



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

Department: Infrastructure and Municipal Works
Division: Environment
Report Number: [Report Number]
Prepared By: Carl Goodwin, Division Manager
Meeting Date: November 12, 2019
Subject: Water Meters, Conservation and Sustainability Options for
City Wide Implementation of Water Meters

Purpose

To present Council with information regarding a proposed city wide water meter implementation.

Recommendation

- 1.0 That Council receive this report and,
- 2.0 That Council direct Administration to develop a Water Conservation and Servicing Master Plan and fund the plan from the Water Works Reserve, and,
- 3.0 That the Water Conservation and Servicing Master Plan be presented to Council for consideration at a subsequent meeting.

Financial Implications

A Water Conservation and Servicing Master Plan includes an in-depth analysis of financial and forecast planning that would outline a rate structure that provides a



sustainable level of revenue when considering the net operating and capital costs and life-cycle planning for a water utility.

The survey indicated one strategy for funding the water meter project, to borrow for the purchase and installation of water meters and to have the debt paid back by homeowners over a 10 year period. The Water Conservation and Servicing Master Plan would include other financial strategies for the repayment of borrowed funds. This may include a structure so that payments for principal and interest borrowing costs are equal to the operational savings generated by the conservation of water. This approach was adopted with the LED street lighting project. Another strategy could be to set up a contribution to a Water Conservation Reserve to reduce the financial impact to ratepayers in the year that the capital project moves forward. Much like the financial structure set up for the Secondary Waste Water Treatment Plant.

The Water Conservation and Servicing Master Plan would also include scenarios: status quo (no residential water meters), a hybrid model (where those homeowners wanting a meter would be billed on a metered rate), and a full implementation model, city-wide over a period of two to three years.

Strategic Priority Implications

The strategic priority of *Being leaders in sustainability and climate change impact*, of the City's 2019-2022 Strategic Plan provides consideration for water meters.

Water meters is action item 3 in this strategic priority. Energy and chemical usage reductions would lower emissions and contribute to lower wear and tear, enhancing sustainability and climate change adaptation.

Background / Discussion

The City of Cornwall is the only community in Ontario with a population of over 40,000 that does not have water meters deployed city-wide with an accompanying volume based rate structure. The 2018-2019 Ministry of Environment, Conservation and Parks (MECP) inspection report noted that the City does not have a conservation program.

A volume-based rate structure provides to the customer an equity and choice based approach. The customer pays only for the water they use. The individual



customer can choose to adopt water savings ideas and that directly controls their billing. During the transition, there will be some customers who would see a decrease in the annual water bill and some customers that would see an increase.

The attached report presents the importance of water meters in the development of a conservation program. There are significant savings that can be realized with a conservation program. Water meters provide the measurement tool to monitor the effectiveness of the conservation initiatives. Water meter technology has advanced to allow for monitoring water usage in real time through transmitting of data using wireless technology.

This technology improves customer service (level of service) by providing customers with a web portal. With the web portal, customers can log into their account and get a visual of water usage. Daily usage over the past month can be viewed and comparisons to past usage can be easily created. This portal also allows the customer to create notifications if water usage changes. A useful example would be, if a customer historically does not use any water between midnight and 7am. The water meter portal could send an email saying check if a toilet valve is stuck as you used water last night and you typically do not.

This technology also allows the water distribution staff to monitor the water use and find leaks in the City's infrastructure more quickly. Similar to the example above, if a neighbourhood had no water usage after midnight, although water usage from the plant has gone up overnight, the leak detection staff would be dispatched. Reduction of leaks is a significant operational cost savings through reduced daily volume. In addition, since the leaks are found quicker, a greater percentage of repairs can be completed through scheduling. Fewer emergency repairs enhances customer service as more often repairs can be completed at times when shutting the water off to the customer doesn't inconvenience them.

There are several risks that can be reduced and opportunities realized with the installation of residential water meters as part of an overall Water Conservation and Servicing Master Plan.

Currently, the estimated daily residential per capita usage of drinking water in Cornwall is 450 litres per person per day. The average usage in Canada for residents who have water meters and a municipal conservation plan is 250 litres per person per day.

Risk:

1. Without starting the process to create a conservation program, the recommendation in the MECP annual inspection report could escalate and could result in a down grade from a 100% inspection rating. Cornwall is at 11 straight years of 100% ratings.

Opportunity

- Recommendation of Council for Administration to create proposal for a Water Conservation and Servicing Master Plan will show MECP that a plan is being considered.

Risk

2. Energy usage and chemical usage in the plants will remain higher than the national average.

Opportunity

- Operational saving of \$300,000 per year in power and chemicals once Cornwall achieves the Canadian average.

Risk

3. The Wastewater Treatment Plant (WWTP) currently operates at plus 85% of capacity during major rain and snow melt events. The MECP annual inspection for the WWTP has noted this as a concern.

Opportunity

- A reduction in water consumption would mean less water to the combined sewers, which directly reduces the overflows and would free up pumping capacity at the WWTP, which could be used to additionally reduce Combined Sewer Overflows (CSO). CSOs were 101,674 m3 in 2019.

Risk

4. Funding from senior levels of government for Energy Conservation and Demand initiatives, Climate Change Action initiatives, or water and/or sewage infrastructure would lose point potential on the evaluation of a funding application without a Water Conservation Plan without the ability to measure the effectiveness of the Plan.

- Funding for Energy Conservation and Climate Change greenhouse gas reduction and Climate Change adaption for water and/or sewage infrastructure projects would enhance Cornwall's infrastructure and further reduce operating and capital costs to the ratepayer.

Risk

5. Potentially millions of dollars in future capital expenditures directed towards the water and wastewater infrastructure will need to be invested by the costumer base in order to meet future water demand.

Opportunity

- Implementation of a water conservation plan will reduce, defer or eliminate future capital expenditures necessary to meet capacity needs at the water purification plant, the wastewater treatment plant, the water distribution system and wastewater collection systems.

Components of a Water Conservation and Servicing Master Plan

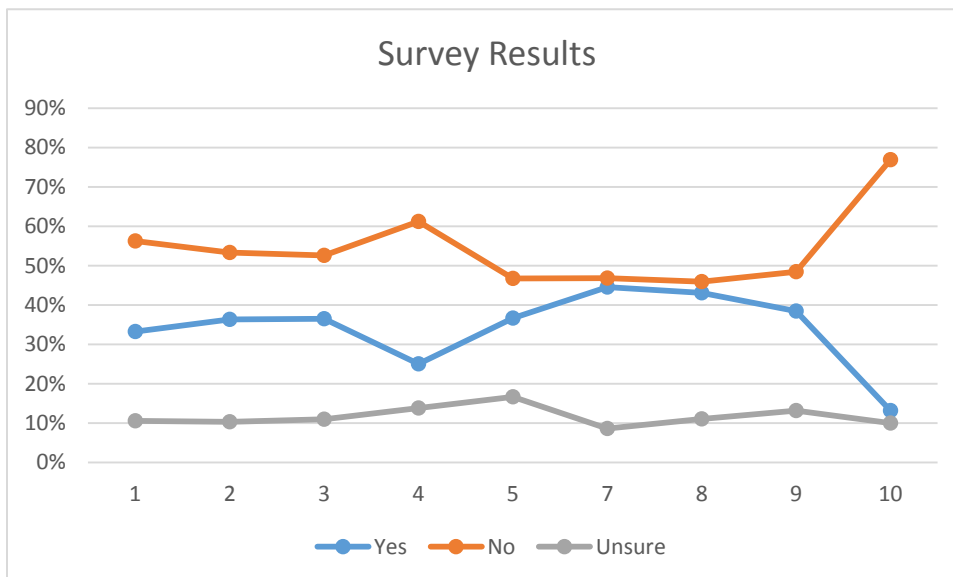
Upon Council approval, Administration would prepare a Water Conservation and Servicing Master Plan, which would outline specifics including but not limited to:

- Community outreach is a fundamental first step for increasing awareness and gaining public support for water demand management (WDM). Community outreach also plays a fundamental role in enhancing the planning and implementation success for most WDM initiatives. In other words, community outreach is a cross-cutting and ongoing WDM initiative. The community outreach would become part of the annual conservation program.
- Develop a timeline.
- Develop a volume based rate structure.
- Determine a financing model.
- Develop business plans.
- Develop procurement methodology ie. Request for Proposals, tenders etc.
- Develop an implementation plan.
- Provide extensive consultation with the public and stakeholders.
- Conservation Incentive and Rebate Plan.

Survey Results

The survey design does not allow for statistical analysis as such only qualitative or subjective observations can be made from the results. The design of the survey was chosen as an initial first step that would provide some data for development of an outreach and education plan as part of the recommended Water Conservation and Servicing Master Plan.

Figure 1 presents the percentage of respondents who answered yes, no or unsure to the questions in the survey.



Questions:

1. Do you feel water meters can help conserve our drinking water supply?
2. Do you feel water meters and rebate/incentive programs can work together to conserve water?
3. Do you feel a household with a water meter would use less water than a non-metered household?

4. Do you feel water conservation can help keep water rates from increasing?
5. Knowing the water consumption information provided by a water meter installed at your household, would you implement measures to conserve water?
7. Do you feel water meters are helpful in order to monitor water usage if your bill contained consumption information similar to your electricity and natural gas bills?
8. Do you feel the actual consumption of municipal water recorded by a water meter would provide a more equitable billing mechanism? That is, householders would pay for what they consume.
9. Based on the consumption information (and associated charges) provided by a water meter installed in your home, do you feel you would initiate water conservation measures in order to minimize your water billing?
10. If the City implements a citywide water meter program, are you in favour of financing the program over 10 years at an estimated cost of \$95 per year per household?

Attached to the report are the comments that were added in response to Question 6 and Question 11.

The chart indicates there is a slight majority of people who were not in favour of water meters.

Questions 1-3 indicate that about 54% do not see water meters as being able to reduce water usage. The experience in other communities would suggest that this is the typical feeling before the outreach and education campaigns, and that after the outreach customer satisfaction surveys showed this percentage declined.

In answering question 4, 61% of respondents do not feel that water conservation would reduce costs. In understanding what may be behind these responses, here is some information from the comments provided. There is a significant number of comments that equate the rate billing (water and sewer) with tax and feel they pay enough tax. This coupled with a feeling that income in Cornwall is such that most can't afford any increases. This is important data for both the financing portion of a Master Plan and the outreach/education plan. Both will



evolve the challenge of understanding and communicating the cost savings that would accompany the Water Conservation and Servicing Master Plan.

In question 10, 77% of respondents were not in favour of an additional \$95 per year. A recalculation, more accurately indicated that the estimated cost over a 10 year period would be \$77 per year per account. Administration would bring to Council, as part of the Water Conservation and Servicing Master Plan, additional financing options.

Document Title:	Water Meters, Conservation and Sustainability Options - 2019-235-Infrastructure and Municipal Works.docx
Attachments:	- Water Meter Discussion Paper.pdf - SURVEY - Question 6.pdf - SURVEY - Question 11.pdf
Final Approval Date:	Nov 7, 2019

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

No Signature - Task assigned to Bill de Wit was completed by workflow administrator Manon L. Levesque

Bill de Wit - Nov 7, 2019 - 9:33 AM

Tracey Bailey - Nov 7, 2019 - 9:35 AM

Maureen Adams - Nov 7, 2019 - 9:39 AM