

City of Portland Fire & Police Disability & Retirement Fund (FPDR) Actuarial Experience Study

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Agenda

- Introduction
- Economic assumptions
- Demographic assumptions

Introduction

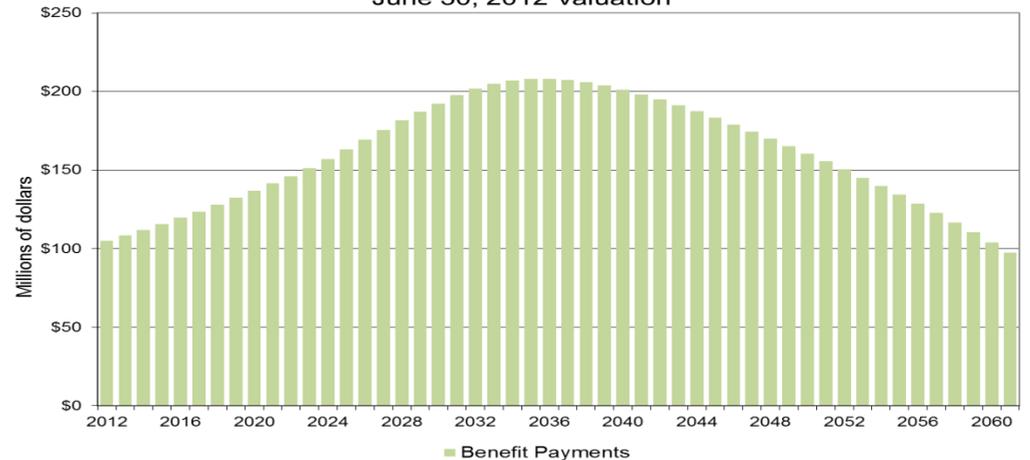
Actuarial Valuation and Assumptions

- Biennial actuarial valuations provide financial statement reporting information for both FPDR and the City of Portland
- An actuarial valuation is a very long-term calculation
- Given the long-term nature of the modeling, assumptions play a key role in the calculations

Assumptions used both to:

- Project future benefit payments
- Convert those payments to a present value

Projected FPDR Pension Benefit Payments
June 30, 2012 Valuation



Introduction

Actuarial Valuation and Assumptions

- Assumptions in our last FPDR valuation (2012) based on:
 - Study of FPDR experience conducted prior to the 2008 valuation
 - Determined most demographic assumptions, including rates of retirement, disability, and salary growth
 - Oregon PERS Police & Fire assumptions for mortality
 - Due to a much larger number of members, Oregon PERS public safety experience is more credible than FPDR-only experience
- Best practice to refresh experience studies every five to ten years to reflect current trends
 - Accordingly, we have prepared a new study to recommend assumptions for the June 30, 2014 valuation

Introduction

Experience Study

- The new study analyzed experience from recent periods
 - Most demographic assumptions use data from July 2008 to June 2013
 - Salary increases reflect 2010-11 to 2013-2014 fiscal year data
- Assumptions can be broadly divided into two categories:
 - Economic assumptions
 - Demographic assumptions
- Full detail of methodology and recommended assumptions in Appendix

Economic Assumptions

Economic Assumptions

Inflation

- The inflation assumption affects other assumptions
- Inflation has varied significantly in the past
- One estimate of future inflation comes from Treasury Inflation Protected Securities (TIPS) yields
- Social Security’s current “middle of the road” long-term inflation assumption is 2.80%
 - Combining this with its lower near-term assumption gives a 30-year average of 2.72%
- We recommend no change to the current long-term assumption of 2.75%

Historical Period	Average Annual Inflation
50 years	4.15%
40 years	4.25%
30 years	2.88%
20 years	2.43%
10 years	2.43%

As of 4/30/2014	10-Year	30-Year
Treasury Yield	2.67%	3.47%
TIPS Yield	<u>0.49%</u>	<u>1.16%</u>
Imputed Inflation	2.18%	2.31%

Economic Assumptions

Real Wage Growth

- Each individual member's annual salary increase assumption is composed of:
 - Inflation, plus
 - Real wage growth, plus
 - Merit/longevity wage growth
- Real wage growth represents the increase in wages above inflation for the entire group due to productivity improvements and competitive wage pressures among employers
- Social Security's long-term "middle of the road" assumption for real wage growth is 1.13%
- We recommend no change to the current assumption of 1.00%

Period Ending 12/31/2012	Average Real Wage Growth
20 Years	0.89%
30 Years	0.87%
40 Years	0.35%
50 Years	0.63%

Economic Assumptions

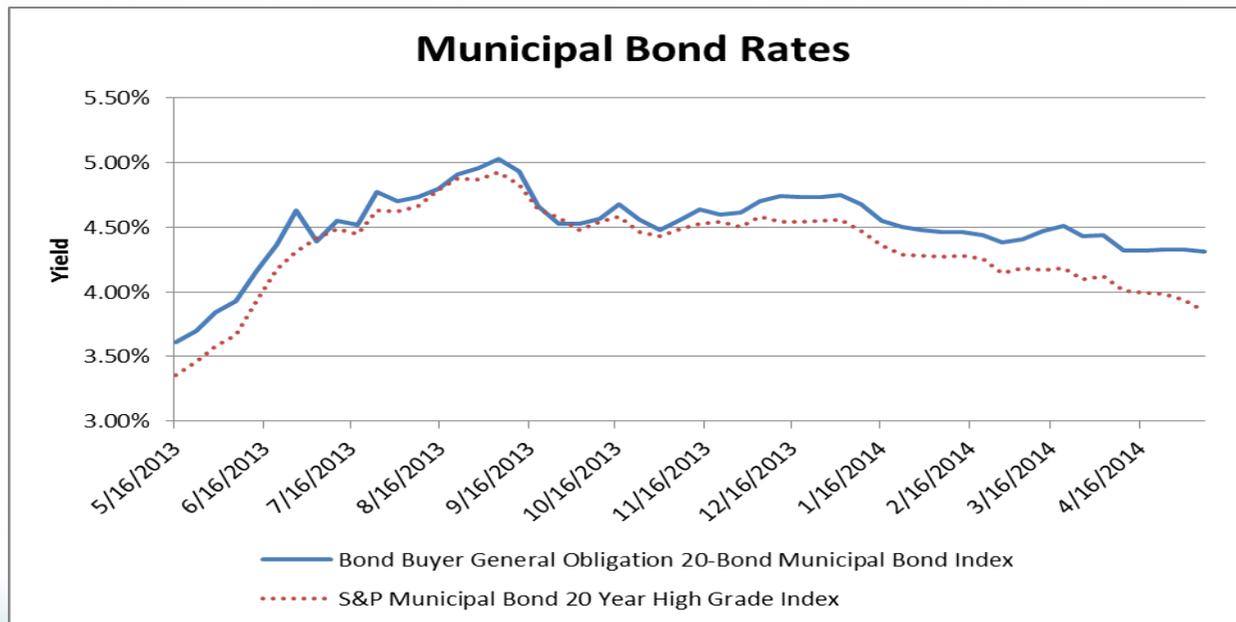
Discount Rate

- New Governmental Accounting Standards Board (GASB) standards change how the discount rate should be set
- For a pay-as-you go plan such as FPDR:
 - Prior standards set the rate equal to long-term average annual expected return on the employer's general assets
 - Typically this was based on long-term average annual return expectations for a mixture of cash and short-term bonds
 - FPDR used 3.50% in the 2012 valuation
 - New standards require use of a municipal bond yield or index rate
 - Based on high-quality 20-year, tax-exempt, general obligation bonds
 - Plan sponsor selects specific source of bond rates to use

Economic Assumptions

Discount Rate

- Recent published rates from two potential sources of bond information are shown below
 - Valuation rate will be based on 6/30/2014 market information
 - FPDR to coordinate with City to select rate source to use



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Economic Assumptions Reviewed

Assumption	Current	Recommended
Inflation	2.75%	No change
Real Wage Growth	1.00%	No change
Payroll Growth (sum of above)	3.75%	No change
Discount Rate	3.50%	TBD*

**Based on market information at 6/30/2014, consistent with new GASB standards*

Demographic Assumptions

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Demographic Assumptions

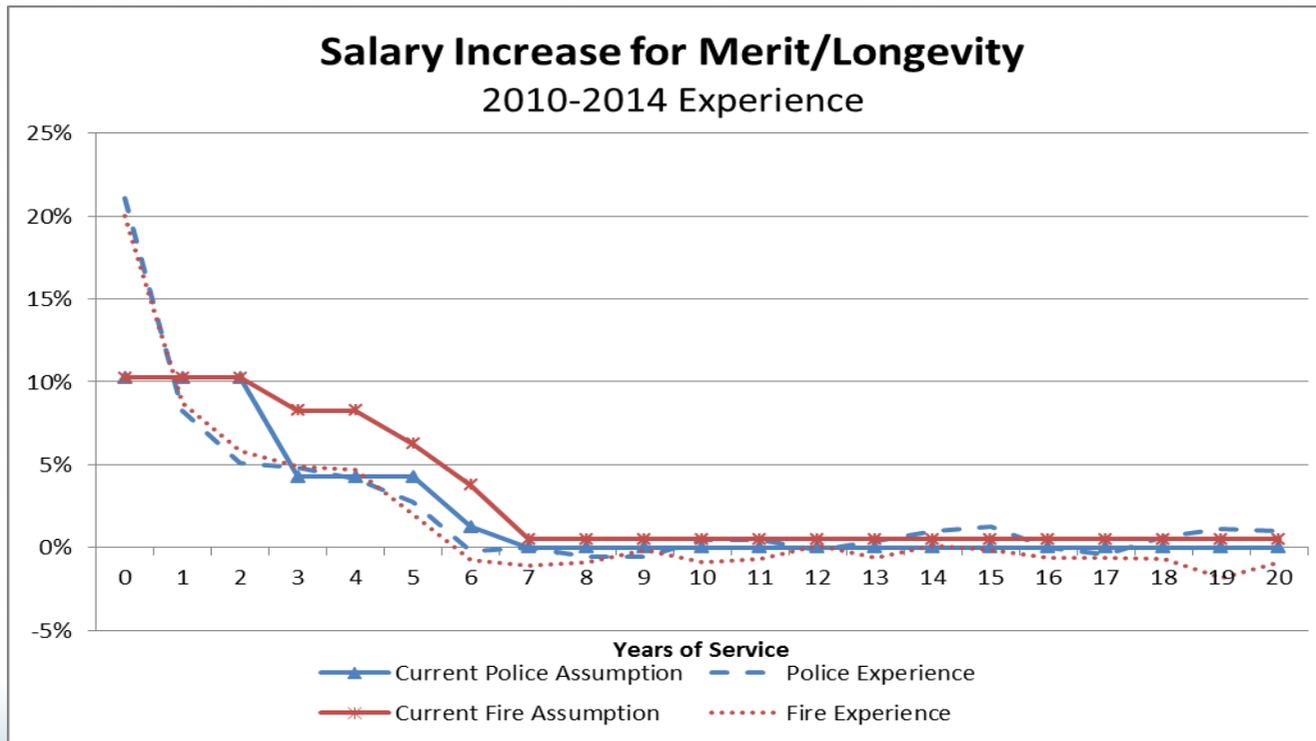
Salary Increase due to Merit/Longevity

- Overall system payroll expected to grow according to inflation and real wage growth assumptions
- For an individual member, expected salary progression includes an additional component for increase due to merit or longevity
 - Individuals earn promotions and step/grade increases
- Our analysis reviewed 2010-2014 member experience, backing out actual CPI and assumed real wage growth to isolate the member-specific merit/longevity component
 - Resulting assumption varies by service, reflecting career patterns
- Merit/longevity rates are added to overall wage growth assumption
 - Merit assumption of 5% => member's pay expected to grow 8.75%
 - Merit assumption of 0% => member's pay expected to grow 3.75%

Demographic Assumptions

Salary Increase due to Merit/Longevity

- Recent experience compared to current assumption:
 - Higher than assumed in early years; lower than assumed in later years
 - No major distinctions between Police and Fire

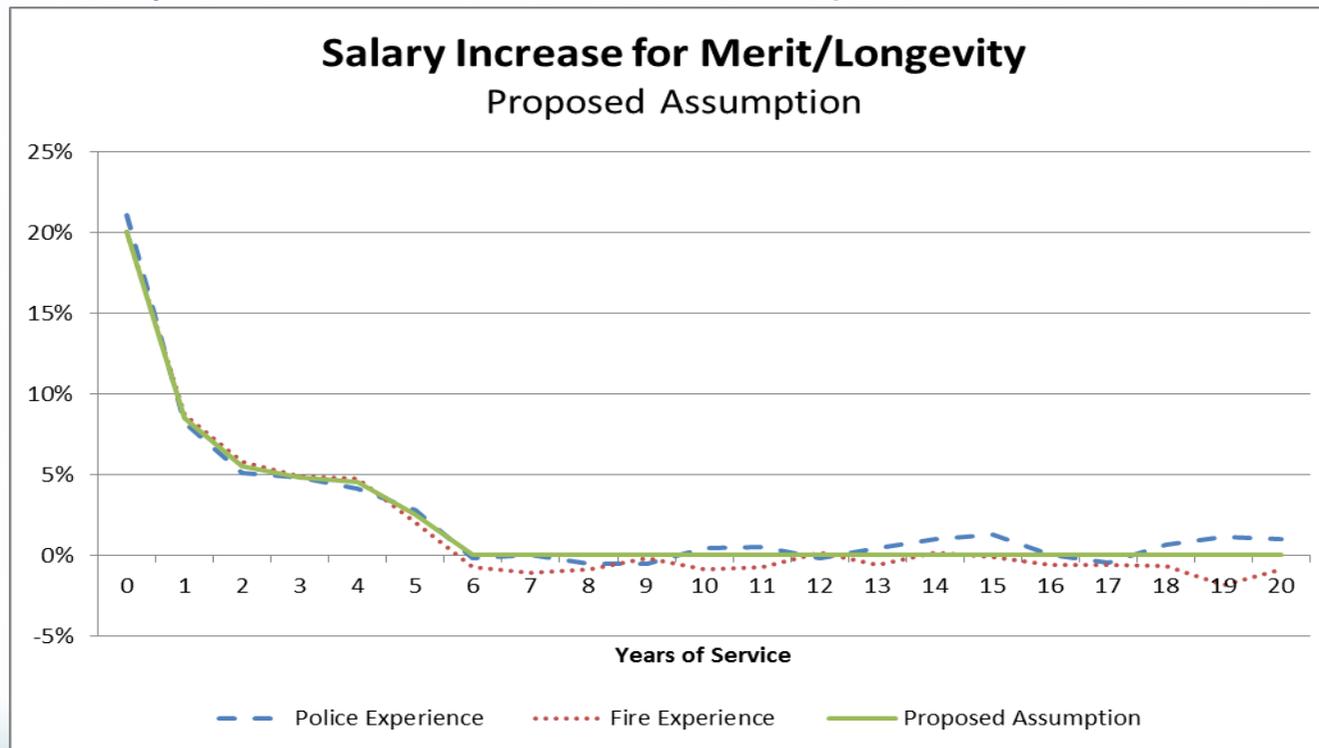


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Demographic Assumptions

Salary Increase due to Merit/Longevity

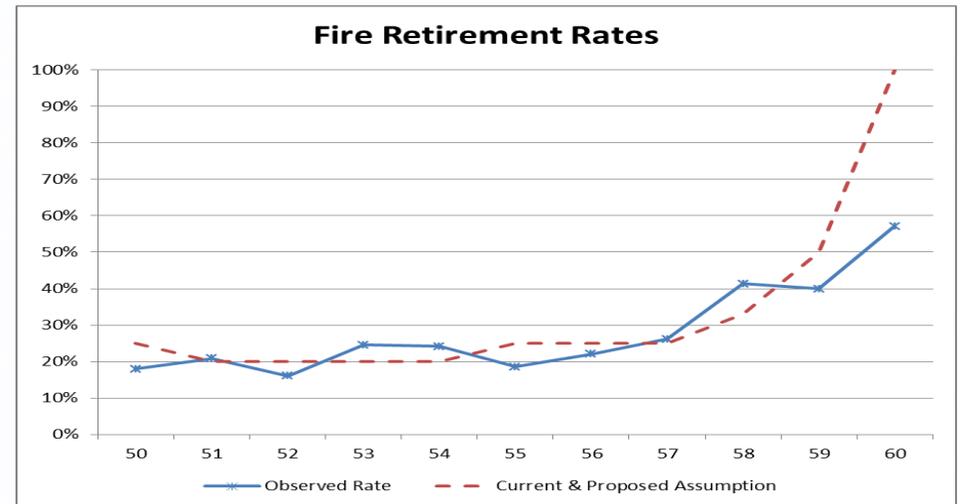
- Proposed assumption:
 - Consolidate Police and Fire assumptions
 - More closely reflects recent observed experience



Demographic Assumptions

Retirement Rates

- Current assumed rates for Fire members track experience reasonably well
- Police experience warrants lower rates for ages 55 to 64
- Valuation 100% assumed retirement rate at:
 - Ages 60+ for Fire
 - Ages 65+ for Police



Demographic Assumptions

Retirement Elections

- New assumption needed for percentage of non-resident retirees to reflect Senate Bill 822 changes

Assumption	Current Assumption	Observed Experience	Proposed Assumption
Benefit form elected (% of final pay)	2.8% of pay: 80% 2.6% of pay: 20%	2.8% of pay: 83% Below 2.8%: 17%	No change
Percent married	88%	77%	80%
Spousal age difference	+/- 4 years	+/- 2.9 years	+/- 3 years
Out-of-state retirees	N/A	22%	20%

Demographic Assumptions

Withdrawal

- Rates of pre-retirement withdrawal are very low after a member's initial two years of service
 - Experience during study period suggests lowering the assumption as shown

Service	Current Assumption	Observed Experience	Proposed Assumption
0 years	25%	14%	15%
1 year	25%	6%	5%
2+ years	0.75%	0.50%	0.50%

Demographic Assumptions

Disability

- First full five-year study observation period for disability since 2006 reforms
- Experience showed significantly fewer members initiating long-term disability than expected under the current assumption
 - Prior assumption developed on pre-reform experience
- We recommend lowering the assumed rate of disabilities and moving to a widely-used standard table
 - Sample rates shown below

Age	Current Assumption	Proposed Assumption
30	0.25%	0.06%
40	0.60%	0.16%
50	0.90%	0.45%
Expected over study period	36.7	18.6

15 FPDR members initiated long-term disability over study period

Demographic Assumptions

Mortality

- Mortality differs by:
 - Gender
 - Member vs. spouse
 - Healthy vs. disabled
 - Active vs. retired

Future life expectancy: Male Retiree (age in 2014)		
Retiree Age	Prior Assumption	New Assumption
55	29.3	30.5
65	19.8	20.8
75	11.8	12.6

- The most recently observed PERS Police & Fire mortality experience led us to increase life expectancy assumption for male retirees and disabled retirees of both genders
 - No changes for other groups

Demographic Assumptions

Mortality

- FPDR experience shows trends similar to PERS experience
 - Male retirees had lower mortality than current assumption
 - Female retiree mortality was consistent with current assumption
- Recommend continuing to link FPDR mortality assumption to the most recent PERS Police & Fire mortality assumption
 - Because death rates at most ages are low, large amounts of data required for statistically credible experience
 - PERS study has significantly more mortality experience than FPDR

Demographic Assumptions Reviewed

Assumption	Current	Recommended
Salary increase due to merit/longevity	7-year select and ultimate; separate Police & Fire assumptions	6-year select and ultimate; combined Police & Fire assumptions
Retirement rates	Age-based, with separate rates for Police versus Fire	Lower Police rates; retain current Fire rates
Retirement elections	Detailed in prior slides	Changes to % married and spousal age difference; assumption for % out-of-state
Withdrawal	2-year “select and ultimate” structure	Decreases to both select and ultimate rates
Disability	Age-based rates from graded from 0.25% up to 0.90%	Change to use an industry standard disability table
Mortality	Police & Fire assumptions from 2010 PERS study	Police & Fire assumptions from 2012 PERS study

Effect on 2012 Actuarial Valuation Results

	6/30/2012 Valuation - Current Assumptions	6/30/2012 Valuation - Proposed Assumptions
PV of Projected Benefits	\$3.86 billion	\$3.89 billion
Accrued Liability		
Active	\$1.12 billion	\$1.12 billion
Inactive	\$1.78 billion	\$1.83 billion
Total	\$2.90 billion	\$2.95 billion
PV of Future Normal Cost	\$966 million	\$939 million
Normal Cost	\$83 million	\$78 million

- Does not illustrate effects of:
 - Change in COLA provision due to legislative changes
 - Potential change in discount rate to comply with GASB standards
 - Removal of out-of-state tax offset (data unavailable at 6/30/12)

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Caveats and Disclaimers

This presentation discusses actuarial methods and assumptions for use in the valuation of the Fire & Police Disability & Retirement Fund (“FPDR” or “the Fund”) sponsored by the City of Portland. For the most recent complete actuarial valuation results, including cautions regarding the limitations of use of valuation calculations, please refer to our formal Actuarial Valuation Report as of June 30, 2012 (“the Valuation Report”) published on December 20, 2012. The Valuation Report, including all supporting information regarding data, assumptions, methods, and provisions, is incorporated by reference into this presentation. The statements of reliance and limitations on the use of this material is reflected in the actuarial report and still apply to this presentation.

In preparing this presentation, we relied, without audit, on information (some oral and some in writing) supplied by Fund and City of Portland staff. This information includes, but is not limited to, Fund benefit provisions as defined by City Charter, employee data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

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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.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

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Appendix

Salary Increase due to Merit/Longevity

	Current Assumption		Proposed Assumption
Years of Service	Police	Fire	Police & Fire
0	10.25%	10.25%	20.00%
1	10.25%	10.25%	8.50%
2	10.25%	10.25%	5.50%
3	4.25%	8.25%	4.80%
4	4.25%	8.25%	4.50%
5	4.25%	6.25%	2.50%
6	1.25%	3.75%	0.00%
7 + Over	0.00%	0.50%	0.00%

Appendix

Retirement Rates

	Fire	Police	
Age	Current and Proposed Assumption	Current Assumption	Proposed Assumption
50	25%	60%	50%
51	20%	40%	40%
52	20%	40%	40%
53	20%	40%	40%
54	20%	40%	40%
55	25%	40%	30%
56	25%	40%	30%
57	25%	40%	20%
58	33%	40%	20%
59	50%	40%	20%
60	100%	40%	20%
61	100%	40%	20%
62	100%	60%	45%
63	100%	60%	45%
64	100%	60%	45%
65+	100%	100%	100%

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Appendix

Disability Rates

- Proposed disability incidence assumption is 1985 Disability Study Class 1 Rates
- Propose maintaining the current assumption that 90% of long-term disabilities are service-related

Age	Current Assumption
Under 40	0.25%
40 – 49	0.60%
50+	0.90%

Age	1985 Disability Study Class 1 – Sample Rates
30	0.06%
35	0.10%
40	0.16%
45	0.26%
50	0.45%
55	0.85%

Appendix

Mortality

- Current and proposed mortality tables shown below:

Age	Current Assumption	Proposed
Male Retiree	RP-2000 Male, Generational per Scale AA, Combined, Blended 33% Blue Collar	RP-2000 Male, Generational per Scale AA, Combined, Blended 25% Blue Collar, set back 12 months
Female Retiree	RP-2000 Female, Generational per Scale AA, Combined, White Collar	RP-2000 Female, Generational per Scale AA, Combined, White Collar
Male Beneficiary	RP-2000 Male, Generational per Scale AA, Combined, Blended 25% Blue Collar, set back 12 months	RP-2000 Male, Generational per Scale AA, Combined, Blended 25% Blue Collar, set back 12 months
Female Beneficiary	RP-2000 Female, Generational per Scale AA, Combined, White Collar	RP-2000 Female, Generational per Scale AA, Combined, White Collar
Male Active	70% of rates for Male Retiree	95% of rates for Male Retiree
Female Active	50% of rates for Female Retiree	55% of rates for Female Retiree
Disabled Males	RP-2000 Healthy Male, Static, Combined, No Collar, set forward 60 months	65% of RP 2000 Disabled Male Static Combined, No Collar
Disabled Females	RP-2000 Healthy Female, Static, Combined, No Collar, set forward 48 months	90% of RP 2000 Disabled Female Static Combined, No Collar