



The Corporation of the City of Cornwall
Special Meeting of Council
Report

Department: Infrastructure and Municipal Works
Division: Environment
Report Number: 2021-67-Infrastructure and Municipal Works
Prepared By: Bill de Wit, Division Manager
Meeting Date: September 21, 2021
Subject: Water Conservation and Servicing Master Plan

Purpose

To provide Council with recommendations regarding the Water Conservation and Servicing Master Plan.

Recommendation

That Council approve the universal installation of water meters at all water service connections throughout the City of Cornwall and implement the water conservation program as outlined in the Water Conservation and Servicing Master Plan prepared by Watson & Associates Economists Ltd.

Financial Implications

The Ministry of Environment Conservation and Parks (MECP) have noted in the City's 2018-2019 Drinking Water Inspection Report "that measures should be considered to promote water conservation. This includes studies of current practices to determine how much water could be saved by implementing conservation measures".

The MECP have released a guideline document entitled "Towards Financially Sustainable Drinking-Water and Wastewater Systems," which provides possible

approaches to achieving sustainability. The Province's key principles of financially sustainable water and wastewater services are presented below and provide support for the objectives of this Master Plan.

- Ongoing public engagement and transparency can build support for, and confidence in, financial plans and the system(s) to which they relate.
- Revenues collected for the provision of water and wastewater services should ultimately be used to meet the needs of those services.
- A sustainable level of revenue allows for reliable service that meets or exceeds environmental protection standards, while providing sufficient resources for future rehabilitation and replacement needs.
- Ensuring users pay for the services they are provided leads to equitable outcomes and can improve conservation. In general, metering and the use of rates can help ensure users pay for services received.

Using consumptive rates allows the City to appropriately recover costs associated with spikes in usage. Similarly, consumption rates also prevent the City from overcharging residents when usage is low.

The implementation of the recommendations presented in the Water Conservation and Servicing Master Plan would provide the following cost savings for the City:

- Reduced water use: \$300,000/year (less chemicals used to treat water).
- Improved leak detection: \$70,000/year.
- The replacement of existing toilets to efficient toilets through an incentive program.
 - 20 litre toilet to 4.8 litre toilet: \$8.06 annually
 - 13 litre toilet to 4.8 litre toilet: \$4.35 annually
- Residential and non-residential water audits would be included in the Water Conservation Program leading to customer savings and municipal operating savings.
- Deferral of capital projects related to decreased need for capacity upgrades and repairs to existing infrastructure.
- Approximately 30% of water meter installation costs are expected to be recovered through cost benefits to the water system and to future users of the system due to meter installation.

Please refer to Section 6 of the Water Conservation and Servicing Master Plan entitled "Financing Model/Business Plan". The following paragraphs provide a



synopsis of the financial implications to the municipality as a whole, residential customers and to non-residential (industrial, commercial, and institutional) customers over the next 10-year forecast period.

Overall Municipal Impact

As outlined in the Water Conservation and Servicing Master Plan final report, over the 10-year forecast period (2022 through 2031) the total cost of this project is estimated at \$17.1 million. This includes universal water meter installation, project management, conservation incentive programs, and financing. Full cost recovery of the described expenditures is anticipated at the end of the 10-year period (in 2031). It is projected that all associated costs be recovered through water billings of residential and non-residential customers over the same period.

Rate Structure

Currently, residential customers are charged a fixed rate based on the number of water-using fixtures that are installed in the residence. This rate structure is not sensitive to actual consumption. Additionally, the flat rate causes inequities in billing because for many residents the number of water-using fixtures will have no bearing on the amount of water consumed (e.g., empty nesters).

Non-residential customers are charged either a flat rate per water-using fixture or a constant rate per volume of water consumed. The inconsistent approach of charging metered rates or flat rates for the same types of customers again causes inequity issues, as customers exhibiting similar water usage patterns may pay considerably different water and wastewater bills.

Alternative rate structures (including City-wide metered water rates) were considered to address inequities that currently exist within the water and wastewater rates that are imposed across the City. Firstly, when assessing the amount of residential and non-residential consumption relative to the share of annual revenues, non-residential customers account for 33% of annual water consumption but provide only 16% of annual water and wastewater revenues.

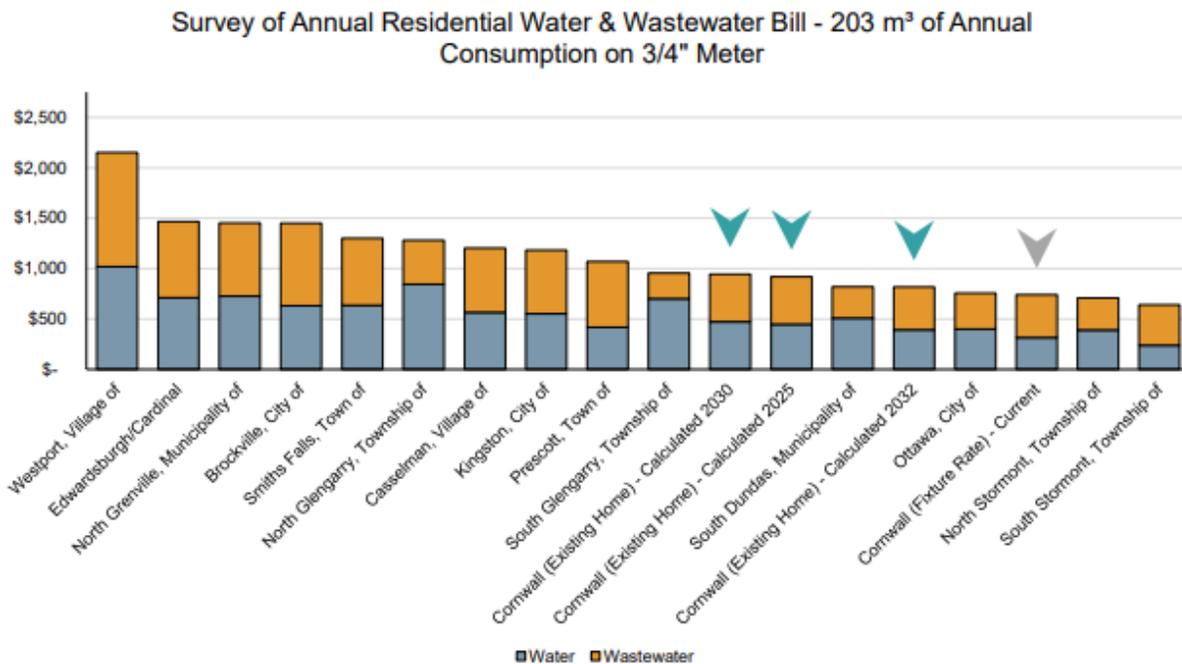
The proposed metered rate structure that has been assessed through the Master Plan incorporates a fixed and volumetric component to the charge. This type of rate structure mirrors that of most municipalities in Ontario. A rate structure combining fixed and volumetric charges allows the City to receive benefits associated with both structures. The fixed component of the charge provides revenue stability which can be differentiated by meter size to reflect the available

As shown in Table 6-6, following full installation of all water meters in 2025 and implementation of the new rate structure, provided consumptive behaviours remain the same, the average residential household should realize savings in annual water and wastewater billings by 2028 with savings increasing every subsequent year.

As indicated in the report, the main reason for the projected savings in average residential billings is primarily due to addressing the existing revenue inequity between the residential sector and the non-residential sector. Over the seven-year period from 2025 to 2031, average non-residential water and wastewater billings will increase to balance the revenue disparity with the residential sector.

As indicated in Figure 6-11 below, when comparing residential water and wastewater billings recommended to be implemented in Cornwall to the rate structures of 14 surrounding municipalities, it is projected that Cornwall will remain well within the lower half of all comparators.

Figure 6-11
Residential Water and Wastewater Bill Comparison
Eastern Ontario Municipalities



Non-Residential Customer Impacts

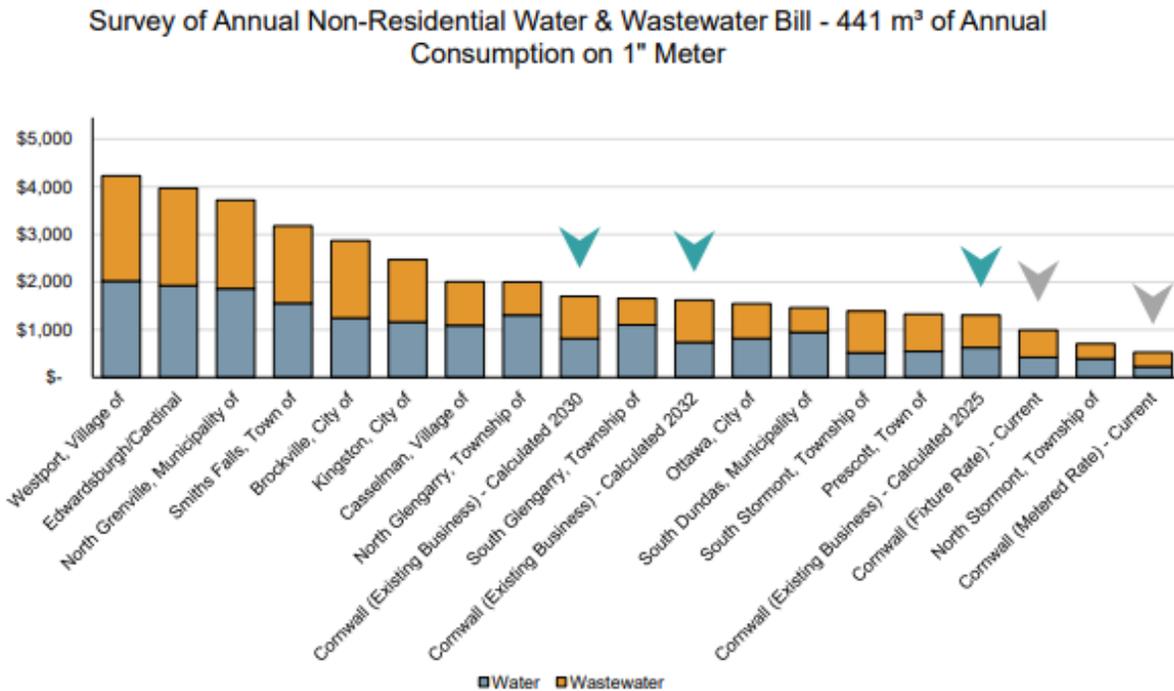
On average across all non-residential customers, total water and wastewater bills

are anticipated to increase. However, because of the difference in current non-residential water and wastewater rates that are imposed (i.e. metered vs. per fixture) and the variation in types of non-residential customers and volumes of water consumed, the impacts of imposing the proposed new rate structure will be very much customer specific.

The main reason for the projected increase in average non-residential billings is primarily due to addressing the existing revenue inequity between the residential sector and the non-residential sector. As previously mentioned, non-residential customers account for 33% of annual water consumption but provide only 16% of annual water and wastewater revenues.

As indicated in Figure 6-12 below, when comparing the non-residential water and wastewater billing structure recommended to be implemented in Cornwall to the rate structures of 14 surrounding municipalities, in 2025 Cornwall would rank second lowest. At the end of the planning period (2032), it is projected that Cornwall will remain within the lower half of all comparators.

Figure 6-12
Non-Residential Water and Wastewater Bill Comparison
Eastern Ontario Municipalities





Strategic Priority Implications

Council's 2019-2022 Strategic Plan prioritizes water meters in its statement of *"Being leaders in sustainability and climate change impact"*.

In today's society, conservation of natural resources is increasingly being more highly valued. Conservation continuously focuses on the preservation of non-renewable resources and on the proper management of renewable resources. Universal installation of water meters would result in water conservation which in turn would lead to energy and chemical usage reductions at both the Water Purification Plant and Wastewater Treatment Plant (WWTP) thereby lowering associated emissions. A reduction in water consumption would help reduce potential overflows at the WWTP and decrease Combined Sewer Overflows (whereby raw untreated sewage is directed into the St. Lawrence River). All the preceding measures would serve to reduce the general degradation of the fresh water supply and lessen the City's overall environmental footprint.

Background / Discussion

At its regular meeting of January 14, 2019, Council approved a New Business motion directing "Administration to prepare a report detailing the benefits and shortcomings of the City of Cornwall implementing a fully water metered system". The full version of the approved motion is attached.

In response to direction resulting from the preceding new business motion, at its regular meeting of November 12, 2019, Administration provided a report entitled "Water Meters, Conservation and Sustainability for City Wide Implementation of Water Meters" for Council consideration. This report is attached for review. As part of the report, Council approved the recommendation to "Direct Administration to develop a Water Conservation and Servicing Master Plan and fund the plan from the Water Works Reserve".

At Council's regular meeting of October 13, 2020, Administration provided an updated report regarding the Water Conservation and Servicing Master Plan. This report is attached for review. Among the recommendations approved, Council directed Administration "to commission Watson & Associates Economists Ltd. to complete the Water Conservation and Servicing Master Plan complete with final recommendations following obtainment of feedback from the public consultation and public outreach programs."



Watson & Associates Economists Ltd. have completed their final report regarding the Water Conservation and Servicing Master Plan for deliberation by Council. A copy of the final report is attached for reference. A synopsis of financial implications has been discussed. The following paragraphs will provide a summary of project logistics should Council proceed.

Project Management

Upon approval of the recommendations as outlined in the Water Conservation and Servicing Master Plan, Administration would draft and issue a Request for Proposal (RFP) to attain the services of a qualified and experienced consultant to provide overall project management services. The consultant would provide design services, preparation and management of the procurement process, contract supervision, quality control and administration, and ongoing public outreach.

Water Meters

It is proposed that the City proceed with universal installation of water meters complete with the application of a state-of-the-art- metering program. Such a program would include Advanced Metering Infrastructure which is a network of fixed base equipment that captures detailed consumption information from the metered population. This information is retrieved by data collection software on a daily basis. Such an electronic infrastructure would allow the municipality to add modules for the purposes of customer billing, accounts receivable, leak detection and customer notification, to mention a few.

Conservation Incentives and Rebate Plan

In addition to promoting water conservation through the installation of water meters and the alternative rate structures, the water conservation program will include financial incentives and rebates for customers to install water efficient appliances or to participate in initiatives to limit water consumption and wastewater flows. As an example, a toilet rebate program would be offered for the replacement of high-water-use toilets. A high efficiency toilet could save the average household between \$80 and \$124 on their annual water and wastewater bill (higher savings would be associated with the replacement of older 20 litre per flush toilets). Additionally, home water audit programs would be offered to assess the water usage in a home and identify home-specific water efficiency retrofit

opportunities as well as providing education regarding other water conservation strategies.

In terms of the non-residential sector, it is proposed to consult directly with non-residential stakeholders prior to the implementation of alternative metered rates to make sure the City understands the specific concerns of the non-residential stakeholders and to develop water conservation incentives specific to the non-residential water users within the City. The intent of developing specific non-residential conservation incentives is to provide stakeholders with the opportunity to change water consumption behavior or implement technology/equipment changes prior to the imposition of alternative water and wastewater rates.

Implementation Plan and Timelines

It is anticipated that it will take up to two years to install water meters in all properties within the City and that this process would commence in 2023 with metered water and wastewater rates being imposed for the start of 2025. Should Council provide direction to proceed with universal installation of water meters and the implementation of the water conservation program, the next steps will be to:

- Issue a Request for Proposal to commission a qualified consulting firm to provide project management services as outlined;
- Revise the water works bylaw to reflect the implementation of universal water meters within the Corporation;
- Continue outreach to promote and educate the community about the benefits of water conservation and the forthcoming water meter installations and rate structure changes;
- Consult with non-residential stakeholders on potential components of the water conservation program specific to their industries, such as incentives and rebates;
- Finalize water conservation program and begin implementation including home water audits and residential toilet rebate program;
- Begin universal water meter installation program under the supervision of a successful project management firm, including:
 - Public outreach program development;
 - Sample field inspections of existing plumbing at both residential and non-residential locations;
 - Development of tender specifications;



- Electronic integration with the City water billing software;
- Water meter installation logistics etc.

The City will also continue to assess water consumption data from all existing and newly installed water meters and revise the forecast metered water and wastewater rates prior to implementation in 2025.

Document Title:	Water Conservation and Servicing Master Plan - 2021-67-IMW.docx
Attachments:	<ul style="list-style-type: none"> - Master Plan Final Report - September 21, 2021.pdf - Jan 14 2019 - New Business Item.pdf - Nov 12 2019 - Water Meters, Conservation and Sustainability Options - 2019-235-Infrastructure and Municipal Works.pdf - Oct 13 2020 -Update on the Water Conservation and Servicing Master Plan - 2020-389-Infrastructure and Municipal Works.pdf
Final Approval Date:	Sep 16, 2021

This report and all of its attachments were approved and signed as outlined below:

Bill de Wit - Sep 10, 2021 - 5:39 PM

Tracey Bailey - Sep 16, 2021 - 9:12 AM

Maureen Adams - Sep 16, 2021 - 11:26 AM