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The Regional Municipality of Durham
Report

To:	Committee of the Whole
From:	Commissioner of Finance and Commissioner of Works
Report:	#2019-COW-33
Date:	December 11, 2019

Subject:

Recommended 2020 Water and Sanitary Sewer User Rates

Recommendations:

That the Committee of the Whole recommends to Regional Council:

A) That the 2020 Regional water rates increase by 2.3% and Regional sanitary sewer rates increase by 4.0% from the 2019 user rate levels as set out in Schedule 1 and Schedule 2 respectively (attached), effective January 1, 2020 (increase for an average residential customer of 3.2%);

B) That the 2020 Raw Water rates for the Whitby raw water customers be increased by 5.0% as set out in Schedule 1 (attached), effective January 1, 2020;

C) That the 2020 water charges for the Sun Valley Heights Homeowners Co-operative Water System be as set out in Schedule 3 (attached), effective January 1, 2020;

D) That the 2020 Regional Water and Sanitary Sewer Systems Miscellaneous Fees and Charges be as set out in Schedule 4 (attached), effective January 1, 2020;

E) That the 2020 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, 2020; and

F) That the Regional Solicitor be instructed to prepare the necessary by-laws to implement the foregoing recommendations.

Executive Summary:

1. Background

1.1 This report relates to the recommended Water and Sanitary Sewer User Rates to be effective January 1, 2020. It is presented concurrently with and supports Report #2019-COW-32: 2020 Water Supply and Sanitary Sewerage Strategic Issues and Financial Forecast, which describes the financing of proposed capital works in 2020 and future years.

1.2 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. It is imperative that user rates be approved in 2019 in order that they can be implemented with the first customer billings commencing early January 2020.

1.3 The water and sanitary sewage systems are “User Pay” as property taxes are not used to fund water and sanitary sewage systems costs.

1.4 Public notification that the proposed 2020 water and sanitary sewer user fees and related charges will be considered by the Committee of the Whole on December 11th and by Regional Council on December 18th, 2019, was provided twice in local newspapers throughout the Region on November 7th and 14th, 2019 and was posted on the Region’s website.

2. Highlights

2.1 2020 Recommended Water and Sanitary Sewer User Rate Increases

2.1.1 The recommended 2.3% water user rate increase and 4.0% sanitary sewer user rate increase (3.2% combined for an average residential customer) supports an increase in net user rate supported expenditures of 3.5% for water and 5.5% for sanitary sewage. The current 2019 and recommended 2020 Water and Sanitary Sewer User Rates are provided in Schedule 1 and Schedule 2 respectively (attached). This represents approximately $30.56 per year for an average residential customer.

2.1.2 The recommended user rates are based on operating, capital costs and financing as outlined in detail in #2019-F-52: 2020 Current and Capital Business Plans and Budgets and Nine-Year Capital Forecasts for the Water Supply and Sanitary Sewerage Systems (on the December 10th Finance and Administration Committee agenda), as well as customer and consumption projections described below.

2.1.3 For water, the user rate increase of 2.3% is required to finance a proposed preliminary 2020 net user rate supported budgeted expenditure increase of $3.80 million or 3.5% over 2019, which will allow for:

- A net Operating Cost increase of $2.37 million mainly for annual economic and inflationary increases for services and supplies, annualization of 2.3 Full Time Equivalents (FTE’s) from 2019 and 4.4 new FTE’s for 2020; and
- A Capital Program/Contribution increase of $1.43 million in the user rate

supported contribution.

2.1.4 For sanitary sewer, the user rate increase of 4.0% is required to finance the proposed preliminary 2020 user rate supported budgeted net expenditure increase of $5.59 million or 5.5% over 2019, which will allow for:

- A net Operating Cost increase of $3.51 million mainly for annual economic and inflationary increases for services and supplies, annualization of 2.3 Full Time Equivalents (FTE's) from 2019 and 2.2 new FTE's for 2020;
- A Capital Program/Contribution increase of $3.50 million (user rate share); and
- A Debt Repayment decrease of $1.42 million (user rate share) due to debt retirement related to the York Durham system.

2.1.5 The impact on water and sewer system user revenues of the planned closing of the General Motors (GM) assembly plant and related feeder plants has been integrated into the water and sewer user rate projections. In 2018, GM-related water and sewer user rate revenues represented about 1% of total user rate revenues. The recommended overall water and sewer user rate increase of 3.2% incorporates this 1% loss of revenue with the remaining 2.2%, if there was no impact from General Motors, in line with the rate of inflation.

2.2 Basis for the Proposed 2020 User Rates

- The projected data used to develop the 2020 user rates includes the following:

Projected Data Used to Develop 2020 Water & Sanitary Sewer User Rates

Parameter	Water	Sanitary Sewage
Customers		
- Number	179,293	175,252
- Growth from 2019 Actual	1.00%	1.05%
Consumption/Flow		
- Cubic metres (millions)	52.66	50.67
- Increase from 2019 Budget	1.1%	1.1%
Projected User Rate Supported Expenditures		
- Total Expenditures	$111,720,800	$107,677,900
- Increase from 2019 Budget	3.5%	5.5%
User Rate Change Required		
- Percent	**2.3%**	**4.0%**
- Impact on Revenue of 1% Rate Change	**$1,092,000**	**$1,035,000**

- **Impact of a 1% Rate Change** - Any change in either expenditures or other revenues by $1,092,000 for water or $1,035,000 for sanitary sewer is equivalent to a 1% change in the respective user rate.

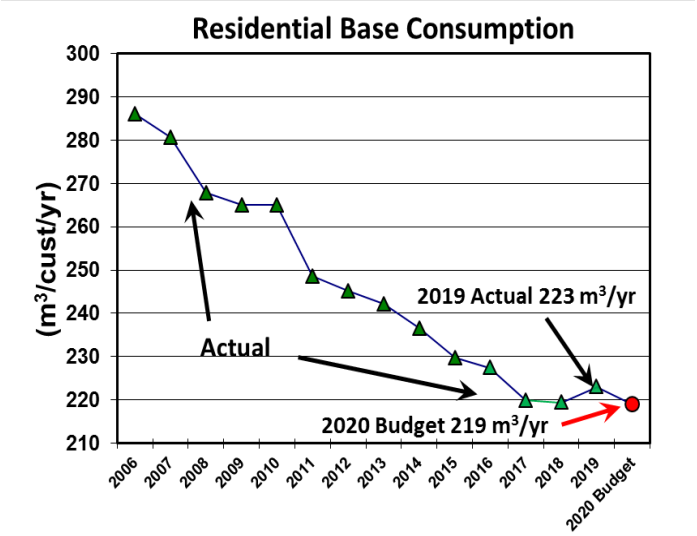
2.3 Customer and Consumption Projections

2.3.1 Customer growth in 2020 is projected at 1.00% for water and 1.05% for sanitary sewage.

2.3.2 Billed water consumption for 2020 is projected as follows:

- **Overall –** Total billed 2020 water consumption and sewage flows are projected to both increase by 1.1% compared to 2019 budget.

- **Residential** – Residential water consumption has two components: Basic day-to-day usage year-round (Base Consumption) and seasonal usage. Base Consumption is recalculated each year using data up to May, that is excluding seasonal summer usage. For several years, residential Base Consumption per customer steadily decreased. Contributing factors included the water efficient fixtures required in new construction by the Provincial Building Code and the popularity of more water efficient appliances.



Until recently the average decline in residential Base Consumption has been 2.4% per year. Starting in 2017, data is suggesting a levelling off, with 2019 coming in slightly higher than 2018. Base usage in 2020 is projected to have levelled off at 219 m^3/customer per year.

- **Non-Residential (ICI) Consumption Share** – ICI consumption share relative to residential usage is projected to decrease to 25% in 2020 from 28% in 2019 due to a combination of a projected 3.3% increase in residential usage and a projected 4.7% decrease in ICI usage.

- **Small to Medium Size ICI Water Users** – Although 1st block consumption is projected to increase, consumption in the second-rate block is projected to decrease for a combined impact of a 3.6% decrease.

- **Large Water Users** – Based on current large customer consumption levels compared to 2019 Budget, it is projected that 2020 3rd block consumption will be 7.3% lower than budgeted for 2019.

2.4 Customer Impacts

2.4.1 Average Residential Customers – It is projected that in 2020, the average annual

residential per customer consumption will be 225.5 m^3 (includes base usage at 219.0 m^3 and seasonal usage at 6.5 m^3). The recommendation that the 2020 water and sanitary sewer user rates be increased over 2019 rate levels results in an increase of $7.64 or 3.2% on a quarterly bill ($30.56 per annum) for the average customer.

2020 Proposed Regional User Rate Charges				
Typical Residential Customer Impact				
Annual Water Consumption		49,610	gallons/year	
		225.5	m^3/year	
Billings ($/quarter)				
	2019	2020		
	Actual	Proposed	Increase	
Water	$118.72	$121.45	$2.73	2.3%
Sewage	$123.05	$127.96	$4.91	4.0%
Total ($/quarter)	$241.77	$249.41	$7.64	3.2%
Annual Billing ($/year)	$967.08	$997.64	$30.56	3.2%

2.4.2 Industry - The proposed 2020 water and sanitary sewer user rates result in a bi-monthly increase of $2,922 or 3.3% for a customer using 227,272 m^3 annually (50 million gallons - a customer in the top 25 users) as indicated below:

2020 Proposed Regional User Rate Charges				
Large Industrial Customer Impact				
Annual Water Consumption		50,000,000	gallons/year	
		227,272	m^3/year	
Billings ($ bimonthly)				
	2019	2020		
	Actual	Proposed	Increase	
Water	$34,822	$35,626	$804	2.3%
Sewage	$52,932	$55,050	$2,118	4.0%
Total ($ bimonthly)	$87,754	$90,676	$2,922	3.3%
Annual Billing ($/year)	$526,524	$544,056	$17,532	3.3%

2.5 Competitiveness of Durham's Water and Sewage Rates

2.5.1 **Residential customers -** Of 13 larger municipalities surveyed across Ontario, Durham's 2019 Regional water and sanitary sewer charges are below average and are the 5th lowest.

2.5.2 **Large users** - The Region's 2019 water and sewage rates were the 3rd lowest, for a large user, of the 13 municipalities surveyed The Region's declining block rates reflect the Region's reduced unit cost of servicing large customers.

2.5.3 **Affordability** – Although in comparative terms, Durham's average residential water and sewer charges compare favorably with other municipalities and utilities, these measures do not directly address the issue of affordability. A frequently used metric for assessing affordability is by comparing water and sewage charges

to average family income, expressed as a percentage. A US Environmental Protection Agency report on drinking water affordability lists a number of studies which suggest an affordability threshold for water and/or sewage charges in the range of 1.5% to 2.5% of average annual income. Durham's water and sewer service costs combined, for an average customer, are below the threshold at about 1% of the average Oshawa census family income. Since this comparison only represents an average, more in-depth comparisons would be more informative. Regional staff are investigating various affordability metrics related to income to gauge in more comprehensive terms the relative affordability of Durham's water and sanitary sewer service charges.

2.6 Other Fees & Charges

2.6.1 **Schedule 1 – Recommended Raw Water Rate** – The Region operates a raw water system in Whitby which is supplied from the Whitby Water Supply plant. By 2020 the number of customers connected to the Region's Raw Water System will have been reduced from three (3) at the beginning of 2018 to one (1) by the end of 2019. Two customers will have converted their raw water usage to Regional potable water. The raw water rate, which is separate from the potable water rate, will be re-analyzed once the full impact of the changes in raw water consumption and costs can be established. Based on the impact of reduced raw water consumption and operating costs in 2020, it is recommended that the raw water rate be increased by 5% or 1.6 cents/cubic metre which is in line with the recommended 2.0 cents/m^3 increase in the third (3^{rd}) block rate. The proposed 2020 raw water rate is approximately 38% of the 3^{rd} block potable water rate.

2.6.2 **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 2020 recommended rate has been adjusted based on projected costs for this local system and is recommended to increase by $6 per quarter ($24/year or about 1.4%).

2.6.3 **Schedule 4 – Recommended Miscellaneous Fees & Charges** – This schedule includes a number of fee categories, each reviewed individually. Most of the recommended 2020 charges increases vary from no increase to about 2%. The recommended charges which differ from current 2019 fees and charges are **bolded**.

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

- **Items 9) to 16) Water & Sanitary Sewer Frontage Charges –** Historically the Region has allowed customers to convert frontage charges from a single upfront payment to payments spread out over 10-years at 6% interest. At the June 26, 2019 Council meeting, approval was provided for extensions in the Greenbelt resulting from successful petitions and that customers be offered optional 10 or 15-year repayment at the prime rate of

the Region's financial institution plus 1.5%, with the prime rate based on the date of the final letter outlining fees owing. Staff was also directed to review frontage charge repayment terms in general as part of the 2020 User Rate Study.

The following is recommended for all frontage charges both inside and outside the Greenbelt, for both water and sanitary sewerage systems and for both petition and non-petition projects:

- **Repayment Period** - Terms of 10 or 15-years be offered to the customer.
- **Interest Rate** – Set at the prime rate of the Region's financial institution plus 1.5%, with the prime rate based on the date of the final letter outlining fees owing.
- **Payments Calculated on an Individual Basis** – Repayment is billed on the water and sewer bills (residential are quarterly) and the amount in each instance will be established in accordance with the above parameters. Since the annual payments will now be case-specific, standard fixed annual amounts will no longer apply and are removed from the Miscellaneous Fees & Charges schedule.
- **Applies to All Cases** – As noted above, these terms would apply to both petition and non-petition as well as both the water and sanitary sewerage systems.

- **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. The recommended 2020 Building Purposes Charge based on 2019 rates and 200 m^3 per unit is $222, an increase from $187 in 2019.

- **Item 36) - Water from Water Supply Plants, Water Pollution Control Plants, Works Depots & Bulk Filling Stations** – Customers can sign up for keys which allow them to purchase water from bulk filling stations which are located at five (5) of the Region's water supply plants. It is recommended that three of the current charges, a Minimum Volume Charge, a Flat Rate and an Annual Account Administration Fee be eliminated and replaced with a simpler approach of charging a one-time new account fee ($42.00) plus a monthly service charge ($21.00). The recommended charges are based on a cost analysis of operating the program and align the charges with the approach used for the potable water system.

2.6.4 **Schedule 5 – Recommended Laboratory Fees** – The recommended 2020 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory is provided in Schedule 5.

3. New Water Billing System

In 2019, the Region implemented a new modern waterbilling system. To be launched in early 2020, the billing system will feature a new web-based customer portal, “MyDurhamWater”, which will provide customers with online access to their accounts to:

- View billing information online;
- Enter meter readings online;
- Choose from multiple payment options, including e-payments;
- Receive bills online through paperless e-billing; and
- Seamlessly access the Region’s website for rates and other water billing information.

4. Risk Factors

The water and sanitary sewer user rates required to support the capital forecasts to 2029 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:

- 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;
- Market price impacts and volatility, including energy input prices and related equipment and supplies; and
- Increased capital investment costs due to asset management and climate change conditions.

5. Future Issues

5.1 Based upon projections to 2029, it is estimated that the combined water and sewer user rate increase of approximately 4% to 6% per year may be required over the forecast period depending on future customer growth, water demand, operating costs and debt charge decisions. The cost factors behind these significant increases include the following:

- Customer growth may be lower than experienced for a number of years and is projected to remain at low levels;
- Billed water consumption has levelled off in the past few years, with reduced consumption per customer offset by increases in number of customers, it is projected that total consumption will continue at current levels;

- Water supply and sanitary sewerage infrastructure require large capital investments to meet regulatory, asset management, climate change adaptation/mitigation 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.

5.2 Total and user rate share of major water and sewage systems capital projects over the forecast period (2020-2029) are discussed in Report #2019-COW-32: 2020 Water Supply and Sanitary Sewerage Strategic Issues and Financial Forecast.

6. Schedules of Rates & Fees

6.1 The recommended Durham Region 2020 water and sanitary sewer user rates, fees and charges are set out in the attached schedules, as follows:

- The recommended 2020 Water User Rates are 2.3% higher than the 2019 rates and are set out in Schedule 1.
- The recommended 2020 Raw Water Rate for the Whitby raw water customers is 5.0% higher than 2019 and is set out in Schedule 1.
- The recommended 2020 Sewage User Rates are 4.0% higher than the 2019 rates and are set out in Schedule 2.
- The recommended 2020 Water Rate for the Sun Valley Heights Homeowners Co-operative Water System is set out in Schedule 3.
- The recommended 2020 Water & Sanitary Sewer Systems Miscellaneous Fees & Charges (adjusted to reflect changes in cost structures and inflation) are set out in Schedule 4.
- The recommended 2020 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory located at the Duffin Creek WPCP is set out in Schedule 5.

7. Attachments

Schedule 1 – Recommended 2020 Water User Rates

Schedule 2 – Recommended 2020 Sewage User Rates

Schedule 3 – Recommended 2020 Water Rate for the Sun Valley Heights Homeowners Co-operative Water System

Schedule 4 – Recommended 2020 Water & Sanitary Sewer Systems Miscellaneous Fees & Charges

Schedule 5 – Recommended 2020 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory Located at the Duffin Creek WPCP

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 2020 Water User Rates

REGIONAL MUNICIPALITY OF DURHAM

Water User Rate Schedule — 2020 Rate Increase = 2.3%

Monthly

Effective January 1, 2020

Volumetric Charges

Block	Consumption Range				Current		Proposed	
	From		To	Units	2019		2020	
First Block	0	to	45	cubic metres/month	$1.112	/cubic metre	$1.137	/cubic metre
	0	to	10,000	gallons/month	$5.054	/1,000 gallons	$5.170	/1,000 gallons
	0	to	1,600	cubic feet/month	$3.149	/100 cubic feet	$3.221	/100 cubic feet
Second Block	46	to	4,500	cubic metres/month	$0.946	/cubic metre	$0.967	/cubic metre
	10,001	to	1,000,000	gallons/month	$4.298	/1,000 gallons	$4.397	/1,000 gallons
	1,601	to	160,000	cubic feet/month	$2.678	/100 cubic feet	$2.739	/100 cubic feet
Third Block		Over	4,500	cubic metres/month	$0.868	/cubic metre	$0.888	/cubic metre
		Over	1,000,000	gallons/month	$3.946	/1,000 gallons	$4.037	/1,000 gallons
		Over	160,000	cubic feet/month	$2.458	/100 cubic feet	$2.515	/100 cubic feet

Basic Charges ($/month)

Meter/Fire Line Size		Service Charge		Minimum Charge		Unmetered Fire Line Charge	
		Current	Proposed	Current	Proposed	Current	Proposed
Inches	mm	2019	2020	2019	2020	2019	2020
Standard	Standard	$18.68	$19.11	n/a	n/a	n/a	n/a
1-inch	25-mm	$37.97	$38.84	$63.00	$65.00	$14.43	$14.76
1 ½-inch	38-mm	$80.82	$82.68	$121.00	$124.00	$19.39	$19.84
2-inch	51-mm	$174.55	$178.56	$234.00	$239.00	$37.54	$38.40
2 ½-inch	64-mm	n/a	n/a	n/a	n/a	$49.74	$50.88
3-inch	76-mm	$306.83	$313.89	$400.00	$410.00	$65.94	$67.46
4-inch	102-mm	$610.12	$624.15	$790.00	$808.00	$131.90	$134.93
5-inch	127-mm	n/a	n/a	n/a	n/a	$177.10	$181.17
6-inch	152-mm	$1,133.93	$1,160.01	$1,442.00	$1,476.00	$243.55	$249.15
8-inch	203-mm	$1,933.10	$1,977.56	$2,370.00	$2,425.00	$405.82	$415.15
10-inch	254-mm	$3,145.71	$3,218.06	$3,755.00	$3,841.00	$647.57	$662.46
12-inch	305-mm	n/a	n/a	n/a	n/a	$913.03	$934.03

Flat Rate (includes consumption)

	Current	Proposed
	2019	2020
Monthly/unit	$43.95	$44.96
Quarterly/unit	$131.85	$134.88
Annually/unit	$527.40	$539.52

Other - Raw Water Rate — Recommended Raw Water Rate Increase: 5.0%

		Current 2019		Proposed 2020	
All volumes	cubic metres	$0.323	/cubic metre	$0.339	/cubic metre
	gallons	$1.469	/1,000 gallons	$1.542	/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 2020 Sewage User Rates

REGIONAL MUNICIPALITY OF DURHAM

Sewage User Rate Schedule **2020 Rate Increase = 4.0%**

Monthly

Effective January 1, 2020

Volumetric Charges

Block	Consumption Range				Current		Proposed	
	From		To	Units	2019		2020	
First Block	0	to	45	cubic metres/month	$1.806	/cubic metre	$1.878	/cubic metre
	0	to	10,000	gallons/month	$8.209	/1,000 gallons	$8.537	/1,000 gallons
	0	to	1,600	cubic feet/month	$5.114	/100 cubic feet	$5.319	/100 cubic feet
Sewer rate expressed as a % of water rate					*162.4%*		*165.1%*	
Second Block	46	to	4,500	cubic metres/month	$1.589	/cubic metre	$1.653	/cubic metre
	10,001	to	1,000,000	gallons/month	$7.224	/1,000 gallons	$7.513	/1,000 gallons
	1,601	to	160,000	cubic feet/month	$4.501	/100 cubic feet	$4.681	/100 cubic feet
Sewer rate expressed as a % of water rate					*168.1%*		*170.9%*	
Third Block		Over	4,500	cubic metres/month	$1.336	/cubic metre	$1.389	/cubic metre
		Over	1,000,000	gallons/month	$6.071	/1,000 gallons	$6.314	/1,000 gallons
		Over	160,000	cubic feet/month	$3.782	/100 cubic feet	$3.934	/100 cubic feet
Sewer rate expressed as a % of water rate					*153.9%*		*156.4%*	

Basic Charges ($/month)

Meter	Service Charge		Minimum Charge		Flat Rate/unit	
	Current 2019	Proposed 2020	Current 2019	Proposed 2020	Current 2019	Proposed 2020
Standard	$7.08	$7.36	No minimum charge		$48.13	$50.05
All other sizes						
Monthly	$7.08	$7.36	$48.00	$50.00	$48.13	$50.05
Quarterly	$21.24	$22.08			$144.39	$150.15
Annually	$84.96	$88.32			$577.56	$600.60

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 2020 Water Charges for the Sun Valley Heights Homeowners Co-operative Water System

Sun Valley Home Owners Co-Operative
2020 Projected Costs

Cost Item	Budget 2019	Projected Cost 2020
	$	$
Hydro Electricity	2,000	2,000
Property Taxes	446	500
Laboratory Costs	2,255	2,255
Vehicle	2,870	2,870
Operator & Reports	16,513	16,847
Operation Materials	2,600	2,600
Maintenance Materials & Other	600	600
Machinery and Equipment	1,550	1,550
TOTAL	28,834	29,222
Monthly charges per property owner (billings sent quarterly)	**$141**	**$143**
Annual cost per property owner	**$1,692**	**$1,716**

Schedule 4 - Recommended 2020 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 2020 Miscellaneous Charges Item Number & Description	By-Law Schedule Reference		Existing 2019 Charges		Recommended 2020 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:	D1				
a) 19mm (3/4") diameter					
- Base Rate – Apr 1 – Nov 30			3,700.00		3,700.00
- Winter Rate – Dec 1 – Mar 31			4,810.00		4,810.00
b) 25mm (1") diameter					
- Base Rate – Apr 1 – Nov 30			4,600.00		4,600.00
- Winter Rate – Dec 1 – Mar 31			5,980.00		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:	D2		Actual Cost		Actual Cost
a) 19-mm (3/4") diameter minimum charge			3,700.00		3,700.00
b) 25-mm (1") diameter minimum charge			4,600.00		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:		C1			
- Base Rate (Apr 1 – Nov 30)				3,843.00	3,843.00
- Winter Rate (Dec 1 – Mar 31)				5,005.00	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:		C2		Actual Cost	Actual Cost
- Minimum Charge				3,843.00	3,843.00
6) Storm Sewer Service Connections:		C3		Actual Cost	Actual Cost
- Minimum Charge				3,843.00	3,843.00

Schedule 4 - Recommended 2020 Miscellaneous Charges Item Number & Description	By-Law Schedule Reference		Existing 2019 Charges		Recommended 2020 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		Actual Cost		Actual Cost
10) Standard 150-mm (6-inch) diameter Watermain (Note 3) - /metre - /foot	E1 & E2		378.00 115.21		**460.00** **140.21**
11) Standard 200-mm (8-inch) diameter Watermain - /metre - /foot	E1 & E2		436.00 132.89		**528.00** **160.93**
12) Standard 300-mm (12-inch) diameter Watermain - /metre - /foot	E1 & E2		476.00 145.08		**570.00** **173.74**
13) Frontage charges for non-standard Sanitary Sewer sizes and frontage charges for Sanitary Sewer projects initiated by petition.		D1 & D2		Actual Cost	Actual Cost
14) Standard 200-mm (8-inch) diameter Sanitary Sewer (Note 3) - /metre - /foot		D1 & D2		419.00 127.71	**507.00** **154.53**
15) Standard 250-mm (10-inch) diameter Sanitary Sewer - /metre - /foot		D1 & D2		477.00 145.39	**575.00** **175.26**
16) Standard 300-mm (12-inch) diameter Sanitary Sewer - /metre - /foot		D1 & D2		529.00 161.24	**637.00** **194.16**
Note (1) – Property owners requiring non-standard main sizes charged actual cost.					
Note (2) – Frontage charges may be financed at an annual interest rate of the prime rate of the Region's financial institution plus 1.5% for a payment term of 10 or 15 years. The payment term is at the option of the Property Owner. Frontage charges shall be added to the Property Owner's Water and Sewer bill and will be billed and collected in the same manner as Water and Sewer Rates.					
Note (3) – Residential frontage charges to be assessed on the basis of a standard 150-mm (6-inch) diameter watermain and a standard 200-mm (8-inch) diameter sanitary sewer.					
Note (4) – Any frontage charges for non-standard main sizes, or any extraordinary circumstances, be assessed by					

Schedule 4 - Recommended 2020 Miscellaneous Charges Item Number & Description	By-Law Schedule Reference		Existing 2019 Charges		Recommended 2020 Charges
	Water By-law #89-2003	Sewer By-law #90-2003	Water $	Sewer $	Note: Changes are in Bold $
the Commissioners of Finance and Works on a case by case basis to ensure full cost recovery.					
Note (5) – Rate may vary if estimated construction costs vary significantly from the rates noted above.					
Note (6) – Frontage charges for petition projects shall be based on actual costs.					
MISCELLANEOUS CHARGES					
17) Water Shut Off/Turn On					
Initiated by Customer:	F1	E1			
During normal Regional working hours:					
- Shut Water Off			80.00		80.00
- Turn Water On			80.00		80.00
- Shut Off & Turn On During Same Call			80.00		80.00
After normal Regional working hours:			120.00		120.00
- Shut Water Off			120.00		120.00
- Turn Water On			120.00		120.00
- Shut Off & Turn On During Same Call					
Initiated by Region:					
For failure by the Customer to arrange with the Region for meter installation, replacement, repair or inspection or meter reading (off or on, each)			80.00		80.00
For Water Shut Off Notification prior to shut off action being taken			25.00 for both		25.00 for both
For Water Shut Off for collection action, (water not necessarily shut off) for non-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) Testing of Water Meter					
Initiated by Customer: - Deposit	F3		210.00		210.00
Fee where the meter is found to measure the flow of water within or below AWWA Specifications					
- Up to a maximum size of 25mm			210.00		210.00
- Over 25mm			Actual Cost		Actual Cost
Fee if meter is found to measure the flow of water above AWWA specifications			No Charge		No Charge
20) Unmetered water used for construction (building purposes) per service	F4		187.00		**222.00**

Schedule 4 - Recommended 2020 Miscellaneous Charges Item Number & Description	By-Law Schedule Reference		Existing 2019 Charges		Recommended 2020 Charges
	Water By-law #89-2003	Sewer By-law #90-2003	Water $	Sewer $	Note: Changes are in Bold $
21) Drawing Regional water from hydrant for purposes other than fire protection (All Users)	F5				
- /cubic metre			3.80		***3.88***
- /1000 gallons			17.29		***17.64***
- Deposit			1,800.00		*1,800.00*
- Administrative Charge			132.00		***134.77***
- Minimum Charge per Month			1,800.00		*1,800.00*
- Valve installation/removal			107.00		***109.25***
22) Repair or replacement of frozen, damaged or missing water meter	F6				
- Up to a maximum size of 19mm (3/4")			210.00		210.00
- Over 19mm (3/4")			Actual Cost		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	35.00 for both		35.00 for both
28) Charge for Regional Solicitor providing information	F10	E6	94.00 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	11.00 for both		11.00 for both
31) New Account & Change of Occupancy Fee	F13	E9	42.00 for both		42.00 for both
32) Charge for Late Payment of Water/Sewer Surcharge Rates	F14	E10	2%		2%
33) Lien Administration Fee	F15	E11	50.00 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		*25.00*
36) Water from Water Supply Plants, Water Pollution Control Plants, Works Depots & Bulk Filling Stations	F17				
- /cubic metre			3.15		**3.22**
- /1000 gallons			14.32		**14.64**
- Service Charge $/month			n/a		**21.00**
- Minimum Volume Charge $/per month			150.00		**n/a**
- Occasional Users – Flat Rate			38.50		**n/a**
- Account Administration Fee $/year			125.90		**n/a**
- New Account Fee			n/a		**42.00**
- Key Deposit			214.30		**218.80**
- Refundable on return of key (based on fee in year Key Deposit made)			177.90		**181.64**
- Access card			35.70		**36.45**
37) Fire Flow tests:					
- Full test (May 1 – Oct 31)	F18		467.20		467.20

Schedule 4 - Recommended 2020 Miscellaneous Charges Item Number & Description	By-Law Schedule Reference		Existing 2019 Charges		Recommended 2020 Charges
	Water By-law #89-2003	Sewer By-law #90-2003	Water $	Sewer $	Note: Changes are in Bold $
- Full test (Nov 1 – Apr 30)			812.90		812.90
- Opening Hydrants (May 1 – Oct 31)			320.30		320.30
- Opening Hydrant (Nov 1 – Apr 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:		E2			
a) Hauled Domestic Waste					
- /cubic metre				19.56	19.56
- /1000 gallons				88.93	88.93
b) Sludge from WPCP within the Regions of York and Durham and trucked to the incineration facilities at Duffin Creek WPCP					
- /cubic metre				16.19	16.19
- /1000 gallons				73.59	73.59
c) Annual charge for registration of Haulers (up to 10 vehicles)				175.00	175.00
- Additional stickers if more than 10 vehicles, or replacement stickers – per sticker				10.20	10.20
d) ICI Sector areas (discharges up to 50,000 gallons)				522.75	522.75
e) ICI Sector areas (discharges of 50,001 to 100,000 gallons)				1,024.59	1,024.59
40) Copies of By-laws Water System, Sewer System and Sewer Use (+ Applicable taxes)	F19	E13	20.50/copy		20.50/copy
41) Sewer TV Inspection Reports and Videos per report or video (+ Applicable taxes)		E14		20.43	**21.51**
42) Sewer Use By-law Agreement extra strength waste ($/k.g.)				0.53	0.53
43) Sewer Appeal Application per request		E15		850.00	**950.00**

Schedule 5 - Recommended 2020 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory Located at the Duffin Creek WPCP

THE REGIONAL MUNICIPALITY OF DURHAM 2020 FEES AND CHARGES WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY			2020 Changed Bold
Description		2019 Rate (before appl. Taxes)	2020 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 plus additional metals		$80.60	$80.60
(Al, As, B, Ba, Cd, Co, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Sb, Se, U, Zn)			
Inorganic Ions required under O.Regulation 170/03		$79.60	$79.60
(F, NO2, NO3, Na)			
Inorganic Ions required under O.Reg. 170/03 plus additional Ions		$79.60	$79.60
(Hardness*, Ca, Mg, Na, K, Ammonia, F, Cl, Br, NO2, NO3, PO4, SO4)			
(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		$1,264.80	**$1,400.00**
(Includes all Parameters described under the following test CODES listed in this book -			
VOC, OC, TRIAZ, OP, PHENAC, CHLORPHEN, CARBUREA, GLYPH, DIPARA, PCB)			
Combined Packages			
York Region Drinking Water Package A		$1,285.20	$1,285.20
(Includes DW2M (less TURB), Hg, B, Ba, U, VOC, OC, TRIAZ, OP, PHENAC,			
CHLORPHEN, CARBUREA, GLYPH, DIPARA, PCB)			
*Calculation included (no charge).			

THE REGIONAL MUNICIPALITY OF DURHAM

2020 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Description	2019 Rate (before appl. Taxes)	2020 Changed Bold 2020 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
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

2020 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Description		2019 Rate (before appl. Taxes)		2020 Changed Bold 2020 Rate (before appl. Taxes)	
Laboratory Fees Page 3 of 9		$	$	$	$
GENERAL INORGANIC TESTS		Water	S/S/S	Water	S/S/S
pH, Conductivity, Alkalinity Total (CaCO3)		$27.50	$32.60	$27.50	$32.60
Alkalinity, Total (CaCO3)		$16.30	$21.40	$16.30	$21.40
Alkalinity, Total (CaCO3) (plus hydroxide, carbonate and bicarbonate)	New test			**$20.00**	**$26.00**
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 (S2-)		$37.70	$45.90	$37.70	$45.90
Dissolved Solids, Fixed Dissolved Solids, Voltaile Dissolved Solids*		$26.50	$29.60	$26.50	N/A
Total Suspended Solids (SS)		$15.30	$17.30	$15.30	$17.30
Total Suspended Solids, Fixed 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, Fixed Total Solids, Volatile Total Solids*		$19.40	$21.40	$19.40	$21.40
Total Dissolved Solids, Total 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
S/S/S = Sewage, Sludge and Soil					
*Calculation included (no charge).					

THE REGIONAL MUNICIPALITY OF DURHAM

2020 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Description	2019 Rate (before appl. Taxes)		2020 Changed Bold 2020 Rate (before appl. Taxes)	
Laboratory Fees Page 4 of 9	$	$	$	$
GENERAL INORGANIC TESTS	Water	S/S/S	Water	S/S/S
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

2020 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Description	2019 Rate (before appl. Taxes)	2020 Changed Bold 2020 Rate (before appl. Taxes)
Laboratory Fees Page 5 of 9	**$**	**$**
INORGANIC MONITORING PACKAGES		
Drinking Water		
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	$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, F, NO2, NO3, [NO2+NO3]*, SO4, PO4), DOC, TKN		
Landfill Monitoring		
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

2020 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Description	2019 Rate (before appl. Taxes)	2020 Changed Bold 2020 Rate (before appl. Taxes)
Laboratory Fees Page 6 of 9	**$**	**$**
INORGANIC MONITORING PACKAGES		
Sewer Use By-law	$475.00	$475.00
Complete Inorganic Package		
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		
Sewage and Industrial Waste		
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	$197.90	$197.90
(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)		
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)		
Sludge		
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

2020 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Description		2019 Rate (before appl. Taxes)	2020 Changed Bold 2020 Rate (before appl. Taxes)
Laboratory Fees Page 7 of 9		**$**	**$**
ORGANIC MONITORING PACKAGES			
Drinking / Surface / Ground Water and Wastewater			
THMs (Trihalomethanes)		$102.00	$102.00
bromodichloromethane	bromoform		
dibromochloromethane	chloroform		
THM (Total)			
BTEX by Purge & Trap GC/MS		$80.60	$80.60
benzene	ethylbenzene		
m,p-xylene	o-xylene		
toluene	Xylene (Total)		
Taste & Odour		$250.00	$250.00
geosmin	2-methylisoborneol (MIB)		
2-isobutyl-3-methoxypyrazine	2-isopropyl-3-methoxypyrazine		
2,3,6-trichloroanisole	2,4,6-trichloroanisole		
Haloacetic Acids (Disinfection By-Products)		$198.90	**$300.00**
bromochloroacetic acid	dibromoacetic acid		
dichloroacetic acid	monobromoacetic acid		
monochloroacetic acid	trichloroacetic acid		
Volatile Organic Compounds		$128.50	$128.50
benzene	cis-1,2-dichloroethylene		
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		$123.40	$123.40
aldrin	endosulphan I		
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 2020 FEES AND CHARGES WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY			2020 Changed Bold
Description		2019 Rate (before appl. Taxes)	2020 Rate (before appl. Taxes)
Laboratory Fees Page 8 of 9		**$**	**$**
ORGANIC MONITORING PACKAGES			
Pesticide/Herbicide Analysis			
Triazine Herbicides		$107.10	$107.10
alachlor (Lasso)	metolachlor		
ametryn	metribuzin (Sencor)		
atraton	prometon		
atrazine	prometryn		
cyanazine (Bladex)	propazine		
desethyl atrazine	simazine		
Organophosphorus Pesticides		$107.10	$107.10
chlorpyrifos (Dursban)	malathion		
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		$161.20	$161.20
2,4-dichlorophenoxyacetic acid (2,4-D)	MCPA		
bromoxynil			
dicamba	picloram		
diclofop-methyl			
Chlorophenols		$161.20	$161.20
2,4-dichlorophenol	2,3,4,6-tetrachlorophenol		
2,4,6-trichlorophenol			
Carbamate & Phenyl Urea Pesticides/Herbicides		$239.70	$239.70
Carbaryl	Carbofuran		
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		$229.50	**Subcontractor's Rate**
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

2020 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Description		2019 Rate (before appl. Taxes)	2020 Changed Bold 2020 Rate (before appl. Taxes)
Laboratory Fees Page 9 of 9		**$**	**$**
ORGANIC MONITORING PACKAGES			
Industrial Sewer Use By-law Acid/Base/Neutral Compounds		$214.20	$214.20
di-n-butylphthalate	bis(2-ethylhexyl)phthalate		
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*		$727.50	$727.50
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
Miscellaneous			
Sub-contractor Fee			**Subcontractor's Rate**
Report re-issue Fee:			
- Current Year			**$10.00**
- Previous 2 years			**$25.00**
- Prior Archives			**$100.00**
Sample treatment (if required):			
Chlorine quenching			**$25.00**
Oil & Grease additional extraction			**$25.00**
Crypto/Giardia Additonal Filter Processing			**$400.00**
Shipping (Sample Containers)			**Actual cost**

Regional Municipality of Durham

2020 Water and Sanitary Sewer User Rates

Detailed Report

Table of Contents

Exhibits

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 #2019-COW-16: 2019 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 #2019-COW-32: 2020 Water Supply and Sanitary Sewerage Strategic Issues and Financial Forecast** – The implications of recommendations included in this report have been considered in developing the proposed 2020 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 2020 user rates be approved in 2019 in order that they can be implemented with the first customer billings commencing early January 2020. 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

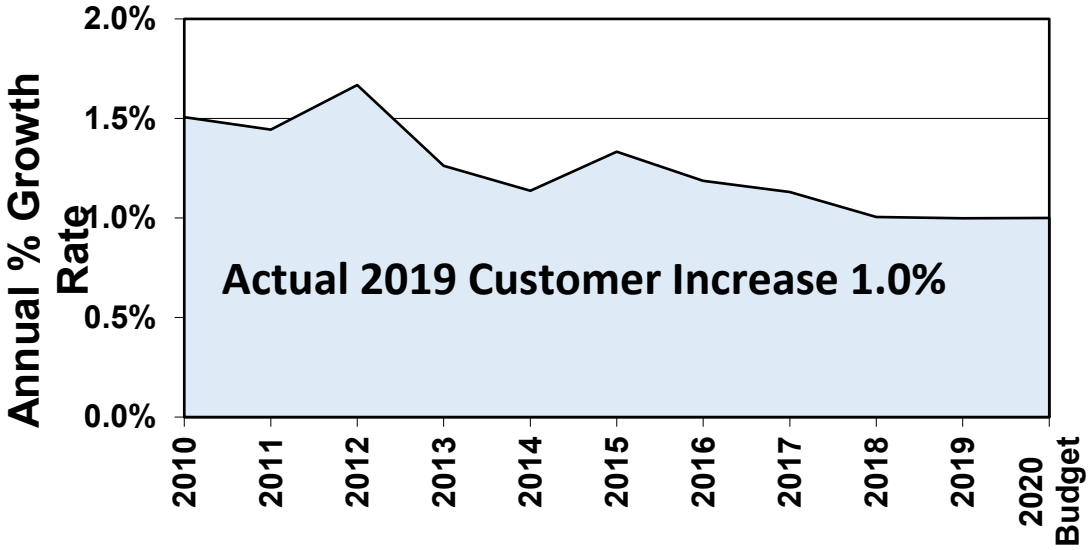
The proposed 2020 water and sanitary sewer user rates, fees and related charges will be considered by the Committee of the Whole on December 11th and by Regional Council on December 18th, 2019. Public notification of this schedule was provided in local newspapers throughout the Region on November 7th and 14th, 2019 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 - Flat

Actual water customer growth from 2010 to 2019 and 2020 Budget (end of June data) is graphed in Exhibit 1 below. Mid-year 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 (June data) – Actual 2010 to 2019 & 2020 Budget



Annual customer growth peaked at about 4.0% in 2004. Since then, growth decreased to 1.0% in 2018 and has levelled off since.

There were totals of 177,518 water customers and 173,431 sewage customers in June 2019. Some customers have multiple units (such as apartment buildings) but only one meter. There were over 218,000 units served by Regional water. There are fewer sewer customers than water customers because there are communities with Regional water supply services, but no Regional sanitary sewer services provided including 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 who were only connected to the Regional water system, but with Regional service available, connect to the Region’s sewage system.

For 2020 rate setting purposes, annual customer growth is projected at 1.00% for water and 1.05% for sewage (the same as projected last year for 2019).

The actual water, sewage and fire line customer data from 2010 to 2019 and projected 2020 budget are tabulated in Exhibit 2.

Exhibit 2 Water & Sewage Customers - Actual 2010 to 2019 & 2020 Budget (June to June)

	Water			Sewage			Fire Lines
		Increase Over Previous June			Increase Over Previous June		
Year	Total	Number	Percent	Total	Number	Percent	Total
2010	158,877	2,357	1.5%	154,598	2,379	1.6%	1,706
2011	161,172	2,295	1.4%	156,907	2,309	1.5%	1,730
2012	163,860	2,688	1.7%	159,605	2,698	1.7%	1,749
2013	165,927	2,067	1.3%	161,683	2,078	1.3%	1,775
2014	167,813	1,886	1.1%	163,575	1,892	1.2%	1,802
2015	170,051	2,238	1.3%	165,844	2,269	1.4%	1,783
2016	172,068	2,017	1.2%	167,894	2,050	1.2%	1,835
2017	174,014	1,946	1.1%	169,861	1,967	1.2%	1,863
2018	175,763	1,749	1.0%	171,658	1,797	1.1%	1,877
2019	177,518	1,755	1.0%	173,431	1,773	1.0%	1,899
2020 Budget	***179,293***	***1,775***	***1.00%***	***175,252***	***1,821***	***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 2020 increase in the number of water customers is 1,775 including residential and ICI (industrial, commercial and institutional).

The projected customer growth for 2020 is:

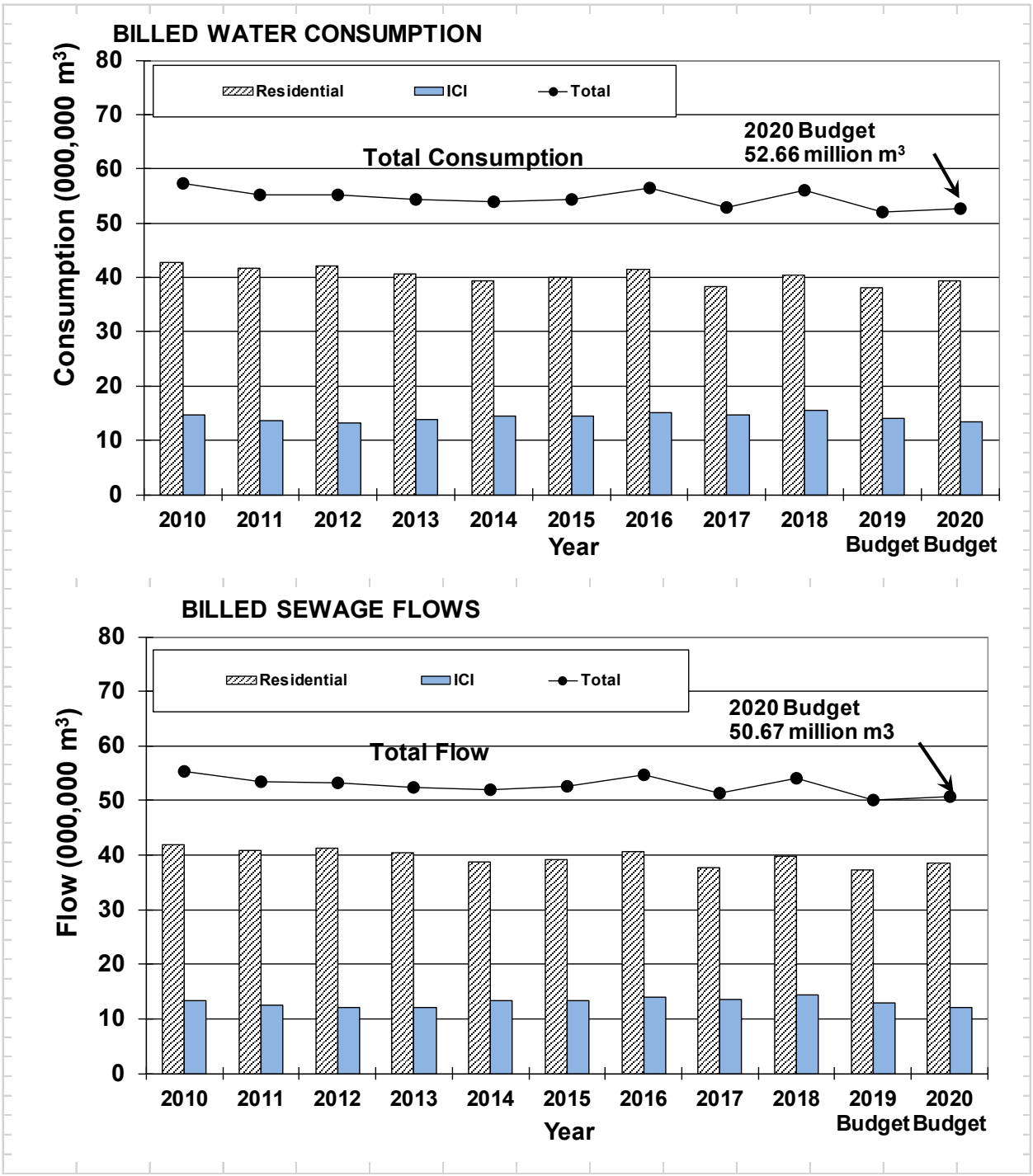
- **<u>Water</u> increase by +1,775 (+1.00%) to a total of 179,293**
- **<u>Sewage</u> increase by +1,821 (+1.05%) to a total of 175,252**

3 Water Demand – Stable

3.1 Historical Consumption

Residential, ICI and total volumes billed to customers for water and sewage - actuals from 2010 to 2018 and budgeted for 2019 and 2020 (discussed further following) - are graphed in Exhibit 3. There has been a gradual decreasing trend in consumption.

Exhibit 3 Billed Water & Sewage Volumes - Actual 2010 to 2018 & 2019/2020 Budget

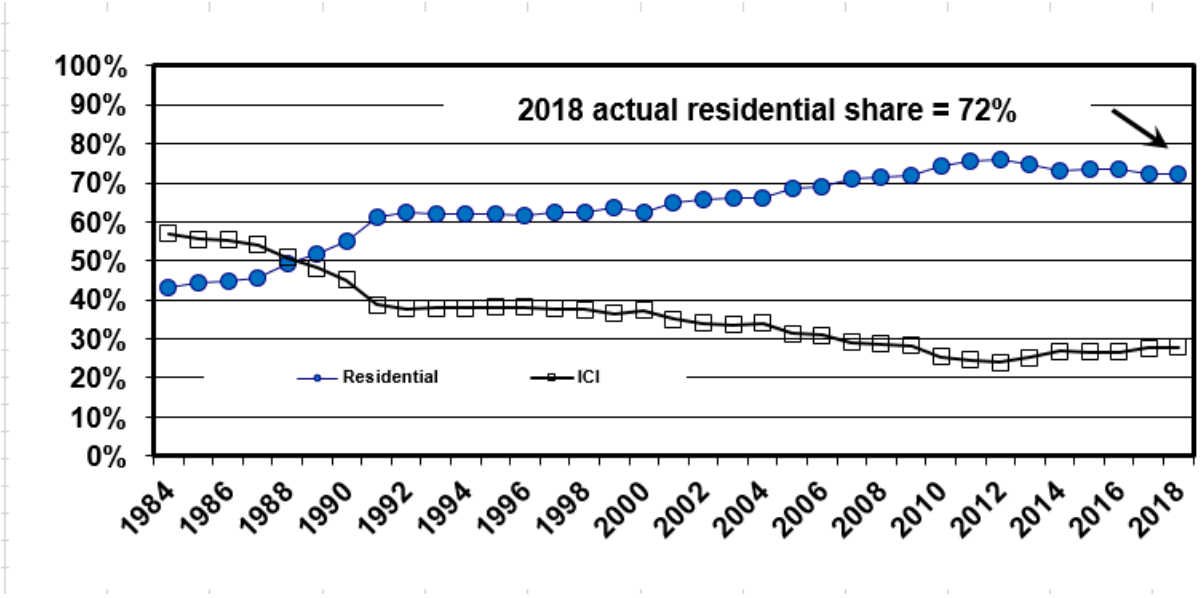


3.2 Residential versus ICI Consumption Share

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.

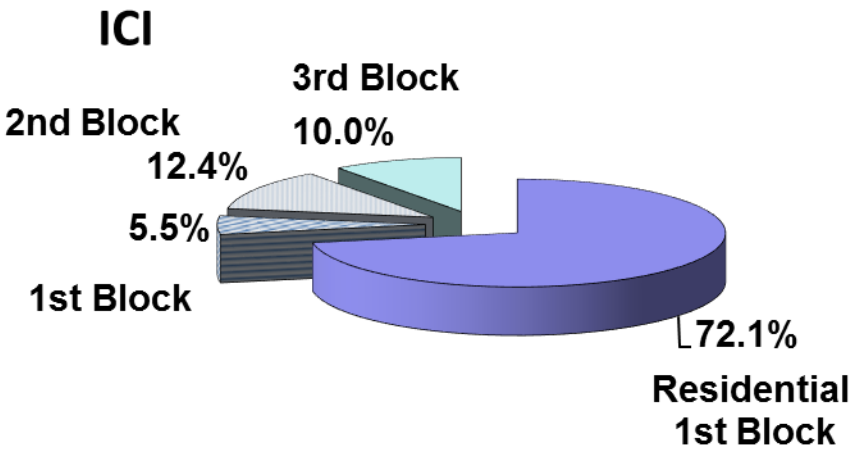
Annual consumption share is illustrated in Exhibit 4. The residential share is currently about 72%.

Exhibit 4 Billed Water & Sewage Volume Share – Residential versus ICI - Actual 1984 to 2018



The distribution of actual 2018 consumption by block and customer class is illustrated in Exhibit 5.

Exhibit 5 Water Consumption Share by Block – Actual 2018



All residential consumption is billed at 1st block rates. ICI water users enter 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 m^3/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 77.6% of all usage in 2018 (ICI 5.5% + Residential 72.1%).

- **2nd block** (ICI 10,001 to 1,000,000 gallons/month or 46 to 4,500 m^3/month) – This segment's consumption has decreased slightly and currently is about 12.4% of the total.

- **3rd block** (ICI over 1,000,000 gallons/month or 4,500 m^3/month) – Large user consumption increased from about 9.6% of total usage in 2017 to about 10.0% in 2018.

3.3 Residential Consumption – Some Growth Projected

Although Durham continues to see residential customer growth, until recently usage per customer has been trending downwards for some time - the combined impact was a steady decrease in total residential usage. This trend appears to have levelled off with some growth projected for 2020.

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-

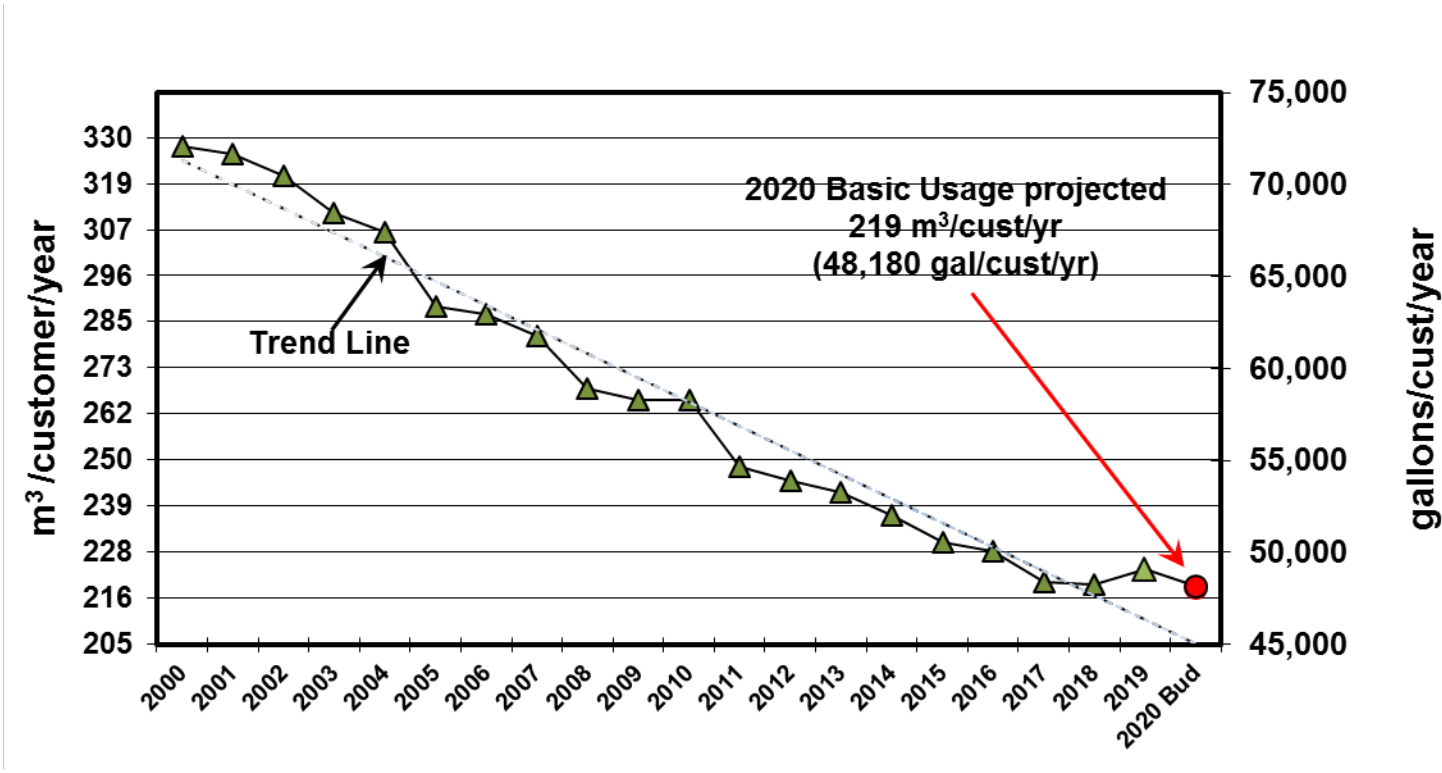
round such as kitchen, bathroom and laundry usage.

- **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 customers continues to grow, **basic (day-to-day) usage per customer had been decreasing from about 2000 until 2017. This steady drop in usage by residential customers tended to more than offset the impact on total residential consumption from the addition of new customers. However, basic usage appears to have levelled off.**

Basic per customer residential billed usage is illustrated in Exhibit 6.

Exhibit 6 Basic Annual Residential Water Usage per Customer (excludes seasonal usage) - Actual 2000 to 2019 & 2020 Budget



Actual 2019 **basic usage** is 223 m^3/customer/year (49,060 gal/cust/yr). This is a blend of all residential customers including single family dwellings, duplexes, apartment buildings and townhouses. Basic usage has trending downward over time. Projected 2020 basic usage is 219 m^3/cust/yr (48,180 gal/cust/yr). This is based on the long-term trend towards decreasing consumption but factoring the recent experience of a possible levelling off.

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, requiring 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 water conservation standards required by the Ontario Building Code. The features include greywater reuse as well as ultra low flow toilets, faucets and showers.

Priority Green Clarington Demonstration Project

Annual Consumption vs Regional SFD Average

	2015		2016		2017		2018	
	m3	gallons	m3	gallons	m3	gallons	m3	gallons
Region SFD Average	205	45,100	210	46,200	190	41,800	193	42,460
Green Demonstration Project	161	35,420	155	34,100	143	31,460	146	32,047
GDP% versus Region Average	79%		74%		75%		75%	
Summer Precipitation	Wet		Very Dry		Average		Average	

Annual 2015 to 2018 consumption data for the homes in the Demonstration Project have been compared with the average Regional consumption in

detached single family dwellings (SFD). Consumption in the Demonstration Project homes in recent years averaged about 25% less than the Regional SFD average. 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.

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 m^3/customer/yr (1,000 gal/cust/yr) up to about 32 m^3/cust/yr (7,000 gal/cust/yr), depending on summer weather conditions. The budget level used is 6.5 m^3/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 220.5 m^3 per year for 2019. For 2020 budgeting purposes, due to the increase in basic usage per customer, total residential usage is budgeted at 225.5 m^3 (49,610 gallons) per residential customer.

Residential Consumption per Year

	Per Customer		Total Annual	
Type of Usage	2019 Budget	2020 Budget	2019 Budget	2020 Budget
Cubic Metres				
Basic	214.0	219.0		
Seasonal Allowance	6.5	6.5		
Total	220.5	225.5	38,072,000	39,318,000
Gallons			(000)	(000)
Basic	47,080	48,180		
Seasonal Allowance	1,430	1,430		
Total	48,510	49,610	8,376,000	8,650,000

Based on the projected number of residential customers this is equivalent to total budgeted 2020 residential consumption of 39,318,000 m^3 (8,650,000,000 gallons).

3.4 ICI Consumption – Decrease

3.4.1 ICI Overview

A review has been carried out of the potential impact on water and wastewater billings of GM ceasing assembly operations at its Oshawa plant at the end of 2019. Automotive manufacturing related industries have been identified:

- The largest of course is GM itself which has 16 water/sewer accounts. Their 2018 water and sewer billings were about $2.3 million which represented about 1.0% of total 2018 of combined Regional water and sewage billings ($215 million).

- There are seven (7) other companies with operations on the GM property (such as parts sequencing) which are covered by the GM billings.

- There are three (3) companies which are feeder plants for GM and are closing. They are relatively small water users.

- There are two (2) companies which are feeder plants for GM but also do work for others which are expected to cut back but remain operational.

- There are seven (7) companies which appear to be independent of GM work and are expected to continue operations.

- All of the feeder plants combined only represent about 0.3% of Regional water and sewage revenues and are thus not material in revenue projections.

GM water and sewage billings have gradually decreased in relative importance over the years compared to total Regional billings.

The following is a tabulation of projected 2020 ICI water consumption by block (Column 4).

2020 ICI Consumption with Automotive Sector Adjustment				
Block	Pre GM Impact	GM	Feeder Plants	Net (rounded)
(000 gal)	Column 1	Column 2	Column 3	Column 4
1st	660,000	(2,164)	(594)	657,000
2nd	1,470,000	(62,553)	(9,264)	1,398,000
3rd	1,000,000	(115,869)	(3,251)	881,000
Total	3,130,000	(180,586)	(13,109)	2,936,000
(m3)				
1st	3,000,000	(9,835)	(2,702)	2,987,000
2nd	6,681,818	(284,331)	(42,108)	6,355,000
3rd	4,545,455	(526,679)	(14,777)	4,004,000
Total	14,227,273	(820,845)	(59,587)	13,346,000

Column 1 is a pre-GM closing (base case) projection. Column 2 is the impact of GM shutting down and Column 3 is the impact of the feeder plants. The projections are based on the very conservative assumption that there is a complete loss of GM and feeder plant billings.

3.4.2 ICI Small to Medium Customer Consumption (1st & 2nd blocks) – Fairly Stable

Water usage in the 1st and 2nd blocks by ICI customers has been fairly consistent over the years. For 2020 the 1st and 2nd block ICI consumption have received minor adjustments compared to 2019 budget based on 2019 consumption trends with the 1st block increased and the 2nd block decreased.

3.4.3 ICI Large Industry Consumption (3rd block) – Decrease

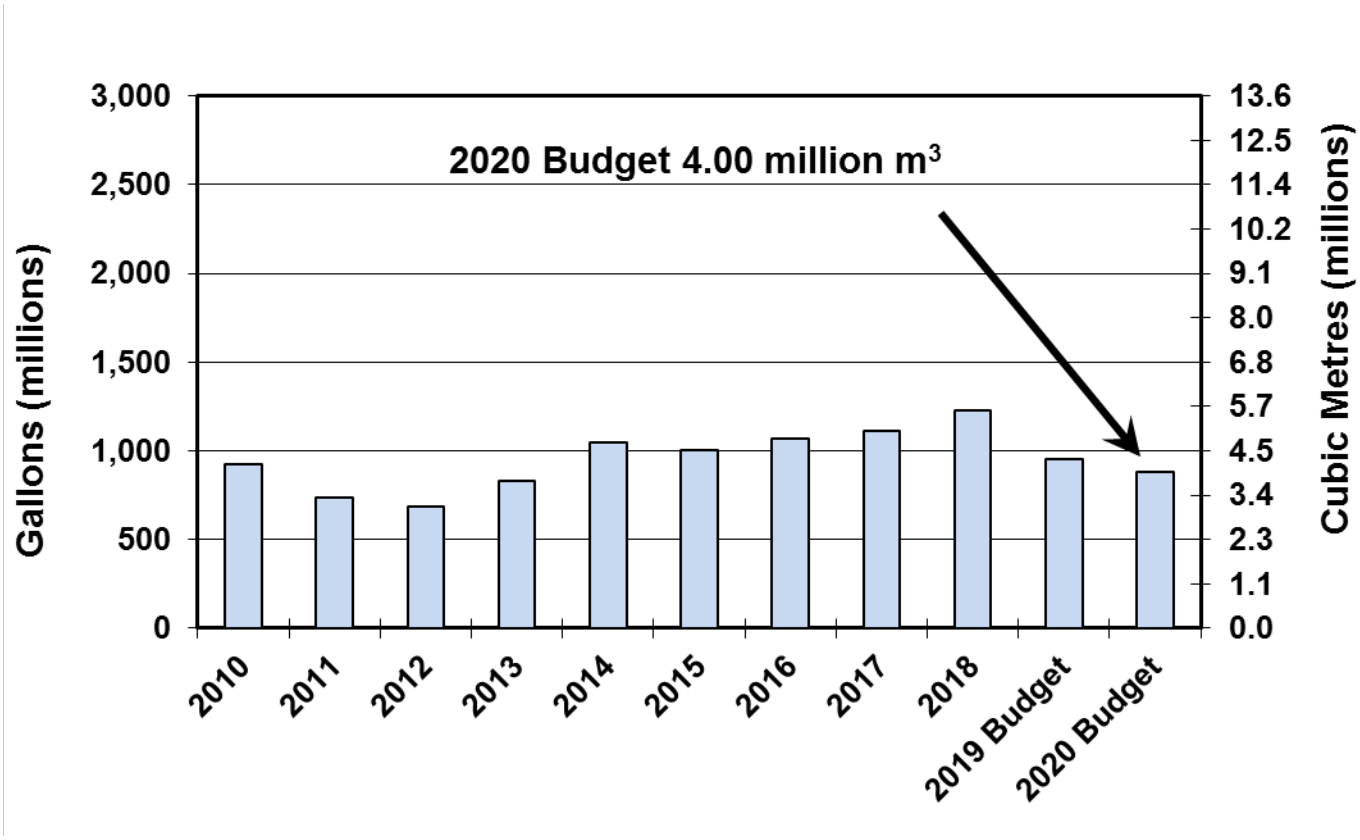
Until 2012, third (3rd) block water consumption was in decline, having decreased 61% from 2006 – an average of about 8% per year. Plant closures and cutbacks as well as conservation efforts all contributed. This trend reversed when a former large water user that had curtailed operations in 2010, with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

There are 29 customer accounts representing 23 industrial users that have reached the 3rd block so far this year. GM represents 4 of these accounts (GM has 16 accounts in total).

Consumption to September of this year was down by 5% compared to 2018.

Actual 3rd block consumption is graphed for 2010 to 2018 in Exhibit 7, as well as 2019 and 2020 Budget. The large industry sector is responsible for 3rd block consumption and represented about 10.0% of total consumption in 2018.

Exhibit 7 3rd Block Water Consumption - Actual 2010 to 2018 & 2019/2020 Budgets



3.4.4 ICI Consumption Summary – Decrease

Total ICI water consumption is projected to decrease in 2020 by 4.7% compared to the 2019 Budget.

ICI Consumption Summary				
Blocks	**Water**	**Sewage**	**Water**	**Sewage**
	Cubic metres		**Gallons (000)**	
1st block	2,986,000	2,895,000	657,000	637,000
2nd block	6,355,000	5,627,000	1,398,000	1,238,000
3rd block	4,005,000	3,641,000	881,000	801,000
Total	13,346,000	12,163,000	2,936,000	2,676,000

3.5 Total Consumption – Some Increase

Actual Consumption/Flow for 2014 to 2018 and budget levels for 2019 and 2020 are shown in Exhibit 8.

Exhibit 8 Water Consumption & Sewage Flows - Actual 2014 to 2018 & 2019/2020 Budget

	Water			Sewage		
Year	**Residential**	**ICI**	**Total**	**Residential**	**ICI**	**Total**
Cubic Metres*						
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
Change	*5.5%*	*6.8%*	*5.8%*	*5.4%*	*5.2%*	*5.4%*
2018 Actual	40,397,273	15,616,555	56,013,827	39,746,800	14,347,014	54,093,814
2019 Budget	**38,072,000**	**14,000,000**	**52,072,000**	**37,277,000**	**12,819,000**	**50,096,000**
Change	***3.3%***	***-4.7%***	***1.1%***	***3.3%***	***-5.1%***	***1.1%***
2020 Budget	**39,318,000**	**13,346,000**	**52,664,000**	**38,509,000**	**12,163,000**	**50,672,000**
Gallons (000)*						
2019 Budget	**8,376,000**	**3,080,000**	**11,456,000**	**8,201,000**	**2,820,000**	**11,021,000**
Change	***3.3%***	***-4.7%***	***1.1%***	***3.3%***	***-5.1%***	***1.1%***
2020 Budget	**8,650,000**	**2,936,000**	**11,586,000**	**8,472,000**	**2,676,000**	**11,148,000**

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

Total 2020 Budget water consumption and sewage flows are both projected to increase by +1.1% compared to 2019 budget levels.

The 2020 water consumption and sanitary sewage flow projections are based on and take into account the following:

- A leveling off in basic usage per residential customer.
- Assumed low levels of summer seasonal usage by residential customers.
- Usage by ICI customers decreasing.
- Number of customers increasing.

Taking the foregoing into account, 2020 consumption is budgeted as follows:

- **Water consumption projected at 52,664,000 cubic metres (52,664 ML)**
- **Sewage flow billed projected at 50,672,000 cubic metres (50,672 ML)**

4 The Recommended 2.3% Water User Rate Increase (Schedule 1) & 4.0% Sanitary Sewer User Rate Increase (Schedule 2) are Needed to Finance the Proposed Preliminary 2020 Expenditure Budgets

The recommended user rates are based on the proposed expenditure and revenue budgets, customer growth and projected consumption levels. Details of projected customers are provided above in Section 2 and consumption in Section 3. Details of the proposed budget data used in the rate calculations are provided below.

Proposed 2020 User Rate Increases	
Water	**2.3%**
Sewage	**4.0%**
Combined Average Residential Impact	**3.2%**

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 2020 water and sanitary sewerage net expenditure budgets require a water rate increase of 2.3% and a sewer rate increase of 4.0% (average residential customer combined increase 3.2%).

A breakdown of the proposed preliminary 2020 Budget expenditures and revenue sources, including user rate revenue requirements, is summarized in Exhibit 9 for water and Exhibit 10 for sanitary sewerage.

Additional information on the capital program is available from Report #2019-COW-32: 2020 Water Supply and Sanitary Sewerage Strategic Issues and Financial Forecast. Additional information on the 2020 Business Plans and Budgets is available in Report 2019-F-52: 2020 Current and Capital Business Plans and Budgets and Nine-Year Capital Forecasts for the Water Supply and Sanitary Sewerage System.

4.2.1 Water Supply System

Approximately $3.80 million in additional user rate revenues is required to support increased expenditures as set out in Exhibit 9. This is generated by a combination of:

User Rate Increase - The proposed 2.3% water rate increase generates $2.51 million in additional revenues;

Customer Growth - Customer growth adds $0.49 million, offsetting a rate increase by 0.5%; and

Consumption – Consumption is projected to increase which is projected to contribute and additional $0.80 million which offsets a rate increase by 0.7%.

The proposed preliminary 2020 user rate supported water system net expenditures of $111.72 million represents an increase of $3.80 million over 2019 budget levels.

4.2.2 Sanitary Sewerage System

Approximately $5.59 million in additional user rate revenues is required to support increased sanitary sewerage system expenditures as set out in Exhibit 10. This is generated by a combination of:

User Rate Increase - The proposed 4.0% sewage rate increase generates an additional $4.14 million in revenue;

Customer Growth - Customer growth adds $0.15 million, offsetting the rate increase by 0.2%; and,

Consumption - Projected increased consumption (compared with 2019 Budget) will increase budgeted revenues by $1.30 million. The sewage user rate increase is offset by 1.3% due to modest projected consumption growth.

The proposed preliminary 2020 user rate supported sanitary sewerage system net expenditures of $107.68 million represents an increase of $5.59 million compared to 2019 budget.

4.2.3 Billings Now on Daily Basis

The user rates are expressed as monthly charges in Schedule 1. With the implementation of an updated billing system in 2019, service charges for each bill are based on the actual number of days each bill covers between meter reading dates. As customers' billing periods may vary from the standard quarterly or bimonthly periods used in the previous billing system, daily service charge rates are required. The daily rates, which are equivalent to the approved monthly rates, are calculated as shown in the adjacent table (using the 2019 standard meter service charge as an example). The service charge may now vary on individual bills, but over time the charges will be the same as the former monthly charge approach.

Monthly Water Service Charge	$18.68	per month
Months per Year	12	
Annual Equivalent SC	$224.16	per year
Days in Year	365	
Daily Equivalent Service Charge	$0.6141	per day

Exhibit 9 Revenues Required from 2020 Water Rates

Budget Category	2019 Approved Budget ($)	2020 Proposed Preliminary Budget ($)	Increase/(Decrease) ($)	Increase/(Decrease) (%)
A) Operations (net costs)				
Operations, Maintenance & Administration	59,160,000	61,297,500	**	
Contribution to Asset Management Reserve Fund	5,234,000	5,485,600		
Less Other Revenues	10,000	31,000		
Operations from Current User Rates	**64,384,000**	**66,752,100**	**2,368,100**	**3.7%**
B) Tangible Capital Assets (gross costs)				
Construction of Municipal Services	109,972,000	76,209,000		
Operations Capital	3,361,000	4,732,000		
Total Capital Program	113,333,000	80,941,000		
Less Financing & Recoveries Applied				
- Development Charge Reserve Fund - Residential	57,358,000	20,823,500		
- Development Charge Reserve Fund - Commercial	1,769,000	678,200		
- Development Charge Reserve Fund - Industrial	0	0		
- Development Charge Debenture	0	0		
- Other Financing	4,813,000	9,629,000		
Total Non User Rate Financing	63,940,000	31,130,700		
Capital Program from User Rates Revenue Sources	49,393,000	49,810,300		
Less User Rate Financing (Debt/Reserves)				
- User Rate Debenture	0	0		
- Asset Management Reserve Fund	4,985,000	5,234,000		
- Equipment Replacement Reserve		35,000		
- Treatment Plant/Rate Stabilization Reserve Fund	2,000,000	702,000		
Total User Rate Financing	6,985,000	5,971,000		
Current User Rates Capital Program/Contributions	**42,408,000**	**43,839,300**	**1,431,300**	**3.4%**
C) Debt				
Expenditure	1,694,000	1,693,700		
Less Development Charge Reserve Funds Applied	564,000	564,300		
Debt from User Rates	**1,130,000**	**1,129,400**	**(600)**	
D) Current User Rate Revenue Requirements				
Total Expenditures	174,187,000	143,932,200	(30,254,800)	
Total Reserve Fund Contributions	5,234,000	5,485,600	251,600	
Less Total Revenues & Recoveries	(71,499,000)	(37,697,000)	33,802,000	
Total Current User Rate Revenues Required	**107,922,000**	**111,720,800**	**3,798,800**	**3.5%**
Equivalent Water User Rate Increase		**2.3%**		

E) Impact of Changes in Customers & Consumption on Rate Increase		
Component	**Revenue Change ($)**	**Rate Increase**
Increased revenue needed for expenditures	3,798,800	3.5%
Residential consumption increases more than ICI decrease	(794,300)	-0.7%
Reduced revenue needed due to customer growth	(492,900)	-0.5%
Added Revenue From Rate Increase	**2,511,600**	**2.3%**

** Note: 2020 Net amount includes $250,000 contribution from the Water Treatment Plant/Rate Stabilization Reserve Fund

Exhibit 10 Revenues Required from 2020 Sewage Rates

Budget Category	2019 Approved Budget ($)	2020 Proposed Preliminary Budget ($)	Increase/(Decrease) ($)	Increase/(Decrease) (%)
A) Operations (net cosst)				
Operations, Maintenance & Administration	60,271,000	63,384,500	**	
Contribution to Asset Management Reserve Fund	8,646,000	9,049,000		
Less Other Revenues	29,000	34,000		
Operations from Current User Rates	**68,888,000**	**72,399,500**	**3,511,500**	**5.1%**
B) Tangible Capital Assets (gross cost)				
Construction of Municipal Services	106,437,000	68,949,700		
Operations Capital	2,409,000	5,673,000		
York Durham Capital	1,652,000	1,533,000		
Total Capital Program	110,498,000	76,155,700		
Less Financing & Recoveries Applied				
- Development Charge Reserve Fund - Residential	11,859,000	20,012,600		
- Development Charge Reserve Fund - Commercial	1,266,000	1,275,000		
- Development Charge Reserve Fund - Industrial	1,000,000	0		
- Other Financing	37,726,000	17,605,800		
Total Non User Rate Financing	51,851,000	38,893,400		
Capital Program from User Rates Revenue Sources	58,647,000	37,262,300		
Less User Rate Financing				
- User Rate Debenture	25,900,000	0		
- Asset Management Reserve Fund	8,234,000	8,646,000		
- Equipment Replacement Reserve	0	35,000		
- York Durham Reserve Fund	135,000	0		
- Treatment Plant/Rate Stabilization Reserve Fund	0	702,000		
Total User Rate Financing	34,269,000	9,383,000		
Current User Rates Capital Program/Contributions	**24,378,000**	**27,879,300**	**3,501,300**	**14.4%**
C) Debt				
Expenditures	21,761,000	21,011,300		
Less Development Charge Reserve Fund	12,938,000	13,612,200		
Net Debt from User Rates	**8,823,000**	**7,399,100**	**(1,423,900)**	**-16.1%**
D) Current User Rate Revenue Requirements				
Total Expenditures	192,530,000	160,551,500	(31,978,500)	
Total Reserve Fund Contributions	8,646,000	9,049,000	403,000	
Less Total Revenues & Recoveries	(99,087,000)	(61,922,600)	37,164,400	
Total Current User Rate Revenues Required	**102,089,000**	**107,677,900**	**5,588,900**	**5.5%**
Equivalent Sewer User Rate Increase		**4.0%**		

E) Impact of Changes in Customers & Consumption on Rate Increase		
Component	**Revenue Change ($)**	**Rate Increase**
Increased revenue needed for expenditures	5,588,900	5.5%
Residential consumption increases more than ICI decrease	(1,298,500)	-1.3%
Reduced revenue needed due to customer growth	(150,200)	-0.2%
Added Revenue From Rate Increase	**4,140,200**	**4.0%**

** Note: 2020 Net amount includes $250,000 contribution from the Sewer Treatment Plant/Rate Stabilization Reserve Fund

5 Rate Schedule Recommendations

5.1 Recommended 5.0% 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. This customer is converting to potable water only. With this conversion, the the South Blair Street raw water main can 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.

	Industry			
Year	**A**	**B**	**C**	**Total**
2016	499,010	62,730	732,264	1,294,004
	39%	5%	56%	100%
2017	406,044	36,950	608,206	1,051,200
	39%	3%	58%	100%
2018	16,580	60,195	563,105	639,880
	3%	9%	88%	100%
2019	0	38,115	586,064	624,179
Projected	0%	6%	94%	100%
2020	**0**	**0**	**560,000**	**560,000**
Budget	**0%**	**0%**	**100%**	**100%**

Industries “A” and “B” no longer use raw water. 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 expansion of 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.

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 project consultant for the Whitby WSP expansion will review the engineering involved in the replacement of the raw water pumping station.

The recommended 2020 raw water rate has been increased relative to the current 2019 rate based on the impact of both reduced raw water consumption and operating costs. An increase in the raw water rate by 5.0% from $\$0.323/m^3$ in 2019 to $\$0.339/m^3$ in 2020 is recommended. It is planned to review the raw water rate in 2020 once the full impact on costs of the loss of two of the three raw water customers can be established.

The recommended raw water rate is shown in Schedule 1 – Recommended 2020 Water User Rates.

5.2 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 2020 Water Rate for the Sun Valley Heights Homeowners Co-operative Water System.

- The charge is based on actual Sun Valley Heights system costs;
- The costs are projected to increase about 1.4% due to a small increase in property taxes and labour costs; and
- This results in the recommended increase from $1,692 annually in 2019 to $1,716 annually in 2020 ($141 to $143 monthly).

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.

5.3 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 2019 (current) and 2020 (recommended) are set out in Schedule 4 – Recommended 2020 Water & Sanitary Sewer Systems Miscellaneous Fees & Charges of this report. All fees and charges where changes are recommended are **bolded**.

The recommended 2020 fees and charges are based on tracking actual costs over time. Some fees remain unchanged from 2019 (these charges are not bolded) and others have been increased by 2% in line with the combined water/sewage rate increase.

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

- **Items 9) to 16) Water & Sanitary Sewer Frontage Charges –** The recommended frontage charges represent the second year of a 2-year phase-in of increased charges based on an analysis of actual costs. The repayment terms over time have also been revised. Historically the Region has offered property owners the option of commuting frontage charges from an upfront payment to one over 10-years with annual payments at 6% interest. At their June 26, 2019 meeting, Council directed that for extensions in the Greenbelt resulting from successful

petitions, customers be offered optional 10 or 15-year repayment at the prime rate of the Region's financial institution plus 1.5%, with the prime rate based on the date of the final letter outlining fees owing. Staff was also directed to review frontage charge repayment terms in general as part of the 2020 User Rate Study.

The following is recommended for all frontage charges both inside and outside the Greenbelt, for both water and sanitary sewerage systems and both petition and non-petition projects:

- Repayment Period - Terms of 10 or 15-years be offered to the customer

- Interest Rate – Set at the prime rate of the Region's financial institution plus 1.5%, with the prime rate based on the date of the final letter outlining fees owing.

- Payments Calculated on an Individual Basis – Repayment is billed on the water and sewer bills (residential are quarterly) and the amount in each instance will be established in accordance with the above parameters.

- Applies to All Cases – These terms be applied to both petition and non-petition as well as both the water and sanitary sewerage systems

- **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. Accordingly, the recommended 2020 Building Purposes Charge based on 2019 rates and 200 m^3 per unit is $222.00, an increase from $187.00 in 2019 (see also Section 7.3.1).

- **Item 36) - Water from Water Supply Plants, Water Pollution Control Plants, Works Depots & Bulk Filling Stations** – Customers can sign up for keys which allow them to purchase water from bulk water filling stations which are located at five (5) of the Region's water supply plants. It is recommended that three of the current charges, a Minimum Volume Charge, a Flat Rate and an Annual Account Administration Fee be eliminated and replaced with a simpler approach of charging a one-time new account fee ($42.00) plus a monthly service charge ($21.00). The recommended charges are based on a cost analysis of operating the program and aligns the charges with the approach used for the potable water system (see also Section 7.3.2).

5.4 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.

There have been several fees eliminated since they are either no longer offered, or the test has been amalgamated with another existing test. The fees for a couple of tests have been increased (bolded in table). Also, some tests have been added.

The recommended charges for laboratory services are set in Schedule 5 – Recommended 2020 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 11.

Exhibit 11 Rates Impact on Customers of Various Sizes

								Water Rate Increase =			**2.3%**	
								Sewer Rate Increase =			**4.0%**	
								Average Residential Combined Increase =			**3.2%**	
Customer Category			**2019 Billing**			**2020 Billing**			**Increase**			
Gallons/yr	**m^3/year**	**Meter Size**	**Water**	**Sewage**	**Total**	**Water**	**Sewage**	**Total**	**Water**	**Sewage**	**Total**	**%**
					Quarterly Billings ($/qtr)							
20,000	91	Standard Meter	81.31	62.29	143.60	83.18	64.77	147.95	1.87	2.48	4.35	3.0
49,610	225.5	Avg Std Meter	118.72	123.05	241.77	121.45	127.96	249.41	2.73	4.91	7.64	3.2
60,000	273	Flat Rate	131.85	144.38	276.23	134.88	150.14	285.02	3.03	5.76	8.79	3.2
100,000	455	Standard Meter	182.40	226.47	408.87	186.57	235.50	422.07	4.17	9.03	13.20	3.2
					Bimonthly Billings ($ bimonthly)							
100,000	455	Standard Meter	121.60	150.98	272.58	124.38	157.00	281.38	2.78	6.02	8.80	3.2
200,000	909	Standard Meter	410.64	635.86	1046.50	420.10	661.28	1081.38	9.46	25.42	34.88	3.3
5 million	22,730	2" Meter	3,946	6,054	10,000	4,036	6,296	10,332	90	242	332	3.3
50 million	227,270	4" Meter	34,822	52,932	87,754	35,626	55,050	90,676	804	2,118	2,922	3.3
150 million	681,820	6" Meter	101,636	154,114	255,750	103,980	160,284	264,264	2,344	6,170	8,514	3.3

Note that actual customer billings are calculated based on actual consumption and number of days represented by each bill. The above table provides examples of the impact of the rates on customers with the consumption shown over periods of 90 days (“quarterly billings”) or 60 days (“bimonthly billings”).

6.2 User Rate Impact on Average Residential Customer

The impact on a typical residential customer of the proposed 2020 water and sewage user rate charges are shown below in Exhibit 12.

Exhibit 12 Rates Impact on Average Residential Customer

		Water Rate Increase =	***2.3%***	
		Sewer Rate Increase =	***4.0%***	
		Combined Increase =	***3.2%***	
	Billings		Increase	
	2019 ($)	2020 Proposed ($)	($)	(%)
Based on 49,610 gal/year (225.5 m^3/yr) Consumption				
Water	118.72	121.45	2.73	2.3%
Sewage	123.05	127.96	4.91	4.0%
Total ($/quarter)	241.77	249.41	7.64	3.2%
Annual Billing ($/year)	967.08	997.64	30.56	3.2%

- A residential customer who used the same projected annual average residential per customer consumption of 225.5 m^3 (49,610 gallons) in both 2019 and 2020 would have a bill increase of 3.2%.

6.3 Residential Customer Affordability

As noted above, the 2019 annual water and sewer bill for an average customer using 225.5 m^3 per year is $967.08. Later in this report, the cost of water and sewer services for a typical residential customer is compared with water/sewer charges in other municipalities and with other utilities:

- Other Large Municipalities – A total of 13 Ontario municipalities were surveyed to determine what they would charge for water and sewer services (2019 Rates). Durham was 5th lowest compared to the average of $1,027 (see Exhibit 15).

- Neighbouring Municipalities – Durham's water and sewer charges are 2nd lowest of eight (8) local municipalities (see Exhibit 16).

- Other Utilities – Durham's 2019 annual average water ($475) and sewer ($492) charges (combined total $967) have been compared to typical utility charges for cable, internet, cell phone, gas and hydro based on local rates and assumptions of average service levels. Durham's water and sewer combined are less than any of the other utilities (see Exhibit 20 and Exhibit 21).

Although in comparative terms, Durham's average residential water and sewer charges compare favorably with other municipalities and utilities, they could still be challenging for some customers. Affordability metrics are also discussed in Report #2019-COW-32: 2020 Water Supply and Sanitary Sewerage Strategic Issues and Financial Forecast. Regional staff are investigating various affordability metrics related to income to gauge the relative affordability of Durham's water and sewer rate costs and will report on findings at a future time.

6.4 User Rate Impact on 25 Largest Customers

Using actual 2018 consumption levels, the impacts on the Region's 25 largest customers of the recommended 2020 user rates, compared with existing 2019 rates, are provided in Exhibit 13.

Exhibit 13 Rates Impact on 25 Largest Users (Using 2018 Actual Consumption Data - $/year)

								Water Rate Increase =	2.3%
								Sewer Rate Increase =	4.0%
	2018 Consumption		2019 Rates			2020 Rates			Combined
Rank	(m^3)	(000 gal)	Water	Sewage	TOTAL	Water	Sewage	TOTAL	Increase
			($)	($)	($)	($)	($)	($)	$	%
1	2,526,680	555,870	2,205,100	3,388,730	5,593,830	2,255,950	3,524,360	5,780,310	186,480	3.3%
2	536,710	118,080	477,580	730,900	1,208,480	488,590	760,160	1,248,750	40,270	3.3%
3	475,670	104,650	424,590	649,370	1,073,960	434,370	675,360	1,109,730	35,770	3.3%
4	371,390	81,710	334,060	510,100	844,160	341,770	530,520	872,290	28,130	3.3%
5	343,510	75,570	309,840	462,140	771,980	316,980	480,640	797,620	25,640	3.3%
6	329,080	72,400	297,330	462,770	760,100	304,180	481,290	785,470	25,370	3.3%
7	282,260	62,100	256,680	391,050	647,730	262,600	406,700	669,300	21,570	3.3%
8	226,810	49,900	208,540	316,980	525,520	213,350	329,670	543,020	17,500	3.3%
9	220,310	48,470	202,900	308,300	511,200	207,580	320,640	528,220	17,020	3.3%
10	144,170	31,720	136,800	206,610	343,410	139,960	214,880	354,840	11,430	3.3%
11	139,190	30,620	132,460	199,930	332,390	135,520	207,930	343,450	11,060	3.3%
12	136,270	29,980	129,940	196,050	325,990	132,930	203,890	336,820	10,830	3.3%
13	135,020	29,700	128,830	116,610	245,440	131,800	121,280	253,080	7,640	3.1%
14	126,990	27,940	121,890	183,660	305,550	124,700	191,010	315,710	10,160	3.3%
15	99,010	21,780	97,580	146,270	243,850	99,830	152,120	251,950	8,100	3.3%
16	98,300	21,630	96,990	440	97,430	99,220	460	99,680	2,250	2.3%
17	96,350	21,200	95,290	142,740	238,030	97,490	148,460	245,950	7,920	3.3%
18	91,040	20,030	90,670	135,640	226,310	92,760	141,070	233,830	7,520	3.3%
19	83,550	18,380	84,160	125,620	209,780	86,100	130,650	216,750	6,970	3.3%
20	72,180	15,880	74,300	6,630	80,930	76,010	6,890	82,900	1,970	2.4%
21	65,280	14,360	68,300	101,220	169,520	69,870	105,270	175,140	5,620	3.3%
22	64,710	14,240	67,830	100,490	168,320	69,390	104,510	173,900	5,580	3.3%
23	60,530	13,320	64,200	94,900	159,100	65,680	98,700	164,380	5,280	3.3%
24	58,080	12,780	62,070	91,630	153,700	63,500	95,290	158,790	5,090	3.3%
25	56,950	12,530	61,080	1,080	62,160	62,490	1,130	63,620	1,460	2.3%
Total	6,840,040	1,504,840	6,229,010	9,069,860	15,298,870	6,372,620	9,432,880	15,805,500	506,630	3.3%
Note:	Green shaded accounts have reduced sewage charges (sewer appeals).									
	Peach shaded accounts are GM-related									

Note that most large customers will have a combined water/sewage bill increase 3.3%. This percentage is higher than the average residential increase of 3.2% 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 five (5) 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.

6.5 Durham's User Rates Compared with Other Ontario Municipalities

6.5.1 Background on User Rate Formats

A water and sewage rates survey was conducted for 20 municipalities (including Durham) across Ontario. The 2019 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 15) that offer a comparison for Durham's southern tier systems as well as 7 nearby smaller municipalities (see Exhibit 16) 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 14 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 m^3/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 m^3 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.

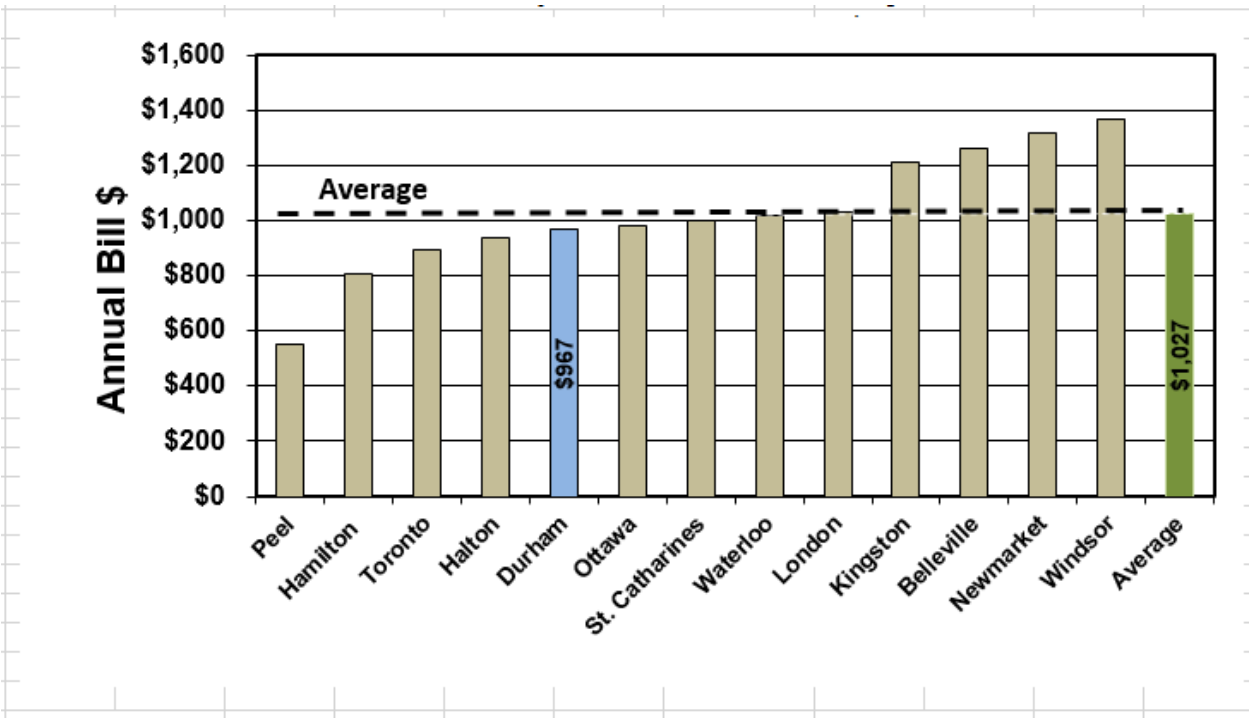
6.5.2 Residential Customer Impact

The analysis is based on a customer using 225.5 m^3/year (49,610 gallons/yr). This represents the projected usage by a typical 2020 Durham residential customer. It is about 19 m^3/month/customer (4,100 gal/month/cust).

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 15.

Exhibit 15 Comparative 2019 Residential Water/Sewage Charges (225.5 m^3/year) – Large Municipalities

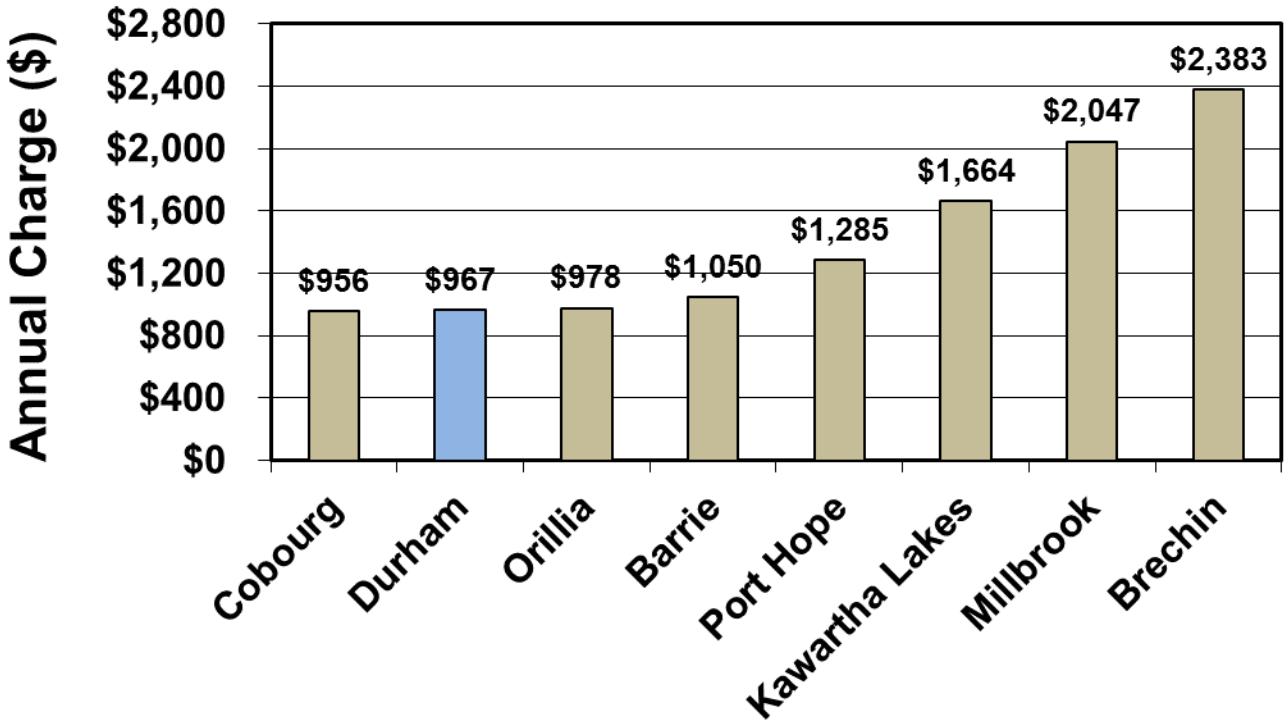


Durham is the fifth lowest out of the 13 in the survey.

The overall average 2019 combined water and sewage bill for 225.5 m^3 (49,610 gallons) annual consumption is $1,026 per year compared to $967 in Durham.

Neighbouring Municipalities - Typical 2019 charges to a residential customer have also been calculated for seven neighbouring communities - see Exhibit 16.

Exhibit 16 Comparative 2019 Residential Water/Sewage Charges (225.5 m^3/yr) – Neighbouring Municipalities

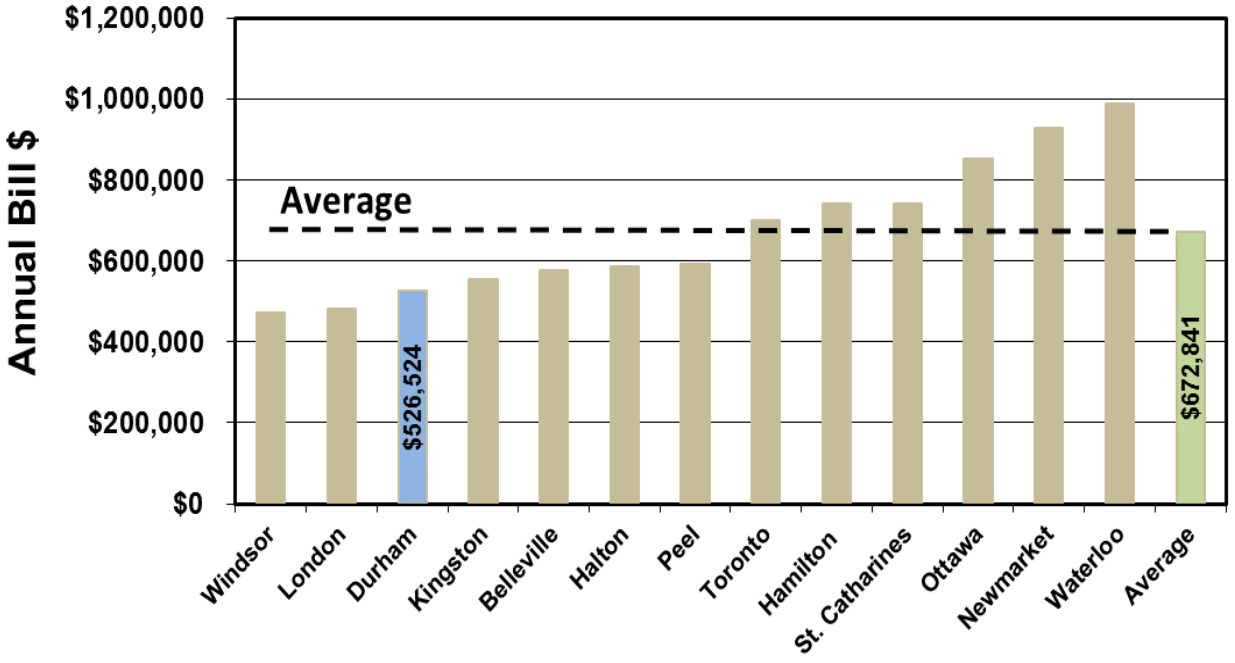


Durham is at the low end of user rate charges. Comparisons are sometimes made difficult because of the use of the property tax to recover some costs in other municipalities. For example, Cobourg recovers some sewage costs from property taxes.

6.5.3 Large Customer Impact

The analysis is based on 227,272 m^3/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 17.

Exhibit 17 Comparative 2019 Large Industry Water & Sewage Charges (227,272 m^3/yr) – Large Municipalities



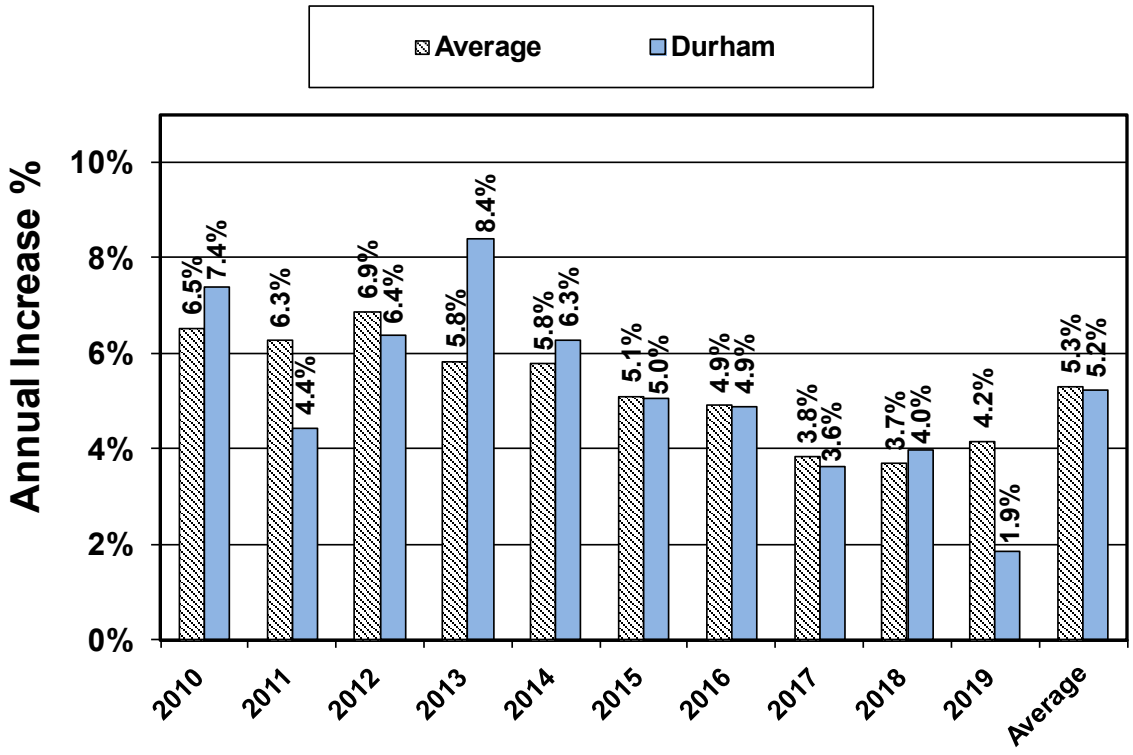
Durham was the third lowest out of the 13 in the survey. The overall average combined water and sewage bill for all the municipalities surveyed was $672,841 per year compared to $526,524 in Durham.

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

6.5.4 Historical Rate Increases

Province Wide - Average water and sewage rate increases faced by customers using 225.5 m^3/year (49,610 gallons) in the 13 larger municipalities surveyed are graphed in Exhibit 18. 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.

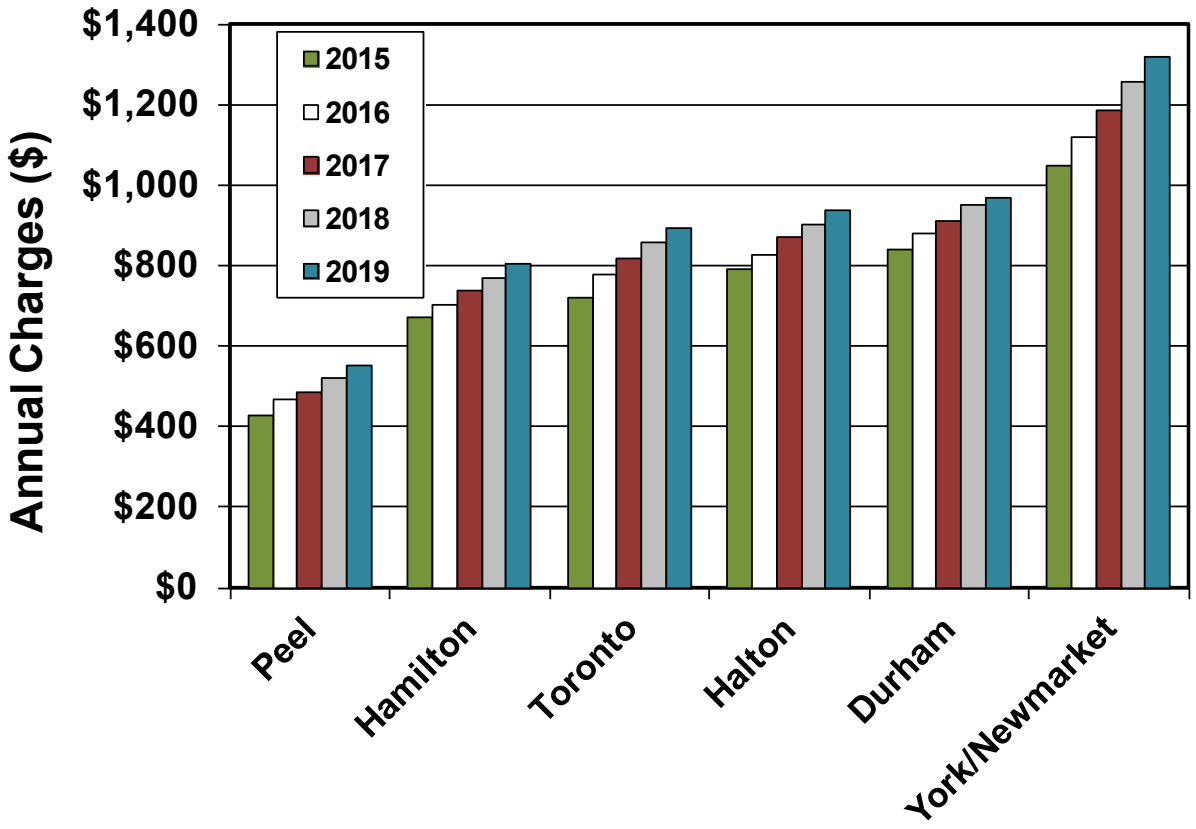
Exhibit 18 Comparative 2010 to 2019 Residential Water/Sewage Rate Increases (225.5 m^3/yr) — Large Municipalities



The average annual combined water and sewage rate increase for all the municipalities was 5.3% for the 10-year period. Durham's average was approximately 5.2% annually.

GTA - Combined water and sewage user rate increases over the past five years in nearby Regions are graphed in Exhibit 19. The analysis is based on a customer using 225.5 m^3/year.

Exhibit 19 Comparative 2015 to 2019 Residential Water/Sewage Charges (225.5 m^3/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.

6.5.5 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 6.5.4 have been provided covering 2010 to 2019. 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 5.2% (see Exhibit 18).

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 funding of water and sewage systems to sustainable levels while experiencing decreased consumption and have been increasing rates in a similar manner.

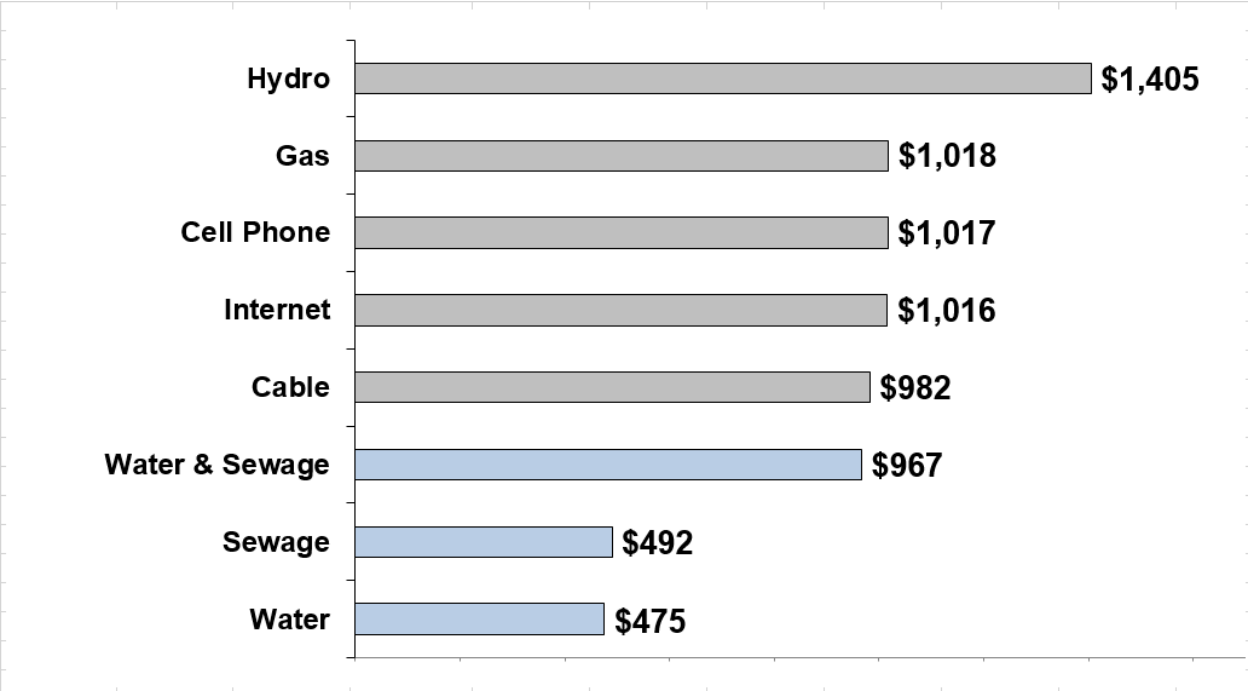
6.6 Durham's Average Residential Water & Sanitary Sewer Charges are Much Less Than Typical Hydro, Gas, Telephone or Cable Television Services

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 in Exhibit 20 where that option is indicated by the supplier. There is a wide range of prices for some services.

Representative 2019 annual residential utility charges in Durham (Oshawa rates used) are graphed in Exhibit 20.

Exhibit 20 Typical Durham Residential Utility Charges 2019 (graph)



The components of a total annual bill for a representative residential customer are as shown in Exhibit 21.

Exhibit 21 Typical Durham Residential Utility Charges 2019 (table)

Utility	Basis of Comparison	Annual Bill ($)	% of Annual Utility Bills
Hydro	Cooling, appliances, lighting, etc.	$1,405	21.9%
Natural Gas	Home & hot water heating	$1,018	15.9%
Cell Phone	Basic service with long distance package	$1,017	15.9%
Internet	One level above basic - 50 Mbps download	$1,016	15.9%
Cable	Basic package – no movies	$982	15.3%
Sewage	Average residential use - 225.5 m3/year	$492	7.7%
Water	Average residential use - 225.5 m3/year	$475	7.4%
	Total	$6,405	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.

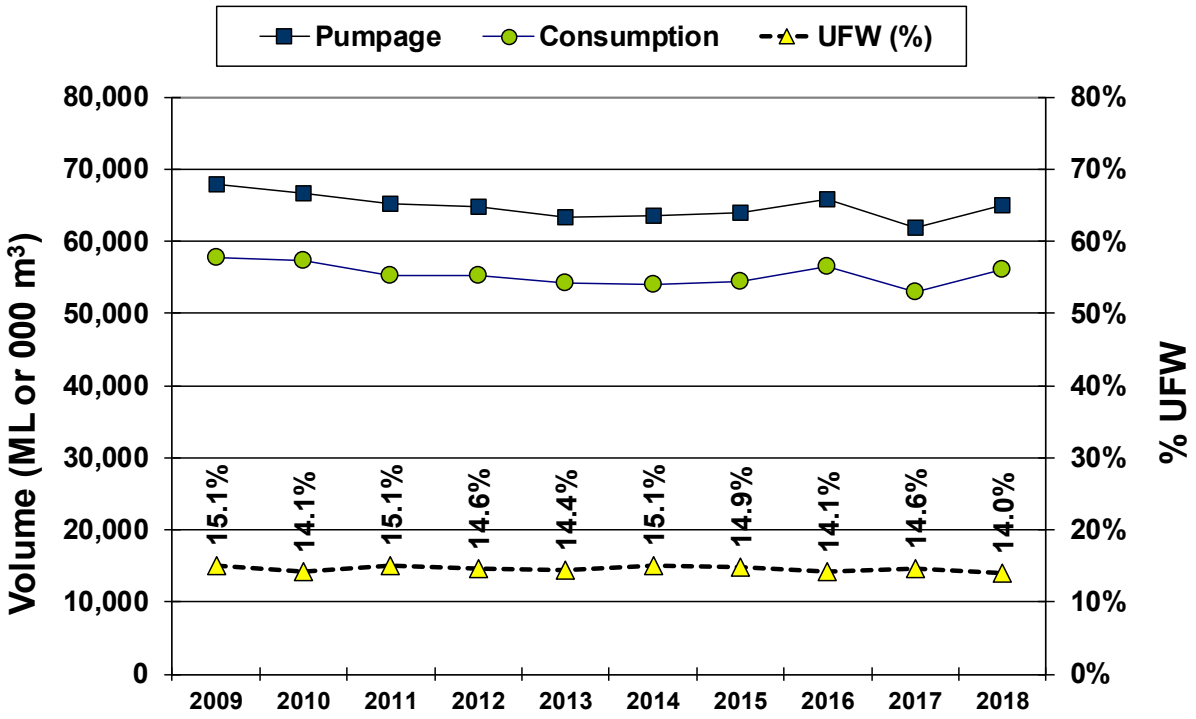
7 Other Issues

7.1 Water System Losses Update (Billed Consumption vs. Supply)

Some water is lost from the water system between water supply plants and customers. The traditional terminology used in 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. While some of these losses are actually unmetered usage such as water used for main flushing and firefighting, the biggest component is loss due to watermain leakage.

Durham's NRW from 2009 to 2018 is graphed below in Exhibit 22.

Exhibit 22 Water Pumpage, Consumption & Unaccounted for Water – Actual 2009 to 2018



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

UFW in recent years has been in a range of about 14% to 15%. This is considered to be 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 losses represented by UFW.

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 23.

Exhibit 23 IWA Standard Water Balance Terminology

<table>
<tr><td rowspan="8">System Input Volume</td><td rowspan="2">Authorized Consumption</td><td rowspan="2">Billed Authorized consumption</td><td>Billed Metered Consumption</td><td rowspan="2">Revenue water</td></tr>
<tr><td>Billed Unmetered Consumption</td></tr>
<tr><td rowspan="6">Water Losses</td><td rowspan="2">Unbilled Authorized Consumption</td><td>Unbilled Metered Consumption</td><td rowspan="6">Non Revenue Water (NRW)</td></tr>
<tr><td>Unbilled Unmetered Consumption</td></tr>
<tr><td rowspan="2">Apparent Losses</td><td>Unauthorized Consumption</td></tr>
<tr><td>Metering Inaccuracies</td></tr>
<tr><td rowspan="3">Real Losses</td><td>Leakage on Transmission and/or Distrubution Mains</td></tr>
<tr><td>Leakage and Overflows at Utility's Storage Tanks</td></tr>
<tr><td>Leakage on Service Connections up to point of Customer Metering</td></tr>
</table>

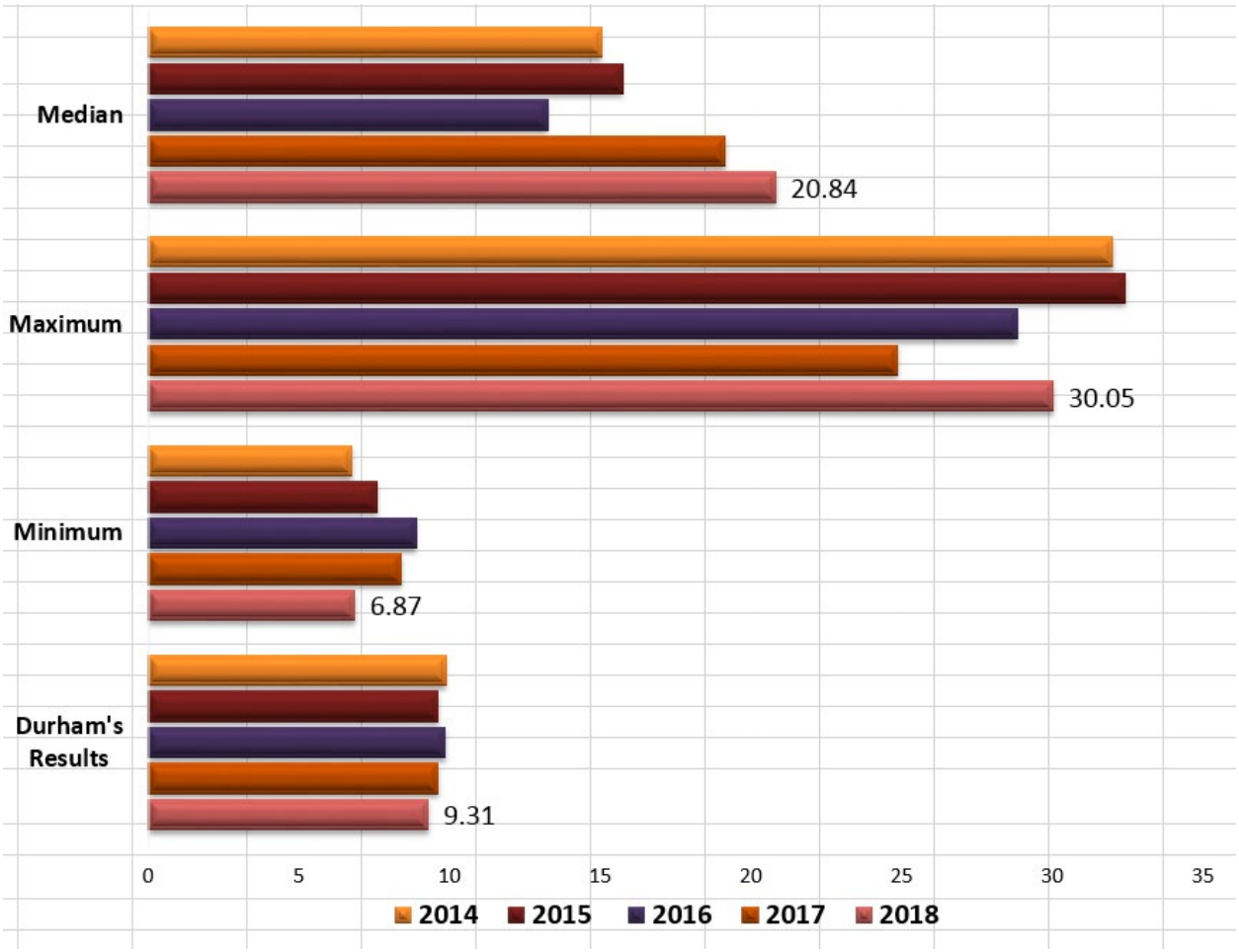
The IWA/AWWA methodology is now an industry recognized standard approach and has been utilized to assess water losses in Durham Region. Water Loss performance measures such as the Infrastructure Leakage Index (ILI) and NRW per kilometre of mains were calculated first during the Water Loss Control Strategy 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. Taking the length of mains into account makes the comparison more meaningful. The lower the performance measure the better.

A graph of NRW per kilometre of main from the MBN survey for 2014 to 2018 is provided in Exhibit 24.

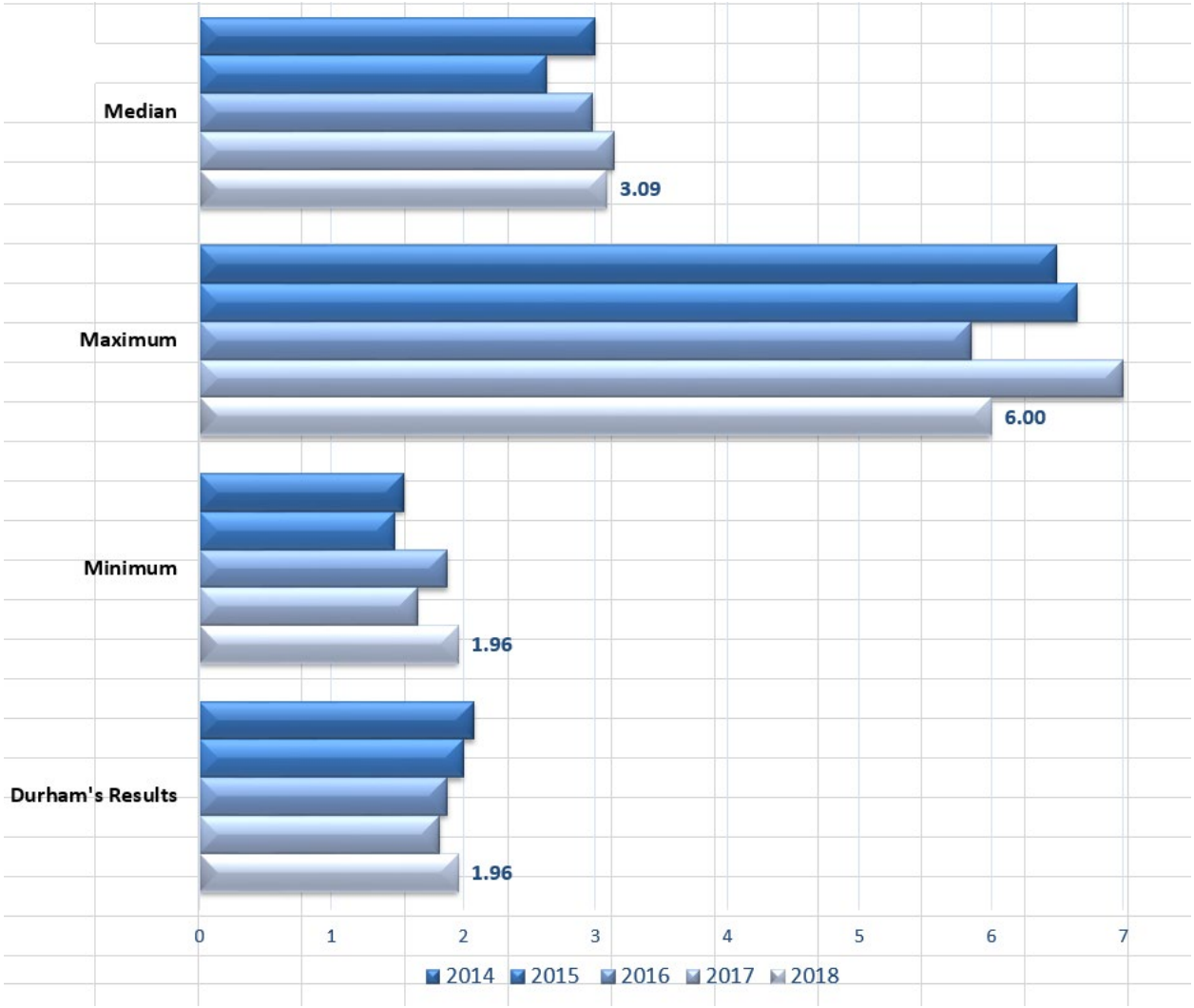
Exhibit 24 NRW in m^3/km of Main per Day (MBN data)



Durham's 2018 NRW versus main length of 9.31 m^3/km of mains is much lower than the median level of 20.84, 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 25 for the 2014 to 2018 survey results.

Exhibit 25 Infrastructure Leakage Index ILI (MBN data)



The 2018 Infrastructure Leakage Index (ILI) for Durham was calculated to be 1.96, lower and thus better than the median of 3.09.

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.

7.2 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

Strategies related to Items 21) and 35) are discussed in detail in Report #2019-COW-32: 2020 Water Supply and Sanitary Sewerage Strategic Issues and Financial Forecast. The following sections outline conclusions related to cost recovery for Items 20) and 35).

7.2.1 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.

In order to more closely recover the cost of unmetered water used in residential construction the 2017 User Rate Report recommended a phase-in plan of a higher charge starting in 2017 with the target of a charge based on 200 m^3 water usage reached in 2020 based on the consumption levels shown in the adjacent table.

Building Purposes Charge Phase-In Plan

Year	m^3	gal	$/$m^3$	Charge $
2017	110	24,200	$0.997	$110
2018	140	30,800	$1.045	$146
2019	170	37,400	$1.100	$187
2020	**200**	**44,000**	**$1.112**	**$222**

The recommended 2020 BP Charge of $222.00 per water service is equivalent to 200 m^3 .

The recommended 2020 Building Purposes Charge is discussed as part of the 2020 Miscellaneous Charges in Section 5.3.

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

7.2.2 Bulk Water Filling Stations

There are currently five (5) bulk water filling stations all located at water treatment plants. In 2018 there were 122 registered bulk water customers. This service is separate from water drawn from hydrants which has its own rules and fee schedule.

In the water and sewage systems Miscellaneous Fees & Charges Schedule, Item (36) sets out charges related to water purchased at bulk water filling stations. The 2019 Water and Sewer User Rate Report included an increase in the minimum monthly volume charge from $52.30 to $150.00 at the Region's Bulk Water Filling Stations. Regional Council approved the following motion in April 2019:

> "That whereas the new minimum monthly volume charge per month has

increased from $52.30 to $150.00, which reflects an approximately 188% increase from 2018;

Be it resolved that the minimum monthly volume charge for end users be phased in on an adjusted annual total volume limit to reduce impacts on services contractors."

Staff have reviewed the cost structure for the bulk water filling stations and concluded that a bulk water fare structure in the same format as the normal potable water rates would be a fairer and more acceptable approach. Staff are recommending that

- the annual Account Administration Fee and the monthly Minimum Bill be combined into a single monthly fixed charge,
- The minimum bill and annual administration fee be eliminated.
- New customers pay an account setup charge.

Basically, the current minimum charge plus annual administration fee would no longer apply and would be covered by the per bill service charge plus a one-time account setup charge. The recommended revised fee schedule closely parallels the normal user rate approach.

These changes are included as Item 36) of Schedule 4 - Recommended 2020 Miscellaneous Fees & Charges – see also Section 5.3 of this report.

8 Future Considerations (2021 To 2029)

8.1 Future Customer & Consumption Trends

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

- **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** – The impact of the closing of vehicle assembly operations in Oshawa by GM and related feeder industries has been incorporated into projections. At this time projections assume little further impact by large industrial related to the water and sewer user rates.
- **Total Consumption** – Consumption has been decreasing gradually. For planning purposes it is projected that total consumption will continue to decrease at 0.5% annually. Previously, 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 #2019-COW-16 2019 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 closure of the GM assembly plant and its feeder plants has been fully incorporated into 2020 projections based on a worst-case scenario. Should replacement manufacturing activities occur this provide a positive impact on future water and sewer revenue projections.

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.

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 4-6%.

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;
- 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; and
- The impact of climate change on water and sanitary sewer systems infrastructure on investment levels must also be considered and factored into future capital planning and its impact on user rates.

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, transition to meter readings by meter readers for all billings in order to reduce the cost of meter readings while increasing their accuracy;

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;

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; and

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