Actuarial Experience Study for the

Period December 31, 2008 through December 31, 2013

September 23, 2014

FOSTER & FOSTER
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September 23, 2014

Board of Trustees
Metropolitan Water Reclamation District Retirement Fund
111 E. Erie St.
Chicago, IL 60611

Re: Actuarial Experience Study

Dear Board:

As requested, we have performed an actuarial experience study to review certain economic and demographic assumptions that are currently being used for purposes of valuing the Metropolitan Water Reclamation District Pension Fund.

In the course of the analysis, we compiled experience from data over the period December 31, 2008 through December 31, 2013. While we cannot verify the accuracy of all the information provided, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy of the information and believe it has produced appropriate results.

The purpose of this study is to review the current economic and demographic actuarial assumptions to determine which changes, if any, are necessary in order to achieve the objective of developing costs that are stable, predictable, and represent our best estimate of anticipated future experience. It is important to remember that the ultimate cost of any pension fund is independent of the actuarial assumptions used during the valuation process. Ultimately, the cost will be the sum of the benefits paid from the Fund and the administrative expenses incurred, less any net investment gains received.

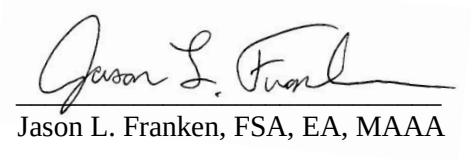
The specific assumptions investigated throughout the remainder of this study are as follows:

- Retirement Rates
- Withdrawal Rates
- Mortality Rates
- Disability Rates
- Reciprocal Benefits Load
- Investment Return
- Salary Increases
- Payroll Growth Rate
- Tier 2 Cost-of-Living Adjustment

The balance of this Report presents details of the experience analysis. The undersigned looks forward to meeting with the District to discuss the report and answer any pending questions concerning its contents.

Respectfully submitted,

FOSTER & FOSTER INC.

By: 
Jason L. Franken, FSA, EA, MAAA

ACTUARIAL STANDARDS OF PRACTICE

Background

The Actuarial Standards Board has provided coordinated guidance through of a series of Actuarial Standards of Practice (ASOP) for measuring pension obligations and determining pension plan costs or contributions. The ASOPs that apply specifically to valuing pensions are as follows:

- ASOP No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*, which ties together the standards shown below, provides guidance on actuarial cost methods, and addresses overall considerations for measuring pension obligations and determining plan costs or contributions

- ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*

- ASOP No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*

- ASOP No. 44, *Selection and Use of Asset Valuation Methods for Pension Valuations*

Please note that the contents displayed throughout the remainder of this report are in compliance and consistent with the above mentioned Actuarial Standards of Practice. When applicable, further details of the ASOP associated with the reviewed actuarial assumption will be provided in the experience analysis, which is the basis for the remainder of the report.

Additional Required Communications

Please keep in mind that future actuarial measurements may differ significantly from current measurements due to such factors as the following:

- Plan experience differing from that anticipated by the economic or demographic assumptions
- Changes in economic or demographic assumptions
- Increases or decreases expected as part of the natural operation of the methodology used (such as the end of an amortization period)
- Changes in plan provisions or applicable law

EXPERIENCE REVIEW SUMMARY

Foster & Foster performed an experience study on valuation data for the years December 31, 2008 through December 31, 2013. The purpose of this study is to review and update the assumptions used by the District for the Pension Fund. Below is a summary of our key findings and recommended changes. The remainder of the document provides details of our analysis and documents our recommendations. The impact on the accrued liabilities and normal cost for each assumption change is summarized on p. 32 of this document.

- **Retirement Rates**: We recommend combining the retirement rates for Tier 1 and Tier 2 members into a single table. We also recommend updating the rates to better reflect experience.

- **Withdrawal Rates**: We recommend simplifying the withdrawal rates to service-based rates only, with separate rates for male members and female members. We also recommend adjusting the rates to better reflect experience, namely lower rates for shorter-service male members, higher rates for longer-service male members and higher rates for female members at all service levels.

- **Mortality Rates**: We recommend updating the mortality rates to the more current RP-2000 Combined Healthy Mortality Table with Generational mortality improvements for healthy lives and RP-2000 Disabled Retiree Mortality Table for disabled lives.

- **Disability Rates**: Given the lower incidence of disability, we recommend adjusting the current disability rates downward to better reflect anticipated experience.

- **Reciprocal Benefits Load**: We propose no change to the current reciprocal benefits load of 1.50%.

- **Investment Return**: We recommend lowering the investment return assumption from the current 7.75% to 7.50%.

- **Salary Increases:** We recommend updating the salary increase assumption from a flat 5.00% assumption to a table of rates that varies by service, with higher rates for lower service members.

- **Payroll Growth Rate**: We recommend no change to the current 3.70% payroll growth rate assumption.

- **Tier 2 Cost-of-Living Adjustment**: We recommend no change to the current 1.25% payroll growth rate assumption.

EXPERIENCE ANALYSIS – DEMOGRAPHIC ASSUMPTIONS

ASOP No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations,* provides guidance to actuaries in selecting (including giving advice on selecting) demographic and other noneconomic assumptions for measuring obligations under defined benefit pension plans.

In this section, the following demographic assumptions will be reviewed:

- Retirement Rates
- Withdrawal Rates
- Mortality Rates
- Disability Rates
- Reciprocal Benefits Load

Generally, demographic assumptions are based on actual plan experience with additional considerations for current trends. ASOP No. 35 states "the actuary should use professional judgment to estimate possible future outcomes based on past experience and future expectations, and select assumptions based upon application of that professional judgment." ASOP No. 35 also states that "a reasonable assumption is one that is expected to appropriately model the contingency being measured and is not anticipated to produce significant cumulative actuarial gains or losses…the actuary should not give undue weight to past experience when selecting demographic assumptions."

Demographic assumptions generally remain consistent over time, absent significant changes in plan provisions. Therefore, the best true indicator of future experience is often past experience. For each assumption, the study compares actual experience for that time period to assumptions used in the valuations.

Note that actuarial assumptions reflect average experience over long periods of time. A change in actuarial assumptions generally results when experience over a period of years indicates a consistent pattern. Recommended changes to the demographic assumptions better reflect actual Fund experience over the studied time period. The recommended changes also meet the objective of developing costs that are stable, predictable, and represent our best estimate of anticipated future experience.

Retirement Rates

Overview

A retirement rate is the associated probability at a specific point in time that a member will retire, given that they have attained the eligibility requirements for retirement. The associated cost due to retirement experience is determined by the age at which members actually retire. Higher rates of retirement at earlier ages generally result in higher costs to the plans.

The current requirements for Normal Retirement eligibility are as follows:

1. Members hired prior to January 1, 2011 (Tier 1): Age 60 and 5 years of service
2. Member hired on and after January 1, 2011 (Tier 2): Age 67 and 10 years of service

The current requirements for Early Retirement eligibility are as follows:

1. Members hired prior to January 1, 2011 (Tier 1): Age 55 (50 if hired before June 13, 1997) and 10 years of service
2. Member hired on and after January 1, 2011 (Tier 2): Age 62 and 10 years of service

Current Assumption

The current retirement rate assumption for the plan reflects separate age-based tables for Tier 1 and Tier 2 members. The Tier 1 rates increase from 4.5% at age 52 to 12.0% at age 60, increase from 10.0% to 12.0% from age 61 to age 69, and reflect 100.0% retirement at age 70. The Tier 2 rates vary from age 62 to age 70 and reflect higher probabilities of retirement than the corresponding ages of the Tier 1 table. The current weighted average retirement age is 63.21.

Experience

The charts and graphs on the following pages illustrate the relationship between actual retirement experience over the last five years and expected experience based on the current assumption. Because Tier 2 members have only been hired since January 1, 2011 and therefore are not yet eligible for retirement, we do not illustrate experience separated by benefit tiers. The "Eligible Members" column sums the total number of members eligible to retire at each age for each year of experience.

When comparing these assumptions to the actual experience shown on the following graphs, it is evident that members are working beyond the current assumed 100.0% retirement age of 70. In addition, the actual rates of retirement for members age 65 and older are greater than the assumed rates.

- Table 1: Retirement Experience
- Graph 1: Retirement Experience

Recommended Assumption

We are recommending changes to the assumed retirement rates to better reflect actual experience. Because of the lack of retirement experience for Tier 2 members, we also recommend a single retirement rate table applicable to both Tiers. Note that while the table of rates covers ages 50 through 75, only the rates for ages 62 to 75 are applicable to Tier 2 members based on the new eligibility requirement for Tier 2. The recommended rates generally reflect slight increases in the rates for ages 60 to 69. In addition, we propose a 100.0% retirement age of 75. The proposed rates result in an expected weighted average retirement age of 63.56, versus 63.21 for the current rates.

An illustration of the expected retirements using the proposed rates is included in the charts listed above.

Metropolitan Water Reclamation District
Retirement Fund

Table 1 - Retirement Experience*

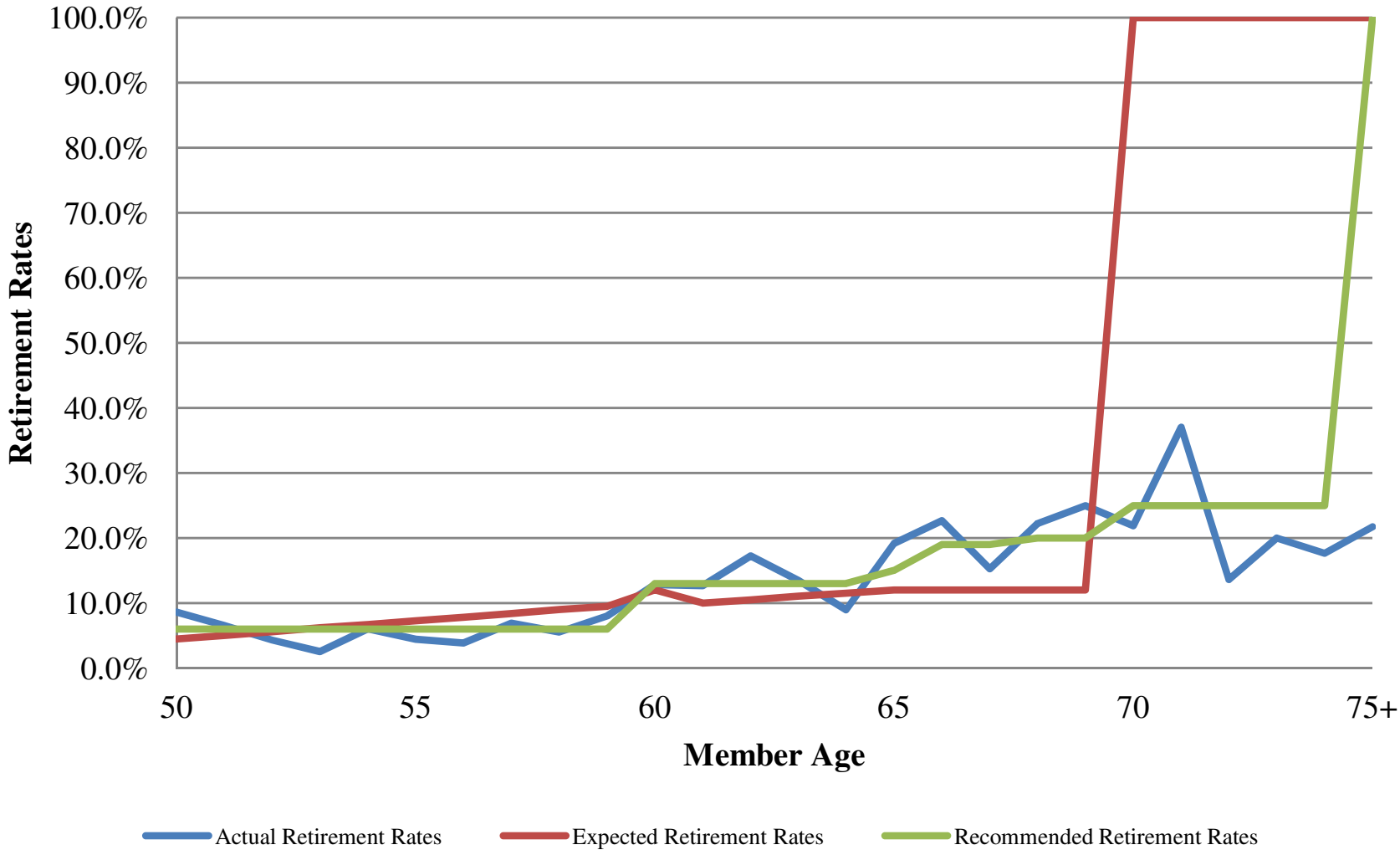
Age	Eligible Members	Actual Retirements	Expected Retirements	Actual Retirement Rates	Expected Retirement Rates	Recommended Retirement Rates
50	128	11	5.8	8.6%	4.5%	6.0%
51	229	15	11.5	6.6%	5.0%	6.0%
52	232	10	13.0	4.3%	5.6%	6.0%
53	236	6	14.6	2.5%	6.2%	6.0%
54	232	14	15.5	6.0%	6.7%	6.0%
55	293	13	21.4	4.4%	7.3%	6.0%
56	361	14	28.2	3.9%	7.8%	6.0%
57	332	23	27.9	6.9%	8.4%	6.0%
58	305	17	27.5	5.6%	9.0%	6.0%
59	274	22	26.0	8.0%	9.5%	6.0%
60	249	32	29.9	12.9%	12.0%	13.0%
61	229	29	22.9	12.7%	10.0%	13.0%
62	203	35	21.3	17.2%	10.5%	13.0%
63	171	23	18.9	13.5%	11.1%	13.0%
64	145	13	16.7	9.0%	11.5%	13.0%
65	120	23	14.4	19.2%	12.0%	15.0%
66	97	22	11.6	22.7%	12.0%	19.0%
67	72	11	8.6	15.3%	12.0%	19.0%
68	54	12	6.5	22.2%	12.0%	20.0%
69	40	10	4.8	25.0%	12.0%	20.0%
70	32	7	32.0	21.9%	100.0%	25.0%
71	27	10	27.0	37.0%	100.0%	25.0%
72	22	3	22.0	13.6%	100.0%	25.0%
73	20	4	20.0	20.0%	100.0%	25.0%
74	17	3	17.0	17.6%	100.0%	25.0%
75+	46	10	46.0	21.7%	100.0%	100.0%
Total**	**4,166**	**392**	**510.9**	**9.4%**	**12.3%**	**10.2%**

*Data from December 31, 2008 through December 31, 2013 sorted by Member Age.

**Total rates are based on the number of incidences divided by the number of exposures and do not represent an average of the numbers above.

Graph 1: Retirement Experience

Met Water Reclamation Retirement Fund



Withdrawal Rates

Overview
The withdrawal rate, or termination rate, is the probability that a member will separate employment from a cause other than disability, death, or retirement. This includes members who terminate and receive a refund of contributions.

Current Assumption
The current withdrawal assumption reflects separate tables of rates for male and female members that vary by age and service.

Experience
The following charts compare actual termination experience to the current assumption. For male members, the younger, shorter service members experienced fewer terminations than expected. However, the older, longer service members experienced more terminations than expected. Female members generally experienced more terminations than expected for all service levels.

- Table 2: Withdrawal Experience – Male Members
- Graph 2: Withdrawal Experience – Male Members
- Table 3: Withdrawal Experience – Female Members
- Graph 3: Withdrawal Experience – Female Members

Recommended Assumption
We are proposing withdrawal rates that vary by service only, with separate tables for male and female members. For male members, the proposed withdrawal rates reflect slightly lower rates at shorter service levels and slightly higher rates at longer service levels. For female members the proposed rates reflect slightly higher rates at all service levels.

The recommended rates are detailed in the experience charts.

Metropolitan Water Reclamation District
Retirement Fund

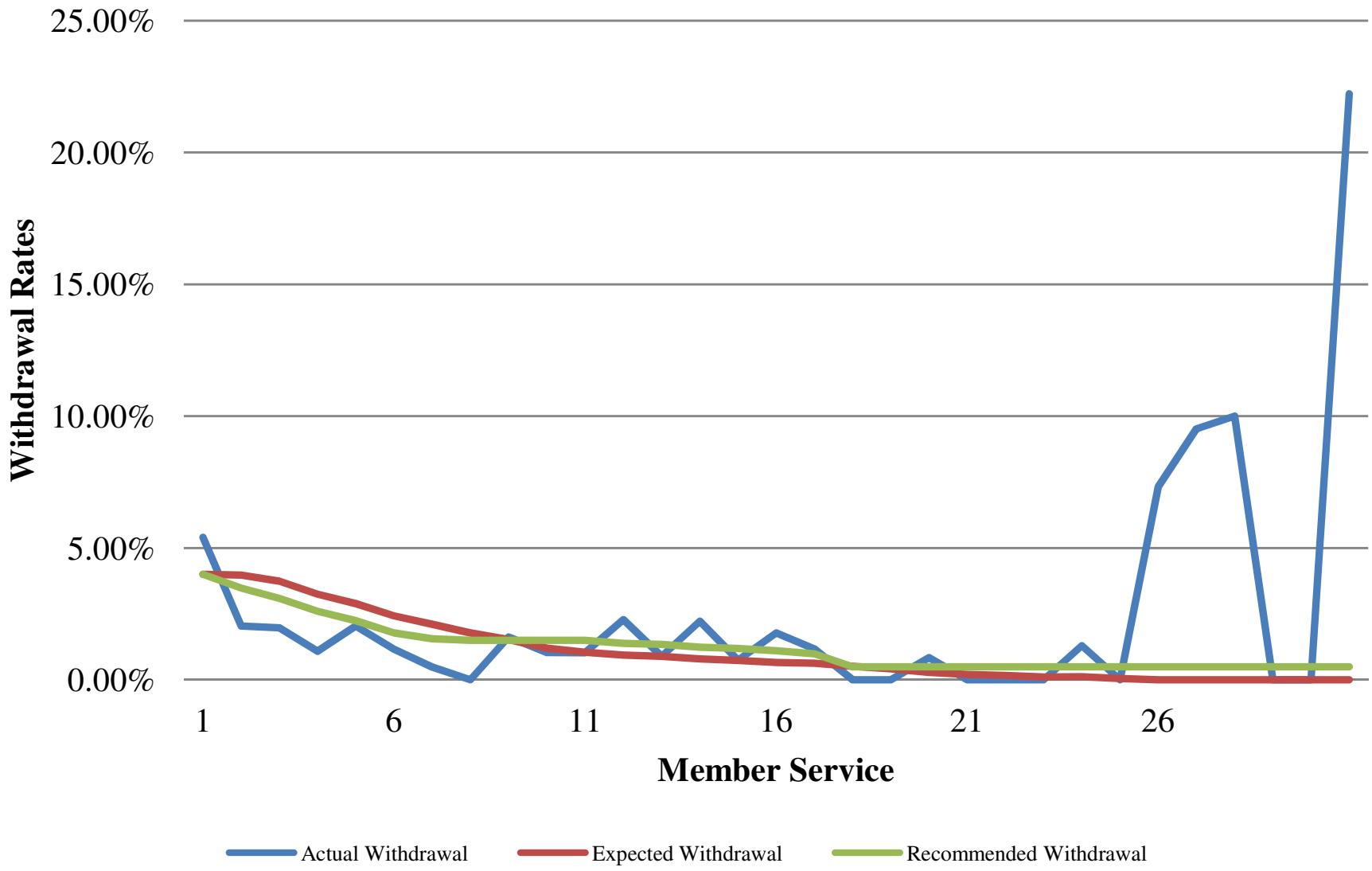
Table 2: Withdrawal Experience - Male Members *

Service	Exposures	Actual Terminations	Expected Terminations	Actual Withdrawal	Expected Withdrawal	Recommended Withdrawal
0	37	2	1.5	5.41%	4.00%	4.00%
1	196	4	7.8	2.04%	3.98%	3.48%
2	253	5	9.5	1.98%	3.74%	3.09%
3	276	3	9.0	1.09%	3.25%	2.60%
4	294	6	8.5	2.04%	2.89%	2.24%
5	258	3	6.3	1.16%	2.43%	1.78%
6	207	1	4.4	0.48%	2.11%	1.56%
7	176	0	3.1	0.00%	1.78%	1.50%
8	184	3	2.8	1.63%	1.53%	1.50%
9	192	2	2.3	1.04%	1.20%	1.50%
10	194	2	2.0	1.03%	1.05%	1.50%
11	219	5	2.1	2.28%	0.94%	1.39%
12	224	2	2.0	0.89%	0.89%	1.34%
13	180	4	1.4	2.22%	0.79%	1.24%
14	134	1	1.0	0.75%	0.74%	1.19%
15	112	2	0.7	1.79%	0.66%	1.11%
16	85	1	0.5	1.18%	0.64%	0.99%
17	91	0	0.5	0.00%	0.52%	0.50%
18	113	0	0.5	0.00%	0.42%	0.50%
19	118	1	0.3	0.85%	0.29%	0.50%
20	104	0	0.2	0.00%	0.21%	0.50%
21	105	0	0.2	0.00%	0.17%	0.50%
22	84	0	0.1	0.00%	0.11%	0.50%
23	77	1	0.1	1.30%	0.12%	0.50%
24	53	0	0.0	0.00%	0.06%	0.50%
25	41	3	0.0	7.32%	0.00%	0.50%
26	21	2	0.0	9.52%	0.00%	0.50%
27	10	1	0.0	10.00%	0.00%	0.50%
28	9	0	0.0	0.00%	0.00%	0.50%
29	5	0	0.0	0.00%	0.00%	0.50%
30+	18	4	0.0	22.22%	0.00%	0.50%
Total	**4,070**	**58**	**66.8**	**1.43%**	**1.64%**	**1.60%**

*Data from December 31, 2008 through December 31, 2013 sorted by Member Service

Graph 2: Withdrawal Experience - Male

Met Water Reclamation District Retirement Fund



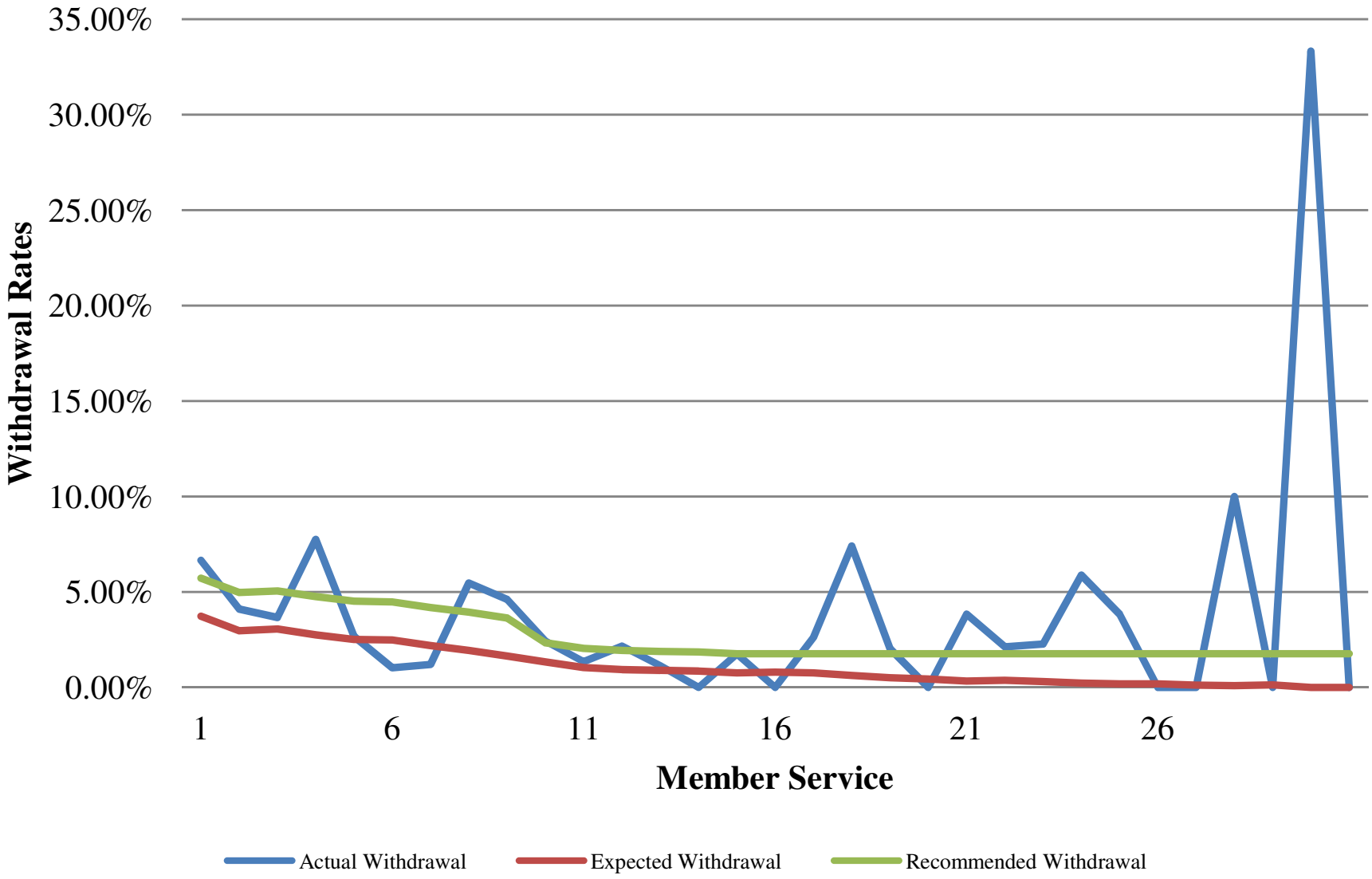
Metropolitan Water Reclamation District
Retirement Fund

Table 3: Withdrawal Experience - Female Members*

Service	Exposures	Actual Terminations	Expected Terminations	Actual Withdrawal	Expected Withdrawal	Recommended Withdrawal
0	15	1	0.6	6.67%	3.73%	5.73%
1	73	3	2.2	4.11%	2.97%	4.97%
2	109	4	3.3	3.67%	3.06%	5.06%
3	116	9	3.2	7.76%	2.76%	4.76%
4	112	3	2.8	2.68%	2.52%	4.52%
5	96	1	2.4	1.04%	2.49%	4.49%
6	83	1	1.8	1.20%	2.19%	4.19%
7	73	4	1.4	5.48%	1.95%	3.95%
8	65	3	1.1	4.62%	1.65%	3.65%
9	82	2	1.1	2.44%	1.34%	2.34%
10	74	1	0.8	1.35%	1.05%	2.05%
11	92	2	0.9	2.17%	0.95%	1.95%
12	88	1	0.8	1.14%	0.90%	1.90%
13	78	0	0.7	0.00%	0.86%	1.86%
14	57	1	0.4	1.75%	0.77%	1.77%
15	43	0	0.4	0.00%	0.81%	1.77%
16	38	1	0.3	2.63%	0.76%	1.77%
17	27	2	0.2	7.41%	0.63%	1.77%
18	49	1	0.3	2.04%	0.51%	1.77%
19	43	0	0.2	0.00%	0.44%	1.77%
20	52	2	0.2	3.85%	0.35%	1.77%
21	47	1	0.2	2.13%	0.38%	1.77%
22	44	1	0.1	2.27%	0.32%	1.77%
23	34	2	0.1	5.88%	0.24%	1.77%
24	26	1	0.1	3.85%	0.19%	1.77%
25	16	0	0.0	0.00%	0.19%	1.77%
26	8	0	0.0	0.00%	0.13%	1.77%
27	10	1	0.0	10.00%	0.10%	1.77%
28	7	0	0.0	0.00%	0.14%	1.77%
29	6	2	0.0	33.33%	0.00%	1.77%
30+	4	0	0.0	0.00%	0.00%	1.77%
Total	**1,667**	**50**	**25**	**3.00%**	**1.52%**	**3.08%**

*Data from December 31, 2008 through December 31, 2013 sorted by Member Service.

Graph 3: Withdrawal Experience - Female
Met Water Reclamation District Retirement Fund



Mortality Rates

Overview

The rate of mortality is the probability of death at a given age. While mortality is a contingency for both the active and retiree populations, it has the greatest cost implications for retirees.

As mortality rates have continued to decline over time, concern has increased about the impact of potential future mortality improvement on the magnitude of pension commitments. ASOP No. 35 discusses the importance of actuaries considering mortality improvements when measuring pension obligations. Specifically, an actuary should adjust mortality rates to reflect mortality improvement prior to the measurement date and include an assumption regarding the expected mortality improvement after the measurement date, if reasonable.

Current Assumption

The current mortality assumption is the UP-1994 sex distinct table rated down 2 years for male members and rated down 1 year for female members.

Experience

The charts and graphs listed below compare actual experience to expected experience using the current and recommended assumption tables. Experience was reviewed separately for female members and for male members. Because the assumed tables of rates are the same for active members, retirees and survivors, we have combined the experience into one table for all members.

Generally, for plan experience to be fully credible, the plan needs to experience 1,000 deaths for each unique table (female and male). As can be seen on the following tables, over the studied period, the fund experienced 234 deaths for female participants (including active members, retirees and survivors) and 292 deaths for male participants. The population for the Metropolitan Water Reclamation District Retirement Fund is not large enough to be fully credible. Therefore we cannot rely on plan experience alone for determining an appropriate mortality table. In total for both male participants and female participants, the fund experienced heavier rates of mortality than expected but the margin for mortality improvements will wear away over time.

- Table 4: Female Mortality Experience – UP-1994 (Current Table)
- Graph 4: Female Mortality Experience – UP-1994 (Current Table)
- Table 5: Male Mortality Experience – UP-1994 (Current Table)
- Graph 5: Male Mortality Experience – UP-1994(Current Table)
- Table 6: Female Mortality Experience – RP2000CH – Generational (Recommended Table)
- Graph 6: Female Mortality Experience – RP2000CH – Generational (Recommended Table)
- Table 7: Male Mortality Experience – RP2000CH – Generational (Recommended Table)
- Graph 7: Male Mortality Experience – RP2000CH – Generational (Recommended Table)

Recommended Assumption

The current mortality table is over 20 years old. Therefore, we recommend updating the healthy mortality table to the RP-2000 Combined Healthy Mortality Table with Generational Mortality Improvements using Scale AA. This table allows for continuous assumed mortality improvements. We also recommend reflecting the RP-2000 Disabled Retiree Mortality Table for disabled lives.

Metropolitan Water Reclamation District Retirement Fund

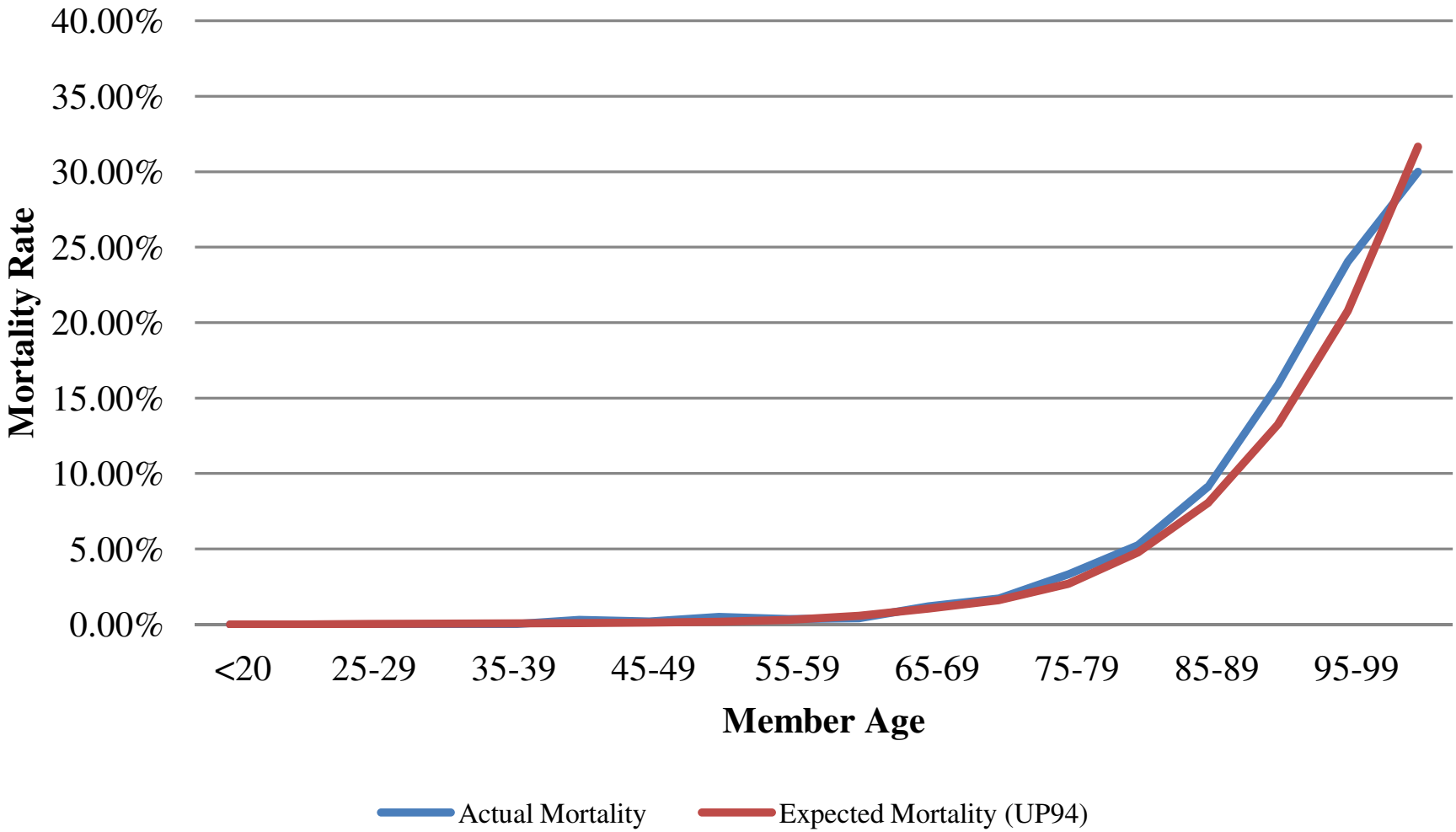
Table 4: Female Mortality Experience - Current Assumption*

Age	Exposures	Actual Deaths	Expected Deaths**	Actual Mortality	Expected Mortality**
<20	0	0	0.0	0.00%	0.00%
20-24	10	0	0.0	0.00%	0.00%
25-29	102	0	0.0	0.00%	0.03%
30-34	227	0	0.1	0.00%	0.04%
35-39	217	0	0.1	0.00%	0.06%
40-44	331	1	0.3	0.30%	0.08%
45-49	529	1	0.6	0.19%	0.12%
50-54	617	3	1.0	0.49%	0.17%
55-59	583	2	1.7	0.34%	0.29%
60-64	749	3	4.2	0.40%	0.56%
65-69	674	8	7.0	1.19%	1.04%
70-74	699	12	11.3	1.72%	1.61%
75-79	753	25	20.2	3.32%	2.69%
80-84	685	36	32.7	5.26%	4.78%
85-89	624	57	50.3	9.13%	8.06%
90-94	346	55	45.9	15.90%	13.27%
95-99	104	25	21.6	24.04%	20.78%
100+	20	6	6.3	30.00%	31.65%
Total	**7,270**	**234**	**203.4**	**3.22%**	**2.80%**

*Data from December 31, 2008 through December 31, 2013 sorted by Member Age.

**Expected experience reflects current assumption: UP-1994 rated down 2 years for male members and 1 year for female members

Graph 4: Female Mortality Experience
Met Water Reclamation District Retirement Fund



Metropolitan Water Reclamation District Retirement Fund

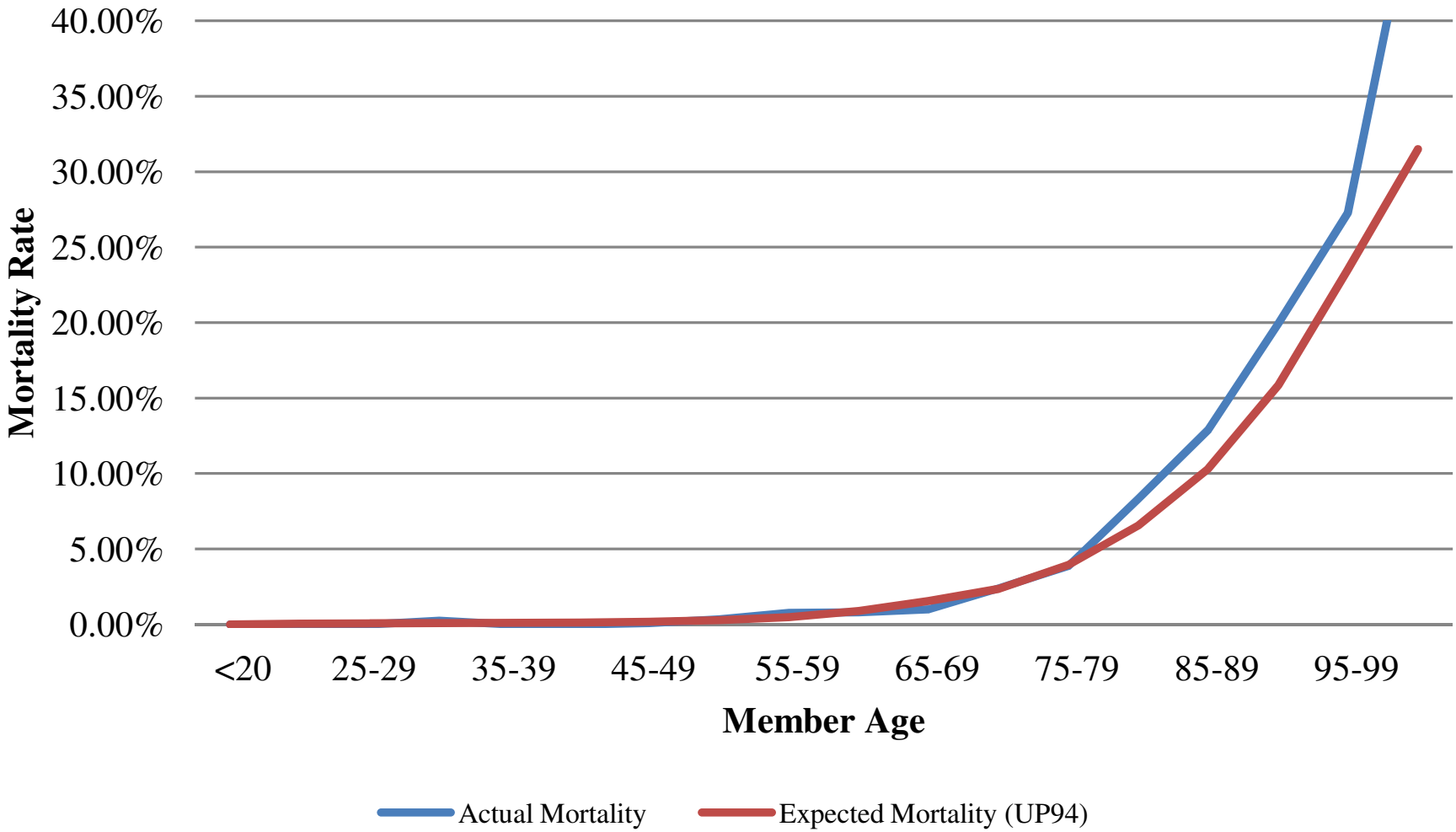
Table 5: Male Mortality Experience - Current Assumption*

Age	Exposures	Actual Deaths	Expected Deaths**	Actual Mortality	Expected Mortality**
<20	0	0	0.0	0.00%	0.00%
20-24	22	0	0.0	0.00%	0.05%
25-29	209	0	0.2	0.00%	0.07%
30-34	406	1	0.4	0.25%	0.09%
35-39	599	0	0.6	0.00%	0.09%
40-44	891	0	1.0	0.00%	0.12%
45-49	1,234	1	2.2	0.08%	0.17%
50-54	1,543	5	4.4	0.32%	0.28%
55-59	1,713	13	8.3	0.76%	0.48%
60-64	1,876	15	16.5	0.80%	0.88%
65-69	1,719	17	26.7	0.99%	1.55%
70-74	1,258	30	29.7	2.38%	2.36%
75-79	1,009	39	39.8	3.87%	3.95%
80-84	805	67	52.8	8.32%	6.56%
85-89	427	55	44.0	12.88%	10.31%
90-94	196	39	31.0	19.90%	15.82%
95-99	33	9	7.8	27.27%	23.52%
100+	2	1	0.6	50.00%	31.50%
Total	**13,942**	**292**	**265.8**	**2.09%**	**1.91%**

*Data from December 31, 2008 through December 31, 2013 sorted by Member Age.

**Expected experience reflects current assumption: UP-1994 rated down 2 years for male members and 1 year for female members

Graph 5: Male Mortality Experience
Met Water Reclamation District Retirement Fund



Metropolitan Water Reclamation District Retirement Fund

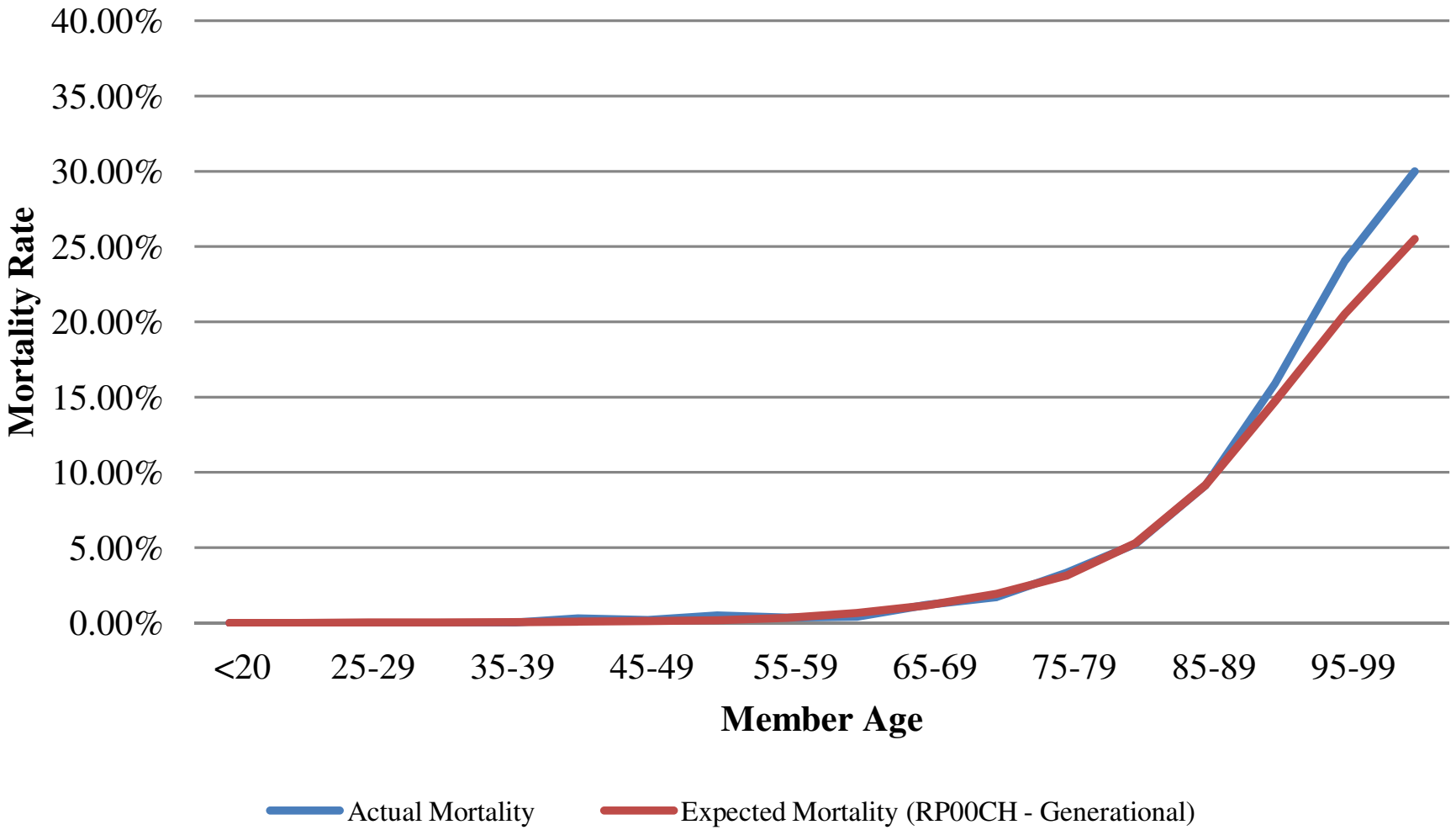
Table 6: Female Mortality Experience - Recommended Assumption*

Age	Exposures	Actual Deaths	Expected Deaths**	Actual Mortality	Expected Mortality**
<20	0	0	0.0	0.00%	0.00%
20-24	10	0	0.0	0.00%	0.00%
25-29	102	0	0.0	0.00%	0.02%
30-34	227	0	0.1	0.00%	0.03%
35-39	217	0	0.1	0.00%	0.05%
40-44	331	1	0.2	0.30%	0.07%
45-49	529	1	0.6	0.19%	0.12%
50-54	617	3	1.1	0.49%	0.18%
55-59	583	2	2.0	0.34%	0.34%
60-64	749	3	4.8	0.40%	0.64%
65-69	674	8	7.8	1.19%	1.16%
70-74	699	12	13.5	1.72%	1.93%
75-79	753	25	23.4	3.32%	3.11%
80-84	685	36	36.3	5.26%	5.30%
85-89	624	57	57.1	9.13%	9.14%
90-94	346	55	51.0	15.90%	14.73%
95-99	104	25	21.3	24.04%	20.52%
100+	20	6	5.1	30.00%	25.50%
Total	**7,270**	**234**	**224.4**	**3.22%**	**3.09%**

*Data from December 31, 2008 through December 31, 2013 sorted by Member Age.

**Expected experience reflects recommended assumption: RP2000 Combined Healthy - Generational

Graph 6: Female Mortality Experience
Met Water Reclamation District Retirement Fund



Metropolitan Water Reclamation District Retirement Fund

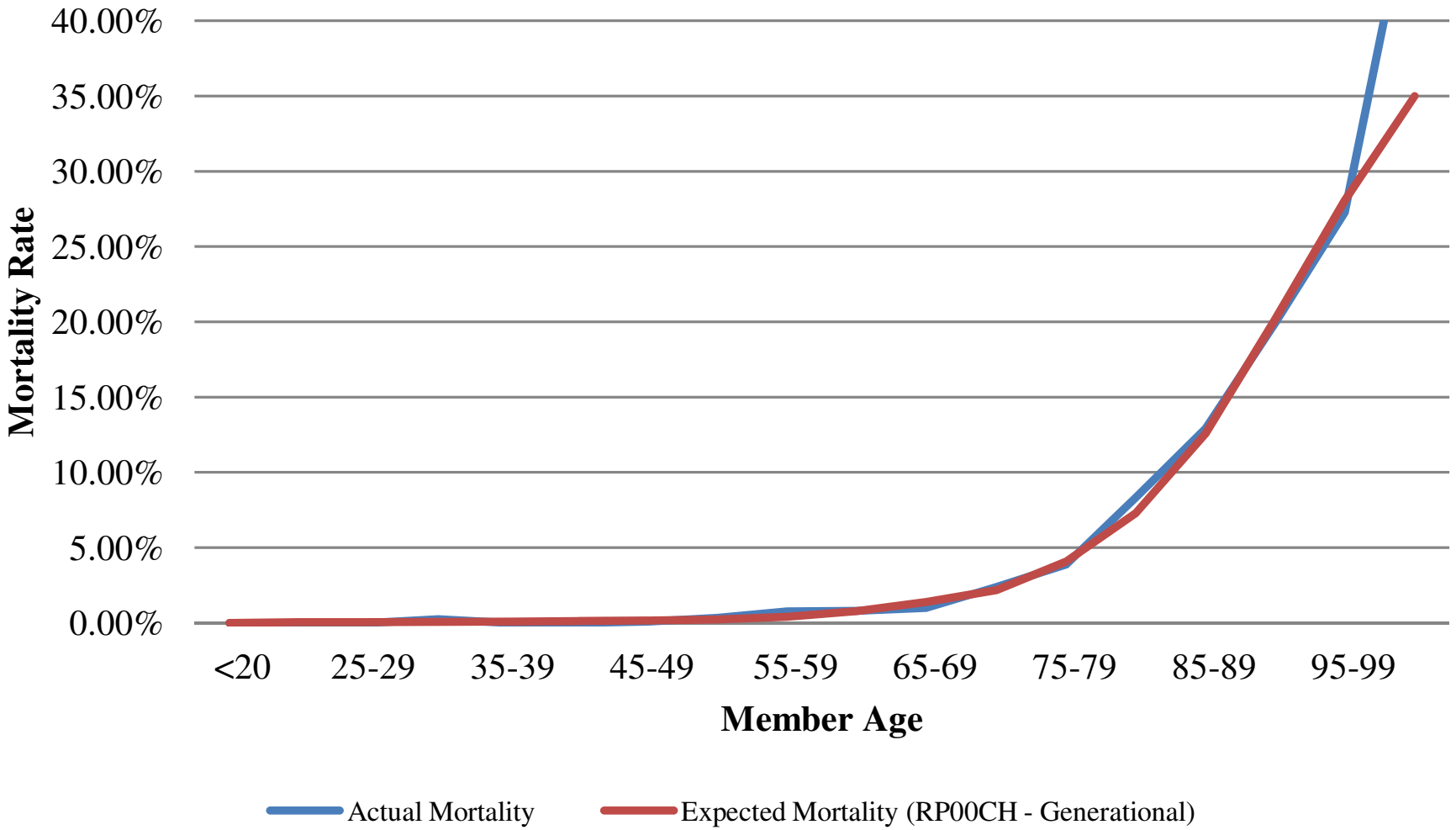
Table 7: Male Mortality Experience - Recommended Assumption*

Age	Exposures	Actual Deaths	Expected Deaths**	Actual Mortality	Expected Mortality**
<20	0	0	0.0	0.00%	0.00%
20-24	22	0	0.0	0.00%	0.05%
25-29	209	0	0.1	0.00%	0.04%
30-34	406	1	0.2	0.25%	0.05%
35-39	599	0	0.5	0.00%	0.09%
40-44	891	0	1.0	0.00%	0.11%
45-49	1,234	1	1.9	0.08%	0.15%
50-54	1,543	5	3.4	0.32%	0.22%
55-59	1,713	13	6.8	0.76%	0.40%
60-64	1,876	15	14.6	0.80%	0.78%
65-69	1,719	17	23.9	0.99%	1.39%
70-74	1,258	30	27.3	2.38%	2.17%
75-79	1,009	39	41.0	3.87%	4.06%
80-84	805	67	58.7	8.32%	7.29%
85-89	427	55	53.7	12.88%	12.56%
90-94	196	39	39.5	19.90%	20.16%
95-99	33	9	9.3	27.27%	28.06%
100+	2	1	0.7	50.00%	35.00%
Total	**13,942**	**292**	**282.5**	**2.09%**	**2.03%**

*Data from December 31, 2008 through December 31, 2013 sorted by Member Age.

**Expected experience reflects recommended assumption: RP2000 Combined Healthy - Generational

Graph 7: Male Mortality Experience
Met Water Reclamation District Retirement Fund



Disability Rates

Overview

The disability rate assumption is the probability that a member will become disabled while he or she is an active participant in the Fund.

The overall cost due to disability depends on the plan's disability provisions. For the Metropolitan Water Reclamation District Fund, the benefits for disablements due to duty disability differ from ordinary disability benefits. Ordinary disability benefits are payable for a maximum of 5 years, whereas duty disability benefits are not temporary. Therefore, we do not explicitly reflect ordinary disability benefits in the valuation, and an analysis of ordinary disability experience was not performed for this study.

Determining future incidence of disability is difficult. Therefore, a review of past experience compared to the current assumption will provide the basis for examining the assumption.

Current Assumption

Currently, the assumed disability rates are expressed by age based on a general published disability rate table. The specific disability rate assumption was added effective with the December 31, 2012 valuation. Previously, the disability provisions were reflected in the results by including only the actual disability payments in the normal cost.

Experience

Currently, the fund has 17 members receiving duty disability payments and 5 members receiving duty disability annuities. The studied period includes 9,903 active lives. The resulting probability of duty disablement over the studied period is approximately 0.17% (17 divided by 9,903).

Recommended Assumption

Based on the current table, the average probability of disability is 0.22%. We recommend adjusting the current table of rates downward to reflect an average probability of duty disability of 0.17%. We believe they will more accurately reflect the associated costs of the disability provisions.

Reciprocal Benefits Load

Overview
The reciprocal benefits load assumption adjusts the results to reflect the eventual reciprocal benefits paid from the fund.

Current Assumption
Currently, the fund assumes a load of 1.50% to active liabilities and normal costs to reflect the reciprocal benefits.

Experience
To assess the reasonability of the current assumption, we analyzed the reciprocal benefits payable for new retirees over the course of the studied period. For each year of the study, we determined the ratio of the sum of the annuity amounts for all new retirees including the reciprocal amounts to the sum of the annuity amounts for all new retirees without the reciprocal amounts. We then determined the average ratio over the 5-year period. The results are as follows:

New Retirees during year:	Ratio of Sum of New Retiree Annuities with Reciprocal amounts/ New Retiree Annuities without Reciprocal amounts
2009	1.0161
2010	1.0218
2011	1.0034
2012	1.0111
2013	1.0076
5-year average	**1.0120**

Over the course of the five years of data, the annuities with reciprocal benefits are 1.20% higher than the annuities excluding the reciprocal benefits.

Recommended Assumption
We propose keeping the reciprocal benefits load assumption at 1.50%. The actual experience for the studied period does not warrant a change to the assumption at this time.

EXPERIENCE ANALYSIS – ECONOMIC ASSUMPTIONS

ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations,* provides guidance to actuaries in selecting (including giving advice on selecting) economic assumptions – primarily investment return, discount rate, and salary scale – for measuring obligations under defined benefit pension plans.

Throughout the remainder of this section, we have used the standards set forth in ASOP No. 27 as a guideline for reviewing and if applicable, selecting recommended changes to the following economic actuarial assumptions:

- Investment Return
- Salary Increases
- Payroll Growth Rate (used for amortizing the Unfunded Actuarial Accrued Liability)
- Tier 2 Cost-of-Living Adjustment

Please keep in mind that ASOP No. 27 states that "the best an actuary can do is to use professional judgment to estimate possible future economic outcomes based on past experience and future expectations, and to select assumptions based upon that application of professional judgment."

Investment Return Assumption

OverviewThe investment return assumption used in actuarial valuations should be set in accordance with Actuarial Standard of Practice No. 27. Beginning with valuation dates after September 30, 2014, the ASOP eliminates the requirement that the investment return assumption falls within a "best-estimate range of anticipated future experience." The new standard requires each economic assumption be set based on the actuary's estimate of future experience or on the actuary's observations of market estimates. Therefore, the assumption should be set based on the long-term expectation of the plan as determined by the investment policy statement, target asset allocation and capital market assumptions.

Current Assumption
The current assumption is 7.75% net of investment-related expenses.

Experience and Analysis
Over the past 5 years, the average net-of-fee return is 14.10% but the average 10-year return is only 6.70%. During those 10 years, the annual net-of-fee return has exceeded the 7.75% assumption 60% of the time.

In determining the investment return assumption, we determine the average rate of return the Fund expects to achieve based on the target allocation along with the corresponding capital market assumptions. Foster & Foster is an actuarial firm, and we do not have the required expertise to produce our own capital market assumptions. As a result, we worked with your investment consultant, Marquette Associates, Inc. (Marquette), to determine the Fund's expected return.

The Fund's current investment policy statement is based on recommendations of the Fund's prior investment consultant. Marquette is currently reviewing the target allocations to determine if they believe adjustments need to be made the policy. The current target allocations are as follows:

Asset Class	Target Allocation
Fixed Income	
Broad Fixed Income	15.00%
Core Plus Fixed Income	20.00%
Equities	
U.S. Large-Cap Core	11.00%
U.S. Large-Cap Value	9.00%
U.S. Large-Cap Growth	7.00%
U.S. Mid-Cap Core	5.50%
U.S. Mid-Cap Value	7.00%
U.S. Mid-Cap Growth	2.50%
U.S. Small-Cap Value	9.00%
U.S. Small-Cap Growth	4.00%
Developed Large-Cap	10.00%

Based on this target allocation and Marquette's 10-year capital market assumptions, the average annualized net-of-fee return is 7.28% with an average volatility of 15.35%. This return does not include any impact for active management which, based on our discussions with Marquette, can be up to 50 basis points depending on the market cycle. Further, we expect that Marquette will recommend changes to the help diversify the portfolio. This change will increase the annualized net-of-fee return by about 10 basis points.

The trend across the country over the past few years has been to lower the investment return assumption. According to an April 2013 survey of 126 large public pension funds across the country performed by the National Association of State Retirement Administrators (NASRA), over half of the funds surveyed have lowered their assumption since 2008. The average investment return assumption for these funds is 7.72%. While these results are interesting, the asset allocation for this Fund could be significantly different than the surveyed funds so this information is provided for informational purposes only.

Recommended Assumption

Based on our analysis, it is our estimate that future net-of-fee investment returns will be 7.50%. As a result, we recommend that we lower the investment return assumption from 7.75% to 7.50%.

Salary Increases

Overview

The salary increase assumption is used to project a member's salary from the valuation date until the assumed retirement age. Salary increase assumptions are typically represented as a flat salary scale assumption or as a service-based assumption. A flat salary scale assumption assumes that a member will get the same rate of salary increase for all years, whereas a service-based table may assume different rates based on the member's longevity with the Fund.

The salary increase assumption plays an important role in measuring individual pension costs and obligations.

Current Assumption

Currently, the valuation assumes a flat salary increase rate equal to 5.00% per year.

Experience

To assess the current 5.00% assumed annual increase and provide a basis for an updated assumption, we have reviewed the actual salary experience over the studied time period.

On the following pages, we have included a service-based chart that compares the actual experience to the current assumption. The average salary increases over the studied period was 3.10%, less than the assumed 5.00% increases. This is likely due to general economic factors during this time. In comparison, the average salary increase for the year ended December 31, 2013 was approximately 4.50%. Given the recent economic recovery, we believe this recent year of experience is more representative of expected future increases. As can be seen in the following table and graph, members received higher average salary increases toward the beginning of their careers and lower average salary increases later in their careers.

- Table 8: Average Salary Increases by Service
- Graph 8: Average Salary Increases by Service

Recommended Assumption

Given these results, we propose changing from a flat salary scale assumption to a service-based assumption. The recommended increase rates are applicable to Tier 1 and Tier 2 members and can be seen on the following charts, along with graphs to show a visual representation of how the actual and recommended increase rates compare to the current flat 5.00% per year assumption. Generally, the recommended rates are greater than 5.00% for shorter durations of service and less than 5.00% for longer durations. On average, the assumed rate of increase is 4.59%.

Metropolitan Water Reclamation District
Retirement Fund

Table 8: Average Salary Increases by Service*

Service	Eligible Members	Prior Year Salary**	Actual Salary**	Expected Salary**	Actual Salary Increase	Expected Salary Increase	Recommended Salary Increase
0	329	21,088,038	22,506,143	22,142,439	6.72%	5.00%	7.00%
1	390	25,657,236	27,024,641	26,940,098	5.33%	5.00%	6.25%
2	437	30,262,420	31,660,654	31,775,541	4.62%	5.00%	5.75%
3	467	33,731,397	35,155,680	35,417,967	4.22%	5.00%	5.50%
4	421	31,382,406	32,716,917	32,951,526	4.25%	5.00%	5.25%
5	346	26,402,881	27,687,883	27,723,026	4.87%	5.00%	5.00%
6	316	25,029,448	25,979,737	26,280,920	3.80%	5.00%	4.75%
7	326	26,251,479	27,086,836	27,564,053	3.18%	5.00%	4.50%
8	370	30,571,642	31,459,997	32,100,225	2.91%	5.00%	4.50%
9	366	30,378,451	31,634,159	31,897,374	4.13%	5.00%	4.25%
10	421	35,852,743	36,723,366	37,645,381	2.43%	5.00%	4.25%
11	461	39,727,762	40,746,049	41,714,150	2.56%	5.00%	4.25%
12	387	34,370,188	35,119,945	36,088,698	2.18%	5.00%	4.25%
13	326	29,467,990	30,047,536	30,941,389	1.97%	5.00%	4.25%
14	272	25,327,823	25,925,924	26,594,214	2.36%	5.00%	4.25%
15	250	22,123,297	23,285,348	23,229,462	5.25%	5.00%	4.25%
16	240	22,379,516	23,035,420	23,498,491	2.93%	5.00%	4.25%
17	322	28,685,274	29,305,237	30,119,538	2.16%	5.00%	4.25%
18	351	32,382,204	33,107,066	34,001,315	2.24%	5.00%	4.25%
19	392	36,173,342	37,508,623	37,982,010	3.69%	5.00%	4.25%
20	410	39,367,297	40,384,938	41,335,662	2.58%	5.00%	4.25%
21	377	36,238,879	37,091,014	38,050,823	2.35%	5.00%	4.25%
22	354	33,729,730	34,408,119	35,416,216	2.01%	5.00%	4.25%
23	263	26,441,142	26,894,691	27,763,199	1.72%	5.00%	4.25%
24	230	22,664,733	23,172,825	23,797,970	2.24%	5.00%	4.25%
25	134	13,664,466	13,941,998	14,347,690	2.03%	5.00%	4.25%
26	103	10,318,009	10,517,547	10,833,909	1.93%	5.00%	4.25%
27	57	5,773,024	5,898,498	6,061,676	2.17%	5.00%	4.25%
28	46	4,007,461	4,147,489	4,207,835	3.49%	5.00%	4.25%
29	46	4,166,315	4,250,769	4,374,631	2.03%	5.00%	4.25%
30+	169	17,353,783	17,776,736	18,221,472	2.44%	5.00%	4.25%
Total	**9,379**	**800,970,376**	**826,201,785**	**841,018,900**	**3.15%**	**5.00%**	**4.59%**

*Data from December 31, 2008 through December 31, 2013 sorted by Member Service.

Graph 8: Average Salary Increases

Met Water Reclamation District Retirement Fund

Payroll Growth Rate

Overview

The payroll growth rate is the assumption used to predict how the aggregate payroll of a fund will increase on average from one year to the next. It is a necessary assumption when valuing a pension fund because it is used for purposes of amortizing the unfunded actuarial liabilities. Currently, the payroll growth assumption is equal to 3.70% per year.

The payroll growth assumption should reflect factors other than the expected individual salary increases year over year. In addition, it is important to consider the growth (or reduction) in the active population for a Fund. For example, if each active member of a population happens to receive a 5.50% salary increase, but in that same time no members terminate employment and 5 additional members are hired onto the workforce, then the payroll will have grown by greater than 5.50% for that year. Likewise, the aggregate payroll of a fund could decrease from one year to the next if a number of people retire or terminate over the course of the year. The payroll for any fund is also affected as longer service members who are earning higher salaries begin to retire and are replaced with new entrants with lower pay. The purpose of the payroll growth rate is to determine a long-term expected average of the rate in which payroll will grow, even if the year-over-year experience does not always follow the pattern of the assumption.

Experience

In the course of this analysis, we have determined that the average payroll growth was 0.26% over the studied time period. This low rate is due to a significant reduction in the active headcount over the studied period likely is a result of the general economic factors during this time.

Recommended Assumption

Given the economic conditions during the study period, we do not believe the experience is a good indicator of future expected experience. As a result, we are recommending no change in the payroll growth rate assumption at this time.

Tier 2 Cost-of-Living Adjustment

Overview

The cost-of-living adjustment provisions for the fund vary by benefit Tier. Currently, for Tier 1 members, the cost-of-living adjustment (COLA) for the plan is a flat 3.00%, and the valuation does not require a COLA assumption for this Tier. The 3.00% increases specified in the statute are valued.

However, the pension changes introduced in 2011 provide for the following COLA for Tier 2 members: An annual increase each January 1 equal to the lesser of 3.00% or one-half of the annual unadjusted percentage increase in the Consumer Price Index-Urban (CPI-U) for the 12 months ending with the September proceeding each November 1. The COLA is applied to the original pension amount after the first anniversary of the pension start date. Since the COLA will vary depending on the value of the CPI-U, future valuations will need to reflect a COLA assumption for Tier 2 members.

Current Assumption

Currently, the fund assumes a 1.25% COLA increase for Tier 2 members.

Experience

To determine an appropriate assumption for the expected future COLA's that Tier 2 members will receive, we have reviewed the annual average increase in the CPI-U over the past 20 years (1994 – 2013). The chart on the following page shows that the average increase over this time period is approximately 2.40%.

- Table 9: Historical CPI Increases

Recommended Assumption

The current assumption of 1.25% was based on the experience for 1992 - 2011. The average increase in the CPI-U for that period was 2.49%. Since the increase was not materially different, we are not recommending a change at this time.

Consumer Price Index - All Urban Consumers

1994 - 2013

Table 9: Historical CPI Increases

Year Ending	CPI Return
2013	1.5%
2012	1.7%
2011	3.0%
2010	1.5%
2009	2.7%
2008	0.1%
2007	4.1%
2006	2.6%
2005	3.4%
2004	3.3%
2003	1.9%
2002	2.4%
2001	1.6%
2000	3.4%
1999	2.7%
1998	1.6%
1997	1.7%
1996	3.3%
1995	2.6%
1994	2.7%
20-Year Average	**2.4%**

IMPACT OF RECOMMENDED ASSUMPTIONS

Below is an analysis of the impact of the recommended valuation assumptions on the December 31, 2013 accrued liability and normal cost.

Assumption	Accrued Liability	Dollar Change in Accrued Liability	Percentage Change in Accrued Liability
Baseline	2,194,911,693		
Retirement Rates	2,185,707,662	(9,204,031)	-0.42%
Withdrawal Rates	2,194,438,116	(473,577)	-0.02%
Mortality	2,199,102,067	4,190,374	0.19%
Disability Rates	2,194,796,393	(115,300)	-0.01%
Investment Return	2,254,854,613	59,942,920	2.73%
Salary Increases	2,167,884,992	(27,026,701)	-1.23%
All Recommended Assumptions	2,224,224,232	29,312,539	1.34%

Assumption	Normal Cost	Dollar Change in Normal Cost	Percentage Change in Normal Cost
Baseline	31,507,718		
Retirement Rates	31,649,997	142,279	0.45%
Withdrawal Rates	30,915,880	(591,838)	-1.88%
Mortality	31,925,325	417,607	1.33%
Disability Rates	31,367,057	(140,661)	-0.45%
Investment Return	33,440,640	1,932,922	6.13%
Salary Increases	29,092,470	(2,415,248)	-7.67%
All Recommended Assumptions	30,954,943	(552,775)	-1.75%

ASSUMPTION SETS

Recommended Assumptions

Interest Rate 7.50%

Salary Increases

Service	Salary Increase
0	7.00%
1	6.25%
2	5.75%
3	5.50%
4	5.25%
5	5.00%
6	4.75%
7	4.50%
8	4.50%
9+	4.25%

Cost-of-Living Adjustment - Annuitants

Members Hired On Or After January 1, 2011	1.25%
Members Hired Before January 1, 2011	3.00%

Payroll Growth 3.70%

Retirement

Age	Rate
50 – 59	6%
50 – 64	13%
65	15%
66 – 67	19%
68 – 69	20%
70 – 74	25%
75+	100%

Mortality Rates

Healthy Members - RP-2000 Combined Healthy Mortality Table with Generational mortality improvements (Scale AA). Disabled Members – RP-2000 Disabled Retiree Mortality Table.

Withdrawal Rates

Service	Male Rate	Female Rate
0	4.000%	5.733%
1	3.480%	4.973%
2	3.089%	5.064%
3	2.604%	4.759%
4	2.245%	4.518%
5	1.780%	4.490%
6	1.561%	4.193%
7	1.500%	3.945%
8	1.500%	3.646%
9	1.500%	2.342%
10	1.502%	2.054%
11	1.391%	1.946%
12	1.343%	1.898%
13	1.244%	1.859%
14	1.189%	1.772%
15	1.111%	1.772%
16	0.985%	1.772%
17+	0.500%	1.772%

Disability Rates

Age	Rate
20	0.002%
25	0.003%
30	0.006%
35	0.014%
40	0.033%
45	0.065%
50	0.120%
55	0.225%
60	0.490%
65	0.000%

Load for Reciprocal Benefits

1.50% of active member costs and liabilities.

Percent Married

76%

Spousal Age Difference	Spouse of male member assumed to be 4 years younger than member; Spouse of female member assumed to be 4 years older than member.

Current Assumptions

Interest Rate	7.75%
Salary Increases	5.00%
Cost-of-Living Adjustment - Annuitants	
Members Hired On Or After January 1, 2011	1.25%
Members Hired Before January 1, 2011	3.00%
Payroll Growth	3.70%
Retirement Rates	See Table 10
Mortality Rates	UP-1994 Mortality Table for Males, rated down 2 years; UP-1994 Mortality Table for Females, rated down 1 year.
Withdrawal Rates	See Table 11
Disability Rates	See Table 12
Load for Reciprocal Benefits	1.50% of active member costs and liabilities.
Percent Married	76%
Spousal Age Difference	Spouse of male member assumed to be 4 years younger than member; Spouse of female member assumed to be 4 years older than member.

Table 10 – Retirement Rates

Age	Retirement Rate Tier 1	Retirement Rate Tier 2
50	4.5%	
51	5.0%	
52	5.6%	
53	6.2%	
54	6.7%	
55	7.3%	
56	7.8%	
57	8.4%	
58	9.0%	
59	9.5%	
60	12.0%	
61	10.0%	
62	10.5%	30.0%
63	11.0%	20.0%
64	11.5%	25.0%
65	12.0%	30.0%
66	12.0%	35.0%
67	12.0%	40.0%
68	12.0%	30.0%
69	12.0%	30.0%
≥70	100.0%	100.0%

Table 11 – Withdrawal Rates - Male

	Age at Entry								
Svc	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+
0	7.392%	5.376%	4.256%	3.920%	3.808%	3.360%	3.808%	2.240%	1.568%
1	6.776%	4.928%	3.864%	3.528%	3.416%	3.080%	3.360%	1.792%	1.232%
2	6.160%	4.536%	3.472%	3.136%	3.024%	2.800%	2.856%	1.344%	0.952%
3	5.600%	4.088%	3.024%	2.800%	2.576%	2.464%	2.408%	0.896%	0.616%
4	4.984%	3.696%	2.632%	2.408%	2.184%	2.184%	1.904%	0.448%	0.336%
5	4.368%	3.248%	2.240%	2.016%	1.792%	1.904%	1.456%	0.000%	0.000%
6	3.920%	2.912%	2.016%	1.848%	1.456%	1.512%	1.176%	0.000%	0.000%
7	3.416%	2.632%	1.848%	1.680%	1.064%	1.120%	0.896%	0.000%	0.000%
8	2.968%	2.296%	1.624%	1.456%	0.728%	0.784%	0.560%	0.000%	0.000%
9	2.464%	2.016%	1.456%	1.288%	0.336%	0.392%	0.280%	0.000%	0.000%
10	2.016%	1.680%	1.232%	1.120%	0.000%	0.000%	0.000%	0.000%	0.000%
11	1.792%	1.512%	1.120%	0.896%	0.000%	0.000%	0.000%	0.000%	0.000%
12	1.568%	1.344%	1.008%	0.672%	0.000%	0.000%	0.000%	0.000%	0.000%
13	1.344%	1.120%	0.896%	0.448%	0.000%	0.000%	0.000%	0.000%	0.000%
14	1.120%	0.952%	0.784%	0.224%	0.000%	0.000%	0.000%	0.000%	0.000%
15	0.896%	0.784%	0.672%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
16	0.784%	0.672%	0.560%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
17	0.616%	0.560%	0.392%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
18	0.504%	0.448%	0.280%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
19	0.336%	0.336%	0.112%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
20	0.224%	0.224%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
21	0.168%	0.168%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
22	0.112%	0.112%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
23	0.112%	0.112%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
24	0.056%	0.056%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
25	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
26	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
27	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
28	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
29	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

Table 11 – Withdrawal Rates - Female

	Age at Entry								
Svc	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+
0	7.392%	5.824%	4.032%	2.912%	2.240%	1.400%	1.568%	1.568%	1.344%
1	7.000%	5.264%	3.696%	2.744%	2.016%	1.344%	1.456%	1.232%	1.064%
2	6.608%	4.760%	3.416%	2.576%	1.792%	1.288%	1.344%	0.952%	0.784%
3	6.160%	4.200%	3.080%	2.352%	1.568%	1.288%	1.176%	0.616%	0.560%
4	5.768%	3.696%	2.800%	2.184%	1.344%	1.232%	1.064%	0.336%	0.280%
5	5.376%	3.136%	2.464%	2.016%	1.120%	1.176%	0.952%	0.000%	0.000%
6	4.928%	2.800%	2.240%	1.848%	0.896%	0.952%	0.784%	0.000%	0.000%
7	4.480%	2.520%	2.072%	1.680%	0.672%	0.728%	0.560%	0.000%	0.000%
8	4.032%	2.184%	1.848%	1.456%	0.448%	0.448%	0.392%	0.000%	0.000%
9	3.584%	1.904%	1.680%	1.288%	0.224%	0.224%	0.168%	0.000%	0.000%
10	3.136%	1.568%	1.456%	1.120%	0.000%	0.000%	0.000%	0.000%	0.000%
11	2.800%	1.400%	1.344%	0.896%	0.000%	0.000%	0.000%	0.000%	0.000%
12	2.520%	1.232%	1.176%	0.672%	0.000%	0.000%	0.000%	0.000%	0.000%
13	2.184%	1.120%	1.064%	0.448%	0.000%	0.000%	0.000%	0.000%	0.000%
14	1.904%	0.952%	0.896%	0.224%	0.000%	0.000%	0.000%	0.000%	0.000%
15	1.568%	0.784%	0.784%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
16	1.344%	0.672%	0.616%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
17	1.176%	0.616%	0.448%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
18	0.952%	0.504%	0.336%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
19	0.784%	0.448%	0.168%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
20	0.560%	0.336%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
21	0.504%	0.280%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
22	0.448%	0.224%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
23	0.336%	0.112%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
24	0.280%	0.056%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
25	0.224%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
26	0.168%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
27	0.112%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
28	0.112%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
29	0.056%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

Table 12 – Disability Rates

Rates are from the Hunters Disability Rates Transactions of the Actuarial Society of America, vol XII pp. 44-71. A sample of rates is listed below.

Age	Disability Rates
20	0.0515%
25	0.0528%
30	0.0561%
35	0.0642%
40	0.0832%
45	0.1151%
50	0.1696%
55	0.2752%
60	0.5402%
65	0.0000%