City of Richmond

Report to Committee

To:	Public Works and Transportation Committee	**Date:**	September 7, 2016
From:	John Irving, P.Eng. MPA Director, Engineering	**File:**	10-6650-02/2016-Vol 01
Re:	**Water Meter Program Update**		

Staff Recommendation

That staff bring forward options and recommendations for mandatory Multi-Family water metering for consideration through the Capital budget process.

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Director, Engineering
(604-276-4140)

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Finance Water Services	☑ ☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:** DW	**APPROVED BY CAO**

Staff Report

Origin

At the April 22, 2013 Regular Council Meeting, Council adopted the following motion:

> *That a universal water metering program, as outlined in Option 3 in the staff report titled Water Meter Program Update from the Director, Engineering, dated April 5, 2013, be implemented for single-family dwellings, starting in 2014, with a five-year completion target.*

At the October 28, 2013 Regular Council Meeting, Council adopted the following motion:

> *That the Universal Single-Family Water Meter Program be contracted to Neptune Technology Group (Canada) Ltd. for a six-month term with a City option to extend to a three-year term.*

This report outlines the status of the residential water metering programs and provides recommendations for universal deployment of a Fixed Based Network for meter reading.

Analysis

Water metering provides Richmond residents with a more equitable way of paying for their water use when compared to the flat rate, and supports the Official Community Plan (OCP) objective to pursue water demand management strategies and continue water conservation initiatives.

Single-Family Water Metering

Water meters have been installed for 93% (25,448) of single-family dwellings (excluding residential addresses zoned as agricultural) through the volunteer and mandatory water meter programs. In 2015, 86% of these customers saved money with a metered service when compared to the flat rate with an average annual savings of $417.60 with water and sewer costs combined.

In April 2013, Council adopted universal water metering for single-family dwellings over the course of five years beginning in 2014. Since the beginning of the Universal Water Metering Program, 71% of the water meter installations were performed by the contractor (Neptune Technology Group Ltd.) while 29% were performed by City crews. As of July 2016, there are 1,791 single-family dwellings that are not metered (excluding residential addresses zoned as agricultural). It is estimated that an additional 500 water meters will be installed by the end of 2016 and the remaining 1,300 will be installed in 2017.

The three-year water metering installation contract with Neptune will expire on December 31, 2016. City crews have sufficient staffing capacity to complete the Universal Single-Family Water Meter Program in one year, within the original program timeline approved by Council. The average cost for City crews to install a water meter is competitive with Neptune's contract

price. Given the small number of installations remaining, staff will complete the remaining single-family water meter installations using City crews.

The next steps for program implementation would include the following:

- Capital Project Submission. A Capital project submission for installation of the remaining 1,300 single-family water meters will be included as part of the 2017 Capital budget process for council consideration.

- Communications. Unmetered single-family properties would receive mailed pamphlets in multiple languages to inform them of the impending water meter installation, as well as educational content on water meters and water conservation. This is consistent with the public communication program for the universal single-family water metering program to date.

- Utility Rates. Utility budgets and rates will be developed for the upcoming year and brought forward to Council in the 4th quarter. Increases from Metro Vancouver's wholesale water rate as well as labour and materials cost increases will result in increased costs to the water utility. As more dwellings become metered, small adjustments to the metered rate will be recommended in order to balance the budget.

ALR Lands

Agriculture remains an important part of Richmond's economy and community. Over 39% of the City's lands are designated as Agricultural Land Reserve (ALR). The ALR has a total of 828 single-family homes, 42% of which are metered.

Of the remaining single-family homes on flat rate in the ALR, 155 are classified as farm by BC Assessment. Farms, as per Bylaw No. 5637, require a back flow preventer to be installed. These devices will be installed as part of the universal single-family water meter program at no direct cost to the homeowner. However, the homeowner will own and be responsible for the maintenance of the back flow preventer thereafter.

Duplex Water Metering

There are currently 524 duplex units in Richmond that do not have a water meter. Duplexes are not included in the universal metering program, as most duplexes in Richmond share one water service and have interconnected plumbing. In order to meter these units, private plumbing work must be done within the dwelling.

Existing duplexes are metered on a voluntary basis. The volunteer program provides up to $3,000 to homeowners to separate the plumbing. New duplexes are metered on a mandatory basis.

Due to the plumbing work required within the dwelling, staff recommend to continue to exclude duplexes in the mandatory water meter program. Water meters will still be installed for duplex dwellings on a voluntary basis.

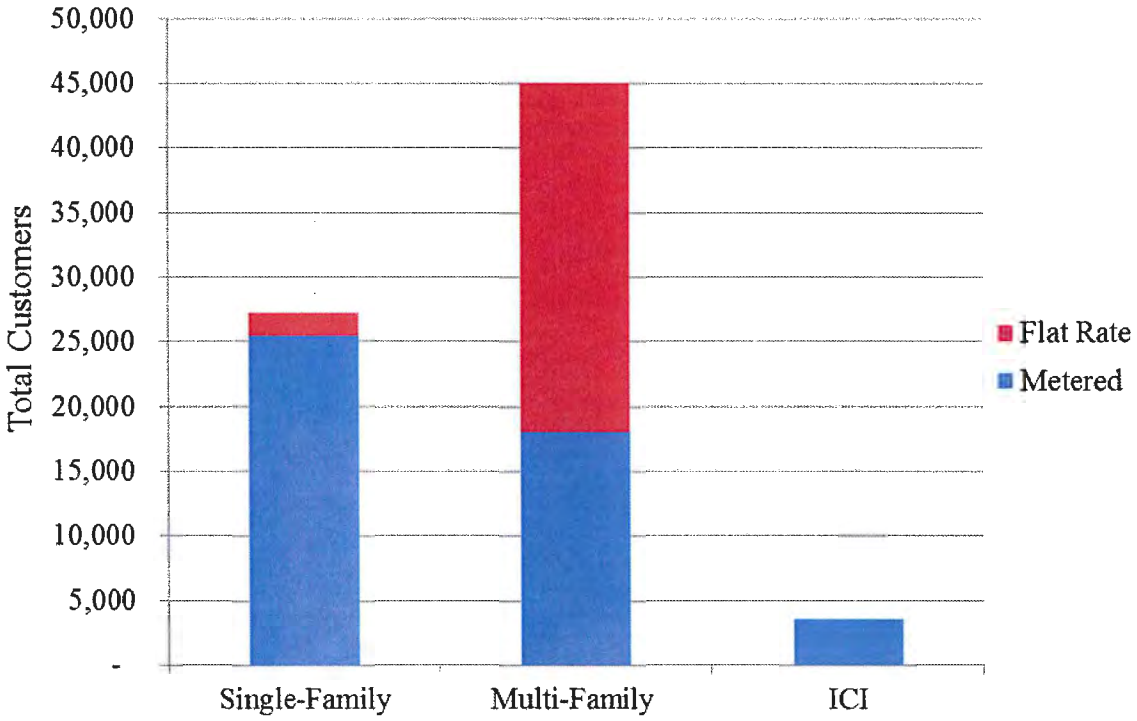
Multi-Family Water Metering

As of July 2016, 40% of the multi-family units have been metered. In 2015, 98% of metered multi-family complexes saved money, on average realizing a 37% savings compared to the flat rate.

Water meters have been mandatory for new multi-family dwellings since 2005. To date, there have been 184 mandatory water meters installed, comprising of 9,353 units and 143 voluntary water meters installed, comprising of 8,702 units. Interest in the volunteer water metering program for multi-family dwellings is in decline. In 2016, there were only four multi-family complexes that inquired about a water meter installation and only one complex approved the installation.

The Industrial/Commercial/Institutional (ICI) sector is universally metered for water and single-family dwellings will be universally metered by the end of 2017. Figure 1 identifies the number of single-family, multi family and ICI units that are metered.

Figure 1: Number of Flat Rate vs. Water Metered Customers by Sector



The multi-family sector, representing approximately 1/3 of City's water consumption, is the largest sector of unmetered water use. As the single-family universal metering program reaches completion in 2017, resources will be available to address universal metering of multi-family dwellings.

Staff will review potential universal multi-family water meter program benefits and implications and bring forward a report with options and recommendations for Council's consideration.

Staff will also review two potential incentive programs to increase the number of volunteer complexes.

The multi-family water meter installation cost incentive will be reviewed and harmonized with the water meter installation cost for single-family dwellings. Currently the multi-family installation cost incentive lags single-family installation cost and is a possible deterrent to potential multi-family volunteers. Updated water meter incentive rates will be brought to Council for consideration as part of the Utility Rates process this fall.

Another possible deterrent for potential multi-family volunteers is property side leakage. Some older multi-family complexes may have plumbing that is in disrepair and has significant water leakage. The cost of leaked water could be a deterrent to volunteer metering and repair costs are a possible deterrent to fixing the leaks. Staff will review potential leak audit and repair incentive programs that are cost neutral for the City and provide cost sharing for plumbing repair or upgrades in multi-family complexes where there is substantial leakage. Staff will report the findings of this review for Council's consideration in a subsequent report.

Fixed Based Meter Reading

The City currently has three methods of water meter reading: touchpads, drive-by and fixed based. Each touchpad must be read manually on site by physically touching the meter with a meter reader. For drive-by readings, a vehicle drives by the meter collecting the radio signal. Meters on the Fixed Based Network are continuously read through radio towers called gateways.

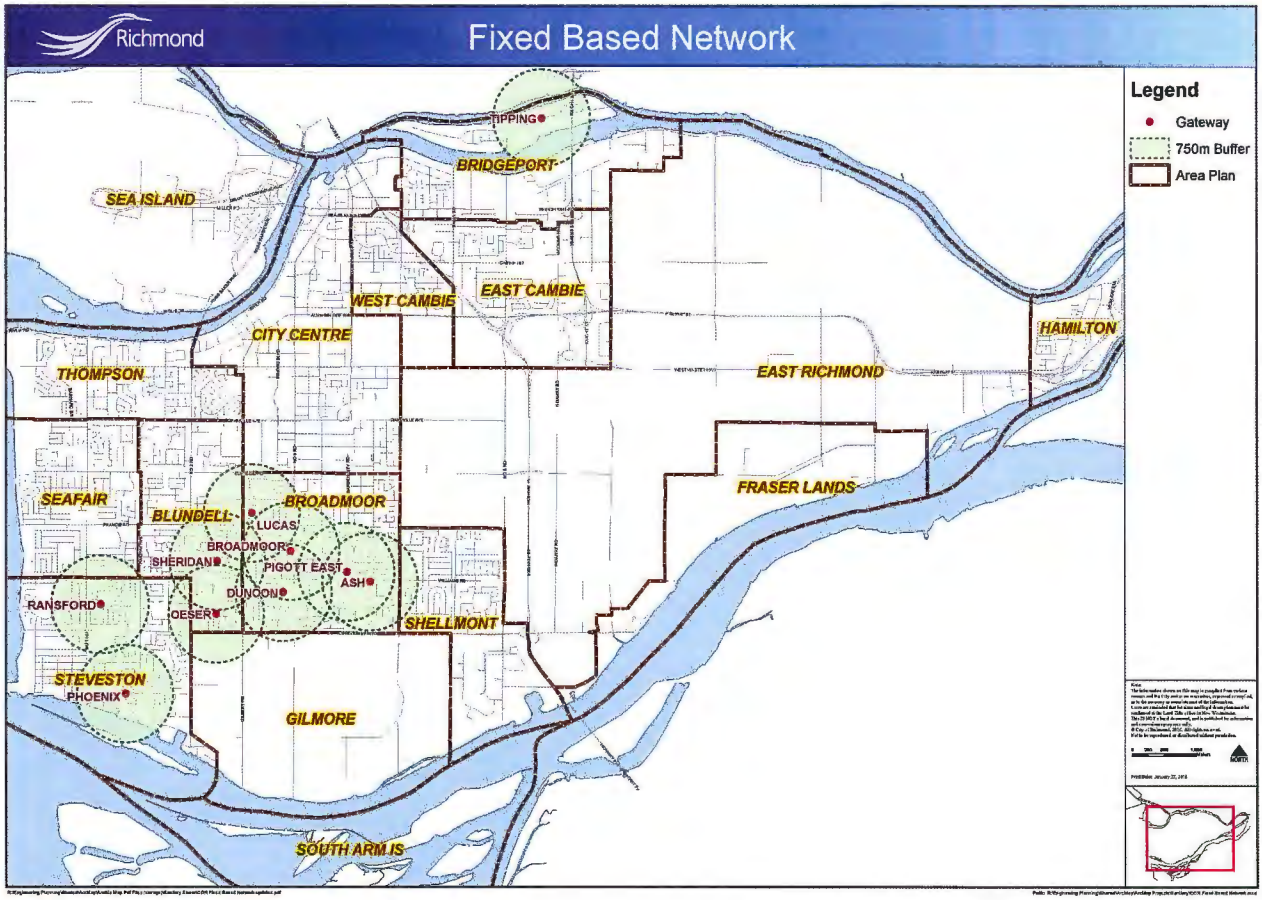
In 2014, Richmond introduced a pilot project for Fixed Based Meter Reading. Currently, 10 gateways have been installed and approximately 5,000 meters are being read, approximately 11% of all Richmond water meters. Staff have tested the Fixed Based system and have been successful in integrating the Fixed Based Network software with the City's billing system.

Benefits of the Fixed Based Network include:

- Real time consumption data which allows staff to help the customer identify causes of leaks and water consumption habits;
- Up-to-date consumption data which will improve revenue assessment throughout the year and enhance revenue forecasting;
- Reduced Greenhouse gas emissions through a reduction in vehicle use; and
- More efficient use of staff time; time currently spent manually reading meters can be re-directed to more value-added services such as assisting residents with identifying leaks and assistance in leak repair.

Figure 2 shows the gateways currently installed and the areas that can be read through the Fixed Based water meter reading network.

Figure 2: Current Fixed Based Water Meter Reading Network



An additional 36 gateways are required for universal implementation in urban areas of the City. A capital project to automate water meter data collection will be submitted for Council consideration as part of the 2017 Capital program.

East Richmond, Fraser Lands and Gilmore areas have excluded from the urban areas. Staff recommend to continue reading these areas manually due to the low density of water connections.

Based on the successes of the Fixed Base Network trial and the significant benefits and efficiencies, staff will recommend that the Fixed Based Network be universally deployed in the urban areas of the City.

The City has approximately 10,000 residential touchpad meters and 1,750 industrial, commercial and institutional (ICI) touchpad meters. These meters require physical contact with the water meter reading equipment and cannot be read by the Fixed Base Network. This equipment will be changed out through existing maintenance and capital programs over the next 10 years with no additional funding required.

Customer Portal

Should Council choose to move forward with implementation of the Fixed Based Network Meter Reading, the next steps could include the introduction of a customer portal. The customer portal will provide real time information for customers regarding their water consumption. Notifications can be set if a leak is detected or if there is water usage when the customer is not at home. Customers will also become more aware of their consumption habits which will aid in overall reduction of water usage. The customer portal will contribute to achieving the City's customer service objectives.

Financial Impact

None.

Conclusion

Water meters have been installed for 93% (25,448) of single-family dwellings (excluding residential addresses zoned as agricultural) through the volunteer and mandatory programs. Staff recommend completing the Universal Single-Family Water Meter Program with City crews.

The interest in the volunteer water meter program for multi-family dwellings is declining. Staff will further review a mandatory multi-family water meter program and bring forward a report with mandatory multi-family water metering options for Council's consideration.

Fixed Based Network water meter reading has significant benefits including real time consumption information, notification of leaks and environmental benefits. Staff will recommend a universal deployment of the Fixed Based Network to automate water meter data collection in urban areas of the City through the 2017 Capital budget process.

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