



ADMINISTRATIVE REPORT

Report Date: November 10, 2015
Contact: Brian Crowe
Contact No.: 604.873.7313
RTS No.: 11085
VanRIMS No.: 08-2000-20
Meeting Date: December 9, 2015

TO: Vancouver City Council
FROM: General Manager of Engineering Services
SUBJECT: 2016 Annual Review of Water Rates Under the Waterworks By-Law

RECOMMENDATION

- A. THAT Council approve the amendments to the Waterworks By-law, generally as set out in Appendix A, including the establishment of the 2016 rates and fees, with the following recommended increases:

Rate	% Increase	2015 Rate	Recommended 2016 Rate
Single Dwelling Unit	4.2%	\$568	\$592
Metered Rate Per Unit (Unit = 2.8316 Cubic Meters) - Off Season	4.2%	\$2.480	\$2.584
Metered Rate Per Unit (Unit = 2.8316 Cubic Meters) - Peak Season	4.2%	\$3.108	\$3.239
Public Water Connection Fees	2.0-3.0%	As Listed in Appendix A, Schedule A	
All Other Water Utility User Rates	Varies	As Listed in Appendix A, Schedules B, C, E, F, G & H	

- B. THAT Council approve amendments to the Waterworks By-law to clarify responsibilities to prevent backflow into the drinking water system, and to designate them as ticketable offences in the Ticket Offences By-law,
- C. THAT Council instruct the Director of Legal Services to bring forward for enactment amendments to the Waterworks By-law and the Ticket Offences By-law, generally as set out in Appendix B.

REPORT SUMMARY

Each year, staff review all costs related to the Water Utility and recommend rates for the year to come. This is also an opportunity for staff to provide an update to Council and the public on the objectives of the Utility and what progress has been made towards those objectives.

In this report are updates on 2015 overall performance and some specific initiatives already underway such as seismic improvements, conservation efforts, and the Pay as You Go strategy for debt financing. Also included in this report, a look ahead to work planned in 2016.

This report seeks Council approval of the recommended 2016 rates and fees for water service, which incorporates a 4.2% increase for single family flat rates and consumption driven metered rates; a 2.0-3.0% increase for connection fees; a 2.0% increase for meter service charges; and a 2.0% increase for other user rates. These increases achieve full cost recovery for water services as well as investing in a program that will reduce future financing costs.

COUNCIL AUTHORITY/PREVIOUS DECISIONS

Water rates for both metered and non-metered customers are specified in the Schedules of Rates and Charges included in the Water Works By-law. These schedules are updated annually by Council.

In 2001, Council endorsed the Greater Vancouver Regional District Board (Metro Vancouver) decision to construct the Capilano Seymour filtration plant.

On December 13, 2011, Council approved By-law revisions requiring residential water metering for all new single family and duplex properties.

On December 13, 2011, Council approved transition from a uniform volumetric rate for commercial and residential metered customers to a seasonal rate consisting of two different rates for low and high seasons.

On November 27, 2012, Council approved the establishment of a peak and off-peak seasonal rate structure for all remaining metered properties.

On November 27, 2012, Council approved By-law revisions that changed billing frequency to 3 reads and 3 bills per year to better align with seasonal rates.

CITY MANAGER'S/GENERAL MANAGER'S COMMENTS

The City Manager and General Manager of Engineering Services RECOMMEND approval of recommendations A and B above.

REPORT

Background/Context

The City's water system is comprised of approximately 1,470 km of water mains that distribute water to more than 100,000 service connections and 6,000 fire hydrants. All water supplied to the City is purchased from Metro Vancouver, which is responsible for supply reservoirs, treatment, and delivery of water to the City system.

The capital cost for timely replacement of these assets, the operating costs of maintaining the system and the cost to purchase water from Metro Vancouver make up the total costs of the water system. The City's water rates and fees are designed to fully recover all of these costs so that no costs related to the delivery of water are included in the general tax levy. In the City of Vancouver, all sectors are fully metered except for single and dual family homes. In 2012, Council approved the policy to achieve a fully metered water system over time by requiring meters for all new single-family and duplex properties undergoing redevelopment or major renovations. As a result, approximately 3,500 new meters have been installed since the policy was adopted, representing 4% of single and dual family homes.

Strategic Analysis

The Water Utility has a mandate to provide the best drinking water of any major city in the world by 2020, to use potable water efficiently to extend the life of our current water supplies, to ensure continued availability and accessibility, and to ensure we are prepared for emergencies.

Maintaining and renewing the water system infrastructure is a key component of all of these critical goals. We have an ongoing program of replacement to ensure the City's investment is protected. Capital investments also work towards improving access to water and availability of water in emergencies.

Water conservation plans are in place to meet the City's Greenest City Action Plan (GCAP) goal of reducing total per capita water use by 33% from 2006 levels by 2020.

The following sections highlight the work being done in these areas and what is planned for next year.

2015 Update

For 2015, the Waterworks Utility continued to make progress to improve water system reliability by replacing deteriorating infrastructure, improving public access to water through the installation of water filling stations and drinking fountains and encouraging water conservation.

The uncharacteristically warm winter and dry spring necessitated an expanded effort to engage citizens in water conservation and increase enforcement to promote compliance. The Water Utility's Service Metrics are shown in Table 1, followed by a detailed discussion of the key metrics.

Table 1 - Waterworks Service Metrics

Service	Metric Type	COV Metric	2011	2012	2013	2014	2015F
Water	Quantity	# of Water Connections Replaced	1,930	1,673	1,558	1,436	1,500
		Km of Water Pipe Replaced	12.5	5.3	8.9	6.3	6.2
	Quality	# of main breaks	65	48	68	71	67
		# of Service Connection Breaks	599	617	437	539	550
		% of samples with turbidity within Health Canada acceptable range	98.66%	98.68%	98.60%	99.40%	99.50%
		Water Consumed Per Capita (litres) - Residential	283	286	262	278	286
		Water Consumed Per Capita (litres) - Total	486	491	471	490	500

Infrastructure & Resiliency

By year's end, 6.2 km (0.46%) of the City's 1,470 km of water mains will have been replaced as part of the long-term strategy to maintain the overall water system condition and to manage the frequency and impacts of water leaks and breaks.

Major projects included water main installations on Pender, McGill and Hemlock Streets. The project on Pender between Gore and Carrall installed 0.6 km of large diameter transmission water main. The Hemlock and McGill projects resulted in 0.79 km of new distribution main on major arterial roads. The projects were coordinated with sewer work and street paving and formally managed using the City's new Project Management Framework. An additional 1.5km of water main was replaced by outside forces in a residential neighbourhood. This project was part of the City's strategy to regularly compare industry construction methods and practices with City crews.

To support ongoing efforts to increase the seismic resiliency of the water system, the City installed 525 m of Japanese designed Earthquake Resistant Ductile Iron Pipe (ERDIP) on Jackson Street in the Strathcona neighbourhood. An analysis evaluating future opportunities to use this pipe technology, as well as alternatives from local manufacturers, where it will provide sufficient value to offset the price premium for the material, is underway.

The City of Vancouver is committed to exploring alternative technologies to reduce construction impact and costs. In 2015, 700 m of 1940s cast-iron main was lined with a spray-on semi-structural coating expected to extend the life of the water main by approximately 50

years (approximately 50% of its design life). Where technically feasible and cost-effective, rehabilitation techniques will be further explored as an alternative to traditional open trench construction.

Service connection breaks are an indication of the condition of the water system but also vary depending on weather, particularly in the winter months. Another common cause of failure is differential settlement over time that causes stresses in the pipe. The forecasted 550 connection breaks in 2015 is consistent with the trend over the past five years where connections installed during the peak in home construction in the post war period are reaching the end of their service life.

The 67 water main breaks experienced in 2015 is forecasted to be lower than in previous years, largely due to mild winter conditions. Reduced variability of seasonal temperature puts less stress on the system's pipes and buried infrastructure. The decrease in breaks is not indicative of a trend; the number varies from year to year and failure rates will continue to be closely monitored to ensure that the reduced rate of replacement since 2011 remains appropriate.

Water Quality and Public Access to Water

The City continued its efforts to provide access to potable drinking water to protect public health during extreme heat and to decrease the use of disposable plastic water bottles. In 2015, three new water fountains were installed, including two fountains leveraged from adjacent development, increasing the City's overall total to 233.

As part of the City's Greenest City Action Plan goal to provide the world's best-quality water to residents, a detailed analysis was conducted in two residential neighbourhoods that experienced seasonal fluctuations in water quality. Operational changes to improve water circulation in those neighbourhoods eliminated all concerns, resulting in water quality that is comparable with the rest of the water system.

Water Conservation and Consumption Trends

2015 Drought Conditions

In 2015, atypical weather was experienced in Metro Vancouver. The mild winter, record dry spring and unseasonably warm May, June and July, resulted in a low snow pack and high regional water demand. The combined effect resulted in source lakes being drawn down much earlier and faster than usual. In response, Metro Vancouver escalated the level of water restrictions to Stage 2 on July 3rd and further to Stage 3 on July 20th. As part of the Regional Water Shortage Response Plan, municipalities are responsible for encouraging and enforcing compliance with the restrictions.

The Water Utility led the corporate-wide efforts to implement Stage 3 restrictions, working with Corporate Communications, Digital Strategy, 3-1-1, Real Estate and Facilities Management and Parks, to deliver the following initiatives:

Communications

- An extensive social media campaign,

- Advertisements on traditional media, including radio and local newspapers,
- Custom signage at civic facilities and water features that were turned off or modified in support of the restrictions, and
- Postering at Park Board Facilities.

Citizen Response

To handle a greater than 1200% increase in public interactions, initiatives included:

- Updating 3-1-1 scripts to address the increase in call volume including on hold messaging and special shortcut ("option 6") for reporting violations,
- Adding functionality to the VanConnect mobile application, and
- Updating the City's website, including developing and posting a web form for reporting violations.

Corporate Response to Demonstrate Leadership

At each level of escalating restrictions, corporate water use at City facilities and parks was compliant through actions such as shutting off fountains, eliminating water top-up to natural features, installing push-button controls at spray parks, reviewing all irrigation practices across City and Parks facilities, and reducing all washing except for public health and safety. Non-potable supplies were also utilized for tree irrigation and health-related street cleaning.

Enforcement

The number of bylaw enforcement staff was increased to follow up with the significant increase in reported violations; these staff were aided by geographic and temporal analysis of reported violations. In 2015, 450 tickets and 7000 warning letters were issued, approximately 10 times the volume of previous years.

Consumption Trend

The warm spring followed by a dry and hot summer caused a spike in water consumption driven by outdoor uses such as lawn and garden irrigation. Stage 2 and 3 restrictions banned or restricted the majority of outdoor uses while reducing regional demand to near-winter levels. In the months leading up to the restrictions, the city consumption was trending up to 24% higher than the same month in 2014. With the restrictions invoked and a sense of urgency created with the supportive messaging, consumption in the months following were much lower than 2014. Overall, the City consumed 1-2% more water in 2015 compared to 2014, working out to 500 litres per capita per day. This experience in 2015 of increased consumption demonstrates how water consumption is affected by weather, despite decades of declining water use.

Water Conservation Program

The City's Greenest City Action Plan water consumption goal is to reduce per-capita water use 33% by 2020. In 2015, a suite of conservation programs dedicated to this goal were completed. They included:

- Continuing to deliver the lawn sprinkling education and a ticketing/enforcement program,
- Introducing a residential laundry washing machine rebate program, in partnership with FortisBC and BC Hydro,
- Retrofitting high-efficiency toilets in facilities operated by participants of the City's Green Landlord Pilot program (multi-family residential),
- Water audits and fixture retrofits in health care and City-owned facilities,
- A Prevalence Study & Phase Out Strategy Development (consultant) for Single Pass Cooling and Refrigeration Systems (which remove heat by using drinking water and immediately disposing of the water into the sewer), and
- Truckload promotion of rain barrel sales in partnership with other municipalities.

In addition to these water conservation programs, the City continued working closely with the Greenest City Clean Water External Advisory committee to develop an enhanced water conservation work plan to meet the City's goal of being 33% more water efficient by 2020.

Plans for 2016

Infrastructure and Resiliency

The City will continue to address aging infrastructure in 2016, with plans to replace 850 m of transmission main and 6 km of distribution main. This represents 0.53% of the water mains in the City and is in accordance with the utility's 10-year Capital Strategic Outlook (and comparable to the last Capital Plan).

A number of initiatives will be undertaken to increase the reliability and/or resiliency of the water system, including:

- Continuing to replace a key east-west transmission main on Pender Street, from Carrall to Seymour, to increase system resiliency and reliability to the downtown core,
- Completing a water main replacement project on Burrard Street, between 1st Ave and Broadway, in coordination with street paving and sewer separation,
- Completing a water main replacement project in the Musqueam Lease Lands to replace 1.5 km of asbestos cement water main which is considered to be at the end of its service life, and
- Developing a long term financial and implementation plan for a network of strengthened pipes in the City designed to be more resilient to earthquake loading.

Public Access to Water

In 2016, the utility will continue to work with representatives from the Extreme Heat Committee (the Vancouver Police Department, Emergency Management and Social Planning) to place three new fountains or bottle-filling stations.

To determine the feasibility and reliability of such sources for emergency supply, a literature review on existing and potential groundwater sources will be conducted.

Water Conservation and Consumption

On November 4, 2015, Council approved the 2016-2020 Clean Water Work Program to expand water conservation programs as described in this report, in support of the Greenest City Action Plan Refresh (RTS 11121). As part of the Clean Water Work Plan 2016-2020, water conservation efforts will be expanded across all customer sectors and all City facilities and parks. These new initiatives and programs will be supported by a strong communications campaign that will be developed with Metro Vancouver to reinforce water efficient behaviour. Programs under consideration include:

Citywide:

- Citywide water audits and fixture retrofit, including phasing out once-through cooling systems and providing retrofit incentives
- Working with emerging industries (such as breweries) to develop best management practices including dedicated account managers/representatives
- Evaluating the effectiveness of water metering policy, developing options to expand and accelerate universal metering and assessing the merits of conservation pricing for fully metered sectors

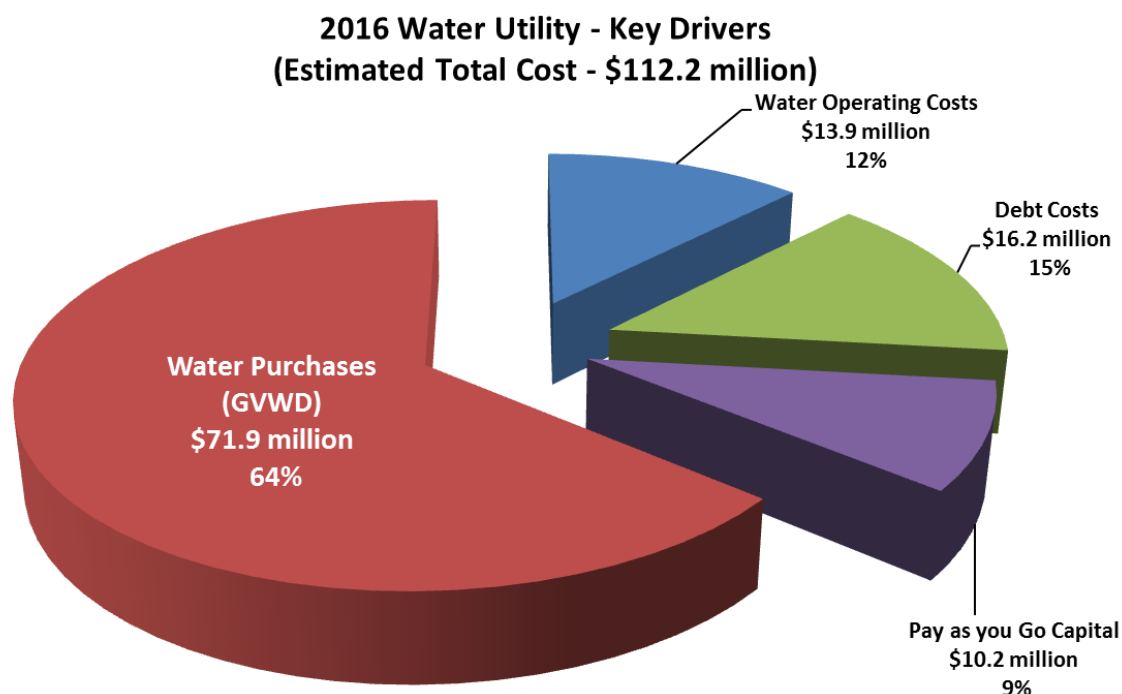
Corporate:

- Adopting 33% reduction target across all City departments and parks and beginning retrofit projects
- Expanding proactive leak detection to reduce water loss from City and private infrastructure

Financial Implications

Key Cost Drivers

The Water Utility expenditures consist of three key cost drivers: water purchased from Metro Vancouver which makes up 64% of the budget, City of Vancouver operating costs which make up about 12% of the total budget and costs associated with Waterworks Capital Plan expenditures which make up about 24% of the budget as shown graphically in Figure 1 below. A description of each component and its related activities follows.

Figure 1 - Water Utility Costs*Water Purchases*

As discussed, the City of Vancouver and other Lower Mainland municipalities purchase water from Metro Vancouver based on consumption. The cost to purchase water is the largest cost driver in the Water Utility. The cost of water to the City of Vancouver is driven by the price per cubic meter that Metro charges all member municipalities, as well as the consumption within the City itself.

Significant increases to the regional cost of water since 2004 are a result of regional capital water quality initiatives - primarily the Seymour-Capilano Filtration project and the associated twin tunnel project between Capilano and Seymour Lakes. These initiatives have resulted in greatly improved water quality in the region. We are now seeing stabilized rate increases from Metro as all of the costs for the treatment plant have now been built into their wholesale rates.

Although water consumption is higher than expected this year, the success of water conservation programs in the city has led to a trend of declining water consumption over time. Since most of the costs associated with the delivery of water are fixed costs, over time there will be an upward trend in the price per unit of water as consumption continues to decline, but this will be offset to some extent by the avoided cost of deferrals in capacity expansion in the Metro system.

Capital Program

The water capital program is funded partially by debentures and partially on a pay as you go basis. The current debt charges represent past borrowing, so the reduction of debt charges from moving to pay as you go will be realized gradually.

Operating and Maintenance

These are the costs associated with cleaning, repairing, inspecting and managing the infrastructure as well emergency response for main breaks and other trouble calls. This also includes customer billing and general administration.

2015 Budget Performance

Table 2 summarizes the operating budget and current forecast for the Water Utility in 2015.

Table 2 - 2015 Budget Performance

Water Utility	2015 Forecast	2015 Budget	\$ Variance	% Variance
Water Consumption Volume	113,181,687	112,000,000		
\$ millions				
Revenues				
Metered Rate Revenues	\$ 58.2	\$ 57.5	0.7	1%
Flat Rate Revenues	45.3	44.9	0.4	1%
Meter Service Charges	3.8	3.7	0.1	2%
Flat Rate Fire Line Charges	2.8	2.7	0.1	5%
Other Revenues	0.6	0.5	0.1	26%
Total Revenues	110.7	109.3	1.4	1%
Expenses				
Water Purchases (GVWD)	72.4	71.5	(0.9)	(1%)
Waterworks Operations	12.9	13.0	0.1	1%
Debt Interest	4.7	4.7	-	0%
Total Expenses	90.0	89.2	(0.8)	(1%)
Transfers				
Debt Principal	12.8	12.8	-	0%
Pay As you Go Capital	10.0	10.0	-	0%
Transfer to/(from) Stabilization Reserve	(2.1)	(2.7)	(0.6)	23%
Total Transfers	20.7	20.1	(0.6)	(3%)
Total Expenses & Transfers	110.7	109.3	(1.4)	(1%)
Surplus/(Deficit)	\$ (0.0)	\$ (0.0)	-	0%

* Tables may not sum due to rounding

2015 Revenues

The current forecast for metered revenues is about \$0.7 million more than budgeted. Metered rate revenues are estimated as a percentage of total water consumption, which is higher than

anticipated this year. The 2015 budget was based on a forecast that water consumption would decrease from the previous year by about 1.5%; but instead water consumption in 2015 has been higher than expected for metered customers in all sectors due to record setting drought conditions with an unseasonably warm and dry spring and summer. Flat rate revenues are higher than budgeted due to additional revenue generated from the flat units that have a laneway or suite and as a result are charged the higher unit rate.

Meter service charges and fire line charges, which apply only to multi-family and commercial accounts, are also higher than anticipated due to an increase in the number of these accounts in recent years.

Other revenues include administrative fees for cross connection control, permit fees for high water use air conditioning units and various other cost recovery fees as set out in the Waterworks By-law. These were comparable to budget in 2015.

2015 Expenditures

As previously stated, the largest driver of expenses in the Water Utility is the purchase of bulk water from Metro Vancouver. This expense is also based on water consumption, which is forecast to be 1.3% higher than estimated in the 2015 budget.

2015 Transfers

The Water Utility uses the Water Rates Stabilization Reserve to mitigate year-over-year increases in water rates and balance year-end differences between budgeted and actual revenues.

In 2015, there was a budgeted transfer from the Reserve of \$2.7 million. For the year, \$0.6 million less is expected to be drawn from the reserve. This variance is due to higher than budgeted revenues of \$1.4 million and an anticipated budget savings in Waterworks operating costs of \$0.1 million, which are partially offset by higher than budgeted water purchases of \$0.9 million.

2016 Proposed Budget and Rates

The main drivers of the 2016 expenditure budget are a 1.9% increase in the price of water purchased from Metro Vancouver, a decrease in funding from the stabilization reserve, a 1.5% decrease in the estimated volume of water that will be purchased, and a modest increase in pay-as-you-go funding to support water conservation programs offset by a decrease in debt borrowing. Costs in waterworks operations have increased by 6% due largely to an investment in water conservation programs and increases in utilities, insurance and materials. Table 3 shows the 2015 Operating Budget and proposed 2016 Operating Budget.

While water consumption is higher than anticipated in 2015, the longer term trend demonstrates an overall reduction. The enhanced strategic water conservation activities and additional investment in water conservation programs planned over the next few years are expected to contribute to a continued downward trend. Based on the estimated consumption in 2015, the 2016 budget incorporates a 1.5% decrease in the volume of water purchases, as shown in Table 3. Continuing with this adjustment, staff are using an estimated 1.5% reduction per year for budgeting purposes (as shown in Table 4 in the next section).

Table 3 - Proposed 2016 Budget

Water Utility	2015 Forecast	2015 Approved Budget	2016 Proposed Budget	\$ Change from 2015 Budget	% Change
Water Consumption Volume	113,181,687	112,000,000	110,320,000		
Revenues					
Metered Rate Revenues	\$ 58.2	\$ 57.5	\$ 57.3	\$ (0.2)	(0%)
Flat Rate Revenues	45.3	44.9	46.9	2.0	5%
Meter Service Charges	3.8	3.7	3.8	0.1	2%
Flat Rate Fire Line Charges	2.8	2.7	2.8	0.1	2%
Other Revenues	0.6	0.5	0.6	0.1	13%
Total Revenues	110.7	109.3	111.3	2.0	2%
Expenses					
Water Purchases (GVWD)	72.4	71.5	71.9	0.4	1%
Total Waterworks Operations	12.9	13.0	13.9	0.8	6%
Debt Interest	4.7	4.7	4.9	0.2	4%
Total Expenses	90.0	89.2	90.6	1.4	2%
Transfers					
Debt Principal	12.8	12.8	11.3	(1.5)	(12%)
Pay As you Go Capital	10.0	10.0	10.2	0.2	2%
Transfer to/(from) Stabilization Reserve	(2.1)	(2.7)	(0.9)	1.9	(69%)
Total Transfers	20.7	20.1	20.7	0.6	3%
Total Expenses & Transfers	110.7	109.3	111.3	2.0	2%
Surplus/(Deficit)	\$ (0.0)	\$ -	\$ -	\$ -	0%

* Tables may not sum due to rounding

2016 Revenues & Proposed Rates

For both metered and flat-fee single- and dual-family dwellings, a 4.2% increase is recommended for 2016. A portion of this rate increase is required to cover the price increase of the water the City purchases from Metro Vancouver. A portion of the rate increase is due to a reduced transfer of funds from the stabilization reserve to maintain a target level of 5%. The remainder of the rate increase is due to a projected decrease in consumption. This increase is partially offset by the decrease in debt borrowing costs resulting from a shift to pay-as-you-go funding.

Of the \$0.2 million decrease in the metered revenue budget, a \$2.5 million decrease can be attributed to the budgeted change in volume and a \$2.3 million increase can be attributed to the 4.2% rate increase.

Prior to 2012, all single-family dwellings and duplexes paid a flat annual rate for water. Since January 1, 2012, all new single family homes and duplexes are metered and no longer pay the flat rate. Approximately 1,000 homes per year are moving to a metered rate. The net increase of \$2.0 million in flat rate revenues is a result of a \$0.4 million decrease due to the

decrease in the number of customers paying the flat rate and a \$2.4 million increase attributable to the 4.2% rate increase and the type of flat rate customers.

2016 Expenditures

The increase in the 2016 water purchase budget is \$0.4 million, of which a \$1.5 million increase is due to a Metro price increase of 1.9% and a \$1.1 million decrease is due to an expected decrease in the budgeted volume of water purchases.

Costs in waterworks operations have increased by 6% due largely due to an investment in water conservation programs supporting Greenest City Action Plan water consumption targets, as well as increases in utilities, insurance and materials. For further discussion of the investment in water conservation programs, refer to the Greenest City Water Refresh Program 2016-2020 (RTS 11121).

2016 Transfers

In 2012, the water utility began paying a portion of its annual capital program from utility fees; as a result, debt service charges are decreasing. The plan is to increase the pay-as-you-go contribution until all new capital expenditures are covered through current revenues; ultimately, this will eliminate the debt interest expense. In 2016, City staff recommend a modest increase in the pay-as-you-go contribution from \$10 million to \$10.2 million.

The current debt charges represent past borrowing and will continue to decrease over time as current borrowing is gradually eliminated.

Five Year Outlook

Table 4 summarizes the five year outlook for the Water Utility and the following paragraphs discuss the assumptions used.

Table 4 - Water Utility Five-year Outlook

Water Utility	2016	2017	2018	2019	2020
Assumptions:					
Water Consumption Volume	110,320,000	108,665,200	107,035,222	105,429,694	103,848,248
Metro Price Increase	1.9%	4.0%	3.0%	3.0%	3.0%
City Rate Increase	4.2%	3.0%	1.6%	4.1%	1.5%
(\$ millions)					
Revenues					
Metered Rate Revenues	\$ 57.3	\$ 58.1	\$ 58.2	\$ 59.6	\$ 59.6
Flat Rate Revenues	46.9	47.6	47.6	48.7	48.7
Meter Service Charges	3.8	3.8	3.9	4.0	4.1
Flat Rate Fire Line Charges	2.8	2.8	2.9	2.9	3.0
Other Revenues	0.6	0.6	0.6	0.6	0.6
Total Revenues	111.3	113.0	113.1	115.9	116.0
Expenses					
Water Purchases (GVWD)	71.9	73.7	74.7	75.8	76.9
Total Waterworks Operations	13.9	14.1	14.4	14.7	15.0
Debt Interest	4.9	5.1	4.3	4.3	3.7
Total Expenses	90.6	92.9	93.4	94.8	95.6
Transfers					
Debt Transfers	11.3	9.9	9.5	8.4	7.7
Pay As you Go Capital	10.2	10.2	10.2	12.7	12.7
Transfer to/(from) Stabilization Reserve	(0.9)	-	-	-	-
Total Transfers	20.7	20.1	19.7	21.1	20.4
Total Expenses & Transfers	111.3	113.0	113.1	115.9	116.0
Surplus/(Deficit)	\$ -	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0
Reserve Balance (\$ millions)					
	Est. End 2015				
	4.9	4.1	4.1	4.1	4.1
% of Water Purchases (Target 5-10%)	6.8%	5.7%	5.5%	5.4%	5.3%

* Tables may not sum due to rounding

Table 4 assumes a moderate decline in consumption of 1.5% per year. This is a conservative approach for financial planning purposes, which will be reviewed annually as water consumption results are realized.

The price of water purchases from the GVWD (Metro Vancouver) is increasing 1.9% in 2016. According to Metro Vancouver's longer term forecast, the following four years are forecast to increase between 3% and 4%. These increases are based on projected operating and capital costs for supply reservoirs, treatment, and delivery of water to the City system. However, the actual rate increases in recent years have been well below the forecasted rate increases.

Debt charges will continue to decrease due to the pay as you go strategy, because we have reduced our debenture borrowing since the program started in 2012. Annual total capital spending on water is approximately \$12.8 million. By maintaining \$10.2 million for Pay as You Go contribution per year over the next two years, all new routine capital spending will be from current revenues by 2018, eliminating the need to borrow for ongoing capital programs.

While City operating costs are showing inflationary increases for the purpose of this forecast, staff will continue to look for ways to provide the same service at a lower cost.

By-law Amendments to Support Water Quality and Administration of the Cross Connection Control program

The Water Utility's cross connection control program seeks to preserve the quality of water through the tracking of various facilities and plumbing fixtures on private property that could potentially contaminate the drinking water system. The objective of the program is to ensure that backflow prevention devices are installed on all plumbing fixtures that have the potential to cause a backflow of water or other contaminants into the drinking water system and, where appropriate, that they are tested when deemed necessary by the City Engineer. A City inspector also conducts periodic inspections of private facilities to identify potential cross connections to the drinking water system that may not be registered with the City.

While the current clauses in the By-law support the program, they do not contain enough detail to support enforcement. As such, in consultation with Legal Services, sections of the Water Works By-law have been expanded to clarify both the responsibilities of the customer and the ability of the City Engineer to conduct inspections and issue orders. A detailed list of fixtures and premises, and the appropriate level of protection they require, has been added to the Schedules to simplify backflow preventer selection for customers and contractors.

In order to support effective enforcement of the new cross-connection provisions in the Waterworks By-law, staff recommend that the new offences created under that By-law be made enforceable by means of municipal tickets which could be issued by inspectors. This requires amendments to the Ticket Offences By-law as set out in Schedule B.

Flat Rate Fees

In addition to consumption-based charges, the Water Works By-law includes fees and charges for a variety of services provided by the Water Utility, including service connection and removal fees, unmetered fire service fees and meter installation and service charges. These fees and charges are detailed in Appendix A.

Public Connection Fees

It is recommended that a 2.0% inflationary increase for flat rate connection and removal fees be approved. This is required to cover increases in equipment rental and materials. An additional 1.0% increase is required for Single-Family and Two-Family Dwellings 40 mm (1 1/2") to cover the additional cost from the water meter assembly equipment.

These connection fees are based on an average price model, and the underlying complexities can vary by job. The number of complex connections has also increased, putting pressure on

the average cost. In an effort to ensure fees are appropriate, a comprehensive review of fees for the connections program is planned for 2016.

Other Changes to Miscellaneous Fees

Staff are recommending an inflationary increase of 2.0% for unmetered fire service fees and meter installation and service charges to cover anticipated costs associated with the maintenance, replacement and administration of meters in 2016.

Further, to provide for cost certainty for those customers of unmetered single and dual family residences who wish to shift to volume-based water bills, a new flat fee is proposed to be included in the By-law. For those customers requesting meters, installations will be grouped and scheduled at strategic times of the year to take advantage of construction efficiencies. Customers who transition to metered water accounts will be credited for the prorated portion of the flat rate water fee for the portion of the year that their metered account is active.

20mm (3/4") meter assembly and box	\$1,100.00
25mm (1") meter assembly and box	\$1,200.00

Three fees in the Waterworks By-law have been identified as out-of- date. These fees are charged infrequently but currently do not fully recover City costs. These fees were introduced in 2009 and remained unchanged except for an inflationary increase last year. While rarely charged, these fees should reflect the City's actual costs to perform the work requested. The new fees were developed with operations staff and represent the actual time and materials spent for each type of service. The fees are comparable to those of neighbouring municipalities.

A 'customer requested meter test' fee applies when City crews are requested by a metered customer disputing a bill. Crews visit the property and test the meter's accuracy. If the meter is found to be faulty and providing inaccurate readings, the fee is not applied, the meter is repaired, and the customer's bill is corrected. If the meter test shows that the meter is operating normally within accuracy tolerances, the fee is applied to the customer's account.

The "Extra charge for inaccessible meter reading (per month)" applies when an appointment is made with a customer at a specific time and date to maintain or test a meter located on private property. The majority of water meters for non-single family dwellings are installed in a utility room which is in the building but remains City property. In cases where the customer, building owner or property manager is unable to grant access to the utility room and the City crew is unable to complete their work, this fee would be billed. To further clarify how this fee is to be applied, it is proposed to alter the charge from 'per month' to 'per incident.'

Table 5 - Proposed Changes to Miscellaneous Fees & Charges

2015 Fee Schedule		2016 Proposed	
Customer requested meter test	\$ 112.00	Customer requested meter test	\$200.00
Extra charge for inaccessible meter reading (per month)	\$46.00	Extra charge for inaccessible meter (per incident)	\$75.00
Water Service Shut off or Turn On request (per occurrence)	\$51.00	Remove from by-law Replaced by "Shutdown or Service request fee"	

Legal Implications

The amendments to the Waterworks By-law and the Ticket Offences By-law are contained in Appendix B.

In addition to the annual rate and fee changes, a number of updates are required to the By-law wording to clarify various clauses to protect the City's water system from contamination and to include some of those provisions in the Ticket Offences By-law to provide greater enforcement options. The Director of Legal Services has also taken the opportunity to make some editorial changes to the By-law for consistency and readability.

CONCLUSION

Rates for water services are adjusted annually to offset cost increases in the water utility, including operating and debt costs and water purchases from Metro Vancouver. Based on a review of the proposed water costs for 2016, it is recommended that flat and metered water fees be increased by 4.2%, service and connection fees be increased by 2.0-3.0% and Fire Line Charges and Meter Service Charges be increased by 2.0% as described in this report.

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Appendix A
Water Works By-Law No. 4848
2016 Rate Changes

Schedule A Flat Rate Connection Fees

	2015	Proposed 2016	% Increase
<u>Single-Family & Two-Family Dwellings</u>			
20 mm (3/4")	\$4,601	\$4,693	2.0%
25 mm (1")	\$4,764	\$4,859	2.0%
40 mm (1 1/2")	\$5,673	\$5,843	3.0%
50 mm (2")	\$6,351	\$6,478	2.0%
<u>Other Connections</u>			
20 mm (3/4")	\$8,647	\$8,820	2.0%
25 mm (1")	\$8,996	\$9,176	2.0%
40 mm (1 1/2")	\$10,381	\$10,589	2.0%
50 mm (2")	\$10,381	\$10,589	2.0%
100 mm (4")	\$15,010	\$15,310	2.0%
150 mm (6")	\$18,565	\$18,936	2.0%
200 mm (8")	\$20,273	\$20,678	2.0%
300 mm (12")	\$28,530	\$29,101	2.0%

Schedule A.1 Removal Fees

	2015	Proposed 2016	% Increase
20mm (3/4") to 50mm (2") inclusive	\$1,086	\$1,108	2.0%
100mm (4") to 300mm (12") inclusive	\$3,258	\$3,323	2.0%

Schedule B Flat Service Charges for Residential Properties

	2015	Proposed 2016	% Increase
Single dwelling unit	\$568	\$592	4.2%
Single-Family with suite or laneway house	\$771	\$803	4.2%
Single-Family with suite and laneway house	\$973	\$1,014	4.2%
For each strata title duplex	\$385	\$401	4.2%

Schedule C Flat Service Charges for Unmetered Fire Service Pipes

	2015	Proposed 2016	% Increase
50 mm (2") or smaller	\$214	\$218	2.0%
75 mm (3")	\$320	\$326	2.0%
100 mm (4")	\$442	\$451	2.0%
150 mm (6")	\$510	\$520	2.0%
200 mm (8")	\$598	\$610	2.0%
250 mm (10")	\$635	\$648	2.0%
300 mm (12")	\$680	\$694	2.0%

Schedule D		Charges for Metered Water Service		
		2015	Proposed 2016	% Increase

Four Month Period		Rate in Dollars per Unit (2,831.6 litres)		
Rate for all metered uses				
October 1 - May 31	Per Unit	\$2.480	\$2.584	4.2%
June 1 - September 30	Per Unit	\$3.108	\$3.239	4.2%

Schedule E		Meter Service Charge		
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The following schedule shows the meter charge based on the size and type of meter, payable on each service, in addition to water consumption charges.

Per Four Monthly Period	2015	Proposed 2016	% Increase
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Services with Standard Type Meters

17 mm (1/2") and 20 mm (3/4")	\$29	\$30	2.0%
25 mm (1")	\$29	\$30	2.0%
40 mm (1 1/2")	\$66	\$67	2.0%
50 mm (2")	\$90	\$92	2.0%
75 mm (3")	\$203	\$207	2.0%
100 mm (4")	\$247	\$252	2.0%
150 mm (6")	\$321	\$327	2.0%
200 mm (8")	\$498	\$508	2.0%
250 mm (10")	\$610	\$622	2.0%
300 mm (12")	\$723	\$737	2.0%

Services with Low Head Loss Meters / Detector Check Valves

100 mm (4")	\$285	\$291	2.0%
150 mm (6")	\$417	\$425	2.0%
200 mm (8")	\$560	\$571	2.0%
250 mm (10")	\$698	\$712	2.0%
300 mm (12")	\$833	\$850	2.0%

Schedule F		Charges for Temporary Water Service during Construction		
		2015	Proposed 2016	% Increase

Building Size in Square Meters of Gross Floor Area	Rate in Dollars of Gross Floor Area Per Building		
Up to an including 500 sq.m	\$251	\$262	4.2%
Over 500 but not exceeding 2,000	\$491	\$512	4.2%
Over 2,000 but not exceeding 9,000	\$738	\$769	4.2%
Over 9,000 but not exceeding 24,000	\$1,241	\$1,293	4.2%
Over 24,000 but not exceeding 45,000	\$1,857	\$1,935	4.2%
Over 45,000	\$2,464	\$2,567	4.2%

Schedule G Fees for Installation of Residential Water Meters

Single-Family & Two-Family Dwellings

20 mm (3/4") meter assembly and box \$1,100

Other Connections

25 mm (1") meter assembly and box \$1,200

Fees for Installation of Water Meters

Size of Standard Meter	Meter on City Property	2015	Proposed 2016	% Increase
20 mm (3/4")		\$3,133	\$3,196	2.0%
25 mm (1")		\$3,274	\$3,339	2.0%
40 mm (1 1/2")		\$3,569	\$3,640	2.0%
50 mm (2")		\$3,689	\$3,763	2.0%
75 mm (3")		\$12,875	\$13,133	2.0%
100 mm (4")		\$14,080	\$14,362	2.0%
150 mm (6")		\$45,983	\$46,903	2.0%
200 mm (8")		\$47,293	\$48,239	2.0%
250 mm (10")		\$63,895	\$65,173	2.0%
300 mm (12")		\$70,649	\$72,062	2.0%

Size of Standard Meter	Meter on Private Property	2015	Proposed 2016	% Increase
20 mm (3/4")		\$495	\$505	2.0%
25 mm (1")		\$571	\$582	2.0%
40 mm (1 1/2")		\$762	\$777	2.0%
50 mm (2")		\$1,052	\$1,073	2.0%
75 mm (3")		\$2,323	\$2,369	2.0%
100 mm (4")		\$3,528	\$3,599	2.0%
150 mm (6")		\$7,480	\$7,630	2.0%
200 mm (8")		\$8,948	\$9,127	2.0%
250 mm (10")		\$18,035	\$18,396	2.0%
300 mm (12")		\$24,790	\$25,286	2.0%

Schedule H Miscellaneous Fees and Charges

	2015	Proposed 2016	% Increase
Cross Connection Control Administration Fees			
First Assembly	\$27	\$28	2.0%
Additional Assembly	\$13	\$13	2.0%
Charges when service pipes are shut off for more than ninety days (per month)			
15mm, 20mm or equivalent unmetered services	\$2	\$2	0.0%
Extra charge for inaccessible meter (per incident)	\$46	\$75	63.0%
Annual flat rate fee for air conditioning units drawing more than 28.4 litres per minute.	\$306	\$306	0.0%
Special meter reading (per occurrence)	\$102	\$104	2.0%
Customer requested meter test (deposit)	\$112	\$200	78.6%
Charges for Returned Cheques	\$35	\$35	0.0%
Residual Water Pressure Estimate Fee			
Original calculation	\$36	\$36	0.0%
Additional copies for same location	\$10	\$10	0.0%
Miscellaneous water information requests (per hour)	\$42	\$43	2.0%
City Crew call out fee (normal working hours) (per hour or portion thereof)	\$100	\$100	0.0%
City Crew call out fee (outside normal working hours) (per hour or portion thereof)	\$204	\$204	0.0%
Frozen pipe thawing	at cost	at cost	

BY-LAW NO. _____

**A By-law to amend Water Works By-law No. 4848
regarding 2016 fee increases and miscellaneous amendments
including cross connections access to fire hydrants**

THE COUNCIL OF THE CITY OF VANCOUVER, in public meeting, enacts as follows:

1. This By-law amends the indicated provisions of Water Works By-law No. 4848.
2. In Section 1.1, Council:
 - (a) in the definition of "SERVICE PIPE", strikes out the words: " "Property line" as herein used will also be the outside face of an "area" within the meaning of the "Area" By-law;
 - (b) in alphabetical order, Council adds the following definitions:

"BACKFLOW" means a flow of water or other liquid, gas or solid from any source in a backward or reverse direction into the water system, caused either by back pressure or back siphonage;

"BACKFLOW PREVENTER" means an assembly, device or method used to prevent backflow from entering the water system and includes a backflow prevention assembly;

"BACKFLOW PREVENTION ASSEMBLY" means a backflow preventer assembled as a unit that includes shutoff valves and test cock(s);

"CERTIFIED BACKFLOW ASSEMBLY TESTER" means a person who holds current certification by the BC Water and Waste Association (BCWWA) as a Certified Backflow Assembly Tester.

"CROSS CONNECTION" means any actual or potential connection between a water system and any drain, piping, device, fixture, fitting, container, or appliance which may allow non-potable water, used water, wastewater or any solids, chemical, liquid, gas or other substance to enter the water system;

"FIXTURE ISOLATION" means a method of preventing backflow from a customer's fixture or appliance into the water system by installing a backflow preventer in compliance with this By-law;"

"HIGH HEALTH HAZARD" means that the potential backflow from a particular fixture or premises is capable of causing contamination to the water system that could result in illness or death.

“LOW HEALTH HAZARD” means that the potential backflow from a particular fixture or premises is capable of causing pollution in the water system that could result in discoloration or an unusual smell or taste, but is unlikely to cause illness or death.

“PREMISES ISOLATION” means a method of preventing backflow from a customer's premises into the water system by installing a backflow preventer in compliance with this By-law;

“WATER SYSTEM” means a piping system which contains drinking water and includes the City's water system and a private water system;”

3. In the By-law, wherever the word “Section” is used, Council substitutes “section”.

4. Council strikes out section 1.3 and substitutes:

“1.3 Power of Entry and Inspection

The Collector and the Engineer are authorized to:

- (a) enter any premises at any reasonable time for the purpose of administering or enforcing this By-law; and
- (b) inspect any part of any premises, expose piping and do tests on any piping or fixtures on the premises, to determine compliance with this By-law.”

5. Council strikes out section 3.4 and substitutes:

“3.4 Access to City Valve or City Meter

A customer must provide unobstructed access to the city valve or city meter that controls or measures the water supply to the customer's property.”

6. Council strikes out section 3.6 and substitutes:

“3.6 Uses Prohibited without Permit

A customer must not:

- (a) sell, convey or transport or permit, suffer or allow the sale, conveyance or transport of water beyond the property line of the property to which water service is provided;
- (b) use or permit, suffer or allow the use of water to power machinery; or
- (c) use water from a fire hydrant,

without first having obtained a permit to do so from the Engineer.”

7. Council strikes out section 3.9 and substitutes:

"3.9 Defective Apparatus, Fitting or Fixture

A customer must not connect, or permit, suffer or allow connection to the city's water works system, of any apparatus, fitting or fixture that, in the opinion of the Engineer, causes or is likely to cause:

- (a) excessive noise;
- (b) pressure surges;
- (c) damage to a private water system; or
- (d) damage to the city's water works system."

8. In Part III, at the end, Council adds:

"3.12 Frozen Service Pipes

In the event of frozen pipes on private property, the customer must pay the cost of any investigation by the Engineer on an "at cost basis" in accordance with Section 5.4."

9. Council strikes out PART IV CROSS CONTAMINATION and substitutes:

"PART IV CROSS CONNECTION CONTROL

4.1 Prohibition Against Cross Connection

No person shall create, permit, suffer or allow a cross connection, unless the cross connection is protected in compliance with the provisions of this By-law and the Building Bylaw.

4.2 Cross Connection Control - Authority of the Engineer

If, in the opinion of the Engineer, there is evidence of an actual or potential cross connection, the Engineer may:

- (a) conduct a cross connection control inspection of the customer's premises pursuant to Section 1.3 and this By-law;
- (b) order that any existing backflow prevention assembly that is overdue for testing, be tested by a certified backflow assembly tester in accordance with this By-law;
- (c) order:
 - (i) the installation of a backflow preventer on the water system on all actual or potential sources of contamination, or
 - (ii) the removal of actual or potential sources of contamination,

within the time period specified in the order; and

- (d) shut off the water service until any order has been complied with to the satisfaction of the Engineer.

4.3 Responsibilities of customer

A customer must:

- (a) notify the Engineer promptly upon discovery of a cross connection that is contaminating the water system;
- (b) notify the Engineer promptly upon discovery of a cross connection that has the potential to contaminate the water system;
- (c) install a backflow preventer that complies with this By-law, in all circumstances in which there may be a cross connection;
- (d) install backflow preventers if ordered to do so by the Engineer;
- (e) test backflow preventers if ordered to do so by the Engineer;
- (f) comply with the requirements in this By-law regarding installation of backflow preventers; and
- (g) comply with the requirements in this By-law regarding testing of backflow prevention assemblies.

4.4 Responsibilities of Certified Backflow Assembly Tester

A certified backflow assembly tester must:

- (a) notify the Engineer promptly upon discovery of a cross connection that is contaminating or has the potential to contaminate the water supply; and
- (b) comply with the requirements in this By-law regarding testing of backflow prevention assemblies.

4.5 Backflow Preventer Installation - General Requirements

A person who installs a backflow preventer must comply with the following:

- (a) where two or more backflow preventers are installed in parallel, a backflow preventer of the same size and type must be installed on the bypass;

- (b) a backflow preventer must be installed in accordance with its CSA approved orientation;
- (c) test cocks on a backflow prevention assembly must:
 - (i) be easily accessible,
 - (ii) face upwards or to one side,
 - (iii) not face a wall, and
 - (iv) have a waterproof cover or cap;
- (d) a backflow preventer installed outdoors or in an unheated space within a building, structure, chamber, or enclosure must be protected from freezing, flooding, vandalism and theft;
- (e) a backflow preventer with a relief vent or port must be provided with drainage capable of handling the full discharge rate in accordance with manufacturer specifications;
- (f) a backflow preventer equipped with a relief vent or port must have a minimum clearance of 300 mm between the outlet for the relief vent or port and the floor, drain, or grade;
- (g) a control valve must not be installed downstream of an Atmospheric Vacuum Breaker (AVB);
- (h) an AVB must not be pressurized for more than 12 hours in any 24 hour period;
- (i) a backflow preventer that is installed to provide premises isolation must be installed immediately downstream of the City water meter, water meter bypass and spool piece, or in any other location with the prior approval of the Engineer;
- (j) protection against thermal expansion must be provided where:
 - (i) a backflow preventer is installed to provide premises isolation, or
 - (ii) a backflow preventer is installed on an inlet that acts to create a closed system to any type of pressure vessel;
- (k) an approved plumbing fixture must not be modified; and
- (l) installation of a backflow preventer to a premises or fixture water connection must allow for pressure loss, calculated in accordance with manufacturer specifications.

4.6 Backflow Preventer - Premises Isolation

Backflow preventers for premises isolation must comply with the premises isolation requirements in Schedule "I".

4.7 Backflow Preventer - Fixture Isolation

Backflow preventers for fixture isolation must comply with the fixture isolation requirements in Schedule "J".

4.8 Removal of Backflow Preventer

A person who removes a backflow preventer must:

- (a) obtain the prior written consent of the Engineer; and
- (b) ensure that a test report is prepared and signed by a certified backflow assembly tester and submitted to the Engineer within 15 days of the removal.

4.9 Modifications or Alterations to Backflow Preventers

A person must not modify or alter an approved backflow preventer except in accordance with the provisions of section 4.10.

4.10 Repair of Backflow Preventer

A defective backflow preventer must only be repaired:

- (a) with manufacturer-approved parts; and
- (b) by a journeyman plumber or an indentured apprentice plumber.

4.11 Testing Backflow Prevention Assemblies

A customer must ensure that:

- (a) every backflow prevention assembly on the premises is tested by a certified backflow assembly tester;
- (b) every backflow prevention assembly on the premises is tested:
 - (i) upon installation,
 - (ii) annually,
 - (iii) after any cleaning or repair, and
 - (iv) upon request by the Engineer;
- (c) the results of all backflow prevention assembly tests are recorded by a certified backflow assembly tester on a test report form that is approved by the Engineer, signed by the tester, and submitted to the City within 15 days of the test;

- (d) a completed City of Vancouver test verification tag approved by the Engineer is attached to each backflow prevention assembly; and
- (e) in the event that a backflow prevention assembly test indicates a need for repair or replacement, the assembly is repaired or replaced and retested within of the time specified by the Engineer.

4.12 Certified Backflow Assembly Testers and Testing Equipment

A Certified Backflow Assembly Tester must:

- (a) ensure that backflow assembly testing equipment is calibrated and certified annually by a laboratory that is accredited by Measurement Canada; and
- (b) provide a current calibration certification report to the Engineer upon request.

4.13 Incorrect or False Test Report

A Certified Backflow Assembly Tester:

- (a) must not provide incorrect, false or misleading information on a backflow assembly test report; and
- (b) must only sign a backflow assembly test report if the certified backflow assembly tester is the person who conducted the backflow assembly test to which the report refers.

4.14 Annual Administration Fees

All customers whose premises are metered and contain one or more backflow prevention assemblies, must pay an annual administration fee as specified in Schedule "H".

10. Council strikes out section 5.8 and substitutes:

"5.8 Power of Entry and Inspection

The Collector and the Engineer are authorized to enter premises, conduct inspections, expose piping and carry out tests in accordance with section 1.3 of this By-law."

11. Council strikes out section 5.11 and substitutes:

"5.11 Shutdown or Service Request

The fee for a shutdown or service request shall be in accordance with SCHEDULE H."

12. Council strikes out sections 5.13 and 5.14 and substitutes:

"5.13 Frozen Service Pipes

If, in the opinion of the Engineer, service pipes may be frozen, the Engineer may:

- (a) carry out an investigation to determine the location and condition of the service pipes; and
- (b) if the service pipes are frozen and on private lands, order the customer to pay the costs of the investigation in accordance with section 5.4."

13. In section 6.15, Council strikes out "I" and substitutes "H".

14. In section 6.16, Council:

- (a) in subsection (b) strikes out the words "section 31(2) of"; and
- (b) in subsection (c) strikes out the words "sections 32.1 and 32.3" and substitutes "this By-law".

15. Council strikes out section 6.18 and re-numbers the subsequent sections in the appropriate consecutive order.

16. In re-numbered section 6.20 ("Charges for Shut Off Service Pipes"), Council:

- (a) strikes out "90" wherever it appears and substitutes "120"; and
- (b) in subsection (b)(iii) at the end, strikes out "for unmetered services.", and substitutes ".".

17. In re-numbered section 6.21 ("Meter Tests"), Council:

- (a) in subsection (c) (i) strikes out the words "section 43 of"; and
- (b) in subsection (c) (ii) strikes out the words "section 42 of".

18. In re-numbered section 6.24 ("Adjustment for Underground Leak"), Council strikes out "6.23" and substitutes "6.22".

19. In re-numbered section 6.26 ("Back Billing"), Council strikes out "6.24" and substitutes "6.23".

20. In re-numbered section 6.27 ("Adjustment of Charges for Partial Period"), Council strikes out the word "as".

21. Council repeals Schedules A to H and substitutes:

**"SCHEDULE A
Flat Rate Connection Fees
And Service Pipe Removal Fees**

Flat Rate Connection Fees

Service Pipe Size Single-Family and Two-Family Dwelling with or without a Laneway House

20 mm (3/4")	\$4,693.00
25 mm (1")	4,859.00
40 mm (1 ½")	5,843.00
50 mm (2")	6,478.00

Service Pipe Size Other Connections

20 mm (3/4")	\$ 8,820.00
25 mm (1")	9,176.00
40 mm (1 ½")	10,589.00
50 mm (2")	10,589.00
100 mm (4")	15,310.00
150 mm (6")	18,936.00
200 mm (8")	20,678.00
300 mm (12")	29,101.00

Service Pipe Removal Fees

Service Pipe Size

20 mm (3/4") to 50 mm (2") inclusive	\$1,108.00
100 mm (4") to 300 mm (12") inclusive	3,323.00

**SCHEDULE B
Annual Flat Rate Service Charges for Residential Properties**

The following charges apply to unmetered single family dwellings and dwellings comprising not more than two separate dwelling units:

Single Dwelling Unit	\$592.00
Single-Family with suite or laneway house	803.00
Single-Family with suite and laneway house	1,014.00
For each strata title duplex	401.00

SCHEDULE C
Annual Flat Rate Service Charges for Unmetered Fire Service Pipes

Fire Service Pipe Size

50 mm (2") or smaller	\$218.00
75 mm (3")	326.00
100 mm (4")	451.00
150 mm (6")	520.00
200 mm (8")	610.00
250 mm (10")	648.00
300 mm (12")	694.00

SCHEDULE D
Charges for Metered Water Service

<i>Four Month Period</i>	<i>Rate In Dollars per Unit (2,831.6 Litres)</i>
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Rate for all metered uses

October 1 - May 31	Per unit	\$2.584
June 1 - September 30	Per unit	\$3.239

SCHEDULE E
Meter Service Charge

The following schedule shows the meter charge based on the size and type of meter, payable on each service, in addition to water consumption charges:

Per Four Month Period

Services with Standard Type Meters

17 mm (1/2") and 20 mm (3/4")	\$ 30.00
25 mm (1")	30.00
40 mm (1 1/2")	67.00
50 mm (2")	92.00
75 mm (3")	207.00
100 mm (4")	252.00
150 mm (6")	327.00
200 mm (8")	508.00
250 mm (10")	622.00
300 mm (12")	737.00

Services with Low Head Loss Meters/Detector Check Valves

100 mm (4")	\$291.00
150 mm (6")	425.00
200 mm (8")	571.00
250 mm (10")	712.00
300 mm (12")	850.00

SCHEDULE F
Charges for Temporary Water Service During Construction

	<i>Building Size in Square Meters of Gross Floor Area</i>	<i>Rate in Dollars of Gross Floor Area Per Building</i>
Up to and including	500	\$ 262.00
Over 500 but not exceeding	2,000	512.00
Over 2,000 but not exceeding	9,000	769.00
Over 9,000 but not exceeding	24,000	1,293.00
Over 24,000 but not exceeding	45,000	1,935.00
Over 45,000		2,567.00

SCHEDULE G
Fees for Installation of Water Meters

Fees for Installation of Water Meters for Single and Two Family Dwellings with or without a Laneway House

Size of Standard Meter

20 mm (3/4") meter assembly and box	\$1,100
25 mm (1") meter assembly and box	\$1,200

Fees for Installation of Water Meters on Other Connections

<i>Size of Standard Meter</i>	<i>Meter on City Property</i>	<i>Meter on Private Property</i>
20 mm (3/4")	\$ 3,195.00	\$ 505.00
25 mm (1")	3,340.00	582.00
40 mm (1 1/2")	3,640.00	777.00
50 mm (2")	3,763.00	1,073.00
75 mm (3")	13,132.00	2,369.00
100 mm (4")	14,361.00	3,599.00
150 mm (6")	46,902.00	7,630.00
200 mm (8")	48,239.00	9,127.00
250 mm (10")	65,173.00	18,396.00
300 mm (12")	72,062.00	25,286.00

SCHEDULE H
Miscellaneous Fees and Charges

Cross Connection Control Administration Fees	
First Assembly	\$ 28.00
Additional Assembly	13.00
Charges when service pipes are shut off for more than 90 days for 15mm, 20mm or equivalent unmetered services, for each month or part thereof	2.00
Extra charge for inaccessible meter (per incident)	75.00
Annual flat rate fee for air conditioning units drawing more than 28.4 litres per minute	306.00
Special Meter Reading (per occurrence)	104.00
Customer Requested Meter Test (deposit)	200.00
Charges for Returned Cheques	\$ 35.00
Residual Water Pressure Estimate Fee	
Original calculation	36.00
Additional copies for same location	10.00
Miscellaneous water information requests (per hour)	43.00
Shutdown or Service request fee (normal working hours) (per occurrence)	100.00
Shutdown or Service request fee (outside normal working hours) (per occurrence)	204.00
Frozen pipe thawing	At cost (Section 5.4)

SCHEDULE I
Backflow Prevention
- Premises Isolation

Type of Facility or Premises	Health Hazard Classification	Type of Backflow Preventer ¹
Abattoir/Slaughter House	High	RPBA
Animal Hospital	High	RPBA
Auto Body Shop	High	RPBA
Auto Dealership	Low	DCVA
Auto Dealership w/Repair and/or Car Wash Facility	High	RPBA

Type of Facility or Premises	Health Hazard Classification	Type of Backflow Preventer ¹
Auto Detailing Facility (Not Automatic Car Wash)	Low	DCVA
Automotive/Motorcycle Repair Facility	High	RPBA
Battery Manufacturing/Repair Facility	High	RPBA
Beverage Processing Plant Including Distillery and/or Brewery	High	RPBA
Building Higher than 10 Meters Above Water Connection	Low	DCVA
Building with Auxiliary Water Supply	High	RPBA
Building with Chemical Treatment System on Domestic Supply (Whole or Part)	High	RPBA
Building with Rainwater Harvesting or Greywater Reuse System	High	RPBA
Car Wash, Automatic	High	RPBA
Chemical Manufacturing, Processing, Bulk Storage and/or Distribution	High	RPBA
Cold Storage Facility	High	RPBA
Concrete Processing or Distribution Facility	High	RPBA
Docks - Commercial	High	RPBA
Dye Plant	High	RPBA
Extended Care Facility, Retirement or Nursing Home	Low	DCVA
Extended Care Facility, Retirement or Nursing Home - With Hazard Diagnostic or Treatment Equipment	High	RPBA
Fire Hall	Low	DCVA
Fish Processing Plant	High	RPBA
Food Processing Plant	High	RPBA
Funeral Home	High	RPBA
Garbage Transfer Facility	High	RPBA
Hospital	High	RPBA
Ice Manufacturing Plant	High	RPBA
Machine Shop	High	RPBA
Manufacturing Facility	High	RPBA
Marina	High	RPBA
Meat Packing Plant	High	RPBA
Metal Plating Facility	High	RPBA
Paint Manufacturing Plant	High	RPBA
Pharmaceutical Manufacturing Facility	High	RPBA
Plastic Manufacturing/Mold Injection Facility	High	RPBA
Plating Shop	High	RPBA
Radiator Manufacturing and/or Repair Facility	High	RPBA
Rail Yard and Trackside Facilities for Trains	High	RPBA
Recycling Facility	High	RPBA
Rendering Facility	High	RPBA
Research Facility	High	RPBA
Restricted Access	High	RPBA
School	Low	DCVA

Type of Facility or Premises	Health Hazard Classification	Type of Backflow Preventer ¹
Sewage Dump Station	High	RPBA
Sewage Pumping Station	High	AG/RPBA
Steam Plant	High	RPBA
Veterinary Clinic With Lab or Operation Facility	High	RPBA
Veterinary Clinic w/o Lab or Operation Facility	Low	DCVA
Waste Disposal Facility	High	RPBA
Wastewater Facility	High	RPBA

SCHEDULE J
Backflow Prevention - Fixture Isolation

Fixture Type	Health Hazard Classification	Type of Backflow Preventer
Acid Wash or Hot Tank	High	RPBA
Air Compressor - Commercial or Industrial	High	RPBA
Air Conditioning Systems	High	RPBA
Animal Cage Washer	High	RPBA
Animal Wash	High	RPBA
Animal Watering	High	RPBA
Aquarium Make up	High	RPBA
Aspirator	High	RPBA
Autoclave	High	RPBA
Autopsy/Mortuary Equipment	High	RPBA
Auxiliary Water	High	RPBA/AG
Baptismal Fountain	High	RPBA
Beverage Dispenser - Carbonated	High	DCAPc
Beverage Dispenser - Non Carbonated	Low	DuC
Bidet	High	AVB
Boiler - Residential w/o Chemical Addition and less than 400,000 btu	Low	DCAP
Boiler with Chemical Addition	High	RPBA
Bottle Washer	High	RPBA
Bread Making Equipment	Low	DCVA
Brewery Equipment	High	RPBA
Brine Tank	Low	DCVA
CO ² Injection	High	DCAPc
Chemical Cleaning Tank	High	RPBA
Chemical Feed/Mixing Station	High	RPBA
Chemical Holding/Storage Tank	High	RPBA
Chemical System, Separate or Integral to Equipment/Appliance	High	RPBA
Chilled Water System	High	RPBA
Chlorinator	High	RPBA
Clothes Washer or Laundry Machine - Commercial with Chemical Feed	High	RPBA

Commercial Kitchen Equipment - Coffee Urn	Low	DuC
Commercial Kitchen Equipment - Commercial Dishwasher	High	RPBA
Commercial Kitchen Equipment - Espresso Machine	Low	DCVA
Commercial Kitchen Equipment - Dipper Well	Low	AG
Commercial Kitchen Equipment - Food Steamer	Low	DCVA
Commercial Kitchen Equipment - Glass washer (Hot and Cold Feed)	High	RPBA
Commercial Kitchen Equipment - Hood Wash Down	High	RPBA
Commercial Kitchen Equipment - Hot Chocolate or Hot Water Dispenser	Low	DuC
Commercial Kitchen Equipment - Ice Cream Machine	High	RPBA
Commercial Kitchen Equipment - Ice Machine - Condenser Cooling	High	RPBA
Commercial Kitchen Equipment - Ice Machine - Water Feed	High	RPBA
Commercial Kitchen Equipment - Juice Machine	Low	DuC
Commercial Kitchen Equipment - Rotisserie Oven	Low	DCVA
Commercial Kitchen Equipment - Pot Washer	High	RPBA
Commercial Kitchen Equipment - Potato Peeler	Low	DCVA
Commercial Kitchen Equipment - Steam Cooker	Low	DCVA
Commercial Kitchen Equipment - Steam Table	Low	DCVA
Commercial Kitchen Equipment - Steamer Oven	Low	DCVA
Commercial Kitchen Equipment - Waste Food Tray Line/Trough	High	RPBA
Commercial Kitchen Equipment - Waste Pulper	High	RPBA
Condensate Cooling/Receiver/Tank	High	RPBA
Cooling Condenser - AC unit	High	RPBA
Cooling Tower	High	RPBA
Dental Equipment - Cuspidor	High	RPBA
Dental Equipment - Film Processor	High	RPBA
Dental Equipment - Model Trimmer	High	RPBA
Dental Equipment - Sterilizer and Instrument Washer	High	RPBA
Dental Equipment - Vacuum Pump	High	RPBA
Dental Equipment - Water Supply to Dental Chair - For Multiple Chairs on one Dedicated Water Connection See Note #2	High	RPBA
Dental Equipment - X-ray Machine	High	RPBA
Descaling Equipment	High	RPBA
Detergent/Soap Dispenser	High	RPBA
Dishwasher (Commercial)	High	RPBA
Distiller	High	RPBA
Dockside Water Connection - For Multiple Connections to a Dedicated Water Connection See Note #2	High	RPBA
Dry Cleaning Equipment	High	RPBA
Dye Equipment	High	RPBA
Engine/Genset Cooling System	High	RPBA
Film Processor	High	RPBA

Fire Hose Cabinet (Connected to Domestic Piping)	Low	DCVA
Fire Service Connection w/o Chemical Addition	Low	DCVA
Fire Service Connection with Chemical Addition	High	RPBA
Floor Drain with Flushing Rim	High	RPBA
Fountain/Ornamental Water Feature	High	RPBA
Frozen Carbonated Beverage (FCB) Maker	High	RPBA
Fume Hood	High	RPBA
Garbage Chute Washdown	High	RPBA
Garbage Disposal Unit (Garburator)	High	RPBA
Geothermal	High	RPBA
Glass Rinser	Low	DuC
Heating System - Residential w/o Chemical Addition and less than 400,000 btu	Low	DCAP
Hot Tub/Spa - Direct Feed	High	RPBA
Humidifier w/o Chemical Addition	Low	DCVA
Humidifier with Chemical Addition	High	RPBA
Hydronic Heating System - Commercial	High	RPBA
Hydronic Heating System - Residential w/o Chemical Addition and less than 400,000 btu	Low	DCAP
Ice Machine - Condenser Cooling	High	RPBA
Ice Machine - Residential Refrigerator-type w/o Built-in Filter	Low	DuC
Ice Machine - Water Feed	High	RPBA
Ice Making/Resurfacing Equipment	Low	DCVA
Irrigation System with Chemical Addition	High	RPBA
Irrigation System w/o Chemical Addition	Low	DCVA
Janitor Sink with Hose Connection	Low	AVB
Jug Rinser	Low	DuC
Laboratory Equipment - Air compressor	High	RPBA
Laboratory Equipment - Animal Cage Washer	High	RPBA
Laboratory Equipment - Animal Water Bottle Filler	High	RPBA
Laboratory Equipment - Animal Watering System	High	RPBA
Laboratory Equipment - Aspirator	High	RPBA
Laboratory Equipment - Autoclave	High	RPBA
Laboratory Equipment - Electron Microscope	High	RPBA
Laboratory Equipment - Equipment Cooling	High	RPBA
Laboratory Equipment - Fume Hood	High	RPBA
Laboratory Equipment - Pipette Washer	High	RPBA
Laboratory Equipment - Serrated Faucet	High	RPBA
Laboratory Equipment - Specimen Tank	High	RPBA
Laboratory Equipment - Spray Hose	High	RPBA
Laboratory Equipment - Vacuum Pump	High	RPBA
Laundry Tub with Hose Bibb Connection	Low	HBVB
Lens Cutting/Grinding Equipment	High	RPBA
Medical Equipment - Air Compressor	High	RPBA
Medical Equipment - Angio/MRI Cooling	High	RPBA
Medical Equipment - Aspirator	High	RPBA
Medical Equipment - Autoclave/Sterilizer	High	RPBA

Medical Equipment - Bedpan Macerator	High	RPBA
Medical Equipment - Bedpan Washer/Sterilizer	High	RPBA
Medical Equipment - Blood Analysis Equipment	High	RPBA
Medical Equipment - Burn Shower	High	RPBA
Medical Equipment - CT Scan	High	RPBA
Medical Equipment - Cart Washer	High	RPBA
Medical Equipment - Dialysis Equipment	High	RPBA
Medical Equipment - Dye Slide Table	High	RPBA
Medical Equipment - Endoscope	High	RPBA
Medical Equipment - Film Processor	High	RPBA
Medical Equipment - Hydrotherapy Bath	High	RPBA
Medical Equipment - Laser Cooling	High	RPBA
Medical Equipment - MRI Cooling	High	RPBA
Medical Equipment - Patient Tub with Flexible Hose	High	RPBA
Medical Equipment - Renal Processor	High	RPBA
Medical Equipment - Steris Washer	High	RPBA
Medical Equipment - Ultrasonic Washer	High	RPBA
Medical Equipment - Vacuum Pump	High	RPBA
Medical Equipment - Washdown Station	High	RPBA
Medical Equipment - X-ray Equipment	High	RPBA
Paint Booth	High	RPBA
Pedicure Spa/Bowl - For Multiple Pedicure Spa/Bowls on one dedicated water connection See Note #2	High	RPBA
Photo Developing Equipment	High	RPBA
Photo Lab Sink/Tank	High	RPBA
Plating Tank	High	RPBA
Pressure Washer w/o Aspirator	Low	DCVA
Pressure Washer with Aspirator	High	RPBA
Produce Misting System	High	RPBA
Proofer Oven	Low	DCVA
Pump Primer Line - Non-toxic	Low	DCVA
Pump Primer Line - Toxic	High	RPBA
Pump Primer Line for Auxiliary Water Source Pump	High	AG
Radiator Flushing Equipment	High	RPBA
Refrigeration Unit - Industrial	High	RPBA
Restricted Area	High	RPBA
Reverse Osmosis Equipment - Inlet 25mm or Larger	High	RPBA
Reverse Osmosis Equipment - Inlet Less than 25mm w/o Chemical	Low	DCVA
Reverse Osmosis Equipment - Inlet Less than 25mm with Chemical	High	RPBA
Rock Polisher	High	RPBA
Sanitary Equipment	High	RPBA
Sewage Ejector	High	RPBA
Sewage Lift Station Standpipe	High	RPBA
Sewage Pump	High	RPBA
Sewer Connected Equipment	High	RPBA
Shampoo Sink	Low	AVB/DuC

Steam Generator (Small Unit Contained Within Appliance/Equipment) - w/o Chemical Addition	Low	DCVA
Storm Sewer	High	RPBA
Sump	High	RPBA
Swimming Pool - Direct Feed	High	RPBA
Tanning Booth	High	RPBA
Trap Primer	High	RPBA
Vacuum Pump	High	RPBA
Vehicle Washing Equipment	High	RPBA
Vending Machine (No Carbonator)	Low	DCVA
Wash Rack	High	RPBA
Washdown Equipment	High	RPBA
Wastewater Treatment Process	High	RPBA
Water Filter - Inlet Less than 25mm	Low	DCVA
Water Filter - Inlet 25mm and Larger	High	RPBA
Water Softener	High	RPBA
X-ray Equipment	High	RPBA
Yard Hydrant	Low	HBVB

NOTES:

¹ Backflow Preventer Type - Abbreviations

AG	Air Gap
AVB	Atmospheric Vacuum Breaker - Non-testable Backflow Prevention Device
DCAP	Dual Check with Atmospheric Port - Non-testable Backflow Prevention Device
DCAPc	Dual Check with Atmospheric Port (carbonator) - Non-testable Backflow Prevention Device
DCVA	Double Check Valve Assembly - Testable Backflow Prevention Assembly
DuC	Dual Check Valve - Non-testable Backflow Prevention Device
DuCV	Dual Check with Intermediate Vent - Non-testable Backflow Prevention Device
HBVB	Hose Bibb Vacuum Breaker - Non-testable Backflow Prevention Device
LFVB	Laboratory Faucet Vacuum Breaker - Non-testable Backflow Prevention Device
PVBA	Pressure Vacuum Breaker Assembly - Testable Backflow Prevention Assembly
RPBA	Reduced Pressure Backflow Assembly - Testable Backflow Prevention Assembly
SRVBA	Spill Resistant Vacuum Breaker Assembly - Testable Backflow Prevention Assembly

² Check with Plumbing Inspections for zone isolation requirements for multiple (identical) fixtures serviced by one dedicated water connection."

22. In the Table of Contents, Council:

- (a) strikes out the part of the index entitled PART IV CROSS-CONTAMINATION and substitutes:

"PART IV
CROSS CONNECTION CONTROL

4.1 Prohibition Against Cross Connection

- 4.2 Cross Connection Control - Authority of the Engineer
- 4.3 Responsibilities of customer
- 4.4 Responsibilities of Certified Backflow Assembly Tester
- 4.5 Backflow Preventer Installation - General Requirements
- 4.6 Backflow Preventer - Premises Isolation
- 4.7 Backflow Preventer - Fixture Isolation
- 4.8 Removal of Backflow Preventer
- 4.9 Modifications or Alterations to Backflow Preventers
- 4.10 Repair of Backflow Preventer
- 4.11 Testing Backflow Prevention Assemblies
- 4.12 Certified Backflow Assembly Testers and Testing Equipment
- 4.13 Incorrect or False Test Report
- 4.14 Annual Administration Fees"

- (b) strikes out the part of the index entitled PART VI BILLING AND COLLECTION and substitutes:

**"PART VI
BILLING AND COLLECTION**

- 6.1 Un-metered Water Rate
- 6.2 Metered Water Rate
- 6.3 Water Service to Un-metered Fire Service Pipes
- 6.4 Sealing Valves to Un-metered Fire Service
- 6.5 Prohibition against Breaking Seal
- 6.6 Obligation to Notify of Broken Seal
- 6.7 Charges for Un-metered Water Service with Broken Seal
- 6.8 Installation of Meter on Fire Service Pipe
- 6.9 New Application Fees and Charges
- 6.10 Annual Flat Rate Service Billing
- 6.11 Meter Rate Service Billing
- 6.12 Single-Metered Multiple Dwelling Billing
- 6.13 Single-Metered Duplex BillingSpecial Readings
- 6.14 Miscellaneous Charges
- 6.15 Penalty for non-payment
- 6.16 Shut-off for non-payment
- 6.17 Insertion of Outstanding Water Rates, Fees and Charges on Tax Roll
- 6.18 Application for Turn-on or Shut-off
- 6.19 Charges for Shut off Service Pipes
- 6.20 Meter Tests
- 6.21 Adjustment for Inaccurate Meter Record
- 6.22 Adjustment for Meter Removal or Tampering
- 6.23 Adjustment for Underground Leak
- 6.24 Adjustment for Overpayment
- 6.25 Back Billing
- 6.26 Adjustment of Charges for Partial Period
- 6.27 Service Pipes Shut Off for Five Years Deemed to be Discontinued
- 6.28 Metered Water Used to Fight Fires"; and

- (c) at the end of the Index, Council strikes out the list of Schedules and substitutes:

"SCHEDULE A:	Flat Rate Connection Fees and Service Pipe Removal Fees
SCHEDULE B:	Annual Flat Rate Service Charges for Residential Properties
SCHEDULE C:	Annual Flat Service Charges for Un-metered Fire Services Pipes
SCHEDULE D:	Charges for Metered Water Service
SCHEDULE E:	Meter Service Charge
SCHEDULE F:	Charges for Temporary Water Service During Construction
SCHEDULE G:	Fees for Installation of Water Meters
SCHEDULE H:	Miscellaneous Fees and Charges
SCHEDULE I:	Backflow Prevention - Premises Isolation
SCHEDULE J:	Backflow Prevention - Fixture Isolation"

23. A decision by a court that any part of this By-law is illegal, void, or unenforceable severs that part from this By-law, and is not to affect the balance of this By-law.

24. This By-law is to come into force and take effect on the date of enactment.

ENACTED by Council this
2015

day of

Mayor

City Clerk

BY-LAW NO. _____

**A By-law to amend Ticket Offences By-law No. 9360
regarding Water Works By-law**

THE COUNCIL OF THE CITY OF VANCOUVER, in public meeting, enacts as follows:

1. This By-law amends the indicated provisions of Ticket Offences By-law No. 9360.
2. Council strikes out Table 7 and substitutes:

“

**Table 7
Water Works By-law**

<u>Column 1</u>	<u>Column 2</u>	<u>Column 3</u>	<u>Column 4</u>
City Engineer Poundkeeper	Wasting water	Section 12.2	\$250.00
City Engineer	Create or allow unprotected cross connection	Section 4.1	\$500.00
	Fail to notify of cross connection causing contamination	Section 4.3(a)	\$500.00
	Fail to notify of cross connection that may cause contamination	Section 4.3(b)	\$500.00
	Fail to install backflow preventer	Section 4.3(c)	\$250.00
	Fail to comply with order to install backflow preventer	Section 4.3(d)	\$250.00
	Fail to comply with order to test backflow preventer	Section 4.3(e)	\$250.00
	Fail to comply with By-	Section 4.3(f)	\$250.00

<u>Column 1</u>	<u>Column 2</u>	<u>Column 3</u>	<u>Column 4</u>
	law re backflow preventer installation		
	Fail to comply with By- law re backflow preventer testing	Section 4.3(g)	\$250.00
	Install control valve downstream of AVB	Section 4.5(g)	\$250.00
	Removal of backflow preventer without written consent of Engineer	Section 4.8	\$250.00
	Modifying or altering approved backflow preventer	Section 4.9	\$250.00
	Fail to use certified backflow assembly tester	Section 4.11(a)	\$250.00
	Fail to submit test report within 15 days	Section 4.11(c)	\$250.00
	Fail to repair or replace faulty backflow preventer	Section 4.11(e)	\$250.00
	Use of non-calibrated or non-certified test equipment	Section 4.12(a)	\$250.00
	Incorrect or false backflow assembly test report	Section 4.13	\$250.00

3. A decision by a court that any part of this By-law is illegal, void, or unenforceable severs that part from this By-law, and is not to affect the balance of this By-law.

4. This By-law is to come into force and take effect on the date of its enactment.

ENACTED by Council this day of , 2015

Mayor

City Clerk