



Maryland Transit Administration

Experience and Assumption Study
August 16, 2019

Bolton

Prepared by:

Bolton Partners, Inc.
36 S. Charles St, Suite 1000
Baltimore, MD 21201



Table of Contents

	Page
Section I Introduction	1
Section II Impact of Proposed Revisions	4
Section III Salary Increase Assumption	5
Section IV Investment Return	6
Expected Rate of Return on Plan Assets	6
Section V Cost of Living Increase	7
Cost of Living Increases	7
Section VI Retirement Assumption	8
Section VII Termination Assumption	12
Section VIII Disability Assumption	17
Section VIII OPEB Plan Assumptions	19
Election Rate for OPEB Plan under GASB 75	19
Long Term Medical Trend Assumption	19

Section I: Introduction

This report reviews the experience of the Maryland Transit Administration Pension Plan (the “Plan”) over the period July 1, 2014 through June 30, 2018 in order to determine potential changes in actuarial valuation demographic assumptions. The study has been prepared to help us ensure that the demographic assumptions being used are reasonable given the Plan’s historical experience.

Section 9 of the report discusses specific assumptions with relation to the Maryland Transit Administration Other Post-Employment Benefits Plan.

Based on the recent experience we are recommending the following changes to the assumptions:

Salary Increases:

There are two components to the salary increases, the general increase in the pay scale and merit increases. The general salary increase assumption is that assumed by the State of Maryland. Based on the experience we observed, we are recommending no change to the merit salary increase for management, maintenance, and operators and an increase to the “all others” merit salary increase assumption.

Expected Rate of Return:

Since the assets are invested by the State of Maryland this assumption is selected by the State. It has been reduced to 7.45%.

Cost of Living Increase:

We recommend a 2.10% COLA assumption for GASB 68 accounting purposes.

Retirement Rates:

No change in the rates for management and a small increase in the assumption for maintenance. We are also recommending a small increase in the rates in the early years for the all others group but are also recommending the assumption extend to from 100% retirement at age 65 to 100% at age 70.

Withdrawal/Termination Rates:

We are recommending small adjustments to each group’s turnover assumption.

Disability Rates:

We are recommending some minor adjustments to the disability rates in the later years.

Section I: Introduction

Mortality Rates:

We are recommending the current mortality table remain unchanged, but the projection scale should be updated from the MP-2014 table to the MP-2018 table.

Election Rate for the OPEB Plan under GASB 75:

We are recommending no change to the current election rates for medical coverage under the plan.

Long Term Medical Trend:

We are recommending that medical trend assumption be updated to the most recent Society of Actuaries Long Term model. This model adds transparency to this assumption. The model has baseline assumptions that are selected by a health economist. We are recommending that the model's inflation assumption be consistent with the State of Maryland's inflation assumption. We are also recommending that the pre-age 65 trend be adjusted for the impact of the "Cadillac Tax". The Cadillac Tax is an excise tax on health care plans effective in 2022.

Other:

Amortization Period: Effective July 1, 2019, the MTA has decided to consolidate all existing amortization bases to be paid over 25 years. The current practice is to amortize plan changes and experience gains or losses over 25 years. COLA awards are amortized over the life of the contract and benefit awards are amortized over the expected future working lifetime which is approximately 10 years. We recommend decreasing the amortization period for plan changes and experience gains or losses from 25 to 20 years.

The recent past is not necessarily an indication of future experience. We recommend that the MTA consider if the last 4 years represent the best estimate of future experience, or if there were atypical events that would need to be considered in setting the assumptions.

The actual long-term cost of the Plan is not based on assumptions. The actual cost is based on the benefits paid, the investment return and the other expenses paid. To determine the current cost to prefund the Pension Fund requires that a number of assumptions be made about future events. As actual experience differs from these assumptions, the cost of the plan will gradually change. Ideally, the assumptions will be close to this experience. However, some assumptions (e.g., investment return) will commonly vary materially from year to year.

While the cost of the plan will "self adjust" to reflect actual experience, it is important to review and reset the assumptions from time to time to (1) minimize experience gains and losses, (2) reduce contribution volatility and (3) achieve a better level of intergenerational participant equity.

The Maryland Transit Administration is responsible for managing and administering the plan.

In preparing this study, we have relied primarily upon annual actuarial valuation data provided to us by The Maryland Transit Administration as well as the prior actuary, Cheiron.

Section I: Introduction

The undersigned credentialed actuary meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report. We are not aware of any direct or material indirect financial interest or relationship, including investments or other services, which could create a conflict of interest and impair the objectivity of our work.

If you have any questions, please feel free to contact us.

Sincerely,

A handwritten signature in black ink, appearing to read "K. Binder".

Kevin Binder, FSA

Section 2 – Impact of Proposed Revisions

Below is a table illustrating the effect of the proposed changes in the assumptions to the pension plan as of July 1, 2018. The assumption changes collectively do not change the funding liabilities materially but do reduce the accounting liabilities materially. The difference is due to our recommendation to reduce the COLA assumption. This assumption only impacts the accounting results.

Pension Plan Liabilities	Baseline	New Assumptions	% Change
Funding Liabilities			
1. Actuarial Accrued Liability at July 1, 2018			
a. Active Participants	\$349,163,378	\$349,158,972	0.00%
b. Vested Terminated Participants	21,019,531	20,742,419	-1.32%
c. Retirees, Qdro's, and Beneficiaries	316,195,690	311,703,056	-1.42%
d. Disabled Participants and Beneficiaries	49,431,704	53,958,320	9.16%
e. Total	\$735,810,303	\$735,562,767	-0.03%
2. Normal Cost at July 1, 2018			
a. Retirement Benefits	\$7,661,313	\$8,026,285	4.76%
b. Vested Terminated Benefits	659,563	705,808	7.01%
c. Preretirement Death Benefits	153,865	177,686	15.48%
d. Disability Benefits	2,811,505	2,532,899	-9.91%
e. Employee Contributions	(2,775,415)	(2,801,178)	0.93%
f. Total Normal Cost (A + B + C + D + E)	\$8,510,831	\$8,641,500	1.54%
g. Interest on Normal Cost to September 1	103,206	104,790	1.53%
h. Projected Normal Cost for Plan Year (F + G)	\$8,614,037	\$8,746,290	1.54%
Accounting Liabilities			
3. Total Pension Liability	\$1,271,782,218	\$1,177,187,631	-7.44%

Below is a table illustrating the effect of the proposed changes in the assumptions to the OPEB liability as reported under GASB 75 as of July 1, 2017 for FYE 2018. The reduction is due to the new medical trend assumption. In general health care trends have been ameliorating.

OPEB Liabilities under GASB 75	Baseline	New Assumptions	% Change
1. Entry Age Normal Liability at July 1, 2017			
a. Active Participants	\$464,921,396	\$396,644,177	-14.69%
b. Inactive Participants	368,367,836	338,927,766	-7.99%
c. Total	\$833,289,231	\$735,571,943	-11.73%

Section 3 – Salary Increase Assumption

Salary assumptions consist of inflation, real wage growth, and merit increases. The current assumption includes a 3.20 percent wage growth assumption plus merit/longevity increases which depend on years of service and whether employees are management, maintenance/operators, or “all others”.

The State of Maryland has decreased its wage growth assumption from 3.20 percent to 3.10 percent. We recommend mirroring the state assumption for wage growth.

Since Management personnel are paid under the State of Maryland pay system, we recommend no changes to the current assumption. Once a former union member becomes part of the State pay system (and still remains in the union pension plan), their pay increase follows the State system and not the Collective Bargaining Agreement. We recommend using the State of Maryland salary increase assumption of 0.5 percent for this group.

For maintenance and operators, we studied wage growth from 2013 to 2018, while for the “all others” group we studied wage growth from 2015 – 2018. The “all others” group experienced an 8.60 percent increase in the pay schedule 2013. In 2014, several participants experienced large swings in their pay. Since the 2013 data was provided by the prior actuary, we were unable to confirm the accuracy of the pay reported. For these reasons, the wage growth increase for the “all others” group included only 3 years of plan experience.

The following table compares the merit/longevity assumption with the experience.

Years of Service	Management		Maintenance/ Operators		All Others	
	Assumption	Experience	Assumption	Experience	Assumption	Experience
0 – 5	0.50%	N/A	6.00%	4.95%	3.00%	5.53%
6 – 20	0.50%	N/A	0.25%	0.00%	1.00%	5.45%
21 – 29	0.50%	N/A	0.25%	0.00%	1.00%	2.52%
30+	0.50%	N/A	0.00%	0.00%	0.50%	0.00%

Based on the experience we recommend adjusting the salary increase assumption to the rates listed in the table below. We also recommend using the State of Maryland assumption for wage growth which is 3.10 percent.

Years of Service	Recommended Assumption		
	Management	Maintenance/ Operators	All Others
0 – 5	0.50%	6.00%	4.00%
6 – 20	0.50%	0.25%	3.00%
21 – 29	0.50%	0.25%	1.00%
30+	0.50%	0.00%	0.50%

Section 4 – Investment Return

Expected Rate of Return on Plan Assets

Funds are invested with the State of Maryland. The expected rate of return for the State of Maryland is 7.45 percent. Since MTA investments are commingled with the State of Maryland fund, this assumption is selected by the State.

Section 5 – Cost of Living Increase

Cost of Living Increases

When ad hoc retiree COLA's are awarded the percentage, increase is equal to the increase in the Consumer Price Index (CPI-U, U.S. City Average, 1967=100) for the preceding fiscal year (July 1 to June 30), subject to a maximum increase of 3% annually.

The 2018 valuation included two different ad hoc retiree COLA assumptions. One assumption was used for the valuation which determines the Plan contribution amount, and another assumption was used for accounting under GASB 68. For the valuation only COLA's that have been bargained are included, while for accounting, the average COLA was assumed to be 2.50 percent.

The current valuation used to determine the actuarial determined contribution assumes no COLA increases. COLAs are collectively bargained. Many plans with collective bargained benefits make no assumptions for future COLAs because if there is an assumption for future COLAs it would become the starting point for bargaining. However, if there is no provision for COLAs in the liabilities and these benefits are provided on a consistent basis, the COLA awards will cause the funding status of the plan to deteriorate rapidly. We recommend that the COLA assumption not be changed. However, to keep the plan properly funded, COLA awards should continue to be funded rapidly over the course of the Collective Bargaining Agreement (CBA).

The COLA increase for the GASB 68 and GASB 67 valuation should be based on the substantive plan. There has been a consistent pattern of annual COLA awards in since 2008. The COLA assumption should be based on the State of Maryland's COLA assumption of 2.60 percent. However, the assumption should be reduced because over time there will be years with CPI exceeding 3 percent reducing the average COLA award.

We analyzed CPI-U increases from June 1 to June 30 from 2001 to 2018 and found that the ratio of the 14-year geometric average of the CPI-U capped at 3 percent to the uncapped CPI-U was .79. If we apply the .79 factor to the 2.60 percent Maryland uncapped CPI assumption, we get 2.10 percent. This is our recommended COLA assumption for GASB 68 accounting.

Section 6 – Retirement Assumption

Retirement experience is dependent on the plan provisions as well as the group a participant is in. The following are the key provisions:

Normal retirement with unreduced benefits is the first of the month coincident with or immediately following the earlier of:

- a. Attainment of age 65 with 5 years of service
- b. Attainment of age 52 with 30 years of service

Regular (reduced) Early Retirement can occur at age 55 with age plus years of service equal to at least 85.

The current assumptions regarding the probability of retiring depend upon age and group as shown below:

Age	Management	Maintenance	All Others
52	15.00%	1.00%	5.00%
53	15.00%	1.00%	5.00%
54	15.00%	1.00%	5.00%
55	15.00%	1.00%	5.00%
56	15.00%	1.00%	5.00%
57	20.00%	1.00%	5.00%
58	20.00%	1.00%	5.00%
59	20.00%	5.00%	5.00%
60	20.00%	5.00%	10.00%
61	20.00%	5.00%	20.00%
62	25.00%	15.00%	20.00%
63	25.00%	20.00%	20.00%
64	25.00%	20.00%	20.00%
65	25.00%	25.00%	20.00%
66	25.00%	25.00%	25.00%
67	25.00%	25.00%	25.00%
68	25.00%	15.00%	25.00%
69	25.00%	15.00%	25.00%
70	100.00%	15.00%	100.00%
71 – 74	100.00%	15.00%	100.00%
75	100.00%	100.00%	100.00%

Section 6 – Retirement Assumption

The following tables summarize the expected retirement experience and the actual retirement experience for active members in the management group over the years 2014 through 2018. Overall, we expected 72 retirements and counted 70 actual retirements.

Age	Exposures	Actual	Management			
			Actual/ Exposures	Expected	Current Assumption	Proposed Assumption
< 52	4	0	0%	0	0%	0%
52	10	3	30%	1.5	15%	15%
53	8	2	25%	1.2	15%	15%
54	12	3	25%	1.8	15%	15%
55	17	5	29%	2.55	15%	15%
56	19	3	16%	2.85	15%	15%
57	25	6	24%	5	20%	20%
58	29	5	17%	5.8	20%	20%
59	33	7	21%	6.6	20%	20%
60	29	6	21%	5.8	20%	20%
61	25	4	16%	5	20%	20%
62	23	5	22%	5.75	25%	25%
63	15	4	27%	3.75	25%	25%
64	18	5	28%	4.5	25%	25%
65	17	6	35%	4.25	25%	25%
66	9	2	22%	2.25	25%	25%
67	8	0	0%	2	25%	25%
68	4	0	0%	1	25%	25%
69	4	2	50%	1	25%	25%
70	1	1	100%	1	100%	100%
71	1	0	0%	1	100%	100%
72	0	0	0%	0	100%	100%
73	1	0	0%	1	100%	100%
74	1	0	0%	1	100%	100%
75	5	1	20%	5	100%	100%
Total		70		72		72

Our proposed assumptions are shown at the end of the above table.

Section 6 – Retirement Assumption

The following tables summarize the expected retirement experience and the actual retirement experience for active members in the maintenance group over the years 2014 through 2018. Overall, we expected 83 retirements and counted 101 actual retirements.

Maintenance						
Age	Exposures	Actual	Actual/ Exposures	Expected	Current Assumption	Proposed Assumption
< 52	9	0	0%	0	0%	0%
52	15	2	13%	0.15	1%	5%
53	18	1	6%	0.18	1%	5%
54	23	4	17%	0.23	1%	5%
55	37	0	0%	0.37	1%	5%
56	44	5	11%	0.44	1%	5%
57	50	3	6%	0.5	1%	5%
58	48	3	6%	0.48	1%	5%
59	54	3	6%	2.7	5%	5%
60	50	4	8%	2.5	5%	10%
61	44	8	18%	2.2	5%	10%
62	45	6	13%	6.75	15%	15%
63	36	5	14%	7.2	20%	15%
64	62	11	18%	12.4	20%	20%
65	46	12	26%	11.5	25%	25%
66	31	10	32%	7.75	25%	25%
67	27	6	22%	6.75	25%	25%
68	15	2	13%	2.25	15%	25%
69	15	5	33%	2.25	15%	25%
70	12	3	25%	1.8	15%	25%
71	7	3	43%	1.05	15%	25%
72	8	1	13%	1.2	15%	20%
73	5	1	20%	0.75	15%	20%
74	5	1	20%	0.75	15%	20%
75	11	2	18%	11	100%	100%
Total		101		83		101

Our proposed assumptions are shown at the end of the above table.

Section 6 – Retirement Assumption

The following tables summarize the expected retirement experience and the actual retirement experience for active members in the all others group over the years 2014 through 2018. Overall, we expected 197 retirements and counted 156 actual retirements.

All Others						
Age	Exposures	Actual	Actual /Exposures	Expected	Current Assumption	Proposed Assumption
< 52	5	1	20%	0	0%	0%
52	9	1	11%	0.45	5%	8%
53	8	1	13%	0.4	5%	8%
54	12	1	8%	0.6	5%	8%
55	24	3	13%	1.2	5%	8%
56	46	3	7%	2.3	5%	8%
57	58	4	7%	2.9	5%	8%
58	64	6	9%	3.2	5%	8%
59	75	5	7%	3.75	5%	8%
60	70	8	11%	7	10%	10%
61	87	14	16%	17.4	20%	20%
62	81	21	26%	16.2	20%	20%
63	75	14	19%	15	20%	20%
64	100	16	16%	20	20%	20%
65	79	14	18%	15.8	20%	20%
66	67	20	30%	16.75	25%	25%
67	38	8	21%	9.5	25%	25%
68	18	5	28%	4.5	25%	25%
69	14	2	14%	3.5	25%	25%
70	11	3	27%	11	100%	25%
71	8	1	13%	8	100%	15%
72	7	1	14%	7	100%	15%
73	8	1	13%	8	100%	15%
74	8	1	13%	8	100%	15%
75	15	2	13%	15	100%	100%
Total		156		197		157

Our proposed assumptions are shown at the end of the above table.

Section 7 – Termination Assumption

The current termination assumptions depend upon service only. Representative rates are shown below:

Years of Service	Management	Maintenance	Operators	All Others
0	33.00%	15.00%	20.00%	20.00%
1	26.40%	7.00%	10.00%	20.00%
2	21.15%	5.00%	6.00%	15.00%
3	16.95%	5.00%	6.00%	7.00%
4	13.88%	5.00%	5.00%	6.00%
5	10.80%	5.00%	2.00%	6.00%
6	9.45%	3.00%	2.00%	6.00%
7	8.10%	0.50%	2.00%	6.00%
8	6.75%	0.50%	2.00%	6.00%
9	5.40%	0.50%	2.00%	6.00%
10	4.05%	0.50%	2.00%	6.00%
11	4.05%	0.00%	1.50%	6.00%
12	4.05%	0.00%	1.50%	6.00%
13	4.05%	0.00%	1.50%	2.00%
14	4.05%	0.00%	1.50%	2.00%
15	4.05%	0.00%	1.50%	2.00%
16	4.05%	0.00%	1.00%	2.00%
17	4.05%	0.00%	1.00%	2.00%
18	4.05%	0.00%	1.00%	2.00%
19	4.05%	0.00%	1.00%	2.00%
20	4.05%	0.00%	1.00%	0.00%
21	4.05%	0.00%	1.00%	0.00%
22	4.05%	0.00%	1.00%	0.00%
23	4.05%	0.00%	1.00%	0.00%
24	4.05%	0.00%	1.00%	0.00%
25+	0.00%	0.00%	0.00%	0.00%

The following tables summarize the expected turnover experience and the actual turnover experience for active members by group over the years 2014 through 2018. The “actual” turnover was adjusted slightly to reflect the plans actual experience. Overall, we expected 397 exits and counted 406 actual net exits.

Section 7 – Termination Assumption

Service	Exposures	Actual	Management		Current Assumption	Proposed Assumption
			Actual/ Exposures	Expected		
0	3	1	33%	0.99	33.00%	33.00%
1	17	2	12%	4.49	26.40%	25.00%
2	7	0	0%	1.48	21.15%	18.00%
3	9	0	0%	1.53	16.95%	15.00%
4	17	4	24%	2.36	13.88%	12.50%
5	12	2	17%	1.30	10.80%	10.00%
6	9	1	11%	0.85	9.45%	5.50%
7	11	0	0%	0.89	8.10%	5.50%
8	22	1	5%	1.49	6.75%	5.50%
9	28	0	0%	1.51	5.40%	5.50%
10	29	4	14%	1.17	4.05%	5.50%
11	27	1	4%	1.09	4.05%	5.50%
12	37	2	5%	1.50	4.05%	5.50%
13	34	1	3%	1.38	4.05%	5.50%
14	30	0	0%	1.22	4.05%	5.50%
15	37	2	5%	1.50	4.05%	3.50%
16	42	2	5%	1.70	4.05%	3.50%
17	38	1	3%	1.54	4.05%	3.50%
18	37	1	3%	1.50	4.05%	3.50%
19	40	0	0%	1.62	4.05%	3.50%
20	33	0	0%	1.34	4.05%	1.50%
21	30	0	0%	1.22	4.05%	1.50%
22	37	1	3%	1.50	4.05%	1.50%
23	32	0	0%	1.30	4.05%	1.50%
24	33	1	3%	1.34	4.05%	1.50%
25	80	2	3%	-	0.00%	0.00%
Total		29		38		33

Section 7 – Termination Assumption

Service	Exposures	Actual	Maintenance		Current Assumption	Proposed Assumption
			Actual/ Exposures	Expected		
0	57	9	16%	8.55	15.00%	15.00%
1	77	3	4%	5.39	7.00%	7.00%
2	97	2	2%	4.85	5.00%	5.00%
3	99	5	5%	4.95	5.00%	5.00%
4	126	10	8%	6.30	5.00%	5.00%
5	148	6	4%	7.40	5.00%	4.00%
6	167	3	2%	5.01	3.00%	3.00%
7	148	0	0%	0.74	0.50%	0.50%
8	156	1	1%	0.78	0.50%	0.50%
9	127	3	2%	0.64	0.50%	0.50%
10	121	2	2%	0.61	0.50%	0.50%
11	128	1	1%	-	0.00%	0.00%
12	146	2	1%	-	0.00%	0.00%
13	141	1	1%	-	0.00%	0.00%
14	140	0	0%	-	0.00%	0.00%
15	137	0	0%	-	0.00%	0.00%
16	128	1	1%	-	0.00%	0.00%
17	97	1	1%	-	0.00%	0.00%
18	84	0	0%	-	0.00%	0.00%
19	80	1	1%	-	0.00%	0.00%
20	65	0	0%	-	0.00%	0.00%
21	41	0	0%	-	0.00%	0.00%
22	47	0	0%	-	0.00%	0.00%
23	41	0	0%	-	0.00%	0.00%
24	40	0	0%	-	0.00%	0.00%
25	150	1	1%	-	0.00%	0.00%
Total		52		45		44

Section 7 – Termination Assumption

Service	Exposures	Actual	Operators		Current Assumption	Proposed Assumption
			Actual/ Exposures	Expected		
0	247	39	16%	49.40	20.00%	17.00%
1	379	44	12%	37.90	10.00%	12.00%
2	409	23	6%	24.54	6.00%	5.50%
3	371	21	6%	22.26	6.00%	5.50%
4	422	22	5%	21.10	5.00%	5.00%
5	505	17	3%	10.10	2.00%	3.50%
6	469	6	1%	9.38	2.00%	2.50%
7	384	10	3%	7.68	2.00%	2.50%
8	354	12	3%	7.08	2.00%	2.50%
9	298	8	3%	5.96	2.00%	2.50%
10	238	2	1%	4.76	2.00%	1.50%
11	241	7	3%	3.62	1.50%	1.50%
12	259	6	2%	3.89	1.50%	1.50%
13	291	1	0%	4.37	1.50%	1.50%
14	284	2	1%	4.26	1.50%	1.50%
15	278	2	1%	4.17	1.50%	1.50%
16	267	4	1%	2.67	1.00%	1.50%
17	229	4	2%	2.29	1.00%	1.50%
18	178	4	2%	1.78	1.00%	1.50%
19	144	4	3%	1.44	1.00%	1.50%
20	122	0	0%	1.22	1.00%	1.00%
21	109	1	1%	1.09	1.00%	1.00%
22	88	2	2%	0.88	1.00%	1.00%
23	83	1	1%	0.83	1.00%	1.00%
24	82	2	2%	0.82	1.00%	1.00%
25	195	3	2%	-	0.00%	0.00%
Total		247		233		248

Section 7 – Termination Assumption

Service	Exposures	Actual	All Others		Current Assumption	Proposed Assumption
			Actual / Exposures	Expected		
0	59	14	24%	11.80	20.00%	20.00%
1	101	12	12%	20.20	20.00%	20.00%
2	116	19	16%	17.40	15.00%	15.00%
3	84	12	14%	5.88	7.00%	10.00%
4	78	6	8%	4.68	6.00%	6.00%
5	79	3	4%	4.74	6.00%	6.00%
6	64	3	5%	3.84	6.00%	6.00%
7	57	4	7%	3.42	6.00%	6.00%
8	48	1	2%	2.88	6.00%	4.00%
9	34	1	3%	2.04	6.00%	4.00%
10	24	1	4%	1.44	6.00%	4.00%
11	18	0	0%	1.08	6.00%	4.00%
12	13	0	0%	0.78	6.00%	4.00%
13	10	0	0%	0.20	2.00%	2.00%
14	11	0	0%	0.22	2.00%	2.00%
15	10	1	10%	0.20	2.00%	2.00%
16	9	0	0%	0.18	2.00%	2.00%
17	9	0	0%	0.18	2.00%	2.00%
18	7	1	14%	0.14	2.00%	2.00%
19	6	0	0%	0.12	2.00%	2.00%
20	6	0	0%	-	0.00%	0.00%
21	7	0	0%	-	0.00%	0.00%
22	3	0	0%	-	0.00%	0.00%
23	3	0	0%	-	0.00%	0.00%
24	3	0	0%	-	0.00%	0.00%
25	15	0	0%	-	0.00%	0.00%
Total		78		81		81

Section 8 – Disability Assumption

The current disability assumptions depend upon age only. Representative rates are shown below:

Age	Annual Percentage of Disablement
20	0.19%
30	0.27%
40	0.46%
50	1.22%
60	1.98%

The following tables summarize the expected disability experience and the actual disability experience for active members over the years 2014 through 2018. Overall, we expected 150 disabilities and counted 104 actual disabilities.

Age	Exposures	Actual	Actual /Exposures	Expected	Current Assumption*	Proposed Assumption*
<15	0	0	0%	0	0.00%	0.00%
15	0	0	0%	0	0.00%	0.00%
16	0	0	0%	0	0.00%	0.00%
17	0	0	0%	0	0.00%	0.00%
18	0	0	0%	0	0.00%	0.00%
19	1	0	0%	0	0.00%	0.00%
20	1	0	0%	0.0019	0.19%	0.19%
21	6	0	0%	0.0114	0.19%	0.19%
22	16	0	0%	0.0304	0.19%	0.19%
23	27	0	0%	0.0513	0.19%	0.19%
24	52	0	0%	0.0988	0.19%	0.19%
25	89	0	0%	0.1691	0.19%	0.19%
26	122	0	0%	0.25132	0.21%	0.21%
27	160	1	1%	0.3552	0.22%	0.22%
28	199	0	0%	0.47362	0.24%	0.24%
29	211	0	0%	0.53594	0.25%	0.25%
30	231	2	1%	0.6237	0.27%	0.27%
31	217	0	0%	0.62713	0.29%	0.29%
32	230	0	0%	0.7084	0.31%	0.31%
33	216	1	0%	0.70632	0.33%	0.33%
34	238	1	0%	0.82348	0.35%	0.35%
35	260	1	0%	0.949	0.37%	0.37%
36	250	3	1%	0.96	0.38%	0.38%
37	264	0	0%	1.06392	0.40%	0.40%

Section 8 – Disability Assumption

Age	Exposures	Actual	Actual /Exposures	Expected	Current Assumption*	Proposed Assumption*
38	248	3	1%	1.04656	0.42%	0.42%
39	249	1	0%	1.09809	0.44%	0.44%
40	277	0	0%	1.2742	0.46%	0.46%
41	267	2	1%	1.43112	0.54%	0.48%
42	296	0	0%	1.81152	0.61%	0.50%
43	312	3	1%	2.14656	0.69%	0.52%
44	337	1	0%	2.57468	0.76%	0.54%
45	353	1	0%	2.9652	0.84%	0.56%
46	361	2	1%	3.30676	0.92%	0.57%
47	400	5	1%	3.968	0.99%	0.59%
48	415	2	0%	4.4322	1.07%	0.61%
49	444	4	1%	5.07936	1.14%	0.63%
50	464	2	0%	5.6608	1.22%	0.65%
51	471	1	0%	6.10416	1.30%	0.67%
52	498	3	1%	6.83256	1.37%	0.69%
53	487	4	1%	7.05176	1.45%	0.71%
54	502	3	1%	7.65048	1.52%	0.73%
55	491	8	2%	7.856	1.60%	0.94%
56	464	7	2%	7.77664	1.68%	1.14%
57	449	5	1%	7.86648	1.75%	1.35%
58	416	1	0%	7.60448	1.83%	1.56%
59	402	4	1%	7.65408	1.90%	1.77%
60	359	7	2%	7.1082	1.98%	1.98%
61	332	4	1%	6.5736	1.98%	1.98%
62	302	7	2%	5.9796	1.98%	1.98%
63	231	8	3%	4.5738	1.98%	1.98%
64	188	3	2%	3.7224	1.98%	1.98%
65	146	0	0%	2.8908	1.98%	1.98%
66	111	1	1%	2.1978	1.98%	1.98%
67	77	0	0%	1.5246	1.98%	1.98%
68	38	1	3%	0.7524	1.98%	1.98%
69	34	0	0%	0.6732	1.98%	1.98%
70	25	1	4%	0.495	1.98%	1.98%
71	16	0	0%	0.3168	1.98%	1.98%
72	17	0	0%	0.3366	1.98%	1.98%
73	14	0	0%	0.2772	1.98%	1.98%
74	15	0	0%	0.297	1.98%	1.98%
75 +	31	1	3%	0.6138	1.98%	1.98%
Total		104		150		114



Section 9 – OPEB Assumptions

Election Rate

The following tables summarize the election experience for active members over the years 2013 through 2017. We are recommending no change to the election rate at this time. Since the OPEB data provided was difficult to consistently match to the pension data, we are unable to comment on the actual election rates for the plan. We have included our results for comparison purposes and will continue to monitor the election rates in the future. We are requesting social security numbers on all data provided to better match participants and monitor election rates.

Year	Election %
2013	70%
2014	72%
2015	84%
2017	68%

Long Term Medical Trend Assumption

The retiree contributions were assumed to increase as follows:

- Retiree contributions for medical premiums were assumed to increase at 4.50% per annum
- Retiree contributions for Drug, dental, and vision premiums were assumed to increase at 0.00% per annum

We recommend that the medical trend for Medical, drug and Medicare Part B costs assumption be based on the Society of Actuaries (SOA) Long Term Trend Model. This model was developed by an international health economist with consultation from practicing actuaries. The model adds transparency to the health trend assumption by disclosing the economic assumptions behind the trend. The SOA provides baseline economic input assumptions. We recommend the MTA use the baseline assumptions from the most recently released trend model. The model's baseline assumptions are reviewed annually by the SOA, however we recommend not changing the trend assumption until the next experience study. The model trend rates have been fairly consistent in recent years.

Section 9 – OPEB Assumptions

Long Term Medical Trend Assumption

The following table compares the current and proposed SOA baseline assumptions. We are recommending the MTA update the trend table to the most recent table released by the SOA on October 2018. following inputs to the SOA long term trend model.

Input	Current SOA Assumption	Proposed SOA Assumption
Inflation	2.7%	2.4%
Real Growth	1.6%	1.5%
Excess Medical Spending Above General Economic Growth	1.4%	1.2%
Expected Health Share of GDP in Year	2020	2028
Expected Health Share of GDP	19.2%	20.5%
Share of GDP above which cost growth is assumed to meet resistance.	25.0%	25.0%
Year When Health Care Spending Limited to GDP Growth	2075	2075

In addition, starting in 2022 Health Care Reform will impose a “Cadillac Tax” on health plans with costs in excess of a \$10,200 per year threshold. The \$10,200 threshold will be adjusted for general inflation only which is historically less than health care increases. The excise tax will only be applied to pre-65 benefits.

Section 9 – OPEB Assumptions

The resulting trend is as follows:

Year	Pre Medicare	Post Medicare
2017	5.40%	5.40%
2018	5.40%	5.40%
2019	5.40%	5.40%
2020	5.40%	5.40%
2025	5.19%	5.19%
2030	5.18%	5.18%
2035	6.25%	5.18%
2040	6.07%	5.18%
2045	5.93%	5.18%
2050	5.49%	4.91%
2055	5.28%	4.80%
2060	5.12%	4.72%
2065	5.00%	4.65%
2070	4.53%	4.27%
2075	4.13%	3.94%

We recommend no change to the dental and vision trend assumption, and to the assumptions for retiree contributions increases.