



The Regional Municipality of Durham Report

To: Committee of the Whole
From: Commissioner of Finance and Commissioner of Works
Report: #2018-COW-178
Date: December 13, 2018

Subject:

Recommended 2019 Water and Sanitary Sewer User Rates

Recommendations:

That the Committee of the Whole recommends to Regional Council:

- A) That the 2019 Regional water rates increase by 1.1% and Regional sanitary sewer rates increase by 2.6% from the 2018 user rate levels as set out in Schedule 1 and Schedule 2 respectively (attached), effective January 1, 2019 (increase for an average residential customer of 1.8%);
- B) That the 2019 Raw Water rates for the Whitby raw water customers be increased by 7.4% as set out in Schedule 1 (attached), effective January 1, 2019;
- C) That the 2019 water charges to the Sun Valley Heights Homeowners Co-operative Water System be as set out in Schedule 3 (attached), effective January 1, 2019;
- D) That the 2019 Regional Water and Sanitary Sewer Systems Miscellaneous Fees and Charges be as set out in Schedule 4 (attached), effective January 1, 2019;
- E) That the 2019 fee schedule for laboratory services at the Regional Environmental Laboratory located at the Duffin Creek Water Pollution Control Plant be as set out in Schedule 5 (attached), effective January 1, 2019; and
- F) That the Regional Solicitor be instructed to prepare the necessary by-laws to implement the foregoing recommendations.

Regional Municipality of Durham
2019 Water and Sanitary Sewer
User Rates
Detailed Report

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1 Background

1.1 Water and Sanitary Sewer User Rates Are Reviewed Annually

The Region's water and sanitary sewer user rates are reviewed annually and recommendations are made to Council in December, prior to a January 1st implementation of approved user rates.

The existing water and sanitary sewer user rates follow the same basic format as the uniform rates adopted in 1976. Since that time, user rates have been calculated in a consistent manner using a standard waterworks industry technique, the Base-Extra Capacity method and reflect the actual costs of supplying customers. Rates are based on metered consumption with three declining rate blocks, a service charge (by meter size for water), and an unmetered fire line charge (water only).

The following report is related to this User Rates Report and was previously considered and approved by Council:

- **Report #2018-COW-171: 2018 Asset Management Plan** – This report provides an update on Durham's asset management initiatives, including those related to the water and sanitary sewerage systems. It provides important information regarding existing asset replacement values, condition and needs for existing asset rehabilitation and replacement. Findings of that report are used to formulate asset management strategies and replacement and rehabilitation capital investment plans.

The following report is being considered concurrently by Council:

- **Report #2018-COW-177: 2019 Water Supply and Sanitary Sewerage Servicing and Financing Study** – The implications of recommendations included in this report have been considered in developing the proposed 2019 water and sanitary sewer user rates.

Although the reports are separate, together they form the basis for planning and funding water and sewage system investments in a sustainable manner.

1.2 User Rates Implemented on January 1st of each year.

It is imperative that the proposed 2019 user rates be approved in 2018 in order that they can be implemented with the first customer billings commencing early January 2019. Any delay in implementation may mean that any required rate increase would have to be larger to generate sufficient revenue during the Region's fiscal year. In addition, it is considered preferable to adjust the rates during the low winter consumption period rather than have a rate increase occur at the same time as the spring/summer seasonal usage increase.

1.3 Public Notification Provided

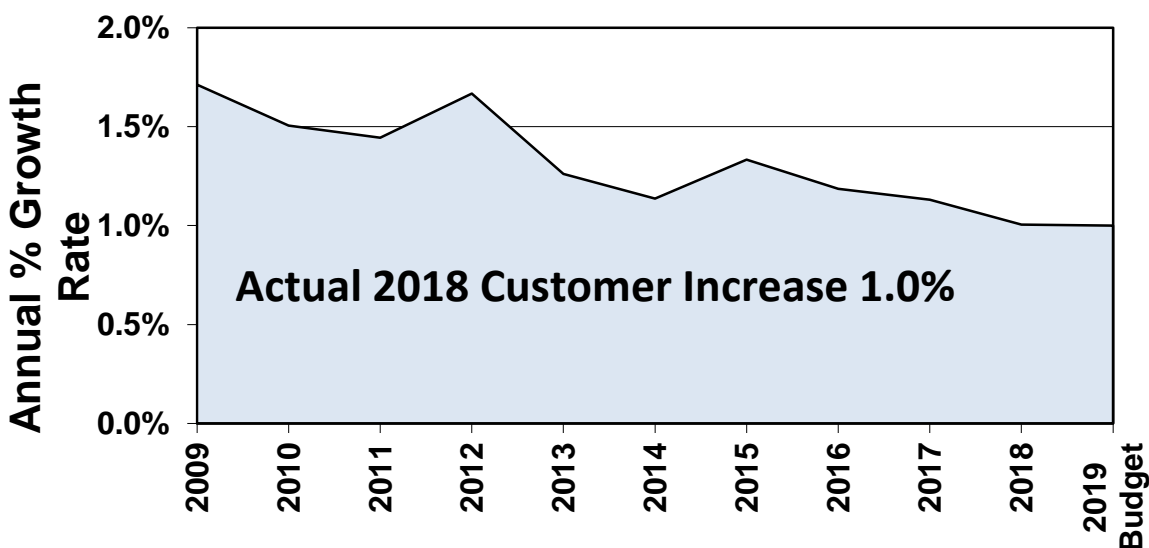
The proposed 2019 water and sanitary sewer user rates, fees and related charges will be considered by the Committee of the Whole on December 13th and by Regional Council on December 19th 2018. Public notification of this schedule was provided in local newspapers throughout the Region on November 15th and 22nd, 2018 and was posted on the Region's website. This affords the public an opportunity to make representation to Committee of the Whole and Regional

Council regarding proposed changes to the user rates prior to adoption. Printed copies of this user rate report are available to the public free of charge upon request or by accessing the Regional website.

2 Customer Growth Has Slowed

Actual water customer growth from 2009 to 2018 and 2019 Budget (end of June data) is graphed in Exhibit 1 below. June figures are used for rate calculation purposes as they represent the "average" number of customers for the year.

**Exhibit 1 Annual % Growth in Water Customers 2009 to 2018
Actual 2018-2019 Budget (June data)**



Annual customer growth peaked at about 4.0% in 2004. Since then, growth decreased to 1.0% in 2018.

There were a total of 175,763 water customers and 171,653 sewage customers in June 2018. There are fewer sewer customers than water customers because there are communities with Regional water supply services but no Regional sanitary sewer services provided in Orono, Newtonville, Blackstock, Greenbank, Uxville and most of Prince Albert. In addition, there are some individual customers in communities with sanitary sewers who are currently served only by the Regional water system.

Each year sewer customer growth is slightly higher than water customer growth as some customers which were only connected to the Regional water system, but with Regional service available, connect to the Region’s sewage system.

For 2019 rate setting purposes, annual customer growth is projected at 1.00% for water and 1.05% for sewage.

The actual water, sewage and fire line customer data from 2009 to 2018 and projected 2019 budget are tabulated in Exhibit 2.

**Exhibit 2 Water & Sewage Customers 2009 to 2018 Actual & 2019 Budget
(June to June)**

Year	Water			Sewage			Fire Lines
	Total	Increase Over		Total	Increase Over		
		Number	Percent		Number	Percent	
		Previous June			Previous June		
2009	156,520	2,636	1.7%	152,219	2,666	1.8%	1,706
2010	158,877	2,357	1.5%	154,598	2,379	1.6%	1,730
2011	161,172	2,295	1.4%	156,907	2,309	1.5%	1,749
2012	163,860	2,688	1.7%	159,605	2,698	1.7%	1,775
2013	165,927	2,067	1.3%	161,683	2,078	1.3%	1,802
2014	167,813	1,886	1.1%	163,575	1,892	1.2%	1,783
2015	170,051	2,238	1.3%	165,844	2,269	1.4%	1,835
2016	172,068	2,017	1.2%	167,894	2,050	1.2%	1,863
2017	174,014	1,946	1.1%	169,861	1,967	1.2%	1,877
2018	175,763	1,749	1.0%	171,653	1,792	1.1%	1,899
2019 Budget	177,521	1,758	1.00%	173,455	1,802	1.05%	1,918

Note: As illustrated in Exhibit 2, the annual increase in the number of sewage customers is greater than the increase in number water customers. This is due to the gradual servicing with sewage of existing water-only customers.

The projected 2019 increase in the number of water customers is 1,758 including residential and ICI (industrial, commercial and institutional) and is less than the increase in dwelling units provided in Report #2018-COW-177: 2019 Water and Sewer Servicing and Financing Study. This differential arises in part due to multi-unit developments, including apartment buildings and condominium corporations, representing multiple units but only one customer for billing purposes. There are currently approximately 222,250 residential dwelling units compared to about 170,950 residential water customers billed.

The projected customer growth for 2019 is:

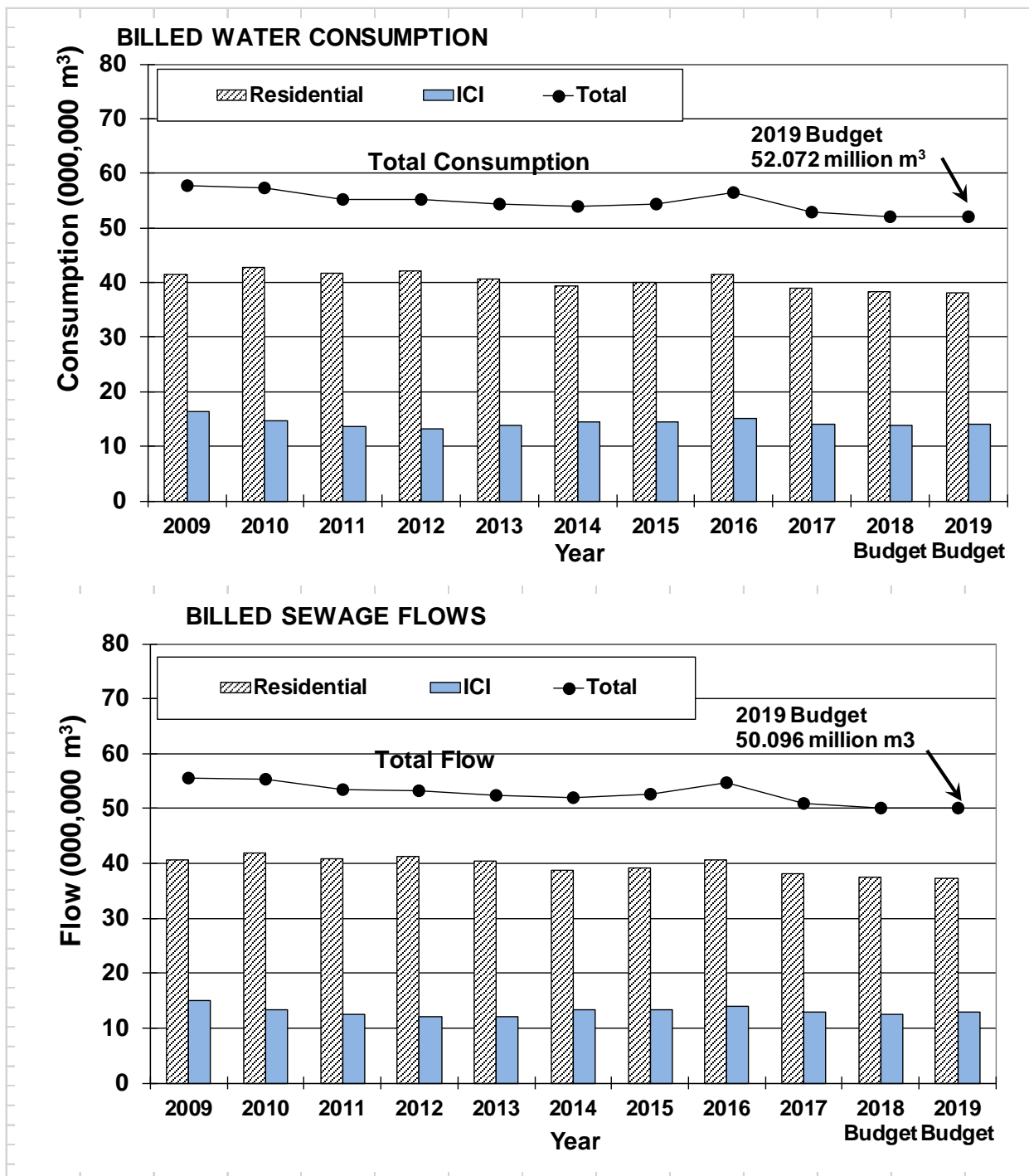
- **Water increase by +1,758 (+1.00%) to a total of 177,521**
- **Sewage increase by +1,802 (+1.05%) to a total of 173,455**

3 Water Demand – Stable

3.1 Historical Consumption

Residential, ICI and total volumes billed to customers for water and sewage - actuals from 2009 to 2017 and budget for 2018 and 2019 (discussed further following) - are graphed in Exhibit 3. There has been a gradual decreasing trend in consumption.

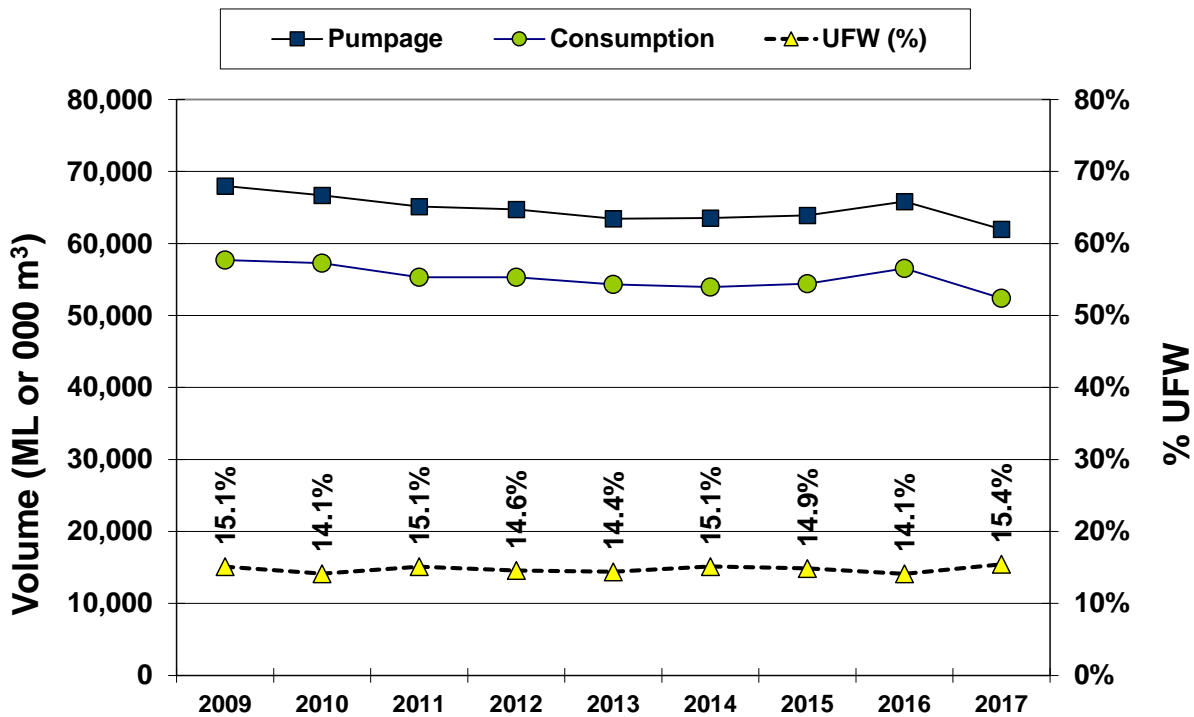
Exhibit 3 Billed Water & Sewage Volumes



3.2 Consumption versus Supply

Actual water supply, consumption billed and Unaccounted for Water (UFW) volumes from 2009 to 2017 are shown below in Exhibit 4.

Exhibit 4 Water Pumpage, Consumption & Unaccounted for Water (2009-2017 Actual)



Note: 1,000 cubic metres = 1 megalitre (ML)
 1 cubic metre = 220 Imperial gallons

As can be seen in the above graph, total pumpage (treatment plant volumes reported in megalitres) and billed consumption (customers billed in cubic metres) follow parallel paths. The annual volume trend has been generally downward for a number of years. Exceptions can occur during very dry summers with attendant higher seasonal usage, such as in 2016.

UFW (also known as NRW – Non Revenue Water) losses have been calculated based on the difference between billed consumption and pumpage. This is also referred to as Non-Revenue Water (NRW) since it mostly represents water pumped but not billed. The biggest component is watermain leakage but also includes unmetered usage such as water used for main flushing and firefighting.

UFW in recent years has been in a range of about 14% to 15%. This is considered fairly normal, but efforts are continually made to limit or reduce UFW losses through various programs such as cathodic protection and cement lining of cast/ductile iron mains and replacement of old infrastructure including mains, water meters and polybutylene water services.

The water meter replacement program results in a reduction in unbilled water due to

timely replacement of old meters which can under-record flows later in their lifecycle. This improves revenues due to higher billed usage (and hence lowers the calculated UFW).

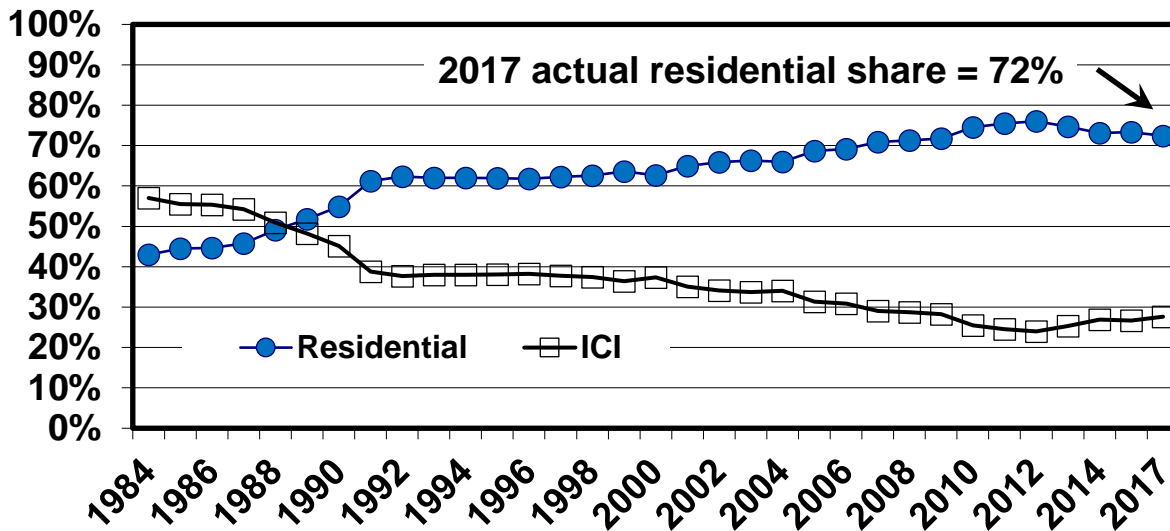
Without these initiatives, leakage would be expected to increase as systems age. See also [Section 7.3](#) for a detailed update on water system losses.

3.3 Residential versus ICI Consumption Share

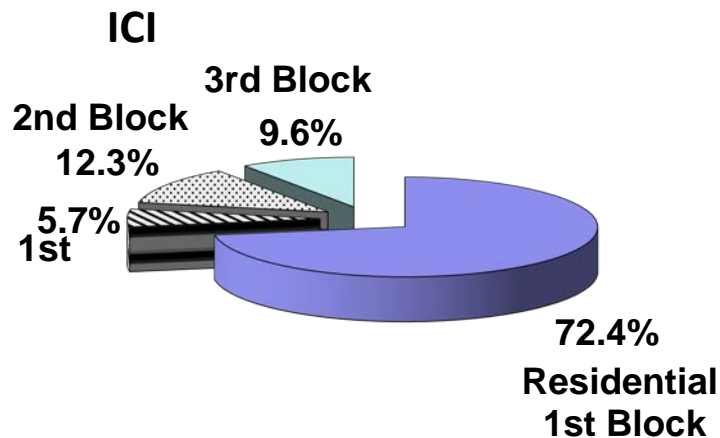
Up until 2012 there was a steady increase in the share of consumption by residential customers and a corresponding decreased share by ICI customers. Residential usage had grown from about a 43% share in 1984 to a 76% share in 2012. The change was due to a combination of strong residential growth, and, for a number of years, decreases in large ICI customer consumption. The trend reversed in 2013 with the reopening of one of the largest ICI customers, a paper production facility that was shut down in 2010. Facilities were upgraded using a different recycling process with a resulting increase in industrial water usage share.

Annual consumption share is illustrated in [Exhibit 5](#). The residential share is currently about 72%.

Exhibit 5 Billed Water & Sewage Volume Share – Residential versus ICI (1984 - 2017 Actual)



The distribution of 2017 consumption by block and customer class is illustrated in [Exhibit 6](#).

Exhibit 6 2017 Water Consumption Share by Block

All residential consumption is billed at 1st block rates. ICI water users are also billed at 1st block rates but if they use enough water may also reach the 2nd and 3rd rate blocks. Consumption by block is broken down as follows:

- **1st block** (including all residential and ICI up to 10,000 gallons/month or 45 m³/month) - All residential usage is billed at 1st block rates and these customers represent the majority of usage. Total 1st block consumption for all customers represented 78.1% of all usage in 2017 (ICI 5.7% + Residential 72.4%).
- **2nd block** (ICI 10,001 to 1,000,000 gallons/month or 46 to 4,500 m³/month) – This segment’s consumption has decreased slightly in 2017 and was about 12.3% of the total.
- **3rd block** (ICI over 1,000,000 gallons/month or 4,500 m³/month) – Large user consumption increased from about 8.6% of total usage in 2016 to about 9.6% in 2017 (due to a temporary increase by one large customer).

3.4 Residential Consumption - Decrease

Although Durham continues to see residential customer growth, usage per customer has been trending downwards for some time - the combined impact is a steady decrease in total residential usage.

Total residential consumption is made up of “Basic” day-to-day usage plus extra “Seasonal” usage in the summer. The two components are discussed in more detail as follows:

- **Basic Usage** - Basic usage is due to day-to-day activities that occur year-

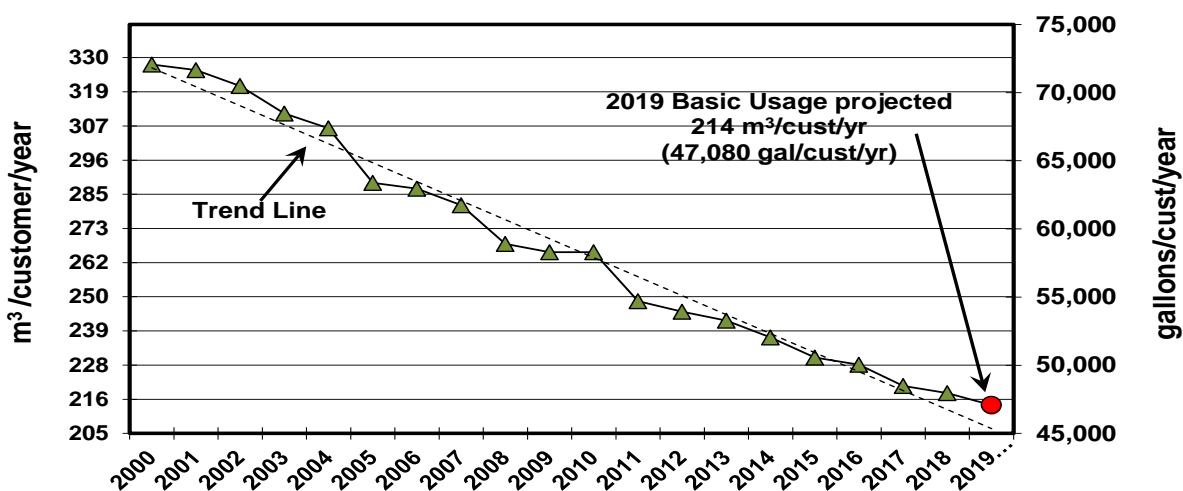
round such as kitchen, bathroom and laundry usage.

- **Seasonal Usage** – Seasonal usage is mostly outdoors during the summer months (May to September) and varies from year-to-year. During dry summers the level increases and in wet summers it is less.

Basic Usage – Although the number of residential customer continues to grow, **basic (day-to-day) usage per customer has been decreasing since about 2000. This steady drop in usage by existing residential customers tends to more than offset the impact on total residential consumption from addition of new customers.**

The decrease in basic per customer residential billed usage is illustrated in **Exhibit 7**.

Exhibit 7 Basic Annual Residential Water Usage per Customer (excludes seasonal usage)



Actual 2018 **basic usage** is 218 m³/customer/yr (47,960 gal/customer/yr). This is a blend of all residential customers including single family dwellings, duplexes, apartment buildings and townhouses. It is trending downward over time. Projected 2019 basic usage is 214 m³/customer/yr (47,080 gal/customer/yr). This is consistent with the long-term trend.

The downward trend in residential **basic usage** (day-to-day consumption) is a result of a number of initiatives which began in the 1990's:

- The Province revised the Ontario Building Code in 1996 to require low flush toilets (6.0 litres per flush) and low flow showerheads (9.85 litres per minute) in new construction. This started the trend towards more efficient household usage in new homes. The Province again revised the Ontario Building Code in 2012. The new Code has measures requiring high-efficiency (6.0 litre/flush) toilets in new single family residential construction or renovation (while still permitting the roughly equivalent 3/6 litre dual flush), and installation of low flow (7.6 litres/min) showerheads in all residential construction.
- New appliances, especially washing machines, are designed to use significantly less water.

Examples	Older	Newer
Toilets	10 to 20 litres per flush	Single Family Dwellings - 6.0 litres per flush (1)
Showerheads	Up to 30 litres per minute	Low Flow 7.6 litres per minute
Dishwashers	36 to 63 litres per load	31 to 45 litres per load
Washing Machines	Top loading 175 litres per load	Front loading 50 to 100 litres per load
Note 1) Ontario Building Code		

- The cost of water efficient appliances such as efficient toilets and front-loading washers has continued to decline to the point where many families find them affordable. The availability of widely available and affordable water efficient plumbing fixtures and appliances has resulted in ongoing decreases in consumption without the need to subsidize replacement of fixtures.
- There is a changing housing development format which results in smaller lot size, resulting in lower seasonal usage.

The Region participated in the Priority Green Clarington Demonstration Project. Six new homes were built in Bowmanville and Courtice in 2014, with features that go beyond energy efficiency and water conservation standards required by the Ontario Building Code. The features include greywater reuse as well as low flow toilets, faucets and showers.

Annual 2015 to 2017 consumption data for the homes in the Demonstration Project has been compared with the average consumption in detached single family dwellings (SFD) across the Region. Consumption in the Demonstration Project homes averaged 22%, 27% and 29% less in 2015, 2016 and 2017 respectively (see table) than the Regional SFD average. The higher Regional average in 2016 might reflect

Regional SFD customers using more water seasonally due to the dry summer while

Priority Green Clarington Demonstration Project						
Annual Consumption vs Regional SFD Average						
	2015		2016		2017	
	m3	gallons	m3	gallons	m3	gallons
Region SFD Average	206	45,320	211	46,420	191	42,020
Green Demonstration Project	161	35,420	155	34,100	136	29,920
GDP% versus Region Average	78%		73%		71%	
Summer Precipitation	Wet		Very Dry		Average	

the Demonstration Project customers had their greywater available for summer irrigation. The Demonstration Project indicates that there is still potential for future reduction in residential per customer water use as conservation measures continue to be adopted.

Logically, the steady decrease in **basic usage** per capita must eventually level off. Although the rate of decrease has moderated, there is no evidence that this has yet occurred.

Basic residential usage represents the majority of residential usage and is the most important element in projecting residential use.

Seasonal Usage - Seasonal volumes are mostly due to outside usage such as lawn/garden irrigation. Year-to-year weather variations can result in very little seasonal usage in wet years (examples 2008, 2013 and 2017) to significant **seasonal usage** in dry years (examples 2005, 2007 and 2016). It can vary on average from about 5 m³/customer/yr (1,000 gal/cust/yr) up to about 32 m³/cust/yr (7,000 gal/cust/yr), depending on summer weather conditions. The budget level used is 6.5 m³/customer/year, which is based on a wet summer, is conservatively set at about 85% of historical annual seasonal usage levels (see table below).

Total Usage – Total usage per residential customer (including basic usage plus a minimal allowance for seasonal usage) was budgeted at 223.6 m³ per year for 2018. For 2019 budgeting purposes, due to the decrease in basic usage per customer, total residential usage is budgeted at 220.5 m³ (48,510 gallons) per residential customer. Based on the projected number of residential customers this is equivalent to total budgeted 2019 residential consumption of 38,072,000 m³.

2019 Residential Consumption	
Category	m ³ /year
Basic Usge	214.0
Seasonal Usage	6.5
Total	220.5

3.5 ICI Consumption - Increase

3.5.1 Small to Medium ICI Customer Consumption – Increase

Water usage in the 1st block has changed little in recent years and is budgeted to be unchanged in 2019. The 2nd block was decreasing somewhat in 2017 but has rebounded and 2019 is projected to return to prior levels.

3.5.2 Large Industry Consumption - Decrease

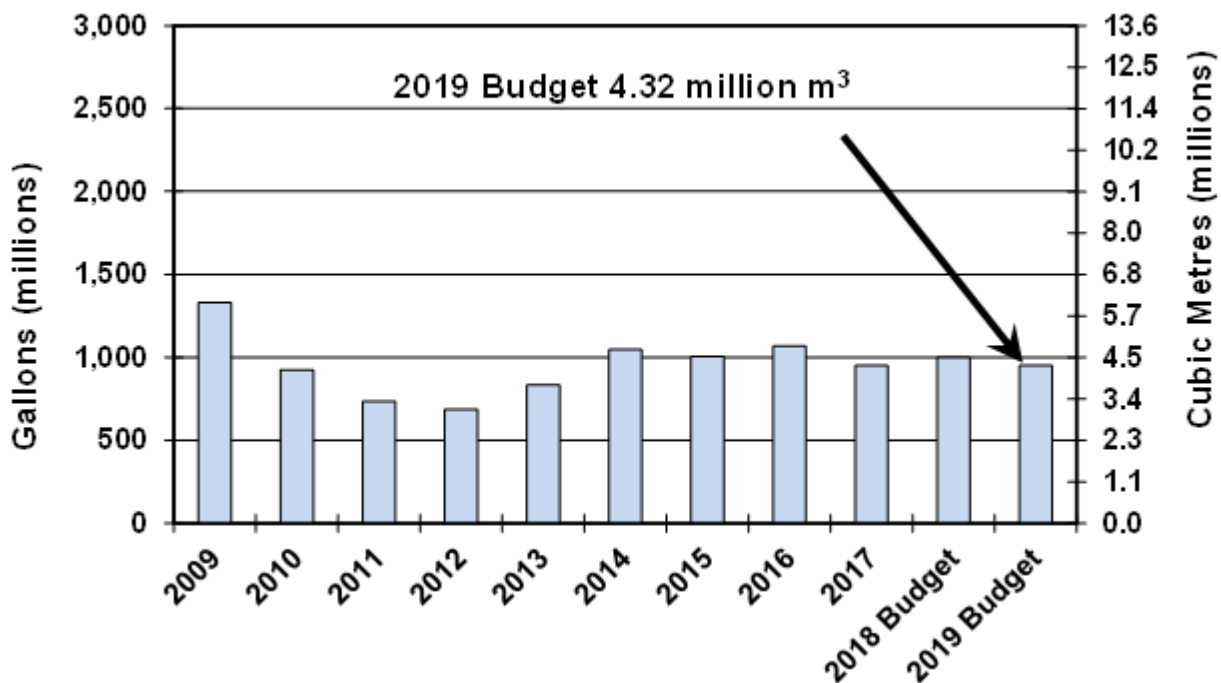
Until 2012, third (3rd) block water consumption was in decline, having decreased 61% from 2006 – an average of about 8% per year. Plant closures and cutbacks as well as conservation efforts all contributed. This trend reversed when a former large water user that had curtailed operations in 2010, with full impact on water consumption in 2011, returned to full operations in the second half of 2013.

By September of this year, 27 customer accounts representing 22 industrial users had reached 3rd block rates. Consumption to September of this year is similar to 2017 with 13 increasing and 14 decreasing. Total third block consumption is projected to reach 4.318 million m³ (950 million gallons) in 2018.

GM has four accounts that reach 3rd block levels. The GM announcement that the Oshawa assembly operations will close at the end of 2019 is not expected to materially affect projected 2019 3rd block consumption levels. The impact of the announced closing of the Oshawa assembly plant as well as the potential impact of this decision on other customers will be assessed as part of the preparation of the 2020 User Rate study with a recommended transition plan as required.

Actual 3rd block consumption is graphed for 2009 to 2017 in Exhibit 8, as well as 2018 and 2019 Budget. The large industry sector is responsible for 3rd block consumption and represented about 9.6% of total consumption in 2017. It is projected that 2019 consumption will decrease.

Exhibit 8 3rd Block Water Consumption 2009-2017 Actual & 2018/19 Budget



3.5.3 ICI Consumption Summary - Increase

Total ICI water consumption is projected to increase in 2019 by 1.7% (sewage by 1.8%) compared to the 2018 Budget. The increase is due to higher projected 2nd block consumption more than offsetting the projected decrease in 3rd block consumption.

ICI Consumption 2019 Budget		
ICI Summary	Water	Sewage
Cubic metres		
<i>1st block</i>	2,864,000	2,773,000
<i>2nd block</i>	6,818,000	6,091,000
<i>3rd block</i>	4,318,000	3,955,000
Total	14,000,000	12,819,000
Gallons (000)		
<i>1st block</i>	630,000	610,000
<i>2nd block</i>	1,500,000	1,340,000
<i>3rd block</i>	950,000	870,000
Total	3,080,000	2,820,000
Budget Change	1.7%	1.8%
Combined	1.7%	

3.6 Total Consumption - Stable

Actual Consumption/Flow for 2013 to 2017 and budget levels for 2018 and 2019 are shown in Exhibit 9.

Exhibit 9 Water Consumption & Sewage Flows 2013-2017 Actual & 2018/19 Budget

Year	Water			Sewage		
	Residential	ICI	Total	Residential	ICI	Total
Cubic Metres*						
2013 Actual	40,575,214	13,741,618	54,316,832	40,316,205	12,052,018	52,368,223
Change	-2.9%	5.7%	-0.7%	-4.0%	10.2%	-0.7%
2014 Actual	39,414,691	14,529,182	53,943,873	38,703,464	13,282,205	51,985,668
Change	1.3%	-0.5%	0.9%	1.4%	0.8%	1.3%
2015 Actual	39,942,818	14,462,622	54,405,440	39,262,916	13,382,187	52,645,103
Change	3.8%	4.3%	3.9%	3.6%	4.2%	3.8%
2016 Actual	41,458,386	15,091,423	56,549,809	40,686,995	13,942,277	54,629,273
Change	-7.6%	-3.1%	-6.4%	-7.3%	-2.2%	-6.0%
2017 Actual	38,290,805	14,627,364	52,918,168	37,696,582	13,641,905	51,338,486
2018 Budget	38,282,000	13,773,000	52,055,000	37,464,000	12,591,000	50,055,000
Change	-0.5%	1.7%	0.0%	-0.5%	1.8%	0.1%
2019 Budget	38,072,000	14,000,000	52,072,000	37,277,000	12,819,000	50,096,000
Gallons (000)*						
2018 Budget	8,422,000	3,030,000	11,452,000	8,242,000	2,770,000	11,012,000
Change	-0.5%	1.7%	0.0%	-0.5%	1.8%	0.1%
2019 Budget	8,376,000	3,080,000	11,456,000	8,201,000	2,820,000	11,021,000

* Note: 1 cubic metre = 220 Imperial gallons OR 1,000 gallons = 4.54 cubic metres

Total 2019 Budget water consumption (0% change) and sewage flows (0.1% increase) are projected to be virtually unchanged compared with 2018 budget levels.

The 2019 water consumption and sanitary sewage flow projections are based on and take into account the following:

- Continuing reduction is assumed in basic usage per residential customer.
- Low levels of summer seasonal usage by residential customers.
- Usage by ICI customers increasing.

Taking the foregoing into account, 2019 consumption is budgeted as follows:

- **Water consumption projected at 52,072,000 cubic metres (52.072 ML)**
- **Sewage flow billed projected at 50,096,000 cubic metres (50.096 ML)**

4 The Recommended 1.1% Water User Rates Increase & 2.6% Sanitary Sewer User Rates Increases are Needed to Finance the Proposed Preliminary 2019 Expenditure Budgets

4.1 Full Cost Recovery

The water and sewage user rates are an important part of a full cost recovery strategy for Regional water and sanitary sewage systems. User rates and miscellaneous fees and charges recover operating costs. Capital costs are paid through a combination of user rate revenues, miscellaneous charges, reserve funds, development charges and grants (where available). The user rate share of capital costs includes the capital cost for system replacements, upgrades related to meeting regulatory requirements and growth related costs not covered by development charge revenues. The water and sanitary sewage systems are “User Pay” - property taxes are not used to fund water and sanitary sewage system costs.

4.2 User Rate Revenue Requirements

The proposed preliminary 2019 water and sanitary sewerage expenditure budgets require a water rate increase of 1.1% and a sewer rate increase of 2.6%.

A breakdown of the proposed preliminary 2019 Budget expenditures and revenue sources, including user rate revenue requirements, is summarized in Exhibit 10 for water and Exhibit 11 for sanitary sewerage.

Additional information on the capital program is available from Report #2018-COW-177: 2019 Water Supply and Sanitary Sewerage Servicing and Financing Study. Detailed 2019 Budgets and Business Plans are scheduled for presentation to Committee and Council in January 2019.

4.3 Water Supply System

Approximately \$1.54 million in additional user rate revenues is required to support increased expenditures as set out in Exhibit 10. This is generated by a combination of:

User Rate Increase - The proposed 1.1% water rate increase generates \$1.11 million in additional revenues;

Customer Growth - Customer growth adds \$0.43 million, offsetting a rate increase by 0.3%; and,

Consumption – Consumption is projected to remain almost the same in 2019. As a result consumption is not projected to impact the level of rate increase.

The proposed preliminary 2019 user rate supported water system expenditures of \$107.92 million represents an increase of \$1.54 million over 2018 budget levels.

4.4 Sanitary Sewerage System

Approximately \$2.80 million in additional user rate revenues is required to support increased sanitary sewerage system expenditures as set out in Exhibit 11. This is generated by a combination of:

User Rate Increase - The proposed 2.6% sewage rate increase generates an additional \$2.60 million in revenue;

Customer Growth - Customer growth adds \$0.13 million, offsetting the rate increase by 0.1%; and,

Consumption - Projected increased consumption (compared with 2018 Budget) will increase budgeted revenues by \$0.07 million. The sewage user rate increase is offset by 0.1% due to modest projected consumption growth.

The proposed preliminary 2019 user rate supported sanitary sewerage system expenditures of \$102.09 million represents an increase of \$2.80 million compared to 2018 budget.

Exhibit 10 Revenues Required from 2019 Water Rates

Budget Category	2018	2019 Proposed	Increase/(Decrease)	
	Approved Budget (\$)	Preliminary Budget (\$)	(\$)	(%)
A) Operations (net)				
Operations, Maintenance & Administration	58,007,000	59,166,600		
Less Other Revenues	10,000	10,000		
Operations from Current User Rates	57,997,000	59,156,600	1,159,600	2.0%
B) Tangible Capital Assets				
Construction of Municipal Services (Gross Cost)	114,533,000	109,972,700		
Operations Capital	2,352,000	3,354,000		
Total Capital Program	116,885,000	113,326,700		
Less Financing & Recoveries Applied				
- Development Charge Reserve Fund - Residential	27,245,000	57,357,900		
- Development Charge Reserve Fund - Commercial	2,417,000	1,769,200		
- Development Charge Reserve Fund - Industrial	1,400,000	0		
- Development Charge Debenture	5,857,000	0		
- Other Financing	20,335,000	4,813,400		
Total Non User Rate Financing	57,254,000	63,940,500		
Capital Program from User Rates Revenue Sources	59,631,000	49,386,200		
Less User Rate Financing (Debt/Reserves)				
- User Rate Debenture	11,723,000	0		
- Asset Management Reserve Fund	4,509,000	4,985,000		
- Treatment Plant/Rate Stabilization Reserve Fund	0	2,000,000		
Total User Rate Financing	16,232,000	6,985,000		
Capital Program from Current User Rates	43,399,000	42,401,200		
Contribution to Asset Management Reserve Fund	4,985,000	5,234,300		
Current User Rates Capital Program/Contributions	48,384,000	47,635,500	(748,500)	-1.5%
C) Debt				
Expenditure	0	1,693,700		
Less Development Charge Reserve Funds Applied	0	564,300		
Debt from User Rates	0	1,129,400	1,129,400	
D) Current User Rate Revenue Requirements				
Total Expenditures	174,892,000	174,187,000	(705,000)	
Total Reserve Fund Contributions	4,985,000	5,234,300	249,300	
Less Total Revenues & Recoveries	(73,496,000)	(71,499,800)	1,996,200	
Total Current User Rate Revenues Required	106,381,000	107,921,500	1,540,500	1.4%
Equivalent Water User Rate Increase		1.1%		
E) Impact of Changes in Customers & Consumption on Rate Increase				
Component		Revenue Change (\$)	Rate Increase	
Increased revenue needed for expenditures		1,540,500	1.4%	
Consumption almost level so no impact on rates		(3,400)	0.0%	
Reduced revenue needed due to customer growth		(427,400)	-0.3%	
Added Revenue From Rate Increase		1,109,700	1.1%	

Exhibit 11 Revenues Required from 2019 Sewage Rates

Budget Category	2018	2019 Proposed	Increase/(Decrease)	
	Approved Budget (\$)	Preliminary Budget (\$)	(\$)	(%)
A) Operations (net)				
Operations, Maintenance & Administration	59,289,000	60,259,700		
Less Other Revenues	29,000	29,000		
Operations from Current User Rates	59,260,000	60,230,700	970,700	1.6%
B) Tangible Capital Assets				
Construction of Municipal Services (Gross Cost)	49,518,000	106,341,300		
Operations Capital	2,575,000	2,422,000		
York Durham Capital	431,000	385,000		
Total Capital Program	52,524,000	109,148,300		
Less Financing & Recoveries Applied				
- Development Charge Reserve Fund - Residential	8,625,000	11,859,100		
- Development Charge Reserve Fund - Commercial	737,000	1,266,200		
- Development Charge Reserve Fund - Industrial	1,800,000	1,000,000		
- Other Financing	11,497,000	36,498,300		
Total Non User Rate Financing	22,659,000	50,623,600		
Capital Program from User Rates Revenue Sources	29,865,000	58,524,700		
Less User Rate Financing				
- User Rate Debenture	0	25,900,000		
- Asset Management Reserve Fund	6,900,000	8,234,000		
- Treatment Plant/Rate Stabilization Reserve Fund	0	0		
Total User Rate Financing	6,900,000	34,134,000		
Capital Program from Current User Rates	22,965,000	24,390,700		
Contribution to Asset Management Reserve Fund	8,234,000	8,645,700		
Current User Rates Capital Program/Contributions	31,199,000	33,036,400	1,837,400	5.9%
C) Debt				
Expenditures	21,434,000	21,760,800		
Less Development Charge Reserve Fund	12,607,000	12,938,400		
Net Debt from User Rates	8,827,000	8,822,400	(4,600)	-0.1%
D) Current User Rate Revenue Requirements				
Total Expenditures	133,247,000	191,168,800	57,921,800	
Total Reserve Fund Contributions	8,234,000	8,645,700	411,700	
Less Total Revenues & Recoveries	(42,195,000)	(97,725,000)	(55,530,000)	
Total Current User Rate Revenues Required	99,286,000	102,089,500	2,803,500	2.8%
Equivalent Sewer User Rate Increase		2.6%		
E) Impact of Changes in Customers & Consumption on Rate Increase				
Component		Revenue Change (\$)	Rate Increase	
Increased revenue needed for expenditures		2,803,500	2.8%	
Slight increase in projected consumption reduces rate impact slightly		(68,400)	-0.1%	
Reduced revenue needed due to customer growth		(135,500)	-0.1%	
Added Revenue From Rate Increase		2,599,600	2.6%	

5 Rate Schedule Recommendations

5.1 Recommended 1.1% Water Rate & 2.6% Sewage Rate Increases (Schedules 1 & 2)

The recommended user rates are based on the proposed expenditure and revenue budgets, customer growth and projected consumption levels. Details of the customer, consumption and proposed budget data used in the rate calculations are provided above.

This report is part of the 2019 Regional Business Planning and Budget Process.

Proposed 2019 User Rate Increases	
Water	1.1%
Sewage	2.6%
Combined Average Residential Impact	1.8%

In order to support the proposed preliminary 2019 Water Supply and Sanitary Sewerage Budgets, it is recommended that current user rates be increased by 1.1% for water and 2.6% for sewage (**average residential customer combined increase of 1.8%**).

The recommended user rate adjustments are caused by a combination of increases in number of customers combined with increased expenditure requirements compared with 2018 Budget levels. Consumption is projected to be almost level and has little impact.

Based on 2019 customer and consumption projections, these rates are estimated to generate \$107.92 million for water and \$102.09 million for sanitary sewer. With the application of other revenues and reserve funds and debenture financing, the total expenditures supported are \$174.19 million for water and \$191.17 million for sanitary sewer.

The recommended 2019 water and sanitary sewer user rates are provided in Schedule 1 - Recommended 2019 Water User Rates and Schedule 2 - Recommended 2019 Sewage User Rates of the Summary to this Detailed Report.

The user rates are expressed monthly in Schedule 1. Most customers (residential) are billed quarterly so the service charges on their bills are three (3) times the monthly rate. Similarly for bimonthly customers (ICI), their service charges are billed at two (2) times the monthly rate. On transition to the new billing

Monthly Water Service Charge	\$18.48	per month
Months per Year	12	
Annual Equivalent SC	\$221.76	per year
Days in Year	365	
Daily Equivalent Service Charge	\$0.6076	per day

system, planned to be introduced in mid-2019, service charges will be billed on a daily basis. This will require daily service charge rates. The daily rates which are equivalent to the approved monthly rates will be calculated as shown in the adjacent table (using the 2018 standard meter service charge as an example).

5.2 Recommended 7.4% Raw Water Rate Increase (Schedule 1)

The Region supplies untreated raw water from the Whitby Water Supply Plant (WSP) to water customers located within the South Whitby Industrial Area. Raw water customers are also supplied with potable water.

The raw water system shares the Whitby WSP water intake and wet well with the potable water treatment carried out at the WSP. After the wet well, there are two separate pumping stations and raw water distribution systems. The raw water is treated with chlorine at the intake to deal with zebra mussels, but otherwise receives no further treatment.

There are currently two raw water customers and two raw water delivery systems which consist of raw water pumping stations followed by distribution mains:

- One raw water delivery system is located on South Blair Street and is serviced by one of the raw water pumping stations and a repurposed (formerly potable) watermain that was installed in 1912. This system is basically at end of life due to age.

There is currently just one relatively small customer on this system. Until this year a larger raw water customer used raw water for single pass cooling but has completed the installation of water recycling equipment to reduce water use. Higher quality potable water better suits this system. Earlier this year (2018) the customer completed the transition from raw water use to the Region's potable water system.

The remaining raw water customer served from the South Blair Street raw water main, does not use significant amounts of raw water. The loss of the larger raw water customer means continuing the raw water system over the longer term has cost implications for the smaller customer that make it unattractive. Thus, this customer is in the process of modifying/upgrading equipment which will allow it to utilize potable water instead of raw water.

The transition of the remaining South Blair Street raw water customer solely to potable water is expected to be complete by mid-2019. At that point there will no longer be raw water customers supplied from the South Blair Street raw water main. Once this occurs, the South Blair Street raw watermain and associated pumping station will be decommissioned.

- The remaining large-volume raw water customer is located to the east of South Blair Street and is served by raw water facilities built in 1977. This system includes a second raw water pumping station located at the Whitby WSP and a raw watermain from the WSP to the customer. This customer plans to continue utilizing raw water.

The result of these shifts in customer raw water consumption is that the raw water volume will be approximately half what it was in 2017.

Raw Water Consumption (m³)				
Year	Industry			Total
	A	B	C	
2016	499,010	62,730	732,264	1,294,004
	39%	5%	57%	100%
2017	406,044	36,950	608,206	1,051,200
	39%	4%	58%	100%
2018	16,580	63,126	559,248	638,954
Projected	3%	10%	88%	100%

Industry “A” no longer uses raw water and industry “B” will complete conversion from raw water to potable water in 2019. Only industry “C” will remain on raw water in the future.

Operating costs related to the raw water system are fully recovered by means of a raw water volumetric rate, updated annually and included in Schedule 1. The volume of raw water supplied to each customer is metered and they are charged for this volume based on the approved raw water rate. On an ongoing basis the raw water rate fully recovers the costs associated with operating the raw water system, including pumping and main maintenance.

Capital costs related to construction, modifications or upgrades to the raw water supply are 100% recovered directly from the raw water customers. There are no capital costs in the raw water rate included in Schedule 1. In the case of the 1977 system serving the customer to the east of South Blair Street, the works were constructed by the customer and turned over to the Region. The cost of raw water system capital improvements which occur from time to time and carried out by the Region have been recovered using separate capital charges that were set up when capital work was carried out.

Raw Water System Components Reaching End of Life - An upgrade to the Whitby WSP is projected for 2022. The need for upgrades have been identified as part of ongoing asset management reviews. In particular the raw water pumping capacity at the Whitby WSP has reached end of life. This has led to a review of the raw water systems as part of the upgrade to the Whitby WSP.

As noted above the South Blair Street system is now planned to be decommissioned and thus no future upgrade investments will be needed on this system. The raw watermain running from the WSP to the property to the east is relatively new and does not need any work at this time.

Upgrades and an expansion to the Whitby WSP, where the remaining raw water pumping station is located, are planned. Capital investments will be required to replace the remaining raw water pumping facilities. For logistical reasons the raw water pumping station will need to be replaced before work can start on the upgrades and expansion at the Whitby WSP.

Due to the Whitby WSP upgrades and expansion and the work required on the raw water system, a review of raw water system related costs is necessary. The existing customer has been apprised of potential related raw water system conceptual capital costs. The project consultant for the Whitby WSP expansion will review the engineering

involved in the replacement of the raw water pumping station.

The recommended 2019 raw water rate has been increased relative to the current 2018 rate based on the impact of both reduced raw water consumption and operating costs. An increase in the raw water rate by 7.4% from \$0.301/m³ in 2018 to \$0.323/m³ in 2019 is recommended. The recommended raw water rate is shown in Schedule 1 – Recommended 2019 Water User Rates.

5.3 Recommended Sun Valley Heights Homeowners Co-operative Water System Charges (Schedule 3)

The recommended charges for the Sun Valley Heights Homeowners Co-operative Water System are provided in Schedule 3 – Recommended 2019 Water Rate for the Sun Valley Heights Homeowners Co-operative Water System.

- The charge is based on system actual costs and results in a recommended increase from \$1,656 annually in 2018 to \$1,692 annually in 2019 (\$138 to \$141 monthly), equivalent to an increase of about 2.2%.

The following provides background information on Sun Valley:

- The Sun Valley Heights Homeowners Co-operative water supply system is a privately owned water supply system servicing 17 individual residential properties in the City of Oshawa, north of Conlin Road and west of Thornton Road.
- On August 3, 2000, the Region of Durham was issued a Minister's order pursuant to Section 62 of the Ontario Water Resources Act to maintain and operate the existing private water system owned by Sun Valley Heights Homeowners Co-operative.
- The Region is currently operating the Sun Valley system in compliance with the order and requirements of Ontario Drinking Water Protection Regulation 170/03 (formerly Regulation 459/00). The costs incurred to operate and maintain the system are billed to each property owner on a quarterly basis.

5.4 Recommended Miscellaneous Fees & Charges (Schedule 4)

Water System By-law #89-2003 (as amended) and Sewer System By-law #90-2003 (as amended) establish a variety of fees and charges that the Region can use to recover the cost of providing day-to-day and individual services related to the Region's water and sanitary sewage systems.

Water and sewage systems rates, fees and charges for 2018 (current) and 2019 (recommended) are set out in Schedule 4 – Recommended 2019 Water & Sanitary Sewer Systems Miscellaneous Fees & Charges of this report. All fees and charges where changes are recommended are **bolded**.

The recommended 2019 fees and charges are based on tracking actual costs over time. Some fees remain unchanged from 2018 (these charges are not bolded) and others have been increased by about 2% in line with the combined water/sewage rate increase.

Specific considerations and circumstances warrant changes to the following fees and charges:

- **Items 1) & 2) Water Service Connection Related Charges** – Based on current construction costs these rates have been increased in the range of 10% to 19%.
- **Item 9) (Water) & 13) (Sanitary Sewer) Frontage Charges for Non-Standard Sizes and for Petitions** – The existing Water and Sewer System By-laws and the frontage charge categories set out in Schedule 4 do not necessarily reflect the Region's actual costs in cases of petitions or non-standard main sizes. Experience has shown that the costs can be significantly different. It is recommended that in the case of projects resulting from petitions and for non-standard sized mains built by the Region, cost recovery be based on actual costs. New items 9) and 13) have been added to effect this recommendation.

The addition of these two items in Schedule 4 also requires wording changes to Water System By-law #89-2003 (as amended) and Sewer System By-law #90-2003 (as amended) so that they conform to this approach. See Section 5.5 below for recommended By-law wording changes.

- **Items 10) to 12) & 14) to 16) Water & Sanitary Sewer Systems Frontage Charges** – Significant frontage charge increases recommended in the 2018 Water and Sanitary User Rates Report were tabled pending a more detailed review by Works and Finance staff. The detailed analysis has been completed. The recommended 2019 frontage charges are based on the first year of a 2-year 2019/2020 phase-in of the calculated costs.
- **Item 20) Unmetered Water used for construction (building purposes) per service** – The volume of water used during home or building construction up until completion and meters are installed, typically during subdivision construction, is charged to builders by means of the building purposes charge. The 2017 User Rate report set out a staged increase in the Building Purposes charge over the period 2017 to 2020. According to the plan the 2019 building purposes charge has been calculated based on 170 m³ water usage, with a level of 200 m³ planned for 2020. The phase-in is discussed in more detail in Section 7.4.1. For practical purposes, the 2019 rate is calculated using the known 2018 current 1st block rate. The recommended 2019 Building Purposes Charge based on 2018 rates and 170 m³ per unit is \$187.00.
- **Item 21) Drawing Regional water from hydrant for purposes other than fire protection** – Minimum charge per month has been recalculated based on one average (16 m³) truck fill per day.
- **Item 33) Lien Administration Fee** – Recommended fee has been reduced from current level due to a less costly process being available using the new billing system (planned to be introduced mid-2019).

- **Item 35) Backflow Prevention Program Survey Test Report** - Report #2018-COW-145, passed by Council in June 2018, set out a backflow prevention plan for the Regional water supply system to be implemented in January 1, 2019. By-law 24-2018 provides the details of the backflow prevention program. As part of this program, ICI and multi-residential customers are required to have backflow prevention devices on their water supply plumbing. Such customers will be required to submit an annual Cross Connection Control Program Test Report which is to be completed by a certified tester in order to verify the backflow prevention devices are in good working order. The recommended 2019 Regional fee to accompany the Cross Connection Control Program Test Report is \$25.00. This is a new fee. Information on this program is provided in more detail in Section 7.5.

5.5 Recommended Wording Additions to Water System By-law #89-2003 (as amended) and Sewer System By-law #90-2003 (as amended)

Water System By-law #89-2003 (as amended) and Sewer System By-law #90-2003 (as amended) set out the parameters for recovering the cost of providing customers with water and sanitary sewer system services. PART VI of both By-laws deals with frontage charges for the recovery of the cost of existing or new mains fronting on a property where no previous direct contribution to the capital cost of the main has been made in relation to a lot. Standard watermain charges for mains 150-mm, 200-mm and 300-mm size are set out in Schedule “E” of the Water System By-law. Standard sanitary sewer main charges for sewers 200-mm, 250-mm and 300-mm sizes are set out in Schedule “D” of the Sewer System By-law.

The following wording changes to the Water and Sewer System By-laws are recommended in order to fairly recover the Region’s costs related to larger main sizes not set out in the relevant Schedules (should they be required for a customer) and for projects initiated due to petition. Subsequent clauses would not need to be renumbered.

Recommended wording:

- Water System By-law #89-2003 (as amended) – New Clause 31. (3) - Frontage charges for watermain sizes not specified in Schedule “E” or for projects initiated by petition shall be based on actual cost.
- Water System By-law #89-2003 (as amended) – Schedule “E” – Wording of Clause 1 to be amended by adding the underlined words to the second sentence: “Customers requiring non-standard sized mains and for projects initiated by petition shall be charged actual cost.”
- Sewer System By-law #90-2003 (as amended) – New Clause 29. (3) - Frontage charges for Sanitary Sewer sizes not specified in Schedule “D” or for projects initiated by petition shall be based on actual cost.
- Sewer System By-law #90-2003 (as amended) – Schedule “D” - Wording of Clause 1 to be amended by adding the underlined words to the second sentence: “Customers requiring non-standard sized mains and for projects initiated by petition shall be charged actual cost.”

5.6 Recommended Regional Environmental Laboratory Charges (Schedule 5)

The Regional Environmental Laboratory is located at the Duffin Creek WPCP. The lab ownership is shared with the Region of York. The lab is operated by Durham Region with costs and revenues part of the Region's Duffin Creek WPCP operating budget. The laboratory operating costs are to be fully recovered from fees and charges. There are no changes recommended to the existing 2018 fee schedule for 2019.

The recommended charges for laboratory services are set in Schedule 5 – Recommended 2019 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory Located at the Duffin Creek WPCP.

6 Customer Impact

6.1 User Rate Impact on Customers of Various Sizes

Water and sewer charges to various sized customers are provided in [Exhibit 12](#).

Exhibit 12 Rates Impact on Customers of Various Sizes

Customer Category			2018 Billing			2019 Billing			Increase			
Gallons/yr	m ³ /year	Meter Size	Water	Sewage	Total	Water	Sewage	Total	Water	Sewage	Total	%
Quarterly Billings (\$/qtr)												
20,000	91	Standard Meter	80.44	60.71	141.15	81.31	62.29	143.60	0.87	1.58	2.45	1.7
48,510	220.5	Avg Std Meter	116.07	117.73	233.80	117.33	120.79	238.12	1.26	3.06	4.32	1.8
60,000	273	Flat Rate	130.43	140.72	271.15	131.85	144.38	276.23	1.42	3.66	5.08	1.9
100,000	455	Standard Meter	180.42	220.74	401.16	182.40	226.47	408.87	1.98	5.73	7.71	1.9
Bimonthly Billings (\$ bimonthly)												
100,000	455	Standard Meter	120.28	147.16	267.44	121.60	150.98	272.58	1.32	3.82	5.14	1.9
200,000	909	Standard Meter	406.18	619.76	1025.94	410.64	635.86	1046.50	4.46	16.10	20.56	2.0
5 million	22,730	2" Meter	3,902	5,900	9,802	3,946	6,054	10,000	44	154	198	2.0
50 million	227,270	4" Meter	34,442	51,590	86,032	34,822	52,932	87,754	380	1,342	1,722	2.0
150 million	681,820	6" Meter	100,530	150,206	250,736	101,636	154,114	255,750	1,106	3,908	5,014	2.0

6.2 User Rate Impact on Average Residential Customer

The impact on a typical residential customer of the proposed 2019 water and sewage user rate charges are shown below in Exhibit 13.

Exhibit 13 Rates Impact on Average Residential Customer

	Water Rate Increase = 1.1%			
	Sewer Rate Increase = 2.6%			
	Combined Increase = 1.8%			
	Billings		Increase	
	2018	2019		
	(\$)	Proposed		
		(\$)	(\$)	(%)
Based on 48,510 gal/year (220.5 m³/yr) Consumption				
Water	116.07	117.33	1.26	1.1%
Sewage	117.73	120.79	3.06	2.6%
Total (\$/quarter)	233.80	238.12	4.32	1.8%
Annual Billing (\$/year)	935.20	952.48	17.28	1.8%
Impact of Reduced Base Usage on an Average Customer				
5-YR Average Consumption Reduction =		(1,660)	gallons/cust/year	
		(7.5)	m³/cust/year	
Average Water + Sewage Bill Savings =		(\$22.02)	\$/year or -2.4%	

A residential customer who used the same projected annual average residential per customer consumption of 220.5 m³ (48,510 gallons) in both 2018 and 2019 would have a bill increase of 1.8%.

However, if a customer reduces consumption in line with the 5-year average of 7.5 m³ /customer/year (1,660 gallons) (see Section 3.4), the water/sewage bill would be 0.6% lower (1.8% - 2.4% = combined impact of rate increase and consumption decrease).

6.3 User Rate Impact on 25 Largest Customers

Using actual 2017 consumption levels, the impacts on the Region's 25 largest customers of the recommended 2019 user rates, compared with existing 2018 user rates, are provided in Exhibit 14.

Exhibit 14 Rates Impact on 25 Largest Users (Using 2017 Actual Consumption Data - \$/year)

										Water Rate Increase = 1.1%	
										Sewer Rate Increase = 2.6%	
Rank	2017 Consumption		2018 Rates			2019 Rates			Combined Increase		
	(m ³)	(000 gal)	Water	Sewage	TOTAL	Water	Sewage	TOTAL	\$	%	
			(\$)	(\$)	(\$)	(\$)	(\$)	(\$)			
1	2,331,630	512,960	2,013,590	3,048,870	5,062,460	2,035,780	3,128,220	5,164,000	101,540	2.0%	
2	499,590	109,910	440,490	664,020	1,104,510	445,340	681,300	1,126,640	22,130	2.0%	
3	482,480	106,150	425,810	641,780	1,067,590	430,500	658,480	1,088,980	21,390	2.0%	
4	352,700	77,590	314,340	472,790	787,130	317,810	485,090	802,900	15,770	2.0%	
5	336,330	73,990	300,290	451,480	751,770	303,600	463,230	766,830	15,060	2.0%	
6	333,840	73,440	298,140	430,980	729,120	301,430	442,200	743,630	14,510	2.0%	
7	275,750	60,670	248,300	372,670	620,970	251,040	382,370	633,410	12,440	2.0%	
8	184,340	40,550	169,770	253,620	423,390	171,650	260,220	431,870	8,480	2.0%	
9	174,610	38,410	161,420	240,960	402,380	163,200	247,230	410,430	8,050	2.0%	
10	145,100	31,920	136,090	202,560	338,650	137,590	207,830	345,420	6,770	2.0%	
11	144,170	31,720	135,310	201,370	336,680	136,800	206,610	343,410	6,730	2.0%	
12	143,900	31,660	135,080	201,020	336,100	136,570	206,250	342,820	6,720	2.0%	
13	134,800	29,660	127,270	113,510	240,780	128,670	116,460	245,130	4,350	1.8%	
14	129,360	28,460	122,590	182,080	304,670	123,940	186,820	310,760	6,090	2.0%	
15	104,440	22,980	101,200	149,660	250,860	102,320	153,550	255,870	5,010	2.0%	
16	103,220	22,710	100,140	400	100,540	101,250	410	101,660	1,120	1.1%	
17	89,550	19,700	88,400	7,820	96,220	89,370	8,020	97,390	1,170	1.2%	
18	84,600	18,610	84,140	123,800	207,940	85,070	127,020	212,090	4,150	2.0%	
19	81,870	18,010	81,800	120,250	202,050	82,700	123,380	206,080	4,030	2.0%	
20	80,080	17,620	80,280	117,940	198,220	81,160	121,010	202,170	3,950	2.0%	
21	71,660	15,770	73,060	107,000	180,060	73,860	109,780	183,640	3,580	2.0%	
22	71,590	15,750	72,980	106,880	179,860	73,790	109,660	183,450	3,590	2.0%	
23	70,810	15,580	72,320	105,870	178,190	73,110	108,630	181,740	3,550	2.0%	
24	65,070	14,320	67,400	98,420	165,820	68,140	100,980	169,120	3,300	2.0%	
25	60,450	13,300	63,420	92,380	155,800	64,120	94,780	158,900	3,100	2.0%	
Total	6,551,940	1,441,440	5,913,630	8,508,130	14,421,760	5,978,810	8,729,530	14,708,340	286,580	2.0%	

Note: Highlighted customers have reduced sewage charges (sewer appeals).

Note that most large customers will have a combined water/sewage bill increase 2.0%. This percentage is higher than the average residential increase of 1.8% because large customer bills are more influenced by the higher sewage rate increase (the volumetric rate is more dominant for sewage than for water).

There are four (4) customers among the top 25 users that have reduced sewage charges. These customers have significant water usage that does not discharge to the sanitary sewer. They are billed for sewage based on this lower volume. For these, the sewage rate is less of a factor since their sewage volume billed is less than the water volume billed.

6.4 Durham's User Rates Compared with Other Ontario Municipalities

6.4.1 Background on User Rate Formats

A water and sewage rates survey was conducted for 20 municipalities (including Durham) across Ontario. The 2018 rate information, the most recent available for all municipalities, is used for this comparison.

Durham owns and operates water and sanitary sewer systems that range from large urban areas in the south to smaller urban areas in the rural north. The survey includes 12 other larger municipalities (see [Exhibit 16](#)) that offer a comparison for Durham's southern tier systems as well as 7 nearby smaller municipalities (see [Exhibit 17](#)) which might be of more interest to customers in Durham's smaller systems.

Water and sewage rate structures typically include a service charge and a volumetric charge. The rate structures used in each municipality are designed and approved locally. There are no Provincial regulations related to municipal water and sewage rate structures. The survey found very little consistency across the province in terms of rate structures used in the various municipalities.

Service charges fall into three categories:

- **Single Rate** - All customers pay the same service charge.
- **Rate Based on Meter Size** - Service charge based on customer meter size. A higher rate is applied for larger meters.
- **No Service Charge** – Charges are based solely on volume of water used.

Volumetric charges fall into four categories. Customer meter readings are used to calculate the volumetric charges. All municipalities surveyed have volumetric rates. The volumetric rate formats are mostly the same for all customers in a municipality, but vary in some municipalities between residential and non-residential customers:

- **Single Block Rate (SBR)** – The same rate is charged for all usage.
- **Increasing Block Rate (IBR)** – Rates increase in steps as usage increases (normally targets higher residential usage).
- **Declining Block Rates (DBR)** – Rates decrease in steps as usage increases (normally for non-residential only).
- **Humpback Rates (HBR)** – Consumption blocks initially increase and then decrease as consumption increases.

The following is a summary of how often the different rate structures were encountered in the survey:

Exhibit 15 Summary of Rate Structures Used in 20 Surveyed Municipalities

Description	Residential		ICI	
	Number	%	Number	%
Service Charges				
Based on Meter Size	15	75%	18	90%
Single Charge	3	15%	0	0%
No Service Charge	2	10%	2	10%
Total	20	25%	20	10%
Volumetric Rates				
Single Block Rate	12	60%	10	50%
Declining Block Rate	1	5%	6	30%
Increasing Block Rate	6	30%	4	20%
Humpback Rate	1	5%	0	0%
Total	20	100%	20	100%

- **Service Charges** – Most municipalities (90%) include a service charge (either a single rate or one based on meter size) as part of their water rates. Only Toronto and Peel have consumption-only rates. No differentiation is made by them between residential and ICI customers.
- **Residential Volumetric Rates** – The majority (60%), including Durham, charge single block rates to residential customers. Another 35% essentially charge increasing block rates (including the 5% using humpback rates). One charges declining block rates.
- **ICI Volumetric Rates** – The largest category is single block rates at 50% of municipalities. Declining block rates is the next most prevalent at 30%. Increasing block rates are used in 20% of the municipalities. Although London has humpback rates, they are essentially declining block rates for ICI since the rates decline compared to the first block after 35 m³/month. They initially increase for small usage volumes.

Other features:

- **Sewer Charged Based on Water Usage** – All surveyed municipalities base sewage charges on water consumption.
- **Allowance for Seasonal Usage on Sewage Bill** – The majority bill sewage year-round based on water consumption. For residential only, Peel deducts 15% from water usage when calculating the sewage bill. Windsor bills for sewage in the summer based on a customer's winter usage. This is feasible because Windsor bills residential customers monthly based on actual meter readings. Barrie caps the sewage charge at 45 m³ monthly which would only benefit large water users.

➤ **Universal Metering** - All surveyed municipalities are metered.

Note that Durham does not recover water and sewage costs from the property tax levy. Some municipalities may use property taxes to recover a portion of water and sewage costs with the result that the user charge comparison may not pick up all of the water and sewer costs paid by customers in the other municipalities.

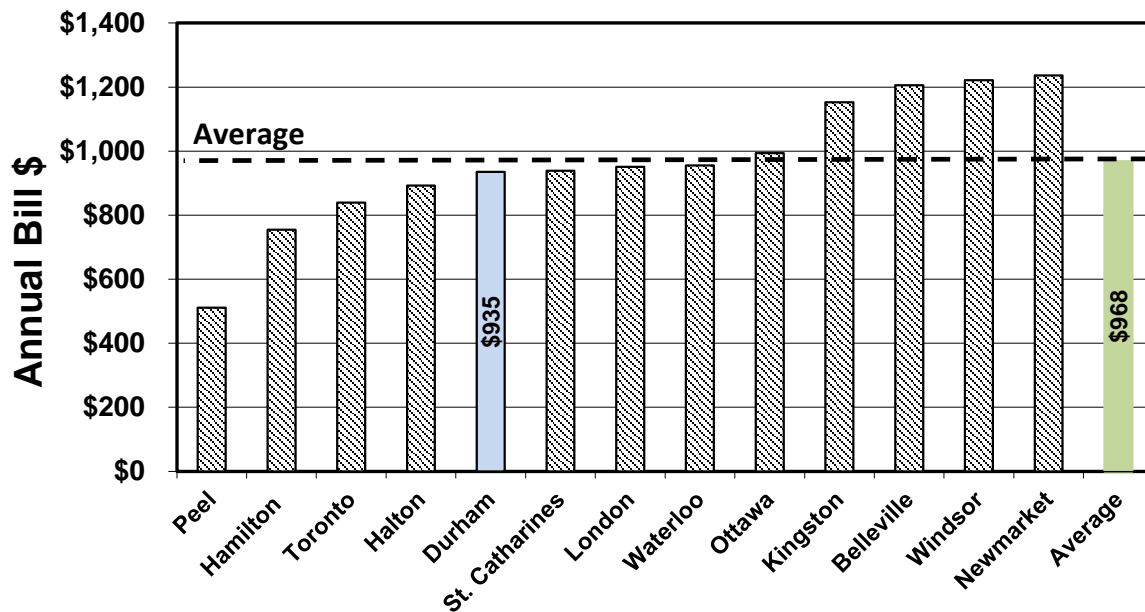
6.4.2 Residential Customer Impact

The analysis is based on a customer using 220.5 m³/year (48,510 gallons/yr). This represents the projected usage by a typical 2019 Durham residential customer. It is about 19 m³/month/customer (4,100 gal/month/customer).

Large Municipalities - Most of the municipalities, like Durham, have sole responsibility for water and sewage. Three, the City of Waterloo (in Waterloo Region), the Town of Newmarket (in York Region) and St. Catharines (in Niagara Region), are part of two-tier utilities. In these three municipalities the upper tier regions are responsible for major facilities such as treatment, water storage and trunk mains. The lower tier local municipalities are responsible for local facilities, such as distribution mains and local sanitary sewers as well as the customer billings.

Comparative charges are graphed in Exhibit 16.

Exhibit 16 Comparative 2018 Residential Water/Sewage Charges (220.5 m³/year) – Large Municipalities

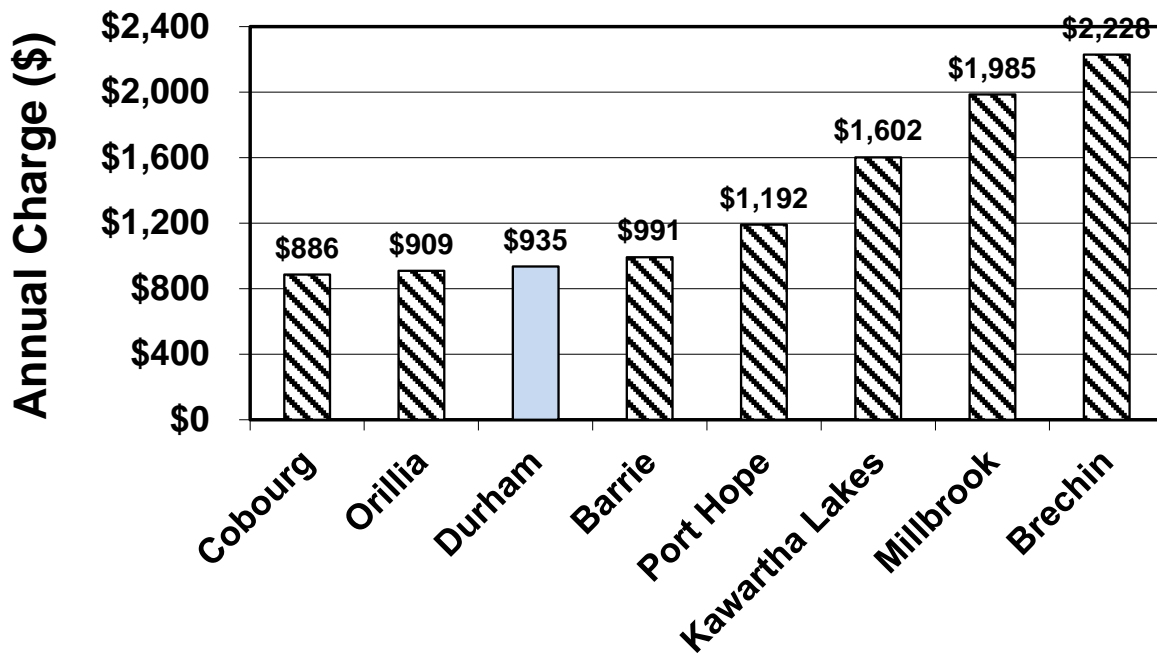


Durham is the fifth lowest out of the 13 in the survey.

The overall average 2018 combined water and sewage bill for 220.5 m³ (48,510 gallons) annual consumption is \$968 per year compared to \$935 in Durham.

Neighbouring Municipalities - Typical 2018 charges to a residential customer have also been calculated for seven neighbouring communities - see [Exhibit 17](#).

Exhibit 17 Comparative 2018 Residential Water/Sewage Charges (220.5 m³/yr) – Neighbouring Municipalities

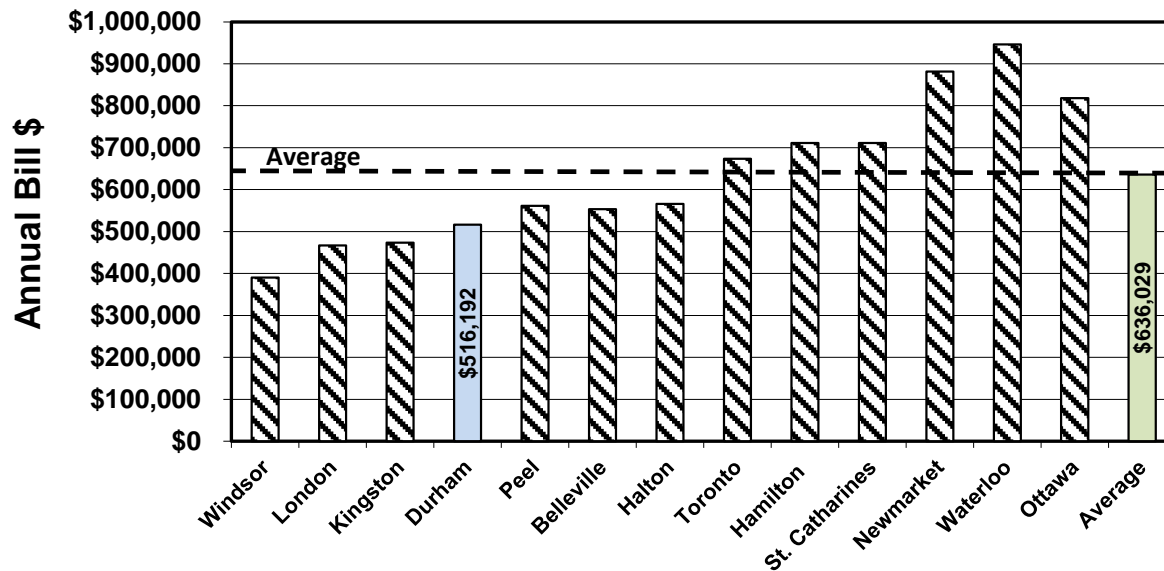


Durham is at the low end of user rate charges. Comparisons are sometimes made difficult because of the use of the property tax to recover some costs in other municipalities. For example, Cobourg recovers some sewage costs from property taxes.

6.4.3 Large Customer Impact

The analysis is based on 227,272 m³/year (50 million gallons). This is a large water user and may not exist in some of the municipalities in the comparison. In Durham it would represent the 8th largest customer. Comparative charges are graphed in [Exhibit 18](#).

Exhibit 18 Comparative 2018 Large Industry Water & Sewage Charges (227,272 m³/yr) – Large Municipalities



Durham was the fourth lowest out of the 13 in the survey. The overall average combined water and sewage bill for all the municipalities surveyed was \$636,029 per year compared to \$516,192 in Durham.

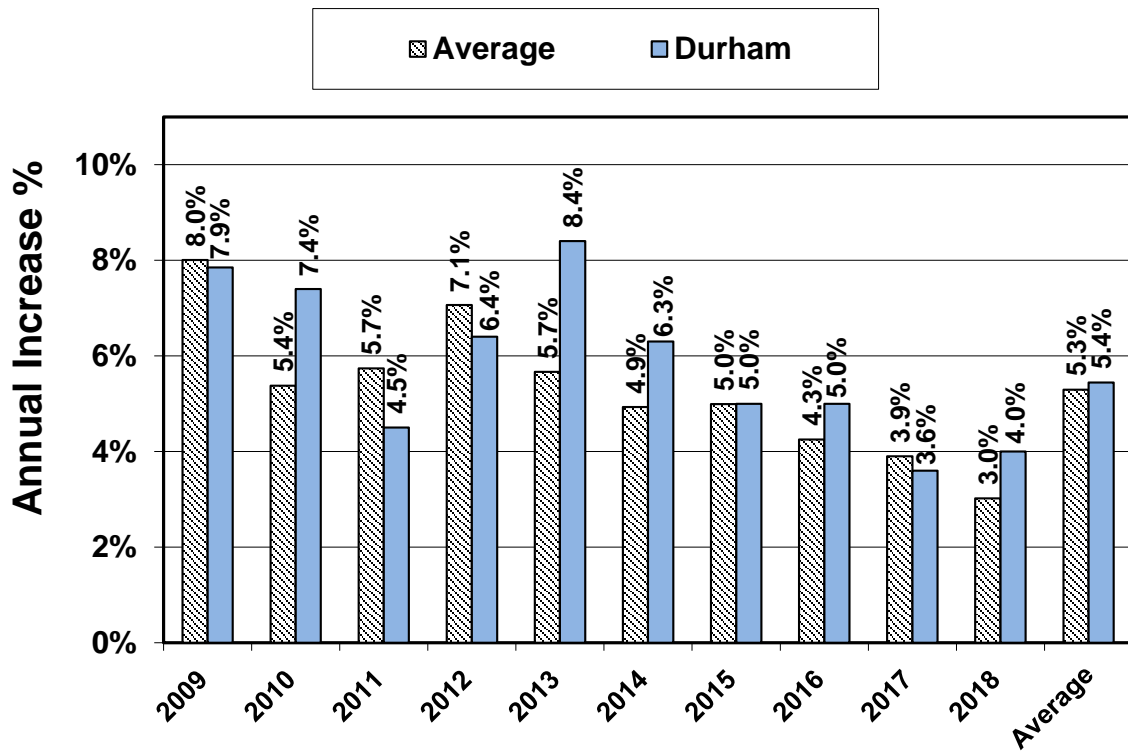
No comparative analysis was done for small local municipalities since most, if not all, would not have customers with this level of consumption.

6.4.4 Historical Rate Increases

Province Wide - The Walkerton tragedy forced municipalities and the province to recognize growing infrastructure deficiencies. Ontario municipalities have needed to increase water and sewage user rates in order to fund ever increasing regulatory requirements as well as investments needed to fund infrastructure replacement needs. Rate increases also need to be incorporated to offset decreased water usage.

Average water and sewage rate increases faced by customers using 220.5 m³/year (48,510 gallons) in the 13 larger municipalities surveyed are graphed in Exhibit 19. Note that since average consumption per customer is generally falling over time, the actual impact on customer bills would be less than shown since decreasing usage would offset some of the increase due to higher rates.

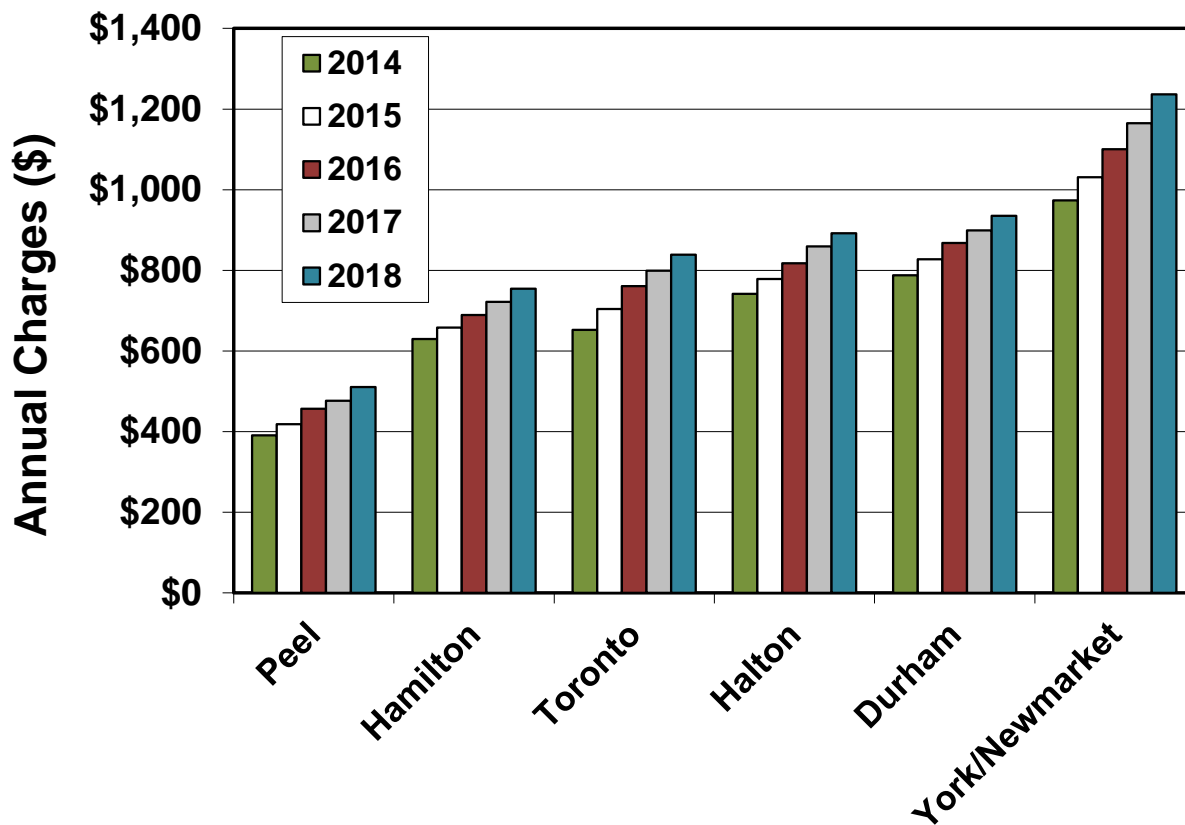
Exhibit 19 Comparative 2009 to 2018 Residential Water/Sewage Rate Increases (220.5 m³/yr) – Large Municipalities



The average annual combined water and sewage rate increase for all of the municipalities was 5.3% for the 10-year period. Durham’s average was approximately 5.4% annually.

GTA - Combined water and sewage user rate increases over the past five years in nearby Regions are graphed in [Exhibit 20](#). The analysis is based on a customer using 220.5 m³/year (48,510 gallons).

**Exhibit 20 Comparative 2014 to 2018 Residential Water/Sewage Charges
(220.5 m³/yr) – GTA**



Durham is above average in terms of level of charges in this group.

The following observations are made:

- Peel is dominated by a single, very large municipality with major Lake Ontario treatment plants and as a result has lower rates than the other nearby regions (including Durham which has many local small systems).
- Peel, Toronto and Hamilton have either a single large metropolitan area or are anchored by one. This leads to economies of scale that Durham cannot match with its many diverse systems which service a large geographic area (the largest in the GTA).
- Halton is perhaps closest to Durham in that it has multiple water and sewage systems (although less than half of Durham's) and has adopted rate increases lower than the norm in recent years.
- Newmarket is responsible for distribution of water and collection of sanitary sewage from its customers. Water supply and wastewater treatment are provided by York Region.

6.4.5 Summary

The adoption of declining block rates by Durham was based on an analysis of the actual cost of supplying these customers and due to Durham's sole jurisdiction over the complete water and sanitary sewer systems. As a result, Durham's stepped metered rate blocks result in lower rates for large volume ICI consumption, which is advantageous to industrial customers while being fair in terms of cost recovery. Municipalities which only have jurisdiction over local systems must purchase water at one wholesale rate, leaving less scope for passing on cost savings related to large volume supply to the customers. As a result, the charges in these municipalities are amongst the highest for large customers. Conversely, these municipalities have lower charges for the smaller volume customers.

Water and sanitary sewage systems have faced rapid growth for years. When infrastructure is new, maintenance and replacement costs are relatively low. However, over time, increasing investment is needed to refurbish and replace aging infrastructure. In addition, upgrades are needed to meet more stringent regulations. The end result is that most systems must increase investments to reach sustainable levels. Since 2002, Durham and most other municipalities has found it necessary to implement higher annual rate increases than were previously needed.

Annual rate increases for the 13 other municipalities discussed in Subsection 6.4.4 have been provided covering 2009 to 2018. The average annual water and sewage rate increase of the 14 municipalities over the 10-year period has been 5.3% per year compared with Durham at 5.4% (see Exhibit 19).

Although Durham's rates are established based on Durham's systems investment needs, and not in reference to others, it is noted that the other municipalities have been facing the same challenges of increasing funding of water and sewage systems to sustainable levels while experiencing decreased consumption and have been increasing rates in a similar manner.

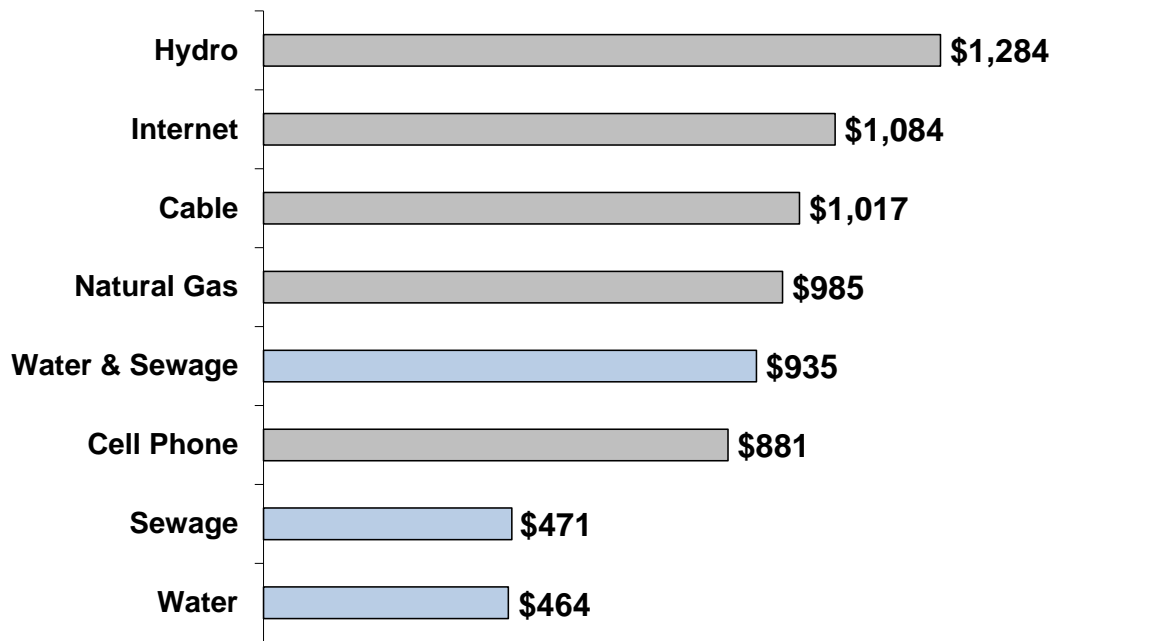
6.5 Durham's Average Residential Water & Sanitary Sewer Charges are Much Less Than Typical Hydro, Gas, Telephone or Cable Television Services

Information was gathered on local residential electricity, natural gas, cable television, high speed internet, cellular phone and home telephone rates and compared with the Region's water and sewer rates. Note that the survey provides typical bills for each service. Individual customers will often have a different mix of services (such as no home land line phone). The survey is meant to give a general idea of utility costs.

The "most popular" option has been priced below where that option is indicated by the supplier. There is a wide range of prices for some services.

Representative 2018 annual residential utility charges in Durham (Oshawa rates used) are graphed in Exhibit 21.

Exhibit 21 Typical Durham Residential Utility Charges 2018 (graph)



The components of a total annual bill for a representative residential customer are as shown in [Exhibit 22](#).

Exhibit 22 Typical Durham Residential Utility Charges 2018 (table)

Utility	Basis of Comparison	Annual Bill (\$)	% of Annual Utility Bills
Hydro	Cooling, appliances, lighting, etc.	\$1,284	20.9%
Internet	One level above basic - 50 Mbps download	\$1,084	17.5%
Cable	Basic package – no movies	\$1,017	16.4%
Natural Gas	Home & hot water heating	\$985	15.9%
Cell Phone	Basic service with long distance package	\$881	14.2%
Sewage	Average residential use - 220.5 m ³ /year	\$471	7.6%
Water	Average residential use - 220.5 m ³ /year	\$464	7.5%
Total		\$6,185	100.0%

The **total combined water and sewage billing** for this residential customer represents only about 15.1% of the total utility charges incurred in a typical home. Water and sewage charges combined are less than most other individual utility services.

7 Other Issues

7.1 Water Meter Investment Plan

Water meters are used to determine the volume of water used by customers so that they can be billed for the amount of water they actually use based on the approved Regional user rates. About 68% of 2018 combined water and sewage billings are volume-based representing about \$140 million in revenue. The balance of water and sewer billings are fixed charges including service charges and unmetered fire line charges.

The Region places a high priority on water meter accuracy. Meter accuracy is very important from a fairness viewpoint as well as considering the amount of revenue dependent on their accuracy. Accuracy must be maintained at a high level in order to ensure that customers are billed fairly and the Region is recovering the cost of providing customers with water and treating sewage. A change of only 1% in overall meter accuracy represents about \$1.4 million in revenue.

The Region's Quality Standards set out water meter replacement and maintenance criteria. Durham's water meter accuracy targets are based on a combination of actual meter testing and criteria set by of the American Waterworks Association (AWWA) – the organization which sets technical standards used by the potable water supply industry in North America.

The Region's water capital budget includes \$3.1 million annually for the customer water metering program. In addition, the water operating budget includes about \$0.6 million for meter maintenance and testing. These levels are based on the funding required to maintain the following:

- **New Customers** - Installation of meters for new customers.
- **Meter Replacement** - Replacement of meters up to 51-mm size (2-inch) on a cycle based on accuracy considerations. Testing programs have been carried out to determine the optimal replacement cycle. "Standard Meters" – those installed in most locations – are targeted for replacement on a 20-year cycle. Meter replacement has been found to be more economical than meter repair for such meters. Due to an increase in user-rate supported capital funding in 2011 there has been a steady improvement towards meeting Regional meter replacement standards. This focus on replacing difficult overdue meters has lowered the level of overdue meter replacement from 6.4% in 2012 to about 2% this year. It is expected that the Regional standard will be achieved to the extent feasible in 2019.
- **Meter Testing & Replacement** – Due to the magnitude of revenues involved, larger meters (larger than 51-mm or 2-inch) are tested and maintained frequently (every 6 months for the largest) in accordance with the Region's Quality Standards.
- **Remote Reading** – The program includes investments in upgrading meter reading capability to allow fully remote readings.

Note that the Region does not levy an extra charge to individual customers for the installation of new or replacement meters or for remote reading devices. The cost of the metering capital program is recovered as part of the Regional water service charges.

7.2 Residential Water Meter Reading Status Update

Residential customer meters are read quarterly. The readings are obtained in one of two ways:

1. **Self-Assessment** - For three readings a year, self-assessment cards are mailed to customers requesting that they read the water meter and phone in the readings to the Region's TeleRead System. There is a customer response rate of approximately 65% using this self-assessment method to obtain water meter readings. The remaining 35% of the related billings where the customer does not provide readings are based on estimates.
2. **Meter readers** – Meter readers are scheduled to obtain one meter reading per year and consequently actual readings are obtained. Approximately 90% of locations have remote reading capability. The remaining 10% of locations have direct read only meters where the reading must be taken from the meter itself and which require access to premises to read the meter. Only about 10% of the time are meter readers able to gain access to obtain readings from direct read meters. The Region has been installing remote readers on direct read meters in order to reduce their number to the minimum feasible. Self-assessment cards are left when no reading is obtained by the meter reader.
 - When first adopted, the Region's residential customer self-assessment meter card program had a high participation rate and low cost compared to inside meter readings taken by meter readers.
 - With lower customer participation (currently 65% response despite promotion programs), higher costs (including postage rate increases) and low accessibility for meter readers to inside-read meters, the Region has been installing remote read devices ("remotes") on new and replacement meters so that meter readings can reliably be obtained by meter readers from outside the premises.
 - In order to achieve remote reading capability for all water meters, since 2013 the Region has been upgrading direct read meters not due for replacement with remote reading devices. Remote reading capability for all water meters is expected to be completed in 2019.
 - The Region's standard remote is a "ProRead" terminal mounted on an outside wall and connected to the meter by wire. The Region also has Radio Frequency (RF) remotes which are mounted near a meter and do not require a wire to be run outside. ProRead remotes must be physically contacted to obtain a reading. The RF remotes can be read wirelessly from the street.
 - The ProRead wiring is not always feasible to install in finished basements. The RF remotes have been found to be a less intrusive option for customers. RF remotes are being installed as needed to allow all water meters to be remotely readable.

- RF remotes use the same technology as other common household devices such as cordless phones, garage door openers, internet routers and TV/VCR/DVD remotes and are similarly subject to Health Canada Safety Code 6 guidelines.

The breakdown of success by meter readers of obtaining actual readings for the period 2011 to 2017 is provided in [Exhibit 23](#).

Exhibit 23 Meter Reader Residential Success

Year	Meter Reader Success			Read
	Total Attempts	Reading Obtained	Card Left	Success Rate %
2011	263,807	165,459	98,348	63%
2012	272,540	167,192	105,348	61%
2013	278,433	167,009	111,424	60%
2014 (1)	166,327	110,298	56,029	66%
2015	170,384	125,385	44,999	74%
2016	173,734	142,055	31,679	82%
2017	173,482	153,334	20,148	88%

Note (1) Actual readings reduced during labour disruption.

Due to rising postal costs as well as remote meter reading technological advances obtaining actual meter readings by meter readers is now less expensive than the self-assessment program.

The completion of the installation of remote readers will allow residential billing districts to move from self-assessment cards to meter readers obtaining all quarterly readings. This will result in actual readings being available for all billings, eliminating the estimates which are currently necessary when customers do not provide their self-assessment readings. It is expected that this transition will be implemented in stages once the new billing system is in operation.

Remote reading capability will also facilitate future plans to read/bill more frequently (e.g. quarterly to bi-monthly for residential customers).

Bimonthly billed customers (ICI) have over 98% actual readings due mostly to the vast majority having remotes installed.

7.3 Water System Losses Update

The traditional approach to expressing water system losses is “unaccounted for water” (UFW). A more recent term is “non-revenue water” (NRW) which highlights the fact that water loss is not sold and does not produce revenue. The two terms are synonymous.

Durham's NRW in recent years has varied between 14% to 15% and for 2017 NRW was 15.4% - see [Exhibit 4](#).

The use of NRW as a measure of water system performance, although common, is of limited use as it does not take in account the diversity of infrastructure in each municipality. The International Water Association (IWA) has developed and the American Water Works Association (AWWA) recommends a more comprehensive

approach which takes into account individual system characteristics. The IWA recommends a process be followed which they refer to as the Standard Water Balance. It breaks water losses into a number of categories in order to better understand the nature of the losses – see Exhibit 24.

Exhibit 24 IWA Standard Water Balance Terminology

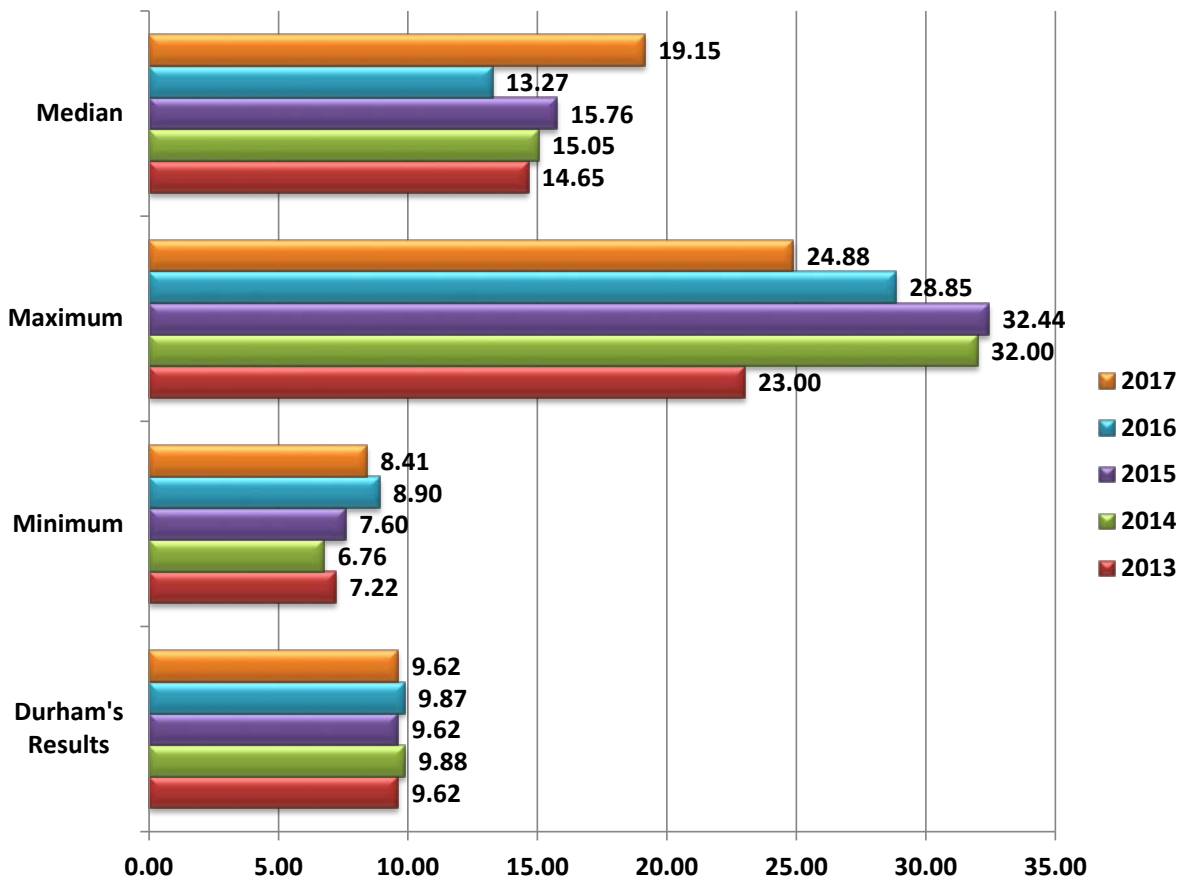
System Input Volume	Authorized Consumption	Billed Authorized consumption	Billed Metered Consumption	Revenue water
			Billed Unmetered Consumption	
		Unbilled Authorized Consumption	Unbilled Metered Consumption	Non Revenue Water (NRW)
			Unbilled Unmetered Consumption	
	Water Losses	Apparent Losses	Unauthorized Consumption	
			Metering Inaccuracies	
		Real Losses	Leakage on Transmission and/or Distribution Mains	
			Leakage and Overflows at Utility's Storage Tanks	
Leakage on Service Connections up to point of Customer Metering				

The IWA/AWWA methodology is now an industry recognized standard approach and has been utilized to assess water losses in Durham Region. Water Loss performance measures such as the Infrastructure Leakage Index (ILI) and NRW per kilometre of mains were calculated first during the Water Loss Control Strategy Report based on 2006 data and have been repeated annually by Regional staff.

Durham Region is a long term participant in the Municipal Benchmarking Network Canada (MBN) which facilitates comparison of statistical data with other municipal jurisdictions in Ontario.

One performance measure used by MBN is NRW per kilometre of main. This is a measure which expresses total water losses, but takes into account density or spread of the water service in a municipality. For example NRW for systems in similar condition would be higher for a spread-out municipality than for one more densely developed. A graph of NRW per kilometre of main from the MBN survey for 2013 to 2017 is provided in Exhibit 25.

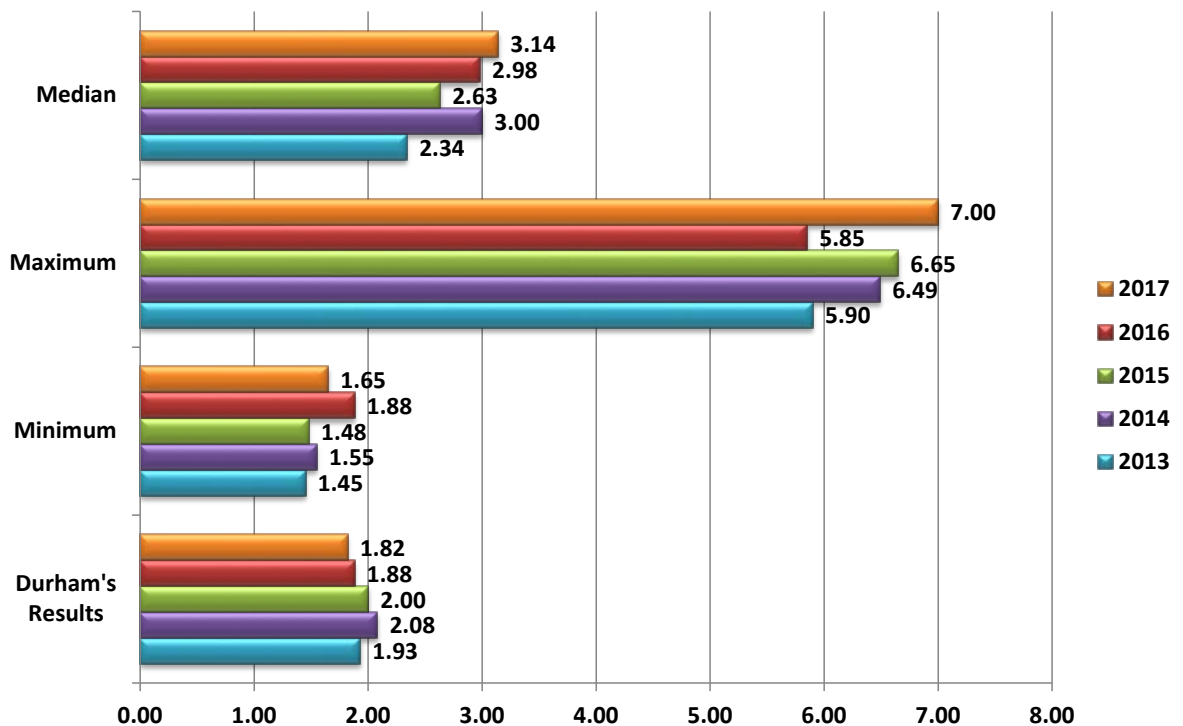
Exhibit 25 NRW in m³/km of Main per Day (MBN data)



Durham's 2017 NRW versus main length of 9.62 m³/km of mains is much lower than the median level of 19.15, putting the Region in the bottom third of the survey.

Another performance indicator which takes a number of factors into account is the Infrastructure Leakage Index (ILI). A lower number indicates better performance. See [Exhibit 26](#) for the 2013 to 2017 survey results.

Exhibit 26 Infrastructure Leakage Index ILI (MBN data)



The 2017 Infrastructure Leakage Index (ILI) for Durham was calculated to be 1.82, lower and thus better than the median of 3.14.

These performance measures indicate that system investment and operational practices are resulting in generally improved results. Given that infrastructure continues to age, investments and operational efforts will have to be continuing on an ongoing basis.

7.4 Bulk Water

In addition to the potable water supplied through meters installed in premises, water is also supplied from bulk water supply locations, hydrants and unmetered services in new subdivisions. The water is put to various uses such as building construction, landscape watering and pool filling from tanker trucks. There are three charges in [Schedule 4: Water and Sanitary Sewer Systems Miscellaneous Fees and Charges](#) which are intended to recover bulk water costs:

- Item 20) Unmetered water used for construction (building purposes)
- Item 21) Drawing water from hydrants for purposes other than fire protection
- Item 35) Water from Water Supply Plants, Water Pollution Control Plants, Works Depots & Bulk Filling Stations

The following sections outline strategies that have been developed in order to improve the delivery of bulk water to customers as well as tracking and cost recovery of the above bulk water usage.

7.4.1 Building Purposes Charge

Regional water from local watermains is used during the construction of subdivisions by builders prior to the installation of water meters in homes. Since the water is not metered, in order to recover the cost of providing the water, the Region levies a lump sum Building Purposes (BP) Charge for each water service. The charge is Item 20) of Schedule 4: Water and Sanitary Sewer Systems Miscellaneous Fees and Charges.

The purpose of the BP Charge is to recover the cost of unmetered Regional water used by builders during construction.

The BP Charge is levied for new residential development. It is charged against residential single family dwellings that are subject to Subdivision Agreements. This type of development typically has meters installed when house construction nears completion, so the bulk of construction water usage goes unmetered. The water used not only relates to the homes themselves but to construction in common areas.

BP Charges are not levied for multi-unit residential (such as condominiums), one-off home construction, model homes (which should have meters installed early on) nor non-residential (commercial/industrial).

The BP Charge is a one-time charge that is billed to the builder as a final bill on an individual home basis. It is billed when a meter is installed and after a new account is set up and the new home is transferred to a new homeowner.

Anecdotal observations of water usage at construction sites indicates that water usage is much higher than is covered by the BP Charge. However, unfortunately the actual volume of water delivered by watermains to a subdivision under construction is not known. It is not feasible to obtain this information because water systems are a network of pipes with multiple possible supply directions, none of which is bulk metered.

There is one subdivision serviced by a metered pumping station where it has been possible to determine the volume of water supplied to the area under construction. The metering data from that subdivision is being monitored and analyzed. Initial indications are that water used for building purposes is well in excess of 200 m³ (44,000 gallons).

In order to more closely recover the cost of unmetered water used in residential construction a phase-in plan was developed starting in 2017 with the target 200 m³ reached in 2020 based on the consumption levels shown in the adjacent table.

Year	m ³	gal	\$/m ³	Charge \$
2017	110	24,200	\$0.000	\$0
2018	140	30,800	\$0.000	\$0
2019	170	37,400	\$1.100	\$187
2020	200	44,000	Pending	Pending

The recommended 2019 BP Charge of \$187.00 per water service is equivalent to 170 m³ (37,400 gallons)¹ and is discussed as part of the 2019 Miscellaneous Charges in Section 5.4.

Where feasible, further monitoring of new subdivision construction water volumes will be carried out as the opportunity arises.

7.4.2 Bulk Filling Stations & Fire Hydrants

The Region of Durham currently provides bulk water at five existing bulk water filling stations and by the issuance of hydrant permits for use of fire hydrants.

Bulk Water Filling Stations - The Region currently has five bulk water filling stations (built in the early 1970s) which are available to water haulers. Their locations are not always considered ideal. They are located at:

- Bowmanville WSP (deemed out of way for water haulers);
- Whitby WSP (deemed out of way for water haulers);
- Harwood Avenue Water Pumping Station in Ajax (traffic concerns);
- Port Perry at Municipal Well #3 and #4 (traffic concerns); and
- Beaverton WSP.

Water haulers pre-purchase a key from the Region to draw water from a given station and provide a deposit. Each key is assigned to a single meter and the hauler is billed for all the usage on that meter. Invoices are sent out to the haulers on a monthly basis based on their actual usage.

The benefits of filling stations include being accessible anytime of the day year-round, providing accurate flow reading to ensure cost recovery of actual usage and that the locations are equipped with backflow prevention.

The major disadvantages to the Region's existing water filling stations are the slow fill rate and that the number of users that can utilize them is limited to the number of keys/meters at each filling station.

The design of three new bulk water filling stations is underway as follows:

- Oshawa / Whitby Depot - Construction of a new filling station is anticipated to commence in 2019 with completion in early 2020;
- Ajax / Pickering Depot - Construction of a new filling station is anticipated to commence in 2020 with completion in 2021. The timing of construction of the bulk water filling station at the Ajax / Pickering Depot takes into account the

¹ Note that for practical purposes the annual charge is calculated based on prior year rates (current year rates are not yet approved when it is calculated).

substantial works and improvements needed for the proposed site (estimated cost in excess of \$1.0 million); and

- Pickering (Seaton) - A new bulk water filling station is being planned at the proposed Zone 4 reservoir for Seaton on the north side of Highway 7. It is planned that this project be tendered in 2019 and constructed over the following 18 to 24 months.

In addition to these three proposed bulk water filling stations, staff are planning and budgeting for up to seven future additional bulk water filling stations and continue to explore opportunities to coordinate the installation of additional bulk water filling stations throughout the Region in conjunction with future construction of Regional infrastructure (e.g. as part of a new pumping station or reservoir).

Fire Hydrants – This year (2018) the Region purchased ten hydrant meter assemblies which include a backflow preventer and a tamper resistant cage. They will be used to monitor usage at select hydrants throughout the Region and target the largest bulk water hydrant users. The hydrant meter assemblies are located strategically based on a combination of criteria as follows:

- Highest consumption locations;
- Distance away from bulk filling stations;
- Construction locations; and
- Locations that are difficult to monitor.

The installation of the ten hydrant meters was implemented in October this year, therefore there is limited data available to assess the effectiveness of these assemblies. The ten hydrant meters will be in operation for 2019 which will provide the information necessary for staff to determine if additional hydrant meters should be purchased and utilized until the future new bulk water filling stations are constructed. The decision to purchase additional hydrant meters will depend on the timing of the future bulk water filling stations.

The current system of issuing hydrant permits at locations where hydrant meters cannot yet be made available, with estimated water volumes provided by the permit holder, will be phased out over time.

Improvements Being Implemented – In summary, staff are implementing the following improvements to address the concerns with the existing filling stations and hydrant permit program:

- The implementation of bulk water filling stations throughout the Region. Once the new bulk water filling stations provide appropriate coverage, the issuance of hydrant permits will be phased out; and
- Until the new bulk water filling stations are completed, meters and backflow preventers will be installed on specific priority fire hydrants for which hydrant permits are issued.

7.5 Backflow Prevention Program

Backflow prevention relates to preventing reverse flow from a customer's plumbing back into the Region's water system. It is important to guard against this occurring since substances or chemicals can be present in plumbing systems which are potentially harmful to the potable water supply. Backflow preventers are devices installed on a customer's plumbing at a location generally near where the plumbing enters a building.

Report #2018-COW-145 set out a backflow prevention program for the Regional Water Supply System and was approved by Council in June 2018. Backflow Prevention By-law 24-2018 provides the details of the backflow prevention program. Backflow prevention will add another level of protection in the Region's multi-barrier approach to protecting drinking water. The program applies to ICI and multi-residential properties. Implementation will be initiated in January 2019.

The Backflow Prevention By-Law ensures that backflow preventers are selected, installed, maintained and field tested in accordance with Canadian Standards Association (CSA) guidelines in order to protect the drinking water system from contamination due to backflow.

In addition, Section 20 of the Safe Drinking Water Act, 2002 states that no person shall cause or permit anything to enter a drinking water system if it could result in:

- 1) A drinking water hazard,
- 2) a contravention of a prescribed standard, or
- 3) interference with the normal operation of the system.

The Backflow Prevention By-law also sets out requirements for surveys carried out every 5-years and annual testing of backflow prevention devices.

A data management system has been developed for tracking all ICI and multi-residential properties, Cross Connection Survey Reports, Cross Connection Control Test Reports and authorized tester certifications and equipment.

In order to implement the Backflow Prevention Program on a cost recovery basis, a fee of \$25 has been established for each Cross Connection Control Program Test Report required under the By-law. The test reports are required annually. This fee will be reviewed annually to ensure the costs of data management are fully recovered based on the actual number of water customers required to implement the program. The recommended fee is included as Item 35) in Schedule 4 – Recommended 2019 Water & Sanitary Sewer Systems Miscellaneous Fees & Charges.

7.6 Water System Fire Protection Costs

The rate structure adopted by Regional Council is consistent with industry best practices and reflects the actual costs of supplying these services.

The rates have been established using water industry standard methodology as developed by the American Waterworks Association (AWWA – the guiding water industry organization) and set out in their Water Rates Manual M1.

Durham recovers water system costs related to fire protection from all of its water

customers using a combination of water service charges and fire line charges. The Region uses the water service and fire line sizes as the method of apportioning fire protection costs between customers. The service charge is based on meter size and the fire line charge is based on fire line connection size. The service charges and the fire line charges include the following cost components:

- **Service Charges** – Includes costs related to service connections, fire protection billing, collecting, meters, and meter reading; and
- **Unmetered Fire Lines** – Includes system fire protection costs and unmetered fire line service connection costs (Regional portion).

8 Future Considerations (2019 To 2028)

8.1 Future Customer & Consumption Trends

Elements expected to affect future customer and consumption levels are as follows:

- **Customers** – Report #2018-COW-177: 2019 Water Supply & Sanitary Sewerage Servicing and Financing Study indicates a 2019 to 2028 increase in the number of urban residential units of 58,450. This growth rate is higher than projected last year and closer to longer term trends. Since this includes multi-unit (e.g. condominiums – about 30% of residents are in multi-unit locations), not all additional units represent new customers, so the growth in number of customers would be less than the growth in units. A growth rate averaging 1.2% annually is conservatively adopted for revenue projection purposes.
- **Residential Consumption** – Basic (non-seasonal) consumption per residential customer is expected to continue to decrease for the foreseeable future. New housing being equipped with water efficient fixtures and appliances, and ongoing retrofitting of existing homes are all factors placing downward pressure on residential consumption. When combined with a low customer growth rate, residential consumption is projected to continue to decrease.
- **Small to Medium Commercial** – This sector historically has been fairly constant, but recently has also shown decline. It is expected that this will stabilize in the future.
- **Large Industrial** – With the reopening of a paper fibre operation, this segment recovered somewhat after a long-term decline. The announced closing of GM manufacturing operations is not anticipated to have an impact until 2020. Other related manufacturers may also be affected and will be monitored. Over the longer term there is the potential of decreases.
- **Total Consumption** – Consumption has been decreasing gradually. For planning purposes it is projected that total consumption will continue to decrease at 0.5% annually.

At one time, consumption growth generated additional water and sewage system funding on an annual basis. But this has not been occurring for some time. Static or lower usage means revenues will not increase in step with increased customer growth.

- **Regulatory** - This has been occurring during a period when both provincial and federal water and sewer regulations have been becoming stricter.
- **Asset Management** - Durham's Report #2018-COW-171 2018 Asset Management Plan forms a basis for prioritizing future water and sewage systems infrastructure replacement investments. The annual user rate revenue requirements include contributions to Asset Management Reserve Funds to address the most critical asset management needs.

Staff will continue to monitor consumption trends, regulatory requirements, asset management priorities and determine the impact on future user revenues over the longer term and on capital plans for growth related projects.

8.2 Future Cost Trends

The possibility of continued consumption level decreases will affect future budget levels and consequently rate increases over time. However, over the short term the expenditure budget impact is relatively small, since savings are limited to variable operating costs such as energy and treatment chemicals.

The announced closure of the GM assembly plant at the end of 2019 and its potential effects on other customers will have an impact on both future water and sanitary sewerage system expenditure levels, revenue streams and capacity.

Over the long-term, permanent trends in consumption can affect water supply and sanitary sewer system capacity requirements and design criteria. This in turn would impact the growth capital program, particularly treatment plant expansions. Decreased demand by existing customers frees up capacity for development, which may result in short term deferral of specific water and sanitary sewerage projects if decreasing consumption trends continue.

Capital costs related to rehabilitation, replacement and regulatory upgrades are not expected to be affected by changes in consumption patterns.

For more detailed information on long term capital requirements see Report #2018-COW-177: 2019 Water Supply and Sanitary Sewerage Servicing and Financing Study.

8.3 Projected User Rates

Since user rates are set on a year-to-year basis, change in water consumption in the near-term is the most important factor in user rates revenues. About 68% of combined water and sewer user revenues are based on consumption. Consumption in recent years has trended downwards.

Capital investments are rising due to pressures to invest in aging infrastructure in order to maintain levels of service and address critical priorities. Currently at about 43% of water and sewage user rate supported budget expenditures, increased capital investments would have a significant impact on future user rate revenue requirements and as a consequence on future user rate levels.

In order to fund the forecasted operating and capital costs based on the customer and expenditure growth assumptions, water and sewage rates will expected to require annual increases of 4% or higher.

The water and sewage user rate forecasts are based on a capital program of known asset management needs. However, there are potentially other factors that will have cost implications that are unknown at this time and as a result cannot be quantified. Risks include:

- Future customer trends, including reduced residential customer consumption due to conservation and water efficient appliances, reduced water sales to large customers and slower customer growth trends;
- Financial impact of works needed to comply with Provincial and Federal Regulatory requirements associated with the Region's water supply and water pollution control plants (i.e. the *Clean Water Act*, the *Lake Simcoe Protection Act* and *Water Opportunities and Water Conservation Act*);
- Market price impacts or volatility for input commodities, including energy and chemicals;
- Increase in construction costs;
- Low non-residential development resulting in shortfall in non-residential DC's to be funded by user rates; and
- Asset management program investment requirements to replace aging and failing infrastructure which has reached or passed the end of its useful life. Although repairs can often extend the life of aged facilities, at some point this is not feasible and from an operational, regulatory and financial perspective replacement is required.

8.4 Future Actions

Staff will continue to undertake the following initiatives to ensure efficient on-going water and sewage programs:

- i) Incorporate in the user rate revenue requirements the funding of the following water supply and sanitary sewerage systems investment needs:
 - a. Rehabilitation and replacement needs related to asset management; and
 - b. Adaptions required to address climate change.
- ii) As remote meter reading capability reaches sufficient penetration in billing districts, transition to meter readings by meter readers for all billings in order to reduce the cost of meter readings while increasing their accuracy is planned to commence in 2019;
- iii) Assessment of emerging trends within residential and non-residential water consumption to project future usage for user rate purposes and monitoring usage trends that might influence future capital programs for treatment plant expansions; and
- iv) Assessment of water losses and reduction of unaccounted for losses, where possible. This would include investment in bulk water filling stations and modifications of the metering and use of hydrants for bulk water users in order to ensure that such use is controlled and costs adequately recovered by the Region.

-
- v) Focus attention on the opportunities for intensification to maximize the use of existing infrastructure.

APPENDIX A - BACKGROUND ON USER RATES

1.0 Water and Sanitary Sewer Costs Excluded From Tax Rate

The water and sanitary sewer rates are the sole source of revenue for water and sanitary sewer system operating costs as well as the capital costs for system upgrades to meet regulatory requirements, replacement of aging infrastructure and growth not covered by development charges.

User Rates History:

- The Region was formed in 1974, resulting in the need to amalgamate 15 water and sanitary sewer systems and related water rates. Sanitary sewer charges were mainly recovered from property taxes.
- In 1976 the Region adopted Region-wide water and sanitary sewer user rates. These new water and sewage user rates were calculated on a “user pay” basis using a Regional approach while adopting the best features of the local rate structures.
- Formerly, property taxes were used by individual local municipalities to recover some or all water and/or sanitary sewer costs. Under the Region-wide approach, no water or sewage system costs are included in the property taxes.
- A phase-in program to uniform Regional water and sewage rates was also adopted at the time resulting in all Regional water and sewage customers paying the same uniform rates by the early 1980’s.
- Since that time, the rates charged have been adjusted to meet operational and capital requirements. Although the rate format has remained the same, the rate components have been refined periodically due to changes in cost structure and customer characteristics.

2.0 Water and Sanitary Sewer Rates Based on User Pay Philosophy

The American Waterworks Association (AWWA - the guiding water industry organization) states that:

“To assure equity in charges to the different customers, the basic premise in the establishment of adequate rate schedules is that they should reflect the cost of providing the water service.”

User Pay continues to be the central water and sanitary sewer rate setting principle along with the other traditional rate setting principles of revenue adequacy, adequate service level (supply management), practicality, accountability and affordability.

The user pay principle is the fairest method, the most accepted and defensible to customers, and is encouraged by the American Water Works Association - Ontario Section and the Canadian Water and Wastewater Association.

The Region's water and sanitary sewer user rates have been structured to charge in proportion to the cost of supplying each customer (i.e., the "user pay" philosophy). A significant portion of a customer's water and sewer billings are based on water consumption as measured by the Region's water meter located where the water service enters a customer's premises. In the late 1970's the Region carried out an extensive metering program in those municipalities that were mostly flat rate, so that currently, with very few exceptions² customers are metered and pay based on usage.

The customer's consumption can vary each billing. Meter readings are taken either by Regional meter readers, or by customers, who phone readings to the Region using the TeleRead³ system. Where actual readings are not received, customer consumption is estimated. Customer meter card participation rates have declined over the years and so the proportion of consumption estimates has grown. The Region has for some time been installing remote reading equipment with new meters as well as retrofitting other meters and is approaching 100% coverage with remote meter reading equipment. Soon all meter readings are able to be taken by the Region remotely from outside the premises. At that time customers will no longer have to routinely provide their own manual readings.

Durham's user rates include a combination of features designed to fairly recover costs from customers on a user pay basis. These features are described in more detail below.

All customers are billed for water based on two rate components: a consumption charge for the volume of water used and a service charge based on meter size. The service charges for water are higher than for sewage due to costs such as fire protection and metering which are recovered from service charges by meter size, but which are not present for sewage services. The rates are described in more detail below. A breakdown of revenues by rate structure component is estimated as follows:

User Rate Revenue Sources				
		Water	Sewage	Combined
Consumption Charges		52%	86%	68%
Service Charges		42%	14%	29%
Fire Line Charges		6%	0%	3%
Total		100%	100%	100%

3.0 Regional Water & Sanitary Sewer Rates, Fees & Charges

3.1 Background

The Region was formed in 1974 and by 1976 had adopted Regional water and sanitary sewer rates. The various components of the user rates structure have undergone detailed review from time to time.

² Less than 100 customers are flat rate at any time - some homes where meters are not installed by closing date and others in older locations with plumbing that staff has determined is impossible to install a meter.

³ TeleRead is the Regional computerized system that records meter readings taken by customers who phone them in. The Region uses these readings to calculate customer water and sewage bills.

- The current rate format was originally adopted by Regional Council in 1976.
- The 1985 Water and Sanitary Sewer Rates Report adopted by Regional Council reviewed the unmetered fire line charge, multiple unit charge and minimum bill features in depth, in response to inquiries from various sources. The recommendations approved by Council continued the existing policies.
- In the 1990 User Rates Report, the declining block rate structure was reviewed and modified, with the changes phased-in as approved by Regional Council.
- In 2004, a detailed review was undertaken and reported to Council (Report 2004-J-46). The existing rate structure was reconfirmed.
- In 2008 a review was carried out of alternative approaches to billing residential sewage charges to adjust for summer outside water usage. It was concluded that the alternative approaches would not increase fairness for customers as a whole.

The Regional water and sewage rates, fees and charges are defined and enabled by means of two By-Laws approved by Council which are updated when new policies and rates are approved. The most recent major revision of the By-Laws was approved by Council in 2003. They are amended annually or as required to conform to policies and rates as approved by Council.

The two By-Laws are:

Water System – By-Law Number 89-2003, As Amended
Sewer System – By-Law Number 90-2003, As Amended

The various water and sewer rates, fees and charges are described below.

3.2 Regional Water Rate Structure

The existing water rates are calculated using the "Base-Extra Capacity" (BEC) method as developed by the AWWA. The resulting rates charge each customer commensurate with the cost of supplying the water service. They are established in the context of other Regional revenue policies such as frontage, connection and development charges which endeavor to directly recover the capital cost of servicing new customers.

In addition to meeting day-to-day water demands, the water system also includes capacity for fire protection. This extra capacity is provided on standby. At one time, the cost of providing this additional capacity was commonly recovered from local property taxes. The Region now recovers annual water system costs related to fire protection from the user rates by using a combination of two fixed charges - the Water Service Charge and the Unmetered Fire Line Charge. Local fire department services are provided by the Area Municipalities.

The water user rates are set out in Schedule 1 of the Executive Summary.

- **Consumption Charge** – The consumption charge on a water bill is calculated by multiplying a customer’s metered consumption times the metered rates.

There are three metered rate "blocks" which are applied in the calculation of a customer’s water and sewage bill based on volume of water used. The water and sewage volumetric rates both follow this format, but with different rates.

The highest rate is the first block which reflects the higher unit cost that small customers place on the system due primarily to seasonal use such as garden irrigation. Summer usage peaks in particular are expensive to accommodate. Summer peaks are driven by residential usage and this is a factor in calculating the first block rate.

The declining rates in the second and third rate blocks do not apply to residential customers. Large-volume non-residential users generally use water at a fairly even pace (they are less of a factor in causing demand peaks that are costly to supply) and their large volumes are focused at one location. They cost less to supply on a unit cost basis. Declining rate blocks reflect this. These reduced rates were set as a result of cost analysis and are not considered a subsidy for larger users. The reduced rates reflect the reduced volumetric cost of supplying water to large non-residential users.

All customers pay first block rates. Non-residential users start in the first block and are billed in each block in accordance with the applicable rates, depending on how much water is used.

Even with the reduced large-volume block rates, commercial/industrial customers generate over 20% of the total consumption revenue while representing about 3% of customers.

- **Service Charge** - The service charge is a monthly charge based on water meter size. The amount of the charge increases with meter size. It covers ongoing costs such as the initial installation, ongoing maintenance and repair, and replacement of water meters at the end of their in-service life and maintaining water service pipes on public property. It also includes most water system fire protection-related costs and administrative costs such as customer service, billing and collection activities. Fire protection costs are largely responsible for the increased water service charges for larger sized meters. Due to water system costs that are fire protection related, the water service charge is necessarily greater than the sanitary sewer service charge. The service charge is considered the fairest way of charging costs that are unrelated to volume of consumption.

Water & Sewer Rate Blocks	
Block	m ³ /month
First	0 to 45
Second	46 to 4,500
Third	over 4,500

- **Unmetered Fire Line Charge** - Some customers receive enhanced fire protection coverage by means of a larger connection to the water system than is required for domestic usage alone. Unmetered fire lines are used to supply customer sprinklers, hose cabinets or private fire hydrants. No charge is levied for the volume of water used for fire protection. The unmetered fire line

varies by fire service size. The charge helps to allocate water system fire protection capacity costs to these larger customers who have unmetered fire lines. Unmetered fire lines are sometimes required for insurance purposes and are an important insurance consideration for a company, resulting in reduced insurance premiums.

A little over 1% of customers have unmetered fire lines. The fire protection charge was reviewed and confirmed by Council as part of the 1985 Water and Sanitary Sewer User Rate Report.

3.3 Raw Water Charge

There are currently two industries (originally there were four) in Whitby served by a Regional raw water system. The system is entirely paid for by raw water customers. Raw water is supplied from the Whitby WSP and is separate from the potable water system which serves all Regional water customers. The Region pumps untreated water from Lake Ontario through separate mains to the raw water customers.

There is a special raw water rate to recover 100% of the cost of operating the raw water system. The rate is calculated separately from the potable water rates and is approved annually by Council. Capital costs are apportioned directly to each customer and collected by means of a separate charge over a fixed period. There are no current raw water system capital charges.

3.4 Regional Sanitary Sewer Rate Structure

The sewage user rates are set out in Schedule 2 of the Executive Summary.

Like water, the sewage rates also have a volumetric charge and a service charge:

- **Consumption Charge Based on Metered Water Consumption** - The sewage metered charge relates to the collection and treatment of sanitary sewage. As with water, there are three rate blocks with decreased rates for large volume users. A high proportion of revenue is recovered from metered rates; therefore the sewer revenues are more sensitive to annual fluctuations in consumption than are water revenues.
- **Service Charge** - The sewer service charge is uniform for all customers. It covers billing and collection costs for sewer and for maintaining sewer service connections both on public and private property.

When it comes to billing for sewage flows, the customer water meter data is used as it is the only measure available of a customer's actual utilization of the water and sewage systems. The method is a practical method to achieve user pay. There is no practical, economic alternative sewage meter available. A customer's water consumption is used as a surrogate to determine a customer's share of total cost. Basically using water meter readings to bill both water and sewage is a method of allocating the costs incurred by both systems based on customers' relative usage of the system. It is a method of sharing costs.

It is noted that the final volume of sewage actually treated differs from the volume of water supplied due to a combination of the following:

- **Flow Reductions** - An average of 20% of water consumption by most customers is used for non-sanitary purposes (such as lawn and garden watering, pool filling and cooling water). This water does not directly reach or enter the sanitary sewer system.
- **Flow Additions** - Additional flows enter sewers between the customer's premises and the Water Pollution Control Plants. These include inflow (surface water) and infiltration (groundwater) which require sewage treatment. These flows not only enter the sanitary sewer collection system through manhole covers (inflow) and pipe cracks (infiltration) but in some cases on customer property from rainwater leaders and foundation drains (although the Region's Sewer Use By-law 43-2004 includes provisions prohibiting such flow). These flows are not measured by water meters, but their cost of treatment must be recovered.

As noted above, the use of water meters to allocate all sewage system costs is a "user pay" method of sharing sewage system costs based on customers' relative usage and is used by the majority of Ontario municipalities to recover sanitary sewer costs.

3.5 Other Shared Water and Sanitary Sewer User Rate Features

- **Flat Rate** - When the Region was formed, most northern area customers were billed flat rate. The flat rate was calculated based on 273 cubic metres (60,000 gallons) per year consumption, which was the estimated amount used by unmetered residential users and about 15% more than metered residential customers. Over the period 1976 to 1981, usage by the customers in Beaverton, Cannington, Sunderland, Uxbridge, Port Perry and Orono was metered. Currently, the few customers whose usage is not metered are those where metering is impractical or new customers that have moved in but a meter has not yet been installed. The Region's flat rate charge is billed in such cases.

The use of a flat rate charge, during the period until meters are installed is appropriate because it approximates current usage levels by residential metered customers.

- **Multiple Unit Charge** - The calculation of the consumption charge for non-residential multi-unit customers takes into account the number of "units" served by a meter. (This feature does not apply to residential customers since all residential consumption is billed at 1st block rates.) A multiple unit customer's consumption block limits are increased for billing purposes by multiplying each block limit by the number of units. For example, stores in malls are each counted as a "unit". The first block rate limit for an 8-unit mall is 360 cubic metres per month. If the customer used 80 m³ in a month the water consumption charge (2018 first block rate) for a month would be (80 x \$1.100 =) \$88.00. This increases the consumption volume which must be reached before a block rate volume discount is allowed. The multi-unit calculation ensures that reductions intended for large users are not applied to

small users. Multiple unit customers do save compared to separate customers by paying a single service charge.

- **Minimum Bill** - Most Ontario water systems have a minimum bill feature to help offset those water system costs which are ongoing, even if a customer's consumption is low. The Region's minimum bill applies to all customers except those with standard size meters. It includes the service charge plus a consumption allowance. In 1978 Regional Council eliminated the "standard" meter minimum consumption allowance to allow greater savings to be passed on to our smallest customers.

4.0 Other Fees and Charges

There are two other Schedules which are updated annually and cover a variety of individual water and sewage system services which are carried out by the Region.

- **Miscellaneous Fees & Charges (Schedule 4 of the Executive Summary)** – These cover a wide range of services from construction of service connections to meter testing and many others.
- **Fees Charged for Laboratory Services at the Regional Environmental Laboratory (Schedule 5 of the Executive Summary)** – The Regional Laboratory is located at the Duffin Creek WPCP. It is jointly owned by York and Durham Regions. The laboratory carries out testing services for both Regions as well as a number of external customers. This schedule sets out the fees charged for the multitude different procedures.

5.0 Durham's Water & Sanitary Sewer User Rate Policies Encourage Efficient Water Usage

Over the years the Region has adopted a number of policies to enhance the "user pay" philosophy and which also foster efficient water usage, including transferring of water and sewer charges from the property tax to the user rates, installation of water meters for all customers, the adoption of sewage charges on the water bill and the elimination of declining block rates for residential customers.

Durham, like most Ontario water utilities, endeavours to construct facilities to provide an adequate service level to meet expected demand. This is called supply management.

Most water utilities, including Durham, have developed methods of reducing demand, thereby conserving water. This is called demand management. Lawn watering restrictions, an example of demand management, are very effective in overcoming short-term plant capacity deficiencies.

6.0 Examples of Water and Sanitary Sewer Bill Calculation

Typical Residential Customer - A water and sanitary sewer bill calculation is provided below for a residential customer using 56 m³ quarterly (224 m³ annually) based on 2018 water and sewer rates:

Average Residential Customer Water/Sewage Bill Calculation					
Consumption	= 56 m ³ quarterly (224 m ³ annually)				
	= 12,320 gallons quarterly (49,280 gallons annually)				
Meter Size (standard meter)	= 16-mm or 19-mm				
	= 5/8-inch or 3/4-inch)				
Quarterly Bill Calculation (2018 rates)					
	<u>Calculation</u>				<u>Quarterly Billing</u>
Water					\$
Volumetric Charge	56.0	x	\$1.100	=	61.60
Service Charge (90 days)	3	x	\$18.48	=	55.44
Total Water Bill					<u>117.04</u>
Sewage					
Sewer Usage	56.0	x	\$1.760	=	98.56
Service Charge (90 days)	3	x	\$6.90	=	<u>20.70</u>
Total Sewage Bill					<u>119.26</u>
Total Water & Sewage Amount					<u>236.30</u>

Large Industrial Customer - The largest industrial customers are billed bi-monthly. The consumption charge for customers reaching the second and third block rates is illustrated using the following example:

Large Industrial Customer Water/Sewage Bill Calculation			
Consumption	= 113,600 m ³ bimonthly (681,600 m ³ annually)		
	= 25,000,000 gallons bimonthly (150,000,000 gallons annually)		
Meter Size	= 6-inch (152-mm)		
Bi-monthly Bill Calculation (2018 Rates)			
	<u>Consumption in Block (m³)</u>	<u>Calculation</u>	<u>Bimonthly Billing</u> \$
Water			
Volumetric Charge			
1 st block	45 x 2 months = 90	90 x \$1.100 =	\$99
2 nd block	(4,500 – 45 = 4,455) x 2 months = 8,910	8,910 x \$0.935 =	\$8,331
3 rd block	113,600 – 90 – 8,910 = 104,600	104,600 x \$0.859 =	\$89,851
Total	113,600		\$98,281
Service Charge (6-inch/152-mm)		2 x \$1,121.59 =	\$2,243
Total Water Bill			\$100,524
Sewage			
Volumetric Charge			
1 st block	45 x 2 = 90	90 x \$1.760 =	\$158
2 nd block	(4,500 – 45 =) 4,455 x 2 = 8,910	8,910 x \$1.549 =	\$13,802
3 rd block	(113,600 – 90 – 8,910 =) 104,600	104,600 x \$1.302 =	\$136,189
Total	113,600		\$150,149
Service Charge		2 x \$6.90 =	\$14
Total Sewage Bill			\$150,163
Total Water & Sewage Amount			\$250,687

General Information:

Customers may receive other charges on their water bill such as for a private unmetered fire line or for watermain or sewer main frontage charges as well as collection charges arising from late payment of accounts.

Bills paid after the late payment charge effective date are levied a 2% Late Payment Charge.

7.0 Sun Valley Heights Homeowners Co-Operative Water System

The Sun Valley community is located in North Oshawa. Privately built and owned, the well-based water system serves 17 customers. It has been operated by the Region since 2000 pursuant to a Provincial order. The costs incurred to operate and maintain the system are billed to each property owner on a quarterly basis. Information on the system is also provided in the Detailed Report [Section 5.3](#).

8.0 Water and Sanitary Sewer Billing Brochures and other Programs

A **Water and Sanitary Sewer User Rates Notice**, explaining changes in rates and miscellaneous fees, is included with the first bill issued to customers each year. For example the 2018 Water & Sanitary Sewer User Rates brochure included information on the user rates (as well as other useful information).

Copies are available to the public on request from the Finance Department. The information is also available on-line on the Region's website www.durham.ca/waterbilling. Also see next page for a copy.

The Utility Finance Division of the Finance Department offers other programs to assist customers in managing their bills. One such program targets the detection of leaks and the importance of reading meters. A brochure entitled **Detect Leaks and Save Money** is sent once a year with bills and to those customers where high consumption may be indicative of water leaks.

Regional Water Billing staff also carry out **proactive telephone calls** to customers when new water meter readings are processed and a customer's water consumption patterns appear very low/high compared to that customer's normal expected level. This is carried out during the water bill preparation and monitoring process.

The **TeleRead** Program mentioned previously provides customers with a 1-800 number they may use to provide meter readings. This service is available "24/7" for the customer's convenience.

The **Extended Due Date** Program adjusts the date by which payments are due to coincide with the receipt of pension cheques by seniors. A complementary program is the **Special Water Meter Reading Assistance** Program, targeted to seniors and those with disabilities who would have difficulty accessing the meter to read it. Customers can enroll in these programs by calling the Customer Service section of Utility Finance.

The Region also issues an annual water supply and sanitary sewerage brochure to all users of the systems which provides an overview of the systems and budgets.

For customers that have trouble paying water and sewage charges, the Region offers low income residents help through Housing Help Durham's Low-Income Energy Assistance Program (LEAP). Families and individuals may qualify for a one time grant through an application process.

Utility Finance Contact Information:

Phone **905 666-6211** (toll free **1-800-465-6611**)

Email **waterbilling@durham.ca**

Executive Summary:**1. Background**

- 1.1 This report relates to the recommended Water and Sanitary Sewer User Rates to be effective January 1, 2019. It is presented concurrently with and supports Report #2018-COW-177: 2019 Water Supply and Sanitary Sewerage Servicing and Financing Study which describes the financing of proposed capital works in 2019 and future years.
- 1.2 This printed Executive Summary is supplemented by a Detailed Report available in the attached booklet.
- 1.3 The Region's water and sanitary sewer user rates are reviewed annually and recommendations are made to Council in December, prior to a January 1st implementation of approved user rates.
- 1.4 It is imperative that user rates be approved in 2018 in order that they can be implemented with the first customer billings commencing early January 2019. Any delay in implementation may mean that any required rate increase would have to be larger to generate sufficient revenue during the Region's fiscal year. In addition, it is considered preferable to adjust the rates during the low winter consumption period rather than have a rate increase occur at the same time as the spring/summer seasonal usage increase.
- 1.5 Public notification that the proposed 2019 water and sanitary sewer user fees and related charges will be considered by the Committee of the Whole on December 13th, and by Regional Council on December 19th, was provided twice in local newspapers throughout the Region on November 15th and 22nd, 2018 and was posted on the Region's website.

2. Highlights

- 2.1 2019 Recommended Water and Sanitary Sewer User Rate Increases
 - 2.1.1 The recommended 1.1% water user rate increase and 2.6% sanitary sewer user rate increase (1.8% combined for an average residential customer) supports an increase in user rate supported expenditures of 1.4% for water and 2.8% for sanitary sewage. The current 2018 and recommended 2019 Water and Sanitary Sewer User Rates are provided in Schedule 1 and Schedule 2 respectively (attached).

- 2.1.2 The recommended user rates are based on operating, capital costs and financing as outlined in detail in Report #2018-COW-177: 2019 Water Supply and Sanitary Sewerage Servicing and Financing Study, as well as customer and consumption projections described below.
- 2.1.3 For water, the user rate increase of 1.1% is required to finance a proposed preliminary 2019 user rate supported budgeted expenditure increase of \$1.54 million or 1.4% over 2018, which will allow for:
- A net Operating Cost increase of \$1.16 million mainly for annual economic and inflationary increases, annualization of 1.8 Full Time Equivalents (FTEs) from 2018, 2.3 new FTEs for 2019 and increases related to the implementation of SCADA (Supervisory Control and Data Acquisition);
 - A Capital Program/Contribution decrease of \$0.75 million in the user rate supported contribution due to the application of the Treatment Plant/Rate Stabilization Reserve; and
 - A debt repayment increase of \$1.13 million related to new debt issued in 2018 for the expansion of the Newcastle Water Supply Plant.
- 2.1.4 For sanitary sewer, the user rate increase of 2.6% is required to finance the proposed preliminary 2019 user rate supported budgeted expenditure increase of \$2.80 million or 2.8% over 2018, which will allow for:
- A net Operating Cost increase of \$0.97 million mainly for annual economic and inflationary increases, annualization of 1.3 FTEs from 2018 and 2.3 new FTEs for 2019; and
 - A Capital Program/Contribution increase of \$1.83 million (user rate share) due mainly to increased investments in the replacement of linear sanitary sewer infrastructure.
- 2.1.5 The General Motors announcement regarding the closing of the Oshawa assembly plants at the end of 2019 is not expected to have a material impact on the 2019 water and sewage user rate projections. As further details emerge related to the potential loss of a major customer and the potential impact on other customers, staff will monitor and prepare a transition strategy for 2020 and subsequent years.
- 2.2 Basis for the Proposed 2019 User Rates
- The projected data used to develop the 2019 user rates includes the following:

Projected Data Used to Develop 2019 Water & Sanitary Sewer User Rates

Parameter	Water	Sanitary Sewage
Customers		
- Number	177,521	173,455
- Growth from 2018 Actual	1.00%	1.05%
Consumption/Flow		
- Cubic metres (millions)	52.07	50.10
- Increase from 2018	0.0%	0.1%
Projected User Rate Supported Expenditures		
- Total Expenditures	\$107,921,500	\$102,089,500
- Increase from 2018 Budget	1.4%	2.8%
User Rate Change Required		
- Percent	1.1%	2.6%
- Impact on Revenue of 1% Rate Change	\$1,067,000	\$995,000

- **Impact of a 1% Rate Change** - Any change in either expenditures or other revenues by \$1,067,000 for water or \$995,000 for sanitary sewer is equivalent to a 1% change in the respective user rate.

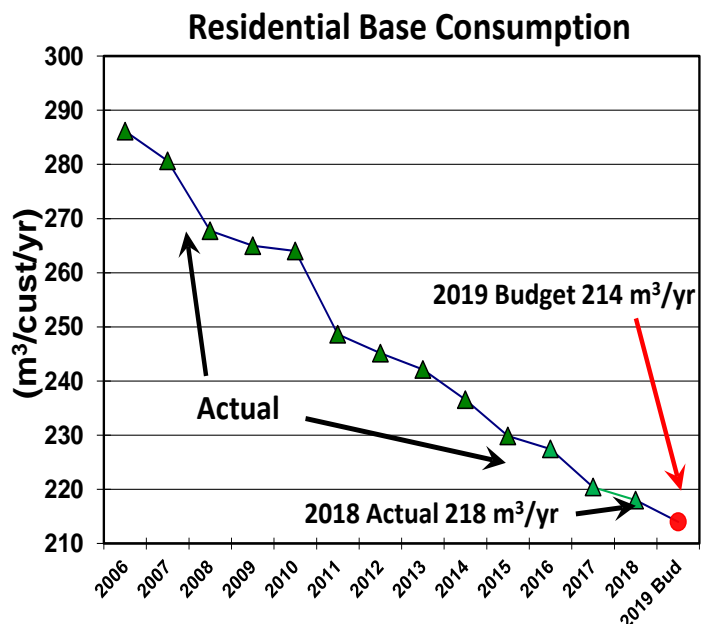
2.3 Customer and Consumption Projections

2.3.1 Customer growth in 2019 is projected at 1.00% for water and 1.05% for sanitary sewage.

2.3.2 Billed water consumption for 2019 is projected as follows:

- **Overall** – Total billed 2019 water consumption and sewage flows are projected to be similar to 2018

- **Residential** – Residential consumption has two components: Basic day-to-day usage year-round and seasonal usage. Basic residential per customer water consumption (excludes seasonal usage) has been steadily decreasing. Contributing factors include the water efficient fixtures



required in new construction by the Provincial Building Code and the popularity of more water efficient appliances. The average decline in basic usage over the past 10-years has been 2.4% per year. Continuing reduction in base usage per residential customer is expected for 2019 and into the future. Total residential consumption is projected to decrease by 0.5% in 2019 due to decreases in basic usage offset somewhat by seasonal usage.

- **Non-Residential (ICI) Consumption Share** – ICI consumption share relative to residential usage, after years of decrease, has levelled off recently and is expected to remain stable at 28% of total usage in 2019. In the mid 1980's, ICI represented 56% of all water usage.
- **Small to Medium Size ICI Water Users** – Consumption remains stable in the 1st ICI consumption block but is projected to increase in the 2nd block by 7% compared to 2018 Budget.
- **Large Water Users** – Based on current large customer consumption levels compared to 2018 Budget, it is projected that 2019 3rd block consumption will be about 5% lower than budgeted for 2018.

2.4 Customer Impacts

- 2.4.1 Average Residential Customers – It is projected that in 2019, the average annual residential per customer consumption will be 220.5 m³ (includes base usage at 214.0 m³ and seasonal usage at 6.5 m³). The recommendation that the 2019 water and sanitary sewer user rates be increased over 2018 rate levels results in an increase of \$4.32 or 1.8% on a quarterly bill (\$17.28 per annum) for the average customer.

2019 Proposed Regional User Rate Charges				
Typical Residential Customer Impact				
	Water	48,510	gallons/year	
	Usage	220.5	m ³ /year	
Billings (\$/quarter)				
	2018	2019		
	Actual	Proposed	Increase	
Water	\$116.07	\$117.33	\$1.26	1.1%
Sewage	\$117.73	\$120.79	\$3.06	2.6%
Total (\$/quarter)	\$233.80	\$238.12	\$4.32	1.8%
Annual Billing (\$/year)	\$935.20	\$952.48	\$17.28	1.8%

- 2.4.2 Industry - The proposed 2019 water and sanitary sewer user rates result in a bi-monthly increase of \$1,722 or 2% for a customer using 227,272 m³ annually (a customer in the top 25 users) as indicated below:

2019 Proposed Regional User Rate Charges				
Large Industrial Customer Impact				
	Water	50,000,000	gallons/year	
	Usage	227,272	m ³ /year	
Billings (\$ bimonthly)				
	2018	2019		
	Actual	Proposed	Increase	
Water	\$34,442	\$34,822	\$380	1.1%
Sewage	\$51,590	\$52,932	\$1,342	2.6%
Total (\$ bimonthly)	\$86,032	\$87,754	\$1,722	2.0%
Annual Billing (\$/year)	\$516,192	\$526,524	\$10,332	2.0%

2.5 Competitiveness of Durham's Water and Sewage Rates

2.5.1 **Residential customers** - Of 13 larger municipalities surveyed across Ontario, Durham's 2018 Regional water and sanitary sewer charges are below average and are the 5th lowest.

2.5.2 **Large users** - The Region's 2018 water and sewer rates were the 4th lowest of the 13 municipalities surveyed for a large user. The Region's declining block rates reflect the Region's reduced unit cost of servicing large customers.

2.5.3 **Other Utilities** - Water and sewer charges represent a substantially smaller proportion of an average residential household's monthly operating costs than other utilities such as natural gas, hydro, telephone and cable.

2.6 Other Fees & Charges

2.6.1 **Schedule 3 –Sun Valley Heights Homeowners Co-operative Water System Recommended Charges** – The charges for this local system serving 17 customers are separate from the Regional water and sewage rates. The 2019 recommended rate has been adjusted based on projected costs for this local system and is recommended to increase by approximately \$9 per quarter (about \$36/year).

2.6.2 **Schedule 4 – Recommended Miscellaneous Fees & Charges** – This schedule includes a number of fee categories, each reviewed individually. Most of the recommended 2019 charges increases vary from no increase to about 2%. The recommended charges which differ from current 2018 fees and charges are **bolded**.

Specific considerations and circumstances warrant changes beyond 2% to the following fees and charges:

- **Items 1) & 2) Water Service Connection Charges** – Based on current construction costs these rates have been increased in the range of 10% to 19%.

- **Item 9) (Water) & 13) (Sanitary Sewer) Frontage Charges for Non-Standard Sizes and for Petitions** – The existing 2018 Water and Sewer System By-laws and the frontage charge categories set out in Schedule 4 do not necessarily reflect the Region's actual costs in cases of petitions or non-standard main sizes. Experience has shown that the costs can be significantly different. It is recommended that in the case of projects resulting from petitions and for non-standard sized mains built by the Region, cost recovery be based on actual costs. New items 9) and 13) have been added to effect the recommendation that full cost recovery be charged for non-standard main sizes and petition initiated projects.
- **Items 10) to 12) & 14) to 16) Water & Sanitary Sewer Systems Frontage Charges** – Based on an analysis of current construction costs it has been determined that frontage charges require rate increases from 50% to 55% in order to achieve full cost recovery. These recommended 2019 frontage charges are based on the first year of a 2-year 2019/2020 phase in of the calculated costs.
- **Item 20) Unmetered Water used for construction (building purposes) per service** – The volume of water used during home or building construction up until completion and meters are installed, typically during subdivision construction, is charged to builders by means of the building purposes charge. The 2017 User Rate report set out a staged increase in the Building Purposes charge over the period 2017 to 2020. According to the plan the 2019 building purposes charge has been calculated based on 170 m³ water usage, with a level of 200 m³ planned for 2020. For practical purposes, the 2019 rate is calculated using the known 2018 current 1st block rate. The recommended 2019 Building Purposes Charge based on 2018 rates and 170 m³ per unit is \$187.00, an increase from \$146.00 in 2018.
- **Item 21) Drawing Regional water from hydrant for purposes other than fire protection** – Minimum charge per month has been recalculated based on one average (16 m³) truck fill per day.
- **Item 33) Lien Administration Fee** – Recommended fee has been reduced from current level due to a less costly process being available using the new billing system (planned to be introduced mid-2019).
- **Item 35) Backflow Prevention Program Survey Test Report** – In June 2018, the Region approved a new plan for backflow prevention for the Regional Water Supply System to be implemented January 1, 2019 (Backflow Prevention By-law 24-2018). As part of this program, ICI and multi-residential customers are required to have backflow prevention devices on their water supply plumbing. Such customers will be required to complete and submit an annual Cross Connection Control Program Test Report. The report is to be prepared by a certified tester in order to verify

that a backflow prevention devices is in good working order. The recommended 2019 Regional fee related to the Cross Connection Control Program Test Report is \$25.00. This is a new fee.

2.6.4 **Schedule 5 – Recommended Laboratory Fees** – The recommended 2019 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory is provided in this schedule.

3. Risk Factors

The water and sanitary sewer user rates required to support the capital forecasts to 2028 include preliminary cost estimates for known projects and in some cases only allowances have been made until detailed designs are complete. However, there are other factors that will have cost implications which are unknown at this time and have not been quantified. The factors that will put additional pressures on future user rates include:

- The loss of a major customer such as the announced closure of GM assembly operations at the end of 2019;
- Potential for further reductions in water usage and thus related revenues without resulting in corresponding cost reductions;
- Any economic decline could result in lower system utilization with consequent decrease in water and sanitary sewer user rate revenues; and
- Market price impacts and volatility, including energy input prices and related equipment and supplies.

4. Future Issues

4.1 Based upon projections to 2028, it is estimated that the combined water and sewer user rate increase will be approximately 4% to 6% per year over the forecast period depending on future customer growth, water demand, operating costs and financial planning decisions. The cost factors behind these significant increases include the following:

- Customer growth has recently been lower than experienced for a number of years and is projected to remain at low levels;
- Water consumption has trended downwards in the past few years and this is expected to continue. Residential customer water usage is expected to be fairly level with consumption growth due to increases in the number of customers offset by reduced day-to-day individual customer use, due to more efficient plumbing fixtures and appliances and awareness of water conservation practices. Usage by small to medium-sized customers is expected to remain fairly constant;
- Water supply and sanitary sewerage infrastructure require large capital investments in order to meet regulatory, asset management and growth related requirements, in particular for treatment plant and trunk main services. In addition, the forecast debt servicing costs are projected to increase;

- Water and sewage user rates are the funding source for capital investments for rehabilitation and replacement in order to maintain assets in a good state for operations, as well as a portion of growth costs (net of development charge contributions and grants); and
- Regulatory changes mandating investments in infrastructure are unknown until site specific review and engineering is conducted.

4.2 Total and user rate share of major water and sewage systems capital projects over the forecast period (2019-2028) are discussed in detail in Report #2018-COW-177: 2019 Water Supply and Sanitary Sewerage Servicing and Financing Study.

5. Schedules of Rates & Fees

5.1 The recommended Durham Region 2019 water and sanitary sewer user rates, fees and charges are set out in the attached schedules, as follows:

- The recommended 2019 Water User Rates are 1.1% higher than the 2018 rates and are set out in Schedule 1.
- The recommended 2019 Raw Water Rate for the Whitby raw water customers is 7.4% higher than 2018 and is set out in Schedule 1.
- The recommended 2019 Sewage User Rates are 2.6% higher than the 2018 rates and are set out in Schedule 2.
- The recommended 2019 Water Rate for the Sun Valley Heights Homeowners Co-operative Water System is set out in Schedule 3.
- The recommended 2019 Water & Sanitary Sewer Systems Miscellaneous Fees & Charges (adjusted to reflect changes in cost structures and inflation) are set out in Schedule 4.
- The recommended 2019 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory located at the Duffin Creek WPCP is unchanged from 2018 and is set out in Schedule 5.

6. Attachments

Schedule 1 – Recommended 2019 Water User Rates

Schedule 2 – Recommended 2019 Sewage User Rates

Schedule 3 – Recommended 2019 Water Rate for the Sun Valley Heights Homeowners Co-operative Water System

Schedule 4 – Recommended 2019 Water & Sanitary Sewer Systems Miscellaneous Fees & Charges

Schedule 5 – Recommended 2019 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory Located at the Duffin Creek WPCP

Detailed Report – Provided in enclosed booklet

Original Signed By

Nancy Taylor, BBA, CPA, CA
Commissioner of Finance

Original Signed By

Susan Siopis, P. Eng.
Commissioner of Works

Recommended for Presentation to Committee:

Original Signed By

Elaine Baxter-Trahair
Chief Administrative Officer

Schedule 1 - Recommended 2019 Water User Rates

REGIONAL MUNICIPALITY OF DURHAM									
Water User Rate Schedule				2019 Rate Increase = 1.1%					
Monthly									
Effective January 1, 2019									
Volumetric Charges									
Block	Consumption Range			Current		Proposed			
	From	To	Units	2018		2019			
First Block	0	to 45	cubic metres/month	\$1.100	/cubic metre	\$1.112	/cubic metre		
	0	to 10,000	gallons/month	\$4.999	/1,000 gallons	\$5.054	/1,000 gallons		
	0	to 1,600	cubic feet/month	\$3.114	/100 cubic feet	\$3.149	/100 cubic feet		
Second Block	46	to 4,500	cubic metres/month	\$0.935	/cubic metre	\$0.946	/cubic metre		
	10,001	to 1,000,000	gallons/month	\$4.251	/1,000 gallons	\$4.298	/1,000 gallons		
	1,601	to 160,000	cubic feet/month	\$2.648	/100 cubic feet	\$2.678	/100 cubic feet		
Third Block		Over 4,500	cubic metres/month	\$0.859	/cubic metre	\$0.868	/cubic metre		
		Over 1,000,000	gallons/month	\$3.903	/1,000 gallons	\$3.946	/1,000 gallons		
		Over 160,000	cubic feet/month	\$2.432	/100 cubic feet	\$2.458	/100 cubic feet		
Basic Charges (\$/month)									
Meter/Fire Line Size		Service Charge		Minimum Charge		Unmetered Fire Line Charge			
Inches	mm	Current 2018	Proposed 2019	Current 2018	Proposed 2019	Current 2018	Proposed 2019		
Standard	Standard	\$18.48	\$18.68	n/a	n/a	n/a	n/a		
1-inch	25-mm	\$37.56	\$37.97	\$63.00	\$63.00	\$14.27	\$14.43		
1 ½-inch	38-mm	\$79.94	\$80.82	\$120.00	\$121.00	\$19.18	\$19.39		
2-inch	51-mm	\$172.65	\$174.55	\$231.00	\$234.00	\$37.13	\$37.54		
2 ½-inch	64-mm	n/a	n/a	n/a	n/a	\$49.20	\$49.74		
3-inch	76-mm	\$303.49	\$306.83	\$396.00	\$400.00	\$65.22	\$65.94		
4-inch	102-mm	\$603.48	\$610.12	\$781.00	\$790.00	\$130.46	\$131.90		
5-inch	127-mm	n/a	n/a	n/a	n/a	\$175.17	\$177.10		
6-inch	152-mm	\$1,121.59	\$1,133.93	\$1,427.00	\$1,442.00	\$240.90	\$243.55		
8-inch	203-mm	\$1,912.07	\$1,933.10	\$2,345.00	\$2,370.00	\$401.40	\$405.82		
10-inch	254-mm	\$3,111.48	\$3,145.71	\$3,714.00	\$3,755.00	\$640.52	\$647.57		
12-inch	305-mm	n/a	n/a	n/a	n/a	\$903.10	\$913.03		
Flat Rate (includes consumption)									
		Current 2018	Proposed 2019						
Monthly/unit		\$43.48	\$43.95						
Quarterly/unit		\$130.44	\$131.85						
Annually/unit		\$521.76	\$527.40						
Other - Raw Water Rate				Recommended Raw Water Rate Increase: 7.4%					
				Current 2018		Proposed 2019			
All volumes		cubic metres		\$0.301	/cubic metre	\$0.323	/cubic metre		
		gallons		\$1.368	/1,000 gallons	\$1.469	/1,000 gallons		
Late payment charge is 2%. A bill payment is late if not made within 16 days of the date on which the bill is issued.									

Schedule 2 - Recommended 2019 Sewage User Rates

REGIONAL MUNICIPALITY OF DURHAM							
Sewage User Rate Schedule				2019 Rate Increase = 2.6%			
Monthly							
Effective January 1, 2019							
Volumetric Charges							
Block	Consumption Range			Current 2018		Proposed 2019	
	From	To	Units				
First Block	0	to 45	cubic metres/month	\$1.760	/cubic metre	\$1.806	/cubic metre
	0	to 10,000	gallons/month	\$8.001	/1,000 gallons	\$8.209	/1,000 gallons
	0	to 1,600	cubic feet/month	\$4.985	/100 cubic feet	\$5.114	/100 cubic feet
<i>Sewer rate expressed as a % of water rate</i>				160.1%		162.4%	
Second Block	46	to 4,500	cubic metres/month	\$1.549	/cubic metre	\$1.589	/cubic metre
	10,001	to 1,000,000	gallons/month	\$7.041	/1,000 gallons	\$7.224	/1,000 gallons
	1,601	to 160,000	cubic feet/month	\$4.387	/100 cubic feet	\$4.501	/100 cubic feet
<i>Sewer rate expressed as a % of water rate</i>				165.6%		168.1%	
Third Block		Over 4,500	cubic metres/month	\$1.302	/cubic metre	\$1.336	/cubic metre
		Over 1,000,000	gallons/month	\$5.917	/1,000 gallons	\$6.071	/1,000 gallons
		Over 160,000	cubic feet/month	\$3.686	/100 cubic feet	\$3.782	/100 cubic feet
<i>Sewer rate expressed as a % of water rate</i>				151.6%		153.9%	
Basic Charges (\$/month)							
Meter	Service Charge		Minimum Charge		Flat Rate/unit		
	Current 2018	Proposed 2019	Current 2018	Proposed 2019	Current 2018	Proposed 2019	
Standard	\$6.90	\$7.08	No minimum charge		\$46.91	\$48.13	
All other sizes							
Monthly	\$6.90	\$7.08	\$47.00	\$48.00	\$46.91	\$48.13	
Quarterly	\$20.70	\$21.24			\$140.73	\$144.39	
Annually	\$82.80	\$84.96			\$562.92	\$577.56	
Late payment charge is 2%. A bill payment is late if not made within 16 days of the date on which the bill is issued.							

Schedule 3 - Recommended 2019 Water Rate for the Sun Valley Heights Homeowners Co-operative Water System

Sun Valley Home Owners Co-Operative 2019 Projected Costs

Cost Item	Budget	Projected Cost
	2018	2019
	\$	\$
Hydro Electricity	2,000	2,000
Property Taxes	420	446
Laboratory Costs	2,255	2,255
Vehicle	2,870	2,870
Operator & Reports	15,850	16,513
Operation Materials	2,600	2,600
Maintenance Materials & Other	600	600
Machinery and Equipment	1,550	1,550
TOTAL	28,145	28,834
Monthly charges per property owner (billings sent quarterly)	\$138	\$141
Annual cost per property owner	\$1,656	\$1,692

Schedule 4 - Recommended 2019 Water & Sanitary Sewer Systems Miscellaneous Fees & Charges

THE REGIONAL MUNICIPALITY OF DURHAM

WATER & SANITARY SEWER SYSTEMS MISCELLANEOUS CHARGES

(Excludes Any Applicable Taxes – except where noted)

Schedule 4 - Recommended 2019 Miscellaneous Charges Item Number & Description	By-Law Schedule Reference		Existing 2018 Charges		Recommended 2019 Charges
	Water By-law #89-2003	Sewer By-law #90-2003	Water \$	Sewer \$	Note: Changes are in Bold \$
SERVICE CONNECTION RELATED CHARGES					
1) Water Service Connection Charges, for single family and semi-detached residential lots including those for pre-installed stubs: a) 19mm (3/4") diameter - Base Rate – Apr 1 – Nov 30 - Winter Rate – Dec 1 – Mar 31 b) 25mm (1") diameter - Base Rate – Apr 1 – Nov 30 - Winter Rate – Dec 1 – Mar 31	D1		3,344.00 4,383.00 3,901.00 5,032.00		3,700.00 4,810.00 4,600.00 5,980.00
2) Water Service Connections, not covered above, including apartment buildings (from duplexes to multi floor buildings), townhouses and condominiums on blocks of land or recreational, institutional, commercial and industrial buildings: a) 19-mm (3/4") diameter minimum charge b) 25-mm (1") diameter minimum charge	D2		Actual Cost 3,344.00 3,901.00		Actual Cost 3,700.00 4,600.00
3) Inspection of an installation of a separate fire line on private property	D3		125.00		125.00
4) Sanitary Sewer Service Connection Charges for single family and semi-detached residential lots for pre-installed stubs 100 or 125mm (4" or 5") diameter: - Base Rate (Apr 1 – Nov 30) - Winter Rate (Dec 1 – Mar 31)		C1		3,843.00 5,005.00	3,843.00 5,005.00
5) Sanitary Sewer Service Connections, not covered above, including apartment buildings (from duplexes to multi-floor buildings), townhouses and condominiums on blocks of land or recreational, institutional, commercial and industrial buildings: - Minimum Charge		C2		Actual Cost 3,843.00	Actual Cost 3,843.00
6) Storm Sewer Service Connections: - Minimum Charge		C3		Actual Cost 3,843.00	Actual Cost 3,843.00

Schedule 4 - Recommended 2019 Miscellaneous Charges Item Number & Description	By-Law Schedule Reference		Existing 2018 Charges		Recommended 2019 Charges
	Water By-law #89-2003	Sewer By-law #90-2003	Water \$	Sewer \$	Note: Changes are in Bold \$
7) Reuse of Water/Sewer Service Connection where building has been or will be demolished or removed: - Inspection fee	D4	C4	125.00	125.00	125.00 each
- Where a disused Water/Sewer Service Connection is to be replaced by the Region			See above service connection charges		
8) Disconnecting, rendering inoperable, reconnecting or restoring Water/Sewer connection	D5	C5	Actual Cost		Actual Cost
FRONTAGE CHARGES (see Notes 1 to 6)					
9) Frontage charges for non-standard watermain sizes and frontage charges for watermain projects initiated by petition.	E1 & E2		Varies		Actual Cost
10) Standard 150-mm (6-inch) diameter Watermain (Note 3) i) Cash cost (standard) - /metre - /foot ii) Per annum (see Note 2) - /metre - /foot	E1 & E2		296.00 90.22 40.22 12.26		378.00 115.21 51.36 15.65
11) Standard 200-mm (8-inch) diameter Watermain i) Cash cost (standard) - /metre - /foot ii) Per annum (see Note 2) - /metre - /foot	E1 & E2		344.00 104.85 46.74 14.25		436.00 132.89 59.24 18.06
12) Standard 300-mm (12-inch) diameter Watermain i) Cash cost (standard) - /metre - /foot ii) Per annum (see Note 2) - /metre - /foot	E1 & E2		381.00 116.13 51.77 15.78		476.00 145.08 64.67 19.71
13) Frontage charges for non-standard Sanitary Sewer sizes and frontage charges for Sanitary Sewer projects initiated by petition.		D1 & D2		Varies	Actual Cost
14) Standard 200-mm (8-inch) diameter Sanitary Sewer (Note 3) i) Cash cost (standard) - /metre - /foot ii) Per annum (see Note 2) - /metre - /foot		D1 & D2		331.00 100.89 44.97 13.71	419.00 127.71 56.93 17.35

Schedule 4 - Recommended 2019 Miscellaneous Charges Item Number & Description	By-Law Schedule Reference		Existing 2018 Charges		Recommended 2019 Charges
	Water By-law #89-2003	Sewer By-law #90-2003	Water \$	Sewer \$	Note: Changes are in Bold \$
payment of Water/Sewer bill, or any Regional invoice, or for violation of any provision of the Water System/Sewer System By-laws (water not necessarily shut off)			94.00 for both		94.00 for both
Turn Water On			80.00 for both		80.00 for both
18) Standby charge while water service is shut off but not disconnected or water service is available for fire protection purposes but not connected	F2		Standard Service Charge		Standard Service Charge
19) <u>Testing of Water Meter</u> Initiated by Customer: - Deposit Fee where the meter is found to measure the flow of water within or below AWWA Specifications - Up to a maximum size of 25mm - Over 25mm Fee if meter is found to measure the flow of water above AWWA specifications	F3		210.00		210.00
			210.00 Actual Cost		210.00 Actual Cost
			No Charge		No Charge
20) Unmetered water used for construction (building purposes) per service	F4		146.00		187.00
21) Drawing Regional water from hydrant for purposes other than fire protection Area Municipalities & Others (All Users) - /cubic metre - /1000 gallons - Deposit - Administrative Charge - Minimum Charge per Month - Valve installation/removal	F5		3.73 16.95 1,200.00 128.00 1,200.00 104.00		3.80 17.29 1,800.00 132.00 1,800.00 107.00
22) Repair or replacement of frozen, damaged or missing water meter - Up to a maximum size of 19mm (3/4") - Over 19mm (3/4")	F6		210.00 Actual Cost		210.00 Actual Cost
23) Thawing of service pipes	F7		No Charge		No Charge
24) Thawing of private hydrants or unmetered Fire Lines	F8		Actual Cost		Actual Cost
25) Cleaning sanitary sewer services		E3		No Charge	No Charge
26) Repair to or renewal of sanitary building sewers		E4		No Charge	No Charge
27) Supplying Statement of Account	F9	E5	34.00 for both		35.00 for both
28) Charge for Regional Solicitor providing information	F10	E6	92.00 for both		94.00 for both
29) Processing of Dishonoured Payments	F11	E7	48.00 for both		48.00 for both
30) Account Payment Transfer Fee	F12	E8	10.50 for both		11.00 for both
31) Change of Occupancy	F13	E9	42.00 for both		42.00 for both
32) Charge for Late Payment of Water/Sewer Surcharge Rates	F14	E10	2%		2%

Schedule 4 - Recommended 2019 Miscellaneous Charges Item Number & Description	By-Law Schedule Reference		Existing 2018 Charges		Recommended 2019 Charges
	Water By-law #89- 2003	Sewer By-law #90- 2003	Water \$	Sewer \$	Note: Changes are in Bold \$
33) Lien Administration Fee	F15	E11	74.00 for both		50.00 for both
34) Installation and removal of anti-tampering devices on fire hydrants & curb stops	F16		138.00		138.00
35) Cross Connection Control Program Test Report	New		--		25.00
36) Water from Water Supply Plants, Water Pollution Control Plants, Works Depots & Bulk Filling Stations - /cubic metre - /1000 gallons - Minimum Volume Charge \$/per month - Occasional Users – Flat Rate - Account Administration Fee \$/year - Key deposit - Refundable on return of key - Swipe card	F17				
			3.00		3.15
			13.64		14.32
			52.10		150.00
			37.70		38.50
			123.40		125.90
			210.10		214.30
			174.40		177.90
			35.00		35.70
37) Fire Flow tests: - Full test (May 1 – Oct 31) - Full test (Nov 1 – Apr 30) - Opening Hydrants (May 1 – Oct 31) - Opening Hydrant (Nov 1 – Apr 30)	F18				
			467.20		467.20
			812.90		812.90
			320.30		320.30
			652.80		652.80
38) Sewage Surcharge and Compliance Agreements		E12		1,885.00	1,885.00
39) Disposal of Septic Tank and Holding Tank Waste and the disposal of Water Pollution Control Plant Sludge: a) Hauled Domestic Waste - /cubic metre - /1000 gallons b) Sludge from WPCP within the Regions of York and Durham and trucked to the incineration facilities at Duffin Creek WPCP - /cubic metre - /1000 gallons c) Annual charge for registration of Haulers (up to 10 vehicles) - Additional stickers if more than 10 vehicles, or replacement stickers – per sticker d) ICI Sector areas (discharges up to 50,000 gallons) e) ICI Sector areas (discharges of 50,001 to 100,000 gallons)		E2			
				19.56	19.56
				88.93	88.93
				16.19	16.19
				73.59	73.59
				175.00	175.00
				10.20	10.20
				522.75	522.75
				1,024.59	1,024.59
40) Copies of By-laws Water System, Sewer System and Sewer Use (+ Applicable taxes)	F19	E13	20.10/copy		20.50/copy
41) Sewer TV Inspection Reports and Videos per report or video (+ Applicable taxes)		E14		20.43	20.43
42) Sewer Use By-law Agreement extra				0.53	0.53

Schedule 4 - Recommended 2019 Miscellaneous Charges Item Number & Description	By-Law Schedule Reference		Existing 2018 Charges		Recommended 2019 Charges
	Water By-law #89- 2003	Sewer By-law #90- 2003	Water \$	Sewer \$	Note: Changes are in Bold \$
strength waste (\$/k.g.)					
43) Sewer Appeal Application per request		E15		750.00	850.00

Schedule 5 - Recommended 2019 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory Located at the Duffin Creek WPCP

THE REGIONAL MUNICIPALITY OF DURHAM				
2019 FEES AND CHARGES				
WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY				
				2019 Changed Bold
Description		2018 Rate (before appl. Taxes)		2019 Rate (before appl. Taxes)
Laboratory Fees Page 1 of 9		\$		\$
ONTARIO DRINKING WATER REGULATION 170/03 PACKAGES				
Microbiological				
Presence/Absence Test (P/A for TC, EC)		\$14.30		\$14.30
Treated Water (P/A, HPC or BKD)		\$26.50		\$26.50
Well Water/Raw/Reg.319 (TC, EC)		\$27.50		\$27.50
Well Water/Treated/Distribution (TC, EC, HPC)		\$37.70		\$37.70
Single test by membrane filtration (e.g. MFHPC, MFTC)		\$13.30		\$13.30
Test for E. coli by membrane filtration		\$14.30		\$14.30
Inorganic Chemical				
All Parameters required under O.Reg. 170/03 Schedule 23 (As, B, Ba, Cd, Cr, Hg, Sb, Se, U)		\$80.60		\$80.60
All Parameters required under O.Reg. 170/03 Schedule 23 plus additional metals (Al, As, B, Ba, Cd, Co, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Sb, Se, U, Zn)		\$80.60		\$80.60
Inorganic Ions required under O.Regulation 170/03 (F, NO2, NO3, Na)		\$79.60		\$79.60
Inorganic Ions required under O.Reg. 170/03 plus additional Ions (Hardness*, Ca, Mg, Na, K, Ammonia, F, Cl, Br, NO2, NO3, PO4, SO4)		\$79.60		\$79.60
(Nitrite, Nitrate)		\$52.00		\$52.00
(Sodium)		\$34.70		\$34.70
(Fluoride)		\$34.70		\$34.70
(Lead testing as required under O.Regulation 170)		\$35.70		\$35.70
(Lead testing as required under O.Regulation 243) - For Standing & Flushed		\$150.00		\$150.00
Organic Chemical				
THMs (Trihalomethanes)		\$102.00		\$102.00
bromodichloromethane	bromoform			
dibromochloromethane	chloroform			
THM (Total)				
All Parameters required under Schedule 24 (Includes all Parameters described under the following test CODES listed in this book - VOC, OC, TRIAZ, OP, PHENAC, CHLORPHEN, CARBUREA, GLYPH, DIPARA, PCB)		\$1,087.30		\$1,087.30
Combined Packages				
York Region Drinking Water Package A (Includes DW2M (less TURB), Hg, B, Ba, U, VOC, OC, TRIAZ, OP, PHENAC, CHLORPHEN, CARBUREA, GLYPH, DIPARA, PCB)		\$1,285.20		\$1,285.20
*Calculation included (no charge).				

THE REGIONAL MUNICIPALITY OF DURHAM			
2019 FEES AND CHARGES			
WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY			
Description	2018 Rate		2019 Changed Bold
	(before appl. Taxes)		2019 Rate (before appl. Taxes)
	\$		\$
Laboratory Fees Page 2 of 9			
MICROBIOLOGICAL TESTS			
O.Regulation 170/03			
Presence/Absence Test (P/A for TC, EC)	\$14.30		\$14.30
Treated Water (P/A, HPC or BKD)	\$26.50		\$26.50
Well Water/Raw/Reg.319 (TC, EC)	\$27.50		\$27.50
Well Water/Treated/Distribution (TC, EC, HPC)	\$37.70		\$37.70
Raw Water Intake, Municipal (TC, EC, BKD)	\$32.60		\$32.60
Treated/Distribution Water (TC, EC, BKD, HPC)	\$42.80		\$42.80
Single test by membrane filtration (e.g. MFHPC, MFTC)	\$13.30		\$13.30
Test for E. coli by membrane filtration	\$14.30		\$14.30
New Mains			
New Water Mains (TC, EC, BKD, HPC)	\$42.80		\$42.80
New Water Mains (TC, EC, BKD, HPC)+Thiosulphate	\$70.00		\$70.00
Waste Water			
E.coli (Final Effluent)	\$16.30		\$16.30
E.coli (Sludge / Cake)	\$30.60		\$30.60
Final Effluent (TC, EC)	\$30.60		\$30.60
Final Effluent (TC, EC, FS)	\$40.80		\$40.80
Microscopic Examination	\$100.00		\$100.00
Recreational Water			
E.coli (Lake/Beach/Creek/Pond/River)	\$14.30		\$14.30
Lakes / Bathing beaches (TC, EC, FS)	\$37.70		\$37.70
Any Single Membrane Filtration Test (eg. FC - MFFC, AE - MFAE, PS, SA etc.)	\$25.50		\$25.50
Raw and Treated Water			
Algae Enumeration and Identification	\$100.00		\$100.00
Algae by Microscopic Particulate Analysis	\$500.00		\$500.00
Microcystin	\$153.00		\$153.00
F Specific Coliphages	\$200.00		\$200.00
Mycology (Fungi)			
Fungal Enumeration	\$25.00		\$25.00
Fungal Identification (Consultation Required)	\$130.00		\$130.00
Air Quality (Microbial - Bacteria, Yeasts & Molds)	\$75.00		\$75.00
Enumeration of Bacteria, Yeast and Molds by RODAC plates (BHI & SAB/MEA)	\$75.00		\$75.00
Protozoa Testing			
Cryptosporidium and Giardia (MBCG)	\$816.00		\$816.00
Cryptosporidium, Giardia and Microscopic Particulate Analysis (MBCGMPA)	\$1,100.00		\$1,100.00
Pigment Bearing Algae and Diatoms (MBPBAD)	\$500.00		\$500.00
Cryptosporidium, Giardia and Pigment Bearing Algae and Diatoms (MBCGPBAD)	\$1,100.00		\$1,100.00
Sterility (Spore) Testing			
Bacillus subtilis (DRY)	\$50.00		\$50.00
Bacillus stearothermophilus (STEAM)	\$50.00		\$50.00
Other Bacteriological Groups			
Private Wells (TC, EC)(Signed Report faxed next day)	\$76.50		\$76.50
Iron Bacteria - Presence/Absence	\$75.00		\$75.00
Sulphur Bacteria - Presence/Absence	\$75.00		\$75.00
Iron & Sulphur Bacteria - Presence/Absence	\$125.00		\$125.00
Enumeration for (TC, EC, FC, HPC, BKD, PS, AE or FS) per parameter	\$51.00		\$51.00

THE REGIONAL MUNICIPALITY OF DURHAM					
2019 FEES AND CHARGES					
WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY					
Description	2018 Rate		2019 Rate		2019 Changed Bold
	(before appl. Taxes)		(before appl. Taxes)		
	\$	\$	\$	\$	
	Water	S/S/S	Water	S/S/S	
Laboratory Fees Page 3 of 9					
GENERAL INORGANIC TESTS					
pH, Conductivity, Alkalinity	\$27.50	\$32.60	\$27.50	\$32.60	
Alkalinity	\$16.30	\$21.40	\$16.30	\$21.40	
Conductivity	\$11.20	\$16.30	\$11.20	\$16.30	
pH	\$11.20	\$16.30	\$11.20	\$16.30	
Fluoride by Ion Selective Electrode	\$21.40	\$27.50	\$21.40	\$27.50	
Total Residual Chlorine	\$11.20	\$19.40	\$11.20	\$19.40	
Free Residual Chlorine	\$11.20	\$19.40	\$11.20	\$19.40	
Colour	\$16.30	\$19.40	\$16.30	\$19.40	
Turbidity	\$16.30	\$19.40	\$16.30	\$19.40	
Biochemical Oxygen Demand (BOD5)	\$35.70	\$42.80	\$35.70	\$42.80	
Carbonaceous Biochemical Oxygen Demand (cBOD5)	\$35.70	\$42.80	\$35.70	\$42.80	
Chemical Oxygen Demand (COD)	\$31.60	\$37.70	\$31.60	\$37.70	
Dissolved Organic Carbon (DOC)	\$29.60	\$37.70	\$29.60	\$37.70	
Cyanide (Total)	\$40.80	\$47.90	\$40.80	\$47.90	
Cyanide (Free)	\$40.80	\$47.90	\$40.80	\$47.90	
Phenol	\$37.70	\$45.90	\$37.70	\$45.90	
Sulphide (H2S)	\$37.70	\$45.90	\$37.70	\$45.90	
Silicate (SiO3)	\$27.50	\$32.60	\$27.50	\$32.60	
Dissolved Solids (DS)	\$35.70	\$21.40	\$35.70	N/A	
Dissolved Solids, Ashed Dissolved Solids, Volatile Dissolved Solids*	\$26.50	\$29.60	\$26.50	N/A	
Suspended Solids (SS)	\$15.30	\$17.30	\$15.30	\$17.30	
Suspended Solids, Ashed Suspended Solids, Volatile Suspended Solids*	\$21.40	\$24.50	\$21.40	\$24.50	
Total Solids (TS)	\$13.30	\$15.30	\$13.30	\$15.30	
Total Solids, Ashed Total Solids, Volatile Total Solids*	\$19.40	\$21.40	\$19.40	\$21.40	
Dissolved Solids, Suspended Solids, Total Solids	\$35.70	\$42.80	\$35.70	\$42.80	
Total Oil & Grease	\$53.00	\$63.20	\$53.00	\$63.20	
Total / Mineral / Animal & Vegetable* Oil & Grease	\$80.60	\$96.90	\$80.60	\$96.90	
Volatile Acids	\$30.60	\$30.60	\$30.60	\$30.60	
Moisture	N/A	\$19.40	N/A	\$19.40	
S/S/S = Sewage, Sludge and Soil					
*Calculation included (no charge).					

THE REGIONAL MUNICIPALITY OF DURHAM				
2019 FEES AND CHARGES				
WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY				
Description	2018 Rate (before appl. Taxes)		2019 Rate (before appl. Taxes)	
	\$ Water	\$ S/S/S	\$ Water	\$ S/S/S
Laboratory Fees Page 4 of 9				
GENERAL INORGANIC TESTS				
Ion Chromatography				
Hardness*,Ca,Mg,Na,K,Ammonia,F,Cl,Br,NO2,NO3,PO4,SO4	\$79.60	\$95.90	\$79.60	\$95.90
F,Cl,Br,NO2,NO3,PO4,SO4	\$52.00	\$62.20	\$52.00	\$62.20
Hardness*,Ca,Mg,Na,K,Ammonia	\$52.00	\$62.20	\$52.00	\$62.20
Any One of the Above Single Elements by IC	\$34.70	\$40.80	\$34.70	\$40.80
Nutrients by Segmented Flow Analyzer				
NH3+NH4, PO4, NO2, NO2+NO3, TKN, TP	\$98.90	\$118.30	\$98.90	\$118.30
NH3+NH4, PO4, NO2, NO2+NO3	\$59.20	\$70.40	\$59.20	\$70.40
TKN, TP	\$59.20	\$70.40	\$59.20	\$70.40
Any One of the Above Single Nutrients by SFA	\$38.80	\$46.90	\$38.80	\$46.90
Ultra Low Dissolved PO4 (clean water only)	\$66.30	N/A	\$66.30	N/A
Metals				
Mercury (Hg) by Cold Vapour AA	\$35.70	\$42.80	\$35.70	\$42.80
Acid Soluble Metals by ICP (Al, Fe, Mn, Pb, Zn)	\$40.80	N/A	\$40.80	N/A
Cation Scan by ICP (B,Ba,Be,Ca,K,Li,Mg,Na,SiO3,Sr,U)	\$40.80	N/A	\$40.80	N/A
Heavy Metals Scan by ICP: Al, As, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Se, Sb, Zn	\$54.10	\$64.30	\$54.10	\$64.30
Heavy Metals Scan by ICP: As, Cd, Co, Cr, Cu, Mo, Ni, Pb, Se, Zn	N/A	\$64.30	N/A	\$64.30
Regulation 170 Metals: Al, As, B, Ba, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Sb, Se, U, Zn	\$76.50	N/A	\$76.50	N/A
Any One of the Above Single Metals by ICP-OES or ICP-MS	\$35.70	\$42.80	\$35.70	\$42.80
(Lead testing as required under O.Regulation 170)	\$35.70	N/A	\$35.70	N/A
(Lead testing as required under O.Regulation 243)	\$75.00	N/A	\$75.00	N/A
Other elements such as (Ag, Ti, V, Tl, etc.) are available as single element requests.				
S/S/S = Sewage, Sludge and Soil				
* = Calculation Included (no charge)				

THE REGIONAL MUNICIPALITY OF DURHAM			
2019 FEES AND CHARGES			
WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY			
Description	2018 Rate		2019 Changed Bold
	(before appl. Taxes)		2019 Rate (before appl. Taxes)
Laboratory Fees Page 5 of 9	\$		\$
<u>INORGANIC MONITORING PACKAGES</u>			
<u>Drinking Water</u>			
Drinking Water Package #1	\$96.90		\$96.90
(pH, conductivity, alkalinity, chloride, fluoride, bromide, nitrite, nitrate, phosphate, sulphate, calcium, magnesium, sodium, potassium, ammonia, hardness*, ionic balance*, total anions*, total cations*, calculated dissolved solids*, calculated conductivity*, langelier index*)			
Drinking Water Package #2	\$149.90		\$149.90
(colour, turbidity, Al, Fe, Mn, Pb, Zn) (pH, conductivity, alkalinity, chloride, fluoride, bromide, nitrite, nitrate, phosphate, sulphate, calcium, magnesium, sodium, potassium, ammonia, hardness*, ionic balance*, total anions*, total cations*, calculated dissolved solids*, calculated conductivity*, langelier index*)			
Drinking Water Package #2 with expanded metals	\$174.40		\$174.40
(colour, turbidity, Al, As, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Sb, Se, Zn) (pH, conductivity, alkalinity, chloride, fluoride, bromide, nitrite, nitrate, phosphate, sulphate, calcium, magnesium, sodium, potassium, ammonia, hardness*, ionic balance*, total anions*, total cations*, calculated dissolved solids*, calculated conductivity*, langelier index*)			
Drinking Water Package #3 with expanded metals	\$262.20		\$262.20
Colour, (Al, Sb, As, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Mo, Ni, Se, U, Zn), Hg pH, Conductivity, Alkalinity, (Ca, Mg, K, Na, NH3, Hardness*) (Br, Cl, R, NO2, NO3, [NO2+NO3]*, SO4, PO4), DOC, TKN			
<u>Landfill Monitoring</u>			
Surface Water	\$370.30		\$370.30
(BOD, COD, colour, phenol, total solids, suspended solids, dissolved solids*, pH, conductivity, alkalinity, fluoride, chloride, bromide, nitrite, nitrate, sulphate, phosphate, calcium, magnesium, sodium, potassium, ammonia, hardness*, total cations*, total anions*, ionic balance*, calculated dissolved solids*, calculated conductivity*, langelier index*, dissolved organic carbon, total kjeldahl nitrogen, total phosphorus, Al, As, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Sb, Se, Zn)			
(Filtration of Raw Landfill samples)	\$35.70		\$35.70
*Calculation included (no charge).			

THE REGIONAL MUNICIPALITY OF DURHAM			
2019 FEES AND CHARGES			
WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY			
Description	2018 Rate		2019 Changed Bold
	(before appl. Taxes)		2019 Rate (before appl. Taxes)
Laboratory Fees Page 6 of 9	\$		\$
<u>INORGANIC MONITORING PACKAGES</u>			
<u>Sewer Use By-law</u>			
Complete Inorganic Package	\$475.00		\$475.00
sulphate, phenol, cyanide, Total/Mineral/Animal & Vegetable Oil & Grease Hg, Ag, Al, As, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Sb, Se, Sn, Ti, Zn			
<u>Sewage and Industrial Waste</u>			
Monitoring Package #1	\$42.80		\$42.80
(BOD5, suspended solids)			
Monitoring Package #2	\$100.00		\$100.00
(BOD5, susp. solids, total kjeldahl nitrogen, total phosphorus)			
Monitoring Package #2 plus Metals	\$161.20		\$161.20
(BOD5, susp. solids, total kjeldahl nitrogen, total phosphorus Al, As, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Sb, Se, Zn)			
Monitoring Package #3	\$149.90		\$149.90
(BOD5, susp. solids, total kjeldahl nitrogen, total phosphorus ammonia+ammonium, nitrite, nitrite+nitrate, diss. phosphate)			
Monitoring Package #3 plus Metals	\$211.10		\$211.10
(BOD5, susp. solids, total kjeldahl nitrogen, total phosphorus ammonia+ammonium, nitrite, nitrite+nitrate, diss. phosphate Al, As, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Sb, Se, Zn)			
Monitoring Package #4 plus Metals	\$262.10		\$262.10
(BOD5, CBOD5, susp. solids, total kjeldahl nitrogen, total phosphorus ammonia+ammonium, nitrite, nitrite+nitrate, diss. phosphate, pH Al, As, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Sb, Se, Zn)			
<u>Sludge</u>			
Sludge Monitoring Package #1	\$116.30		\$116.30
(total solids, total kjeldahl nitrogen, total phosphorus, ammonia+ammonium, nitrite, nitrite+nitrate, diss. phosphate)			
Sludge Monitoring Package #1 plus Metals	\$177.50		\$177.50
(total solids, total kjeldahl nitrogen, total phosphorus, ammonia+ammonium, nitrite, nitrite+nitrate, diss. phosphate Hg, As, Cd, Co, Cr, Cu, Mo, Ni, Pb, Se, Zn)			
Sludge Monitoring Package #2 (Agrisludge)	\$204.00		\$204.00
(total solids, ashed total solids, volatile total solids*, total kjeldahl nitrogen, total phosphorus, ammonia+ammonium nitrite + nitrate, Hg, As, Cd, Co, Cr, Cu, K, Mo, Ni, Pb, Se, Zn)			
*Calculation included (no charge).			

THE REGIONAL MUNICIPALITY OF DURHAM			
2019 FEES AND CHARGES			
WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY			
Description		2019 Changed Bold	
		2018 Rate (before appl. Taxes)	2019 Rate (before appl. Taxes)
Laboratory Fees Page 7 of 9		\$	\$
ORGANIC MONITORING PACKAGES			
Drinking / Surface / Ground Water and Wastewater			
THMs (Trihalomethanes)			
bromodichloromethane	bromoform	\$102.00	\$102.00
dibromochloromethane	chloroform		
THM (Total)			
BTEX by Purge & Trap GC/MS			
benzene	ethylbenzene	\$80.60	\$80.60
m,p-xylene	o-xylene		
toluene	Xylene (Total)		
Taste & Odour			
geosmin	2-methylisoborneol (MIB)	\$250.00	\$250.00
2-isobutyl-3-methoxypyrazine	2-isopropyl-3-methoxypyrazine		
2,3,6-trichloroanisole	2,4,6-trichloroanisole		
Haloacetic Acids (Disinfection By-Products)			
bromochloroacetic acid	dibromoacetic acid	\$198.90	\$198.90
dichloroacetic acid	monobromoacetic acid		
monochloroacetic acid	trichloroacetic acid		
Volatile Organic Compounds			
benzene	cis-1,2-dichloroethylene	\$128.50	\$128.50
bromodichloromethane	trans-1,2-dichloroethylene		
bromoform	dichloromethane		
bromomethane	1,2-dichloropropane		
carbon tetrachloride	cis-1,3-dichloropropylene		
chlorobenzene	trans-1,3-dichloropropylene		
chlorodibromomethane	ethylbenzene		
chloroethane	styrene		
chloroform	1,1,2,2-tetrachloroethane		
chloromethane	toluene		
tetrachloroethylene (perchloroethylene)	1,1,1-trichloroethane		
1,2-dibromoethane(ethylene dibromide)	1,1,2-trichloroethane		
1,2-dichlorobenzene	trichloroethylene		
1,3-dichlorobenzene	trichlorofluoromethane		
1,4-dichlorobenzene	vinyl chloride		
1,1-dichloroethane	o-xylene		
1,2-dichloroethane	m,p-xylene		
1,1-dichloroethylene	THM (Total)		
methyl tert-butyl ether (MTBE)	xylene (Total)		
methyl ethyl ketone (MEK)	2-hexanone		
methyl isobutyl ketone (MIBK)	acetone		
1,1,1,2-tetrachloroethane	1,2,4-trichlorobenzene		
Pesticide/Herbicide Analysis			
Organochlorine Pesticides			
aldrin	endosulphan I	\$123.40	\$123.40
a-BHC	endosulphan II		
b-BHC	endosulphan sulphate		
g-BHC (Lindane)	endrin		
a-chlordane	heptachlor		
g-chlordane	heptachlor epoxide		
p,p'-DDD	methoxychlor		
p,p'-DDE	mirex		
p,p'-DDT	oxychlordane		
o,p'-DDT	trifluralin		
dieldrin	toxaphene		

THE REGIONAL MUNICIPALITY OF DURHAM			
2019 FEES AND CHARGES			
WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY			
		2019 Changed Bold	
Description		2018 Rate (before appl. Taxes)	2019 Rate (before appl. Taxes)
Laboratory Fees Page 8 of 9		\$	\$
ORGANIC MONITORING PACKAGES			
Pesticide/Herbicide Analysis			
Triazine Herbicides			
alachlor (Lasso)	metolachlor	\$107.10	\$107.10
ametryn	metribuzin (Sencor)		
atraton	prometon		
atrazine	prometryn		
cyanazine (Bladex)	propazine		
desethyl atrazine	simazine		
Organophosphorus Pesticides			
chlorpyrifos (Dursban)	malathion	\$107.10	\$107.10
chlorpyrifos-methyl (Reldan)	methyl parathion		
diazinon	mevinphos (Phosdrin)		
dichlorvos	parathion		
dimethoate	phorate (Thimet)		
ethion			
fenchlorphos (Ronnel)	terbufos		
guthion (Azinphos-methyl)			
benzo(a)pyrene			
Phenoxy Acid Herbicides			
2,4-dichlorophenoxyacetic acid (2,4-D)	MCPA	\$161.20	\$161.20
bromoxynil			
dicamba	picloram		
diclofop-methyl			
Chlorophenols			
2,4-dichlorophenol	2,3,4,6-tetrachlorophenol	\$161.20	\$161.20
2,4,6-trichlorophenol			
Carbamate & Phenyl Urea Pesticides/Herbicides			
Carbaryl	Carbofuran	\$239.70	\$239.70
Diuron	Triallate		
Glyphosate		\$198.90	\$198.90
Diquat	Paraquat	\$198.90	\$198.90
PCB Analysis			
Polychlorinated Biphenyls		\$80.60	\$80.60
PAHs (Polynuclear Aromatic Hydrocarbons) by GC/MSD			
Acenaphthene	Chrysene	\$229.50	\$229.50
Acenaphthylene	Dibenz(a,h)anthracene		
Anthracene	Fluoranthene		
Benzo(a)anthracene	Fluorene		
Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene		
Benzo(b)fluoranthene	1-Methylnaphthalene		
Benzo(g,h,i)perylene	2-Methylnaphthalene		
Benzo(k)fluoranthene	Naphthalene		
1-Chloronaphthalene	Phenanthrene		
1-Chloronaphthalene	Pyrene		
Open Characterization (Semi-quantitative)			
Volatiles (Scans for Volatile Organic Compounds)		\$250.00	\$250.00
Extractables (Scans for Extractable Organic Compounds)		\$300.00	\$300.00

THE REGIONAL MUNICIPALITY OF DURHAM			
2019 FEES AND CHARGES			
WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY			
		2019 Changed Bold	
Description		2018 Rate (before appl. Taxes)	2019 Rate (before appl. Taxes)
Laboratory Fees Page 9 of 9		\$	\$
ORGANIC MONITORING PACKAGES			
Industrial Sewer Use By-law Acid/Base/Neutral Compounds			
di-n-butylphthalate	bis(2-ethylhexyl)phthalate	\$214.20	\$214.20
Polychlorinated Biphenyls		\$80.60	\$80.60
Industrial Sewer Use By-law Volatile Organic Compounds		\$134.60	\$134.60
1,1,2,2,-tetrachloroethane	m/p-xylene		
1,2-dichlorobenzene	o-xylene		
1,4-dichlorobenzene	styrene		
benzene	tetrachloroethylene		
chloroform	toluene		
cis-1,2-dichloroethylene	trans-1,3-dichloropropylene		
dichloromethane	trichloroethylene		
ethylbenzene	xylene (Total)		
methyl ethyl ketone (MEK)			
Industrial Sewer Use By-law Nonylphenols & Ethoxylates (Subcontracted)		Subcontractor's Rate	Subcontractor's Rate
nonylphenol	nonylphenol ethoxylates		
Durham/York/Peel Sewer Use By-law Organic Package*		\$386.50	\$386.50
1,1,2,2,-tetrachloroethane	m/p-xylene		
1,2-dichlorobenzene	o-xylene		
1,4-dichlorobenzene	styrene		
benzene	tetrachloroethylene		
chloroform	toluene		
cis-1,2-dichloroethylene	trans-1,3-dichloropropylene		
dichloromethane	trichloroethylene		
ethylbenzene	xylene (Total)		
methyl ethyl ketone (MEK)			
di-n-butyl phthalate	bis (2-ethylhexyl) phthalate		
PCB (Total)			
* If nonyl phenol/nonyl phenol ethoxylates req'd, please request as add-on to package			
Total Petroleum Hydrocarbons (TPH) in Water (Subcontracted)		Subcontractor's Rate	Subcontractor's Rate
This CCME method includes:			
a). BTEX-Purgeables by P&T GC/MS or HS GC/FID - gasoline range			
b). Extractables by GC/FID - diesel range			
c). Total Oil & Grease by Gravimetric - heavy oil range			
Legal Sample Fees and Legal Storage Fees			
Samples submitted under legal chain of custody	per sample	\$255.00	\$255.00
(To maintain an unbroken chain of custody for samples that may be used for litigation)			
Extended storage for legal samples (longer than 30 days)	per container per month	\$3.10	\$3.10
(Samples will be stored free of charge for 30 days from the date of final report)			
Court testimony by Regional Environmental Laboratory staff	per hour (including travel and wait time)	To be determined case-by-case	To be determined case-by-case
Mileage for appearance	per kilometre (actual)	\$0.55	\$0.55