

Introduction

Submitted in this report are the results of a study of economic and demographic (noneconomic) experience for the Police and Firefighters Pension Plan of the City of Pawtucket. The purpose of the study was to assess the reasonability of the service retirement, withdrawal, mortality and disability decrements. The report also includes a review of the Plan's economic assumptions, including the interest rate and salary increase rates.

The study was based upon the statistical data furnished for the annual actuarial valuations and covers the five-year period from July 1, 2009 through June 30, 2014. The recommendations rely on the accuracy and completeness of the data supplied.

The demographic assumption experience study has been prepared under the supervision of Dan Sherman. Mr. Sherman is a member of the American Academy of Actuaries and has met the qualification standards of the American Academy of Actuaries to render the opinions contained herein.

Respectfully submitted,

Daniel Sherman, ASA, MAAA

Daniel W. Therman

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Summary of Findings

The five-year period (July 1, 2009 to June 30, 2014) covered by this experience study provided sufficient data to form a basis for recommending changes in the demographic assumptions used in the actuarial valuations of the Police and Firefighters Pension Plan. We are recommending that the economic assumptions remain the same as those used in the 2014 actuarial valuation.

The recommended changes in actuarial assumptions resulting from this study are summarized below. We recommend that these proposed changes first be reflected in the June 30, 2015 actuarial valuation of the Plan. Since the changes are very minor in nature and that they will have offsetting effects on the liabilities of the plan, we do not expect these changes to have a material impact on the results of the valuation.

Retirement Rates

Currently, both Police and Fire employees have an assumed rate of retiring at 20 years of service of 20%. At 21 and 22 years, the rate is significantly less. The recent experience shows that higher rates of retirement in at these years of service. We have also determined that there is no longer a meaningful statistical difference between those less than age 55 versus at or above age 55. We are recommending that those rates be the same and thus, age is no longer a determining factor.

We are also recommending some slight modifications to the Police retirement rates recognizing a higher probability of retirement in years 21 and 22, and lower rates in years 23 through 30.

Termination Rates

During the five year period, the assumptions were predicting 9 Fire terminations and 0 Police terminations would occur. Since there were 3 Fire and 7 Police terminations, we are recommending that those rates be changed. We are recommending that Fire and Police have the same rates and that they are equal to 60% of the current Fire rates.

Disability Rates

During the five year period, the assumptions were predicting over nine disabilities would occur. Since only four actually happened, we are recommending that those rates be cut in half.

Methodology

Data is supplied annually to the actuary by the Plan for purposes of the actuarial valuation report. This data includes demographic characteristics of the current and past membership, including any changes in the members' status or relationship with the Plan. The data also includes a salary history for active members. These demographic changes and salary history are the basis for the experience study.

Tabulations were compiled which show age or service distributions of the number of members who were exposed during the five-year period to the events of termination from employment,

retirement, death and disability. A member is considered exposed to an event if the member meets the age and service requirements for that event. The assumed rates of occurrence for each event, which are currently used in the annual actuarial valuations, were then applied to the number of members exposed to determine the number of members expected to separate from service for each category.

The actual number of members who separated from service due to termination from employment, retirement, death or disability was then compared to the expected number. The results were then expressed as a ratio of actual experience over expected experience. In some instances a high ratio is favorable for the financial experience of the Plan and in others, a high ratio is unfavorable. Data is generally grouped by age or service in five-year increments to provide statistically significant results.

The expected and actual salaries as of the end of each year were also compared to actual salaries as of the end of each previous year. The comparisons show an average annual total increase in both expected and actual salaries for the five-year period. The results of the experience review are the basis for the actuary's recommendation of assumption changes. In recommending assumptions the actuary must also take into account special plan benefits and past economic factors.

In addition to comparing actual to expected experience and adjusting the results for special plan benefits and past economic conditions, the actuary must consider future expectations of experience due to future plan changes or changes in the economy.

To summarize, the actuary's recommendation of assumptions is based on the following:

- comparison of actual to expected experience,
- adjustment for special plan benefits and past economic conditions, and
- adjustment for future plan changes and economic conditions.

Generally, actuarial assumptions are selected with a slight margin for adverse experience so that the financial strength of the Plan can be maintained.

Discount Rate

The current assumed rate of return is 7.5%. In the table below we show the actual rates of return during the 5 year period ending June 30, 2014.

Fiscal Year End		
2014	16.8%	
2013	10.9%	
2012	2.5%	
2011	20.3%	
2010	11.2%	

The geometric mean return for the period was 12.2%. The fiscal year ending June 30, 2009 had an investment return of -12.7%. It would be expected that the markets would rebound in an extraordinary way following the financial meltdown of 2008. Going forward, we would not expect double digit returns. Therefore, we are not recommending any changes to the assumed investment return, and by extension, no change in the discount rate.

Salary Scale

The chart below shows the actual increases in pensionable earnings versus the expected increases. Over the entire period for all years of service, the expected annual increases were 4.29%. The actual increases were 3.89%. The actual increases for those with less than one year of service was distorted by their fractional year of service. Given the small differences and the likelihood of an increase in general inflation in the near future, we are not recommending any changes to the assumption.

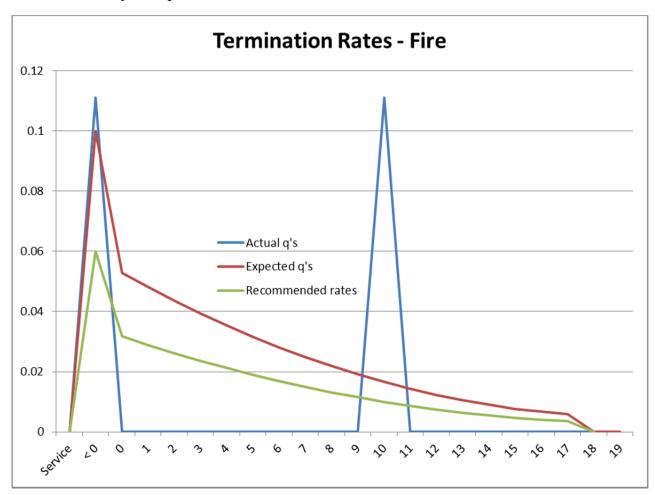


Active Mortality

The current assumption is the RP-2000 combined mortality table adjusted to Blue Collar (male tables) with 1 year setback. During the five year period, there were no deaths among the active employees. We are recommending that this assumption remain unchanged.

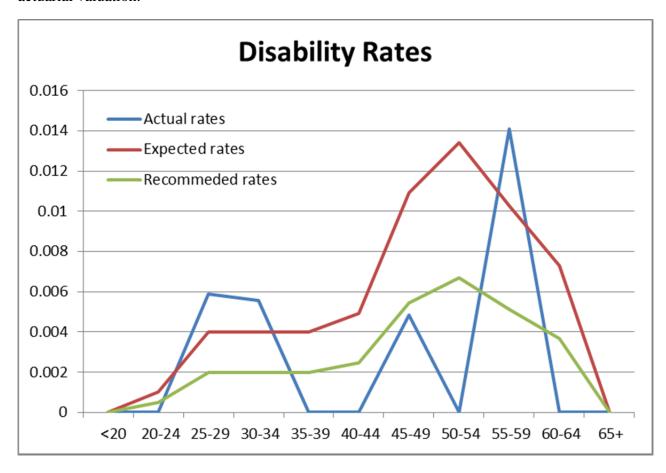
Terminations

During the five year period, the assumptions were predicting 9 Fire terminations and 0 Police terminations would occur. Since there were 3 Fire and 7 Police terminations, we are recommending that those rates be changed. We recommending that Fire and Police have the same rates and that they are equal to 60% of the current Fire rates.



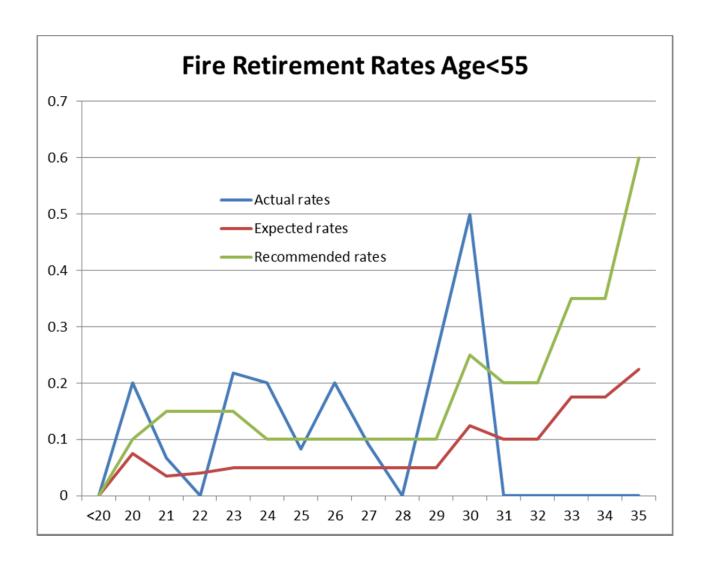
Disabilities

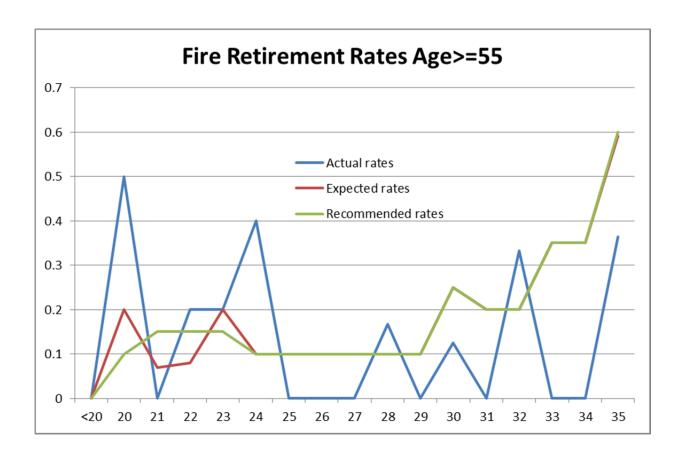
The current assumptions predicted many more disablements than actually occurred. As shown in the chart below, we are recommending a 50% reduction in the rates of disability for the 2015 actuarial valuation.



Retirement

Currently, Fire and Police employees have an assumed rate of retiring at 20 years of service of 20%. At 21 and 22 years, the rate is significantly less. The recent experience shows that higher rates of retirement in at these years of service. We have also determined that there is no longer a meaningful statistical difference between those less than age 55 versus at or above age 55. We are recommending that those rates be the same and thus, age is no longer a determining factor. As shown in the charts below, we are recommending changes in the rates of retirement for the 2015 actuarial valuation.

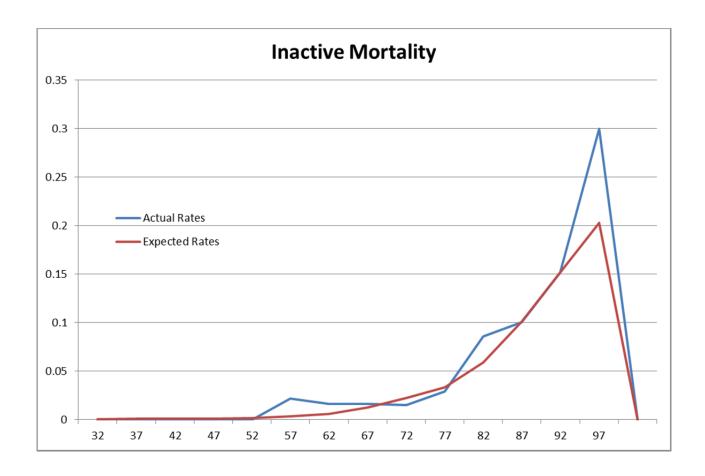






Inactive Mortality

The current assumption is the RP-2000 combined mortality table adjusted to Blue Collar (male tables) with 1 year setback. Disabled mortality is assumed to follow The RP-2000 combined mortality table adjusted to blue Collar (male tables) set forward 1 year for males and 2 years for females. During the 5 year period, the assumptions predicted 57.5 deaths. The actual number was 63. Based on the results of the study and our expectation of future mortality improvement, we are recommending that this assumption remain unchanged.



ACTUARIAL METHODS AND ASSUMPTIONS:

The actuarial cost method, factors, and assumptions used in determining cost estimates are presented below, along with our recommendations for changes for 2015.

1. Member Data

The member data used in the determination of cost estimates consist of pertinent information with respect to the active, inactive, retired, and disabled members of the employer as supplied by the employer to the actuary.

2. Valuation Date

July 1, 2015.

3. Actuarial Cost Method

The costs of the Plan have been determined in accordance with the individual entry age normal actuarial cost method.

4. Rate of Investment Return

It is assumed that the assets of the fund will accumulate at a compound annual rate of 7.5% per annum, net of investment expenses.

5. Salary Scale

It is assumed that salaries including longevity will increase according to the following rates:

Years of Service	Salary Increase
0-1	8.50%
2-4	3.25%
5	11.00%
6-9	3.50%
10	4.25%
11-14	3.75%
15	4.50%
16-19	3.75%
20	4.75%
21-24	3.25%
25+	2.00%

6. <u>Cost-of-Living Increases</u>

Cost-of-living increases have been assumed to be 3.0% per year, after June 30, 2017.

7. <u>Value of Investments</u>

Assets held by the fund are valued at market value. The actuarial value of assets is equal to the market value.

8. Annual Rate of Termination Prior to Retirement

Currently none for Police.

	Firefighters	Recommended Police and Fire
Service	<u>Rate</u>	Rate
0	.1000	.0600
1	.0528	.0317
2	.0481	.0289
3	.0436	.0262
4	.0394	.0236
5	.0354	.0212
6	.0316	.0190
7	.0281	.0169
8	.0249	.0149
9	.0219	.0131
10	.0191	.0115
11	.0166	.0100
12	.0143	.0086
13	.0123	.0074
14	.0105	.0063
15	.0090	.0054
16	.0077	.0046
17	.0067	.0040
18	.0059	.0035
19+	.0000	.0000

9. Annual Rate of Mortality

It is assumed that both pre-retirement and post retirement mortality are represented by the RP-2000 combined mortality table adjusted to Blue Collar (male tables) with 1 year setback. Disabled mortality is assumed to follow The RP-2000 combined mortality table adjusted to blue Collar (male tables) set forward 1 year for males and 2 years for females.

10. Service Retirement

The current assumed annual retirement rates are illustrated as follows for Police:

Service	Rate	Service	Rate
20	0.20	30	0.25
21	0.07	31	0.20
22	0.08	32	0.20
23	0.20	33	0.35
24	0.10	34	0.35
25	0.10	35	0.50
26	0.10	36	0.50
27	0.10	37	0.50
28	0.10	38	0.50
29	0.10	39+	1.00

The recommended annual retirement rates are illustrated as follows for Police:

<u>Service</u>	<u>Rate</u>	<u>Service</u>	<u>Rate</u>
20	0.20	30	0.25
21	0.20	31	0.20
22	0.20	32	0.20
23	0.05	33	0.35
24	0.05	34	0.35
25	0.05	35	0.50
26	0.05	36	0.50
27	0.05	37	0.50
28	0.05	38	0.50
29	0.05	39+	1.00

The assumed annual retirement rates are illustrated as follows for Firefighters:

Service	Age	Rate	<u>Age</u>	Rate	Recommended Rate
20	< 55	0.075	>=55	0.15	0.10
21	<55	0.035	>=55	0.07	0.15
22	< 55	0.040	>=55	0.08	0.15
23	< 55	0.050	>=55	0.10	0.15
24	< 55	0.050	>=55	0.10	0.10
25	< 55	0.050	>=55	0.10	0.10
26	< 55	0.050	>=55	0.10	0.10
27	< 55	0.050	>=55	0.10	0.10
28	< 55	0.050	>=55	0.10	0.10
29	< 55	0.050	>=55	0.10	0.10
30	< 55	0.125	>=55	0.25	0.25
31	< 55	0.100	>=55	0.20	0.20
32	< 55	0.100	>=55	0.20	0.20
33	< 55	0.175	>=55	0.35	0.35
34	< 55	0.175	>=55	0.35	0.35
35	< 55	0.250	>=55	0.50	0.60
36	< 55	0.250	>=55	0.50	0.60
37	< 55	0.250	>=55	0.50	0.60
38	< 55	0.250	>=55	0.50	0.60
39+	< 55	0.250	>=55	0.50	0.60

At 65 the rate is 100%, regardless of the number of years of service.

11. Annual Rate of Disability Prior to Retirement

The assumed annual rates of disability may best be illustrated by the following rates at the following ages:

Attained		Recommended
<u>Age</u>	<u>Rate</u>	<u>Rate</u>
25	.0040	.0020
30	.0040	.0020
35	.0040	.0020
40	.0040	.0020
45	.0100	.0050
50	.0125	.0063
55	.0120	.0060
60	.0085	.0043

12. <u>Family Composition</u>

It is assumed that 90% of male members and 75% of female members will be survived by a spouse and that females (males) are three years younger (older) than members.