



DATE: March 9, 2015

REPORT NO. PW2015-013

TO: Chair and Members
Committee of the Whole – Operations and Administration

FROM: Geoff Rae, MBA, P.Eng.
General Manager, Public Works Commission

1.0 TYPE OF REPORT **CONSENT ITEM []**
ITEM FOR CONSIDERATION [X]

2.0 TOPIC

2015 Water and Wastewater Rate Study [Financial Impact –None) (PW2015-013)

3.0 RECOMMENDATION

- A. THAT Report No. PW2015-013 titled “2015 Water & Wastewater Rate Study” BE RECEIVED; and
- B. THAT the rate structure for water and wastewater as recommended in this report for the 2015-2024 period BE APPROVED IN PRINCIPLE; and
- C. THAT the proposed mid-year increase to the volume charge and the base charge for water and wastewater BE IMPLEMENTED effective from July 1, 2015.

4.0 PURPOSE

The purpose of this report is to present the findings of the 2015 Water & Wastewater Rate Study and obtain Council approval of the proposed Water and Wastewater rate structure for the 2015-2024 period.

5.0 BACKGROUND

The City owns, operates and maintains the water and wastewater systems using funds generated primarily through user rates. Other revenue sources include service fees, development charges, developer contributions, grants, bulk water charges, and over-strength wastewater charges.

Legislation

The Safe Drinking Water Act requires municipalities to submit a Financial Plan to obtain a Municipal Drinking Water License. The Financial Plan must be prepared for long-term financial sustainability of drinking water systems. It must account for full cost of services and provide a cost recovery plan.

The full cost of services (expenditures) is calculated using estimated costs for replacement, operation and maintenance and other lifecycle costs for all the assets, and growth related capital costs. The cost recovery plan is prepared based on the current water usage, growth forecasts, development charges, reserve fund positions, and other revenue sources. The water rate structure is set to recover the full cost of services.

In addition, Public Sector Accounting Board (PSAB) information on the system must be provided for each year of the forecast. The Province encourages municipalities to develop a similar plan for the wastewater system.

The Plan is considered to be a living document and it must be updated once every five years. The last Financial Plan for the water and wastewater systems was approved by City Council in June 2010. The Plan must be updated and approved by Council by July 1, 2015.

Rate Study and Financial Plan

Watson and Associates was retained in 2010 to prepare the Rate Study and the Financial Plan based on “full cost” principles to achieve sustainable financial planning by providing the following items:

- A detailed assessment of current and future capital needs including an analysis of potential funding sources
- An analysis of fixed and variable operating costs in order to determine how they will be impacted by evolving infrastructure needs and system growth; and
- A review and recommendation on rate structures that ensure revenues are equitable and sufficient to meet system needs.

The completed 2010 Rate Study and the Financial Plan was approved by Council and a copy was submitted to the Province as per the regulatory requirements.

Water Charges

To accomplish full cost recovery, a rate structure is established with a fixed (base) charge and a variable consumption (volume) charge. The fixed (base) charge is based on the water meter size. It recovers the fixed expenditures for making the water available, including the expenditures for fire protection, cost of maintaining the treatment and distribution systems, billing and collection, and

debt payment. The consumption (volume) charge is based on the volume of water used and the water rate. It covers the cost of treating the water and other variable costs.

Wastewater Charges

Currently, wastewater billing does not have a base charge. The full cost for wastewater collection, treatment and disposal is recovered through the variable wastewater rate. The volume of wastewater discharged from a household is considered equal to the metered water usage. Therefore, metered water volume and the wastewater rate are used to calculate the wastewater charge. However in summer months (May 1st to September 30th), wastewater bills for residential customers are capped at 30 m³ of water usage to account for lawn watering.

Minimum Billing

A minimum bill is charged instead of the base charge and the volume charges for water and wastewater when a customer uses less than the minimum volume set for the meter size. This does not affect residential customers with a 15 mm (5/8") meter. This meter size serves approximately 98% of the residential accounts. A minimum bill is charged to customers with no metered water usage. Approximately 80 minimum bills (0.26% of all bills) are issued bi-monthly.

Base Charge

Approximately 85% of Brantford's treatment, distribution, and collection costs are fixed in order to provide the legislated services. However, the fixed base charge accounts for only 15% of the total water revenue. Even though the fixed base charge should be higher to recover the true fixed costs, many municipalities choose to keep it low to promote water conservation and affordability. However, keeping the fixed charge too low and recovering the majority of the costs using volume charge leads to revenue instability. This may adversely affect the City's long-term financial ability to maintain the water and wastewater infrastructure and could conceivably affect the City of Brantford's ability to meet Provincial Regulations pertaining to treatment, distribution and collection for water and wastewater systems. In a survey conducted across municipalities in Ontario, the base charge accounted for 25%-40% of the total revenue.

From a revenue matching principle, the City is very dependent on citizens using water in consistent volumes or at high variable rates in order to ensure adequate funding of the cost of the service. The City is required, under regulation, to promote water conservation. That combined with the extreme variations in weather that have been seen in recent years creates high variability of water consumption and potentially more dramatic variations in volumetric rates to ensure that a safe and secure water supply is maintained. A rate structure built on a fixed component that more closely matches the fixed cost of the service allows for predictability that is fair to consumers and important to commercial and

industrial clients in the delivery of their businesses. Water conservation can still be an effective way to minimize fixed costs through deferred capital and be of significant benefit to the community environmentally and financially, thereby achieving the overall goals of conservation.

Fairness

A well maintained, cost-effective system with predictable rates ensures the lowest cost to users. Predictability of cost provides security to residential users as they plan their household budgets, and it assists industrial, commercial, and institutional users to plan their business strategy as well.

Sufficient Funds for a Safe and Secure Supply

By establishing a rate structure that more closely matches revenue creation with service costs, there is less variability or variances between the two. A cash flow that is well matched with the realization of expenditures provides for the opportunity to plan and execute rehabilitation and replacement of important equipment to ensure continuity of the safe and secure supply of water that is enjoyed by the residents and businesses in the City today.

Encourage Conservation

Under current regulations, the City of Brantford is obligated to promote conservation and is committed to doing so. A rate structure that provides sustainable funding for the fixed cost of the system, but allows for continued conservation is a primary goal of the financial plan. To this end, a greater reliance on a fixed cost component will be necessary.

6.0 CORPORATE POLICY CONTEXT

Planning for financial sustainability with respect to water and wastewater infrastructure falls in line with Brantford's strategic goal of excellence in governance and municipal management. Through the financial plan, Brantford will be recognized as a fiscally responsible and well-managed city that provides efficient and effective government services.

7.0 INPUT FROM OTHER SOURCES

The City's Finance Department and Facilities and Asset Management Department provided input into the preparation of the Rate Study.

8.0 ANALYSIS

The City retained Watson & Associates Economists Ltd. (Watson) in fall 2014 to update the Water and Wastewater Rate Study and the Financial Plan. The Rate Study has been completed and it provides the rate structure for the next 10 years

(2015-2024). Upon Council approval of the Rate Study, the Financial Plan will be completed and submitted for Council approval before July 2015.

The following information was used to update the Rate Study:

- Water and Wastewater asset inventory data
- Approved 10 year capital plan with a need of \$145 million for water and \$126 million for wastewater
- Approved Development Charges Background Study
- Lifecycle costing (costs incurred during the lifecycle of a physical asset)
- Approved 2014 operating budget and forecasted budget until 2024 with inflationary adjustment
- Debenture financing costs
- Revenues from Development Charges, service charges, grants, developer contributions, over-strength discharge fee, etc.
- Reserve balances
- 2010-2013 water and wastewater billing data
- Population projection for the forecast period (2015-2024)
- Provincial regulatory requirements

8.1 Water Rate Structure:

The water rate structure recommended in the Rate Study is provided below:

Table1: Proposed Water Rate Structure

	2014	2015 (Jan-Jun)	2015 (Jul-Dec)	2016	2017	2018	2019	2020	2021	2022	2023	2024
Water												
Base Charges (Monthly):												
15mm - (5/8")	9.04	9.22	10.22	11.22	12.22	13.22	13.48	13.75	14.03	14.31	14.60	14.89
20mm - (3/4")	9.14	9.32	10.32	11.32	12.32	13.32	13.59	13.86	14.14	14.42	14.71	15.00
25mm - (1")	9.47	9.66	10.66	11.66	12.66	13.66	13.93	14.21	14.50	14.79	15.08	15.38
40mm - (1 1/2")	10.01	10.21	11.21	12.21	13.21	14.21	14.49	14.78	15.08	15.38	15.69	16.00
50mm - (2")	11.10	11.32	12.32	13.32	14.32	15.32	15.63	15.94	16.26	16.58	16.91	17.25
75mm - (3")	20.83	21.25	22.25	23.25	24.25	25.25	25.76	26.27	26.80	27.33	27.88	28.44
100mm - (4")	24.08	24.56	25.56	26.56	27.56	28.56	29.13	29.71	30.31	30.91	31.53	32.16
150mm - (6")	32.74	33.39	34.39	35.39	36.39	37.39	38.14	38.90	39.68	40.47	41.28	42.11
200mm - (8")	40.31	41.12	42.12	43.12	44.12	45.12	46.02	46.94	47.88	48.84	49.82	50.81
Volume Charge (per m³)	1.75	1.81	1.81	1.84	1.88	1.92	1.96	2.00	2.04	2.08	2.12	2.16

The table above shows that the base charge for water be increased at a rate of \$1 per year for the first four years (starting from mid-year 2015 to 2018) for all meter sizes. It increases by 2% per year from 2019 to 2024 to cover inflation. The volume charge per cubic metre increases at 2% per year from mid-year 2015 to 2024.

8.2 Wastewater Rate Structure:

There are two options provided for the wastewater rate structure. In Option 1 (shown in table 2 below) a base charge is introduced starting from July 1, 2015. The base charge is proposed to increase at a rate of \$1 per year starting from mid-year 2015 for all meter sizes. The volume charge per cubic metre is held constant at the current approved rate of \$1.72 per cubic metre. In Option 2 (shown in table 3 below), there is no base charge and only the volume rate increases annually to meet the funding needs. Both options provide for the same amount of funding contribution annually to reserve to support the capital program for maintenance of the infrastructure.

Table 2: Proposed Wastewater Rate Structure with Base Charge

	2014	2015 (Jan-Jun)	2015 (Jul-Dec)	2016	2017	2018	2019	2020	2021	2022	2023	2024
Wastewater - With Base Charge												
Base Charge (Monthly)	0.00	0.00	1.00	2.00	3.00	4.00	5.00	6.00	6.90	7.94	8.89	9.78
Volume Charge (per m ³)	1.69	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72

Table 3: Proposed Wastewater Rate Structure with No Base Charge

	2014	2015 (Jan-Jun)	2015 (Jul-Dec)	2016	2017	2018	2019	2020	2021	2022	2023	2024
Wastewater - No Base Charge												
Volume Charge (per m ³)	1.69	1.74	1.74	1.81	1.85	1.90	1.94	1.99	2.03	2.08	2.12	2.16

8.3 Average Monthly Bill for Water and Wastewater

The average residential monthly water and wastewater bill was calculated for both options (with wastewater base charge and without wastewater base charge). More than 90% of customers in Brantford have a 5/8" size water meter. The average use of water is 200 cubic metres per year or 17 cubic metres per month. Therefore the average residential bill was calculated for a customer with a 15 mm or 5/8" water meter size and for a usage of 17 cubic metres per month.

Tables 4 and 5 below provide the average residential monthly bill and the percentage increase to the bill from 2015 to 2024. In both the options, the total average monthly residential bill combined for water and wastewater increases around 2.5 % per year or around \$2 per year. However, Option 1 with the base charge provides more stable revenue.

It is to be noted that from 2011-2014 the water and wastewater rates were increased by 5% per year and 6% per year, respectively. On average, the rate increase proposed for 2015-2024 is lower than the past and it is close to the annual inflationary factor.

Currently 15% of the water revenue is generated from a fixed service or base charge. In the proposed water rate structure, this percentage increases to 20% by 2019. It is to be noted that in 2019, 80% of the water bill will be based on the volume of water used enabling the users to reduce their bills through reduction in water usage.

Currently there is no base charge for wastewater billing. If Council approves Option 1, in the proposed wastewater rate structure, the percentage of revenue generated using the base charge will increase to 10% by 2024. Option 2 does not have a base charge.

Option 1 with the base charge, adds stability to the revenue generation, leads to more predictable rate structure and allows for water conservation. Therefore, Option 1 with the wastewater base charge is recommended. If this option is approved, the minimum bill will be eliminated for both water and wastewater billing.

**Table 4
Average Residential Monthly Bill with Wastewater Base Charge**

	2014	2015 (Jan-Jun)	2015 (Jul-Dec)	2016	2017	2018	2019	2020	2021	2022	2023	2024
Water												
Annual Base Charge - 15mm - (5/8")	9.04	9.22	10.22	11.22	12.22	13.22	13.48	13.75	14.03	14.31	14.60	14.89
Volume Charge (per m ³)	1.75	1.81	1.81	1.84	1.88	1.92	1.96	2.00	2.04	2.08	2.12	2.16
Average Monthly Volume (m ³)	17	17	17	17	17	17	17	17	17	17	17	17
Average Monthly Volume Bill	29.13	30.13	30.13	30.73	31.35	31.97	32.61	33.27	33.93	34.61	35.30	36.01
Total Monthly Water Bill	38.17	39.35	40.35	41.95	43.57	45.19	46.10	47.02	47.96	48.92	49.90	50.89
Percentage Increase in Monthly Water Bill		3.1%	2.5%	4.0%	3.8%	3.7%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Wastewater - With Base Charge												
Annual Base Charge	0.00	0.00	1.00	2.00	3.00	4.00	5.00	6.00	6.90	7.94	8.89	9.78
Volume Charge (per m ³)	1.69	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72
Average Monthly Volume (m ³)	17	17	17	17	17	17	17	17	17	17	17	17
Average Monthly Volume Bill	28.13	28.67	28.67	28.67	28.67	28.67	28.67	28.67	28.67	28.67	28.67	28.67
Total Monthly Wastewater Bill	28.13	28.67	29.67	30.67	31.67	32.67	33.67	34.67	35.57	36.60	37.55	38.44
Percentage Increase in Monthly Wastewater Bill		1.9%	3.5%	3.4%	3.3%	3.2%	3.1%	3.0%	2.6%	2.9%	2.6%	2.4%
Total Average Monthly Residential Water and Wastewater Bill (\$)												
	66.30	68.02	70.02	72.62	75.23	77.86	79.76	81.69	83.53	85.52	87.45	89.34
Percentage Increase in Monthly Combined Bill												
		2.6%	2.9%	3.7%	3.6%	3.5%	2.4%	2.4%	2.3%	2.4%	2.3%	2.2%

**Table 5
Average Residential Monthly Bill with No Wastewater Base Charge**

	2014	2015 (Jan-Jun)	2015 (Jul-Dec)	2016	2017	2018	2019	2020	2021	2022	2023	2024
Water												
Annual Base Charge - 15mm - (5/8")	9.04	9.22	10.22	11.22	12.22	13.22	13.48	13.75	14.03	14.31	14.60	14.89
Volume Charge (per m ³)	1.75	1.81	1.81	1.84	1.88	1.92	1.96	2.00	2.04	2.08	2.12	2.16
Average Monthly Volume (m ³)	17	17	17	17	17	17	17	17	17	17	17	17
Average Monthly Volume Bill	29.13	30.13	30.13	30.73	31.35	31.97	32.61	33.27	33.93	34.61	35.30	36.01
Total Monthly Water Bill	38.17	39.35	40.35	41.95	43.57	45.19	46.10	47.02	47.96	48.92	49.90	50.89
Percentage Increase in Monthly Water Bill		3.1%	2.5%	4.0%	3.8%	3.7%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Wastewater - No Base Charge												
Volume Charge (per m ³)	1.69	1.74	1.74	1.81	1.85	1.90	1.94	1.99	2.03	2.08	2.12	2.16
Average Monthly Volume (m ³)	17	17	17	17	17	17	17	17	17	17	17	17
Average Monthly Volume Bill	28.13	29.03	29.03	30.14	30.88	31.63	32.39	33.15	33.84	34.64	35.38	36.07
Total Monthly Wastewater Bill	28.13	29.03	29.03	30.14	30.88	31.63	32.39	33.15	33.84	34.64	35.38	36.07
Percentage Increase in Monthly Wastewater Bill		3.2%	0.0%	3.8%	2.5%	2.4%	2.4%	2.4%	2.1%	2.4%	2.1%	2.0%
Total Average Monthly Residential Water and Wastewater Bill (\$)												
	66.30	68.38	69.38	72.09	74.45	76.83	78.49	80.17	81.80	83.56	85.27	86.96
Percentage Increase in Monthly Combined Bill												
		3.1%	1.5%	3.9%	3.3%	3.2%	2.2%	2.1%	2.0%	2.1%	2.1%	2.0%

8.4 Comparison of Annual Water and Wastewater Bill

A survey of neighbouring municipalities was conducted to compare the base charges and total annual bill. As shown in Table 6 below, the base charge currently paid by Brantford residential customers (5/8" meter) is low compared to many municipalities. A mid-year increase of \$1 per month is proposed for water and wastewater. With the mid-year increase, the total monthly base charge for water and wastewater will increase from \$9.22 to \$11.22, and Brantford will still remain in 8th rank in the list below.

Table 6
Survey of Monthly Residential Base Charges for Water and Wastewater
5/8" Meter (as at January 22, 2015)

Municipality	Water	Wastewater	Total	Rank
Brant County	\$ 41.66	\$ 19.52	\$ 61.18	1
Kingston	\$ 22.29	\$ 30.58	\$ 52.87	2
Haldimand	\$ 21.86	\$ 20.99	\$ 42.85	3
Peterborough	\$ 19.00	\$ 18.05	\$ 37.05	4
London	\$ 14.04	\$ 11.89	\$ 25.93	5
Hamilton	\$ 9.13	\$ 9.13	\$ 18.25	6
Guelph	\$ 7.60	\$ 9.43	\$ 17.03	7
Brantford	\$ 9.22	\$ -	\$ 9.22	8
Waterloo	\$ 2.85	\$ -	\$ 2.85	9
Kitchener	\$ -	\$ -	\$ -	10

Table 7 below shows the annual residential water and wastewater bill (calculated based on 200 cubic metres of water usage per year for a customer with 5/8" water meter) for the surveyed municipalities. Brantford is in the middle of the group.

Table 7
Survey of 2015 Annual Residential Water and Wastewater Bill

Municipality	Annual Water Bill	Annual Wastewater Bill	Total Water and Wastewater Bill	Rank
Brant County	726	498	1224	1
Kingston	469	535	1005	2
Haldimand	467	489	956	3
Peterborough	476	452	928	4
Brantford	473	344	817	5
Guelph	377	431	808	6
London	412	359	771	7
Hamilton	374	392	765	8
Waterloo	354	400	754	9
Kitchener	353	396	748	10

8.5 Communication of Water and Wastewater Rate structure:

If the recommended water and wastewater bill with the base charge is approved by Council, it will be communicated to residents and businesses through the water bills. A revised 2015 rate card will be mailed out with the water bills from April 1, 2015 to May 30, 2015. The revised 2015 Rate Card will also be available on the City website.

9.0 FINANCIAL IMPLICATIONS

To meet the regulatory requirements, the costs for water and wastewater systems will be recovered based on full-cost accounting principles. As such, there will not be any financial burden to the City. If the recommended rate structure is approved, the revenues will be more predictable leading to a more stable water and wastewater rate structure.

10.0 CONCLUSION

The Rate Study has been prepared using fiscally responsible practices that are in line with the current Provincial Regulations and proposes a reasonable level of water and wastewater rate increases. The recommended rate structure provides stable and sustainable funding for maintaining a safe and reliable water and wastewater systems. It is recommended that Council approve the 2015-2024 rate structure proposed and recommended in the report for water and wastewater.

Selvi Kongara, P.Eng.,
Director of Environmental Services.

Geoff Rae, MBA, P.Eng.,
General Manager, Public Works Commission.

Copy to:
City of Brantford Finance Department

In adopting this report, is a by-law or agreement required? If so, it should be referenced in the recommendation section.

- By-law required [] yes [x] no
- Agreement(s) or other documents to be signed by Mayor and/or City Clerk [] yes [x] no
- Is the necessary by-law or agreement being sent concurrently to Council? [] yes [x] no