

The Fund’s target asset allocation, as provided by the Fund’s investment consultant, AndCo Consulting, is as follows:

Asset Class	Target
Domestic Equity Securities	
Large Cap	35.0%
Mid Cap	10.0%
International Equity Securities	10.0%
Emerging Market Equity Securities	5.0%
<i>Total Equity</i>	60.0%
U.S. Aggregate Bonds	10.0%
U.S. Leveraged Bonds	5.0%
TIPS	5.0%
International Bonds	5.0%
<i>Total Fixed Income</i>	25.0%
U.S. Core Real Estate	5.0%
U.S. Value Added Real Estate	5.0%
Alternative Assets – Diversified Hedge Funds	5.0%
<i>Total Real Estate & Alternatives</i>	15.0%



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION RESULTS**

Rate of Investment Return (Continued)

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 thirteen (13) major national investment consulting and forecasting firms to obtain a consensus:

13 Major National Investment Consultants and Forecasters	
Aon	Mercer
BNY/Mellon	NEPC
BlackRock	RVK
Callan	Verus
Cambridge	VOYA
J.P. Morgan	Wilshire
Meketa	

Of these 13 investment consultants, 7 provided only short to mid-term capital market assumptions (over the next 5-15 years), while six (Aon, BlackRock, Cambridge, Meketa, Mercer, and NEPC) also 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 Boynton Beach Municipal Firefighters’ Pension Trust Fund).

Mapping the Target Asset Allocation

The 13 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 for each investment consultant’s list.

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 six investment consultants who provided long-term assumptions).



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION RESULTS**

Rate of Investment Return (Continued)

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 (Assumes Alpha Offsets)	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	5.28%	2.20%	3.08%	2.25%	5.33%	0.00%	5.33%	12.56%
2	5.93%	2.25%	3.68%	2.25%	5.93%	0.00%	5.93%	11.27%
3	6.33%	2.30%	4.03%	2.25%	6.28%	0.00%	6.28%	12.94%
4	6.31%	2.21%	4.09%	2.25%	6.34%	0.00%	6.34%	13.15%
5	5.85%	1.80%	4.05%	2.25%	6.30%	0.00%	6.30%	11.70%
6	6.27%	2.10%	4.17%	2.25%	6.42%	0.00%	6.42%	11.26%
7	6.68%	2.20%	4.48%	2.25%	6.73%	0.00%	6.73%	12.52%
8	6.28%	2.01%	4.27%	2.25%	6.52%	0.00%	6.52%	10.46%
9	6.71%	2.18%	4.53%	2.25%	6.78%	0.00%	6.78%	12.51%
10	6.42%	1.90%	4.52%	2.25%	6.77%	0.00%	6.77%	12.33%
11	6.31%	1.75%	4.56%	2.25%	6.81%	0.00%	6.81%	12.19%
12	7.05%	2.26%	4.79%	2.25%	7.04%	0.00%	7.04%	13.05%
13	7.09%	2.00%	5.09%	2.25%	7.34%	0.00%	7.34%	12.38%
Average	6.35%	2.09%	4.26%	2.25%	6.51%	0.00%	6.51%	12.18%

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 (Assumes Alpha Offsets)	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	7.16%	2.20%	4.96%	2.25%	7.21%	0.00%	7.21%	13.15%
2	7.46%	2.21%	5.24%	2.25%	7.49%	0.00%	7.49%	12.89%
3	7.26%	2.33%	4.93%	2.25%	7.18%	0.00%	7.18%	12.54%
4	7.47%	2.60%	4.87%	2.25%	7.12%	0.00%	7.12%	12.51%
5	7.34%	2.50%	4.84%	2.25%	7.09%	0.00%	7.09%	12.94%
6	7.61%	1.80%	5.81%	2.25%	8.06%	0.00%	8.06%	11.70%
Average	7.38%	2.27%	5.11%	0.00%	7.36%	0.00%	7.36%	12.62%



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION RESULTS**

Rate of Investment Return (Continued)

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 annual investment-related expenses for the Plan's fund are approximately 0.3% of the total assets in the trust.

The Actuarial Standards of Practice suggests the use of an assumption that would result from 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 explicitly add alpha value in our assessment or development of our recommendation for the net investment return assumption.

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 MEANS

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



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Rate of Investment Return (Continued)

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 return over time. The geometric expected returns for the investment consultants who provided capital market assumptions 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 six 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 7.50%	Probability of exceeding 6.75%	Probability of exceeding 6.50%	Probability of exceeding 6.00%
	40th	50th	60th				
(1)	(2)	(3)	(4)	(5)	(7)	(8)	(10)
1	3.88%	4.58%	5.29%	15.03%	22.02%	24.72%	30.64%
2	4.70%	5.34%	5.97%	19.58%	28.71%	32.17%	39.56%
3	4.78%	5.50%	6.23%	24.48%	33.26%	36.45%	43.13%
4	4.81%	5.54%	6.28%	25.21%	33.95%	37.12%	43.73%
5	5.01%	5.66%	6.32%	24.11%	33.82%	37.38%	44.83%
6	5.20%	5.83%	6.46%	25.31%	35.64%	39.41%	47.24%
7	5.30%	6.00%	6.71%	29.58%	39.41%	42.90%	50.04%
8	5.42%	6.01%	6.60%	26.13%	37.46%	41.58%	50.09%
9	5.35%	6.05%	6.75%	30.16%	40.06%	43.57%	50.73%
10	5.38%	6.07%	6.76%	30.12%	40.18%	43.74%	51.01%
11	5.44%	6.12%	6.81%	30.59%	40.82%	44.43%	51.79%
12	5.52%	6.25%	6.98%	33.34%	43.15%	46.56%	53.47%
13	5.94%	6.64%	7.33%	37.68%	48.35%	51.99%	59.21%
Average	5.13%	5.81%	6.50%	27.03%	36.68%	40.16%	47.34%



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION RESULTS**

Rate of Investment Return (Continued)

Long-Term Capital Market Assumptions

Investment Consultant	Distribution of 20-Year Average Geometric Net Nominal Return			Probability of exceeding 7.50%	Probability of exceeding 7.00%	Probability of exceeding 6.75%	Probability of exceeding 6.50%
	40th	50th	60th	(5)	(7)	(8)	(10)
(1)	(2)	(3)	(4)	(5)	(7)	(8)	(10)
1	5.62%	6.36%	7.10%	34.79%	41.28%	44.63%	48.04%
2	5.97%	6.69%	7.42%	38.87%	45.69%	49.17%	52.67%
3	5.84%	6.54%	7.24%	36.50%	43.40%	46.96%	50.55%
4	6.05%	6.75%	7.45%	39.34%	46.38%	49.97%	53.57%
5	5.85%	6.57%	7.30%	37.35%	44.07%	47.52%	51.00%
6	6.33%	6.98%	7.64%	42.11%	49.73%	53.58%	57.40%
Average	5.94%	6.65%	7.36%	38.16%	45.09%	48.64%	52.20%

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 5.81%. 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 5.81% net compound average investment return over the next 10 years. Among the six investment consultants who provided long-term capital market assumptions, the average long-term expected geometric return is 6.65%. This means the consensus opinion is that there is a 50-50 chance of achieving a 6.65% net compound average investment return over the next 20 to 30 years.

Blend – Single Equivalent Expected Net Compound Average Investment Return

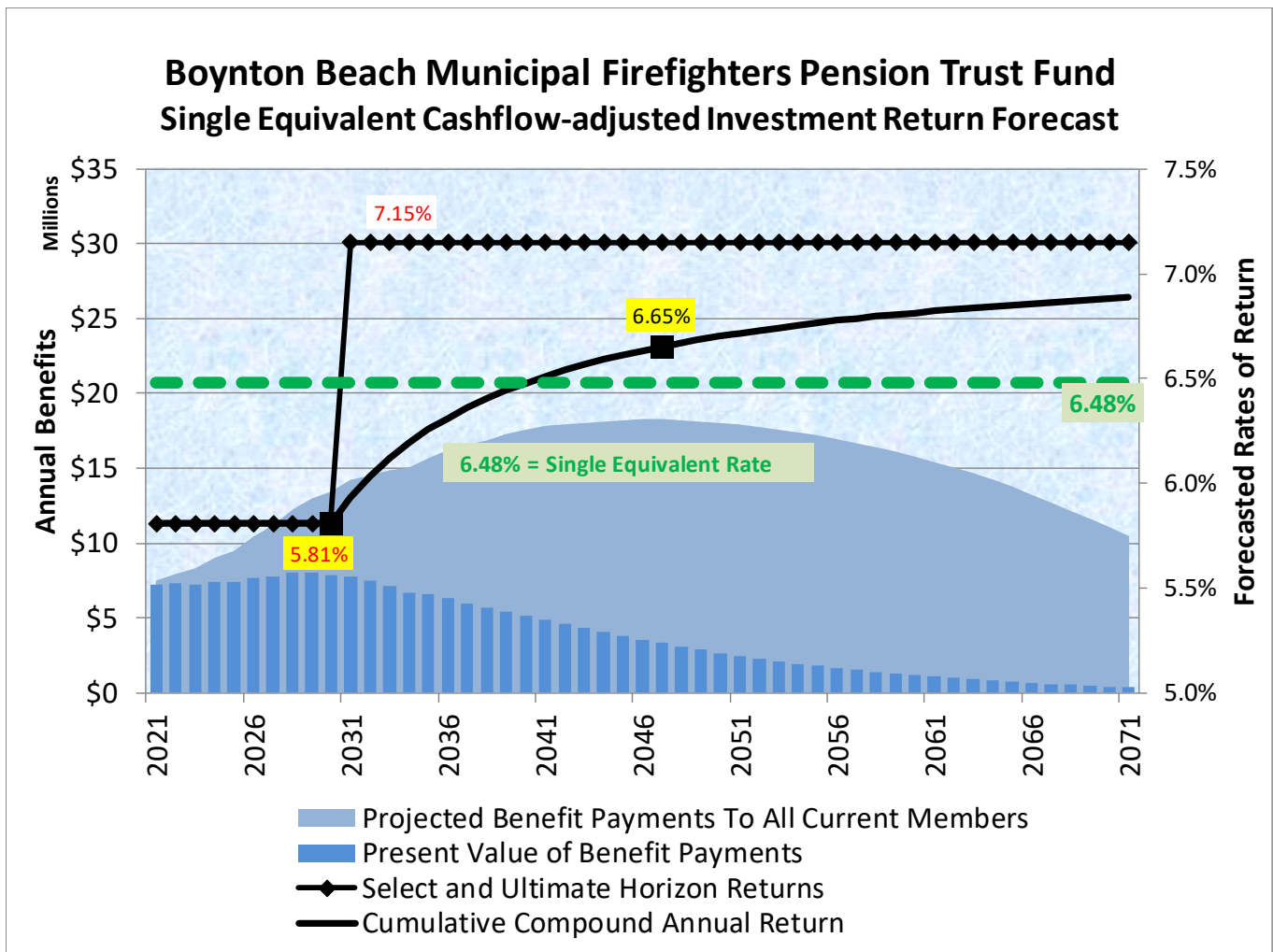
Of the six investment consultants who provided long-term capital market assumptions, four of them described them as 30-year assumptions and two of them described them as 20-year assumptions. The average long-term forecasting period is therefore approximately 27 years. If the next 10 years are expected to produce a net compound average return of 5.81% and the next 27 years are expected to produce a net compound average return of 6.65%, then the net compound average return in years 11 through 27 would need to be a compound average return of 7.15% per year in order to bring the overall 27-year compound average up to 6.65%.



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
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Rate of Investment Return (Continued)

Using the projected benefit payments from the City of Boynton Beach Municipal Firefighters' Pension Trust Fund, a single equivalent rate can be calculated for the next 27 years which is neutral to the Plan earning 5.81% during the first 10 years and 7.15% in years 11 through 27. **This single equivalent rate is 6.48%, or 6.50% rounded to the nearest quarter point.** We believe this assumed rate of return represents the "best estimate" for the average future compound average return for the City of Boynton Beach Municipal Firefighters' Pension Trust Fund over the next 27 years, based on the current target asset allocation, the current capital market forecast assumptions, and the projected benefit payments that are specific to the City of Boynton Beach Municipal Firefighters' Pension Trust Fund.



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION RESULTS**

Rate of Investment Return (Continued)

RECOMMENDATION

Based on the information provided above, including the short-term and long-term capital market assumptions and single-equivalent “best estimate” rate of return of 6.48% (6.50% rounded to the nearest quarter point) based on the Plan’s projected cash flows, our recommendation is to reduce the investment return assumption from the current level of 7.50%. We recognize that the forecasted geometric average returns resulting from the capital market assumptions of each investment consultant surveyed vary by up to 30 to 80 basis points from the averages (depending on whether you’re looking at the long-term or short-term assumptions) and that this analysis is not an exact science. Therefore, there is a range of reasonability around what we believe to be the “best estimate” (6.50%) of +/- 50 basis points, which means we believe a reasonable range for the long-term compound average investment return is 6.00% to 7.00%.

The Plan’s current investment return assumption of 7.50%, net of investment expenses, may not fall **significantly** outside of this “reasonable range”, but our recommendation is to lower the assumption to at least 7.00% to fall within this reasonable range, and to consider lowering it further – to what we believe is the “best estimate” rate of 6.50%. The impact of lowering the investment return assumption to either 7.25%, 7.00% or 6.50% is shown in combination with our other recommended assumption changes on page 2.

**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION**

APPENDIX A

COMPARISON OF ACTUAL AND EXPECTED ANNUAL MEMBER SALARIES

ANNUAL SALARY INCREASES								
By Attained Age (For Informational Purposes only)								
Age	Prior Year	Current Assumption			Actual Experience			
		Expected	% Incr	Assumed Real Incr	Actual	% Incr	Actual Inflation	Actual Real Incr
Under 30	\$5,855,873	\$6,458,721	10.29%	7.79%	\$6,545,983	11.78%	1.54%	10.24%
30 - 34	11,676,135	12,442,879	6.57%	4.07%	12,553,390	7.51%	1.54%	5.97%
35 - 39	14,684,608	15,466,263	5.32%	2.82%	15,576,219	6.07%	1.54%	4.53%
40 - 44	14,692,885	15,491,753	5.44%	2.94%	15,515,519	5.60%	1.54%	4.06%
45 - 49	6,689,963	7,066,079	5.62%	3.12%	7,163,685	7.08%	1.54%	5.54%
50 & Over	2,389,520	2,583,000	8.10%	5.60%	2,506,864	4.91%	1.54%	3.37%
Total	55,988,984	59,508,695	6.29%	3.79%	59,861,660	6.92%	1.54%	5.38%

ANNUAL SALARY INCREASES								
By Years of Service - Showing Current Assumption Service Breakpoints								
Completed Years of Service	Prior Year	Current Assumption			Actual Experience			
		Expected	% Incr	Assumed Real Incr	Actual	% Incr	Actual Inflation	Actual Real Incr
0	\$2,921,466	\$3,345,079	14.50%	12.00%	\$3,439,580	17.73%	1.54%	16.19%
1 - 2	3,156,178	3,534,919	12.00%	9.50%	3,638,782	15.29%	1.54%	13.75%
3	2,116,193	2,317,231	9.50%	7.00%	2,243,022	5.99%	1.54%	4.45%
4	1,833,699	1,925,384	5.00%	2.50%	2,036,818	11.08%	1.54%	9.54%
5	2,295,824	2,468,011	7.50%	5.00%	2,391,023	4.15%	1.54%	2.61%
6 - 7	5,813,231	6,103,893	5.00%	2.50%	6,135,644	5.55%	1.54%	4.01%
8	3,107,276	3,340,322	7.50%	5.00%	3,188,777	2.62%	1.54%	1.08%
9 - 14	26,953,027	28,031,148	4.00%	1.50%	28,511,516	5.78%	1.54%	4.24%
15 - 18	7,557,907	8,200,329	8.50%	6.00%	8,020,972	6.13%	1.54%	4.59%
19 & Over	234,183	242,379	3.50%	1.00%	255,526	9.11%	1.54%	7.57%
Total	55,988,984	59,508,695	6.29%	3.79%	59,861,660	6.92%	1.54%	5.38%



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION**

APPENDIX A (Continued)

COMPARISON OF ACTUAL AND EXPECTED ANNUAL MEMBER SALARIES

ANNUAL SALARY INCREASES By Years of Service									
Completed Years of Service	Prior Year	Current Assumption			Actual Experience				Proposed Real Incr
		Expected	% Incr	Assumed Real Incr	Actual	% Incr	Actual Inflation	Actual Real Incr	
0 - 1	\$5,094,301	\$5,778,654	13.43%	10.93%	\$5,907,034	15.95%	1.54%	14.41%	12.75%
2 - 4	4,933,235	5,343,959	8.33%	5.83%	5,451,168	10.50%	1.54%	8.96%	7.75%
5 - 7	8,109,055	8,571,903	5.71%	3.21%	8,526,667	5.15%	1.54%	3.61%	3.25%
8 - 10	12,477,669	13,085,530	4.87%	2.37%	12,948,356	3.77%	1.54%	2.23%	2.25%
11 - 13	14,473,893	15,052,848	4.00%	1.50%	15,356,109	6.10%	1.54%	4.56%	3.75%
14 - 15	6,013,439	6,384,688	6.17%	3.67%	6,401,514	6.45%	1.54%	4.91%	4.50%
16 - 19	4,887,392	5,291,111	8.26%	5.76%	5,270,812	7.85%	1.54%	6.31%	6.00%
20 & Over	-	-	N/A	1.00%	-	N/A	1.54%	N/A	1.00%
Total	55,988,984	59,508,693	6.29%	3.79%	59,861,660	6.92%	1.54%	5.38%	4.79%



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION**

APPENDIX B

COMPARISON OF ACTUAL AND EXPECTED RETIREMENTS

RETIREMENT EXPERIENCE								
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	25	10%	2.5	1	4.0%	5%	1.25
	55 - 59	3	40%	1.2	3	100.0%	80%	2.40
	60 & Over	2	100%	2.0	1	50.0%	100%	2.00
20	Under 50	18	40%	7.2	13	72.2%	60%	10.80
	50 - 54	3	80%	2.4	3	100.0%	90%	2.70
	55	1	80%	0.8	1	100.0%	100%	1.00
	56 & Over	0	100%	0.0	0	N/A	100%	0.00
21	Under 50	6	40%	2.4	4	66.7%	60%	3.60
	50 - 54	0	80%	0.0	0	N/A	90%	0.00
	55 & Over	0	100%	0.0	0	N/A	100%	0.00
22 - 24	Under 50	4	40%	1.6	4	100.0%	80%	3.20
	50 - 54	0	80%	0.0	0	N/A	90%	0.00
	55 & Over	0	100%	0.0	0	N/A	100%	0.00
25 +	Under 50	0	50%	0.0	0	N/A	100%	0.00
	50 - 54	0	80%	0.0	0	N/A	100%	0.00
	55 & Over	0	100%	0.0	0	N/A	100%	0.00
Total		62	32.4%	20.1	30	48.4%	43.5%	26.95



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION**

APPENDIX C

COMPARISON OF ACTUAL AND EXPECTED SEPARATIONS

SEPARATION / WITHDRAWAL (W/D) EXPERIENCE By Years of Service (For Informational Purposes only)					
Years of Service	Exposures	Expected W/D's	Expected %	Actual W/D's	Actual %
Under 1	21	0.30	1.4%	2	9.5%
1	33	0.49	1.5%	1	3.0%
2	20	0.29	1.5%	1	5.0%
3	29	0.43	1.5%	0	0.0%
4	17	0.25	1.5%	1	5.9%
5 - 9	166	2.62	1.6%	4	2.4%
10 - 14	242	4.28	1.8%	1	0.4%
15 & Over	128	2.58	2.0%	2	1.6%
Total	656	11.24	1.7%	12	1.8%

SEPARATION / WITHDRAWAL (W/D) EXPERIENCE By Attained Age							
Age	Exposures	Expected W/D's	Expected %	Actual W/D's	Actual %	Proposed %	Expected W/D's (Proposed Rates)
Under 25	16	0.24	1.5%	1	6.3%	5.0%	0.80
25 - 29	63	0.95	1.5%	3	4.8%	3.5% to 5.0%	2.68
30 - 34	140	2.10	1.5%	3	2.1%	1.0% to 3.0%	2.59
35 - 39	183	2.75	1.5%	1	0.5%	1.0%	1.83
40 & Over	254	5.20	2.0%	4	1.6%	0.0% to 2.0%	4.05
Total	656	11.24	1.7%	12	1.8%	1.8%	11.95



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION**

APPENDIX D

COMPARISON OF ACTUAL AND EXPECTED DISABILITIES

DISABILITY EXPERIENCE							
Gender	Exposure	Expected Disabilities	Expected Avg Rates	Actual Disabilities	Actual Rates	Average Proposed Rates	Expected Disabilities (New Rates)
Total	718	1.7	0.237%	1	0.139%	0.237%	1.7



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION**

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.



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION**

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.



**CITY OF BOYNTON BEACH MUNICIPAL FIREFIGHTERS' PENSION TRUST FUND
ASSUMPTION STUDY AND EXPERIENCE INVESTIGATION**

APPENDIX F (Continued)

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.

