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April 9, 2015

milliman.com

PERSONAL & CONFIDENTIAL

Mr. Justin Cambio
Finance Director
Town of North Providence
2000 Smith Street
North Providence, RI 02911

Re: Experience Study – Town of North Providence, Rhode Island Police Pension Plan

Dear Justin:

We are pleased to present the results of the Experience Study for the Town of North Providence, Rhode Island Police Pension Plan.

The enclosed study reviews experience through July 1, 2014 and summarizes the results of the following economic and demographic experience: Consumer Price Inflation, Salary Scale, Amortization Growth Rate, Investment Return, Turnover, Retirement, Healthy Mortality, Disabled Mortality, Disability, and Percent Married. The following actuarial methods are also reviewed: Asset Valuation Method and the Actuarial Cost Method. Section II contains a discussion of the economic assumptions used in the actuarial valuation. Details regarding demographic assumptions are found in Section III. Section IV reviews the actuarial methods.

We have included proposals for new assumptions, as well as the estimated impact of the proposed assumptions on the funded ratio and the Actuarially Determined Contribution.

In preparing this study, we relied without audit on employee census data and financial information for the period July 1, 2010 through July 1, 2014, furnished by the Town of North Providence. This information includes, but is not limited to, plan provisions, employee data, and financial information. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes. Since the valuation results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete or missing. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

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The calculations reported herein have been made on a basis consistent with our understanding of the plan provisions for the Town of North Providence, Rhode Island Police Pension Plan. Furthermore, the calculations were determined in conformance with generally recognized and accepted actuarial principles and practices, which are consistent with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board and the applicable Guides to Professional Conduct, amplifying Opinions, and supporting Recommendations of the American Academy of Actuaries.

Milliman's work is prepared solely for the internal business use of the Town of North Providence. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exception(s): (a) the Town may provide a copy of Milliman's work, in its entirety, to the Town's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the Town; and (b) the Town may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law. No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs. If these results are distributed to other parties, we request that it be copied in its entirety and distributed along with a copy of the July 1, 2014 actuarial valuation report in its entirety as well, because this report provides background information that is important in understanding the basis for these results.

The calculations reported herein have been made on a basis consistent with our understanding of ERISA and the related sections of the tax code. Additional determinations may be needed for other purposes, such as judging benefit security at plan termination or meeting employer accounting requirements. On the basis of the foregoing, we hereby certify that, to the best of our knowledge, this report is complete and accurate and all costs and liabilities were determined in conformance with generally accepted actuarial principles and practices. We further certify that, in our opinion, each actuarial assumption, method and technique used is reasonable taking into account the experience of the Plan and reasonable expectations or would, in the aggregate, result in a total contribution equivalent to that which would be determined if each such assumption, method, or technique were reasonable. Differences between our projections and actual amounts depend on the extent to which future experience conforms to the assumptions made for this analysis. Actual experience will not conform exactly to the assumptions made for this analysis. Actual amounts will differ from projected amounts to the extent that actual experience deviates from expected experience.

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The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuary is independent of the plan sponsor. We are not aware of any relationship that would impact the objectivity of our work.

I am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Please let me know if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Becky".

Rebecca A. Sielman, FSA
Consulting Actuary

RAS:mwj 26 NPR2014ExperStudyReport.docx



**TOWN OF NORTH PROVIDENCE, RHODE ISLAND
POLICE PENSION PLAN**

2014 EXPERIENCE STUDY

**TOWN OF NORTH PROVIDENCE, RHODE ISLAND
POLICE PENSION PLAN
2014 EXPERIENCE STUDY**

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EXPERIENCE STUDY**

**SECTION I
Executive Summary**

A. Discussion of Study Results

The following is a discussion of the key findings of the Experience Study for the Town of North Providence, Rhode Island Police Pension Plan.

Consumer Price Inflation

Current Basis	2.75%
Recommendation	No change.

Salary Scale

Current Basis	Graded table based on member's age.
Comment	Individual member pay increases are a function of general wage increases that are granted through periodic contract negotiations plus promotion and longevity increases that are set in the collective bargaining agreement.
Recommendation	Restructure the salary scale assumption to include a fixed 2.75% component for general wage increases plus a graded table of increases for promotions and longevity that is based on length of service rather than age.

Amortization Growth Rate

Current Basis	3.50%
Recommendation	No change.

Investment Return

Current Basis	7.25%
Comment	Based on current capital market assumptions and the plan's target asset allocation, the long-term expected return on plan assets is 6.75%.
Recommendation	Reduce assumption to 6.75%

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Turnover

Current Basis	Graded table based on member's age.
Comment	As is typical of public safety groups, the observed rate of turnover is very low and is largely seen among short service employees.
Recommendation	Restructure the turnover assumption to be based on length of service rather than age.

Retirement

Current Basis	Graded table based on member's length of service.
Comment	Retirement patterns during the study period tracked reasonably well with the current retirement assumption.
Recommendation	No change.

Healthy Mortality

Current Basis	RP-2000 Combined Healthy Mortality Table with separate tables for males and females, with generational projection of future mortality improvements per Scale AA.
Comment	This plan's population is too small for its mortality experience to be credible. We do not recommend switching to the RP-2014 Mortality Table as no public plan mortality experience was used in its construction.
Recommendation	No change.

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Disabled Mortality

Current Basis	RP-2000 Disabled Mortality Table with separate tables for males and females, with generational projection of future mortality improvements per Scale AA.
Comment	This plan's population is too small for its disabled mortality experience to be credible. We do not recommend switching to the RP-2014 Disabled Mortality Table as no public plan mortality experience was used in its construction.
Recommendation	No change.

Disability

Current Basis	50% of the 1985 Pension Disability Table (DP-85 Table) Class 4.
Comment	Credible experience does not exist that would suggest a change in this assumption.
Recommendation	No change.

Percent Married

Current Basis	70% of active members are assumed to be married at retirement, with wives one year younger than husbands.
Comment	This assumption continues to be reasonable.
Recommendation	No change.

Asset Valuation Method

Current Basis	The current smoothing method recognizes market value gains or losses in equal installments over a five-year period.
Comment	The current asset smoothing basis provides for an adequate level of smoothing within a reasonable period.
Recommendation	No change.

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Actuarial Cost Method

Current Basis	Entry Age Normal Cost Method; the unfunded accrued liability is amortized as a level percent over 10 years.
Comment	The current actuarial cost method is widely used in funding public plans and is the method used to disclose the plan's funded status for financial reporting purposes per GASB 67/68. A rolling 10 year amortization period represents a reasonable balance between achieving full funding while avoiding undue volatility in the Town's Actuarially Determined Contribution.
Recommendation	No change.

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**SECTION I
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B. Summary of Current and Proposed Actuarial Assumptions

The current actuarial assumptions used in the July 1, 2014 valuation of the Plan plus the proposed changes in actuarial assumptions are as follows:

	Current Assumption	Proposed Assumption																										
Consumer Price Inflation	2.75%	No change.																										
Salary Scale	<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: center;"><u>Age</u></th> <th style="text-align: center;"><u>Rate</u></th> </tr> </thead> <tbody> <tr><td style="text-align: center;">25</td><td style="text-align: center;">4.50%</td></tr> <tr><td style="text-align: center;">30</td><td style="text-align: center;">4.00</td></tr> <tr><td style="text-align: center;">35</td><td style="text-align: center;">3.75</td></tr> <tr><td style="text-align: center;">40</td><td style="text-align: center;">3.50</td></tr> <tr><td style="text-align: center;">45</td><td style="text-align: center;">3.50</td></tr> <tr><td style="text-align: center;">50</td><td style="text-align: center;">3.50</td></tr> </tbody> </table>	<u>Age</u>	<u>Rate</u>	25	4.50%	30	4.00	35	3.75	40	3.50	45	3.50	50	3.50	Wage inflation of 2.75% plus the following rates to reflect promotions and longevity: <table border="0" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th style="text-align: center;"><u>Service</u></th> <th style="text-align: center;"><u>Rate</u></th> </tr> </thead> <tbody> <tr><td style="text-align: center;">0</td><td style="text-align: center;">8.50%</td></tr> <tr><td style="text-align: center;">1</td><td style="text-align: center;">6.50%</td></tr> <tr><td style="text-align: center;">2</td><td style="text-align: center;">4.50%</td></tr> <tr><td style="text-align: center;">3-7</td><td style="text-align: center;">2.00%</td></tr> <tr><td style="text-align: center;">8+</td><td style="text-align: center;">0.25%</td></tr> </tbody> </table>	<u>Service</u>	<u>Rate</u>	0	8.50%	1	6.50%	2	4.50%	3-7	2.00%	8+	0.25%
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Amortization Growth Rate	3.50%	No change.																										
Investment Return	7.25%	6.75%																										
Turnover	<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: center;"><u>Age</u></th> <th style="text-align: center;"><u>Rate</u></th> </tr> </thead> <tbody> <tr><td style="text-align: center;">20</td><td style="text-align: center;">2.9%</td></tr> <tr><td style="text-align: center;">25</td><td style="text-align: center;">2.9</td></tr> <tr><td style="text-align: center;">30</td><td style="text-align: center;">2.9</td></tr> <tr><td style="text-align: center;">35</td><td style="text-align: center;">1.9</td></tr> <tr><td style="text-align: center;">40</td><td style="text-align: center;">1.7</td></tr> <tr><td style="text-align: center;">45</td><td style="text-align: center;">0.0</td></tr> </tbody> </table>	<u>Age</u>	<u>Rate</u>	20	2.9%	25	2.9	30	2.9	35	1.9	40	1.7	45	0.0	<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: center;"><u>Service</u></th> <th style="text-align: center;"><u>Rate</u></th> </tr> </thead> <tbody> <tr><td style="text-align: center;">0</td><td style="text-align: center;">50%</td></tr> <tr><td style="text-align: center;">1-7</td><td style="text-align: center;">5%</td></tr> <tr><td style="text-align: center;">8+</td><td style="text-align: center;">1%</td></tr> </tbody> </table>	<u>Service</u>	<u>Rate</u>	0	50%	1-7	5%	8+	1%				
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<u>Service</u>	<u>Rate</u>																											
20	40%																											
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Healthy Mortality	RP-2000 Combined Healthy Mortality Table with generational projection per Scale AA, with separate male and female tables.	No change.																										

**TOWN OF NORTH PROVIDENCE, RHODE ISLAND
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**SECTION I
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	Current Assumption	Proposed Assumption
Disabled Mortality	RP-2000 Disabled Mortality Table with generational projection per Scale AA, with separate male and female tables.	No change.
Disability	50% of the 1985 Pension Disability Table (DP-85 Table) Class 4. 50% of disabilities are assumed to be duty related.	No change.
Percent Married	70% of active members are assumed to be married, with wives one year younger than husbands.	No change.
Asset Valuation Method	The current smoothing method recognizes market value gains or losses in equal installments over a five-year period.	No change.
Actuarial Cost Method	Entry Age Normal Cost Method; the unfunded accrued liability is amortized as a level percent over 10 years.	No change.

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**SECTION I
Executive Summary**

C. Estimated Impact of Proposed Assumptions Based on July 1, 2014 Valuation

	Current Assumptions	Reflecting Just 6.75% Interest Rate	Reflecting All Proposed Changes
1. Actuarial Value of Assets at July 1, 2014	\$37,854,440	\$37,854,440	\$37,854,440
2. Actuarial Liability as of July 1, 2014	39,484,542	42,053,964	41,987,307
3. Unfunded Accrued Liability as of July 1, 2014	1,630,102	4,199,524	4,132,867
4. Funded Ratio as of July 1, 2014: (1) / (2)	95.9%	90.0%	90.2%
5. Past Service Cost: 10 year amortization of (3)	190,329	480,743	473,112
6. Total Normal Cost	828,290	931,617	851,240
7. Expected Employee Contributions	287,140	287,140	287,510
8. Net Normal Cost: (6) – (7)	541,150	644,477	563,730
9. Interest on (5) + (8) to the middle of the fiscal year	80,973	115,830	106,732
10. Actuarially Determined Contribution for FY2016: (5) + (8) + (9)	812,452	1,241,050	1,143,574

Note: The estimated impact on the July 1, 2014 funded ratio and Actuarially Determined Contribution for FY2016 is for illustrative purposes only. We understand that any adopted changes in the actuarial assumptions would first be included in the July 1, 2016 actuarial valuation, which will develop the Actuarially Determined Contribution for FY2018.

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**SECTION II
Economic Assumptions**

A. Overview of Economic Assumptions

Actuarial Standard of Practice (ASOP) No. 27, Selection of Economic Assumptions for Measuring Pension Obligations, provides guidance to actuaries on selecting economic assumptions for measuring obligations under defined benefit plans. Because no one knows what the future holds, the best an actuary can do is to use professional judgment to estimate possible future economic outcomes. These estimates are based on a mixture of past experience, future expectations, and professional judgment. The actuary should consider a number of factors, including the purpose and nature of the measurement, and appropriate recent and long-term historical economic data. However, the Standard explicitly advises the actuary not to give undue weight to recent experience.

The Standard calls for the actuary to develop a single best estimate for each economic assumption. Each economic assumption should individually satisfy the Standard. Furthermore, with respect to any particular valuation, each economic assumption should be consistent with every other economic assumption over the measurement period.

In our opinion, the economic assumptions set forth in this report have been developed in accordance with ASOP No. 27.

The remainder of this section contains the study results for the following economic assumptions:

- Consumer Price Inflation (CPI)
- Salary Scale
- Amortization Growth Rate
- Investment Return

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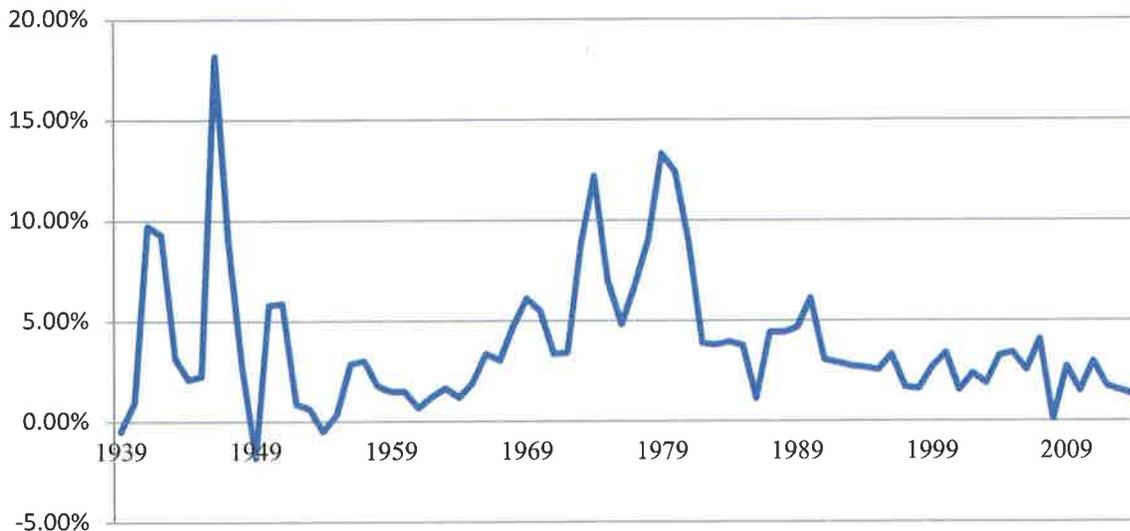
**SECTION II
Economic Assumptions**

B. Consumer Price Inflation

Current Assumption: 2.75%

Analysis and Results: Future price inflation has an indirect impact on the results of the actuarial valuation through the development of the assumptions for investment return, and salary scale.

Consumer Price Index



We have used certain published economic statistics that have been accumulated on a monthly basis over the last 75 years. The data for price inflation is based on the Consumer Price Index, US City Average, All Urban Consumers (CPI). The data for periods ending in December of each year is shown graphically below.

There are numerous ways to review this data. The table below shows the compounded annual price inflation rate for various 10 year periods and for longer periods ended in December 2014. Standard Deviation is a measure of the extent to which inflation varied from the Mean, or average, for the period.

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**SECTION II
Economic Assumptions**

Period	Mean	Standard Deviation
2004-2014	2.18%	1.11%
1994-2004	2.43%	0.69%
1984-1994	3.58%	1.31%
1974-1984	7.34%	3.31%
1964-1974	5.20%	2.97%
2004-2014	2.18%	1.11%
1994-2014	2.31%	0.93%
1984-2014	2.73%	1.23%
1974-2014	3.86%	2.82%
1964-2014	4.13%	2.90%
75 years	3.84%	3.41%
25 years	2.54%	1.13%

Many economists forecast that future price inflation will be lower than the current assumption of 2.75%, but they may be looking at shorter periods than are appropriate for a pension valuation. To find an economic forecast with a long enough time frame to suit our purpose, we looked at the expected increase in the CPI by the Office of the Chief Actuary for the Social Security Administration. In the 2014 Trustees Report, the projected average annual increase in the CPI over the next 30 years under the intermediate cost assumptions was 2.7%. The reasonable range was stated as 2.0% to 3.4%.

Recommended Assumption: Based on the history over the last 75 years, and future expectations, we recommend that the long-term assumed price inflation rate continue at 2.75%. This rate will be used to build the net investment return and salary scale assumptions.

Consumer Price Inflation	
Current Assumption	2.75%
Recommended Assumption	2.75%

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**SECTION II
Economic Assumptions**

C. Salary Scale and Amortization Growth Rate

Current Assumption: The current salary scale assumption varies by the member's age.
The current amortization growth rate assumption is 3.50% per year.

Analysis and Results: We looked at the impact of both age and length of service on annual pay increases for each individual in our study. Note that a contract covering 2009-2014 was not signed until late 2014, so the pay changes observed during the study period did not reflect any general wage increases. The contract includes a schedule of pay increases for the first three years of a patrolman's service, plus pay increases thereafter for promotions. In addition, longevity pay increases are granted after five, seven, and fifteen years of service. An individual member's pay, therefore, is heavily influenced by the member's length of service. While age and length of service tend to track closely, length of service more accurately reflects the structure of promotion and longevity pay increases embedded in the collective bargaining agreement. We therefore recommend moving to an assumption that reflects a member's length of service rather than age.

Recommended Assumption: Move from a salary scale assumption based on age to a salary assumption that reflects a fixed component for general wage increases plus a component based on service that reflects the impact of promotions and longevity. Continue the current amortization growth rate assumption.

Wage Inflation	2.75%
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Promotions and Longevity

Service	Rate
0	8.50%
1	6.50%
2	4.50%
3-7	2.00%
8+	0.25%

Amortization Growth Rate	3.50%
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**SECTION II
Economic Assumptions**

D. Investment Return

Current Assumption: 7.25% (net of all expenses).

Analysis and Results: The investment return assumption is one of the primary determinants in the allocation of the expected cost of the Fund's benefits, providing a discount of the estimated future benefit payments to reflect the time value of money. The valuation investment return assumption should represent the expected long-term rate of return on the actuarial value of assets, considering the Fund's asset allocation policy, expected long-term real rates of return on specific asset classes, the underlying inflation rate and investment-related expenses.

ASOP No. 27 provides guidance to actuaries on selecting assumptions for measuring obligations under defined benefit pension plans. Because the future cannot be accurately predicted, the best an actuary can do is to use professional judgment to estimate possible future economic outcomes. These estimates are based on a combination of past experience, future expectations, and professional judgment. The actuary should consider a number of factors including the purpose and nature of the measurement and appropriate recent and long-term historical economic data. However, ASOP No. 27 explicitly advises the actuary not to give undue weight to recent experience.

ASOP No. 27 calls for the actuary to develop a single best estimate for each economic assumption. Each economic assumption should individually satisfy this standard. Furthermore, with respect to any particular valuation, each economic assumption should be consistent with every other economic assumption over the measurement period.

The Fund's long-term rate of return on its investments will be mostly determined by its allocation to various asset classes. According to an asset allocation study prepared in 2012, the target asset allocation is composed of 23.1% domestic large cap equity, 5.0% domestic mid cap equity, 6.0% domestic small cap equity, 15.0% international equity, 6.0% emerging markets equity, 5.0% real estate securities (REITS), 33.9% intermediate-term fixed income, 3.0% high yield fixed income and 3.0% cash.

We use capital asset pricing theory to develop expected returns for asset classes. The theory holds that the expected return for an asset class is based on its contribution to the risk of the total market portfolio containing all assets. Assets that bring high risk to the market portfolio have higher expected returns than assets that bring low risk. Risk is measured by covariance. The level of expected return associated with the amount of risk is calibrated by the expected returns developed below for U.S. large cap equity and U.S. aggregate fixed income.

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**SECTION II
Economic Assumptions**

The expected returns for the portfolio's asset classes are shown in the tables below for the current policy asset mix. We show both the expected annualized rate of return and the expected arithmetic average return for each asset class and the total portfolio. The expected arithmetic average return for each asset class is a necessary input to determine the expected annualized return on the total portfolio. The expected arithmetic average return is the best estimate of the return in any single year, and is always higher than the expected annualized return. The annualized return over a multiple-year period is less than the arithmetic average return due to volatility and the process of compounding. The expected annualized rate of return is based on a 75-year horizon. We also show the expected standard deviation of annual returns for each asset class. The standard deviations and the correlations between each pair of assets (not shown) are estimated based on actual returns over the last 45 years (or longest time period available).

Asset Class	Policy Target Weight	Expected 75-Year Annualized Return	Expected Arithmetic Average Annual Return	Expected Annual Standard Deviation
U.S. Large Cap Equity	23.1%	7.26%	8.65%	17.80%
U.S. Mid Cap Equity	5.0	7.36	9.42	21.90
U.S. Small Cap Equity	6.0	7.51	10.42	26.30
International Equity	15.0	7.26	9.06	20.40
Emerging Markets Equity	6.0	7.76	11.77	31.30
U.S. Real Estate (REITS)	5.0	6.76	8.39	19.30
Intermediate-Term Fixed Income	33.9	4.25	4.37	5.10
High Yield Fixed Income	3.0	6.76	7.30	11.00
Cash	3.0	3.25	3.26	1.65
Total Portfolio	100.0	6.75	7.38	11.70

The derivation of the portfolio's annualized rate of return and standard deviation are complicated and cannot be calculated by what is provided in the above table.

Using the current allocation policy, our best estimate assumption for the long-term annualized rate of return on the Fund's policy portfolio is 6.75%. Our best estimate for the long-term **arithmetic** average return is 7.38%. We understand that a formal asset allocation study was prepared by Wells Fargo in February 2012. The results of that study showed an annual expected return of 7.8% over a 10 year time horizon. The allocation study report does not provide details about how the expected return of 7.8% was calculated. However, we believe that it was likely

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**SECTION II
Economic Assumptions**

calculated based on a long-term **arithmetic** average return. Since the Fund's assets accumulate at the long-term **annualized** rate of return, this is the expected rate of return that should be used as the basis for selecting the investment return assumption, rather than the arithmetic average return.

Recommended Assumption: Based on the ASOP No. 27 guidelines, we conclude that a reasonable assumption for the annualized rate of return over the next 75 years is 6.75%.

Investment Return	
Current Assumption	7.25%
Recommended Assumption	6.75%

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**SECTION III
Demographic Assumptions**

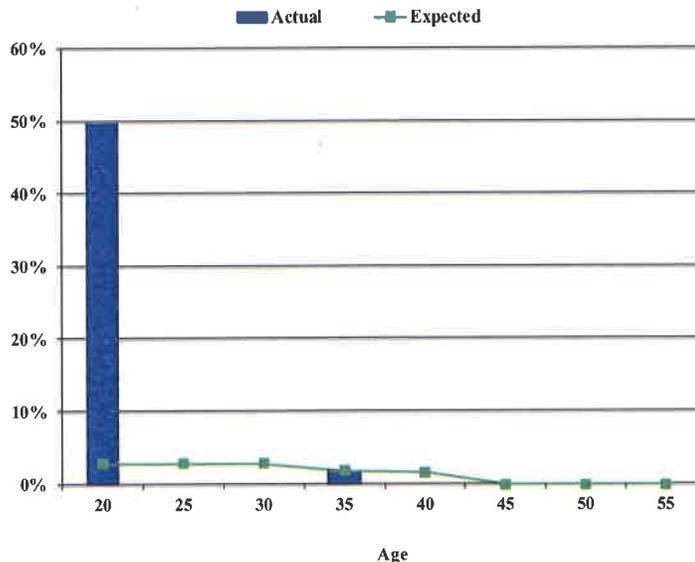
A. Turnover

Current Assumption: Graded rates based on age per the following table:

Age	Rate
20	2.9%
25	2.9
30	2.9
35	1.9
40	1.7
45+	0

Analysis and Results: We analyzed the data for 2010 through 2014 by age and by length of service for each individual in our study.

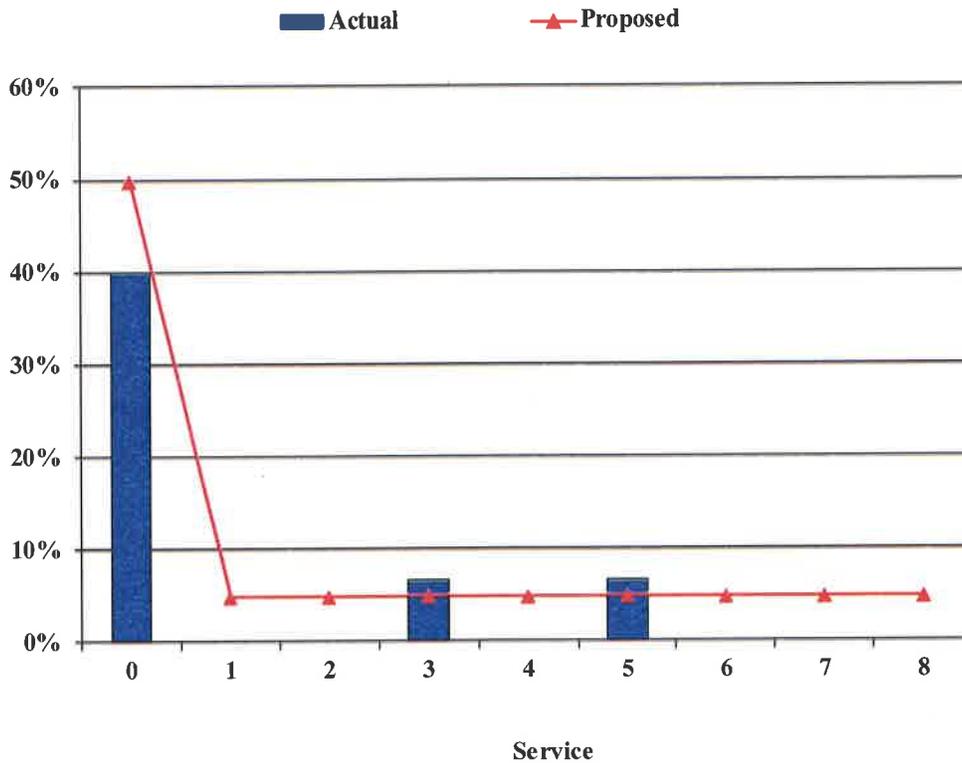
We combined the experience into 5-year age groups (i.e. ages 23-27, 28-32, etc.) and then smoothed the raw experience data to develop the proposed turnover assumption. Any turnover experience occurring at central ages of 55 and above was considered to be an “outlier” and was not used for purposes of developing the proposed turnover assumption. The graph below shows the results by age group. Actual experience is shown in blue. The results predicted by the current assumptions are shown in green.



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We also analyzed the experience based on each member's length of service. The graph below shows the results by service. Actual experience is shown in blue. As there was no observed turnover beyond the first few years of service, we concluded that length of service was a better indicator of likely turnover experience than age, so we developed our recommended assumption on that basis; the results predicted by the proposed assumptions are shown in the graph below in red. Note that turnover during this study period was lower than turnover observed in the prior study period; our recommended assumption blends the experience of both study periods in order to not give undue weight to what may have been temporary anomalous conditions.



Recommended Assumption: We recommend modifying the turnover rates to better reflect plan experience as follows:

Service	Rate
0	50%
1-7	5
8+	1

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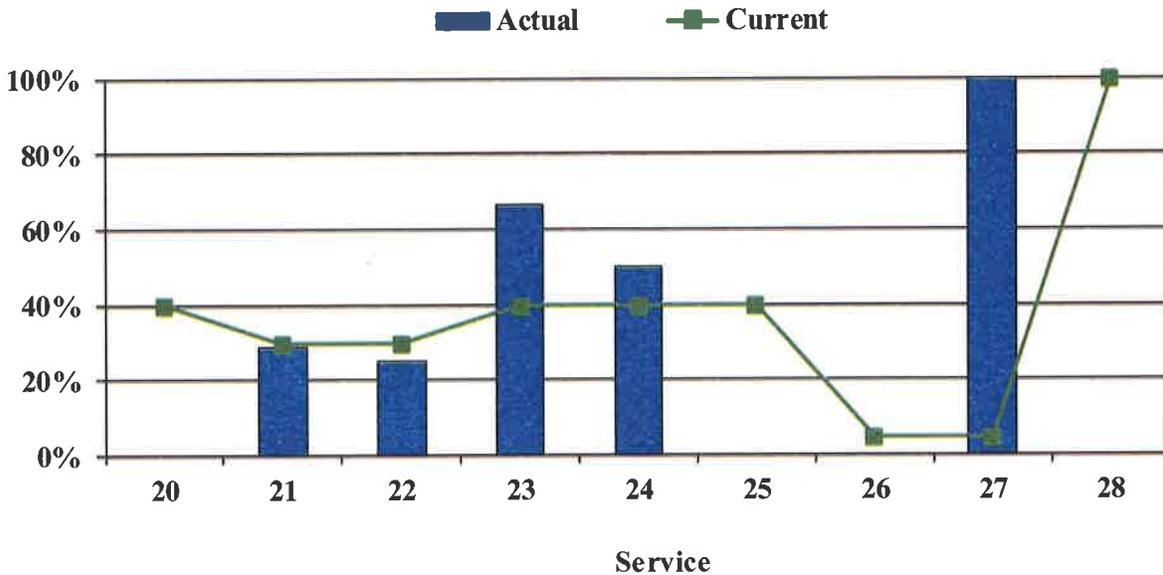
**SECTION III
Demographic Assumptions**

B. Retirement

Current Assumption: graded rates based on length of service, as shown below:

Service	Rate
20	40%
21-22	30
23-25	40
26-27	5
28	100

Analysis and Results: We analyzed the data for 2010 through 2014 by length of service for each individual in our study. The graph below shows the results by age group. Actual experience is shown in blue. The results predicted by the current assumptions are shown in green.



Recommended Assumption: The observed experience during the study period fits reasonably well with the current assumption, so we recommend no change in the retirement assumption.

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**SECTION III
Demographic Assumptions**

C. Healthy Mortality

Current Assumption: RP-2000 Combined Healthy Mortality Table with generational projection per Scale AA, with separate male and female tables.

Analysis and Results: The plan's population is not large enough to generate credible mortality experience. We note that the new RP-2014 Mortality Tables were published by the Society of Actuaries (SOA) in October 2014, subsequent to the June 30, 2014 ending date for analyzing plan experience for purposes of this study. However, as part of this report, we are providing you with some feedback and perspective regarding the RP-2014 Mortality Tables.

It is important to note that the main reason for the updated tables is that the statutory mortality tables for private sector pensions plans are required to be reviewed by the Secretary of the Treasury at least every 10 years. The statutory tables are one of the underlying assumptions in actuarial funding valuations for private sector plans, for purposes of determining the annual minimum required employer contribution to those plans.

In February 2014, the proposed tables were issued in Exposure Draft form, and comments were solicited from the actuarial community, as well as from plan sponsors. To say that the proposed tables were controversial is an understatement. A number of commenters made note of the mortality study's own acknowledgement that the data validation process "resulted in the exclusion of an unusually large percentage of the data initially submitted for the study." Nearly 70% of the data collected for the study was excluded from the analysis. And, most importantly for public sector plan sponsors such as the Town of Coventry, absolutely no public sector data was included in the final analysis.

We accept and don't dispute that life expectancy has increased over the years. However, given that many public sector plans (including the Town of North Providence's plan) currently use some version of the RP-2000 Mortality Table as the valuation mortality assumption basis and that the RP-2014 Mortality Tables report itself acknowledges that public sector experience differed significantly from private sector experience, we believe that more analysis and attention is needed with respect to both collecting public sector mortality experience data, and also to developing appropriate mortality rates for public sector plans.

Given the feedback that the SOA received on the Exposure Draft, they appear to have acknowledged the above concerns regarding public sector plans, noting that "the Committee recommends that the SOA initiate a separate study of public sector mortality plan experience,

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with the expectation that the study results would include separate tables for (1) public safety, (2) teachers and (3) other public entities.”

In the meantime, we believe that the current mortality assumptions (RP-2000, including projection of future mortality improvement) continue to be appropriate and reasonable for the Town’s pension plan.

Recommended Assumption: As the current mortality assumption reflects a standard published table, we recommend that the mortality assumption remain the RP-2000 Combined Healthy Mortality Table with generational projection per Scale AA.

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D. Disabled Mortality

Current Assumption: RP-2000 Disabled Mortality Table with generational projection per Scale AA, with separate male and female tables.

Recommended Assumption: As the current mortality assumption reflects a standard published table, we recommend that the mortality assumption remain the RP-2000 Disabled Mortality Table with generational projection per Scale AA.

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**SECTION III
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E. Disability

Current Assumption: 50% of the 1985 Pension Disability Table (DP-85 Table) Class 4 rates, with 50% of disabilities assumed to be duty related.

Analysis and Results: The plan's population is not large enough to generate fully credible disability experience. Therefore, the disability assumption should reflect a standard published table.

Recommended Assumption: No change.

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Demographic Assumptions**

F. Percent Married

Current Assumption: 70% of active are assumed to be married, with wives assumed to be one year younger than husbands.

Analysis and Results: There has not been a significant change in the plan's population since the last experience study that would warrant a change in this assumption.

Recommended Assumption: No change.

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**SECTION IV
Actuarial Methods**

A. Asset Valuation Method

Current Method: The current smoothing method recognizes market value gains or losses in equal installments over a five-year period.

Recommendation: We recommend the continued use of this asset valuation method. It is a widely-used method for public sector pension plans and provides an excellent degree of smoothing of investment gains and losses.

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**SECTION IV
Actuarial Methods**

B. Actuarial Cost Method

Current Method: The current method is the Entry Age Normal Cost Method. The unfunded accrued liability is amortized as a level percent over a ten year period.

Recommendation: We recommend the continued use of this actuarial cost method and amortization method.

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APPENDIX

**Selected Economic Assumptions from the 2014 OASDI Trust Funds Annual Report
(Social Security Administration, July 28, 2014)**

THE 2014 ANNUAL REPORT OF THE BOARD OF
TRUSTEES OF THE FEDERAL OLD-AGE AND SURVIVORS
INSURANCE AND FEDERAL DISABILITY INSURANCE
TRUST FUNDS

COMMUNICATION

FROM

THE BOARD OF TRUSTEES, FEDERAL OLD-AGE AND
SURVIVORS INSURANCE AND FEDERAL DISABILITY
INSURANCE TRUST FUNDS

TRANSMITTING

THE 2014 ANNUAL REPORT OF THE BOARD OF TRUSTEES OF THE
FEDERAL OLD-AGE AND SURVIVORS INSURANCE AND FEDERAL
DISABILITY INSURANCE TRUST FUNDS



July 28, 2014.—Referred to the Committee on Ways and Means
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Economic Assumptions and Methods

Table V.B1.—Principal Economic Assumptions

Calendar year	Annual percentage change ^a in—						
	Productivity (Total U.S. economy)	Earnings as a percent of compensation	Average hours worked	GDP price index	Average annual wage in covered employment	Consumer Price Index	Real- wage differ- ential ^b
Historical data:							
5-year periods:							
1960 to 1965 . . .	3.27	-0.18	0.16	1.36	3.22	1.24	1.98
1965 to 1970 . . .	2.06	-0.31	-0.68	4.03	5.84	4.23	1.61
1970 to 1975 . . .	2.07	-0.50	-0.87	6.60	6.62	6.76	-0.18
1975 to 1980 . . .	0.95	-0.32	-0.17	7.19	8.87	8.91	-0.06
1980 to 1985 . . .	1.74	-0.33	0.02	5.21	6.53	5.22	1.29
1985 to 1990 . . .	1.37	-0.19	-0.08	3.11	4.75	3.83	0.92
1990 to 1995 . . .	1.26	-0.11	0.41	2.44	3.57	3.03	0.54
1995 to 2000 . . .	2.34	0.28	0.14	1.67	5.31	2.43	2.88
2000 to 2005 . . .	2.64	-0.41	-0.82	2.35	2.69	2.49	0.21
2005 to 2010 . . .	1.61	-0.09	-0.48	1.93	2.55	2.30	0.26
Economic cycles:^c							
1966 to 1973 . . .	2.27	-0.29	-0.71	4.60	6.10	4.61	1.48
1973 to 1979 . . .	1.10	-0.43	-0.56	7.52	8.55	8.54	0.01
1979 to 1989 . . .	1.39	-0.28	0.00	4.68	5.80	5.31	0.45
1989 to 2000 . . .	1.79	0.05	0.15	2.20	4.52	2.96	1.57
2000 to 2007 . . .	2.15	-0.23	-0.64	2.50	3.23	2.65	0.60
2007 to 2013 . . .	1.36	0.01	-0.15	1.51	1.89	2.08	-0.19
Single years:							
2003	3.31	-0.66	-1.49	2.00	2.51	2.22	0.30
2004	2.66	-0.27	0.02	2.74	4.67	2.61	2.06
2005	1.84	-0.22	-0.23	3.21	3.70	3.52	0.18
2006	0.84	0.49	-0.04	3.07	4.72	3.19	1.53
2007	1.06	-0.05	-0.38	2.66	4.50	2.88	1.62
2008	0.77	-0.06	-0.62	1.92	2.47	4.09	-1.62
2009	2.88	-0.66	-1.89	0.80	-1.52	-0.67	-0.85
2010	2.52	-0.17	0.57	1.22	2.69	2.07	0.62
2011	0.28	0.34	0.99	1.96	3.16	3.56	-0.39
2012	1.04	0.31	-0.07	1.75	2.69	2.10	0.59
2013 ^d	0.73	0.30	0.11	1.39	1.92	1.43	0.49
Intermediate:							
2014	1.57	-0.14	0.17	1.44	3.78	1.61	2.18
2015	1.92	-0.17	0.08	1.55	4.92	1.95	2.97
2016	1.87	0.09	0.08	1.78	5.01	2.18	2.84
2017	1.82	0.15	0.07	1.98	4.95	2.38	2.57
2018	1.61	0.06	0.05	2.18	4.70	2.58	2.12
2019	1.58	-0.18	0.02	2.29	4.28	2.69	1.58
2020	1.55	-0.19	^e	2.30	4.12	2.70	1.42
2021	1.63	-0.17	-0.03	2.30	4.11	2.70	1.41
2022	1.66	-0.13	-0.05	2.30	4.02	2.70	1.32
2023	1.68	-0.12	-0.05	2.30	3.85	2.70	1.15
2020 to 2025 . . .	1.67	-0.13	-0.05	2.30	3.92	2.70	1.22
2025 to 2088 . . .	1.68	-0.11	-0.05	2.30	3.83	2.70	1.13

Assumptions and Methods

Table V.B1.—Principal Economic Assumptions (Cont.)

Calendar year	Annual percentage change ^a in —						
	Productivity (Total U.S. economy)	Earnings as a percent of compensation	Average hours worked	GDP price index	Average annual wage in covered employment	Consumer Price Index	Real- wage differ- ential ^b
Low-cost:							
2014	1.88	-0.14	0.31	1.71	4.79	1.79	3.00
2015	2.21	-0.15	0.24	2.52	6.70	2.82	3.88
2016	2.12	0.12	0.22	3.05	7.01	3.35	3.66
2017	1.92	0.18	0.17	3.09	6.43	3.39	3.04
2018	1.64	0.11	0.09	3.08	5.58	3.38	2.20
2019	1.92	-0.12	0.07	3.10	5.34	3.40	1.94
2020	2.00	-0.12	0.06	3.10	5.38	3.40	1.98
2021	1.93	-0.10	0.05	3.10	5.31	3.40	1.91
2022	1.98	-0.06	0.05	3.10	5.38	3.40	1.98
2023	1.98	-0.03	0.05	3.10	5.20	3.40	1.80
2020 to 2025 . . .	1.96	-0.04	0.05	3.10	5.23	3.40	1.83
2025 to 2088 . . .	1.98	-0.02	0.05	3.10	5.16	3.40	1.76
High-cost:							
2014	1.00	-0.14	-0.05	1.23	2.29	1.48	0.81
2015	1.63	-0.18	-0.13	0.96	3.16	1.46	1.71
2016	1.75	0.07	-0.06	0.98	3.58	1.48	2.10
2017	1.69	0.11	-0.03	1.18	3.75	1.68	2.07
2018	1.43	0.02	-0.03	1.38	3.55	1.88	1.68
2019	1.39	-0.23	-0.04	1.49	3.24	1.99	1.25
2020	1.38	-0.25	-0.05	1.50	3.22	2.00	1.22
2021	1.30	-0.24	-0.06	1.50	3.10	2.00	1.10
2022	1.24	-0.22	-0.08	1.50	2.96	2.00	0.96
2023	1.31	-0.21	-0.11	1.50	2.70	2.00	0.70
2020 to 2025 . . .	1.32	-0.21	-0.11	1.50	2.75	2.00	0.75
2025 to 2088 . . .	1.38	-0.19	-0.15	1.50	2.52	2.00	0.52

^a For rows with a single year listed, the value is the annual percentage change from the prior year. For rows with a range of years listed, the value is the compound average annual percentage change.

^b For rows with a single year listed, the value is the annual percentage change in the average annual wage in covered employment less the annual percentage change in the Consumer Price Index. For rows with a range of years listed, the value is the average of annual values of the differential. Values are rounded after all computations.

^c Economic cycles are shown from peak to peak, except for the last cycle, which is not yet complete.

^d Historical data are not available for the full year. Estimated values vary slightly by alternative and are shown for the intermediate assumptions.

^e Greater than -0.005 and less than 0.005 percent.

5. Labor Force and Unemployment Projections

The Office of the Chief Actuary at the Social Security Administration projects the civilian labor force by age, sex, marital status, and presence of children. Projections of the labor force participation rates for each group reflect disability prevalence, educational attainment, the average level of Social Security retirement benefits, the state of the economy, and the change in life expectancy. The projections also include a “cohort effect,” which reflects a shift upward in female participation rates across cohorts born through 1948.

The annual rate of growth in the size of the labor force decreased from an average of about 2.4 percent during the 1966-73 economic cycle and