



ADMINISTRATIVE REPORT

Report Date: November 23, 2016
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VanRIMS No.: 08-2000-20
Meeting Date: December 7, 2016

TO: Vancouver City Council
FROM: General Manager of Engineering Services
SUBJECT: 2017 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 2017 rates and fees, with the following recommended increases: 4.0% increase in the per unit flat fee for Single Dwelling (from \$592 per unit in 2016 to \$616 per unit in 2017); 4.0% increase in per unit Metered Rate in off season (from \$2.584 in 2016 to \$2.688 in 2017) and peak season (from \$3.239 in 2016 to \$3.369 in 2017); 2.9-3.9% increase in Public Water Connection Fees (as listed in Appendix A, Schedule A); and, varied increases for all other Water Utility User Rates (as listed in Appendix A, Schedules B, C, E, F, G and H).
- B. THAT Council instruct the Director of Legal Services to bring forward for enactment amendments to the Waterworks 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 2016 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 2017.

This report seeks Council approval of the recommended 2017 rates and fees for water service, which incorporates a 4.0% increase for single family flat rates and consumption driven

metered rates; a 2.9-3.9% 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.

Major Accomplishments in 2016

- Replaced six kilometres of aging water main as well as 850 metres of seismically resilient transmission main on Pender Street in Downtown Vancouver.
- Reviewed existing city-owned groundwater wells and safe yields.
- Expanded city-wide water conservation initiatives, including efforts to reduce City water use through retrofits in both City parks and facilities.
- Development of a seismic pipe design standard for all future pipe replacement projects.

Plans for 2017

- Replace 6.5 kilometres of aging water main.
- Expand city-wide efforts to meet Greenest City Goal and continue working on corporate water use reduction plan.
- Review groundwater resources and determine usable volume for City outdoor use.
- Develop funding and implementation strategy for an earthquake-resistant water system.
- Refresh the emergency response plan.
- Perform condition assessment of aging pressure reducing valve stations and remote monitoring equipment.

Looking Ahead, 2018-2021

- Ensure water system assets are well managed by continuing to closely monitor system condition and preparing a comprehensive asset management plan to inform and justify future capital and operating budget requests
- Expand city-wide water conservation efforts to reduce per capita water use.

Service Metrics

Water utility metrics in 2016 were on track in relation to targets and expected trends.

Infrastructure Replacement

Replacement of aging water mains and services represented the largest capital program for the utility. The total length of water mains replaced was slightly less than forecasted at the start of the year due to more projects occurring on arterial roadways as part of major construction projects in the City. The number of water services replaced was on target.

Aging Water System

Over the last few years, the City's water system has suffered an increasing number of leaks and breaks. The increasing number of failures indicates that more proactive replacement of water system infrastructure is necessary to maintain system reliability. The trend of leaks and breaks correlates with growth patterns of the City. In particular, the copper water services installed in the 1940s, 1950s, and 1960s are all nearing the end of their services life and show their wear through increased leaks.

The City monitors and analyses information on water system assets on an ongoing basis. This information is used to support optimal capital investment in future years, as well as to calibrate operating budgets.

Specifically, the information helps staff determine when and where investments are needed, what the scale of those investments should be and whether an asset should be repaired or replaced, thus ensuring that City assets are resilient and well managed.

Water Quality

Water quality remained excellent, with occasional turbidity events becoming even less frequent since Metro Vancouver began filtering Capilano-source water in 2015. (Seymour-source water was already filtered.)

Water Consumption/Efficiency

After warm and dry summers in 2014 and 2015, weather returned to historically typical patterns in 2016. The number of days of rain experienced in June and July of this year affected outdoor water use demand and allowed the City to resume its downward trend in total per capita water use. At the end of 2016, total per capita water use is expected to show a 17% reduction from 2006 levels, more than half-way toward the City's Greenest City target of a 33% reduction.

By the end of 2016, the water conservation program will have completed a number of noteworthy initiatives to further water efficiency across the City to support the expanded program approved by Council in November 2015, including:

- Water efficiency updates to the Vancouver Building By-law for residential and commercial fixtures for new and renovated buildings;
- Expanded education and awareness program (outdoor water use and finding & addressing household leaks);
- Continuation of Energy Star Clothes Washer rebates;

- Green Landlord Toilet & Showerhead Rebates;
- Golf Course Water Use Plans;
- Expanded Water System Leak Management; and
- Adoption of a Corporate Water Use Reduction Plan and achieving a 23% reduction in water use from 2006 baseline.

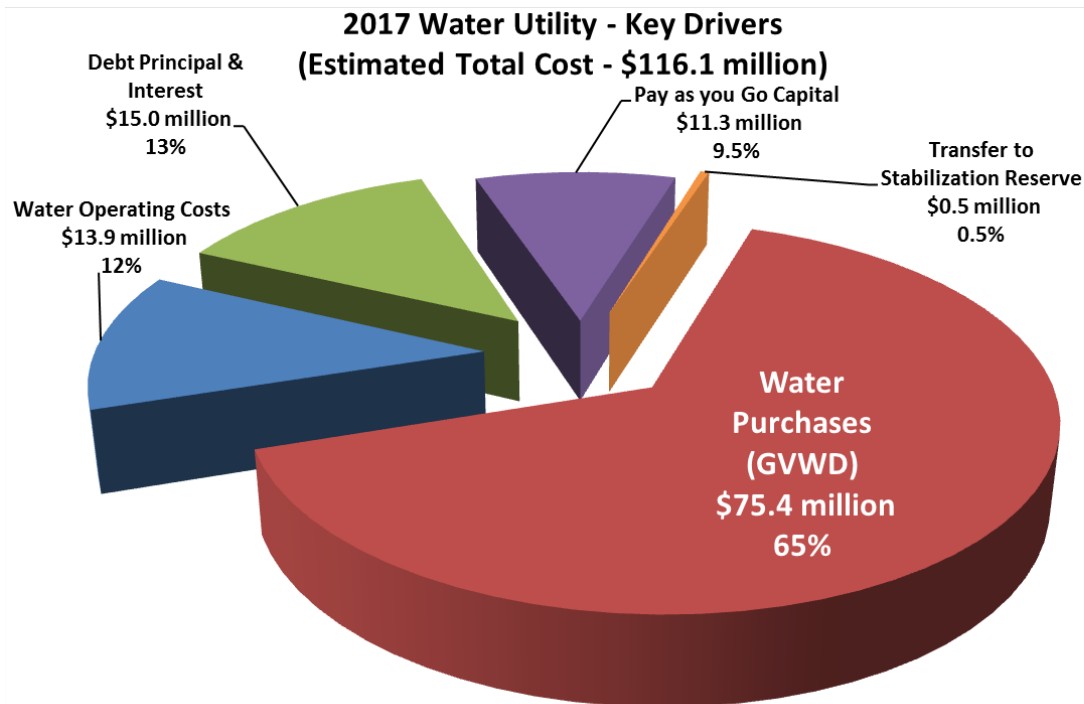
Service	Metric Type	COV Metric	2012	2013	2014	2015	2016F
Water	Quantity	# of Water Connections Replaced	1,673	1,558	1,436	1,642	1,500
		km of Water Pipe Replaced *	5.3	8.9	6.3	7.4	6.1
	Quality	# of main breaks	48	68	71	90	93
		# of Service Connection Breaks	617	437	539	607	570
		% of samples with turbidity within Health Canada acceptable range	98.68%	98.60%	99.40%	98.70%	99.00%
		Water Consumed Per Capita (litres) - Residential	286	262	278	290	275
		Water Consumed Per Capita (litres) - Total	491	471	490	493	483

(*) kilometres of water pipe replaced also includes rehabilitated (lined) mains

Financial Implications

Key Cost Drivers

The Water Utility expenditures consist of four key cost drivers: water purchased from Metro Vancouver which makes up 65% of the budget, City of Vancouver operating costs which make up about 12% of the total budget, transfers to or from the stabilization reserve which make up 0.5% and costs associated with Waterworks Capital Plan expenditures which make up about 22.5% of the budget as shown graphically in Figure 1 below. A description of each component and its related activities follows.

Figure 1 - Water Utility CostsWater 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 as, emergency response for main breaks and other trouble calls. This also includes customer billing and general administration.

2016 Budget Performance

Table 2 summarizes the operating budget and current forecast for the Water Utility in 2016.

Table 2 - 2016 Budget Performance

Water Utility (\$ millions)	2016 Forecast	2016 Budget	\$ Variance	% Variance
Water Consumption Volume	112,886,209	110,320,000		
Revenues				
Metered Rate Revenues	\$ 58.0	\$ 57.3	\$ 0.7	1.1%
Flat Rate Revenues	47.2	46.9	0.3	0.6%
Meter Service Charges	4.0	3.8	0.2	5.5%
Flat Rate Fire Line Charges	3.0	2.8	0.2	7.7%
Other Revenues	0.7	0.6	0.1	22.0%
Total Revenues	\$ 112.8	\$ 111.3	\$ 1.5	1.3%
Expenses				
Water Purchases (GVWD)	\$ 73.2	\$ 71.9	\$ (1.3)	-1.8%
Total Waterworks Operations	13.6	13.9	0.3	2.1%
Debt Interest	4.9	4.9	-	0.0%
Total Expenses	91.7	90.6	(1.0)	-1.1%
Transfers				
Debt Principal	11.3	11.3	-	0.0%
Pay As you Go Capital	10.2	10.2	-	0.0%
Transfer to/(from) Stabilization Reserve	(0.4)	(0.9)	(0.5)	55.3%
Total Transfers	21.1	20.7	(0.5)	-2.3%
Total Expenses & Transfers	\$ 112.8	\$ 111.3	\$ (1.5)	-1.3%
Surplus/(Deficit)	\$ -	\$ -	\$ -	0.0%

* Tables may not sum due to rounding

2016 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 2016 budget was based on a forecast that total water volume consumed would decrease from the previous year by about 1.5%; but instead water consumption in 2016 has been higher than expected due to population growth. Flat rate

revenues are higher than budgeted due to additional revenue generated from the flat rate 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 2016.

2016 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 2.3% higher than estimated in the 2016 budget.

2016 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 2016, there was a budgeted transfer from the Reserve of \$0.9 million to fund water conservation efforts. For the year, \$0.5 million less is expected to be drawn from the reserve. This variance is due to higher than budgeted revenues of \$1.5 million and an anticipated budget savings in operating costs of \$0.3 million, which are partially offset by higher than budgeted water purchases of \$1.3 million.

2017 Proposed Budget and Rates

The main drivers of the 2017 expenditure budget are a 3.2% increase in the price of water purchased from Metro Vancouver; an increase in water volume estimates for 2017 resulting from the alignment of assumptions with projected population growth and the Greenest City Action Plan (GCAP) target of reduced per capita water use; the deferred impact of prior year cost of service increases previously mitigated using the Water Rate Stabilization Reserve and a contribution to the reserve for 2017; an increase in Pay-as-you-go to fund expanded capital investment to deal with the increasing level of service breaks; realignment of the flat-fee rate to the actual distribution of flat fee and metered customers; and an offset from a decrease in debt related to retiring old debt. Table 3 shows the 2016 Operating Budget and proposed 2017 Operating Budget.

While water consumption is higher than anticipated in 2016, the longer term trend demonstrates an overall reduction in per capita use. 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 2016, the 2017 budget incorporates a 1.5% decrease in the volume of water purchases based on per capita use, as shown in Table 3. Continuing with this adjustment, staff are using an estimated 1.5% reduction per capita use per year for budgeting purposes (as shown in Table 4 in the next section).

Table 3 - Proposed 2017 Budget

Water Utility (\$ millions)	2016 Forecast	2016 Budget	2017 Proposed	\$ Change from 2016 Budget	% Change
Water Consumption Volume	112,886,209	110,320,000	112,620,359		
Revenues					
Metered Rate Revenues	\$ 58.0	\$ 57.3	\$ 60.9	\$ 3.6	6.2%
Flat Rate Revenues	47.2	46.9	48.0	1.1	2.4%
Meter Service Charges	4.0	3.8	3.8	0.1	2.0%
Flat Rate Fire Line Charges	3.0	2.8	2.8	0.1	2.0%
Other Revenues	0.7	0.6	0.6	-	0.0%
Total Revenues	\$ 112.8	\$ 111.3	\$ 116.1	\$ 4.8	4.3%
Expenses					
Water Purchases (GVWD)	\$ 73.2	\$ 71.9	\$ 75.4	\$ 3.5	4.9%
Total Waterworks Operations	13.6	13.9	13.9	0.1	0.5%
Debt Interest	4.9	4.9	5.0	0.1	1.6%
Total Expenses	91.7	90.6	94.3	3.7	4.0%
Transfers					
Debt Principal	11.3	11.3	10.0	(1.3)	-11.4%
Pay As you Go Capital	10.2	10.2	11.3	1.1	10.8%
Transfer to/(from) Stabilization Reserve	(0.4)	(0.9)	0.5	1.4	-158.6%
Total Transfers	21.1	20.7	21.8	1.2	5.6%
Total Expenses & Transfers	\$ 112.8	\$ 111.3	\$ 116.1	\$ 4.8	4.3%
Surplus/(Deficit)	\$ -	\$ -	\$ -	\$ -	0.0%

* Tables may not sum due to rounding

2017 Revenues & Proposed Rates

For both metered customers and flat-fee single-family dwellings, a 4.0% increase is recommended for 2017. Metered-rate revenues will increase due to the rate increase and an increase in water volume estimates for 2017 resulting from the alignment of assumptions with the Greenest City Action Plan (GCAP) target of per capita water use. Since 2012, all new single-family dwellings must be metered and no longer pay the flat fee. The 2017 budget for flat-rate revenues reflects the 4.0% rate increase and the realignment of flat-fee revenue to the actual distribution of flat-fee and metered customers offset by a decline in the number of customers paying the flat fee. As a result of these changes, water rates for single-family dwellings are projected to be \$616 versus \$592 in 2016.

Also recommended are inflationary increases of 2% for fire line charges and meter service charges. Both the revenue and expenses changes for meter service charges and fire line charges reflect an increase in the number of accounts over the last several years.

2017 Expenditures

The increase for the 2017 water purchase budget is \$3.5 million, of which a \$2.0 million increase is due to a Metro Vancouver price increase of 3.2% and a \$1.5 million increase is due

to increased volume. Costs in waterworks operations have increased by 0.8% due to increases in the cost of equipment, insurance, materials and the meter program.

2017 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 related to transmission and distribution main work are covered through current revenues; ultimately, this will eliminate the related debt interest expense. In 2017, City staff recommend a \$1.1 million increase in the pay-as-you-go contribution from \$10.2 million to \$11.3 million to expand the capital work and address the increasing level of service breaks.

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

The change in the rate stabilization reserve transfer is the result of using the reserve in 2016 as a funding source for the Water Conservation program for the amount of \$0.9 million. As a result of deferring the impact in 2016, this will be funded through utility rates in 2017. Also included in 2017 is a transfer of \$0.5 million to help achieve a target water rate stabilization reserve balance of 5-10% of water purchases.

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 (\$ millions)	2017	2018	2019	2020	2021	
Assumptions:						
Water Consumption Volume	112,620,359	111,790,451	110,960,101	110,129,508	109,298,868	
Metro Price Increase	3.2%	3.0%	3.0%	3.0%	3.0%	
City Rate Increase	4.0%	3.5%	2.7%	2.6%	2.0%	
Revenues						
Metered Rate Revenues	\$ 60.9	\$ 62.5	\$ 63.7	\$ 64.9	\$ 65.7	
Flat Rate Revenues	48.0	48.9	49.5	50.0	50.1	
Meter Service Charges	3.8	3.9	4.0	4.1	4.2	
Flat Rate Fire Line Charges	2.8	2.9	2.9	3.0	3.1	
Other Revenues	0.6	0.6	0.6	0.6	0.6	
Total Revenues	116.1	118.8	120.8	122.6	123.7	
Expenses						
Water Purchases (GVWD)	75.4	77.1	78.8	80.6	82.4	
Total Waterworks Operations	13.9	14.2	14.6	14.9	15.2	
Debt Interest	5.0	4.0	4.0	3.4	2.5	
Total Expenses	94.3	95.4	97.4	98.9	100.0	
Transfers						
Debt Transfers	10.0	9.8	8.7	8.0	6.7	
Pay As you Go Capital	11.3	11.7	14.2	14.7	16.0	
Transfer to/(from) Stabilization Reserve	0.5	2.0	0.5	1.0	1.0	
Total Transfers	21.8	23.5	23.4	23.7	23.7	
Total Expenses & Transfers	116.1	118.8	120.8	122.6	123.7	
Surplus/(Deficit)	\$ -	\$ -	\$ -	\$ -	\$ -	
	Est. End 2016					
Reserve Balance (\$ millions)	3.9	4.4	6.4	6.9	7.9	8.9
% of Water Purchases (Target 5-10%)	3.8%	5.8%	8.2%	8.7%	9.8%	10.8%

* Tables may not sum due to rounding

Table 4 assumes a moderate decline in consumption of 1.5% per capita use 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 3.2% in 2017. The following four years are forecasted to increase at 3%. 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 increasing the Pay as You Go contribution per year, all new routine capital spending for the transmission and distribution main work will

be from current revenues sooner than anticipated, 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 Utility Billing and Housekeeping

In addition to the proposed changes to fees and rates, a number of By-law amendments are proposed to support water account billing and administration, as detailed in Appendix B.

The proposed amendments clarify how the utility recovers costs or offers account adjustments in the following situations:

- 1) When there is evidence of tampering of City piping and/or water meters,
- 2) Where water meter data is not considered reliable due to mechanical or electrical failure (where a bill using an estimated consumption is justified), and
- 3) When there is non-payment of water accounts.

The amendments also include adding the various situations where water meters are required, in accordance with Council policy and longstanding water utility practice. These include:

- 1) All new service connections for the single and dual family premises (Council approval - RTS. 04611, July 14, 2011),
- 2) Any new or existing non-residential premises (Water Utility policy circa 1975),
- 3) Existing premises that are 0.5 acre or more in area (Water Utility policy circa 1975).

Finally, a detailed review of all water accounts revealed a small number of servicing scenarios that are not referenced in the By-law. As such, the following fees are proposed to be added to the By-law for completeness. Fee amounts have been adjusted to support full cost recovery.

Table 5 - Proposed Additions to Annual Flat Rate Fees

2017 Proposed		
Parking Lot/Community Garden	\$190	Unmetered service pipe
Water Service - Turned Off	\$140	Metered or unmetered service pipe, turned off at customer request
Other Property	\$140	Vacant lots with little to no improvements (buildings or other structures)

Connection Fees

All new development and major renovation projects in the City are required to install water and combined water and sewer connections on private property and pay connection fees for the corresponding connections on City property. These fees are updated regularly to ensure cost recovery.

The 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 was done in 2016 and fees were adjusted during the year. For further discussion of this trend, refer to the 2017 Engineering Fees (RTS 11629). A subsequent review was performed on pavement restoration fees and staff are recommending that fees are updated to ensure continued cost recovery. Pavement restoration is a key component to providing sewer service connections.

It is recommended that a 2.9-3.9% increase for flat rate connection and removal fees be approved. This increase is required to cover annual inflationary increases as well as additional costs for pavement restoration to maintain full cost recovery.

Legal Implications

The amendments to the Waterworks 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 support equitable billing and account administration. The Director of Legal Services has also taken the opportunity to make some editorial changes to the By-law to modernize language, improve 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 2017, it is recommended that flat and metered water fees be increased by 4.0%, service and connection fees be increased by 2.9-3.9% 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
2017 Rate Changes

Schedule A Flat Rate Connection Fees

	2016	Proposed 2017	% Increase
<u>Single-Family & Two-Family Dwellings</u>			
20 mm (3/4")	\$5,397	\$5,551	2.9%
25 mm (1")	\$5,588	\$5,748	2.9%
40 mm (1 1/2")	\$6,719	\$6,911	2.9%
50 mm (2")	\$7,450	\$7,663	2.9%
<u>Other Connections</u>			
20 mm (3/4")	\$9,349	\$9,713	3.9%
25 mm (1")	\$9,727	\$10,105	3.9%
40 mm (1 1/2")	\$11,224	\$11,661	3.9%
50 mm (2")	\$11,224	\$11,661	3.9%
100 mm (4")	\$16,229	\$16,860	3.9%
150 mm (6")	\$20,072	\$20,853	3.9%
200 mm (8")	\$21,919	\$22,772	3.9%
300 mm (12")	\$30,847	\$32,047	3.9%

Schedule A.1 Removal Fees

	2016	Proposed 2017	% Increase
20mm (3/4") to 50mm (2") inclusive	\$1,108	\$1,130	2.0%
100mm (4") to 300mm (12") inclusive	\$3,323	\$3,389	2.0%

Schedule B Flat Service Charges for Residential Properties

	2016	Proposed 2017	% Increase
Single dwelling unit	\$592	\$616	4.0%
Single-Family with suite or laneway house	\$803	\$835	4.0%
Single-Family with suite and laneway house	\$1,014	\$1,055	4.0%
For each strata title duplex	\$401	\$417	4.0%

Schedule C Flat Service Charges for Unmetered Fire Service Pipes

	2016	Proposed 2017	% Increase
50 mm (2") or smaller	\$218	\$222	2.0%
75 mm (3")	\$326	\$333	2.0%
100 mm (4")	\$451	\$460	2.0%
150 mm (6")	\$520	\$530	2.0%
200 mm (8")	\$610	\$622	2.0%
250 mm (10")	\$648	\$661	2.0%
300 mm (12")	\$694	\$708	2.0%

Schedule D Charges for Metered Water Service

		2016	Proposed 2017	% Increase
Four Month Period		Rate in Dollars per Unit (2,831.6 litres)		
Rate for all metered uses				
October 1 - May 31	Per Unit	\$2.584	\$2.688	4.0%
June 1 - September 30	Per Unit	\$3.239	\$3.369	4.0%

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 Monthly Period	2016	Proposed 2017	% Increase
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Services with Standard Type Meters

17 mm (1/2") and 20 mm (3/4")	\$30	\$31	2.0%
25 mm (1")	\$30	\$31	2.0%
40 mm (1 1/2")	\$67	\$68	2.0%
50 mm (2")	\$92	\$94	2.0%
75 mm (3")	\$207	\$211	2.0%
100 mm (4")	\$252	\$257	2.0%
150 mm (6")	\$327	\$334	2.0%
200 mm (8")	\$508	\$518	2.0%
250 mm (10")	\$622	\$634	2.0%
300 mm (12")	\$737	\$752	2.0%

Services with Low Head Loss Meters / Detector Check Valves

100 mm (4")	\$291	\$297	2.0%
150 mm (6")	\$425	\$434	2.0%
200 mm (8")	\$571	\$582	2.0%
250 mm (10")	\$712	\$726	2.0%
300 mm (12")	\$850	\$867	2.0%

Schedule F Charges for Temporary Water Service during Construction

	2016	Proposed 2017	% 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	\$262	\$272	4.0%
Over 500 but not exceeding 2,000	\$512	\$532	4.0%
Over 2,000 but not exceeding 9,000	\$769	\$800	4.0%
Over 9,000 but not exceeding 24,000	\$1,293	\$1,345	4.0%
Over 24,000 but not exceeding 45,000	\$1,935	\$2,012	4.0%
Over 45,000	\$2,567	\$2,670	4.0%

Schedule G		Fees for Installation of Residential Water Meters		
<u>Single-Family & Two-Family Dwellings</u>				
20 mm (3/4") meter assembly and box		\$1,100	\$1,122	2.0%
<u>Other Connections</u>				
25 mm (1") meter assembly and box		\$1,200	\$1,224	2.0%
		Fees for Installation of Water Meters		
Size of Standard Meter	Meter on City Property	2016	Proposed 2017	% Increase
20 mm (3/4")		\$3,195	\$3,259	2.0%
25 mm (1")		\$3,340	\$3,407	2.0%
40 mm (1 1/2")		\$3,640	\$3,713	2.0%
50 mm (2")		\$3,763	\$3,838	2.0%
75 mm (3")		\$13,132	\$13,395	2.0%
100 mm (4")		\$14,361	\$14,648	2.0%
150 mm (6")		\$46,902	\$47,840	2.0%
200 mm (8")		\$48,239	\$49,204	2.0%
250 mm (10")		\$65,173	\$66,476	2.0%
300 mm (12")		\$72,062	\$73,503	2.0%
Size of Standard Meter	Meter on Private Property	2016	Proposed 2017	% Increase
20 mm (3/4")		\$505	\$515	2.0%
25 mm (1")		\$582	\$594	2.0%
40 mm (1 1/2")		\$777	\$793	2.0%
50 mm (2")		\$1,073	\$1,094	2.0%
75 mm (3")		\$2,369	\$2,416	2.0%
100 mm (4")		\$3,599	\$3,671	2.0%
150 mm (6")		\$7,630	\$7,783	2.0%
200 mm (8")		\$9,127	\$9,310	2.0%
250 mm (10")		\$18,396	\$18,764	2.0%
300 mm (12")		\$25,286	\$25,792	2.0%
Schedule H		Miscellaneous Fees and Charges		
		2016	Proposed 2017	% Increase
<u>Cross Connection Control Administration Fees</u>				
	First Assembly	\$28	\$29	2.0%
	Additional Assembly	\$13	\$13	2.0%
<u>Charges when service pipes are shut off for more than ninety days (per month)</u>				
	15mm, 20mm or equivalent unmetered services	\$2	\$2	0.0%
	Extra charge for inaccessible meter (per incident)	\$75	\$75	0.0%
	Special meter reading (per occurrence)	\$104	\$100	-3.8%
	Customer requested meter test (deposit)	\$200	\$200	0.0%
	Charges for Returned Cheques	\$35	\$35	0.0%
<u>Residual Water Pressure Estimate Fee</u>				
	Original calculation	\$36	\$36	0.0%
	Additional copies for same location	\$10	\$10	0.0%
	Miscellaneous water information requests (per hour)	\$43	\$44	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	\$200	-2.0%
	Frozen pipe thawing	at cost	at cost	

BY-LAW NO. _____

**A By-law to amend
Water works By-law No. 4848
Regarding fire lines, service pipes, housekeeping and rates**

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

1. This By-law amends the indicated provisions of the Water works By-law No. 4848.
2. In section 2, Council:
 - (a) strikes out the definition of "FIRE LINE" and substitutes:

" "FIRE LINE" means a pipe that is intended for the purpose of providing a stand-by supply of water for fire protection purposes;"
 - (b) adds in alphabetical order, the following definition:

" "INTERCONNECTED SERVICE PIPE" means two City water services connected on private property, one of which is deemed to be a fire line;"
3. Council strikes out section 2.1 and substitutes:

"2.1 Required Meter Service

A meter is required for:

 - (a) new or existing commercial premises;
 - (b) a building site;
 - (c) new or existing premises that are .5 acres or more in area; or
 - (d) any premises where, in the opinion of the Collector or the City Engineer, the volume of water being used is at least 50% greater than the average volume of water typically used by similar premises, as calculated by the City Engineer in setting the flat rate service charges in Schedule B."
4. Council strikes out the last paragraph of section 2.12 and substitutes:

"For the purpose of levying the respective rates and charges in Schedules "C" and "E", each connection or branch for separate service, twin service, dual service or interconnected service shall be deemed to be a separate service connection."
5. Council strikes out re-numbered section 3.12 and substitutes:

"3.12 Tampering with the City's Facilities

No person shall tamper with the City's waterworks system, including but not limited to any pipe, by-pass, meter, meter register, meter transmitter, hydrant or any other part of the City's waterworks system, except as authorized by the Engineer or the Collector."

6. In Part VI, Council:

- (a) strikes out sections 6.4 through 6.7;
- (b) re-numbers sections 6.8 through 6.29 as 6.4 through 6.25 respectively;
- (c) in re -numbered section 6.20, strikes out "6.22" and substitutes "6.18"; and
- (d) in re-numbered section 6.22, strikes out "6.23" and substitutes "6.19".

7. Council strikes out re-numbered section 6.4 and substitutes:

"6.4 Installation of Meter on Unmetered Service Pipe

The Collector or the Engineer may install a meter on an unmetered service pipe and levy metered water service rates in accordance with this By-law."

8. Council strikes out re-numbered sections 6.12 and 6.14 and substitutes:

"6.12 Penalty for Non-Payment

Fees, rates, meter charges and other water rates which are due and owing under this by-law and remain unpaid on the due date are subject to a loss of discount or a penalty of 5%, calculated on the balance outstanding on the close of day on the day the payment is due.

6.14 Insertion of Outstanding Water Rates on Tax Roll

Fees, rates, meter charges and other water rates that remain unpaid on the due date:

- (a) may be inserted by the Collector in the property tax roll as charges imposed with respect to the parcel upon which the water was used or to which it was made available for use; and
- (b) once entered on the property tax roll in accordance with this by-law, are subject to any applicable property tax penalty and interest by-laws as if such charges were general taxes within the meaning of such penalty and interest by-laws."

9. Council strikes out subsection 6.18(b) (ii) and substitutes:

“(ii) if the actual date of damage cannot be determined, for a period up to the current year plus the previous year.”

10. Council strikes out section 6.19 and substitutes:

“6.19 Adjustment for Tampering

If, in the opinion of the Collector, the water consumption rate is inaccurate due to tampering, the Collector must:

- (a) estimate water consumption based on:
 - (i) an average of the water consumption for the current year and up to two previous years, or
 - (ii) if there is no water consumption history, the median water consumption rate for similar properties; and
- (b) issue a bill for:
 - (i) estimated water consumption for the entire period of the tampering, as determined by the Collector, and
 - (ii) all costs incurred in estimating water consumption and repairing the City’s waterworks system.”

11. In section 6.20, Council:

- (a) after subsection (a), strikes out “and”; and
- (b) after subsection (b), strikes out “.”, substitutes “; and” and adds:
 - “(c) has, in the opinion of the Engineer, been repaired by the customer in such a manner as to effectively prevent future leaks of a similar nature;

the water consumption rate may be adjusted by the Collector, except that the adjustment must only be made for the period between two weeks after the first meter billing date on which the meter bill indicates an unusual increase in water consumption, as determined by the Collector, and the meter reading date for the meter bill immediately preceding the meter bill containing the unusual increase, to a maximum adjustment period of six months.”

City Clerk

**"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")	\$5,551.00
25 mm (1")	5,748.00
40 mm (1 1/2")	6,911.00
50 mm (2")	7,663.00

Service Pipe Size *Other Connections*

20 mm (3/4")	\$9,713.00
25 mm (1")	10,105.00
40 mm (1 1/2")	11,661.00
50 mm (2")	11,661.00
100 mm (4")	16,860.00
150 mm (6")	20,853.00
200 mm (8")	22,772.00
300 mm (12")	32,047.00

Service Pipe Removal Fees

Service Pipe Size

20 mm (3/4") to 50 mm (2") inclusive	\$1,130.00
100 mm (4") to 300 mm (12") inclusive	3,389.00

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

Single Dwelling Unit	\$616.00
Single-Family with suite or laneway house	835.00
Single-Family with suite and laneway house	1,055.00
For each strata title duplex	417.00
Parking Lot/Community Garden	190.00
Water Service - Turned Off	140.00
Other Property	140.00

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

Fire Service Pipe Size

50 mm (2") or smaller	\$222.00
75 mm (3")	333.00
100 mm (4")	460.00
150 mm (6")	530.00
200 mm (8")	622.00
250 mm (10")	661.00
300 mm (12")	708.00

SCHEDULE D
Charges for Metered Water Service

Four Month Period

*Rate In Dollars per
Unit (2,831.6 Litres)*

Rate for all metered uses

October 1 - May 31	Per unit	\$2.688
June 1 - September 30	Per unit	\$3.369

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")	\$ 31.00
25 mm (1")	31.00
40 mm (1 1/2")	68.00
50 mm (2")	94.00
75 mm (3")	211.00
100 mm (4")	257.00
150 mm (6")	334.00
200 mm (8")	518.00
250 mm (10")	634.00
300 mm (12")	752.00

Services with Low Head Loss Meters/Detector Check Valves

100 mm (4")	\$297.00
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150 mm (6")	434.00
200 mm (8")	582.00
250 mm (10")	726.00
300 mm (12")	867.00

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	\$ 272.00
Over 500 but not exceeding	2,000	532.00
Over 2,000 but not exceeding	9,000	800.00
Over 9,000 but not exceeding	24,000	1,345.00
Over 24,000 but not exceeding	45,000	2,012.00
Over 45,000		2,670.00

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	\$1,122
25 mm (1") meter assembly and box	\$1,224

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")	\$ 3,259.00	\$ 515.00
25 mm (1")	3,407.00	594.00
40 mm (1 1/2")	3,713.00	793.00
50 mm (2")	3,838.00	1,094.00
75 mm (3")	13,395.00	2,416.00
100 mm (4")	14,648.00	3,671.00
150 mm (6")	47,840.00	7,783.00
200 mm (8")	49,204.00	9,310.00
250 mm (10")	66,476.00	18,764.00
300 mm (12")	73,503.00	25,792.00

SCHEDULE H
Miscellaneous Fees and Charges

Cross Connection Control Administration Fees	
First Assembly	\$ 29.00
Additional Assembly	13.00
Extra charge for inaccessible meter (per incident)	75.00
Special Meter Reading (per occurrence)	100.00
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)	44.00
Shutdown or Service request fee (normal working hours) (per occurrence)	100.00
Shutdown or Service request fee (outside normal working hours) (per occurrence)	200.00
Frozen pipe thawing	At cost (Section 5.4)"