City of Rockville
Post-Employment Medical Benefits
Actuarial Valuation
to Determine the City's Contribution
for the Fiscal Years Ending
June 30, 2019 and June 30, 2020

February 14, 2018

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

BOLTON PARTNERS

February 14, 2018

Mr. Gavin Cohen
Director of Finance
City of Rockville
111 Maryland Avenue
Rockville, MD 20850-2364

Dear Gavin:

The following report contains the Actuarial Determined Contribution for the City of Rockville's Other Post-Employment Benefit (OPEB) Plan (the Plan) to determine the 2019 and 2020 recommended contribution for the Plan. The GASB 75 accounting information will be provided in a separate report.

Section 1 of the report provides an executive summary while Sections 2 through 5 contain the development of the City's contributions for the 2018-2019 fiscal year and 2019-2020 fiscal year along with a summary of the census and asset data, plan provisions, assumptions and actuarial methods. Section 6 provides a glossary of many of the terms used in this report.

This report has been prepared for the City of Rockville for the purposes of computing the Actuarially Determined Contribution for 2019 and 2020. It is neither intended nor necessarily suitable for other purposes. Bolton Partners is not responsible for the consequences of any other use or the reliance upon this report by any other party.

In general, post-employment medical valuations are based on an assumption for medical cost increases. If medical costs increase at a rate greater than our assumption there could be a dramatic increase in the cost. The report shows the impact of 1 percent (over all years) increase in the medical trend assumption. Future actuarial measurements may differ significantly from the current measurements presented in this report, 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 for these measurements (such as City contributions at a different level than assumed), or
- Changes in plan provisions, applicable law or accounting rules.

The City is responsible for selecting the plan's funding policy, actuarial valuation methods, asset valuation methods, and assumptions. The policies, methods and assumptions used in this valuation are those that have been so prescribed and are described in this report. The City is solely responsible for communicating to Bolton Partners, Inc. any changes to these items.

The report is based on November 1, 2017 census data and asset information as of June 30, 2017. The medical claims are developed from premium information provided by the City for 2017 calendar year. We have not performed an audit on the data and have relied on this information for purposes of preparing this report.

The actuarial methods and assumptions used in this report comply with the actuarial standards of practice promulgated by the American Academy of Actuaries.

Bolton Partners is completely independent of the City of Rockville, its programs, activities, and any of its officers or key personnel. Bolton Partners, and anyone closely associated with us, does not have any relationship which would impair or appear to impair our independence on this assignment.

The funding policy is designed so that if investment, economic, and demographic experience follows assumptions then benefits for retirees will be fully funded upon their retirement. Funding in this manner is meant to avoid the large pay as you go increases that are shown in the Appendix as total expected benefit payments.

This report provides certain financial calculations for use by the auditor. These values have been computed in accordance with our understanding of generally accepted actuarial principles and practices and fairly reflect the actuarial position of the Plan. The various actuarial assumptions and methods which have been used are, in our opinion, appropriate for the purposes of this report.

The undersigned credentialed actuary meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

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1. Executive Summary

Background

Bolton Partners, Inc. has prepared the following report that sets forth the 2019 and 2020 Actuarially Determined Contribution (ADC) for the City of Rockville. This report does not provide GASB 75 accounting information.

This report has been prepared for budgeting purposes. Under GASB45 an Actuarially Required Contribution (ARC) was determined. The City's contribution policy has been to contribute the ARC to the OPEB trust. GASB75 has separated funding and accounting. GASB75 does have a concept of an Actuarial Determined Contribution (ADC) that ensures plan solvency and is a disclosure item. The City has decided to determine the ADC using the same method and assumptions used to determine the GASB 45 ARC offset by the expected value of the implicit subsidy included in retiree benefit payments. This offset is an adjustment to recognize that retiree premiums are subsidized by the active employee premiums. The implicit subsidy offset amount used in the 2020 ADC is equal to the same percentage of total expected benefit payments as determined for the 2019 ADC.

OPEB Trust Arrangement and Funding Policy

The City's OPEB plan is a single employer plan. It is our understanding that the City's contribution policy is to contribute an amount at least equal to the sum of normal cost and amortization payments less an implicit subsidy adjustment, as shown in this report. Based on the assumptions and methods disclosed elsewhere in this report, the Plan is expected to reach 100% funded status by the end of the amortization schedule shown in this report.

Assets

Asset information was provided by the City as shown in the 2017 CAFR. The July 1, 2017 asset value is $7,000,296.

Actuarially Determined Contribution

The actuarially determined contribution (ADC) for 2019 and 2020 are $582,804 and $591,190, respectively. The calculations and a reconciliation from the prior year are shown in Section 2.

Plan Provisions

Employees who retire prior to Medicare eligibility may choose between several medical plans including a PPO plan, an HMO plan, and a POS plan, all of which are packaged with prescription benefits. Retirees and their families pay 20% of the published rates of the lowest cost plan or the same rate as active employees. Surviving spouses receive no explicit subsidy, but are permitted to remain in the plan and pay 100% of the published costs. The City makes no contribution toward the benefits after Medicare eligibility, generally age 65.

1. Executive Summary (cont.)

Demographic Data

Demographic data as of November 1, 2017 was provided to us by the City. This data included current medical coverage for current employees and retirees. Although we have not audited this data we have no reason to believe that it is inaccurate.

Claims Data

Monthly premium rates for 2017 were provided by the City. Although we have not audited the rate information we have no reason to believe that it is inaccurate.

Implicit Subsidy

The published insurance rates for persons prior to Medicare eligibility are based primarily on the healthcare usage of active employees. Since retirees use healthcare at a rate much higher than employees, using these blended rates creates an implicit subsidy for the retiree group. Actuarial standards require that the claims assumption we use for this valuation be based on per-capita retiree cost. The difference between the actual usage of healthcare by retirees and the assumption built into the published rates is identified as the implicit subsidy amount.

Demographic Assumptions

Demographic assumptions mirror those used for the City of Rockville Pension Plan. The mortality assumptions have been changed since the last actuarial valuation. Section 5 details the assumptions including the percentage of future retirees electing coverage.

Impact of Health Care Reform

We have adjusted the pre-65 medical care trend due to the projected impact of the "Cadillac Tax". The Cadillac Tax is one of the provisions of the Affordable Care Act (ACA) of 2010. The Cadillac Tax provision is effective in 2022. The Cadillac Tax only applies to plans that cost $10,200 or more for an individual or $27,500 per family. There will be a 40 percent excise tax for expenditures over these thresholds. The cost thresholds are indexed by general inflation each year after 2018. Because medical trends are projected to be higher than general inflation we expect the percentage of the premium that is subject to the premium tax to increase over time.

There are other provisions of the ACA that could impact future costs. Some of the provisions (for example risk adjustment charges for plans that cover healthier populations) could increase costs, while others (for example, less uninsured care costs might be passed on to those with insurance) may reduce costs over time. Because the impact of these provisions is unclear at this time, we have made no other adjustments to the medical care trend.

1. Executive Summary (cont.)

Discount Rate Assumption

The discount rate assumption is 7.00%. This rate is the expected long-term rate of return on the OPEB trust.

Other Economic Assumptions

The medical trend assumption is based on the updated Society of Actuaries (SOA) Long-Run Medical Cost Trend Model baseline assumptions. The updated SOA Model was released in April 2010 and updated in November 2014. The following assumptions were used as input variables into this model:

Rate of Inflation	2.2%
Rate of Growth in Real Income / GNP per capita	1.6%
Extra Trend due to Technology and other factors	1.4%
Health Share of GDP Resistance Point	25.0%
Year for Limiting Cost Growth to GNP Growth	2075

The SOA Long-Run Medical Cost Trend Model and its baseline projection are based on an econometric analysis of historical U.S. medical expenditures and the judgments of experts in the field. The long-run baseline projection and input variables have been developed under the guidance of an SOA Project Oversight Group.

The pre- Medicare medical trend was increased to reflect the impact of the Cadillac Tax. For this calculation, general inflation was assumed to be 2.75 percent per annum.

Payroll is assumed to increase at 2.5 percent per annum. This assumption is used to determine the level percentage of payroll amortization factor.

1. Executive Summary (cont.)

Actuarial Certification

In preparing the valuation we relied on demographic data, health care premium rates and asset information provided by the City of Rockville. We reviewed the data for reasonableness, but did not audit the data. The actuarial methods and assumptions used in this report comply with the actuarial standards of practice promulgated by the American Academy of Actuaries.

Future medical care cost increase rates are unpredictable and could be volatile. They will depend upon the economy, future health care delivery systems and emerging technologies. The trend rate selected is based on an economic model developed by a health care economist for the Society of Actuaries. Future medical trend increases could vary significantly from the model. Model inputs will be updated periodically based on the best estimate of the economy at that time. Small changes in the model inputs can results in actuarial losses or gains of 5 to 15 percent of liabilities.

Jim McPhillips is a Member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

2. Actuarially Determined Contribution

Below is a summary of the calculation of the Funding Target and the City's Cash Contribution under the funding policy. The funding policy is determined using the fully funded discount rate of 7.00 percent with amortization of unfunded accrued liability over a closed period with 21 years remaining.

Measurement Date	07/01/2017	07/01/2018
1) Actuarial Accrued Liability		
a. Actives	8,379,474	8,943,655
b. Retirees in Pay Status	1,873,622	1,999,772
c. Total	10,253,096	10,943,426
2) Assets	7,000,296	7,613,000
3) Amortization of Unfunded Accrued Liability		
a. Unfunded Accrued Liability	3,252,800	3,330,426
b. Amortization Period	21.00	20.00
c. Amortization Factor (Rounded)	13.21	12.81
d. Amortization Amount	246,275	259,941
4) Actuarially Determined Contribution (ADC) – As of End of Fiscal Year		
a. Normal Cost	527,335	547,496
b. Amortization of Unfunded Accrued Liability	246,275	259,941
c. Subtotal (a. + b.)	773,610	807,437
d. Implicit subsidy benefit payments	190,806	216,247
e. Total (c. – d.)	582,804	591,190

Reconciliation of ADC

	Normal Cost	Amort of UAL	Adjust for Implicit Subsidy	ADC
Prior Valuation (prior actuary)	473,900	155,800	0	629,700
Expected values with no changes	491,810	162,030	0	653,850
Updated data and claims	456,000	186,000	0	642,000
New Discount Rate of 7.00%	486,000	212,000	0	698,000
New Medical Trend	520,000	240,000	0	760,000
Updated decrements to match the Pension Plan's assumptions	587,000	319,000	0	906,000
New Mortality Decrement	586,000	316,000	0	902,000
Assume 90% participation for future retirees	527,335	246,275	0	773,610
Adjust for Implicit Subsidy	527,335	246,275	190,806	582,804

3. Valuation Data

Counts

The following table summarizes the counts, ages and coverage as of 11/1/2017.

(1)	Number of Participants	
	(a) Employees	350
	(b) Disabled	4
	(c) Retirees (Pre-Medicare)	26
	(d) Total	380
(2)	Employee Statistics	
	(a) Average Age	45.25
	(b) Average Service	12.33
(3)	Retiree Statistics (In Pay Status)	
	(a) Average Age – Retirees (Pre-Medicare)	61.36

3. Valuation Data (cont.)

Active Age - Service Distribution

Shown below is the distribution of active participants with medical coverage based on age and service as of 11/1/2017.

	Years of Service as of 11/1/2017							
Age	**Under 1**	**01-04**	**05-09**	**10-14**	**15-19**	**20-24**	**25+**	**Total**
Under 25	0	2	0	0	0	0	0	2
25 - 29	4	12	8	6	0	0	0	30
30 - 34	11	16	9	6	0	0	0	42
35 - 39	5	13	14	12	5	2	0	51
40 - 44	1	12	10	9	8	2	0	42
45 - 49	1	11	2	15	5	5	3	42
50 - 54	1	1	11	7	17	8	16	61
55 - 59	1	10	2	8	13	3	21	58
60 - 64	0	3	2	1	3	4	9	22
65 and Up	0	0	0	0	0	0	0	0
Totals	24	80	58	64	51	24	49	350

The following table shows averages in total for Active participants in this valuation.

Averages	**Amount**
Age:	45.25
Service:	12.33

4. Summary of Principal Plan Provisions

General Eligibility Rules

Eligible participants are assumed to be employees, former employees or beneficiaries of the City of Rockville who had health coverage as an active employee.

The Rockville Employee Retirement System administers the OPEB plan and stipulates the age and service requirements for retirements. Generally, retirees must be vested in the retirement system, meet early or normal retirement requirements and elect to remain in the plan upon retirement.

Underlying Plan Description

Pre-Medicare retirees may choose between several medical plans including a PPO plan, an HMO plan, and a POS plan, all of which are packaged with prescription benefits. Retirees who elect to stay with the City's group health policy receive the same level of medical insurance premium support given to current employees up until age 65. Outside of the geographic area served by the City's group health insurance carriers a retiree may purchase coverage and receive reimbursement from the City in an amount not to exceed the prevailing two-person coverage employer rate granted to current employees.

Retiree Contribution

Retirees and their families pay 20% of the published rates for the lowest cost plan, similar to the active employee contributions. Surviving spouses receive no explicit subsidy, but are permitted to remain in the plan and pay 100% of the published costs.

5. Valuation Methods and Assumptions

Cost Method

This valuation uses the Projected Unit Credit method, with linear pro-ration to assumed benefit commencement.

Amortization Method

Liabilities are amortized over a closed 21-year period as a level of percentage of payroll.

Assets

Are valued using the market value of assets.

Coverage Status and Age of Spouse

Actual coverage status is used; females are assumed to be 3 years younger than their male spouse. Employees with individual coverage are assumed to elect individual coverage in retirement, and those with spouse/family coverage are assumed to continue this coverage upon retirement. Employees currently waiving coverage are assumed to continue to waive coverage upon retirement.

This valuation assumes that 100% of eligible participants will continue the same coverage levels upon retirement.

Interest Assumptions

Discount Rate as of 6/30/2017: 7.00%

Payroll Growth 2.50%

Participation rate 90% actives will participate in the plan if eligible upon retirement.

5. Valuation Methods and Assumptions (cont.)

Medical Cost Trend Assumptions

Based upon SOA Model, released August 2017, 1.6% GDP. Medical cost trend rates used in this valuation include an adjustment for Cadillac tax effective in 2020.

Year	Pre Medicare	Post Medicare
2017	5.40%	5.40%
2018	5.50%	5.50%
2019	5.40%	5.40%
2020	5.30%	5.30%
2021	5.20%	5.20%
2022	5.33%	5.20%
2023	6.39%	5.20%
2024	6.34%	5.19%
2025	6.29%	5.19%
2030	6.09%	5.19%
2040	5.82%	5.19%
2050	5.23%	4.83%
2060	4.92%	4.63%
2070	4.36%	4.18%
2080	3.96%	3.84%
2090	3.94%	3.84%
2097 and on	3.93%	3.84%

Employer flat dollar subsidy amounts are assumed to increase with medical trend annually.

5. Valuation Methods and Assumptions (cont.)

Decrement Assumptions

Below is a summary of decrements used in this valuation. Sample Retirement, Disability, and Termination rates are illustrated in the tables below.

Mortality Decrements		Description
(1)	Active Healthy	RP-2014 Total Dataset mortality table projected generationally using scale MP-2017
(2)	Inactive Healthy	RP-2014 Total Dataset mortality table projected generationally using scale MP-2017
(3)	Inactive Disabled	RP-2014 Disabled Retiree mortality table projected generationally using scale MP-2017
		Projection to the year of the valuation is assumed to be current mortality experience. The generational projection beyond the year of the valuation is assumed to account for future mortality improvements. The mortality assumption is based on a standard blue-collar mortality table with the initial projection scale produced with the table.

Disability

Sample Disability rates are as follows:

Age	*Male*	*Female*
25	0.02%	0.04%
30	0.06%	0.09%
35	0.11%	0.14%
40	0.17%	0.19%
45	0.30%	0.30%
50	0.42%	0.45%
55	0.55%	0.57%
60	N/A	N/A

Termination

Sample Termination rates are as follows:

Years of Service	*Police*	*Administrative and Union*
0	20.0%	17.0%
1	20.0%	13.0%
5	4.0%	9.0%
10	1.0%	4.0%
15	1.0%	3.5%
25	0.0%	2.5%

5. Valuation Methods and Assumptions (cont.)

Decrement Assumptions (cont.)

Retirement

Sample Retirement rates are as follows:

Age	*Police*	*Administrative and Union*
<50	0.0%	0.0%
50-53	10.0%	2.5%
54	10.0%	5.0%
55-57	20.0%	5.0%
58	30.0%	5.0%
59	40.0%	25.0%
60	50.0%	20.0%
61-63	100.0%	20.0%
64-69		25.0%
70		100.0%

Claims Assumption

The plan is fully insured. To determine the assumed cost and the retiree contributions, we weighted the premium rates by the current enrollment.

Gross claims are equal to the age adjusted assumed cost. The resulting average pre-age 65 claims were age adjusted.

The following chart shows the total costs including both medical and prescription drug as well as the assumed costs.

	Claims Cost	
	Single	**Family**
1. Total Costs		
a. Under 50	7,471	19,612
b. Age 50-54	9,103	23,897
c. Age 55-59	10,672	28,018
d. Age 60-64	12,870	33,786
e. Age 65 and Older	N/A	N/A
2. Assumed Costs	7,997	20,993

6. Glossary

Actuarially Determined Contribution: For Plans with irrevocable trusts, the recommended contribution to the Plan (determined in conformity with Actuarial Standards of Practice) that is projected to result in assets equaling the actuarial accrued liability within a period of time.

Covered Group: Plan members included in an actuarial valuation.

Discount Rate: The rate used to adjust a series of future payments to reflect the time value of money.

Election Rate: The percentage of retiring employees assumed to elect coverage.

Employer's Contributions: Contributions made in relation to the actuarially determined contributions of the employer (ADC). An employer has made a contribution in relation to the ADC if the employer has (a) made payments of benefits directly to or on behalf of a retiree or beneficiary, (b) made premium payments to an insurer, or (c) irrevocably transferred assets to a trust, or an equivalent arrangement, in which plan assets are dedicated to providing benefits to retirees and their beneficiaries in accordance with the terms of the plan and are legally protected from creditors of the employer(s) or plan administrator.

Entry Age Normal Funding Method: A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit.

Funded Ratio: The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Healthcare Cost Trend Rate: The rate of change in per capita health claim costs over time as a result of factors such as medical inflation, utilization of healthcare services, plan design, and technological developments.

Measurement Date: A day selected by the local government from the last day of the prior fiscal year to the last day of the current fiscal year. The measurement date is not necessarily the same date as the valuation date.

6. Glossary (cont.)

OPEB Plan: An OPEB plan having terms that specify the amount of benefits to be provided at or after separation from employment. The benefits may be specified in dollars (for example, a flat dollar payment or an amount based on one or more factors such as age, years of service, and compensation), or as a type or level of coverage (for example, prescription drugs or a percentage of healthcare insurance premiums).

Other Post-Employment Benefits: Post-employment benefits other than pension benefits. Other post-employment benefits (OPEB) include post-employment healthcare benefits, life insurance, regardless of the type of plan that provides them, and all post-employment benefits provided separately from a pension plan, excluding benefits defined as termination offers and benefits.

Pay-as-you-go (PAYGO): A method of financing a benefit plan under which the contributions to the plan are generally made at about the same time and in about the same amount as benefit payments and expenses becoming due.

Payroll Growth Rate: An actuarial assumption with respect to future increases in total covered payroll attributable to inflation; used in applying the level percentage of projected payroll amortization method.

Plan Liabilities: Obligations payable by the plan at the reporting date, including, primarily, benefits and refunds due and payable to plan members and beneficiaries, and accrued investment and administrative expenses. Plan liabilities do not include actuarial accrued liabilities for benefits that are not due and payable at the reporting date.

6. Glossary (cont.)

Plan Members: The individuals covered by the terms of an OPEB plan. The plan membership generally includes employees in active service, terminated employees who have accumulated benefits but are not yet receiving them, and retired employees and beneficiaries currently receiving benefits.

Post-employment: The period between termination of employment and retirement as well as the period after retirement.

Post-employment Healthcare Benefits: Medical, dental, vision, and other health-related benefits provided to terminated or retired employees and their dependents and beneficiaries.

Select and Ultimate Rates: Actuarial assumptions that contemplate different rates for successive years. Instead of a single assumed rate with respect to, for example, the investment return assumption, the actuary may apply different rates for the early years of a projection and a single rate for all subsequent years. For example, if an actuary applies an assumed investment return of 8% for year 2015, 7.5% for 2016, and 7% for 2017 and thereafter, then 8% and 7.5% are select rates, and 7% is the ultimate rate.

Service Cost: That portion of the Actuarial Present Value of plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

Valuation Date: The as-of date for employee census data. Under GASB 75, the valuation date must be within 30 months of the last day of the fiscal year.

Appendix

Expected Benefit Payments

	Expected Benefit Payments			
Plan Year Ending 6/30	***Total***	***Actives***	***Inactive Explicit***	***Inactive Implicit***
2018	536,483	135,870	209,807	190,806
2019	608,017	236,595	189,097	182,325
2020	695,186	367,953	160,653	166,580
2021	814,023	510,977	142,535	160,511
2022	905,277	671,383	105,402	128,492
2023	934,287	772,341	68,910	93,036
2024	1,000,159	860,036	54,395	85,728
2025	1,122,653	987,065	47,880	87,708
2026	1,206,134	1,083,519	41,112	81,503
2027	1,282,370	1,155,628	40,133	86,609

Please note:

- *The expected benefit payment stream shown above assumes that the covered population is a closed group, i.e. there are no new entrants or re-entrants.*
- *The Plan's actual benefit payments may be greater or lesser than the amounts shown, depending on actual demographic experience and claims experience.*
- *Implicit benefit payments are the amount of the retiree premium that is assumed to be subsidized by active employee rates because the same rates are charged to active employees and retired participants under age 65*