

**Report from:** Financial Management Services, Director

**Date of Report:** January 11, 2021

**Date of Meeting:** January 25, 2021

**Report Number:** FMS-B001-2021

**File:** 18.45.259

**Subject:** 2021 Water and Wastewater Budget and Associated Rates

## Recommendation

That the Budget Standing Committee refer the 2021 Water and Wastewater Budget and Associated Rates, as outlined in Appendix 1, to Council for consideration after the public meeting scheduled for February 22, 2021, for which notice will be duly given; and

That 2021 water and wastewater rates are effective for billing periods ending on or after March 1, 2021.

## Summary

This report seeks approval for the 2021 Water and Wastewater Budget and associated rates. The report is organized with the following sections:

1. Proposed Rates
2. Fixed Costs
3. Sustainable Funding of Infrastructure
  - a. Watermain replacement
  - b. Sanitary sewer replacement
4. Regional costs: (a) Regional water (b) Regional Wastewater
5. Change in Billing Cycle
6. Forecasting Water Volumes
7. Financial Stability of the Wastewater system
8. Operational Challenges and Required Change

## Background

The Water and Wastewater budget is fully funded by user rates with no reliance on property taxes. The water and wastewater rates fund both operating and capital expenditures.

## Report

### 1. 2021 Water and Wastewater Proposed Rates

#### General Rate Structure

The City's current water and wastewater structure is a combination of fixed and volumetric charges. Each customer account is charged a fixed rate for water and wastewater. In addition, the customer is billed volumetric rates for water and wastewater based on the amount of water used.

#### Recommended Water and Wastewater Rates

For 2021, staff are proposing an increase to both the water and wastewater volumetric rates as well as wastewater fixed rate. The water fixed rate is proposed to remain at the 2020 level.

Staff recommend that effective March 1, 2021, the rate structure for recovering water and wastewater costs be the following:

	2021	2020
<b>Water</b>		
<b>Fixed (annual)</b>	\$177	\$177
<b>Volumetric (per cm)</b>	\$1.372	\$1.352
<b>Wastewater</b>		
<b>Fixed (annual)</b>	\$135	\$126
<b>Volumetric (per cm)</b>	\$2.027	\$2.005

The proposed rates will result in an annual increase to the average ratepayer (at annual consumption levels of 170 cubic metres) of \$16.14 – a 1.85% increase. See Appendix 2 for further details on the calculations.

Description	Amount
Water Rates	\$3.40
Wastewater Rates	\$12.74
Total Increase - \$	\$16.14
Total Increase - %	1.85%

## 2. The Fixed Charge – Water and Wastewater

In the City’s current water and wastewater rate structure, the fixed charge is defined to be the cost of the City’s annual replacement programs and fixed regional charges. For each of the systems these costs are calculated to be:

	Water Budget		Wastewater Budget	
	2021	2020	2021	2020
Improvement program	\$4,524,250	\$6,024,250	\$2,418,000	\$3,243,000
Debt Charges	395,165	427,545	767,390	779,408
Total City Fixed Charges	\$4,919,415	\$6,451,795	\$3,185,390	\$4,022,408
Regional Fixed Charges	3,097,272	3,042,931	22,996,058	21,916,001
Total Fixed Costs	<b>\$8,016,687</b>	\$9,494,726	<b>\$26,181,448</b>	\$25,938,409
Change From 2020	<b>(\$1,478,039)</b>		<b>\$243,039</b>	
Calculation of Recovery Rates:				
Based on 42,450 customers	\$189	\$224	\$617	\$611
2021 Proposed/2020 Actual	<b>\$177</b>	<b>\$177</b>	<b>\$135</b>	<b>\$126</b>

As the chart indicates, the calculated fixed component of the City’s rate structure should be \$189 for Water and \$617 for Wastewater. While staff does not propose that the 2021 rates be increased in one year to fully recover these costs, increases over time need to be considered. The increase in the fixed water and wastewater rates in 2021 will result in the recovery of a larger portion of the fixed costs to operate the water and wastewater systems. With the increasing cost of construction; especially related to underground services, there will be the need to increase fixed costs just to complete the same level of infrastructure work.

The Region has deferred the 2021 budget request for a 5.15% increase that supports the Regional Council approved Safe Drinking Water Act (SDWA). Instead the Region has implemented one-time mitigations (deferrals of half the 2021 CSO program, student positions, Water wagon/festival, and conferences) that will create additional pressure in 2022, however these are anticipated to be accommodated within the 5.15% SDWA Financial Plan previously approved by Regional Council.

## 3. Sustainable Funding of Infrastructure

As part of the 2021 Capital budget approval by Council on December 14, 2020, the 2021 Water and Wastewater funding for watermain and sanitary sewer infrastructure replacement were included. Therefore the capital project portion of the 2021 water and wastewater rates has received Council approval. This report and budget is to obtain Council approval of the rates to fund both the capital projects and operational functions for 2021.

### a. Watermain Replacement Program

Approved with the 2021 Capital budget was \$4,199,250<sup>1</sup> for the replacement of watermains and \$325,000<sup>2</sup> for water capital investment (capital out of revenue). This infrastructure cost is funded by the water rates. Details of the watermain replacements in summary can be found in the 2021 Capital Budget under Tab W.

**b. Sanitary Sewer Replacement Program**

Approved with the 2021 Capital budget was \$2,025,000<sup>3</sup> for sanitary sewer infrastructure replacements and \$393,000<sup>4</sup> for sanitary sewer capital investment (capital out of revenue). This infrastructure is funded by the wastewater rates. Details of the sewer replacements in summary can be found in the 2021 Capital Budget under Tab W.

The table below summarizes the total contribution to capital projects including water and wastewater infrastructure replacements and capital investments.

	2021	2020	\$ Change	% Change
Water	\$4,524,250	\$6,024,250	-\$1,500,000	-25.90%
Wastewater	2,418,000	3,243,000	-825,000	-25.44%
<b>Total</b>	<b>\$6,942,250</b>	<b>\$9,267,250</b>	<b>-\$2,325,000</b>	<b>-25.09%</b>

In 2019, Council approved a 10-Year Financial Plan for Water and Wastewater (The Water/Wastewater Plan). The Plan includes year over year increases for investment in capital infrastructure, which will reduce the funding gap for these asset classes. As a result of the financial and operational challenges facing the City caused by COVID-19 pandemic, the 2021 budget and 2022-2025 forecast reflects a reallocation of the investment in Water Distribution System, Sanitary Sewer Collection Systems and Pollution Control. Increases in spending in the years of 2024 through 2026 result in the same net investment in infrastructure, over the next 6 years. However, in the short term the spending deferrals will continue to contribute to the widening infrastructure gap.

<sup>1</sup> Details can be found in 2021 Capital Budget under Tabs G, K and P

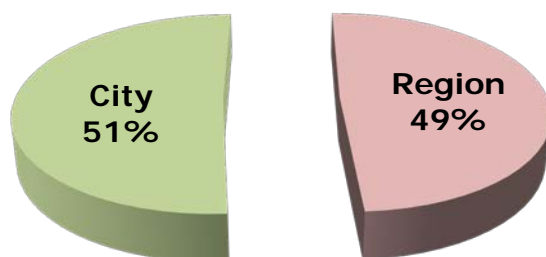
<sup>2</sup> Details can be found in 2021 Capital Budget under Tab G

<sup>3</sup> Details can be found in 2021 Capital Budget under Tabs E, K and P

<sup>4</sup> Details can be found in 2021 Capital Budget under Tab E

## 4. Regional Costs

Figure 1 – Region vs. City Water Expenditure



The City and Region are responsible for various aspects of water distribution. The Region is responsible for supply and treatment including all reservoirs and water towers. In general, watermains sixteen inches (400 mm) in diameter or larger are a Regional responsibility and the City is responsible for the smaller distribution watermains. There is also a shared responsibility for collection and treatment of wastewater between the City and the Region. The Region is responsible for treatment facilities, pumping stations, sludge disposal and sewers with flows of six cubic feet per second or greater or sewers spanning a municipal boundary. The City is responsible for the remaining wastewater pipelines.

In effect, the Region is the service provider to the City, supplying potable water and treatment of wastewater. The cost to provide the service to lower-tier municipalities is part of the Region's budget and each municipality is charged for its respective portion. Based on the Regions Safe Drinking Water Act (SDWA) Financial Plan, the Region has committed to increasing its water and wastewater rates annually for the next several years to ensure program sustainability; however the Region has deferred the 5.15% increase from 2021 to 2022 in order to mitigate budget pressures created by the global pandemic and to comply with Regional budget planning strategy. The 5.15% increase is anticipated to resume in 2022 and will result in annual increases to City water and wastewater rates in 2022 and beyond.

### Determination of St Catharines' share of the Regional Costs

The calculation of each lower municipality's share is dependent upon the municipality's usage of each system (i.e. cubic metres of water purchased or cubic metres of wastewater treated). This means St Catharines' share of the total budget will change over time with our water and wastewater flows.

#### a. Regional Water Rates

The Region charges the lower tier municipalities for the supply of potable water using both a fixed monthly charge and a variable rate per cubic metre. The rates for 2021 (with comparable 2020 rates) are as follows:

Water	2021	2020	% increase (decrease)
Variable rate per cm	\$0.6112	\$0.6020	1.53%
Fixed Monthly Charge	\$258,106	\$253,578	1.79%

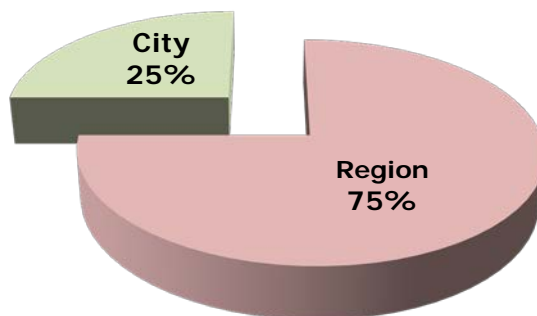
The above rates result in the City’s 2021 draft Water budget including Regional costs of \$12,265,272, an increase of \$192,341 (1.59%) from 2020. As \$9,168,000 of these costs are related to the variable rate, this provides some protection to the City should the water consumption decline in 2021. The fixed annual charge of \$3,097,272 will be payable to the Region regardless of City water consumption.

**b. Regional Wastewater Rates**

The Regional wastewater charges contain no variable rates. The rates for 2021 (with comparable 2020 rates) are as follows:

Wastewater	2021	2020	%increase
Fixed Monthly Charge	\$1,916,338	\$1,826,333	4.93%

**Figure 2 – Region vs. City Wastewater Costs**



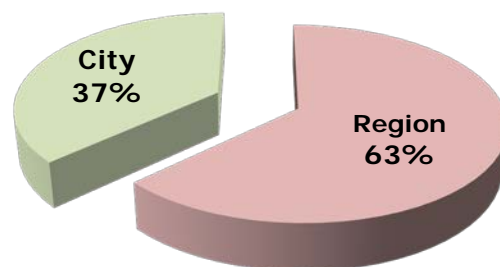
The Region has increased the overall wastewater bill to the lower-tier municipalities by 2.24% for 2021 (4.93% increase for City of St. Catharines). When the Region resumes its 5.15% increases to be in alignment with its SDWA Financial Plan anticipated in 2022, it will result in annual increases to City water and wastewater rates in 2022 and beyond. Especially since regional costs represent 63% of the City’s water and wastewater costs.

## 2021 Water and Wastewater Summary of Expenditures

Expenditure	Water		Wastewater	
City Operating Costs	\$7,829,808	31.30%	\$4,558,657	14.83%
Water/Sewer Improvement Program	4,199,250	16.79%	2,025,000	6.59%
City Debentures	395,165	1.58%	767,390	2.50%
Capital Out of Revenue	325,000	1.30%	393,000	1.28%
Region	12,265,272	49.03%	22,996,058	74.81%
<b>Total</b>	<b>\$25,014,495</b>	<b>100%</b>	<b>\$30,740,105</b>	<b>100%</b>
Region Controlled Costs	\$12,265,272	49.03%	\$22,996,058	74.81%
City Controlled Costs	12,749,223	50.97%	7,744,047	25.19%
<b>Total</b>	<b>\$25,014,495</b>	<b>100%</b>	<b>\$30,740,105</b>	<b>100%</b>

The 2021 water and wastewater budget recommends an increase of 1.85% to the average ratepayer to both meet the Region’s annual prescribed increase and to address the City’s infrastructure deficit.

**Figure 3 – Total Region vs. Total City Water and Wastewater Costs**



The details of the water and wastewater expenditures are available in Appendix 1.

### 5. Change in Billing Cycle

City staff is working to provide customers with a more frequent billing. We anticipate that we will be able to transition to bi-monthly billing in Q2 of 2021. Currently, water is billed following a four-month billing cycle, which means residents will receive a water bill three times a year. Now that the Automated Meter Reading (AMR) project is almost at completion, staff have been reviewing the options to increase the frequency of billing water accounts.

A bi-monthly billing will provide customers with more frequent and timely information about their water usage. This benefits customers in a number of ways:

- Allows customers to adjust their water usage habits if they feel they are using too much water.
- Allows customers to detect any leaks in their household plumbing sooner.
- Provides consistency to assist monthly home budgets for our customers and residents will see less fluctuation in billing amounts especially after heavy usage periods.

An adjustment in billing frequency could result in a possible change in the collection process and collection rates. Costs associated with manual meter reading could be eventually eliminated with automation which may include vehicle costs, cellular phone expenses, labour, maintenance and some general overhead expenses. Technology may need to be upgraded in order to provide additional efficiencies in billing processes.

Staff will update BSC and Council prior to the implementation of the change to billing frequency.

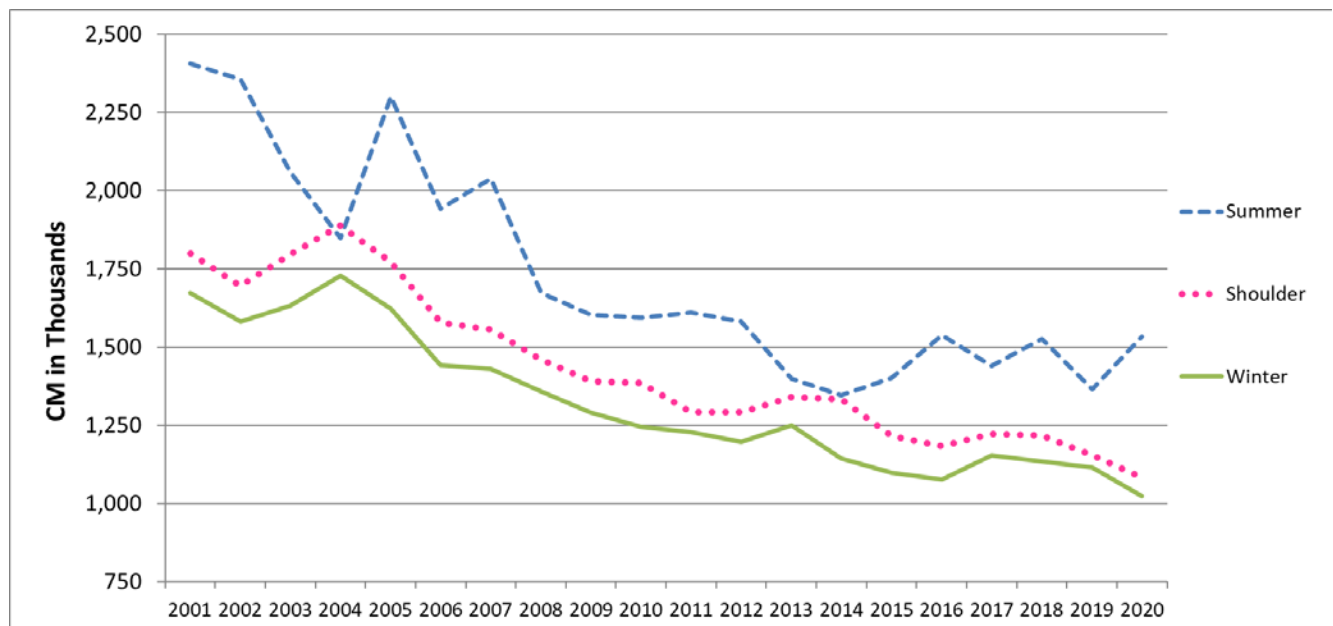
## 6. Forecasting Water Volumes

An analysis of water purchases has shown conservation efforts by St Catharines water customers have resulted in significant reduction in cubic metres of water purchased from the Region. Since 2000 annual water purchases have decreased 36% from 22,795,000 cubic metres annually to 14,547,750 cubic metres in 2020. Each year staff review the history of water purchase volume and utilize that information to forecast what future volumes will be.

Over the past years there has been concern as to the determination of how much further the volumes can decline. In effect, are we nearing the end of volume decreases, or is there a significant decline still to come? In the process of this estimation, staff analyzed the water purchase based on three separate “seasons” of the year: **summer** – June to September; **winter** – November to February; **shoulder months** – March to May and October.

### Figure 4 – Water Purchases by Season





The chart clearly depicts the average monthly summer consumption (the blue or top line) as the most volatile line. It fluctuates significantly each year. While the volume rebounded in 2016, in 2017 it declined and in 2018 rebounded again. The 2019 year saw another year of decline due to the extremely wet spring. The 2020 year saw a rebound in volume during the summer months due to a dry summer season, this was a similar level that we saw in 2018. The summer monthly consumption is still higher than either of the other “seasons” which are less volatile.

Reviewing 2020 water purchases, it appears that water consumption may be levelling off. The 2020 purchases from the Region totaled 14.55 million cubic metres of water. In 2019, the City purchased 14.53 million cubic metres of water, in 2018 the City purchased 15.5 million cubic metres, in 2017 purchased 15.25 million cubic meters and in 2016 purchased 15.18 million cubic meters. Staff estimate water purchases for 2021 to be more in line with the three- and five-year average and slightly higher than the 2020 level of 14.55 million. Staff estimate the 2021 purchases of 15.0 million cubic metres of water from the Region. With the changes to our climate, adaptation planning will be needed to manage the risks.

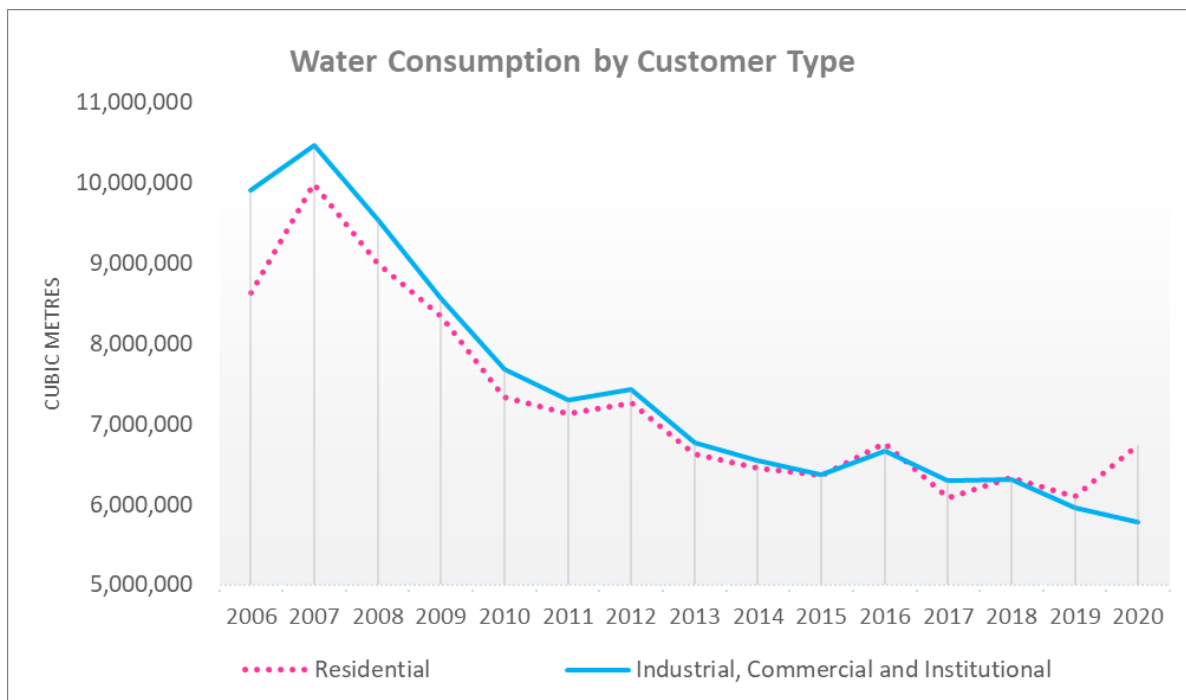
Climate related impacts continue to be experienced by the City of St. Catharines. These events include; extreme winds/fallen trees (2011), severe rainstorms/basement flooding (2014, 2017, 2018 and 2019), extreme cold/frozen water services (2015 and 2019) and extreme dry periods/fire ban (2016). Additionally, record high water levels in Lake Ontario in the spring and summer of 2017 and again in 2019 resulted in the closure of Lakeside Park. In 2020, a low-pressure system crossed through central Ontario late August 1 through August 2. The warm front associated with the system brought significant tropical-sourced moisture between 50 and 70 mm from Windsor to the Greater Toronto Area and Niagara, and along the north shore of Lake Ontario.

**2020’s Event Highlights:**

- January’s weekend storms – three in a row
- Texas storm turns on lake-effect snow engine
- Heavy rains and wind-driven flooding around Victoria Day
- Summer’s first heat wave fuels severe thunderstorms
- Dry land farming
- Record number of waterspouts on the Great Lakes
- Three-day rain event across Ontario
- Another year of high Great Lakes water levels

The severity and unpredictability of these events will be a challenge in the future. The impact on the City’s water consumption and potential changes required to annual forecasts will be closely monitored by staff, as there will be financial impacts on the water and wastewater rates. By continuing to focus on the water and wastewater infrastructure replacements as identified in the 10-Year Financial Plan for Water/Wastewater (2019-2029) approved by Council in 2019 assists in ensuring the City’s infrastructure can handle these severe and unpredictable events.

**Figure 5 – Water Consumption by Customer Type**



As shown in the graph above, since 2007 the City has seen a relatively steady decline in consumption (in cubic metres) of both the Residential and Industrial, Commercial and Institutional (ICI) customers. In 2011, ICI sector consumption began to move closer to the Residential sector until 2015 and 2016 where the ICI transitioned to below the Residential sector. The 2018 year saw Residential and ICI sectors equal. In 2019 are

declines in both Residential and ICI consumptions from 2018 due to heavy rainfalls in spring/summer 2019, with Residential sector above the ICI sector similar to 2015 and 2016. The 2020 year saw a significant increase in residential consumptions over ICI, this can be attributed to a significant portion of the population working from home as guided by the provincial government in late March 2020.

### 7. Financial Stability of the Wastewater System

A significant portion of the costs of the wastewater system are fixed. While the wastewater rates include a fixed portion, the majority of the revenue is collected through a variable rate based on water purchased by the customer.

When the majority of a rate structure consists of a variable rate, periods of declining consumption result in the reduction of the overall revenue. Consequently, the revenue generated does not cover the cost of the system. Details are shown in Table 2 below.

#### Wastewater Annual Recovery/(Loss)

In millions of \$	2020 (est.)**	2019	2018	2017	2016	2015	2014	2013	2012	2011
Revenue	\$29.02	\$26.69	\$26.45	\$26.64	\$27.38	\$25.71	\$25.80	\$24.86	\$25.32	\$23.46
Expenditures	\$29.90	\$27.58	\$25.58	\$25.66	\$26.02	\$25.18	\$25.53	\$25.07	\$25.25	\$24.00
Recovery/(Loss)	<u>(\$0.88)</u>	<u>(\$0.90)</u>	<u>\$0.87</u>	<u>\$0.98</u>	<u>\$1.36</u>	<u>\$0.53</u>	<u>\$0.27</u>	<u>(\$0.21)</u>	<u>\$0.07</u>	<u>(\$0.54)</u>
Accumulated Surplus/(Deficit)	<u>(\$0.44)</u>	<u>\$0.44</u>	<u>\$1.34</u>	<u>\$0.47</u>	<u>(\$0.51)</u>	<u>(\$1.87)</u>	<u>(\$2.40)</u>	<u>(\$2.67)</u>	<u>(\$2.46)</u>	<u>(\$2.53)</u>

The positive results in the last number of years have assisted in eliminating the accumulated deficit of \$1.87 million at the end of 2015.

\*\* At the end of 2020 it is estimated that wastewater system will have a deficit of \$0.88 million with the Safe Restart Phase I Funding allocation of \$0.32 million. The Safe Restart Phase II funding allocation to the wastewater system is to be determined when the consolidated 2020 financial result for the City is finalized.

In effect, the water rates had been subsidizing the operations of the wastewater system. While many of the City’s customers have both water and wastewater charges on their bills, there are customers who do not. As per guidelines from the Province, rates should be structured so that both systems maintain their own financial stability through separate rates.

### 8. Operational Challenges and Required Change

Currently our existing water and wastewater infrastructure systems are experiencing two very distinct challenges, that all systems experience to some degree.

With regards to the wastewater collection system, it is subject to “infiltration” or entry of water that does not require treatment. This needs to be kept out of the system to reduce sewer backups, treatment costs and limit the size of capital infrastructure replacements and associated costs. “Infiltration” is the result of a number of things including past practices (i.e. connection of foundation drains, etc.) and leakage of groundwater into the system (i.e. at joints, cracks, etc.) as well as, rainwater entering through the leveling rings just below the metal surface lids.

With regards to the water distribution system, all system experienced unaccounted for water, or water that is produced/treated and cannot be billed. This is a result of meter accuracy limits (which have been improved with the implementation of the AMR project and the upgraded residential meters installed), bypassing of meters, unbilled water from hydrants (i.e. construction, pool filling, etc.) and illegal connections. In addition, “water loss” occurs from leakage in older watermains (joints, small hole in main pipes); leaking service connections and valves.

Understanding the specific sources and extent of infiltration and water loss, as they apply to your systems, and shifting maintenance activities to focus on reducing these, has a number of environmental benefits, and can significantly reduce the costs associated with treatment charges that the City pays to the Region. It also reduces the cost of future capital improvements and can extend the useful life of specific water and wastewater infrastructure.

To date, the city has undertaken some concerted projects/programs to reduce both infiltration and water loss, however an ongoing proactive maintenance program is required. Presently, water and wastewater operations have remained largely reactive; with primary focus on responding to emergencies (i.e. break repairs, blocked basement drains, etc.) and installation of services for new buildings. While these are all needed services, it does not allow resources to be dedicated to any proactive maintenance approach.

As the first step in moving from a reactive to proactive operation model, in 2021 Municipal Works will be undertaking a Service Level Review to properly document our current state. This information will be brought to Council. From this, Municipal Works will be developing recommendations on how current service delivery should be modified. With a rationalized service delivery model, our goal is to reallocate existing resources to a proactive maintenance program while providing a reliable and consistent approach to emergencies.

## **Financial Implications**

The proposed 2021 water and wastewater rates result in an increase for both water and wastewater rates. For the average ratepayer (at annual consumption levels of 170 cubic metres) they will pay \$889.83. This is an increase of \$16.14 or 1.85% over the amount they paid in 2020 of \$873.69. This increase is approximately \$0.31 per week.

In addition, based on the 2019-2029 Water and Wastewater Financial Plan, the 2021 estimated rates were an annual bill of \$928.88 or an increase of \$54.21 or 6.2%. The 2021 rates proposed are significantly less than this forecasted amount. This decrease is largely due to the decrease in capital spending in response to the global pandemic.

## Relationship to Strategic Plan

Economic Prosperity will be enhanced through:

- Optimizing capital infrastructure through effective asset management and sustainable investment.

Environmental Stewardship will be enhanced through:

- Review and update all municipal operations to minimize the impacts and ensure preparation for climate change. All sanitary sewer and storm sewer designs are undertaken using updated design criteria;
- Planned service level review in 2021 in Municipal Works Department to review water infiltration and water loss.

## Conclusion

Staff recommends that Council approve the 2021 water and wastewater rate increase, which for the average customer annual consumption of 170 cubic metres is 1.85% or \$16.14.

### Prepared by:

Sebastian Zukowski, Budget Specialist

### Submitted by:

Lucia Chen, Manager, Budgets and Procurement  
Lisa Read, Manager of Revenues

### Approved by:

Anthony Martuccio, Director of Engineering, Facilities and Environmental Services  
Darrell Smith, Director of Municipal Works  
Kristine Douglas, Director of Financial Management Services and City Treasurer

### Attachments:

Appendix 1 – 2021 Water and Wastewater Budget  
Appendix 2 – 2021 Water and Wastewater Annual Bill Change  
Appendix 3 – Automated Meter Reading (AMR) Project

**City of St Catharines  
Water/Wastewater Budget Summary**

	Estimate		Actuals		
	2021	2020	2019	2018	2017
Reserve at Beginning of Year	5,079,682	5,606,300	5,790,622	3,824,317	3,844,722
Revenues	55,234,088	54,942,018	50,030,623	49,419,990	49,275,913
Less: Region expenditures	35,261,330	33,988,932	32,088,689	30,893,197	30,660,277
Safe Restart Funding 2020 (Phase 1)					
Net Revenue	19,972,758	20,953,086	17,941,934	18,526,793	18,615,637
City Expenditures					
Water Operating costs	7,829,808	7,103,122	6,431,728	6,049,676	6,500,390
Water Debenture debt	395,165	427,545	526,248	587,027	878,619
Water Infrastructure costs	4,524,250	6,024,250	4,326,590	3,673,591	5,038,678
Sewer Operating costs	4,558,657	3,902,378	3,682,153	3,537,749	3,518,601
Sewer Debenture debt	767,390	779,408	638,818	640,958	870,027
Sewer Infrastructure costs	2,418,000	3,243,000	2,520,719	2,071,487	1,829,727
	20,493,270	21,479,703	18,126,256	16,560,488	18,636,042
Annual Surplus/(Deficit)	-520,512	-526,617	-184,322	1,966,305	-20,406
Reserve at End of Year	4,559,171	5,079,682	5,606,300	5,790,622	3,824,317
City total	20,493,270	21,479,703	18,126,256	16,560,488	18,636,042
Region total	35,261,330	33,988,932	32,088,689	30,893,197	30,660,277
	55,754,600	55,468,635	50,214,945	47,453,685	49,296,319
cm - purchased	15,000,000	15,000,000	14,529,849	15,507,748	15,258,218

**WATER SYSTEM (515.XXX)**

**2021 Water Budget Summary**

	Dept.	Acct.	Estimate		Actual		
			2021	2020	2019	2018	2017
<b><u>Operating Expenditures:</u></b>							
General Administration	FMS	105	1,354,717	1,282,153	1,044,540	1,044,900	1,156,934
Engineering Overhead	EFES	110	2,120,018	1,882,604	1,754,004	1,578,150	1,948,351
Mains, Valves, Hydrants	EFES	115	2,282,364	2,289,062	1,844,896	1,899,744	2,014,559
Water service lines	EFES	120	582,732	580,087	520,206	549,495	489,406
Meters	EFES	125	845,627	909,146	786,722	801,808	785,795
New Mains, Valves, Hydrants	EFES	135	152,350	160,070	85,411	138,264	113,235
Services Rendered	EFES	145	0	0	-17,051	37,315	-7,890
Cost Allocations			492,000	-	413,000		
Total Operating Expenditures:			<u>7,829,808</u>	<u>7,103,122</u>	<u>6,431,728</u>	<u>6,049,676</u>	<u>6,500,390</u>
<b><u>Capital Expenditures:</u></b>							
Water Capital out of Revenue *	FMS	190	325,000	425,250	86,000	0	124,000
Debenture Debt	FMS	195	395,165	427,545	526,248	587,027	878,619
Water Improvement Program *	EFES	520	4,199,250	5,599,000	4,240,590	3,673,591	4,914,678
Total Capital Expenditures:			<u>4,919,415</u>	<u>6,451,795</u>	<u>4,852,838</u>	<u>4,260,618</u>	<u>5,917,297</u>
<b>Total Water Expenditures</b>			<u>12,749,223</u>	<u>13,554,917</u>	<u>11,284,566</u>	<u>10,310,294</u>	<u>12,417,687</u>

Note: FMS - Financial Management Services  
 EFES - Engineering, Facilities and Environmental Services

\* - Details of the water improvement program for 2021 are provided in the 2021 Capital budget which was approved by Council on December 14, 2020. For details see under tab G, K, and P in the 2021 Capital budget

CITY OF ST. CATHARINES - WATER/WASTEWATER BUDGET  
ESTIMATE 2021

EXPENDITURE ACCOUNT	2021 BUDGET
310.112 <b><u>WATER/WASTEWATER EQUIPMENT RESERVE:</u></b>	
OPENING BALANCE	\$1,583,939
ANNUAL RESERVE PROVISION	330,000
EXPENDITURES, 2021	-700,000
EXPENDITURES, PRIOR YEAR COMMITMENTS	-825,000
CLOSING BALANCE	<u>\$388,939</u>
 <u>EXPENDITURE DETAILS</u>	
ONE (1) SEWER FLUSHER/VAC COMBINATION UNIT	<u>700,000</u>
	<u>\$700,000</u>
 <u>PRIOR YEAR COMMITMENTS</u>	
THREE (3) CUBE VANS EQUIPPED FOR UTILITY OPERATIONS (REPLACE UNIT#55,63,64)	240,000
ONE (1) TRIAXLE DUMP TRUCK (REPLACE UNIT#84)	300,000
ONE (1) TANDEM DUMP TRUCK SPECIFIC FOR UTILITIES OPERATIONS (NEW)	<u>285,000</u>
	<u>825,000</u>



**WASTEWATER SYSTEM**

**2021 Wastewater Budget Summary**

	Dept.	Acct.	Estimated		Actual		
			2021	2020	2019	2018	2017
<b><u>Operating Expenditures:</u></b>							
Sewers - General	EFES	730.100	702,881	699,057	532,462	619,953	636,856
Sewers - Insurance	FMS	730.105	75,000	0	36,329	28,485	54,743
FLAP Program	EFES	732.115	321,964	315,389	506,518	258,087	267,211
Lateral Replacement	EFES	732.100	712,629	706,647	633,901	665,806	588,634
New Laterals	EFES	732.105	0	0	26,913	32,917	25,636
Drain Clearing	EFES	732.110	328,224	321,099	175,209	179,175	140,281
Overhead	EFES	732.190	943,700	764,414	621,129	635,658	810,478
Pollution Control	EFES	735.300	828,416	844,743	611,719	526,951	676,317
Overhead	EFES	735.305	265,843	251,029	208,973	327,035	318,446
Cost Allocations	EFES	731.920/925	380,000	0	329,000	263,682	
Total Operating Expenditures:			<u>4,558,657</u>	<u>3,902,378</u>	<u>3,682,153</u>	<u>3,537,749</u>	<u>3,518,601</u>
Debt Service	EFES	731.195	767,390	779,408	638,818	640,958	870,027
Sewer Improvement Program *	EFES	731.100	2,025,000	2,700,000	2,400,719	1,921,487	1,769,727
Capital Out of Revenue *	FMS	735.304	393,000	543,000	120,000	150,000	60,000
Total Capital Expenditures:			<u>3,185,390</u>	<u>4,022,408</u>	<u>3,159,537</u>	<u>2,712,445</u>	<u>2,699,754</u>
<b>Total City Wastewater Expenditures</b>			<u>7,744,047</u>	<u>7,924,786</u>	<u>6,841,690</u>	<u>6,250,194</u>	<u>6,218,355</u>

Note: FMS - Financial Management Services  
EFES - Engineering, Facilities and Environmental Services

\* - Details of the sewer improvement program for 2021 are provided in the 2021 Capital budget which was approved by Council on December 14, 2020. For details see under tab E, K, and P in the 2021 Capital budget

**WATER, WASTEWATER AND RELATED SERVICE RATES**

1. The following rates shall be paid to The Corporation of the City of St. Catharines for the use of water supplied by The Corporation of the City of St. Catharines:

<u>(a) Consumption - Cubic Metres</u> (For each four month billing period)	<u>Current</u>	<u>Proposed</u>
Customer Charge	\$59.00	<b>\$59.00</b>
Consumption Charge - per cubic metre	1.352	<b>1.372</b>
*Note: Large Industrial Users are billed monthly		
Water meter size of 1" or greater will be subject to a water meter equivalency charge when calculating the Customer Charge. Exemption: Single Family Residential classification. See (b) below.		
<u>(b) Meter Equivalency</u>		
Water meter size of 1" or greater will be subject to a water meter equivalency charge when calculating the Customer Charge. Exemption: Single Family Residential classification.		
1" meter =	1.4 meter equivalency units	
1 1/2" meter =	1.8 meter equivalency units	
2" meter =	2.9 meter equivalency units	
3" meter =	11 meter equivalency units	
4" meter =	14 meter equivalency units	
* 6" meter =	21 meter equivalency units	
* >6" meter =	21 meter equivalency units	
* Note: Where a single 6" meter or greater is installed for the purpose of additional fire protection, the multiplier equivalency shall be discounted to 50%.		
<u>(c) Flat Rates</u> (For each four month billing period)		
Per Dwelling unit	\$175.00	
Note: Where more than 20 units are being constructed, the maximum number of units charged is 20.		
<u>(d) Estimated Billing</u>		
Where consumption and/or Flat Rate does not apply, estimates are based on previous actual readings. In the absence of previous actual readings, amount to be determined at the discretion of the Treasurer.		
<u>(e) Rates for Services Outside City</u> (For each four month billing period)		
Multiple of Regular Rate	2X	
Customer Charge	\$118.00	<b>\$118.00</b>
Consumption Charge - per cubic metre	2.704	<b>2.744</b>
<u>(f) Bulk Water</u> (Key Pad Operated)		
Multiple of Regular Rate	2X	
Per cubic metre	\$2.704	<b>\$2.744</b>
<u>(g) Water Under Construction</u>		
First four month period Per sq. ft. Water Increase 2017 1.22 %, 2018 1.64%, 2019 4.50%, 2020 7.51% increase, 2021 1.85%	\$0.030	<b>\$0.031</b>
Per sq. m.	0.326	<b>0.332</b>

	<u>Current</u>	<u>Proposed</u>
Next Flat Rate per dwelling unit for each four month period until meter is installed	\$175.00	
If there are extenuating circumstances or if large Industrial/Commercial building, "Next Flat Rate" to be determined at the discretion of the Treasurer.		
2. The following rates shall be paid to The Corporation of the City of St. Catharines for the use of water related services supplied by The Corporation of the City of St. Catharines:		
(a) <u>METER RENTALS</u> (Annually)		
<u>Meter Size</u>		
*16mm (5/8") Displacement	\$19.00	
*16mm (5/8")SR II Displacement with ECR	\$35.00	
*16mm (5/8") Accustream/Transmitter	\$40.00	
*16mm (5/8") IPERL/Transmitter	\$45.00	
19mm (3/4") Displacement	\$25.00	
19mm (3/4")SR II Displacement with ECR	\$41.00	
19mm (3/4") Accustream/Transmitter	\$46.00	
19mm (3/4") IPERL/Transmitter	\$50.00	
25mm (1") Displacement	\$29.00	
25mm (1") SR II Displacement with ECR	\$46.00	
25mm (1") Accustream Transmitter	\$51.00	
25mm (1") IPERL/Transmitter	\$55.00	
38mm (1-1/2") Displacement	\$82.00	
38mm (1-1/2") Displacement with ECR	\$115.00	
38mm (1-1/2") Displacement /ECR/ Transmitter	\$120.00	
38mm(1-1/2") Turbine	\$111.00	
38mm(1-1/2") Turbine/Transmitter	\$116.00	
38mm (1 1/2") OMNI C2 Compound	\$122.00	
38mm (1 1/2") OMNI R2 Residential	\$75.00	
38mm (1-1/2") OMNI T2 Turbine	\$96.00	
50mm(2") Displacement	\$92.00	
50mm(2") Displacement with ECR	\$128.00	
50mm(2") Displacement-ECR/Transmitter	\$133.00	

	<u>Current</u>	<u>Proposed</u>
50mm (2") Compound	\$96.00	
50mm (2") Compound/Transmitter	\$101.00	
50mm (2") Turbine	\$114.00	
50mm (2") Turbine/Transmitter	\$119.00	
50mm (2") OMNI C2 Compound	\$150.00	
50mm (2") OMNI R2 Residential	\$80.00	
50mm (2") OMNI T2 Turbine	\$115.00	
75mm (3") Compound	\$418.00	
75mm (3") Compound/Transmitter	\$423.00	
75mm (3") Turbine	\$375.00	
75mm (3") Turbine/Transmitter	\$380.00	
75mm (3") OMNI C2 Compound	\$402.00	
75mm (3") OMNI T2 Turbine	\$375.00	
100mm (4") Compound	\$498.00	
100mm (4") Compound/Transmitter	\$503.00	
100mm (4") Turbine	\$475.00	
100mm (4") Turbine/Transmitter	\$480.00	
100mm (4") OMNI C2 Compound	\$488.00	
100mm (4") OMNI F2 Fire Assembly	\$798.00	
100mm (4") OMNI T2 Turbine	\$475.00	
150mm (6") Compound	\$671.00	
150mm (6") Compound/Transmitter	\$676.00	
150mm (6") Turbine	\$587.00	
150mm (6") Turbine/Transmitter	\$592.00	
150mm (6") Fire Assembly	\$900.00	
150mm (6") Fire Assembly /Transmitter	\$905.00	
150mm (6") OMNI C2 Compound	\$671.00	
150mm (6") OMNI F2 Fire Assembly	\$980.00	

	<u>Current</u>	<u>Proposed</u>
150mm (6") OMNI T2 Turbine	\$587.00	
200mm (8") Fire Assembly	\$1,340.00	
200mm (8") Fire Assembly /Transmitter	\$1,345.00	
200mm (8") Turbine	\$665.00	
200mm (8") Turbine/Transmitter	\$670.00	
200mm (8") OMNI C2 Compound	\$930.00	
200mm (8") OMNI F2 Fire Assembly	\$1,350.00	
200mm (8") OMNI T2 Turbine	\$830.00	
250mm (10") Fire Assembly	\$1,510.00	
250mm (10") Fire Assembly/Transmitter	\$1,515.00	
250mm (10")Turbine	\$900.00	
250mm (10")Turbine/Transmitter	\$905.00	
250mm (10") OMNI C2 Compound	\$1,125.00	
250mm (10")OMNI F2 Fire Assembly	\$1,810.00	
250mm (10") T2 OMNI Turbine	\$1,000.00	

\* NOTE: No charge for 16mm (5/8") meter unless installed outside the City.

Where meter type consists of two meters combined, one rental rate is applicable, based on the predominant use of the meter.

(a)(i) METER PITS (CHAMBER) RENTALS (Annually)

Meter Size

16mm (5/8")	\$72.00	<b>\$74.00</b>
19mm (3/4")	\$74.00	<b>\$76.00</b>
25mm (1")	\$81.00	<b>\$84.00</b>
38mm (1-1/2")	\$208.00	<b>\$217.00</b>
50mm (2")	\$223.00	<b>\$232.00</b>
75mm (3")	Actual Cost	
100mm (4")	Actual Cost	
150mm (6")	Actual Cost	
200mm (8")	Actual Cost	
250mm (10")	Actual Cost	

	<u>Current</u>	<u>Proposed</u>
3. The following rates shall be paid to the Corporation of the City of St. Catharines for the wastewater system and services as outlined herein:		
(a) <u>Wastewater Fees (for each four month period)</u>		
Sewer Replacement Program	\$42.00	<b>\$45.00</b>
Wastewater charges – per cubic metre	2.005	<b>2.027</b>
Water meter size of 1" or greater will be subject to a water meter equivalency charge when calculating the Customer Charge. Exemption: Single Family Residential classification. See (b) below.		
(b) <u>Meter Equivalency</u>		
Water meter size of 1" or greater will be subject to a water meter equivalency charge when calculating the Customer Charge. Exemption: Single Family Residential classification.		
1" meter = 1.4 meter equivalency units		
1 1/2" meter = 1.8 meter equivalency units		
2" meter = 2.9 meter equivalency units		
3" meter = 11 meter equivalency units		
4" meter = 14 meter equivalency units		
6" meter = 21 meter equivalency units		
>6" meter = 21 meter equivalency units		
Note: Where a single 6" meter or greater is installed for the purpose of additional fire protection, the multiplier equivalency shall be discounted to 50%.		
(c) <u>Flat Rates</u> (For each four month billing period)		
Per Dwelling unit	\$225.00	
(d) <u>Wastewater Under Construction</u>		
First four month period	0.00	
Next Flat Rate per dwelling unit for each four month period until meter is installed	\$225.00	
Note: Where more than 20 units are under construction, the maximum number of units charged is 20.		
If there are extenuating circumstances or if large Industrial/Commercial building, "Next Flat Rate" to be determined at the discretion of the Treasurer.		
4. <u>Unauthorized Use of Water</u>		
(a) Rate when bypass valve is opened without Authorization or any other unauthorized use of water or determination that water provided has not passed through the meter:		
Two (2) times the average of last three representative bills.	2X	
If not applicable, estimate to be determined at the discretion of the Treasurer. (For each four month billing period)		
(b) Where property has operated a grow-op, amount is three (3) times the total Flat Rate per dwelling unit as outlined in Sections 1 and 3 (For each four month billing period)	\$1,200.00	

	<u>Current</u>	<u>Proposed</u>
5. <b><u>Miscellaneous</u></b>		
(a) <u>Meter Relocation</u> to a more appropriate position to facilitate reading and/or maintenance:		
When requested by homeowner, equivalent to applicable Water Service Call as defined in Rates and Fees.		
When determined by City Engineer, amount charged at the discretion of the Treasurer		
(b) Installation of Automated Meter Reading (AMR) apparatus when performed not in accordance with scheduled deployment :		
When requested by homeowner	\$375.00	<b>\$450.00</b>
When determined by City Engineer, amount charged at the discretion of the Treasurer		
Customer non compliance with AMR installation	\$500.00	
(c) <u>Late Payment Penalty</u>		
A penalty for late payment of 1.5% per month is added the day following the due date and the first day of each month thereafter.		
(d) The rates set out above shall be deemed to have become effective on all accounts with Billing periods ending on or after <b>March 1, 2021</b> .		

\* NOTE: METRIC CONVERSION: 1 cubic metre (CM) equals 220 gallons or 1,000 litres

**\* Bolded script = proposed changes for 2021**

**\*\* In 2021 the City will be investigating the movement of account billing from every four months to every two months. This change does not affect the rates charged, only the frequency of billings.**

**City St. Catharines**  
**Water/Wastewater Budget**  
**Annual Bill Change Comparison**

	2021 New Rates	2020 Old Rates	Change	
			\$	%
<b>Consumption</b>				
Normal Consumption	170	170	0	0.00%
	<u>170</u>	<u>170</u>	<u>0</u>	
<b>Water - Retail Rate</b>				
Rate per billing period (4 months)	\$59.00	\$59.00		
Fixed Fee	\$177.00	\$177.00	0.00	0.00%
Consumption Rate per CM	\$1.372	\$1.352		
Consumption Fee	\$233.24	\$229.84	3.40	1.48%
Total Water	<u>\$410.24</u>	<u>\$406.84</u>	<u>\$3.40</u>	0.84%
<b>Wastewater - Retail Rate</b>				
Rate per billing period (4 months)	\$45.00	\$42.00		
Fixed Fee	\$135.00	\$126.00	9.00	7.14%
Consumption Rate per CM	\$2.027	\$2.005		
Consumption Fee	\$344.59	\$340.85	3.74	1.10%
Total Wastewater	<u>\$479.59</u>	<u>\$466.85</u>	<u>\$12.74</u>	2.73%
<b>Total Water and Wastewater Bill</b>	<u>\$889.83</u>	<u>\$873.69</u>	<u>\$16.14</u>	1.85%
Fixed Component	\$312.00	\$303.00		
Variable Component	<u>\$577.83</u>	<u>\$570.69</u>		
	<u>\$889.83</u>	<u>\$873.69</u>		
Fixed Percentage	35.06%	34.68%		
Variable Percentage	<u>64.94%</u>	<u>65.32%</u>		
	<u>100.00%</u>	<u>100.00%</u>		

**History of "Analysis of Average Increase" - per annual budget presentations**

	City	City	Remove Tax Sup	Total	Stated % Increase
July 1, 2009	(10.70)	(10.70)	21.40	107.00	16%
April 1, 2010	4.00	4.00		54.45	7%
April 1, 2011	2.71	2.71		37.80	5.32%
April 1, 2012	4.44	4.44		40.20	5.38%
April 1, 2013				20.40	2.59%
April 1, 2014				20.00	2.47%
April 1, 2015				12.22	1.63%
April 1, 2016				0.00	0.00%
April 1, 2017				15.09	1.98%
April 1, 2018				15.18	1.98%
April 1, 2019				41.29	5.28%
April 1, 2020				51.02	6.20%
April 1, 2021				16.14	1.85%



### **Appendix 3: Automated Meter Reading (AMR) Project**

The City has been installing new automated water meters in residential properties since August 2014. The City's AMR program uses wireless technology to automatically collect water consumptions, diagnostic and status data from the City's water meters and automatically transfers that data to a database for billing, troubleshooting and analyzing.

The battery-operated AMR transmitter is wired directly to the water meter inside the home and wirelessly communicates with mobile reading equipment installed in City owned meter reading vehicles. The AMR transmitter sends wireless signals to the mobile reading equipment three times per year currently and operates on Industry Canada licensed 900 MHz spectrum. These transmissions last for less than 1/8th of a second at power levels less than 2 watts.

The benefits associated with automated meter reading technology is the ability to monitor consumption levels on a property-by-property basis, and to use this consumption data to potentially assist property owners with leak detection.

AMR data has the ability to focus on inactive accounts to ensure there is no unauthorized usage. AMR has the ability to store 35 days of data which provides hourly data and assists staff in determining when the consumption occurred. AMR can reduce estimated reads and costs associated with re-billing accounts. Since AMR systems have very high accuracy and read percentages, the system reduces re-bill costs. An automated system will prove to be a more efficient method for obtaining these reads.

To date, 39,219 residential water meters have been upgraded to the AMR technology. We have approximately 234 meters left to exchange. The project upgrade was initially anticipated to be completed by Q2 of 2020. With COVID-19, the project was paused as of March 2020 due to the Provincial Emergency Order and the inability to enter the premises for meter exchanges. With the new Provincial Emergency Order activated in January 2021 the project has been further delayed and will resume as soon it is safe to do so.