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# Report:

## City of Newport Police and Fire Pension Systems Experience Study 2006 to 2011

HayGroup®



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## The City of Newport, Rhode Island Police Pension System and Fire Pension System Study of Actual to Expected Experience - 2006 to 2011

The actuarial assumptions used to determine the cost of a pension plan should be reviewed periodically to determine if they are reasonable predictors of the future. Therefore, the City of Newport (the “City”) requested that Hay Group perform this review of the experience of the Police Pension System (“Police”) and Fire Pension System (“Fire”) during the five plan years from July 1, 2006 through June 30, 2011.

### Data Used for Study

Based upon Hay Group’s reviews, the study data was deemed to be of acceptable quality and a reliable basis for comparing actual versus expected experience of the active population.

### Assumptions

The demographic assumptions predict when participants will leave the plan through death, disability, retirement or termination. Current and proposed demographic assumptions are shown in the sections below.

The key economic assumptions are inflation, salary increases, and the annual investment return assumption, which have also been reviewed as part of this study.

### Demographic Assumptions - Overview

Tables 1 and 2 compare the actual retirements and terminations to those expected using the current plan demographic assumptions for active Police and Fire participants, respectively. Each year the actuary assumes that a certain number of people will leave the plan based on their age and service. To determine the number of people expected to leave the plan over the five-year period, we apply the assumed probabilities of leaving (rates) to each year’s population. The totals are our expected retirements and terminations. Dividing the actual total by the expected total shows us the actual retirements and terminations as a percent of the expected for each cause.

Table 1 Police Pension System Participants <i>Actual and Expected Retirements and Terminations for Active Participants                      7/1/2006 through 6/30/2011</i>			
	Expected	Actual	Actual/Expected Ratio
Retirements	10.44	10	95.8%
Withdrawals	1.75	4	228.6%

<b>Table 2</b> <b>Fire Pension System Participants</b> <i>Actual and Expected Retirements and Terminations for Active Participants</i> <i>7/1/2006 through 6/30/2011</i>			
	<b>Expected</b>	<b>Actual</b>	<b>Actual/Expected Ratio</b>
Retirements	17.67	17	96.2%
Withdrawals	2.67	1	37.5%

## Retirement Assumptions

### Police

Any member who has completed at least 20 or more years of service is deemed to be retirement eligible. Pension benefits under this plan are based on a percentage of annual salary, beginning at 50% with 20 years of service, rising by 2.5% per additional year of service up to 25 years, then rising by 1.5% per additional year of service from 26 to 30 years, with a maximum of 70% for retirement with 30 or more years of service. An additional \$100 per year accrues for service between 25 and 35 years. Based strictly on the benefit formula, we would expect the highest retirement rates at 20 years of service (initial eligibility), 25 years (percentages begin to accrue at a lower rate), and 30 years (percentages reach their maximum). We believe that the \$100 per year accrual after 25 years of service has a minimal impact on retirement patterns.

Table 1 shows that we expected 10.44 Police participants to retire during the five-year period. During this period there were actually 10 retirements. Therefore, the actual-to-expected ratio was 95.8% percent. A ratio greater than 100 percent shows there were more retirements than expected; a ratio less than 100 percent would have shown there were fewer retirements than expected. Because the actual-to-expected ratio is close to 100%, this alone does not warrant a change to the assumed rates of retirement.

Based on our opinion of how participant behavior can be influenced by the pattern of pension benefit accruals, and the actual pattern of retirement substantially coinciding with our expectations, we recommend that the retirement rates be changed. Table 3 below shows the current rates of retirement being assumed for valuation purposes, the actual rates of retirement during the 5-year study period, and the new rates we propose.

**Table 3**  
**Police: Current and Proposed Retirement Rates**

<b>Years of Service</b>	<b>Current</b>	<b>Actual Retirement Percentage Over 5-Year Period</b>	<b>Proposed</b>
20	5%	9.09%	10%
21	2%	6.67%	5%
22	2%	11.11%	5%
23	2%	0.00%	5%
24	2%	0.00%	5%
25	40%	0.00%	20%
26	20%	14.29%	5%
27	20%	0.00%	5%
28	20%	0.00%	5%
29	20%	0.00%	5%
30	20%	66.67%	40%
31	20%	50.00%	20%
32	20%	100.00%	20%
33	20%	0.00%	20%
34	20%	0.00%	20%
35+	100%	0.00%	100%

### Fire

For members hired before July 1, 2011, the eligibility for retirement is the completion of 20 years of service. Any member hired on or after July 1, 2011 who has completed at least 30 or more years of service, or has attained the age of 58, is deemed to be retirement eligible. Pension benefits under this plan are based on a percentage of annual salary, beginning at 50% with 20 years of service, rising by 2.0% per additional year of service up to 24 years. At 25 years of service, the percentage rises to 65%, and then rises by 1.0% per additional year of service from 26 to 30 years, with a maximum of 70% for retirement with 30 or more years of service. An additional \$100 per year accrues for service between 25 and 35 years.

For members hired before July 1, 2011, based strictly on the benefit formula, we would expect the highest retirement rates at 20 years of service (initial eligibility), 25 years (percentage has large increase from 24 to 25 years, and then percentages begin to accrue at a lower rate), and 30 years (percentages reach their maximum). We believe that the \$100 per year accrual after 25 years of service has a minimal impact on retirement patterns.

For members hired on or after July 1, 2011, based strictly on the benefit formula, we would expect the highest retirement rates at 20 years of service (initial eligibility), 25 years (percentage has large increase

from 24 to 25 years, and then percentages begin to accrue at a lower rate), and 30 years (percentages reach their maximum). However, the imposition of the age 58 eligibility requirement causes us to consider whether a second set of retirement rates for these members is warranted. As a practical matter, the great majority of new Fire members hired on or after July 1, 2011 will have at least 20 years of service by the time they reach age 58. So, for purposes of this experience study, we recommend using the same set of service-based retirement decrements for all Fire members. In the actuarial valuation, if a Fire member is subject to the age 58 retirement-eligibility requirement, our valuation programming will test whether the age of 58 has been attained (assuming service is less than 30), and if not, the program will not assume a probability of retirement.

Table 2 shows that we expected 17.67 Fire participants to retire during the five-year period. During this period there were actually 17 retirements. Therefore, the actual-to-expected ratio was 96.2% percent. A ratio greater than 100 percent shows there were more retirements than expected; a ratio less than 100 percent would have shown there were fewer retirements than expected. Because the actual-to-expected ratio is close to 100%, this alone does not warrant a change to the assumed rates of retirement.

Based on our opinion of how participant behavior can be influenced by the pattern of pension benefit accruals, and the actual pattern of retirement substantially coinciding with our expectations, we recommend that the retirement rates be changed. Table 4 below shows the current rates of retirement being assumed for valuation purposes, the actual rates of retirement during the 5-year study period, and the new rates we propose.

Table 4 Fire: Current and Proposed Retirement Rates			
Years of Service	Current	Actual Retirement Percentage Over 5-Year Period	Proposed
20	5%	11.11%	10%
21	2%	0.00%	2%
22	2%	0.00%	2%
23	2%	0.00%	2%
24	2%	40.00%	2%
25	40%	33.33%	40%
26	20%	10.00%	10%
27	20%	0.00%	10%
28	20%	14.29%	10%
29	20%	50.00%	10%
30	20%	16.67%	40%
31	20%	100.00%	20%
32	20%	0.00%	20%
33	20%	0.00%	20%
34	20%	0.00%	20%

**Table 4**  
**Fire: Current and Proposed Retirement Rates**

Years of Service	Current	Actual Retirement Percentage Over 5-Year Period	Proposed
35+	100%	50.00%	100%

### Withdrawal Assumptions

The final demographic category we reviewed was withdrawals, the term commonly given to separations from service for reasons other than retirement, disability, or death. Withdrawals generally include members who leave service, whether or not they have a right to receive future plan benefits (i.e., those who withdraw may or may not be vested in an accrued benefit under the plan).

### Police

From Table 1 we see that we expected 1.75 withdrawals (excluding retirements, deaths and disabilities) and there were actually 4 terminations. This means that the actual-to-expected ratio is 228.6%, which would imply that the withdrawal assumption should be increased.

We propose changing to withdrawal rates which are more reflective of the higher rates of withdrawal observed over the past five years. However, because of the small amount of both expected and actual withdrawals, we recommend a moderate increase in the withdrawal rates. Both the current and proposed rates are shown in Table 5.

**Table 5**  
**Police: Current and Proposed Withdrawal Rates**

Service	Current	Proposed
< 1	3.00%	4.50%
1	2.25%	3.38%
2	2.00%	3.00%
3	1.75%	2.63%
4	1.50%	2.25%
5	1.25%	1.88%
6	1.00%	1.50%
7	0.75%	1.13%
8	0.50%	0.75%
9	0.25%	0.38%
10+	0	0.00%

## Fire

From Table 2 we see that we expected 2.67 withdrawals (excluding retirements, deaths and disabilities) and there was actually 1 termination during the 5-year study period. This means that the actual-to-expected ratio is 37.5%, which would imply that the withdrawal assumption should be decreased.

However, because of the very low number of both actual and expected terminations, we recommend no change to the withdrawal rates for Fire at this time.

## **Disability Assumptions**

The incidences of disability in plans the size of Police and Fire are usually so small that rates cannot accurately be developed from actual experience. Because of this, plans typically use tables that were developed from larger populations. Table 6 shows sample disability rates in use as of July 1, 2011.

Table 6	
<i>Sample Disability Rates for Police and Fire As of July 1, 2011</i>	
<b>Attained Age</b>	<b>Probability</b>
25	0.17%
35	0.29%
45	0.72%
55	1.21%

We propose that these rates remain unchanged.

## **Mortality Assumptions**

In considering the mortality assumption, it is important to keep in mind that the actual occurrences of death for both the Police and Fire populations, both before and after retirement, have been rare. As with disability, we did not track deaths because of the small number of occurrences and the difficulty of predicting such occurrences.

Effective for the July 1, 2011 valuations for both Police and Fire, mortality tables prescribed by the IRS for non-governmental plans, as specified in IRS Regulation 1.430(h)(3)-1, applied on a fully generational basis, were adopted as the mortality assumption. In light of the fact that there is no credible experience upon which to base the mortality assumptions for Police and Fire, it is important that the mortality assumption be based on a modern table that would be applicable for most groups.

Both Police and Fire continued to use the 1985 Wyatt Pension Disability Mortality Table (unisex rates) in the July 1, 2011 valuations. As with healthy mortality discussed above, there is no credible experience



upon which to base this assumption. The table currently in use is a well-known, widely-used table, and should be acceptable for the Police and Fire systems.

Thus, we believe the current mortality assumptions to be reasonable, and recommend that they be retained.

### **Marital Status**

Currently it is assumed for valuation purposes that 75% of active Police members, and 90% of active Fire members, are married. For both Police and Fire, wives are assumed to be three years younger than their husbands. These are reasonable assumptions, and we recommend retaining them.

### **Inflation**

The inflation assumption currently in use for valuing cost of living adjustments for both Police and Fire is 3.00% (other than Fire members retiring on or after August 26, 2011, whose adjustments are based on CPI for Northeast Urban Wage Earners, with a minimum of 0.50% and a maximum of 3.00%).

We have reviewed and considered (i) various historical measures of inflation, (ii) long-term inflation expectations of experts, (iii) recent developments in the US and global economies, and (iv) inflation rate assumption prevalence data among public sector retirement systems. We therefore recommend that the assumption for the future annual rate of inflation be in the range of 2.50% and 3.50%, and that the rate for valuation purposes be retained at 3.00%. This rate is consistent with the most recent annual CPI-U growth and intermediate projection assumptions used in the 2010 OASDI Trustees Report; it is also within the expected range for the projected rate of inflation considered by many major pension investment companies.

### **Salary Increases**

The current salary increase assumption (for both Police and Fire) is 3.00% per year plus longevity increases which cease after the thirty-first year of employment. Since salary increases are collectively bargained for the active Police and Fire members, we discussed the continued reasonableness of this assumption with the City. Considering this, and the inflation assumption which is used to value cost of living increases being 3.00%, we believe that the current salary increase assumption is reasonable.

### **Investment Rate of Return**

Annual and average rates of investment return over recent fiscal year periods are shown in Table 7. The current assumption is that the funds, in the long-term, will earn an average rate of return of 7.5% per year. This rate was lowered from 8.25% percent for the July 1, 2009 valuation. As shown in Table 7, the investment return assumption of 7.5% is greater than the 15-year average of returns for fiscal years ending June 30, 2011. However, past performance is not necessarily a predictor of the future.

The asset allocation of the Police and Fire assets is approximately 75% equity (which includes about 15% international equity) and 25% fixed income (including a small amount of cash). Based on the weighted

average long-term expected rate of return related to the fund's asset allocation, we believe a reasonable range for the interest assumption is 6.52% to 7.52%. This range is derived in Table 8 below.

Table 7			
<i>Investment Return of Police and Fire Assets Fiscal Years 1997 through 2011</i>			
Annual Investment Returns		Average Rate of Return	
Year	Annual Investment Return	Number of Years In Average	Average Investment Return
2011	27.2%	1	27.2%
2010	16.5%	2	21.7%
2009	(20.4%)	3	5.7%
2008	(4.9%)	4	2.9%
2007	16.2%	5	5.4%
2006	7.1%*	15	6.5%

\* 10-year average for fiscal years ending June 30, 2006

Table 8			
<i>Weighted Average Investment Return of Police and Fire Assets Based on Asset Allocation as of June 30, 2011</i>			
Year	Low/High Assumed Investment Return**	Allocation Percentage	Portion of Total Range of Investment Return
Equity	7.25%/8.30%	60.4%	4.38%/5.01%
Int'l Equity	7.40%/8.25%	14.9%	1.10%/1.23%
Fixed/Cash	4.20%/5.20%	24.7%	1.04%/1.28%
Total		100.0%	6.52%/7.52%

\*\* Assumed long-term total rates of return; should be verified with the City's investment advisor

In light of the fact that the current interest assumption is within the reasonable range derived in Table 8, we recommend retaining 7.50% as the Police and Fire interest assumption. We further suggest that this assumption be monitored, especially since performance over the past 15 years has been at the low end of the reasonable range.

### Review of Recommendations by Individual Assumption

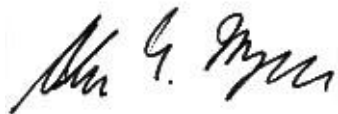
- Modify the retirement rate assumptions to more closely reflect actual retirements.
- Increase the Police withdrawal rates moderately to better reflect actual experience. Leave the Fire withdrawal rates unchanged.
- Leave the disability rates unchanged.
- Leave the mortality assumptions unchanged.
- Leave the marital status assumptions unchanged.
- Leave the inflation assumptions unchanged.
- Leave the salary increase assumptions unchanged.
- Leave the annual investment return assumption unchanged at 7.5%; however, monitor it closely.

### Cost Analysis

Hay Group has not performed a detailed cost analysis of the assumption changes recommended in this report. However, in our opinion, because the changes are relatively minor and there are offsetting impacts to the changes, the cost impact of the recommended changes should be minor as well.

We look forward to discussing the results of this study and our recommendations with all interested parties.

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