

Town of Middletown

Town of Middletown Pension Plan

Report on the Results of an Experience Study of the Town of Middletown Pension Plan

Period Covering

July 1, 2009 – June 30, 2014

June 2015





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June 30, 2015

Ms. Lynne Dible
Finance Director
Town Hall
Town of Middletown
350 East Main Road
Middletown, RI 02840

Dear Lynne:

The results of our experience study of the Town of Middletown Pension Plan covering the five-year period ending June 30, 2014, are described in this report, along with our recommendations for changes in the present assumptions.

The Table of Contents, which immediately follows, outlines the information contained in this report.

To the best of our knowledge, this experience investigation report is complete and accurate. The experience investigation was prepared under the supervision of Jonathan E. Dobbs, an Associate of the Society of Actuaries and a Member of the American Academy of Actuaries. Mr. Dobbs has met the Qualification Standards of the American Academy of Actuaries to render actuarial opinions on the subject matter contained herein.

Respectfully submitted,

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I. Introduction

In order to accumulate funds to pay retirement benefits on a reasonable and relatively stable basis, the actuary prepares annual valuations of the Plan's assets and liabilities to measure the funded status and to ensure that funding is progressing at a rate that is adequate to meet the Plan's obligations.

The primary purposes of funding are to equitably allocate costs between generations of taxpayers and to provide security to members, who view the funds set aside as assurance that their benefits will be paid.

While the ultimate cost of the Plan is not determinable until all benefits are paid and expenses provided for, each actuarial valuation attempts to estimate costs based on assumptions selected to predict, as accurately as possible, future experience in order to produce stable contribution amounts.

Overly conservative or aggressive assumptions will result in actuarial gains or losses each year. When translated into contributions, this will result in decreasing or increasing contribution amounts and an inequitable allocation of costs.

The major actuarial assumptions are:

- (a) Active service demographic assumptions,
- (b) Compensation increase assumptions,
- (c) Postretirement mortality rates, and
- (d) Interest rate.

Before presenting our analysis of the Plan's experience and discussion of the proposed assumptions, it is important to outline considerations that should govern the selection of actuarial assumptions. The recommendations of the American Academy of Actuaries are as follows:

- (a) The actuarial assumptions selected should reflect the actuary's best judgment of future events. They should take into account actual experience to the extent possible, but they should also reflect long-term future trends rather than give undue weight to recent past experience.
- (b) The actuary should consider the impact of inflation in selecting the actuarial assumptions to be used.
- (c) The actuary should give consideration to the reasonableness of each actuarial assumption independently as well as the combined impact of all the assumptions.
- (d) The actuary should give careful attention to changes in plan design that may significantly alter expected future experience. For example, a liberalization of early retirement benefits may make advisable a revision in the retirement assumption.
- (e) The actuary, in choosing assumptions, should take into account general or specific information available from other sources, including the plan sponsor, plan administrator, investment managers, accountants, economists, etc.

Likewise, according to Actuarial Standard of Practice No. 4 (ASOP 4), "when selecting an actuarial cost method or an amortization method, the actuary should consider factors such as the timing and duration of expected benefit payments and the nature and frequency of plan amendments. In addition, the actuary should consider relevant input received from the principal, such as a desire for stable or predictable costs or contributions, or a desire to achieve a target funding level within a specified time frame."

The purpose of this Report is to provide the information necessary to decide on the appropriate assumptions and methods to be used in future valuations. It should be noted that these decisions cannot be made in a vacuum but must reflect the present and expected situation within the Town, the State and the Plan.

I. Introduction (continued)

The balance of this Report deals in detail with the various assumptions and methods. In each area we have made recommendations as to what we believe are appropriate assumptions and methods. These recommendations reflect our best estimate of the likely future experience based on:

- (a) Recent past experience,
- (b) General economic views prevailing at this time, and
- (c) Anticipated trends.

This report was prepared in accordance with Actuarial Standards of Practice No. 4 (ASOP 4), No. 27 (ASOP 27), No. 35 (ASOP 35) and No. 44 (ASOP 44). ASOP 4 provides guidance on actuarial cost methods. ASOP 27 provides guidance to actuaries in selecting economic assumptions (including discount rate and compensation scale) for measuring obligations under defined benefit pension plans. ASOP 35 provides guidance in selecting demographic and other noneconomic assumptions (including, but not limited to, retirement, mortality and mortality improvement, termination of employment and disability) for measuring obligations under defined benefit plans. ASOP 44 provides guidance in selecting an asset valuation method for purposes of a defined benefit pension plan actuarial valuation.

II. Active Service Demographic Assumptions

The active service demographic assumptions include rates of:

- (a) Termination,
- (b) Disability,
- (c) Death before retirement, and
- (d) Retirement.

Our review of active service demographic assumptions is based on the actuarial valuation data for the Plan. Since the Plan covers different departments within the Town, each with its own set of benefit provisions, we review experience separately by department. These departments include the Fire Department, Police Department, Public Works, and Town Hall.

The basis for analysis of the Plan's experience is a comparison of the actual number of separations from service under each category with those expected based on the assumptions currently in use.

The expected number of separations from service is calculated by multiplying the various rates of separation by the number of individuals exposed to each respective event. For example, active Public Works members age 40 with 10 years of credited service would be exposed to the probabilities of withdrawal, death and disability. Fire Department members age 50 with 20 years of service would be exposed to death, disability and retirement.

Numerical summaries of the Plan's experience from July 1, 2009, through June 30, 2014 are presented in Appendix I. The tables show the exposures to each event and the ratios of the actual experience of the Plan as compared to that anticipated by the present actuarial assumptions. The results are shown separately by assumption and, where appropriate, by sex.

The ratios of actual to expected experience indicate the extent of deviation from the assumptions. A ratio of 1.0 would mean the experience has been exactly as anticipated. If the ratio of actual to expected is greater than 1.0, then the assumption tables have underestimated actual experience. If the ratio is less than 1.0, then the assumption tables have overstated actual experience.

As an aid in analyzing these results, we have also prepared a series of graphs, which present the statistical data summarized in Appendix I in visual form. Our comments will refer to these graphs, which immediately follow each of the following subsections. The graphs omit age ranges with no exposures.

Termination

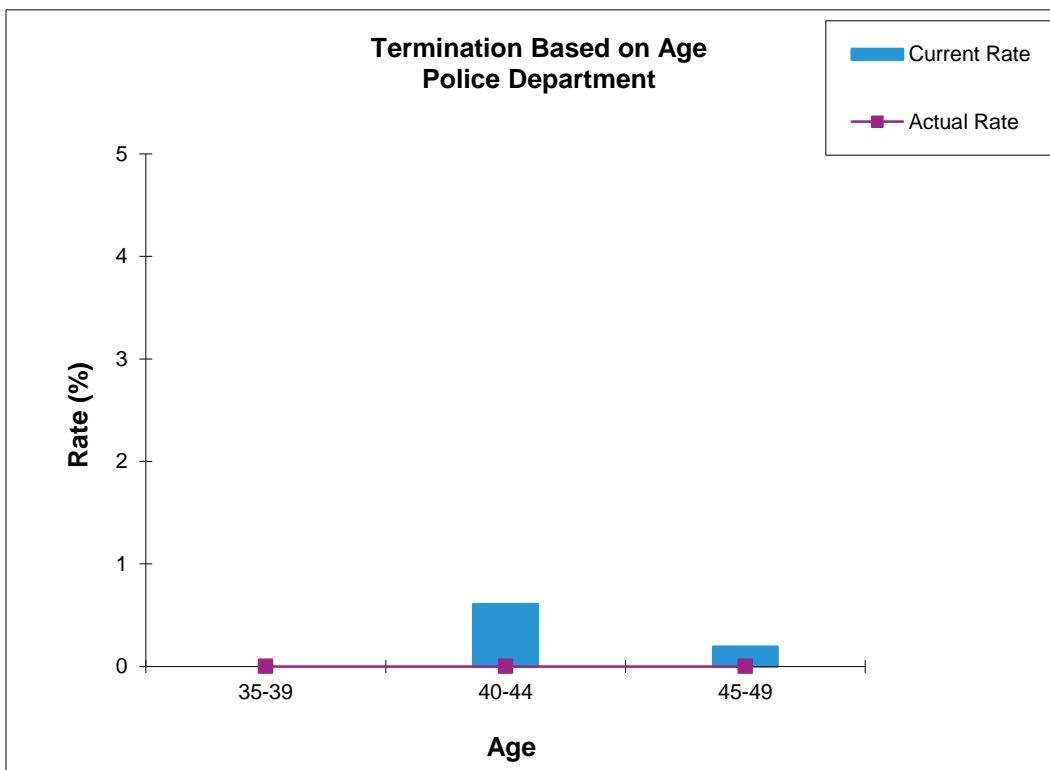
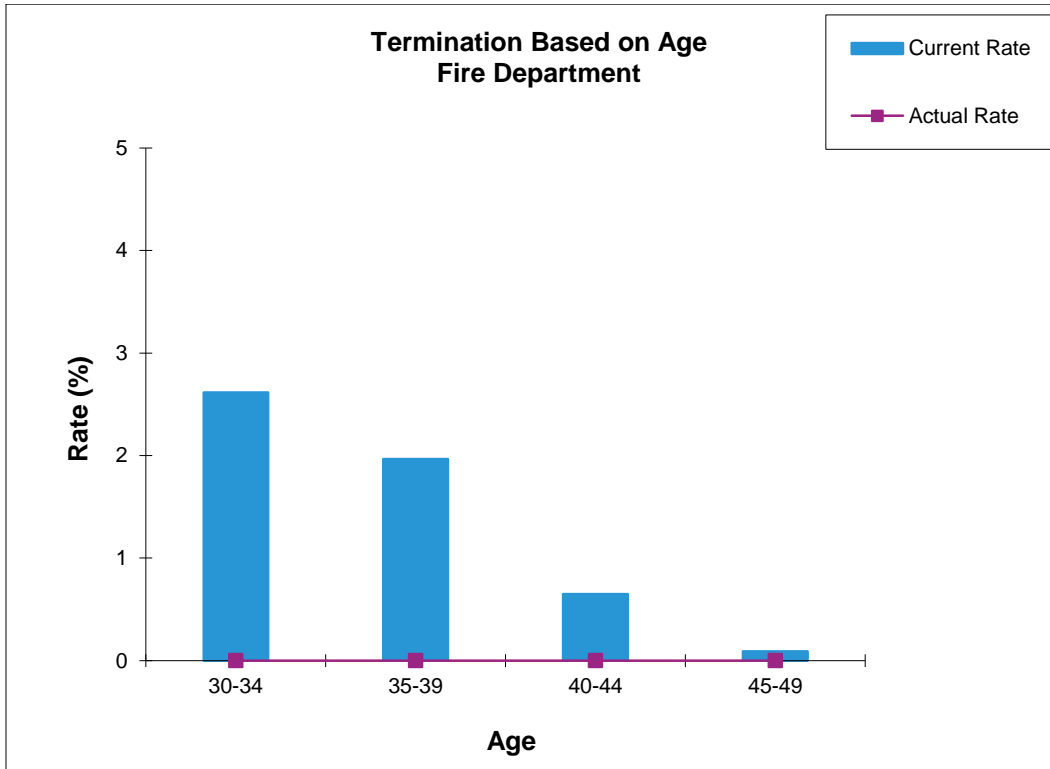
The graphs that follow present the vesting experience separately for each department. The financial impact on the funding of the Plan of this experience is relatively minor due to the number of exposures to this event.

Very little turnover was anticipated, and very little was experienced during the five-year period. There were no terminations for reasons other than retirement, disability, or death. Under the valuation assumptions, we assumed less than one termination would occur. We do not recommend any change in the assumed termination rates at this time, as the exposures along with both the expected and actual numbers of participants terminating are rather small.

The graphs presented on pages 4 and 5 show the current and actual rates separately for each department.

II. Active Service Demographic Assumptions (continued)

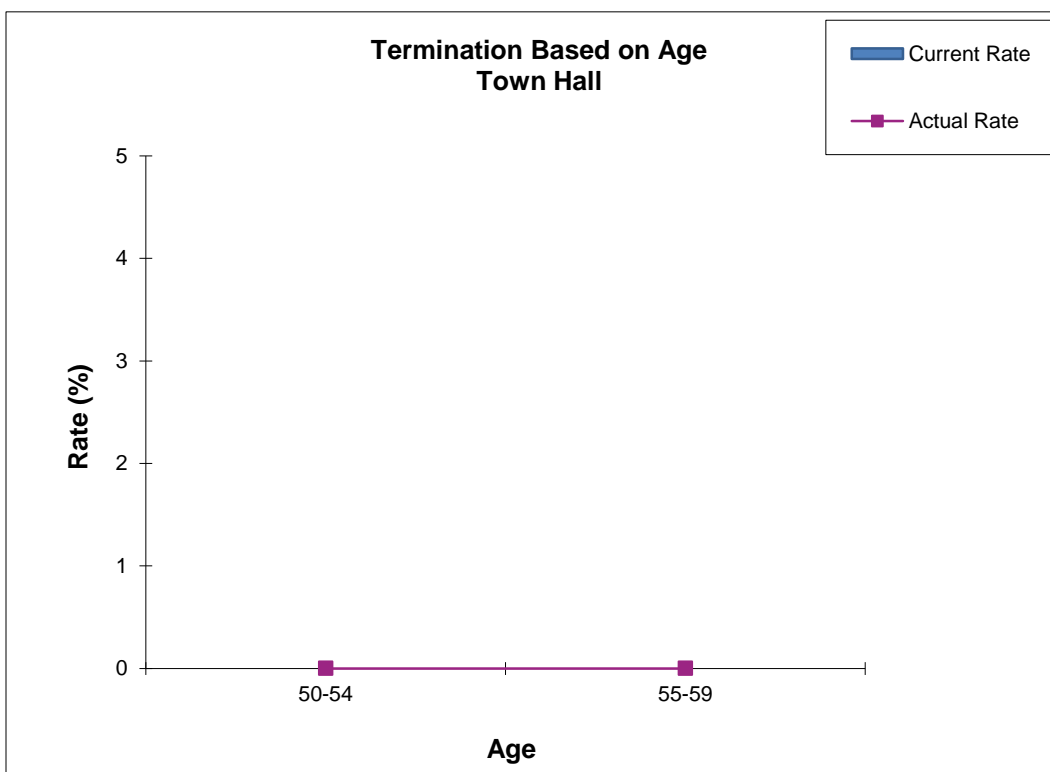
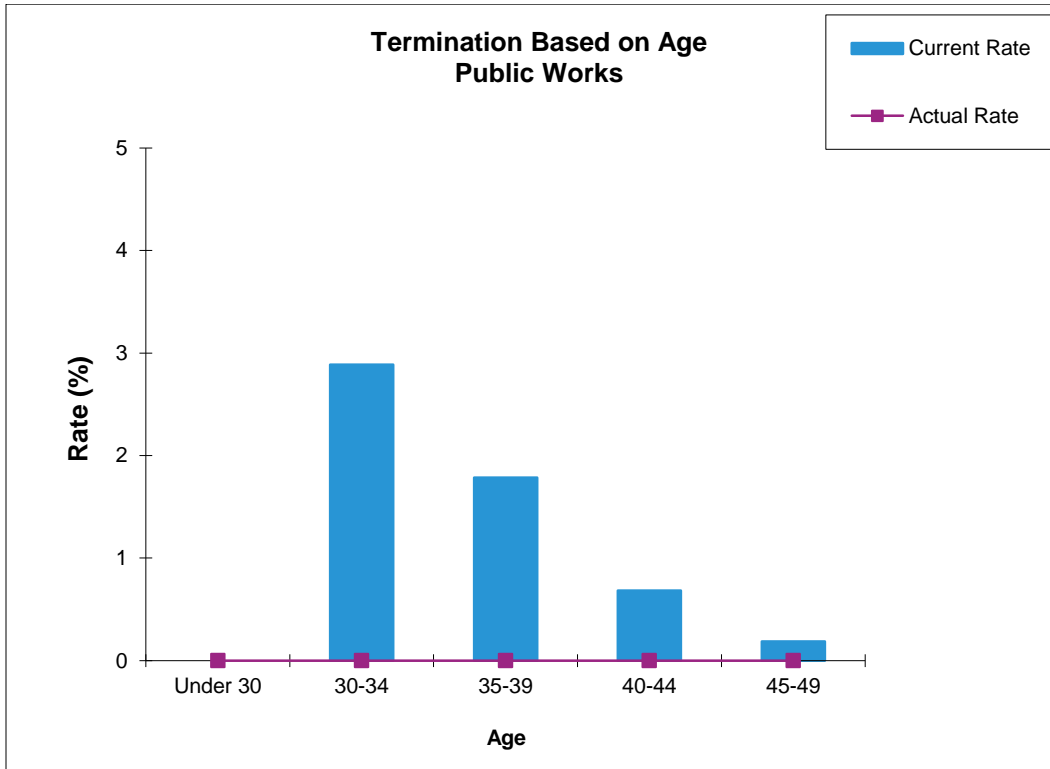
Active Service Experience - Terminations
 July 1, 2009 through June 30, 2014



II. Active Service Demographic Assumptions (continued)

Active Service Experience - Terminations

July 1, 2009 through June 30, 2014 (continued)



II. Active Service Demographic Assumptions (continued)

Disability and Death

The graphs that follow show the incidence of disability and active service mortality. The financial impact of this experience on the funding of the Plan is relatively minor. It should be noted that the low incidence of actual deaths and disabilities makes this experience susceptible to rather large fluctuations from year to year.

During the five-year period, there were zero actual disability retirements compared to less than one expected disability retirement. We do not recommend any change in the assumed disability rates at this time, as the exposures along with both the expected and actual numbers of participants becoming disabled are rather small.

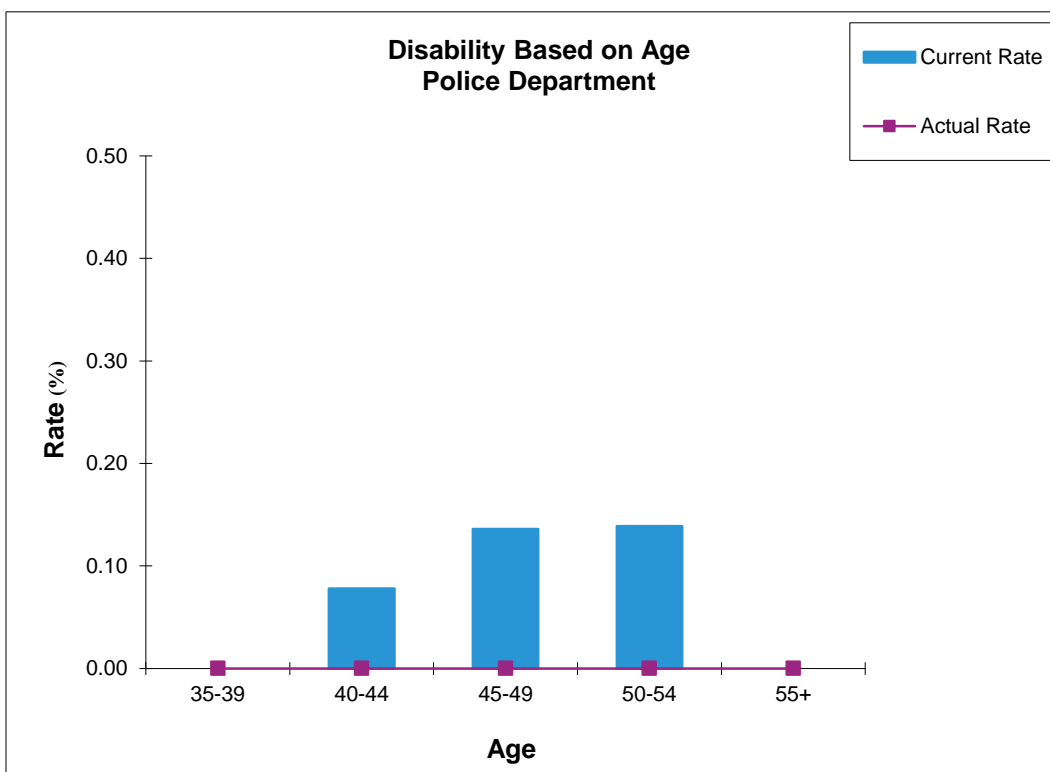
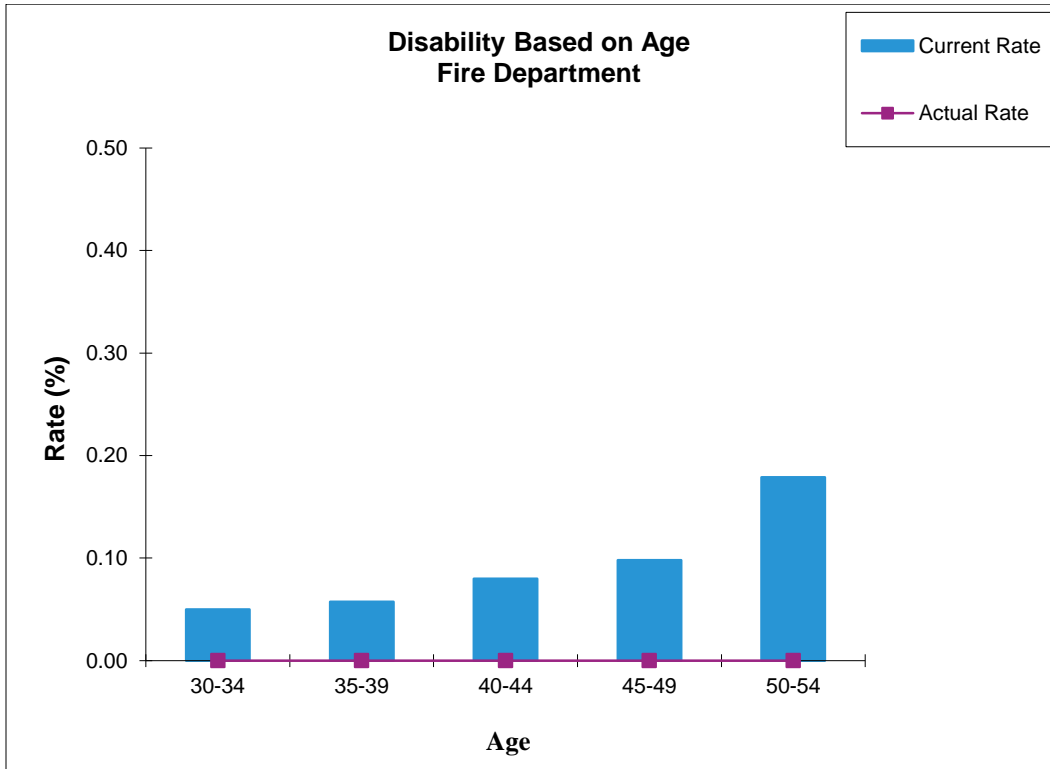
There was one death from active status in the five-year period. This is within an acceptable range, as the numbers of both expected and actual deaths are too small to form any conclusions.

The current mortality assumption is based on RP-2000 Combined Mortality and reflects future improvement by using the projection Scale AA in the projection of the mortality tables. However, the small set of experience data for this plan does not constitute statistically credible experience, and thus is unreliable for purposes of establishing a mortality assumption. Therefore, we recommend a change from the current mortality assumption to the mortality assumption used for the Employees' Retirement System of Rhode Island, which covers similar employees, and has statistically credible experience. These assumptions have been examined and found suitable for use with ERSRI in a 2014 experience study covering the six-year period ending June 30, 2013. This assumption is as follows:

- Healthy males
115% of RP-2000 Combined Healthy for Males with White Collar adjustments, projected generationally with Scale AA from 2000.
- Healthy females
95% of RP-2000 Combined Healthy for Females with White Collar adjustments, projected generationally with Scale AA from 2000.

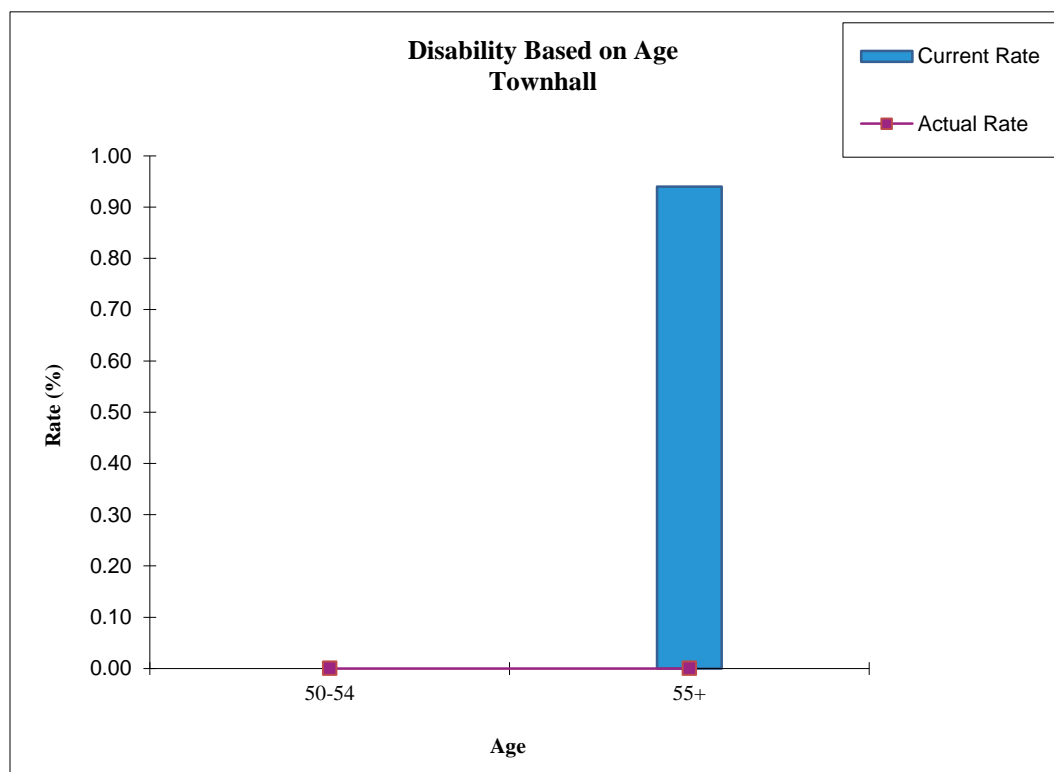
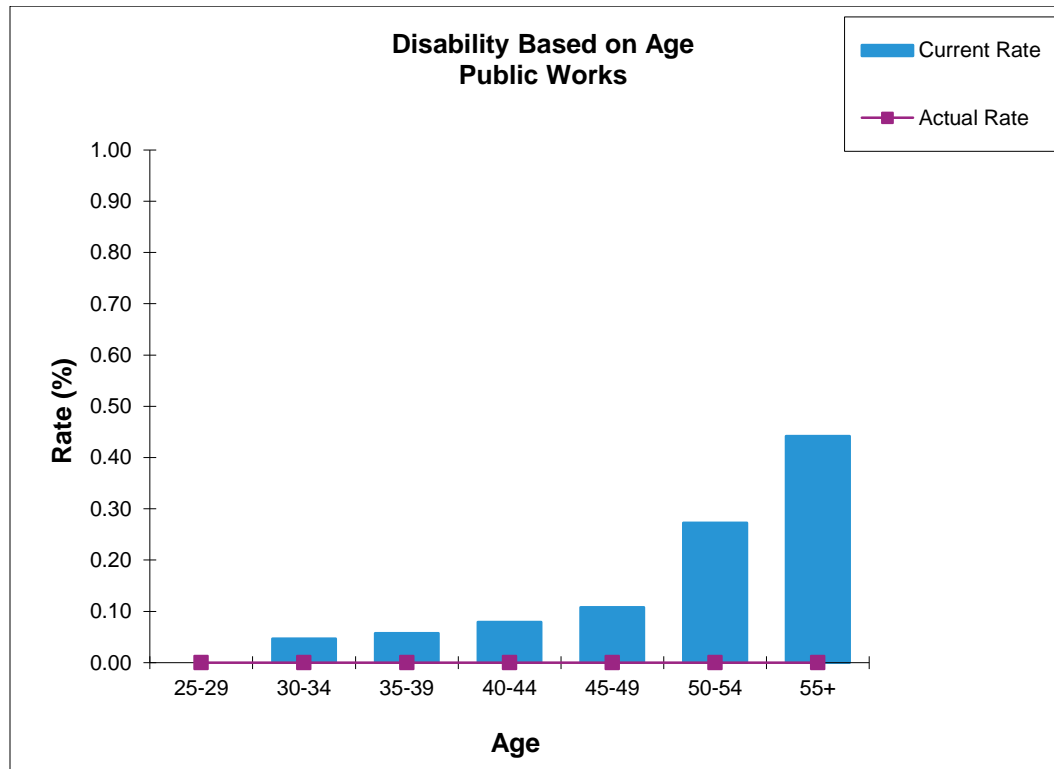
II. Active Service Demographic Assumptions (continued)

Active Service Experience - Disability Retirements
 July 1, 2009 through June 30, 2014



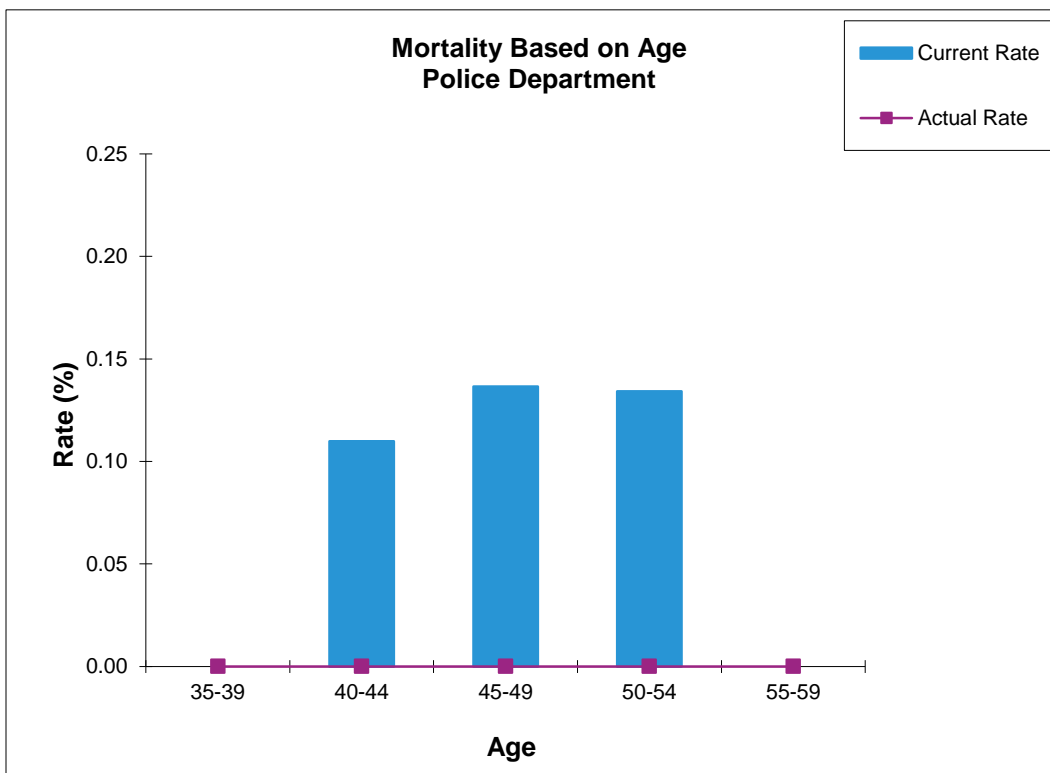
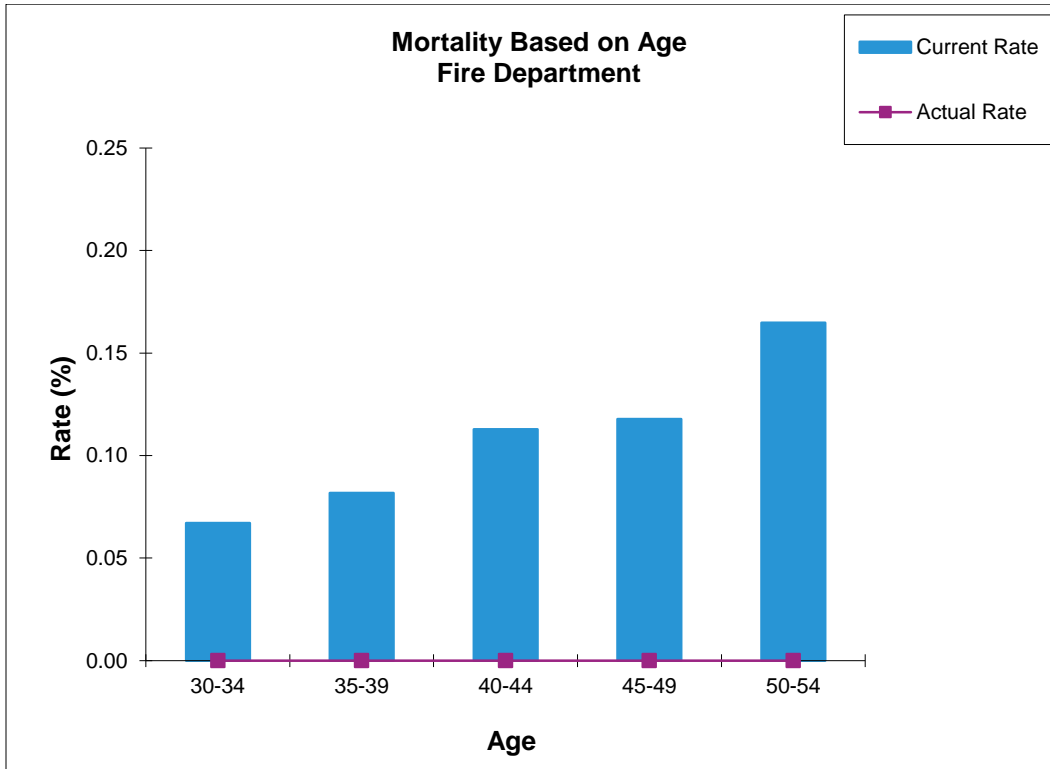
II. Active Service Demographic Assumptions (continued)

Active Service Experience - Disability Retirements
 July 1, 2009 through June 30, 2014 (continued)



II. Active Service Demographic Assumptions (continued)

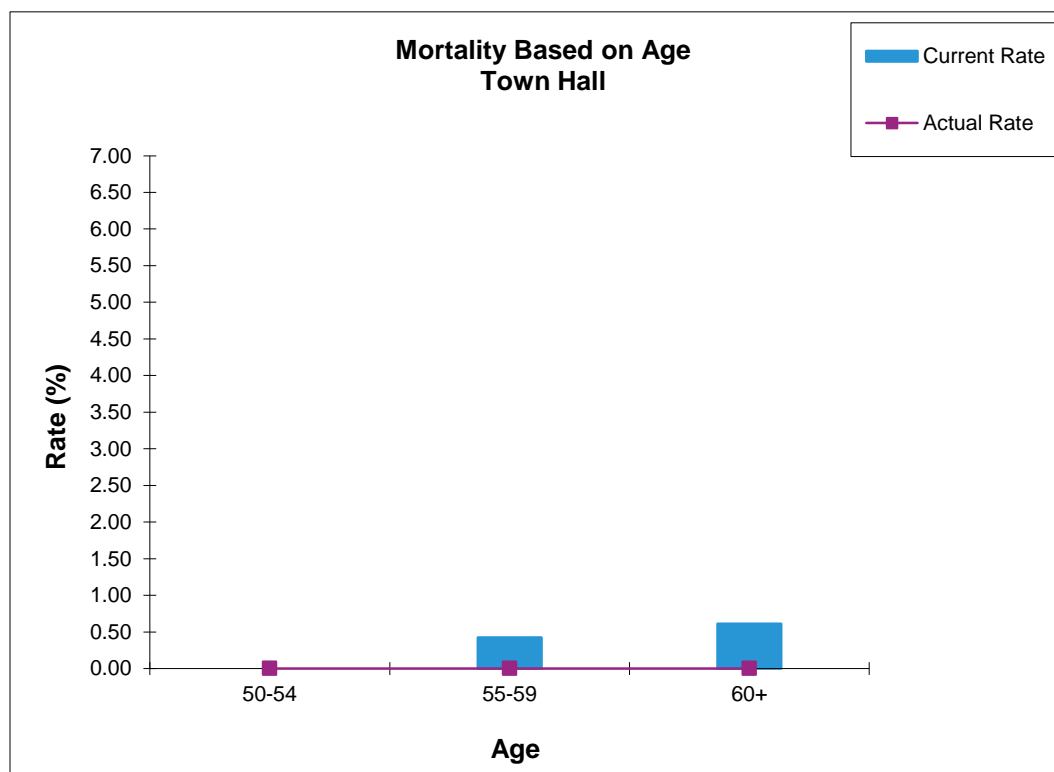
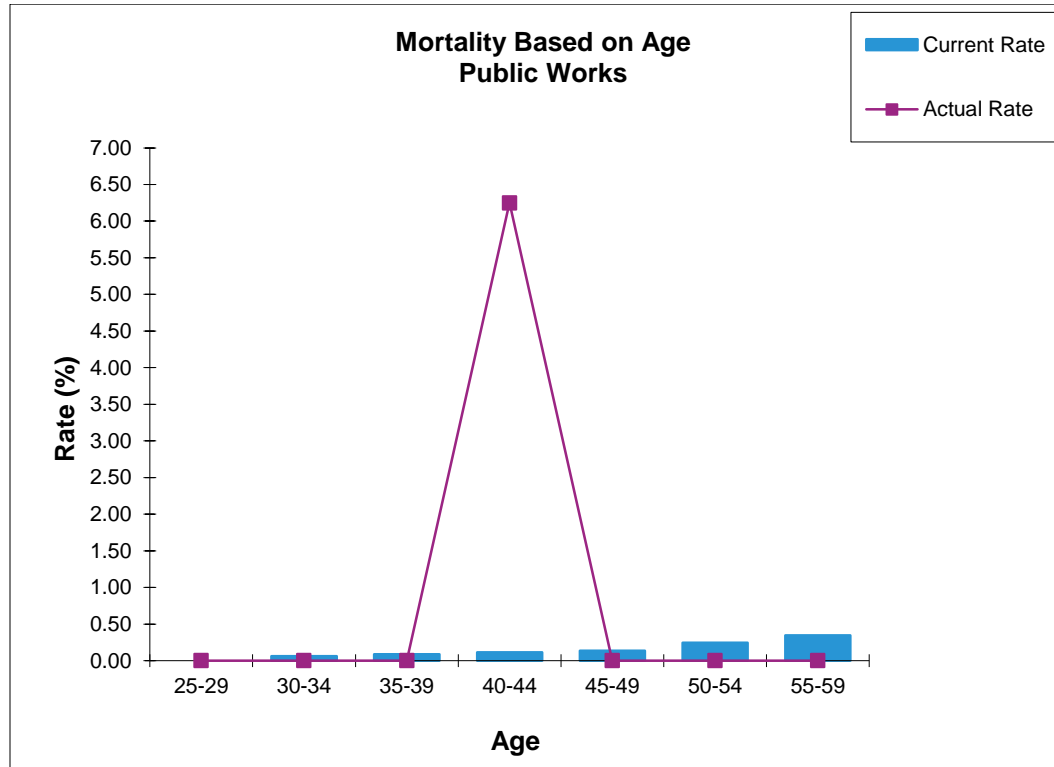
Active Service Experience - Deaths
 July 1, 2009 through June 30, 2014



II. Active Service Demographic Assumptions (continued)

Active Service Experience - Deaths

July 1, 2009 through June 30, 2014 (continued)



II. Active Service Demographic Assumptions (continued)

Service Retirement

For the Police and Fire departments, retirements are related to service rather than age. The graphs on pages 12 and 13 show that although the pattern of retirements was not significantly different than the current assumption, the overall number of retirements was lower than assumed, particularly when individuals had 25 or more years of service. For the Fire Department, there were seven actual retirements compared to the expected number of 14.50. However, the following table shows that most of the shortfall occurred with those who had at least 25 years of service.

Years of Service	Actual	Expected
< 25	5	6.50
25 +	<u>2</u>	<u>8.00</u>
	7	14.50

A similar pattern can be seen in the Police Department experience.

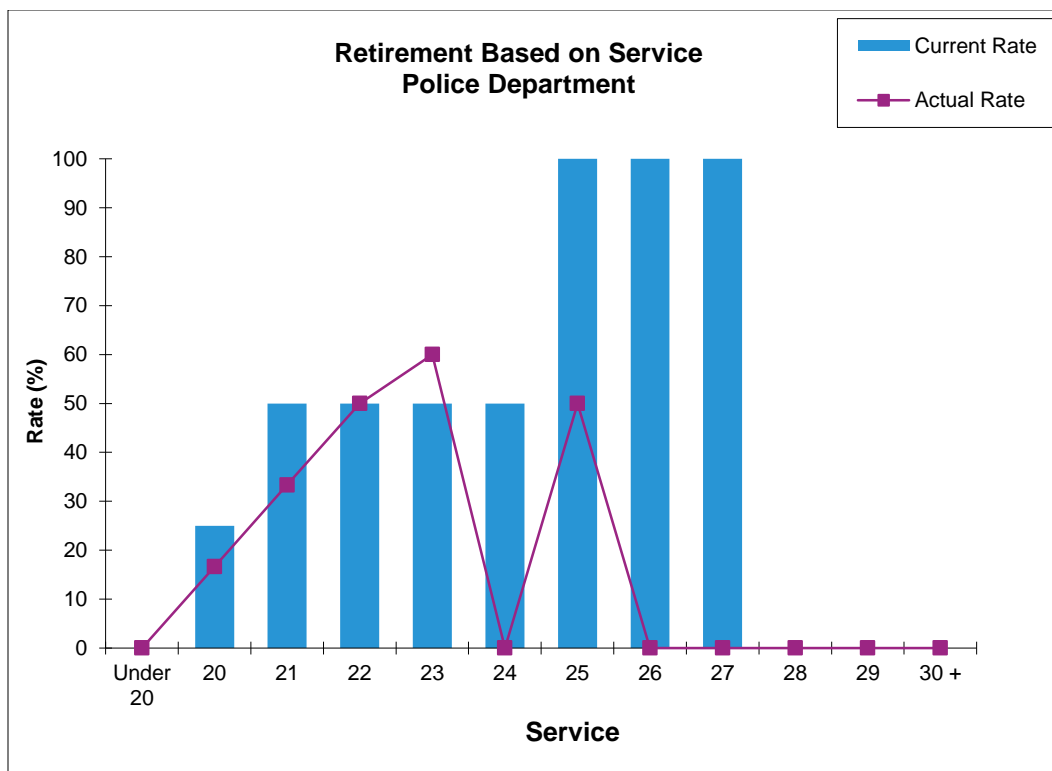
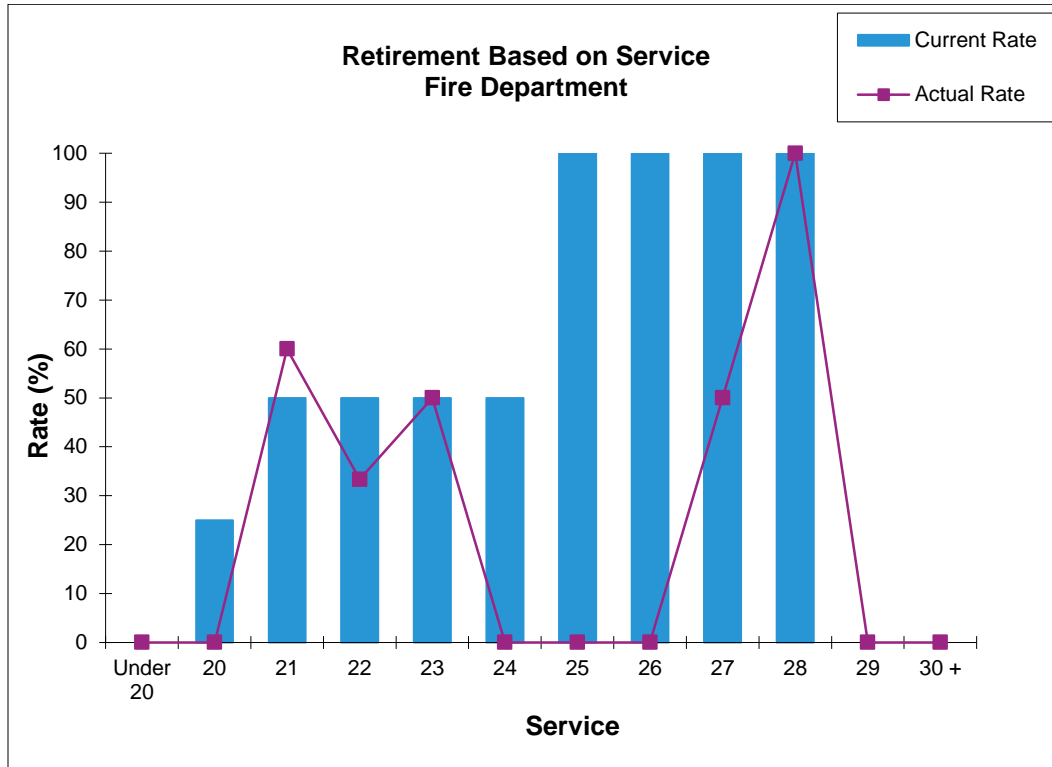
Years of Service	Actual	Expected
< 25	11	13.00
25 +	<u>1</u>	<u>4.00</u>
	12	17.50

Given the relatively small sample size, we do not recommend changing the assumption at this point. However, we will continue to monitor this experience to assess possible changes in the future.

For the Public Works department and the Town Hall, members are assumed to retire at first eligibility for unreduced retirement. In the Public Works department, there was one retirement, exactly as expected. The only member eligible for a reduced benefit retired immediately upon attaining the required age and service. For the Town Hall, there was one actual retirement compared to two expected retirements. We do not recommend any change in the assumed retirement rates for Public Works or Town Hall at this time, as the actual experience is within a reasonable range relative to the number of exposures.

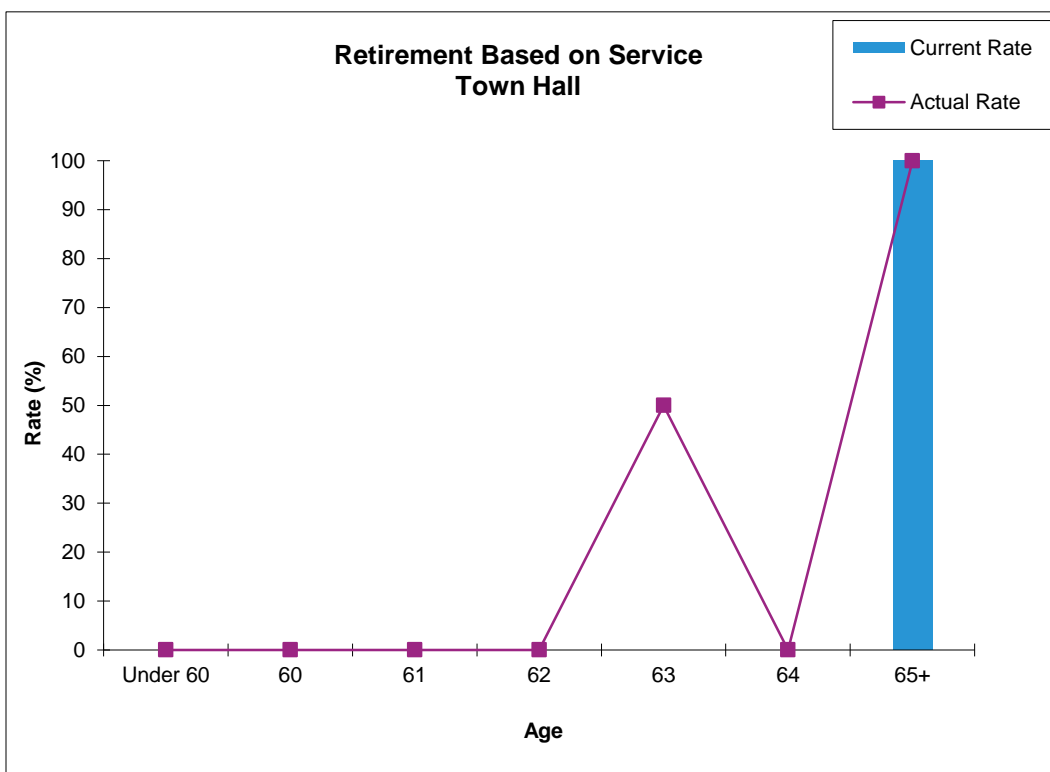
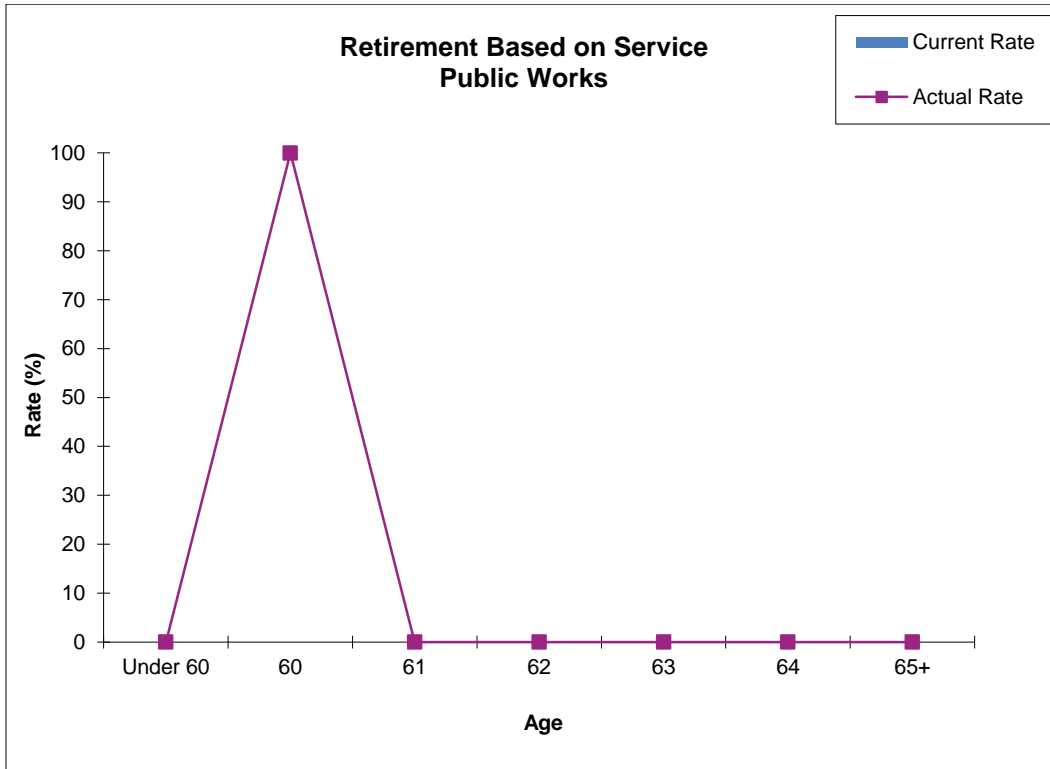
II. Active Service Demographic Assumptions (continued)

Active Service Experience - Service Retirements
 July 1, 2009 through June 30, 2014



II. Active Service Demographic Assumptions (continued)

Active Service Experience - Service Retirements
 July 1, 2009 through June 30, 2014 (continued)



III. Postretirement Mortality Rates

During the five-year period of this study, there were 23 retiree deaths. The expectation under the current mortality assumption was about 21. This is summarized in Table 5 of Appendix I.

This small set of experience data does not constitute statistically credible experience, thus, we will not use it to establish a mortality assumption. Instead, we can examine the assumption used for the Employees' Retirement System of Rhode Island, which covers similar employees, and has statistically credible experience. These assumptions have been examined and found suitable for use with ERSRI in a 2014 experience study covering the six-year period ending June 30, 2013. This assumption is as follows:

- Healthy males
115% of RP-2000 Combined Healthy for Males with White Collar adjustments, projected generationally with Scale AA from 2000.
- Healthy females
95% of RP-2000 Combined Healthy for Females with White Collar adjustments, projected generationally with Scale AA from 2000.

Disabled mortality experience could differ from healthy mortality. However, given the small number of disabled participants relative to the entire plan population, and the small number of expected disabled retirements in the future, the use of a disabled mortality assumption that differs from that used for healthy participants would have an immaterial effect on the plan's liability. Therefore, we recommend using the same mortality assumption for disabled participants that we use for healthy participants.

IV. Economic Assumptions

Economic assumptions include:

- (a) Rates of compensation increase, and
- (b) Investment income.

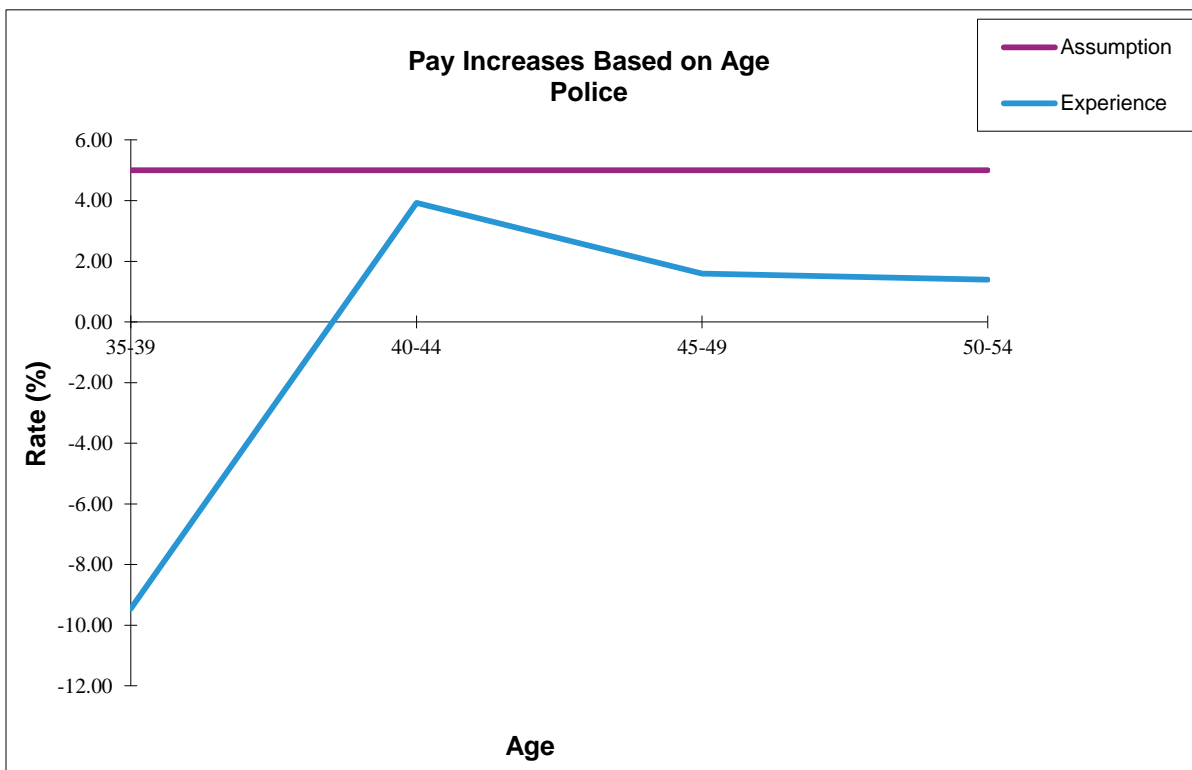
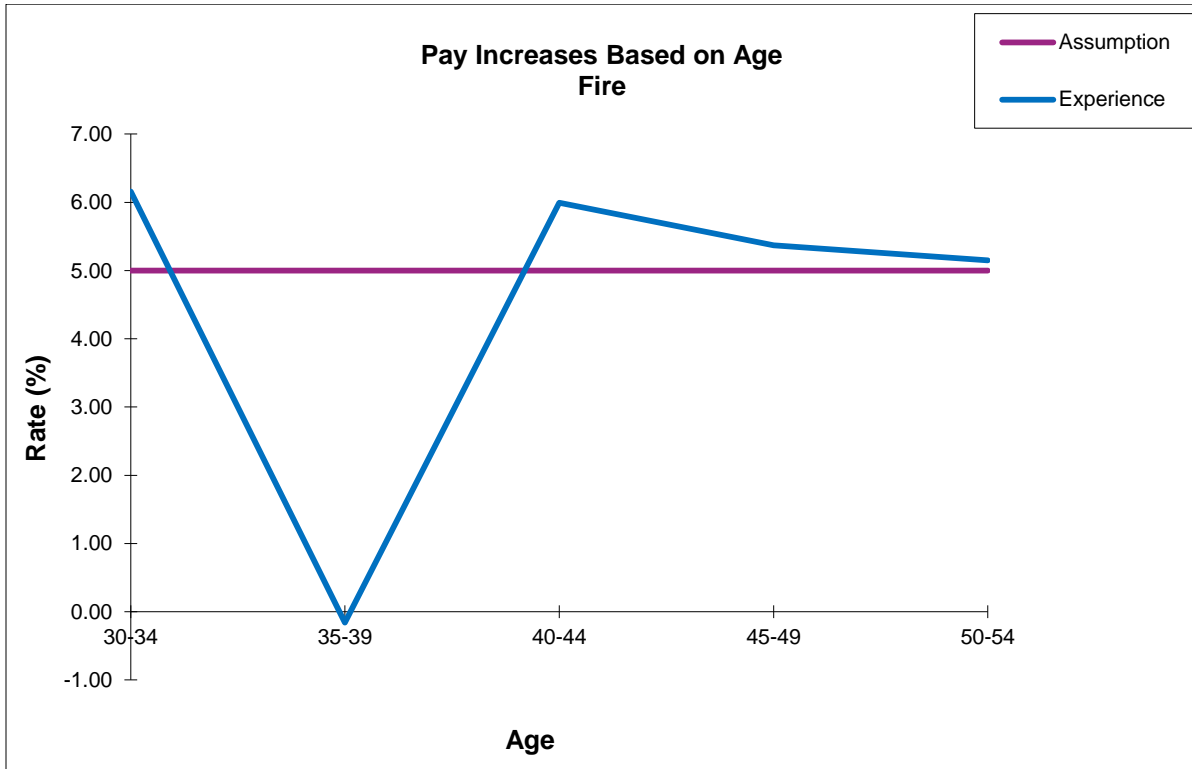
Merit-Promotion Salary Increases

Currently a single compensation scale of 5.0% is used.

The graphs on pages 16 and 17 set forth the levels of compensation increase during the five-year period for all departments. These results include both merit-promotion increases and inflationary increases. The graph shows that in general, compensation increases have been slightly lower than expected during the five-year period. However, in aggregate, given the relatively small amount of salary exposed to this assumption, the actual salaries are within an acceptable range of the expected salaries. We recommend no changes to the salary increase assumptions at this time. A summary of actual and expected salaries is shown in Table 6.

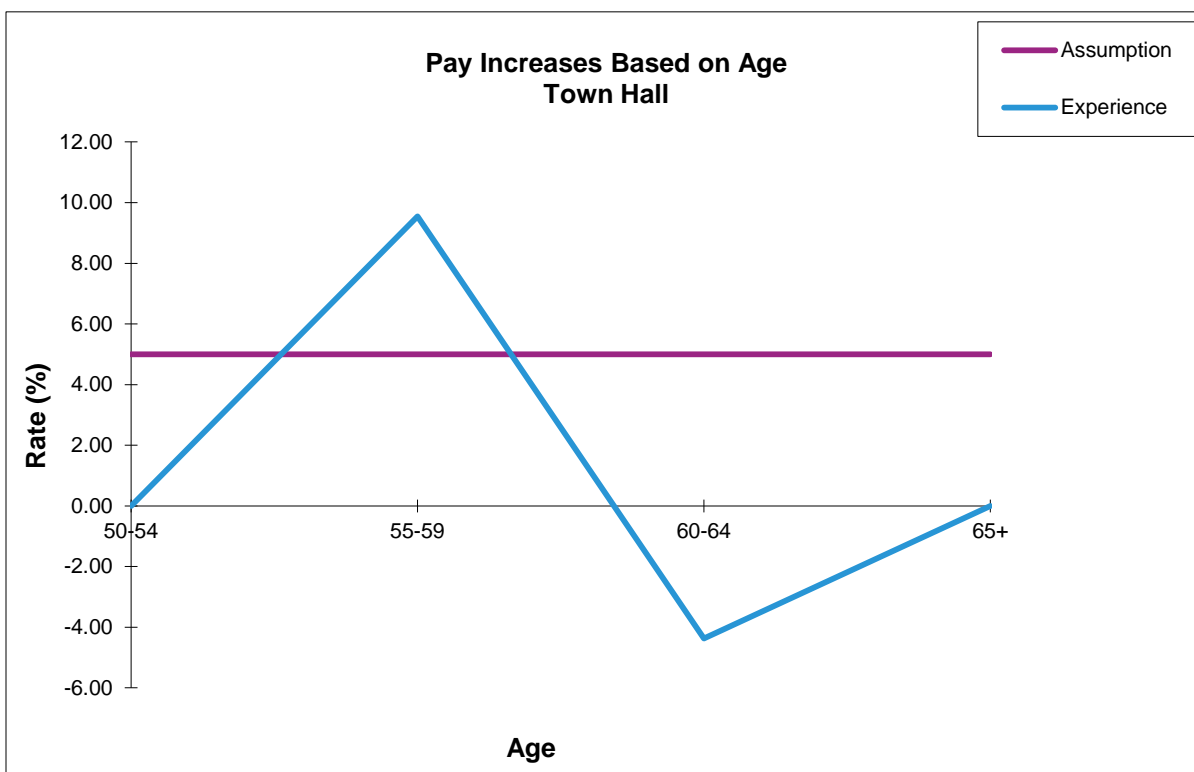
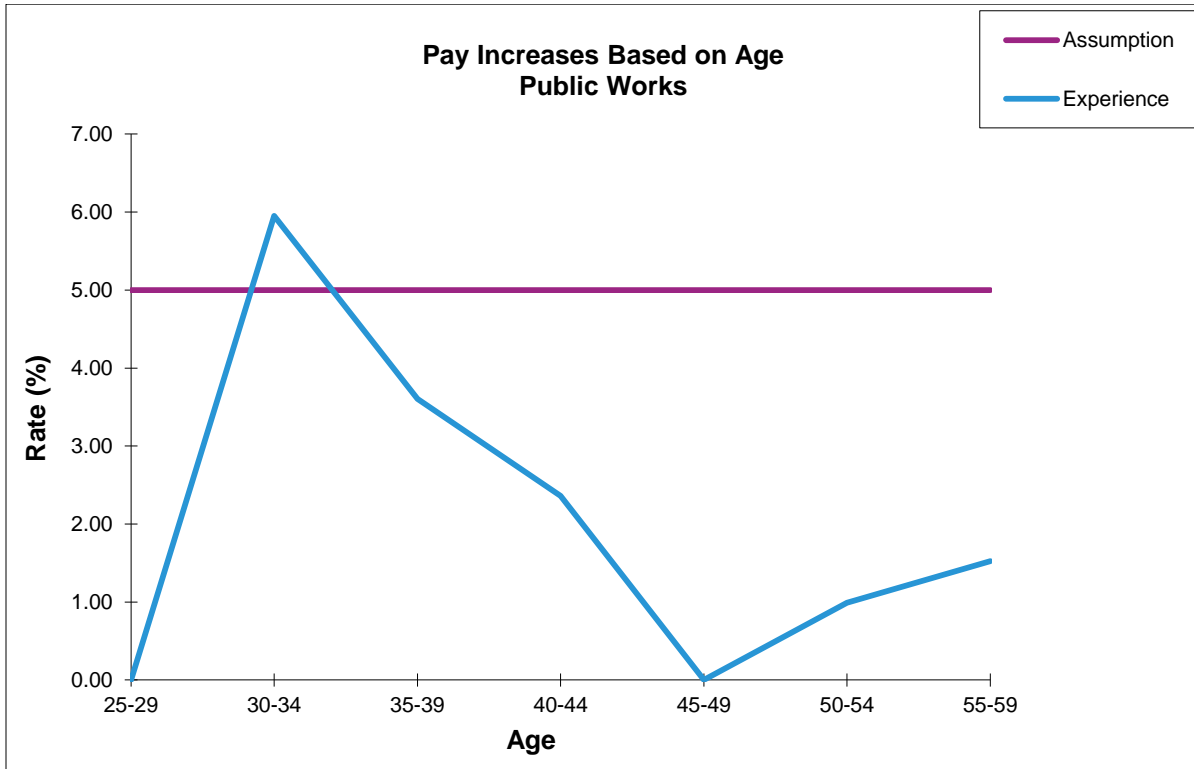
IV. Economic Assumptions (continued)

Active Service Experience - Salary Experience
 July 1, 2009 through June 30, 2014



IV. Economic Assumptions (continued)

Active Service Experience - Salary Experience
 July 1, 2009 through June 30, 2014 (continued)



IV. Economic Assumptions (continued)

Interest Rate

The current valuation interest rate assumption used in the funding of the Plan is 7.50% per year. Our analysis confirmed that this assumption of 7.50% remains reasonable relative to the current target asset allocation. We do not recommend a change to the valuation interest assumption at this time.

Over a 30- year period, the 50th percentile annual rate of return forecast for such a portfolio is approximately 7.78%. The 75th and 25th percentiles of the distributions of annual rate of return forecasts over 30 years are 9.00% and 6.54%, respectively. On the basis of these results, we recommend that the rate of return assumption used in the valuation be maintained at 7.50% per year.

The valuation interest rate was determined through a forecast of the expected return of the plan's assets over the next 30 years. Forecast values were generated using the GEMS Economic Scenario Generator, which Buck leases from Conning and Company. The GEMS model is a multifactor economic model that uses basic macroeconomic variables (GDP growth, employment levels, expected and actual inflation) to generate simulations of the economy over the period. A total of 1,000 stochastic forecast paths were generated, and the simulated geometric mean portfolio return (based on the plan's current asset allocation) over 30 years was computed on each path. The valuation interest rate is based on the average return computed on these 1,000 paths, rounded to the nearest half percent.

The above analysis was based on the following planned asset allocation for the Plan as of January 2015:

Asset Class	Allocation
Global Equity	31.50%
Emerging Market Equity	7.00%
Investment Grade Bonds / Cash	1.40%
High Yield / Convertible Bonds	10.50%
Emerging Market Bonds	2.10%
Dynamic Asset Allocation / Alternatives	17.50%
Hancock IPG	30.00%
Total	100.00%

Any changes to the planned asset allocation may change the reasonability of the recommended valuation interest rate.

Inflation Rate

The 50th percentile 30-year projection of inflation from GEMS is 2.85%. This is consistent with the rate of return assumptions developed here and suggests that setting the inflation assumption at 3.00% would be reasonable.

V. Funding and Asset Methods

The Plan currently utilizes the entry age normal cost method. The actuarial present value of projected benefits of each individual is allocated on a level basis over the covered salary of the individual between date of hire and assumed date they cease active employment. The portion of this actuarial present value not provided for at the valuation date by the actuarial present value of future entry age normal cost is called the accrued liability. The entry age normal cost method is appropriate for the Town's funding objectives and is commonly used in the public arena. We do not recommend any changes to the cost method at this time.

As of the July 1, 2014 valuation, the Plan's unfunded accrued liability is amortized on a level dollar basis over a closed six-year period beginning July 1, 2012. Such an amortization method is appropriate given the Plan's status and the Town's funding objectives. We do not recommend any changes to the amortization method at this time.

The actuarial value of assets is determined using a method that spreads over a period of five years the difference between the actual investment income and the expected income (based on the valuation interest rate applied to the prior year's market value of assets). The resulting value is constrained to a corridor of 80% to 120% of market value. This asset method is appropriate for the Town's funding objections. We do not recommend any changes to the asset method at this time.

VI. Cost Analysis and Conclusions

To assist in selecting and approving the final package of valuation assumptions to be used prospectively from July 1, 2014, we have recalculated the results of the valuation of the Plan as of July 1, 2014, to reflect the potential impact of the recommended assumptions.

Based on the revised assumptions, the normal recommended contribution as of July 1, 2014, would have increased from \$2,904,159 to \$2,965,268. These results are summarized in Appendix III.

We look forward to discussing the results of this experience investigation prior to the preparation of the July 1, 2015, valuation of the Plan.

Appendix I: Actual and Expected Experience

Table 1: Comparison of Actual and Expected Separations from Active Service

Terminations		Fire Department		
Age Group	Exposed	Actual	Expected	Ratio of Actual To Expected
Under 25	0	0	0.00	0.000
25-29	0	0	0.00	0.000
30-34	1	0	0.03	0.000
35-39	4	0	0.08	0.000
40-44	4	0	0.03	0.000
45-49	6	0	0.01	0.000
50-54	2	0	0.00	0.000
55 and over	0	0	0.00	0.000
Total	17	0	0.15	0.000

Terminations		Police Department		
Age Group	Exposed	Actual	Expected	Ratio of Actual To Expected
Under 25	0	0	0.00	0.000
25-29	0	0	0.00	0.000
30-34	0	0	0.00	0.000
35-39	0	0	0.00	0.000
40-44	7	0	0.04	0.000
45-49	4	0	0.01	0.000
50-54	0	0	0.00	0.000
55 and over	0	0	0.00	0.000
Total	11	0	0.05	0.000

Appendix I: Actual and Expected Experience (continued)

Table 1: Comparison of Actual and Expected Separations from Active Service (continued)

Terminations		Public Works		
Age Group	Exposed	Actual	Expected	Ratio of Actual To Expected
Under 25	0	0	0.00	0.000
25-29	0	0	0.00	0.000
30-34	3	0	0.09	0.000
35-39	4	0	0.07	0.000
40-44	16	0	0.11	0.000
45-49	5	0	0.01	0.000
50-54	4	0	0.00	0.000
55 and over	6	0	0.00	0.000
Total	38	0	0.28	0.000

Terminations		Town Hall		
Age Group	Exposed	Actual	Expected	Ratio of Actual To Expected
Under 25	0	0	0.00	0.000
25-29	0	0	0.00	0.000
30-34	0	0	0.00	0.000
35-39	0	0	0.00	0.000
40-44	0	0	0.00	0.000
45-49	0	0	0.00	0.000
50-54	0	0	0.00	0.000
55 and over	0	0	0.00	0.000
Total	0	0	0.00	0.000

Appendix I: Actual and Expected Experience (continued)

Table 2: Comparison of Actual and Expected Separations from Active Service

Disability Retirements		Fire Department		
Age Group	Exposed	Actual	Expected	Ratio of Actual To Expected
Under 25	0	0	0.00	0.000
25-29	0	0	0.00	0.000
30-34	1	0	0.00	0.000
35-39	4	0	0.00	0.000
40-44	4	0	0.00	0.000
45-49	19	0	0.02	0.000
50-54	9	0	0.02	0.000
55 and over	3	0	0.00	0.000
Total	40	0	0.04	0.000

Disability Retirements		Police Department		
Age Group	Exposed	Actual	Expected	Ratio of Actual To Expected
Under 25	0	0	0.00	0.000
25-29	0	0	0.00	0.000
30-34	0	0	0.00	0.000
35-39	0	0	0.00	0.000
40-44	21	0	0.02	0.000
45-49	20	0	0.03	0.000
50-54	9	0	0.01	0.000
55 and over	0	0	0.00	0.000
Total	50	0	0.06	0.000

Appendix I: Actual and Expected Experience (continued)

Table 2: Comparison of Actual and Expected Separations from Active Service (continued)

Disability Retirements		Public Works		
Age Group	Exposed	Actual	Expected	Ratio of Actual To Expected
Under 25	0	0	0.00	0.000
25-29	0	0	0.00	0.000
30-34	3	0	0.00	0.000
35-39	4	0	0.00	0.000
40-44	16	0	0.01	0.000
45-49	5	0	0.01	0.000
50-54	4	0	0.01	0.000
55 and over	7	0	0.04	0.000
Total	39	0	0.07	0.000

Disability Retirements		Town Hall		
Age Group	Exposed	Actual	Expected	Ratio of Actual To Expected
Under 25	0	0	0.00	0.000
25-29	0	0	0.00	0.000
30-34	0	0	0.00	0.000
35-39	0	0	0.00	0.000
40-44	0	0	0.00	0.000
45-49	0	0	0.00	0.000
50-54	0	0	0.00	0.000
55 and over	9	0	0.14	0.000
Total	9	0	0.14	0.000

Appendix I: Actual and Expected Experience (continued)

Table 3: Comparison of Actual and Expected Separations from Active Service

Deaths		Fire Department		
Age Group	Exposed	Actual	Expected	Ratio of Actual To Expected
Under 25	0	0	0.00	0.000
25-29	0	0	0.00	0.000
30-34	1	0	0.00	0.000
35-39	4	0	0.00	0.000
40-44	4	0	0.00	0.000
45-49	19	0	0.02	0.000
50-54	9	0	0.01	0.000
55 and over	3	0	0.00	0.000
Total	40	0	0.03	0.000

Deaths		Police Department		
Age Group	Exposed	Actual	Expected	Ratio of Actual To Expected
Under 25	0	0	0.00	0.000
25-29	0	0	0.00	0.000
30-34	0	0	0.00	0.000
35-39	0	0	0.00	0.000
40-44	21	0	0.02	0.000
45-49	20	0	0.03	0.000
50-54	9	0	0.01	0.000
55 and over	0	0	0.00	0.000
Total	50	0	0.06	0.000

Appendix I: Actual and Expected Experience (continued)

Table 3: Comparison of Actual and Expected Separations from Active Service (continued)

Deaths		Public Works		
Age Group	Exposed	Actual	Expected	Ratio of Actual To Expected
Under 25	0	0	0.00	0.000
25-29	0	0	0.00	0.000
30-34	3	0	0.00	0.000
35-39	4	0	0.00	0.000
40-44	16	1	0.02	50.000
45-49	5	0	0.01	0.000
50-54	4	0	0.01	0.000
55 and over	7	0	0.03	0.000
Total	39	1	0.07	14.286

Deaths		Town Hall		
Age Group	Exposed	Actual	Expected	Ratio of Actual To Expected
Under 25	0	0	0.00	0.000
25-29	0	0	0.00	0.000
30-34	0	0	0.00	0.000
35-39	0	0	0.00	0.000
40-44	0	0	0.00	0.000
45-49	0	0	0.00	0.000
50-54	0	0	0.00	0.000
55 and over	9	0	0.05	0.000
Total	9	0	0.05	0.000

Appendix I: Actual and Expected Experience (continued)

Table 4: Comparison of Actual and Expected Separations from Active Service

Service Retirements				
Fire Department				
Service of Group	Exposed	Actual	Expected	Ratio of Actual To Expected
Under 20	1	0	0.00	0.000
20	2	0	0.50	0.000
21	5	3	2.50	1.200
22	3	1	1.50	0.667
23	2	1	1.00	1.000
24	2	0	1.00	0.000
25	2	0	2.00	0.000
26	3	0	3.00	0.000
27	2	1	2.00	0.500
28 and over	1	1	1.00	1.000
Total	23	7	14.50	0.483

Service Retirements				
Police Department				
Service of Group	Exposed	Actual	Expected	Ratio of Actual To Expected
Under 20	6	0	0.00	0.000
20	6	1	1.50	0.667
21	9	3	4.50	0.667
22	8	4	4.00	1.000
23	5	3	2.50	1.200
24	1	0	0.50	0.000
25	2	1	2.00	0.500
26	1	0	1.00	0.000
27	1	0	1.00	0.000
28 and over	0	0	0.00	0.000
Total	39	12	17.00	0.706

Appendix I: Actual and Expected Experience (continued)

Table 4: Comparison of Actual and Expected Separations from Active Service (continued)

Service Retirements		Public Works		
Age Group	Exposed	Actual	Expected	Ratio of Actual To Expected
Under 60	0	0	0.00	0.000
60	1	1	0.00	0.000
61	0	0	0.00	0.000
62	0	0	0.00	0.000
63	0	0	0.00	0.000
64	0	0	0.00	0.000
65 and over	0	0	0.00	0.000
Total	1	1	0.00	0.000

Service Retirements		Town Hall		
Age Group	Exposed	Actual	Expected	Ratio of Actual To Expected
Under 60	1	0	0.00	0.000
60	1	0	0.00	0.000
61	2	0	0.00	0.000
62	2	0	0.00	0.000
63	2	1	0.00	0.000
64	0	0	0.00	0.000
65 and over	1	1	1.00	1.000
Total	9	2	1.00	2.000

Appendix I: Actual and Expected Experience (continued)

Table 5: Summary of Mortality Experience of Pensioners

Males	Exposed	Actual	Expected	Ratio of Actual To Expected
Service Retirees	492	9	9.24	0.974
Disability Retirees	21	1	0.16	6.250
Dependents of Deceased Members	1	0	0.00	0.000
Total	514	10	9.40	1.064

Females	Exposed	Actual	Expected	Ratio of Actual To Expected
Service Retirees	97	8	6.48	1.235
Disability Retirees	3	0	0.42	0.000
Dependents of Deceased Members	76	5	4.90	1.020
Total	176	13	11.80	1.102

Total	Exposed	Actual	Expected	Ratio of Actual To Expected
Service Retirees	589	17	15.72	1.081
Disability Retirees	24	1	0.58	1.724
Dependents of Deceased Members	77	5	4.90	1.020
Total	690	23	21.20	1.085

Appendix I: Actual and Expected Experience (continued)

Table 6: Comparison of Actual and Expected Annual Salaries of Members

Annual Salaries		Fire Department		
Age Group	Prior Year Salaries	Actual	Expected	Ratio of Actual To Expected
Under 25	0	0	0	0.000
25-29	0	0	0	0.000
30-34	181,895	193,099	190,990	1.011
35-39	296,334	295,864	311,150	0.951
40-44	496,433	526,188	521,255	1.009
45-49	1,278,914	1,347,591	1,342,860	1.004
50-54	567,301	596,518	595,666	1.001
55-59	195,158	197,175	204,916	0.962
60-64	0	0	0	0.000
65 and over	0	0	0	0.000
Total	3,016,035	3,156,435	3,166,837	0.997

Annual Salaries		Police Department		
Age Group	Prior Year Salaries	Actual	Expected	Ratio of Actual To Expected
Under 25	0	0	0	0.000
25-29	0	0	0	0.000
30-34	0	0	0	0.000
35-39	87,840	79,540	92,232	0.862
40-44	1,900,664	1,975,286	1,995,697	0.990
45-49	1,257,795	1,277,793	1,320,685	0.968
50-54	326,687	331,244	343,021	0.966
55-59	0	0	0	0.000
60-64	0	0	0	0.000
65 and over	0	0	0	0.000
Total	3,572,986	3,663,863	3,751,635	0.977

Appendix I: Actual and Expected Experience (continued)

Table 6: Comparison of Actual and Expected Annual Salaries of Members (continued)

Annual Salaries		Public Works		
Age Group	Prior Year Salaries	Actual	Expected	Ratio of Actual To Expected
Under 25	0	0	0	0.000
25-29	0	0	0	0.000
30-34	223,810	237,135	235,001	1.009
35-39	318,856	330,350	334,799	0.987
40-44	961,516	984,231	1,009,592	0.975
45-49	196,296	196,303	206,110	0.952
50-54	316,203	319,336	332,013	0.962
55-59	223,353	226,758	234,520	0.967
60-64	0	0	0	0.000
65 and over	0	0	0	0.000
Total	2,240,034	2,294,113	2,352,035	0.975

Annual Salaries		Town Hall		
Age Group	Prior Year Salaries	Actual	Expected	Ratio of Actual To Expected
Under 25	0	0	0	0.000
25-29	0	0	0	0.000
30-34	0	0	0	0.000
35-39	0	0	0	0.000
40-44	0	0	0	0.000
45-49	0	0	0	0.000
50-54	0	0	0	0.000
55-59	71,705	78,549	75,290	1.043
60-64	233,757	223,547	245,445	0.911
65 and over	0	0	0	0.000
Total	305,462	302,096	320,735	0.942

Appendix II: Recommended Mortality Tables

Table 1: Comparison of Current and Recommended Mortality Rates

Preretirement and Healthy Postretirement Mortality in Effect for the Year Beginning July 1, 2014

Age	Males		Females	
	Current	Proposed ¹	Current	Proposed ¹
25	0.0327%	0.0376%	0.0170%	0.0161%
26	0.0347%	0.0400%	0.0181%	0.0172%
27	0.0356%	0.0410%	0.0188%	0.0179%
28	0.0366%	0.0421%	0.0198%	0.0189%
29	0.0384%	0.0442%	0.0209%	0.0199%
30	0.0414%	0.0378%	0.0229%	0.0234%
31	0.0465%	0.0416%	0.0274%	0.0276%
32	0.0524%	0.0462%	0.0313%	0.0308%
33	0.0588%	0.0516%	0.0347%	0.0336%
34	0.0654%	0.0572%	0.0378%	0.0359%
35	0.0721%	0.0634%	0.0407%	0.0379%
36	0.0784%	0.0696%	0.0434%	0.0399%
37	0.0843%	0.0758%	0.0461%	0.0417%
38	0.0886%	0.0810%	0.0491%	0.0438%
39	0.0925%	0.0862%	0.0524%	0.0461%
40	0.0964%	0.0915%	0.0571%	0.0496%
41	0.1006%	0.0971%	0.0626%	0.0537%
42	0.1056%	0.1034%	0.0690%	0.0587%
43	0.1113%	0.1107%	0.0758%	0.0644%
44	0.1180%	0.1190%	0.0833%	0.0709%
45	0.1256%	0.1285%	0.0897%	0.0770%
46	0.1327%	0.1376%	0.0962%	0.0836%
47	0.1403%	0.1473%	0.1028%	0.0905%
48	0.1484%	0.1570%	0.1112%	0.0990%
49	0.1569%	0.1667%	0.1202%	0.1078%
50	0.1658%	0.1764%	0.1318%	0.1187%
51	0.1872%	0.2025%	0.1478%	0.1339%
52	0.2010%	0.2165%	0.1657%	0.1500%
53	0.2198%	0.2353%	0.1864%	0.1684%
54	0.2409%	0.2555%	0.2106%	0.1901%

¹ Rates shown are those in effect for the plan year beginning July 1, 2014. Rates for subsequent years will reflect further mortality improvement.

Appendix II: Recommended Mortality Tables (continued)

Table 1: Comparison of Current and Recommended Mortality Rates (continued)

Preretirement and Healthy Postretirement Mortality in Effect for the Year Beginning July 1, 2014

Age	Males		Females	
	Current	Proposed ¹	Current	Proposed ¹
55	0.2770%	0.2903%	0.2428%	0.2195%
56	0.3257%	0.3343%	0.2840%	0.2577%
57	0.3691%	0.3700%	0.3242%	0.2937%
58	0.4207%	0.4118%	0.3657%	0.3294%
59	0.4743%	0.4557%	0.4140%	0.3690%
60	0.5383%	0.5123%	0.4712%	0.4142%
61	0.6212%	0.5913%	0.5420%	0.4693%
62	0.7087%	0.6807%	0.6206%	0.5303%
63	0.8219%	0.8002%	0.7130%	0.6035%
64	0.9259%	0.9147%	0.8035%	0.6793%
65	1.0455%	1.0442%	0.9048%	0.7661%
66	1.1997%	1.2046%	1.0212%	0.8670%
67	1.3384%	1.3440%	1.1339%	0.9693%
68	1.4670%	1.4698%	1.2534%	1.0774%
69	1.6255%	1.6232%	1.3853%	1.1962%
70	1.7971%	1.7939%	1.5607%	1.3448%
71	1.9884%	1.9917%	1.7078%	1.4732%
72	2.2078%	2.2217%	1.8995%	1.6403%
73	2.4592%	2.4859%	2.0819%	1.7998%
74	2.7435%	2.7891%	2.3074%	1.9991%
75	3.1057%	3.1751%	2.5117%	2.1833%
76	3.4615%	3.5667%	2.7673%	2.4186%
77	3.9054%	4.0556%	3.0911%	2.7163%
78	4.4018%	4.6115%	3.4074%	3.0104%
79	4.9617%	5.2381%	3.7618%	3.3379%
80	5.5919%	5.9356%	4.1582%	3.7093%
81	6.3476%	6.7669%	4.6024%	4.1274%
82	7.1926%	7.7007%	5.1021%	4.5950%
83	8.0176%	8.6301%	5.6651%	5.1236%
84	9.0433%	9.7758%	6.3006%	5.7162%
85	10.0383%	10.9091%	7.1188%	6.4788%

¹ Rates shown are those in effect for the plan year beginning July 1, 2014. Rates for subsequent years will reflect further mortality improvement.

Appendix II: Recommended Mortality Tables (continued)

Table 1: Comparison of Current and Recommended Mortality Rates (continued)

Preretirement and Healthy Postretirement Mortality in Effect for the Year Beginning July 1, 2014

Age	Males		Females	
	Current	Proposed ¹	Current	Proposed ¹
86	11.1295%	12.1718%	8.0522%	7.3360%
87	12.5051%	13.7624%	9.1080%	8.3066%
88	14.0385%	15.5308%	10.1448%	9.2520%
89	15.5142%	17.2704%	11.4246%	10.4084%
90	17.3400%	19.3827%	12.6258%	11.4907%
91	18.8868%	21.1986%	13.8648%	12.6184%
92	20.7683%	23.3819%	15.1126%	13.7539%
93	22.4037%	25.3005%	16.5722%	15.0981%
94	24.0367%	27.1722%	17.7747%	16.2105%
95	26.0098%	29.4327%	18.9133%	17.2669%
96	27.6058%	31.7467%	19.9703%	18.9717%
97	29.1564%	33.5299%	21.2246%	20.1634%
98	31.0910%	35.7547%	22.0832%	20.9790%
99	32.5614%	37.4456%	22.8169%	21.6760%
100	33.9763%	39.0728%	23.4164%	22.2456%

¹ Rates shown are those in effect for the plan year beginning July 1, 2014. Rates for subsequent years will reflect further mortality improvement.

Appendix II: Recommended Mortality Tables (continued)

Table 2: Comparison of Current and Recommended Mortality Rates

Disabled Mortality in Effect for the Year Beginning July 1, 2014

Age	Males		Females	
	Current	Proposed ¹¹	Current	Proposed ¹
25	0.0721%	0.0376%	0.0407%	0.0161%
26	0.0784%	0.0400%	0.0434%	0.0172%
27	0.0843%	0.0410%	0.0461%	0.0179%
28	0.0886%	0.0421%	0.0491%	0.0189%
29	0.0925%	0.0442%	0.0524%	0.0199%
30	0.0964%	0.0378%	0.0571%	0.0234%
31	0.1006%	0.0416%	0.0626%	0.0276%
32	0.1056%	0.0462%	0.0690%	0.0308%
33	0.1113%	0.0516%	0.0758%	0.0336%
34	0.1180%	0.0572%	0.0833%	0.0359%
35	0.1256%	0.0634%	0.0897%	0.0379%
36	0.1327%	0.0696%	0.0962%	0.0399%
37	0.1403%	0.0758%	0.1028%	0.0417%
38	0.1484%	0.0810%	0.1112%	0.0438%
39	0.1569%	0.0862%	0.1202%	0.0461%
40	0.1658%	0.0915%	0.1318%	0.0496%
41	0.1872%	0.0971%	0.1478%	0.0537%
42	0.2010%	0.1034%	0.1657%	0.0587%
43	0.2198%	0.1107%	0.1864%	0.0644%
44	0.2409%	0.1190%	0.2106%	0.0709%
45	0.2770%	0.1285%	0.2428%	0.0770%
46	0.3257%	0.1376%	0.2840%	0.0836%
47	0.3691%	0.1473%	0.3242%	0.0905%
48	0.4207%	0.1570%	0.3657%	0.0990%
49	0.4743%	0.1667%	0.4140%	0.1078%
50	0.5383%	0.1764%	0.4712%	0.1187%
51	0.6212%	0.2025%	0.5420%	0.1339%
52	0.7087%	0.2165%	0.6206%	0.1500%
53	0.8219%	0.2353%	0.7130%	0.1684%
54	0.9259%	0.2555%	0.8035%	0.1901%

¹ Rates shown are those in effect for the plan year beginning July 1, 2014. Rates for subsequent years will reflect further mortality improvement.

Appendix II: Recommended Mortality Tables (continued)

Table 2: Comparison of Current and Recommended Mortality Rates (continued)

Disabled Mortality in Effect for the Year Beginning July 1, 2014

Age	Males		Females	
	Current	Proposed ¹	Current	Proposed ¹
55	1.0455%	0.2903%	0.9048%	0.2195%
56	1.1997%	0.3343%	1.0212%	0.2577%
57	1.3384%	0.3700%	1.1339%	0.2937%
58	1.4670%	0.4118%	1.2534%	0.3294%
59	1.6255%	0.4557%	1.3853%	0.3690%
60	1.7971%	0.5123%	1.5607%	0.4142%
61	1.9884%	0.5913%	1.7078%	0.4693%
62	2.2078%	0.6807%	1.8995%	0.5303%
63	2.4592%	0.8002%	2.0819%	0.6035%
64	2.7435%	0.9147%	2.3074%	0.6793%
65	3.1057%	1.0442%	2.5117%	0.7661%
66	3.4615%	1.2046%	2.7673%	0.8670%
67	3.9054%	1.3440%	3.0911%	0.9693%
68	4.4018%	1.4698%	3.4074%	1.0774%
69	4.9617%	1.6232%	3.7618%	1.1962%
70	5.5919%	1.7939%	4.1582%	1.3448%
71	6.3476%	1.9917%	4.6024%	1.4732%
72	7.1926%	2.2217%	5.1021%	1.6403%
73	8.0176%	2.4859%	5.6651%	1.7998%
74	9.0433%	2.7891%	6.3006%	1.9991%
75	10.0383%	3.1751%	7.1188%	2.1833%
76	11.1295%	3.5667%	8.0522%	2.4186%
77	12.5051%	4.0556%	9.1080%	2.7163%
78	14.0385%	4.6115%	10.1448%	3.0104%
79	15.5142%	5.2381%	11.4246%	3.3379%
80	17.3400%	5.9356%	12.6258%	3.7093%
81	18.8868%	6.7669%	13.8648%	4.1274%
82	20.7683%	7.7007%	15.1126%	4.5950%
83	22.4037%	8.6301%	16.5722%	5.1236%
84	24.0367%	9.7758%	17.7747%	5.7162%
85	26.0098%	10.9091%	18.9133%	6.4788%

¹ Rates shown are those in effect for the plan year beginning July 1, 2014. Rates for subsequent years will reflect further mortality improvement.

Appendix II: Recommended Mortality Tables (continued)

Table 2: Comparison of Current and Recommended Mortality Rates (continued)

Disabled Mortality in Effect for the Year Beginning July 1, 2014

Age	Males		Females	
	Current	Proposed ¹	Current	Proposed ¹
86	27.2216%	12.1718%	19.6923%	7.3360%
87	28.7507%	13.7624%	21.0765%	8.3066%
88	30.8741%	15.5308%	21.9291%	9.2520%
89	32.3342%	17.2704%	22.6576%	10.4084%
90	33.7392%	19.3827%	23.2530%	11.4907%
91	35.8628%	21.1986%	24.4834%	12.6184%
92	37.1685%	23.3819%	25.4498%	13.7539%
93	38.3040%	25.3005%	26.6044%	15.0981%
94	39.2003%	27.1722%	27.9055%	16.2105%
95	39.7886%	29.4327%	29.3116%	17.2669%
96	40.0000%	31.7467%	30.7811%	18.9717%
97	40.0000%	33.5299%	32.2725%	20.1634%
98	40.0000%	35.7547%	33.7441%	20.9790%
99	40.0000%	37.4456%	35.1544%	21.6760%
100	40.0000%	39.0728%	36.4617%	22.2456%

¹ Rates shown are those in effect for the plan year beginning July 1, 2014. Rates for subsequent years will reflect further mortality improvement.

Appendix III: Comparative Valuations Results

Results for the Actuarial Valuation on Current and Recommended Assumptions

Prepared as of July 1, 2014	Current Assumptions	Recommended Assumptions
1. Accrued Liabilities:		
Present Active Participants	\$ 8,166,930	\$ 8,181,012
Retired Members, Beneficiaries and Members	49,362,313	49,550,239
Members Entitled to Deferred Vested Benefits	<u>408,061</u>	<u>407,955</u>
Total	\$ 57,937,304	\$ 58,139,206
2. Assets	48,979,273	48,979,273
3. Unfunded Accrued Liability	\$ 8,958,031	\$ 9,159,933
4. Amortization of Unfunded Accrued Liability	\$ 2,487,979	\$ 2,544,054
5. Normal Cost	144,564	145,335
6. Expected Expenses	69,000	69,000
7. Interest on (4), (5), and (6) to End of Year	<u>202,616</u>	<u>206,879</u>
8. Total Contribution = (4) + (5) + (6) + (7)	\$ 2,904,159	\$ 2,965,268