

***Municipality of Middlesex Centre  
2018 Water, Wastewater and Stormwater Rate Review  
Technical Review  
November 1, 2017***

*Prepared by*

**BMA**  
MANAGEMENT CONSULTING INC.

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### Purpose of the Study

BMA Management Consulting Inc. was engaged by the Municipality of Middlesex Centre to undertake a review of the water, wastewater and storm rates for 2018. One of the primary focuses was to prepare an impact analysis on revenues/expenditures under four alternative scenarios to provide Council with the required information to make an informed decision based on the following Council resolution:

- *THAT staff prepare a report on the ramifications of lowering the minimum water and wastewater usage rates in 2018 by 2.5%, 5% and 10%.*

The analysis also includes the base rates calculated using the 2018 Operating Budget and includes an option to keep the rates at the 2017 levels, with no increase in rates. This report is intended to be a technical analysis using the most current available information as provided by the Municipality.

### Background

Middlesex Centre's water/ww and storm rates were frozen in 2017 at the 2016 levels. The following summarizes the existing rates:

2017		Water	WW
Total Fixed Monthly Water Charge		\$ 22.76	\$ 29.30
Water Usage Charge (Volumetric) 0-8 m3		no additional charge	
Water Usage Charge (Volumetric) per m3 for consumption exceeding 8 m3		\$ 2.84	\$ 3.66
Infrastructure Lifecycle Reserve Fund Charge based on Meter Size - Monthly	5/8"	\$ 18.00	\$ 17.32
	3/4"	\$ 27.00	\$ 25.98
	1"	\$ 45.00	\$ 43.30
	1.5"	\$ 90.00	\$ 86.61
	2"	\$ 144.00	\$ 138.57

Storm	2017
if property is less than 0.4 ha, monthly fee	14.88
if greater than 0.4 ha	
monthly flat fee	14.88
monthly per hectare	42.18

**2018 Operating Budget and Assumptions—Water/WW**

The following table summarizes the 2018 Operating Budget rate revenue requirements and assumptions that were used to develop the rate model. The 2016 assumptions have also been included to help understand the changes that will impact the cost of service and the rates.

Rate Revenue Requirements	2016	2018	% Difference
Water Volumetric and Fixed	\$ 1,934,525	\$ 1,929,160	-0.3%
WW Volumetric and Fixed	\$ 1,830,800	\$ 1,881,611	2.8%
Water Infrastructure Reserve Fund	\$ 745,851	\$ 812,160	8.9%
WW Infrastructure Reserve Fund	\$ 551,664	\$ 618,747	12.2%

- As shown above, the 2018 Operating Budget rate revenue requirements that will be generated from the water volumetric and fixed monthly rates in 2018 are 0.3% less in water than in 2016.
- Conversely, the wastewater volumetric and fixed rate revenue requirements in 2018 are 2.8% higher than in 2016.
- Consistent with the long range financial plan that identified the need to address the infrastructure gap in both water and wastewater, there is a need to increase the contributions to the Infrastructure Reserve Fund. In 2018, the budget is set to increase the rate revenue requirements for infrastructure by 8.9% in water and 12.2% in wastewater compared with the 2016 requirements.
- Note that the above noted increases cannot be directly translated into rates as there are other factors that impact the calculation of rates such as the number of customers, growth and changes in consumption. These differences have been reflected on the next page.

	Annual Billable Consumption			3 Year Average
	2014	2015	2016	
Water	693,153	666,861	665,575	675,196
WW	548,606	507,974	508,534	521,705

- A three year average of consumption was used to establish the base upon which 2018 rates were calculated.
- Note that there is variation in water usage over the past three years which is impacted by weather conditions, growth in the customer base and conservation.

### Customer Impact Analysis

Five scenarios were run to identify the impact to customers under each scenario:

- **Base**—this is the 2018 budget using the assumptions presented previously in terms of consumption and customer accounts
- **Scenario 1**—This assumes no increase in the water/ww rates compared with 2017 (which is also the same as 2016 as the rates were frozen last year)
- **Scenario 2**—This assumes a 2.5% reduction in the volumetric, monthly fixed and infrastructure reserve fund monthly fee for both water and wastewater
- **Scenario 3**—This assumes a 5% reduction in the volumetric, monthly fixed and infrastructure reserve fund monthly fee for both water and wastewater
- **Scenario 4**—This assumes a 10% reduction in the volumetric, monthly fixed and infrastructure reserve fund monthly fee for both water and wastewater

			Customer						
			50 m3	100 m3	150 m3	170 m3	200 m3	250 m3	
			2017	\$ 1,048	\$ 1,075	\$ 1,400	\$ 1,530	\$ 1,725	\$ 2,050
			2018 Base	\$ 1,058	\$ 1,084	\$ 1,407	\$ 1,536	\$ 1,730	\$ 2,054
0% Rate Increase			2018 Scenario 1	\$ 1,048	\$ 1,075	\$ 1,400	\$ 1,530	\$ 1,725	\$ 2,050
Combined Rates Reduction	2.5%	2018 Scenario 2	\$ 1,022	\$ 1,048	\$ 1,365	\$ 1,492	\$ 1,682	\$ 1,999	
	5.0%	2018 Scenario 3	\$ 996	\$ 1,021	\$ 1,330	\$ 1,453	\$ 1,639	\$ 1,948	
	10.0%	2018 Scenario 4	\$ 944	\$ 967	\$ 1,260	\$ 1,377	\$ 1,553	\$ 1,845	

			Customer						
			50 m3	100 m3	150 m3	170 m3	200 m3	250 m3	
			2017						
			2018 Base	\$ 10	\$ 9	\$ 7	\$ 6	\$ 5	\$ 3
0% Rate Increase			2018 Scenario 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Combined Rates Reduction	2.5%	2018 Scenario 2	\$ (26)	\$ (27)	\$ (35)	\$ (38)	\$ (43)	\$ (51)	
	5.0%	2018 Scenario 3	\$ (52)	\$ (54)	\$ (70)	\$ (76)	\$ (86)	\$ (103)	
	10.0%	2018 Scenario 4	\$ (105)	\$ (107)	\$ (140)	\$ (153)	\$ (173)	\$ (205)	

- A typical residential customer in Middlesex Centre consumes between 170-200 m3 annually but other customers have been included to provide a full understanding of the impact under each scenario
- Based on the 2018 budget, the increase to a typical residential customer would be \$5-\$6 annually, or approximately \$0.50 per month
- If the Municipality were to reduce the existing rates by 10%, a typical residential customer would pay \$153-\$173 annually less than the base case scenarios, or approximately \$13-\$14 per month
- Appendix A provides additional scenarios which focus on reductions to one or more of the rates (e.g. volumetric, fixed monthly and/or infrastructure reserve monthly fee)

**Water/WW Rates—2018 for Each Scenarios**

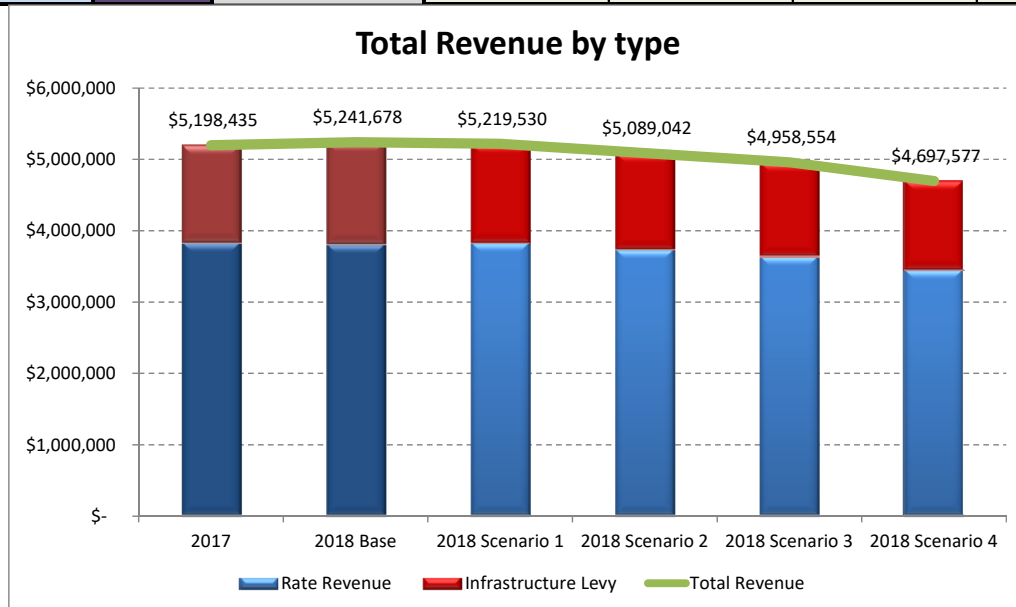
Water		2017	2018	2018 Sce 1	2018 Sce 2	2018 Sce 3	2018 Sce 4
Total Fixed Monthly Water Charge		\$ 22.76	\$ 22.86	\$ 22.76	\$ 22.19	\$ 21.62	\$ 20.48
Water Usage Charge (Volumetric) 0-8 m3		no additional charge	no additional charge	no additional charge	no additional charge	no additional charge	no additional charge
Water Usage Charge (Volumetric) per m3 for consumption exceeding 8 m3		\$ 2.84	\$ 2.86	\$ 2.84	\$ 2.77	\$ 2.70	\$ 2.56
Water Infrastructure Lifecycle Reserve Fund Charge based on Meter Size - Monthly	5/8"	\$ 18.00	\$ 18.35	\$ 18.00	\$ 17.55	\$ 17.10	\$ 16.20
	3/4"	\$ 27.00	\$ 27.52	\$ 27.00	\$ 26.33	\$ 25.65	\$ 24.30
	1"	\$ 45.00	\$ 45.87	\$ 45.00	\$ 43.88	\$ 42.75	\$ 40.50
	1.5"	\$ 90.00	\$ 91.74	\$ 90.00	\$ 87.75	\$ 85.50	\$ 81.00
	2"	\$ 144.00	\$ 146.79	\$ 144.00	\$ 140.40	\$ 136.80	\$ 129.60
Wastewater		2017	2018	2018 Sce 1	2018 Sce 2	2018 Sce 3	2018 Sce 4
Total Fixed Monthly Wastewater Charge		\$ 29.30	\$ 28.85	\$ 29.29	\$ 28.56	\$ 27.83	\$ 26.36
Wastewater Usage Charge (Volumetric) 0-8 m3		no additional charge	no additional charge	no additional charge	no additional charge	no additional charge	no additional charge
Wastewater Usage Charge (Volumetric) per m3 for consumption exceeding 8 m3		\$ 3.66	\$ 3.61	\$ 3.66	\$ 3.57	\$ 3.48	\$ 3.30
Wastewater Infrastructure Lifecycle Reserve Fund Charge based on Meter Size - Monthly	5/8"	\$ 17.32	\$ 18.11	\$ 17.32	\$ 16.89	\$ 16.46	\$ 15.59
	3/4"	\$ 25.98	\$ 27.17	\$ 25.98	\$ 25.33	\$ 24.68	\$ 23.38
	1"	\$ 43.30	\$ 45.29	\$ 43.30	\$ 42.22	\$ 41.14	\$ 38.97
	1.5"	\$ 86.61	\$ 90.57	\$ 86.61	\$ 84.44	\$ 82.28	\$ 77.95
	2"	\$ 138.57	\$ 144.91	\$ 138.57	\$ 135.11	\$ 131.65	\$ 124.72

- The table above summarizes the water and wastewater rates under each scenario

**Impact to the Municipal Budget—Water/WW**

- Should Council decide to freeze or reduce the existing water/ww rates, there is a direct impact to the Municipality’s budget, either through a required reduction in operating expenses or a reduction in the contribution to reserves. Given that the majority of the costs are fixed, it is anticipated that in order to offset the loss in revenues, the contribution to the reserve would reduce. The following provides the budget impact analysis of the various scenarios:

			Rate Revenue	Infrastructure Levy	Total Revenue	Difference from Base 2018
<b>Total</b>		2017	\$ 3,833,942	\$ 1,364,493	\$ 5,198,435	
		2018 Base	\$ 3,810,771	\$ 1,430,907	\$ 5,241,678	
0% Increase		2018 Scenario 1	\$ 3,831,134	\$ 1,388,397	\$ 5,219,530	(\$22,147)
Combined Rates Reduction	2.5%	2018 Scenario 2	\$ 3,735,355	\$ 1,353,687	\$ 5,089,042	(\$152,636)
	5.0%	2018 Scenario 3	\$ 3,639,577	\$ 1,318,977	\$ 4,958,554	(\$283,124)
	10.0%	2018 Scenario 4	\$ 3,448,020	\$ 1,249,557	\$ 4,697,577	(\$544,100)



- As shown above, should the Municipality wish to maintain the water/ww rates at the existing 2017 levels, there would be a need to reduce the contributions to reserve by \$22,147
- A reduction of 10% in rates would require a reduction in the contributions to reserves by \$544,100
- Appendix A provides additional scenarios which focus on reductions to one or more of the rates (e.g. volumetric, fixed monthly and/or infrastructure reserve monthly fee) and the impact on the rate revenue requirements

**2018 Operating Budget and Assumptions—Stormwater**

- The following summarizes the assumptions used in the calculation of stormwater rates for 2018

2017 Estimate	# customers	# of hectares	rate	Revenues
less than .4 h	4,271		\$ 14.88 per month	\$ 762,630
customers greater than 0.4	56		\$ 14.88 per month	\$ 9,999
over .4 h		93	\$ 42.18 per hectare	\$ 46,984
	4,327	93		\$ 819,613
% increase from 2017 actual to 2018 budget				0.4%

- As shown above, there are 4,271 customers that have a property size of 0.4 hectares or less, using the September billing file and 56 customers that have properties greater than 0.4 hectares
- Customers that are larger than 0.4 hectares pay a monthly fee as well as a monthly fee per hectare
- The 2018 Budget is \$823,080, an increase of 0.4% over the estimated revenues that will be generated in 2017.

**2018 Stormwater Rates**

	Per Month	Per Hectare
2017	\$ 14.88	\$ 42.18
2018	\$ 14.94	\$ 42.36
% change	0.4%	0.4%

- Based on the budget and the number of customers, the increase in rates for 2018 would be 0.4%, which would be equivalent to an increase of \$0.76 annually to a typical customer (\$0.06 per month).
- If Council elected to keep the rates the same as 2017, this would result in a reduction of approximately \$3,500 in the Operating Budget.

***Appendix A***

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## Appendix A—All Water/WW Scenarios

## Customer Impact Analysis

Total			Customer					
			50 m3	100 m3	150 m3	170 m3	200 m3	250 m3
		2017	\$ 1,048	\$ 1,075	\$ 1,400	\$ 1,530	\$ 1,725	\$ 2,050
		2018 Base	\$ 1,058	\$ 1,084	\$ 1,407	\$ 1,536	\$ 1,730	\$ 2,054
0% Increase		2018 Sce 1	\$ 1,048	\$ 1,075	\$ 1,400	\$ 1,530	\$ 1,725	\$ 2,050
Combined Rates Reduction	2.5%	2018 Sce 2	\$ 1,022	\$ 1,048	\$ 1,365	\$ 1,492	\$ 1,682	\$ 1,999
	5.0%	2018 Sce 3	\$ 996	\$ 1,021	\$ 1,330	\$ 1,453	\$ 1,639	\$ 1,948
	10.0%	2018 Sce 4	\$ 944	\$ 967	\$ 1,260	\$ 1,377	\$ 1,553	\$ 1,845
Volumetric Rate Reduction	2.5%	2018 Sce 5	\$ 1,058	\$ 1,083	\$ 1,401	\$ 1,528	\$ 1,718	\$ 2,035
	5.0%	2018 Sce 6	\$ 1,058	\$ 1,083	\$ 1,392	\$ 1,515	\$ 1,701	\$ 2,010
	10.0%	2018 Sce 7	\$ 1,058	\$ 1,082	\$ 1,374	\$ 1,491	\$ 1,667	\$ 1,960
Fixed Monthly Rate Reduction	2.5%	2018 Sce 8	\$ 1,047	\$ 1,072	\$ 1,396	\$ 1,525	\$ 1,719	\$ 2,042
	5.0%	2018 Sce 9	\$ 1,031	\$ 1,057	\$ 1,380	\$ 1,509	\$ 1,703	\$ 2,026
	10.0%	2018 Sce 10	\$ 1,000	\$ 1,026	\$ 1,349	\$ 1,478	\$ 1,672	\$ 1,995
Vol & Fixed Rate Reduction	2.5%	2018 Sce 11	\$ 1,047	\$ 1,072	\$ 1,389	\$ 1,516	\$ 1,706	\$ 2,024
	5.0%	2018 Sce 12	\$ 1,031	\$ 1,056	\$ 1,365	\$ 1,488	\$ 1,674	\$ 1,983
	10.0%	2018 Sce 13	\$ 1,000	\$ 1,023	\$ 1,316	\$ 1,433	\$ 1,609	\$ 1,902
Infrastructure Rate Reduction	2.5%	2018 Sce 14	\$ 1,034	\$ 1,060	\$ 1,383	\$ 1,512	\$ 1,706	\$ 2,029
	5.0%	2018 Sce 15	\$ 1,023	\$ 1,049	\$ 1,372	\$ 1,502	\$ 1,695	\$ 2,019
	10.0%	2018 Sce 16	\$ 1,002	\$ 1,028	\$ 1,351	\$ 1,480	\$ 1,674	\$ 1,997

## Impact on Water/WW Revenues

Total			Rate Revenue	Infrastructure Levy	Total Revenue	Difference from Base 2018
			2017	\$ 3,833,942	\$ 1,364,493	\$ 5,198,435
		2018 Base	\$ 3,810,771	\$ 1,430,907	\$ 5,241,678	
0% Increase		2018 Sce 1	\$ 3,831,134	\$ 1,388,397	\$ 5,219,530	\$ (22,147)
Combined Rates Reduction	2.5%	2018 Sce 2	\$ 3,735,355	\$ 1,353,687	\$ 5,089,042	\$ (152,636)
	5.0%	2018 Sce 3	\$ 3,639,577	\$ 1,318,977	\$ 4,958,554	\$ (283,124)
	10.0%	2018 Sce 4	\$ 3,448,020	\$ 1,249,557	\$ 4,697,577	\$ (544,100)
Volumetric Rate Reduction	2.5%	2018 Sce 5	\$ 3,772,265	\$ 1,430,907	\$ 5,203,172	\$ (38,506)
	5.0%	2018 Sce 6	\$ 3,723,353	\$ 1,430,907	\$ 5,154,260	\$ (87,418)
	10.0%	2018 Sce 7	\$ 3,625,528	\$ 1,430,907	\$ 5,056,435	\$ (185,243)
Fixed Monthly Rate Reduction	2.5%	2018 Sce 8	\$ 3,773,861	\$ 1,430,907	\$ 5,204,768	\$ (36,910)
	5.0%	2018 Sce 9	\$ 3,726,995	\$ 1,430,907	\$ 5,157,902	\$ (83,776)
	10.0%	2018 Sce 10	\$ 3,633,263	\$ 1,430,907	\$ 5,064,170	\$ (177,508)
Vol & Fixed Rate Reduction	2.5%	2018 Sce 11	\$ 3,735,355	\$ 1,430,907	\$ 5,166,262	\$ (75,416)
	5.0%	2018 Sce 12	\$ 3,639,577	\$ 1,430,907	\$ 5,070,484	\$ (171,194)
	10.0%	2018 Sce 13	\$ 3,448,020	\$ 1,430,907	\$ 4,878,927	\$ (362,751)
Infrastructure Rate Reduction	2.5%	2018 Sce 14	\$ 3,810,771	\$ 1,353,687	\$ 5,164,458	\$ (77,220)
	5.0%	2018 Sce 15	\$ 3,810,771	\$ 1,318,977	\$ 5,129,748	\$ (111,930)
	10.0%	2018 Sce 16	\$ 3,810,771	\$ 1,249,557	\$ 5,060,328	\$ (181,350)