



**City of Richmond**

**Report to Committee**

**To:** Public Works and Transportation Committee *to Public Works & Transportation - June 22, 2005* **Date:** April 6, 2005

**From:** Robert Gonzalez, P.Eng. **File:** 10-6650-02/2005-Vol 01  
 Director, Engineering

**Re:** **Multi Family Water Metering**

**Staff Recommendation**

That all new multi family residential properties be required to install water meters and be charged the metered rate for water and sanitary sewer.

Robert Gonzalez, P.Eng.  
 Director, Engineering  
 (4150)

FOR ORIGINATING DIVISION USE ONLY						
<b>ROUTED TO:</b>	<b>CONCURRENCE</b>		<b>CONCURRENCE OF GENERAL MANAGER</b>			
Water Services .....	Y	<input checked="" type="checkbox"/>	N	<input type="checkbox"/>		
Budgets .....	Y	<input checked="" type="checkbox"/>	N	<input type="checkbox"/>		
<b>REVIEWED BY TAG</b>	YES		NO	<b>REVIEWED BY CAO</b>	YES	NO
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## Staff Report

### Origin

At the February 24, 2003 Council Meeting, City Council endorsed a voluntary water metering program for single family dwellings.

On January 10, 2005, staff brought forward a report to Council proposing a water metering strategy for multi family developments (Appendix A). At that Council Meeting, City Council resolved that:

- 1) all new duplex residential properties be required to install water meters and be charged the metered rate for water and sanitary sewer;
- 2) all duplex units undergoing renovation in excess of \$75,000 be required to install water meters at the property owners' cost and be charged the metered rate for water and sewer;
- 3) all existing duplex units, except those with interconnected potable water plumbing, become eligible for the Residential Volunteer Water Metering Program;
- 4) all existing apartment and townhouse sites be allowed to have water meters installed at the property owner's cost; and
- 5) staff provide additional comment on the metering of new townhouse and apartment complexes after consultation has occurred with:
  - i. industry stakeholders, which would include the Urban Development Institute, the Greater Vancouver Homebuilders Association, and local developers; and
  - ii. other communities to determine their specific water-metering histories and results.

This report addresses both parts of the 5<sup>th</sup> resolution.

### Findings Of Fact

#### Consultation with Stakeholders

Staff consulted with UDI at their March 30<sup>th</sup>, 2005, meeting with the City. The general consensus from UDI was a preference for not metering multi family dwellings. There was also general agreement that if metering was required for multi family dwellings, UDI preferred a master meter with the strata corporation holding responsibility for paying the metered utility bill and distribution of that cost to their members.

Staff also consulted with the Greater Vancouver Homebuilders Association (GVHA). The GVHA is not opposed to metering multi family developments and does not have an opinion on master metering versus sub metering. However, the GVHA was clear that they would like to be involved in creating the standard for metering of multi family developments as they believe they can add a cost sensitive perspective to the process.

### Consultation with Other Communities

Staff contacted a total of 21 Canadian municipalities<sup>1</sup> (results are attached as Appendix B). 17 of these municipalities meter multi family developments for water. The majority of these municipalities employ a master meter to measure water and bill the strata corporation for large developments. 2 of the municipalities allow some sub metering with individual billing in apartments and 5 municipalities have sub metering with individual billing in townhouse complexes.

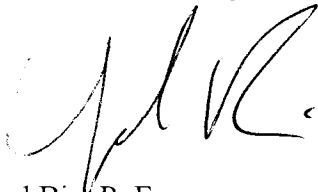
Abbotsford has some existing sub metering, but is actively moving toward master meters for their entire multi family inventory. The reasons cited for this change are access problems for maintenance and reading of the water meters<sup>2</sup>.

### **Financial Impact**

None.

### **Conclusion**

Most Canadian cities that meter multi family developments for water use a master meter scheme and bill the development's strata corporation for consumed water. UDI does not support metering multi family developments for water, however, they have a preference for the master meter scheme if water meters are required. Staff recommends that the City proceed with requiring all new multi family developments to install a master water meter, in a manner consistent with the report attached as Appendix A, and pay the metered rate for water and sewer.



Lloyd Bie, P. Eng.  
Project Engineer - Water and Sewer  
(4385)

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<sup>1</sup> 14 lower mainland municipalities, 3 Vancouver Island municipalities and 4 other major Canadian municipalities  
<sup>2</sup> Often access is only available after regular working hours, creating a chronic overtime problem

# Appendix A



CITY OF RICHMOND

REPORT TO COUNCIL

TO: Richmond City Council  
FROM: Cllr. Howard, Chair  
Public Works and Transportation Committee  
RE: **MULTI FAMILY RESIDENTIAL WATER METERING**

DATE: December 23, 2004  
FILE: 10-6650-02/2004-vol.  
01

The Public Works and Transportation Committee, at its meeting held on Wednesday, December 22, 2004, considered the attached report, and recommends as follows:

COMMITTEE RECOMMENDATION –

*That:*

- (1) *all new duplex residential properties be required to install water meters and be charged the metered rate for water and sanitary sewer;*
- (2) *all duplexes undergoing renovation in excess of \$75,000 be required to install water meters at the property owners cost and be put on the metered rate for water and sewer;*
- (3) *all existing duplex units, except those with interconnected potable water plumbing, become eligible for the Residential Volunteer Water Metering Program; and*
- (4) *all existing apartment and townhouse sites be allowed to have watermeters installed at the property owners cost.*
- (5) *staff provide additional comment on the metering of new townhouse and apartment complexes after:*
  - i) *consultation has occurred with industry stakeholders, which would include the Urban Development Institute, the Greater Vancouver Homebuilders Association, and local developers; and*
  - ii) *consultation has occurred with other communities to determine their specific water-metering histories and results.*

Cllr. Howard, Chair  
Public Works and Transportation Committee

Attach.

Variance:

***That:***

- (1) *all new multi family residential properties be required to install water meters and be charged the metered rate for water and sanitary sewer;*
- (2) *all duplexes undergoing renovation in excess of \$75,000 be required to install water meters at the property owners cost and be put on the metered rate for water and sewer;*
- (3) *all existing duplex units, except those with interconnected potable water plumbing, become eligible for the Residential Volunteer Water Metering Program; and*
- (4) *all existing apartment and townhouse sites be allowed to have watermeters installed at the property owners cost.*

## Staff Report

### Origin

At the February 24, 2003 Council Meeting, City Council endorsed a voluntary water metering program for single family dwellings.

Both Council and the public have expressed interest in metering multi family dwellings for water. This report outlines issues involved in multi family water metering and recommends a potential approach to this issue.

### Analysis

Multi family development comes in all shapes and sizes within the City of Richmond, each with it's own water metering challenges and requirements. For the purpose of establishing a water metering program for multi family developments, staff has divided these developments into three broad categories:

- Duplex
- Apartment
- Townhouse

The following explores some options for metering each of these groups of multi family dwellings:

#### Duplex

Duplexes are limited to two separate units and are the least dense form of multi family development.

It is desirable from the property owner perspective to meter each unit in a duplex separately. Staff recommends that all new duplex units be constructed to allow water metering of individual units at the property line they share with the City.

Some existing duplexes were constructed with one water connection servicing the entire duplex building. For these sites, individual metering from the property line would require installation of new water services as well as extensive plumbing modifications to the duplex. This approach is not considered practical by staff. Instead, Staff recommends that existing strata duplexes with only one water service have meters installed inside of the building in such a manner that each unit is metered for water independently and the meters are easily accessible.

Through the Volunteer Water Metering program, staff has received numerous requests for water meter installation from duplex owners. Given that duplex sites are similar in nature to single family dwellings, staff recommends that duplexes be treated similar to single family dwellings with respect to water metering. Staff recommends that:

- All new duplexes be required to install water meters at the property owner's expense.
- Duplexes that have their water services replaced through capital works have water meters installed at the property line at the City's expense, similar to the current practice for single family dwellings.
- Duplexes with interconnected potable water plumbing not be metered.
- Duplexes be added to the Volunteer Water Metering Program.

It should be noted that Richmond has a number of existing non strata duplexes. These properties receive one utility bill covering both units of the duplex. Staff recommends that non strata duplexes be treated the same as single family dwellings for the purpose of water metering. This means that only one meter will be used to measure water for both units of a non strata duplex.

### Apartments

Apartments can have any number of units within one building. Staff recommends that apartment buildings be metered through one master meter for all units within an individual structure, with the metered water and sanitary sewer bill charged to the apartment strata corporation. The strata corporation can divide the bill as it sees fit. This practice is common in the water industry.

Staff recommends that all new apartments buildings be metered in a mechanical room inside of the apartment building. This will dramatically reduce the cost of meter installation, as no underground pit will be required and the meters used can be smaller (a typical underground meter installation for a large apartment building is estimated to cost \$40,000, while an indoor installation is estimated to be less than \$4,000).

Some existing apartment sites that have irrigation systems or fire hydrants connected to their water service that can not be metered from an indoor mechanical room will require the more expensive underground installation. These sites will be reviewed on an individual basis for meter location and cost.

Staff recommends that:

- Existing apartment buildings be permitted metered service if they wish to pay for water and sewer based upon metered usage.
- The cost of water meter installation be the property owner's responsibility.
- Existing apartment buildings not be required to meter at this time.
- All new apartment buildings be required to install water meters.

### Townhouses

It is recommended that townhouse sites be metered for water with one master meter at the property line, with the metered water and sewer bill being charged to the complex strata corporation.

Townhouses are potentially the most difficult multi family configuration to meter for water due to high variability in size of development, on site amenities and private water system



configuration. Based on the City's Geographic Information System (GIS), the City has 286 townhouse sites that range in size from 3 units to 220 units. The smaller sites have only domestic water service while the larger sites will have domestic and fire service. Fire flows are generally two orders of magnitude higher than peak domestic flows, requiring larger pipes and larger water meters. Therefore, townhouse sites that have a fire flow requirement will be much more expensive to meter. For example, a 3 unit townhouse site without fire flow will cost approximately \$1,000 to meter for water. A 20 unit townhouse site with a fire hydrant on the site will cost up to \$40,000 to meter due to the meter's size, complexity and the size of underground chamber required.

Given the variability in townhouse sites, staff recommends that these sites be metered for water through master meters located at the site's property line with the City. Further, Staff recommends that:

- The cost of water meter installation be the property owner's responsibility.
- These installations be done at cost and that property owners be given the option to install the meter pit and associated piping (supply and installation of the actual meter would remain in the City's purview).
- All new townhouse sites be required to install a water meter.
- Existing townhouse sites not be required to meter at this time.
- Existing townhouse sites be permitted a metered service if they wish to pay for water and sewer based upon metered usage.

#### Waterworks Bylaw

The staff recommendations above will require an amendment to the Waterworks Bylaw as part of the implementation process. Should Council choose to proceed with multi family metering, staff will recommend amendments to the Waterworks Bylaw for Council's approval.

#### **Financial Impact**

Existing duplex owners who volunteer for water meter installation can be accommodated by the existing Volunteer Water Metering program.

#### **Conclusion**

Metered water billing is more equitable than the current flat rate system used for residential multi family sites. Duplexes and apartment buildings are relatively cost effective to meter for water, while townhouses are likely to require expensive installations. It is most cost effective to install water meters during the construction of a multi family dwelling site and staff recommends that all new multi family dwellings sites be required to install water meters. Duplexes are similar in nature to single family dwellings and staff recommends that duplexes be added to the scope of

November 29, 2004

- 5 -

the current Volunteer Water Metering program. Staff recommends that existing apartment buildings and townhouses be metered on a volunteer basis at the property owner's cost.

A handwritten signature in black ink, appearing to read 'Lloyd Bie', with a stylized flourish at the end.

Lloyd Bie, P. Eng.  
Project Engineer - Water and Sewer  
(4385)

# Appendix B

WATER METER - MULTIFAMILY METERING - MUNICIPALITY SURVEY						
Municipality	Meter Apartments	Meter Townhouses	Billing	Sub meter	Master meter	General Comments
Vancouver	Strata master meter for apartments	Strata master meter for townhouses	Master bill for strata		Townhomes & apartments	Volunteer program for single family homes. No plans for mandatory individual meters for multihomes
Burnaby	Strata master meter for apartments	Strata master meter for townhouses	Master bill for strata		Townhomes & apartments	No plans for mandatory individual meters in future
North Vancouver	Strata master meter for apartments	Strata master meter for townhouses	Master bill for strata		Townhomes & apartments	No plans for mandatory individual meters in future
West Vancouver	Strata master meter for apartments	Strata master meter for townhouses	Master bill for strata		Townhomes & apartments	No plans for mandatory individual meters in future
Delta	Strata master meter for apartments	Strata master meter for townhouses	Master bill for strata		Townhomes & apartments	
Chilliwack	Strata master meter for apartments	Strata master meter for townhouses	Master bill for strata		Townhomes & apartments	
New Westminster	Strata master meter for apartments	Strata master meter for townhouses	Master bill for strata		Townhomes & apartments	
Surrey	Strata master meter for apartments	Strata master meter for townhouses	Master bill for strata		Townhomes & apartments	Old meters are inside building will be removed to property line. Meters should be outside at property line for easy access.
Langley	Strata master meter for individual water meters (small units)	Strata master meter for individual water meters (small units)	Master bill for strata		Townhomes & apartments	Meters are inside buildings. Problems getting access to building.
Calgary	Strata master meter for apartments (up to 4 units)	Individual water meters (small units) Strata master meter for strata (large units)	Individual water meter bill or master bill for strata	Townhomes only (16 or less units)	All apartments Townhomes (16 or more units)	Developer decides type of metering. No plans to make individual meters mandatory in future. Municipality does not like flat rate system
Edmonton	Strata master meter for apartment	Individual water meter for each townhouses	Individual water meter bill or master bill for strata	Townhomes only	Apartments	Developer decides type of metering. No plans to make individual meters mandatory in future. Municipality does not like flat rate system
White Rock	Strata master meter for apartment	Individual water meter for each townhouses	Master bill for strata		Townhomes & apartments	Problems - access to building
Abbotsford	Strata master meter for apartment	Individual water meter for each townhouses	Individual water meter bill or master bill for strata	Townhomes only	Apartments	Meters outside at property line easy access. Municipality does not like flat rate system
Toronto	Strata master meter for individual water meters (developer driven)	Individual water meter for each townhouses	Individual water meter bill or master bill for strata	Townhomes only (curb box)	Apartments	Problems - access to building
Mission	Strata master meter for apartment (large units)	Strata master meter for townhouses	Individual water meter bill or master bill for strata		Townhomes & apartments	Moving towards single family water meters. Individual meters for multifamily units to high cost. Not cost efficient for maintenance and administration
Maple Ridge	Strata master meter for apartment	Strata master meter for townhouses	Master bill for strata		Townhomes & apartments	Have proposed meters to council - conservation - not approved by council to date. No plans for individual mandatory meters in future.
Cookilliam	Strata master meter for apartment	Individual water meter for each townhouses	Master bill for strata		Townhomes & apartments	Developer driven. Developers can apply for Multiple meter permit at owners expense
Winnipeg	Strata master meter for apartment	Strata master meter for townhouses	Master bill for strata		Townhomes & apartments	No plans for mandatory individual meters in future
Victoria	Strata master meter for apartment	Strata master meter for townhouses	Master bill for strata	Older Townhomes have individual meters (moving away from individual meters)	Townhomes & apartments	Meters outside at property line allows for easy access. No plans for mandatory individual meters for multifamily units in future. Not cost efficient - maintenance cost, administration cost, access to private residence
Saanich	Strata master meter for apartment	Minority individual flat rate bill Majority strata master meter for townhouses	Minority individual water meter bill Majority master bill for strata	Townhomes metered (minority)	Townhomes & apartments	No plans for mandatory individual meters for multifamily units in future. Meters will only be installed on Duplexes and single family homes at this time. Prefer metered homes - homeowners pay less.
Ladysmith	Strata master meter for apartment	Strata master meter for townhouses	Master bill for strata	Townhomes (minority) (Loop service)	Townhomes & apartments	