



# City of Richmond

## Report to Committee

**To:** Public Works and Transportation Committee      **Date:** March 21, 2019  
**From:** Milton Chan, P.Eng.  
Acting Director, Engineering      **File:** 10-6000-01/2019-Vol  
01  
**Re:** **Water Meter Program and Sewer Rate Update**

### Staff Recommendation

That Option 3 – Sewer Rate Cap, as outlined in the report titled “Water Meter Program and Sewer Rate Update” dated March 21, 2019, from the Acting Director, Engineering, be endorsed for use in the preparation of the 2020 utility rate options.

Milton Chan, P.Eng  
Acting Director, Engineering  
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REPORT CONCURRENCE		
<b>ROUTED TO:</b>	<b>CONCURRENCE</b>	<b>CONCURRENCE OF GENERAL MANAGER</b>
Finance Department	<input checked="" type="checkbox"/>	
Water Services	<input checked="" type="checkbox"/>	
Sewerage and Drainage Services	<input checked="" type="checkbox"/>	
<b>REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE</b>	<b>INITIALS:</b> 	<b>APPROVED BY CAO</b> 

## Staff Report

### Origin

This report outlines the current status of the water meter programs.

At the December 10, 2018 Regular Council Meeting, a delegation spoke in regards to sewer charges during the summer season for single-family dwellings and expressed concerns with inequities arising from different types of water usage during the summer (i.e. irrigation). Staff advised that information would be provided to Council on this matter. This concern was also raised by several other residents.

This report also brings forward options for alternative single-family sewer rate structures.

### Analysis

#### Water Metering Update

Water metering provides Richmond residents with an equitable way to pay for drinking water and supports the Official Community Plan (OCP) objective to pursue water demand management strategies and continue water conservation initiatives. The City currently meters 100% of Industrial, Commercial and Institutional (ICI) and single-family properties. To date, 46% of multi-family dwellings have been metered through a volunteer program for existing complexes and a mandatory program for new complexes.

Universal deployment of the fixed base meter reading network was endorsed by Council as part of the 2017 Capital budget process and is expected to be completed by the end of 2019. The fixed base network, or Advanced Metering Infrastructure (AMI), is a system of radio receivers and transmitters that gather real-time consumption data from water meters. This project expands the existing fixed base network to cover the entire urban area in Richmond and will ultimately read 97% of Richmond's water meter inventory. Consumption data gathered by the fixed base network will allow staff to assist in helping customers identify causes of leaks and water consumption patterns, as well as enhance revenue forecasting to inform the utility budget process.

The population of Richmond has increased by 18% since 2003, while total water consumption in the City has decreased. By reducing water consumption, the City achieved a cost reduction of over \$10M in Metro Vancouver water and sewer charges in 2018 alone. This is a strong validation that water metering and conservation efforts to date are having a positive impact.

#### Single-Family Water Metering

Single-family dwellings are universally-metered. In 2018, approximately 82% of these customers saved money compared to the flat rate, with an average savings of approximately 47%.

Multi-Family Water Metering

The multi-family water meter program consists of a mandatory program for new complexes and a volunteer program for existing complexes. Mandatory metering of new multi-family complexes began in 2005, and 238 complexes (13,317 dwelling units) have been metered under this program. Volunteer metering of existing multi-family complexes began in 2010, through which 146 complexes (9,117 dwelling units) have been metered. Interest in the volunteer multi-family water meter program has decreased over time. In 2018, only three complexes volunteered for water meters. To date in 2019, two complexes have volunteered.

As of January 2019, 46% of the multi-family dwellings have been metered, 98% of which saved money in 2018, averaging a 48% savings compared to the flat rate.

Table 1 is a tabulation of the multi-family residential inventory and their water metering status.

Table 1. Multi-Family Inventory (January 2019)

Type	Number of Complexes	Number of Units	Number of Complexes Metered	Number of Units Metered	% of Units Metered
Townhouse	557	17,123	222	5,476	32%
Apartment	304	31,904	162	16,958	53%
<b>Total</b>	<b>861</b>	<b>49,027</b>	<b>384</b>	<b>22,434</b>	<b>46%</b>

The City subsidizes the installation of water meters for volunteer multi-family complexes up to the greater of \$1,200 per unit or \$100,000 per complex for the installation cost. If the installation cost exceeds the subsidy, the strata complex is required to pay the difference.

Currently, multi-family complexes that install a water meter are eligible for a two-year guarantee. If metered water charges exceed the flat rate in the first two years of the meter install, the complex will only be responsible for the flat rate charge. In addition, the two-year guarantee would then be extended to a five-year guarantee to allow residents more time to adjust water use habits and fix leaks without financial risk.

The remaining flat rate multi-family dwellings (54%) are the only properties yet to be metered for water, representing approximately 15% of the City’s overall water consumption.

### Fixed Base Meter Reading Network

Over the last four years, funding for the water meter program has been largely utilized for the universal single-family water meter program, water meter upgrades, and the fixed base network. The universal single-family water meter program is now completed, and water meter upgrades and the fixed base network will be complete by 2020.

Over the last five years, Metro Vancouver's water rate has increased by 15%. Furthermore, Metro Vancouver approved financial plans that indicate this trend will continue at an increasing rate. Increasing Metro Vancouver water cost is the primary driver for the City's water utility rates, accounting for approximately 60% of the City's water rate.

By the end of 2019, 82% of the City's water consumption will be metered. Staff will continue to pursue options to improve water usage data collection, including real-time monitoring through the fixed base network.

Some of the benefits of the fixed base network include:

- Expanding staff ability to proactively assess and notify metered residents of leakage through an enhanced leak detection program;
- Allowing detailed monitoring of consumption habits amongst customer classes; and
- Determining aggregate water usage by unmetered properties.

This will allow the City to adjust the flat and metered rates more equitably.

### Sewer Rate Options

Metered customers pay for the water they use as opposed to flat rate customers who pay a fixed fee for the services. Metered customers are currently charged for sewer based on their water consumption.

Metered single-family home owners that have higher water use in the spring and summer, due to irrigation and other outdoor uses, will see a corresponding increase in their sewer charge. Some home owners have complained that this is inequitable as the water used outdoors does not generally enter the sanitary sewer system.

Unlike water meters, residential sewer meters are not a practical solution on the basis of additional cost, lack of accuracy in sewer metering technology, inaccessibility, and complexity of installation and maintenance.

Four options for sewer rate strategies have been reviewed, focusing on Q2 (April to June) and Q3 (July to September) for single-family dwellings. All options represent full cost recovery for the sewer utility resulting in zero net impact to revenues. To achieve this, the sewer rates are proposed to be redistributed across all customer classes.

The sewer rate options are outlined below.

Option 1 – Average Using Two Quarters

The sewer charges in Q2 and Q3 are stabilized by applying an average of the water consumption in Q4 and Q1. Sewer usage is based on an average of the two previous winter quarter water usage.

Key considerations:

- Conservative winter water users can reduce sewer charges for the rest of the year.
- Introduces inequity for customers with variable usage patterns (e.g. absence in winter months).

Option 2 – Average Using Three Quarters

The highest usage is observed in Q3 compared to the rest of the year. The sewer charges in Q3 are stabilized by applying an average of the water consumption recorded in Q4, Q1, and Q2.

Key considerations:

- Conservative water users can reduce sewer charges for Q3.
- Equity is more balanced than Option 1.
- Introduces inequity for customers with variable usage patterns (e.g. absence in winter months).
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Option 3 – Sewer Rate Cap (Recommended Option)

Sewer charges are billed based on water usage up to a cap. The cap is equivalent to the sewer flat rate and only applied in Q3.

Key considerations:

- Maintains the principle of a user-pay system.
- Manages equity by only affecting high water users.
- For Q3, high water users would pay the same rate for sewer as unmetered properties being charged the flat rate.
- Aligns with existing First-Year Guarantee Program for new water meters. The City offers an adaptation period where customers can apply for a credit if the metered rate exceeds the flat rate over the first year of meter installation.

Option 4 – Status Quo

Sewer charges remain the same, using water meter readings as the proxy for sewer consumption with no cap.

Key considerations:

- Higher incentive for water conservation during the summer season.
- Irrigation and outdoor uses, which do not typically flow into the sewer system, is charged for sewer use.

The rate impacts associated with each option all represent full cost recovery for the sewer utility. Staff expect zero impact to net revenues from the proposed rate structure change; however, costs will be redistributed amongst the customer classes.

Depending on the option, costs are expected for additional customization to the tax and utility billing system beyond existing functionality. These costs will be included when the 2020 utility rates are brought forward for consideration later this year and are estimated to be approximately \$20,000.

Implementing a new sewer rate structure will impact all property classes and rates. A comparison of the estimated sewer rate impacts based on the approved 2019 rates is provided in Table 2.

Table 2. Average Annual Sewer Charges

Options for Sewer Charges	Metered				Flat Rate			
	Residential	Townhouse	Apartment	Industrial, Commercial, Institutional	Residential	Townhouse	Apartment	*Industrial, Commercial, Institutional
Approved 2019 Rates	\$349	\$233	\$177	\$3,093	\$455	\$416	\$347	N/A
Option 1	\$290	\$243	\$183	\$3,229	\$475	\$434	\$362	N/A
Option 2	\$296	\$241	\$182	\$3,204	\$471	\$431	\$359	N/A
Option 3 (Recommended)	\$299	\$241	\$181	\$3,196	\$470	\$430	\$358	N/A

\*ICI is fully metered

Staff recommend that Option 3 - Sewer Rate Cap be used as the basis for preparing the 2020 utility rate options that will be brought forward for consideration later this year.

**Financial Impact**

There are no financial impacts.

**Conclusion**

Residential water meter programs have had continued success, improving the City’s sustainability efforts while reducing costs for residents. The City remains a leader in metering infrastructure in the Metro Vancouver region. By the end of 2019, Richmond will have successfully metered approximately 82% of water use in the City and the fixed base network will be fully deployed. The industrial, commercial, and institutional (ICI) and single-family residential sectors are universally metered. Remaining flat rate multi-family dwellings can participate in the volunteer multi-family meter program at their discretion; however current uptake on this program is low. Water conservation initiatives implemented by the City have played a significant role in reducing the amount of drinking water consumed daily. Having greater control over water consumption extends the life of existing infrastructure and defers the need for new capacity-based capital infrastructure projects.

March 21, 2019

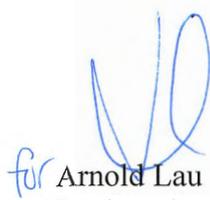
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Various options for single family sewer rates have been analyzed, and staff recommend that Option 3 - Sewer Rate Cap be used as the basis for preparing the 2020 utility rate options that will be brought forward for consideration later this year.



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