If this information is required in an accessible format, please contact 1-800-372-1102 ext. 2304

The Regional Municipality of Durham Report

To:	Finance and Administration Committee
From:	Commissioner of Finance
Report:	#2020-F-25
Date:	December 8, 2020

Subject:

Recommended 2021 Water and Sanitary Sewer User Rates

Recommendations:

That the Finance and Administration Committee recommends to Regional Council:

A) That the 2021 Regional Water and Sanitary Sewer User Rates increase by 0.75 per cent for an average residential customer effective January 1, 2021, with the Regional water rates increasing by 0.40 per cent and the Regional sanitary sewer rates increasing by 1.06 per cent from the 2020 user rate levels as set out in Schedule 1 and Schedule 2 of this report respectively;

B) That the 2021 Raw Water rates for the Whitby raw water customer be increased by 0.40 per cent as set out in Schedule 1 of this report, effective January 1, 2021;

C) That the 2021 water charges for the Sun Valley Heights Homeowners Co-operative Water System be as set out in Schedule 3 of this report, effective January 1, 2021;

D) That the 2021 Regional Water and Sanitary Sewer Systems Miscellaneous Fees and Charges be as set out in Schedule 4 of this report, effective January 1, 2021;

E) That the 2021 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 of this report, effective January 1, 2021; 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 outlines the recommended Water and Sanitary Sewer User Rates to be effective January 1, 2021 including background on the parameters used in determining the recommended rates. This report is presented concurrently with the 2021 Business Plans and Budgets and Nine Year Capital Forecasts for the Consolidated Water Supply and Sanitary Sewerage Systems Report (Report 2020-F-24) which describes the proposed 2021 operating and capital works, nine year capital forecast and associated financing.

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 the approved user rates. It is imperative that user rates be approved in 2020 in order that they can be implemented with the first customer billings commencing early January 2021.

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 2021 water and sanitary sewer user fees and related charges will be considered by the Finance and Administration Committee on December 8, 2020 and by Regional Council on December 16, 2020, was provided twice in local newspapers throughout the Region during the weeks of November 9th and 23rd, 2020 and was posted on the Region’s website.

2. 2021 Recommended Water and Sanitary Sewer User Rate Increases

2.1 The recommended 0.40 per cent water user rate increase and 1.06 per cent sanitary sewer user rate increase (0.75 per cent combined for an average residential customer) supports an increase in net user rate supported expenditures of 3.37 per cent for water and 5.10 per cent for sanitary sewage.

2.2 The current 2020 and recommended 2021 Water and Sanitary Sewer User Rates are provided in Schedule 1 and Schedule 2 of this report respectively. The recommended 2021 Regional Water and Sanitary Sewer Rate increase of 0.75 per cent for an average residential customer reflects an annual increase of approximately $7.72 per year.

2.3 The recommended user rates are based on the proposed 2021 operating and capital costs and associated financing which are outlined in detail in the 2021 Business Plans and Budgets and Nine Year Capital Forecasts for the Consolidated Water Supply and Sanitary Sewerage Systems Report (Report 2020-F-24), as well as customer and consumption projections described below.

2.4 For water, the user rate increase of 0.40 per cent is required to finance a proposed 2021 net user rate supported budgeted net expenditure increase of $3.77 million or 3.37 per cent over 2020, which will allow for:

- A net operating cost increase of $1.07 million mainly for annual economic and inflationary increases for services and supplies, annualization of 4.371 Full Time Equivalents (FTEs) from 2020 and 5.047 new FTEs for 2021;
- A user rate capital program/contribution increase of $2.96 million; and
- A slight decrease in debt servicing costs funded by user rates of $0.26 million resulting from lower than anticipated interest rates for the interfund note established in 2020 for the Newcastle Water Supply Plant.

2.5 For sanitary sewer, the user rate increase of 1.06 per cent is required to finance a proposed 2021 user rate supported budgeted net expenditure increase of $5.41 million or 5.1 per cent over 2020, which will allow for:

- A net operating cost increase of $3.45 million mainly for annual economic and inflationary increases for services and supplies, annualization of 2.230 Full Time Equivalents (FTEs) from 2020 and 2.909 new FTEs for 2021;
- A capital program/contribution increase of $2.64 million in the user rate supported contribution;
- A decrease in debt servicing costs funded by user rates of $2.43 million due to debt retirement related to the Courtice Water Pollution Control Plant and the York Durham Sewage System; and
- The removal of the one-time contribution from the Sewer Rate Stabilization Reserve Fund of $1.75 million that was required in 2020 to achieve the amendment by Finance and Administration Committee and Council to reduce the original recommended sanitary sewerage rate increase of 4.0 per cent to 2.3 per cent. The recommended 2021 sewer rate increase brings the sewer user rate back to full cost recovery.

3. Basis for the Proposed 2021 User Rates

3.1 The projected data used to develop the 2021 user rates includes the following:

Projected Data Used to Develop 2021 Water & Sanitary Sewer User Rates

Parameter	Water	Sanitary Sewage
Customers		
- Number	181,293	176,592
- Growth from 2020 Actual	1.00%	1.05%
Consumption/Flow		
- Cubic metres (millions)	55.00	52.86
- Increase from 2020 Budget	4.4%	4.3%
User Rate Revenue Requirements		
- Total Expenditures	$115,489,700	$111,335,400
- Increase from 2020 Budget	3.4%	5.1%
User Rate Change Required		
- Percent	**0.40%**	**1.06%**
- Impact on Revenue of 1% Rate Change	**$1,150,000**	**$1,102,000**

- **Impact of a 1 per cent Rate Change** - Any change in either expenditures or other revenues by $1,150,000 for water or $1,102,000 for sanitary sewer is equivalent to a 1 per cent change in the respective user rate.

3.2 The 2021 growth in the number customers is projected at 1.00 per cent for water and 1.05 per cent for sanitary sewer.

3.3 Billed water consumption for 2021 is projected as follows:

- **Overall –** Total billed 2021 water consumption and sanitary sewage flows are both projected to increase with the residential component increasing and the industrial, commercial, institution (ICI) component decreasing.

- **Residential** – Residential consumption represents almost 75 per cent of water consumption and is the main driver in water consumption projections. Residential water consumption has two components: Basic day-to-day usage year-round (Base Consumption) and seasonal usage, with Base Consumption representing the larger share.

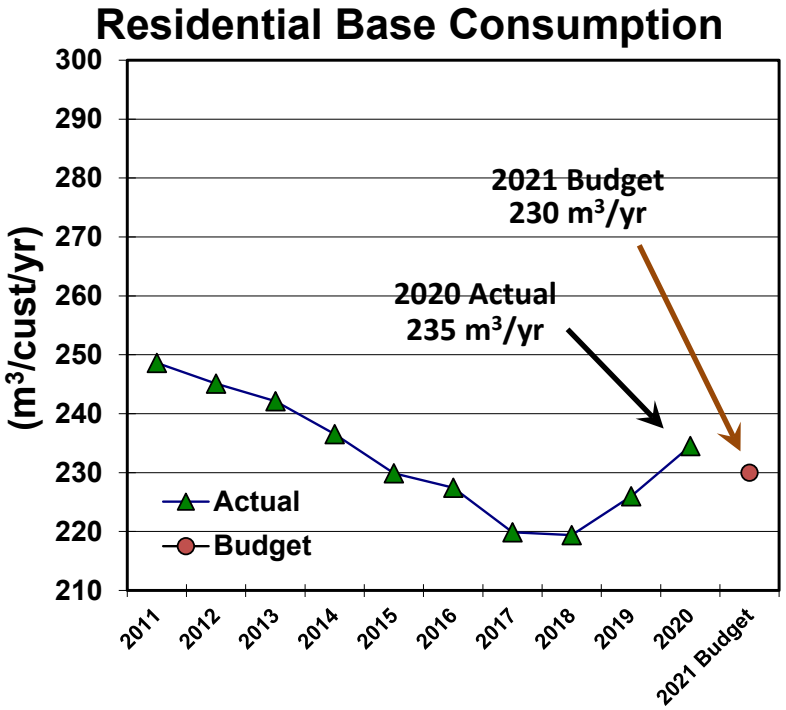
  Base Consumption is recalculated for each year using data up to May. This data excludes seasonal summer usage. The following figure on Residential Base Consumption illustrates the Residential Base Consumption trend for the last 10 years. From 2000 until 2017 Residential Base Consumption per customer has steadily decreased at a rate of about 2.4 per cent per year. Contributing factors to this decline in Base Consumption include the water efficient fixtures required in new construction by the Provincial Building Code and the popularity of more water efficient appliances.

  Starting in 2018, data suggested a levelling off, with 2019 and 2020 showing an increase in Residential Base Consumption to 226 m^3/year in 2019 and 235 m^3/year projected in 2020. The increase in consumption in 2020 is in large part attributable to the impact of the COVID-19 pandemic, where an increasing number of individuals were working and attending school remotely from home.

It is difficult to predict the impact that the COVID-19 pandemic will have on Base Residential Consumption in 2021. For purposes of calculating the proposed 2021 user rates, it was assumed that the COVID-19 pandemic will continue to have a positive impact on 2021 Residential Base Consumption. The 2021 proposed user rates reflect projected 2021 Residential Base Consumption at 230 m^3/customer/year.

Should actual Residential Base Consumption be lower than projected in 2021, funding from the Water Rate Stabilization Reserve Fund and the Sewer Rate Stabilization Reserve Fund will be required to finance any resulting deficits.

It is important to note that this higher rate of Residential Base Consumption is not anticipated to continue post pandemic and future Business Plans and Budgets and User Rates will need to be adjusted to reflect updated lower consumption projections.



Total residential consumption also includes a seasonal component. The projected seasonal usage for 2021 is 10 m^3/customer/year, an increase from the 6.5 m^3/customer/year assumed in prior years. The projected 2021 seasonal consumption of 10 m^3/customer/year was set based on average historical levels.

Based on a combined basic and seasonal usage (240 m^3/customer/year) and customer growth of 1 per cent, total residential water consumption is budgeted to increase by 7.6 per cent (sewer by 7.4 per cent) over 2020 Budget levels.

- **Non-Residential (ICI) Consumption Share** – ICI consumption share relative to residential usage is projected to decrease to 23 per cent in 2021 (actual 2019 was 26 per cent). Overall total ICI consumption is projected to decrease by 5.0 per cent for water and 5.5 per cent for sanitary sewer.

- **Small to Medium Size ICI Water Users** – Although 1st block consumption is projected to remain fairly stable, consumption in the second-rate block is projected to decrease.

- **Large Water Users** – Based on current large customer consumption levels, it is projected that 2021 3rd block consumption will be roughly equal to that budgeted for 2020.

4. Customer Impacts

4.1 **Average Residential Customer Impact** – Based on the assumptions outlined above for customer growth and consumption and the proposed budgetary increases, the 2021 water user rates are proposed to increase by 0.40 per cent and sanitary sewer user rates are proposed to increase by 1.06 per cent over the approved 2020 user rate levels. The combined proposed water and sewer user rates results in an increase of $1.93 or 0.75 per cent on a quarterly bill ($7.72 per annum) for the average residential customer as outlined in the following table.

2021 Proposed Regional User Rate Charges Typical Residential Customer Impact				
Annual Water Consumption		52,800	gallons/year	
		240.0	m^3/year	
Billings ($/quarter)				
	2020 Actual	2021 Proposed	Increase	
Water	$125.57	$126.09	$0.52	0.40%
Sewage	$132.57	$133.98	$1.41	1.06%
Total ($/quarter)	$258.14	$260.07	$1.93	0.75%
Annual Billing ($/year)	$1,032.56	$1,040.28	$7.72	0.75%

4.2 **Large Industry Customer Impact** - The proposed 2021 water and sanitary sewer user rates result in a bi-monthly increase of $718 or 0.80 per cent for a large industry customer (a customer in the top 25 users) using 227,272 m^3 annually (50 million gallons) as indicated below:

2021 Proposed Regional User Rate Charges Large Industrial Customer Impact				
Annual Water Consumption		50,000,000	gallons/year	
		227,272	m^3/year	
Billings ($ bimonthly)				
	2020 Actual	2021 Proposed	Increase	
Water	$35,626	$35,768	$142	0.40%
Sewage	$54,150	$54,726	$576	1.06%
Total ($ bimonthly)	$89,776	$90,494	$718	0.80%
Annual Billing ($/year)	$538,656	$542,964	$4,308	0.80%

5. Competitiveness of Durham's Water and Sanitary Sewage Rates

5.1 **Residential customers -** Of the 13 larger municipalities surveyed across Ontario, Durham's 2020 Regional water and sanitary sewer charges are below the average at the 5th lowest.

5.2 **Large users** – Similarly, of the 13 larger municipalities surveyed across Ontario, the Region's 2020 water and sanitary sewer rates were the 3rd lowest for a large user. The Region's declining block rates reflect the Region's reduced unit cost of servicing large customers.

5.3 Durham's average residential water and sanitary sewer charges compare favourably with other municipal water and sanitary sewer rates as well as other utility costs.

5.4 A frequently used metric for assessing affordability compares water and sanitary sewer charges to average family income. A US Environmental Protection Agency report on drinking water affordability lists a number of studies which suggest an affordability threshold for water and/or sanitary sewer charges in the range of 1.5 per cent to 2.5 per cent of average annual income. Durham's combined water and sewer service costs for an average customer are below the threshold at about 1 per cent of the average Oshawa census family income.

5.5 Although these measures indicate that the Region's water and sanitary sewer charges are generally affordable, they do not fully address the issue of affordability for all customers. Over the course of 2021, staff will continue to study the affordability of water and sanitary sewer rates including considering whether there are alternative measures which should be considered to address the affordability of the water and sanitary sewer charges on various segments of the customer base.

6. Other Fees & Charges

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. This raw water system currently serves one large industrial customer (Gerdau Ameristeel Corporation). Due to lower costs, raw water is charged at a lower volumetric rate than the potable water rates. The 2021 raw water rate is proposed to increase by 0.40 per cent, aligned with the increase in the potable water rate and is included in Schedule 1. The proposed 2021 raw water rate is approximately 38 per cent of the 3rd block potable water rate.

6.2 **Schedule 3 – Sun Valley Heights Homeowners Co-operative Water System Proposed Charges** – The charges for this local community system serving 17 customers are separate from the Regional water and sewage rates. Based on an analysis of total costs related to this local system, it is recommended that no change be made to the current rates and the 2020 Sun Valley rates continue to be applied to Sun Valley customers in 2021 ($429 per quarter or $1,716/year).

6.3 **Schedule 4 – Recommended Miscellaneous Fees & Charges** – This schedule includes a number of fee categories, which are each reviewed annually. For item number 36 (Water from Water Supply Plants, Water Pollution Control Plants, Works Depots and Bulk Filling Stations), it is recommended that the unit cost of water be increased by 0.40 per cent, consistent with the proposed water rate increase. Also, it is recommended that the schedule be updated for item 36 to indicate that the "New Account Fee" does not apply for new accounts set up for the use of the new Bulk Water Filling Station at the Oshawa/Whitby Depot. This proposed adjustment is necessary as a result of the completion of the new bulk filling station at the Oshawa/Whitby Depot. Customers using the bulk water filling station at the Oshawa/Whitby Depot will be responsible for setting up their own account and therefore no fee for an account set-up is required. There are no other changes recommended to the Miscellaneous Fees and Charges for 2021.

6.4 **Schedule 5 – Recommended Laboratory Fees** – The recommended 2021 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory is provided in Schedule 5. The proposed 2021 Fee Schedule includes fees for four new tests that have been added and the removal of fees for three tests no longer offered.

7. Projected User Rate Considerations Over the Forecast Period (2022 – 2030)

7.1 Based upon projections to 2030, it is estimated that the combined water and sanitary sewer user rate increases of approximately 4 per cent to 6 per cent on average per year may be required over the forecast period depending on future customer growth, water consumption, operating and capital costs. Staff continue to review operating requirements and long-term capital forecast and financing plans to refine these estimates. Information available through modeling under the Region's business planning and budget modernization initiative will allow for better refinement of projected rate increases for future years.

7.2 These projections will be impacted by various factors including:

- Customer growth that may be lower than that experienced over the last number of years;
- Potential for reductions in residential base water consumption and thus related revenues without a resulting offsetting reduction in costs. The 2021 proposed user rates assume an increase in residential base consumption to 230 m^3/customer per year. This increase, in large part, is attributable to the continued impact that the COVID-19 pandemic is projected to have on residential base consumption with individuals continuing to work and attend school remotely from home. It is anticipated that this increased rate of residential base consumption will not continue post pandemic and future Business Plans and Budgets and User Rates will need to be adjusted to reflect updated residential base consumption. In addition, any economic decline could result in lower system utilization with consequent decreases in water and sanitary sewer user rate revenues;
- Market price impacts and volatility, including energy costs, and related equipment and supplies; and

- Significant investments are required in water supply and sanitary sewerage infrastructure to meet growth related, asset management, climate change adaptation/mitigation and regulatory requirements. The 2022 to 2030 Capital Forecast is discussed in Report 2020-F-24 – 2021 Business Plans and Budgets and Nine-Year Capital Forecasts for the Water Supply and Sanitary Sewerage Systems.

8. Schedules of Rates & Fees

8.1 The recommended Durham Region 2021 water and sanitary sewer user rates, fees and charges are set out in the attached schedules, as follows:

- The recommended 2021 Water User Rates are 0.40 per cent higher than the 2020 rates and are set out in Schedule 1.
- The recommended 2021 Raw Water Rate for the Whitby raw water customer is 0.40 per cent higher than 2020 and is set out in Schedule 1.
- The recommended 2021 Sanitary Sewage User Rates are 1.06 per cent higher than the 2020 rates and are set out in Schedule 2.
- The recommended 2021 Water Rate for the Sun Valley Heights Homeowners Co-operative Water System is set out in Schedule 3.
- The recommended 2021 Water & Sanitary Sewer Systems Miscellaneous Fees & Charges are set out in Schedule 4.
- The recommended 2021 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory located at the Duffin Creek WPCP is set out in Schedule 5.

9. Relationship to Strategic Plan

9.1 This report aligns with/addresses the following strategic goals and priorities in the Durham Region Strategic Plan:

a) Goal 5 Service Excellence – To provide exceptional value to Durham taxpayers through responsive, effective and fiscally sustainable service delivery. By responsibly managing the Region's financial assets, the proposed 2021 User Rates for Water Supply and Sanitary Sewerage look to optimize resources to deliver critical infrastructure and services for current and future generations.

10. Conclusion

10.1 The proposed 2021 Regional Water and Sanitary Sewer User Rates reflect a combined increase of 0.75 per cent for an average residential customer effective January 1, 2021, with the Regional water rates increasing by 0.40 per cent and the Regional sanitary sewer rates increasing by 1.06 per cent.

10.2 The proposed combined water and sanitary sewer user rate increase results in an increase of $1.93 on a quarterly bill ($7.72 per annum) for an average residential customer.

10.3 The proposed rate increases are based on projected customer growth of 1.00 per cent in water customers and 1.05 per cent in sewer customers with residential base consumption increasing to 230 m^3/customer/year and seasonal usage at 10 m^3/customer/year.

10.4 The 2021 Proposed Business Plans and Budgets for Consolidate Water Supply and Sanitary Sewerage can be accommodated within the 2021 proposed Regional Water and Sanitary Sewer User Rates recommended in this report.

10.5 The Commissioner of Works has reviewed this report and concurs with its recommendations.

11. Attachments

Schedule 1 – Recommended 2021 Water User Rates

Schedule 2 – Recommended 2021 Sanitary Sewer User Rates

Schedule 3 – Recommended 2021 Water Rate for the Sun Valley Heights Homeowners Co-operative Water System

Schedule 4 – Recommended 2021 Water & Sanitary Sewer Systems Miscellaneous Fees & Charges

Schedule 5 – Recommended 2021 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

Recommended for Presentation to Committee:

Original Signed By

Elaine Baxter-Trahair
Chief Administrative Officer

Schedule 1 - Recommended 2021 Water User Rates

REGIONAL MUNICIPALITY OF DURHAM

Water User Rate Schedule — 2021 Rate Increase = 0.40%

Monthly

Effective January 1, 2021

Volumetric Charges

Block	Consumption Range				Current 2020		Proposed 2021	
	From		To	Units				
First Block	0	to	45	cubic metres/month	$1.137	/cubic metre	$1.142	/cubic metre
	0	to	10,000	gallons/month	$5.170	/1,000 gallons	$5.191	/1,000 gallons
	0	to	1,600	cubic feet/month	$3.221	/100 cubic feet	$3.234	/100 cubic feet
Second Block	46	to	4,500	cubic metres/month	$0.967	/cubic metre	$0.971	/cubic metre
	10,001	to	1,000,000	gallons/month	$4.397	/1,000 gallons	$4.415	/1,000 gallons
	1,601	to	160,000	cubic feet/month	$2.739	/100 cubic feet	$2.751	/100 cubic feet
Third Block		Over	4,500	cubic metres/month	$0.888	/cubic metre	$0.892	/cubic metre
		Over	1,000,000	gallons/month	$4.037	/1,000 gallons	$4.053	/1,000 gallons
		Over	160,000	cubic feet/month	$2.515	/100 cubic feet	$2.525	/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	2020	2021	2020	2021	2020	2021
Standard	Standard	$19.11	$19.19	n/a	n/a	n/a	n/a
1-inch	25-mm	$38.84	$39.00	$65.00	$65.00	$14.76	$14.82
1 ½-inch	38-mm	$82.68	$83.01	$124.00	$125.00	$19.84	$19.92
2-inch	51-mm	$178.56	$179.27	$239.00	$240.00	$38.40	$38.55
2 ½-inch	64-mm	n/a	n/a	n/a	n/a	$50.88	$51.08
3-inch	76-mm	$313.89	$315.15	$410.00	$411.00	$67.46	$67.73
4-inch	102-mm	$624.15	$626.65	$808.00	$811.00	$134.93	$135.47
5-inch	127-mm	n/a	n/a	n/a	n/a	$181.17	$181.89
6-inch	152-mm	$1,160.01	$1,164.65	$1,476.00	$1,481.00	$249.15	$250.15
8-inch	203-mm	$1,977.56	$1,985.47	$2,425.00	$2,435.00	$415.15	$416.81
10-inch	254-mm	$3,218.06	$3,230.93	$3,841.00	$3,857.00	$662.46	$665.11
12-inch	305-mm	n/a	n/a	n/a	n/a	$934.03	$937.77

Flat Rate (includes consumption)

	Current 2020	Proposed 2021
Monthly/unit	$44.96	$45.15
Quarterly/unit	$134.88	$135.45
Annually/unit	$539.52	$541.80

Other - Raw Water Rate — **Recommended Raw Water Rate Increase: 0.40%**

		Current 2020		Proposed 2021	
All volumes	cubic metres	$0.339	/cubic metre	$0.341	/cubic metre
	gallons	$1.542	/1,000 gallons	$1.548	/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 2021 Sanitary Sewer User Rates

REGIONAL MUNICIPALITY OF DURHAM

Sewage User Rate Schedule **2021 Rate Change 1.06%**

Monthly

Effective January 1, 2021

Volumetric Charges

Block	Consumption Range				Current		Proposed	
	From		To	Units	2020		2021	
First Block	0	to	45	cubic metres/month	$1.848	/cubic metre	$1.867	/cubic metre
	0	to	10,000	gallons/month	$8.398	/1,000 gallons	$8.487	/1,000 gallons
	0	to	1,600	cubic feet/month	$5.232	/100 cubic feet	$5.287	/100 cubic feet
Sewer rate expressed as a % of water rate					*162.4%*		*163.5%*	
Second Block	46	to	4,500	cubic metres/month	$1.626	/cubic metre	$1.643	/cubic metre
	10,001	to	1,000,000	gallons/month	$7.390	/1,000 gallons	$7.468	/1,000 gallons
	1,601	to	160,000	cubic feet/month	$4.604	/100 cubic feet	$4.653	/100 cubic feet
Sewer rate expressed as a % of water rate					*168.1%*		*169.2%*	
Third Block		Over	4,500	cubic metres/month	$1.366	/cubic metre	$1.381	/cubic metre
		Over	1,000,000	gallons/month	$6.211	/1,000 gallons	$6.277	/1,000 gallons
		Over	160,000	cubic feet/month	$3.869	/100 cubic feet	$3.911	/100 cubic feet
Sewer rate expressed as a % of water rate					*153.9%*		*154.9%*	

Basic Charges ($/month)

	Service Charge		Minimum Charge		Flat Rate/unit	
Meter	Current 2020	Proposed 2021	Current 2020	Proposed 2021	Current 2020	Proposed 2021
Standard	$7.24	$7.32	No minimum charge		$49.23	$49.76
All other sizes						
Monthly	$7.24	$7.32	$49.00	$50.00	$49.23	$49.76
Quarterly	$21.72	$21.96			$147.69	$149.28
Annually	$86.88	$87.84			$590.76	$597.12

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 2021 Water Charges for the Sun Valley Heights Homeowners Co-operative Water System

Sun Valley Home Owners Co-Operative
2021 Projected Costs

Cost Item	Budget 2020	Projected Cost 2021
	$	$
Hydro Electricity	2,000	2,000
Property Taxes	500	500
Laboratory Costs	2,255	2,255
Vehicle	2,870	2,870
Operator & Reports	16,847	16,847
Operation Materials	2,600	2,600
Maintenance Materials & Other	600	600
Machinery and Equipment	1,550	1,550
TOTAL	**29,222**	**29,222**
Monthly charges per property owner (billings sent quarterly)	**$143**	**$143**
Annual cost per property owner	**$1,716**	**$1,716**

Schedule 4 - Recommended 2021 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 2021 Miscellaneous Charges Item Number & Description	By-Law Schedule Reference		Existing 2020 Charges		Recommended 2021 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 2021 Miscellaneous Charges Item Number & Description	By-Law Schedule Reference		Existing 2020 Charges		Recommended 2021 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		 460.00 140.21		 460.00 140.21
11) Standard 200-mm (8-inch) diameter Watermain - /metre - /foot	E1 & E2		 528.00 160.93		 528.00 160.93
12) Standard 300-mm (12-inch) diameter Watermain - /metre - /foot	E1 & E2		 570.00 173.74		 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		 507.00 154.53	 507.00 154.53
15) Standard 250-mm (10-inch) diameter Sanitary Sewer - /metre - /foot		D1 & D2		 575.00 175.26	 575.00 175.26
16) Standard 300-mm (12-inch) diameter Sanitary Sewer - /metre - /foot		D1 & D2		 637.00 194.16	 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 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.					

Schedule 4 - Recommended 2021 Miscellaneous Charges Item Number & Description	By-Law Schedule Reference		Existing 2020 Charges		Recommended 2021 Charges
	Water By-law #89-2003	Sewer By-law #90-2003	Water $	Sewer $	Note: Changes are in Bold $
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		222.00		222.00

Schedule 4 - Recommended 2021 Miscellaneous Charges Item Number & Description	By-Law Schedule Reference		Existing 2020 Charges		Recommended 2021 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			3.88		3.88
- /1,000 gallons			17.64		17.64
- Deposit			1,800.00		1,800.00
- Administrative Charge			134.77		134.77
- Minimum Charge per Month			1,800.00		1,800.00
- Valve installation/removal			109.25		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			3.22		**3.23**
- /1,000 gallons			14.64		**14.69**
- Service Charge $/month			21.00		21.00
- New Account Fee*			42.00		42.00
- Key Deposit			218.80		218.80
- Refundable on return of key (based on fee in year Key Deposit made)			181.64		181.64
- Access card			36.45		36.45
* **The new account fee does not apply to new accounts set up by customers for the use of the Bulk Water Filling Station at the Oshawa/Whitby Depot**					

Schedule 4 - Recommended 2021 Miscellaneous Charges Item Number & Description	By-Law Schedule Reference		Existing 2020 Charges		Recommended 2021 Charges
	Water By-law #89-2003	Sewer By-law #90-2003	Water $	Sewer $	Note: Changes are in Bold $
37) Fire Flow tests:					
- Full test (May 1 – Oct 31)	F18		467.20		467.20
- 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
- /1,000 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
- /1,000 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		21.51	21.51
42) Sewer Use By-law Agreement extra strength waste ($/kg.)				0.53	0.53
43) Sewer Appeal Application per request		E15		950.00	950.00

Schedule 5 - Recommended 2021 Fee Schedule for Laboratory Services at the Regional Environmental Laboratory Located at the Duffin Creek WPCP

THE REGIONAL MUNICIPALITY OF DURHAM 2021 FEES AND CHARGES WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY			2021 Changed Bold
Description		2020 Rate (before appl. Taxes)	2021 Rate (before appl. Taxes)
Laboratory Fees Page 1 of 10		$	$
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		$1,400.00	$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

2021 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Description		2020 Rate (before appl. Taxes)	2021 Changed Bold 2021 Rate (before appl. Taxes)
Laboratory Fees Page 2 of 10		**$**	**$**
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
Faecal Streptococci	**New Test**	N/A	**$16.30**
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	**N/A**

THE REGIONAL MUNICIPALITY OF DURHAM

2021 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Description	2020 Rate (before appl. Taxes)		2021 Changed Bold 2021 Rate (before appl. Taxes)	
Laboratory Fees Page 3 of10	**$**	**$**	**$**	**$**
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)	$20.00	$26.00	$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	N/A	$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	**N/A**	**N/A**

S/S/S = Sewage, Sludge and Soil
*Calculation included (no charge).

THE REGIONAL MUNICIPALITY OF DURHAM

2021 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Description		2020 Rate (before appl. Taxes)		2021 Changed Bold 2021 Rate (before appl. Taxes)	
Laboratory Fees Page 4 of 10		$	$	$	$
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	**N/A**	N/A
Cation Scan by ICP (Ca, Mg, Na, K, Hardness*)	New Test	N/A	N/A	**$52.00**	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

2021 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Description	2020 Rate (before appl. Taxes)	2021 Changed Bold 2021 Rate (before appl. Taxes)
Laboratory Fees Page 5 of 10	**$**	**$**
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

2021 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Description	2020 Rate (before appl. Taxes)	2021 Changed Bold 2021 Rate (before appl. Taxes)
Laboratory Fees Page 6 of 10	**$**	**$**
INORGANIC MONITORING PACKAGES		
Sewer Use By-law	$475.00	$475.00
Complete Inorganic Package		
BOD, suspended solids, total kjeldahl nitrogen, total phosphorus, pH, fluoride		
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

2021 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Description		2020 Rate (before appl. Taxes)		2021 Changed Bold 2021 Rate (before appl. Taxes)	
Laboratory Fees Page 7 of 10		**$**		**$**	
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)		$300.00		$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 2021 FEES AND CHARGES WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY			2021 Changed Bold
Description		2020 Rate (before appl. Taxes)	2021 Rate (before appl. Taxes)
Laboratory Fees Page 8 of 10		**$**	**$**
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		Subcontractor's Rate	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

2021 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Description		2020 Rate (before appl. Taxes)	2021 Changed Bold 2021 Rate (before appl. Taxes)
Laboratory Fees Page 9 of 10		**$**	**$**
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			
PFAS/PFOS (Direct Injection Method)	**New Test**	n/a	**$360.00**
Perfluorodecanesulfonic acid (PFDS, Perfluorodecanesulfonate) Perfluorodecanoic acid (PFDA, Perfluorodecanoate) Perfluorododecanoic acid (PFDoA, Perfluorododecanoate) Perfluoroheptanoic acid (PFHpA, Perfluorohepanoate) Perfluorohexanesulfonic acid (PFHxS, Perfluorohexanesulfonate) Perfluorohexanoic acid (PFHxA, Perfluorohexanoate) Perfluorononanoic acid (PFNA, Perfluorononanoate) Perfluorooctanesulfonic acid (PFOS, Perfluorooctanesulfonate) Perfluorooctanesulfonamide (PFOSA) Perfluorooctanoic acid (PFOA, Perfluorooctanoate) Perfluoroundecanoic acid (PFUnA, Perfluoroundecanoate)			
PFAS/PFOS (Solid Phase Extraction Method)	**New Test**	n/a	**$600.00**
Perfluorodecanesulfonic acid (PFDS, Perfluorodecanesulfonate) Perfluorodecanoic acid (PFDA, Perfluorodecanoate) Perfluorododecanoic acid (PFDoA, Perfluorododecanoate) Perfluoroheptanoic acid (PFHpA, Perfluorohepanoate) Perfluorohexanesulfonic acid (PFHxS, Perfluorohexanesulfonate) Perfluorohexanoic acid (PFHxA, Perfluorohexanoate) Perfluorononanoic acid (PFNA, Perfluorononanoate) Perfluorooctanesulfonic acid (PFOS, Perfluorooctanesulfonate) Perfluorooctanesulfonamide (PFOSA) Perfluorooctanoic acid (PFOA, Perfluorooctanoate) Perfluoroundecanoic acid (PFUnA, Perfluoroundecanoate)			
Legal Sample Fees and Legal Storage Fees			
Samples submitted under legal chain of custody (To maintain an unbroken chain of custody for samples that may be used for litigation)	per sample	$255.00	$255.00
Extended storage for legal samples (longer than 30 days) (Samples will be stored free of charge for 30 days from the date of final report)	per container per month	$3.10	$3.10
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

THE REGIONAL MUNICIPALITY OF DURHAM

2021 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Description		2020 Rate (before appl. Taxes)	2021 Changed Bold 2021 Rate (before appl. Taxes)
Laboratory Fees Page 9 of 10		**$**	**$**
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			
PFAS/PFOS (Direct Injection Method)	**New Test**	n/a	**$360.00**
Perfluorodecanesulfonic acid (PFDS, Perfluorodecanesulfonate) Perfluorodecanoic acid (PFDA, Perfluorodecanoate) Perfluorododecanoic acid (PFDoA, Perfluorododecanoate) Perfluoroheptanoic acid (PFHpA, Perfluorohepanoate) Perfluorohexanesulfonic acid (PFHxS, Perfluorohexanesulfonate) Perfluorohexanoic acid (PFHxA, Perfluorohexanoate) Perfluorononanoic acid (PFNA, Perfluorononanoate) Perfluorooctanesulfonic acid (PFOS, Perfluorooctanesulfonate) Perfluorooctanesulfonamide (PFOSA) Perfluorooctanoic acid (PFOA, Perfluorooctanoate) Perfluoroundecanoic acid (PFUnA, Perfluoroundecanoate)			
PFAS/PFOS (Solid Phase Extraction Method)	**New Test**	n/a	**$600.00**
Perfluorodecanesulfonic acid (PFDS, Perfluorodecanesulfonate) Perfluorodecanoic acid (PFDA, Perfluorodecanoate) Perfluorododecanoic acid (PFDoA, Perfluorododecanoate) Perfluoroheptanoic acid (PFHpA, Perfluorohepanoate) Perfluorohexanesulfonic acid (PFHxS, Perfluorohexanesulfonate) Perfluorohexanoic acid (PFHxA, Perfluorohexanoate) Perfluorononanoic acid (PFNA, Perfluorononanoate) Perfluorooctanesulfonic acid (PFOS, Perfluorooctanesulfonate) Perfluorooctanesulfonamide (PFOSA) Perfluorooctanoic acid (PFOA, Perfluorooctanoate) Perfluoroundecanoic acid (PFUnA, Perfluoroundecanoate)			
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

THE REGIONAL MUNICIPALITY OF DURHAM

2021 FEES AND CHARGES

WORKS DEPARTMENT - ENVIRONMENTAL LABORATORY

Description	2020 Rate (before appl. Taxes)	2021 Changed Bold 2021 Rate (before appl. Taxes)
Laboratory Fees Page 10 of 10	**$**	**$**
Miscellaneous		
Sub-contractor Fee	Subcontractor's Rate	Subcontractor's Rate
Report re-issue Fee:		
- Current Year	$10.00	$10.00
- Previous 2 years	$25.00	$25.00
- Prior Archives	$100.00	$100.00
Sample treatment (if required):		
Chlorine quenching	$25.00	$25.00
Oil & Grease additional extraction	$25.00	$25.00
Crypto/Giardia Additonal Filter Processing	$400.00	$400.00
Shipping (Sample Containers)	Actual cost	Actual cost

Regional Municipality of Durham

2021 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 being considered concurrently by Council and is related to this Water and Sanitary Sewer User Rates Report:

- **Report #2020-F-24:** The recommended user rates are based on operating costs, capital costs and financing as outlined in detail in 2020-F-24: 2021 Business Plans and Budgets and Nine Year Capital Forecasts for the Consolidated Water Supply and Sanitary Sewerage Systems Report. This report is also included on the December 8, 2020 Finance and Administration Committee agenda.

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

- **Report #2020-COW-24: 2020 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 from the Annual Asset Management Plan are used to inform the 2021 capital plan and 2022 to 2030 capital forecast for the rehabilitation and replacement of water supply and sanitary sewerage infrastructure.

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

It is imperative that the proposed 2021 user rates be approved in 2020 in order that they can be implemented with the first customer billings commencing early January 2021. 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

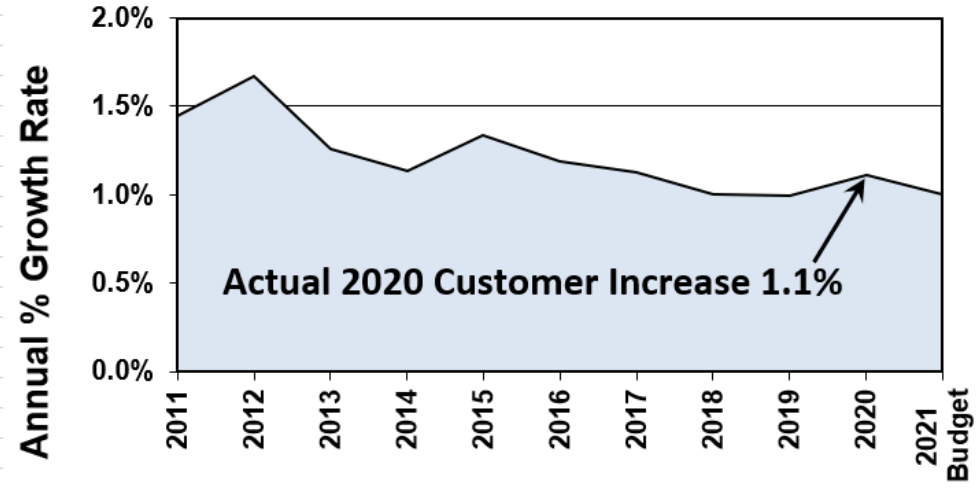
The proposed 2021 water and sanitary sewer user rates, fees and related charges will be considered by the Finance and Administration Committee on December 8th, 2020 and by Regional Council on December 16th, 2020. Public notification of this schedule was provided in local newspapers throughout the Region during the weeks of November 9th and 23rd. Notification was also posted on the Region's website. This affords the public an opportunity to make representation to the Finance and Administration Committee 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 Region's website.

2 Customer Growth - Moderate

Actual water customer growth from 2011 to 2020 and Budget 2021 (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)

2011 to 2020 Actuals and 2021 Budget



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

There were totals of 179,498 water customers and 174,757 sanitary sewer customers in June 2020. Some customers have multiple units (such as apartment buildings) but only one meter. There are fewer sanitary 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 sanitary 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 2021 rate setting purposes, annual customer growth is projected at 1.00 per cent for water and 1.05 per cent for sanitary sewer (the same as projected in the 2020 User Rates report).

The actual water, sanitary sewer and fire line customer data from 2011 to 2020 and projected 2021 budget are tabulated in Exhibit 2.

Exhibit 2 - Water & Sanitary Sewer Customers (June data)
2011 to 2020 Actuals and 2021 Budget

	Water			Sewage			Fire
		Increase Over			Increase Over		Lines
		Previous June			Previous June		
Year	Total	Number	Percent	Total	Number	Percent	Total
2011	161,172	2,295	1.4%	156,907	2,309	1.5%	1,749
2012	163,860	2,688	1.7%	159,605	2,698	1.7%	1,775
2013	165,927	2,067	1.3%	161,683	2,078	1.3%	1,802
2014	167,813	1,886	1.1%	163,575	1,892	1.2%	1,783
2015	170,051	2,238	1.3%	165,844	2,269	1.4%	1,835
2016	172,068	2,017	1.2%	167,894	2,050	1.2%	1,863
2017	174,014	1,946	1.1%	169,861	1,967	1.2%	1,877
2018	175,763	1,749	1.0%	171,658	1,797	1.1%	1,899
2019	177,518	1,755	1.0%	173,431	1,773	1.0%	1,919
2020	179,498	1,980	1.1%	174,757	1,326	0.8%	1,940
2021 Budget	***181,293***	***1,795***	***1.00%***	***176,592***	***1,835***	***1.05%***	***1,959***

The projected 2021 increase in the number of water customers is 1,795 including residential and ICI (industrial, commercial and institutional).

The projected customer growth for 2021 is:

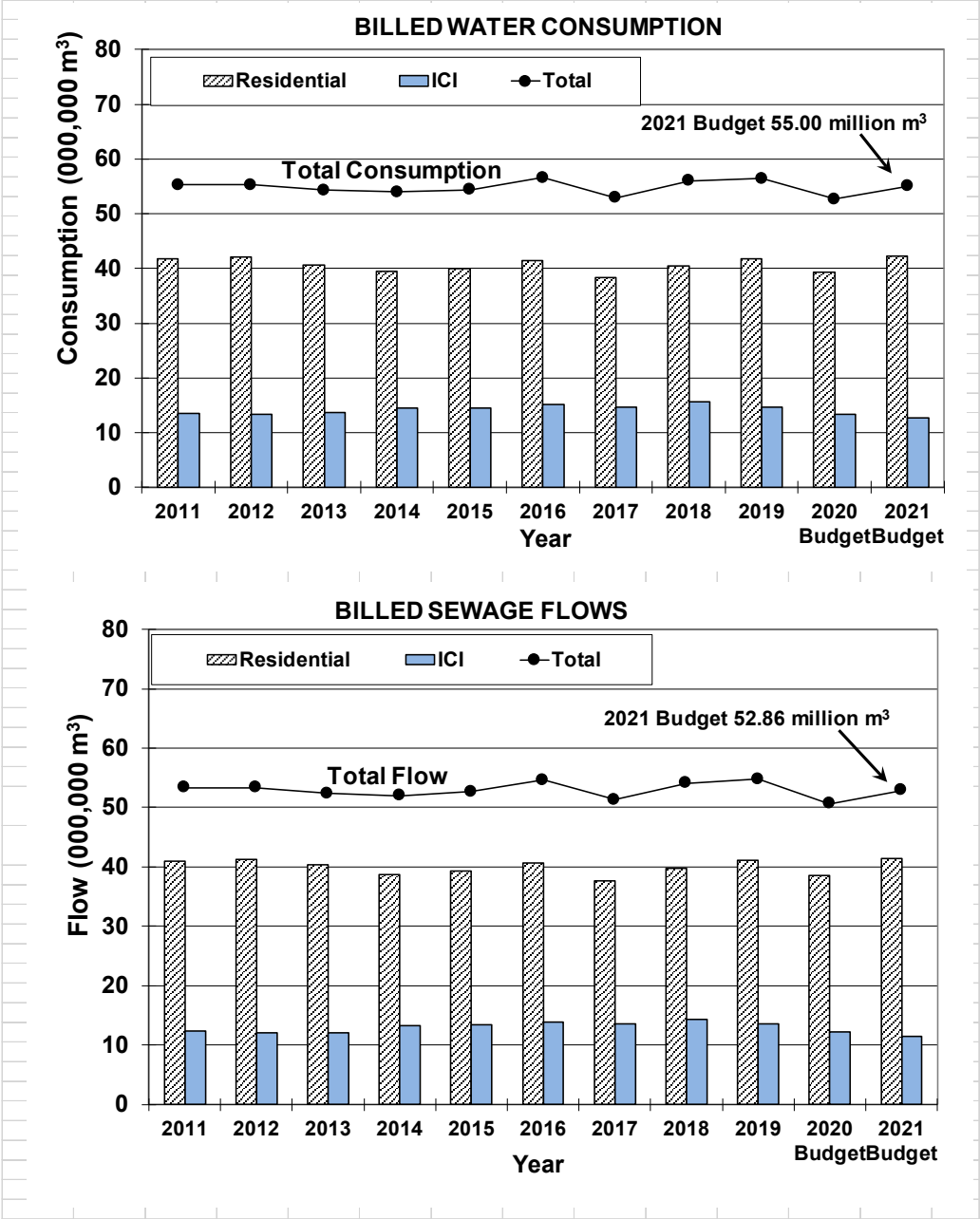
- **<u>Water</u> increase by +1,795 (+1.00 per cent) to a total of 181,293**
- **<u>Sanitary Sewer</u> increase by +1,835 (+1.05 per cent) to a total of 176,592**

3 Water Demand – Some Growth

3.1 Historical Consumption

Exhibit 3 graphs the 2011 to 2019 actual and 2020 and 2021 budgeted residential, ICI and total volumes billed to customers for water supply and sanitary sewerage. Additional information on the basis of the 2021 budget projections for consumption is provided in the following sections.

Exhibit 3 - Billed Water & Sanitary Sewer Volumes
2011 to 2019 Actuals and 2020/2021 Budget

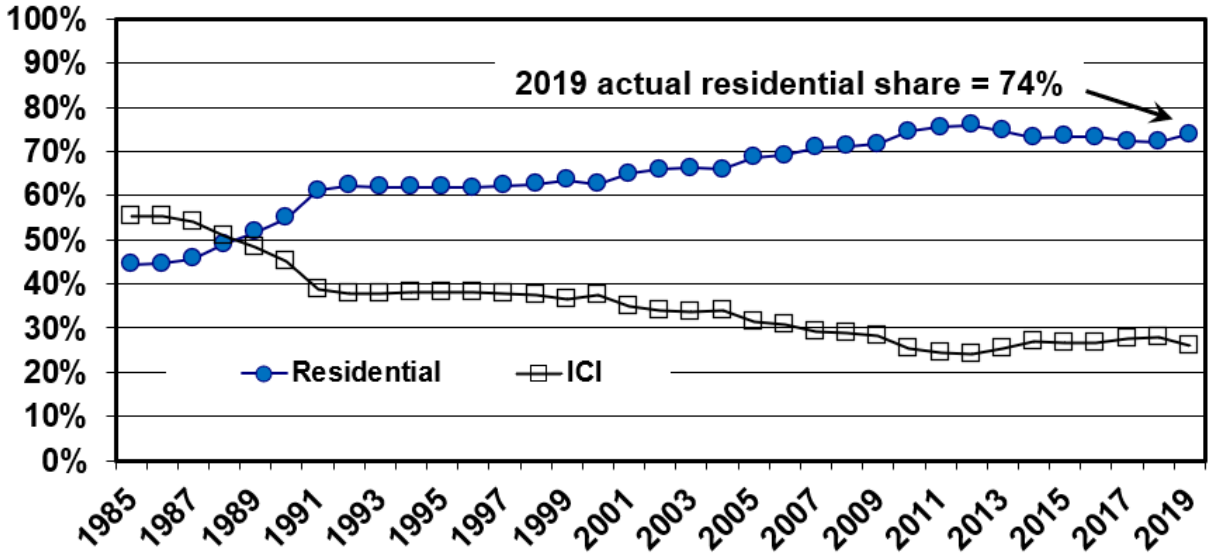


3.2 Residential versus ICI Consumption Share

Up until 2012 there was a steady increase in the share of consumption by residential customers and a corresponding decrease in the share of consumption by industrial/commercial/institution (ICI) customers. Residential usage grew from about a 43 per cent share in 1985 to a 76 per cent 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. Residential share increased somewhat in 2019 with consumption reductions at General Motors.

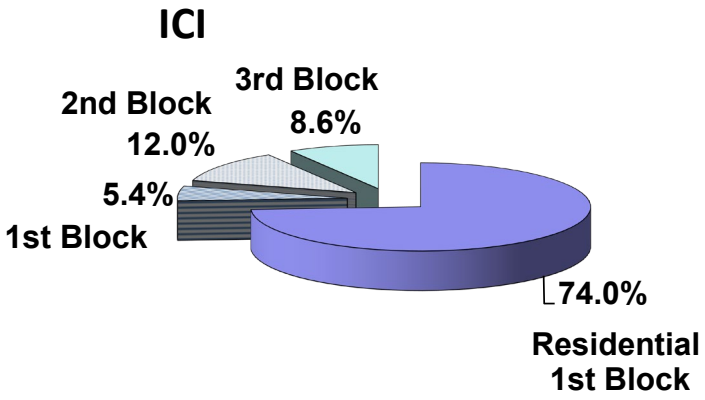
Annual consumption share is illustrated in Exhibit 4. The residential share of consumption is currently about 74 per cent.

Exhibit 4 - Billed Water & Sanitary Sewer Volume Share – Residential versus ICI 1985 to 2019 Actuals



The distribution of actual 2019 consumption by block and customer class is illustrated in Exhibit 5.

Exhibit 5 Water Consumption Share by Block – 2019 Actual



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 45 m^3/month or 10,000 gallons/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 79.4 per cent of all usage in 2019 (ICI 5.4 per cent + Residential 74.0 per cent).

- **2nd block** (ICI 46 to 4,500 m^3/month or 10,001 to 1,000,000 gallons/month) – This segment's consumption decreased slightly to about 12.0 per cent of the total.

- **3rd block** (ICI over 4,500 m^3/month or 1,000,000 gallons/month) – Large user consumption share decreased from about 10.0 per cent of total usage in 2018 to about 8.6 per cent in 2019.

3.3 Residential Consumption – Some Growth Budgeted

Although Durham continues to see residential customer growth, starting in 2001 and until 2017 usage per customer has trended downwards - the combined impact was a steady decrease in total residential usage. This trend appears to have levelled off in 2018, with 2019 and 2020 showing increased residential consumption per customer.

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

- **Base Usage** - Base 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.

Base Usage – Although the number of residential customers continues to grow, base (day-to-day) usage per customer had been decreasing from about 320 m3/customer/year in 2000 to about 220 m^3/customer/year in 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. The steady decrease in base usage per customer up to 2017 is apparent in Exhibit 6 below.

Note that this is a blend of all residential customers including single family dwellings, duplexes, apartment buildings and condominium townhouses.

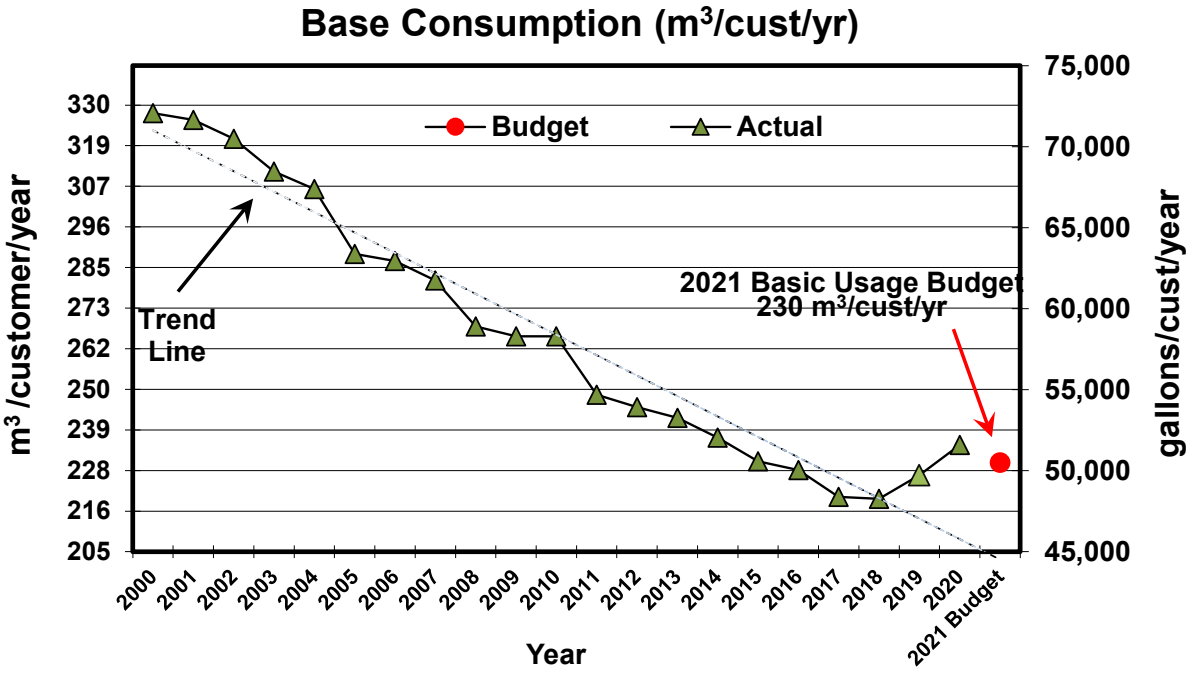
Contrary to expectations and trends, base usage per residential customer levelled off in 2018 at 219 m^3/customer/year followed by an increase to 226 m^3/customer/year in 2019. Base residential usage was budgeted at 219 m^3/customer/year for 2020.

An analysis of 2020 residential consumption indicates an increase in base usage over 2019 which coincides with the shift to more individuals working and studying remotely from home as a result of the COVID-19 pandemic. Due to the combination of recent historical base usage trend and the potential for COVID-19 ramifications going forward, at least for the near term, the level of base residential usage for budget 2021 purposes has been increased to 230 m^3/customer/year. Should actual residential base consumption be lower than projected in 2021, funding from the Water Rate Stabilization Reserve Fund and the Sewer Rate Stabilization Reserve fund will be required to finance any resulting deficits.

It is important to note that this increased rate in residential base consumption is not anticipated to continue post pandemic and future Business Plans and Budgets and User Rates will need to be adjusted to reflect updated projections.

Base residential usage represents the majority of residential usage and is the most important element in projecting residential use. Since residential use represents the majority of water sales, base residential consumption is also an important factor in projecting total water sales.

Exhibit 6 - Base Annual Residential Water Usage per Customer
2000 to 2020 Actuals and 2021 Budget (excludes seasonal usage)



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). Seasonal usage can vary from about 5 m^3/customer/year (1,000 gallons/customer/year) up to about 32 m^3/customer/year (7,000 gallons/customer/year), depending on summer weather conditions. Historically, seasonal usage has been budgeted at 6.5 m^3/customer/year, which represented about the bottom 30 per cent of summer usage levels, similar to a wet summer. For 2021 budget purposes, seasonal usage has been increased to 10 m^3/customer/year which represents the average level over the past ten years.

Total Usage – Total usage per residential customer (including base usage plus an allowance for seasonal usage) was budgeted at 225.5 m^3 (49,610 gallons) per year for 2020. For 2021 budgeting purposes, due to the projected increase in both base and seasonal usage per customer, total residential usage is budgeted at 240.0 m^3 (52,800 gallons) per residential customer.

Residential Consumption Summary				
	Per Customer		Total Annual	
Type of Usage	2020 Budget	2021 Budget	2020 Budget	2021 Budget
Cubic Metres				
Basic	219.0	230.0		
Seasonal Allowance	6.5	10.0		
Total	225.5	240.0	39,318,000	42,315,000
Gallons			(000)	(000)
Basic	48,180	50,600		
Seasonal Allowance	1,430	2,200		
Total	49,610	52,800	8,650,000	9,309,000
Change		6.4%		7.6%

Based on the projected number of residential customers this is equivalent to total budgeted 2021 residential consumption of 42,315,000 m^3 (9,309,000,000 gallons).

Historical Factors - The downward trend in residential **base 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 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.
- There is a changing housing development format which results in smaller lot size, requiring lower seasonal usage.

Priority Green Clarington Demonstration Project - 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		2019	
	m3	gallons	m3	gallons	m3	gallons	m3	gallons	m3	gallons
Region SFD Average	205	45,100	210	46,200	190	41,800	193	42,460	n/a	n/a
Green Demonstration Project	161	35,420	155	34,100	143	31,460	146	32,047	160	35,163
GDP% versus Region Average	79%		74%		75%		75%		n/a	
Summer Precipitation	Wet		Very Dry		Average		Average		Wet	

Annual 2015 to 2019 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 per cent less than the Regional SFD average (2019 Regional SFD average not available at the time of writing this report). 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. Note that the Green Demonstration Project average consumption per customer actually increased from 146 m^3/customer/year in 2018 to 160 m^3/customer/year in 2019 which is consistent with the Regional increase in average base consumption per customer from 2018 to 2019 for all residential customers (see Exhibit 6).

Future Plans – It is Regional policy to encourage the efficient use of water and to continue to investigate and implement measures to achieve this. The historical effectiveness of the programs outlined above has been reflected in the continued (until recently) decrease in per customer residential usage. Given the Region's commitment to encouraging water efficient usage and the efficiencies already achieved, further reductions in per customer usage may be expected in the long term.

3.4 ICI Consumption – Some Decrease

ICI consumption for the 2020 Budget and proposed 2021 Budget for water and sanitary sewer by consumption block are detailed below, following the discussion of consumption trends.

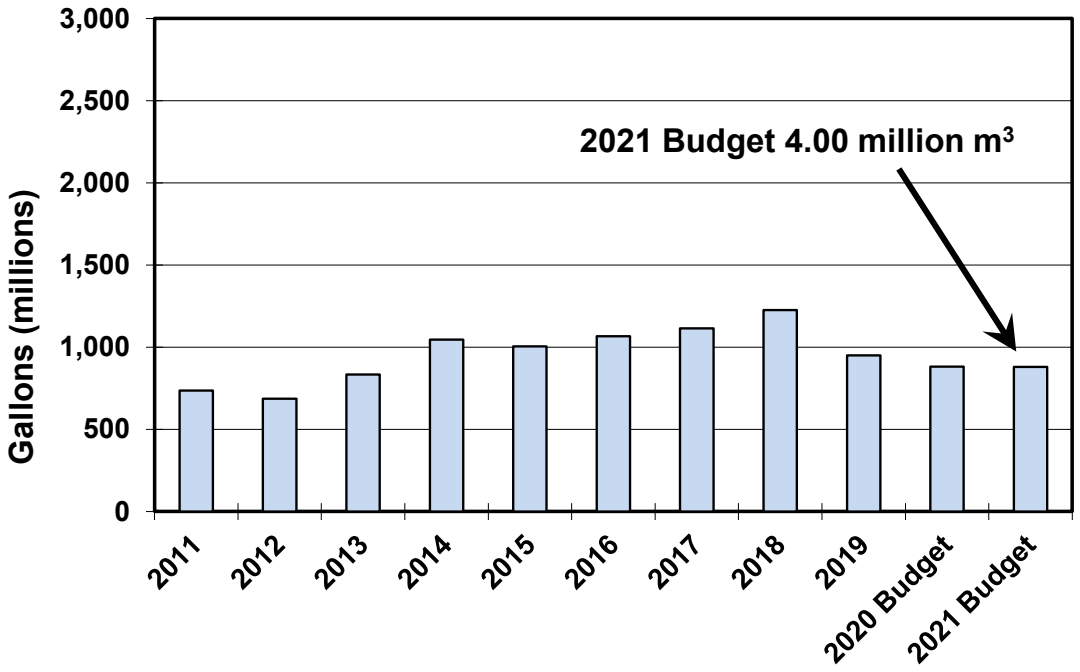
1st Block ICI – It is projected that by year-end 2020 first block ICI consumption will be close to budget levels. Early 2020 first block consumption was robust but dropped over the summer as small business was impacted by COVID-19 restrictions. In the fall, 1st block ICI consumption has largely recovered. A 2021 Budget 1st block ICI consumption is projected to be similar to the projected 2020 actual level.

2nd Block ICI – There has been a dip in consumption in the mid-range which is projected to carry over into next year with a decrease in consumption budgeted for 2021.

3rd Block ICI – The 2020 Budget incorporated a projected decrease in consumption by GM due to its termination of auto production. However, a modest level of consumption has continued. This, combined with ongoing usage by other major customers and a return to operation of Whitby Cogen, is resulting in 2021 projected 3rd block consumption remaining relatively consistent with 2020 budgeted consumption despite the impacts of the COVID-19 pandemic.

Actual 3rd block consumption is graphed for 2011 to 2019 along with the 2020 and 2021 budgeted consumption in Exhibit 7. The large industry sector is responsible for 3rd block consumption and represents about 30 per cent of total ICI consumption. There were 31 customers which reached 3rd block rates for at least one billing in 2019 of which 16 were industrial, 6 - utilities, 5 - hospitals and 4 - miscellaneous.

Exhibit 7 - 3rd Block Water Consumption
2011 to 2019 Actuals and 2020 and 2021 Budget



Total ICI - Water consumption is projected to decrease in 2021 by 5.0 per cent compared to the 2020 Budget (sanitary sewer decreases by 5.5 per cent) due to the forecast decrease in 2nd block consumption (the largest volume consumption block).

ICI Consumption Summary				
	Water		Sewer	
Type of Usage	2020 Budget	2021 Budget	2020 Budget	2021 Budget
Cubic Metres				
1st Block	2,986,000	3,000,000	2,895,000	2,909,000
2nd Block	6,355,000	5,682,000	5,627,000	4,955,000
3rd Block	4,005,000	4,000,000	3,641,000	3,636,000
Total	13,346,000	12,682,000	12,163,000	11,500,000
Gallons (000)				
1st Block	657,000	660,000	637,000	640,000
2nd Block	1,398,000	1,250,000	1,238,000	1,090,000
3rd Block	881,000	880,000	801,000	800,000
Total	2,936,000	2,790,000	2,676,000	2,530,000

3.5 Total Consumption – Budget Increase

Actual Consumption/Flow for 2015 to 2019 and Budget levels for 2020 and 2021 are shown in Exhibit 8.

Exhibit 8 - Water Consumption & Sanitary Sewer Flows
2015 to 2019 Actuals and 2020 and 2021 Budgets

	Water			Sewage		
Year	Residential	ICI	Total	Residential	ICI	Total
Cubic Metres*						
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
Change	*3.3%*	*-6.1%*	*0.7%*	*3.5%*	*-5.2%*	*1.2%*
2019 Actual	41,726,149	14,661,842	56,387,991	41,133,794	13,604,175	54,737,969
2020 Budget	**39,318,000**	**13,346,000**	**52,664,000**	**38,509,000**	**12,163,000**	**50,672,000**
Change	***7.6%***	***-5.0%***	***4.4%***	***7.4%***	***-5.5%***	***4.3%***
2021 Budget	**42,315,000**	**12,682,000**	**54,997,000**	**41,364,000**	**11,500,000**	**52,864,000**
Gallons (000)*						
2020 Budget	**8,650,000**	**2,936,000**	**11,586,000**	**8,472,000**	**2,676,000**	**11,148,000**
Change	***7.6%***	***-5.0%***	***4.4%***	***7.4%***	***-5.5%***	***4.3%***
2021 Budget	**9,309,256**	**2,790,000**	**12,099,256**	**9,100,000**	**2,530,000**	**11,630,000**

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

Total 2021 Budget water consumption and sanitary sewer flows are both projected to increase slightly compared to 2020 budget levels.

The 2021 water consumption and sanitary sewer flow projections are based on and take into account the following:

- An increase in the budgeted base usage per residential customer.
- An increase in the budgeted allowance for summer seasonal usage by residential customers.
- Total residential usage increasing (water by 7.6 per cent; sanitary sewer by 7.4 per cent)
- Usage by ICI customers decreasing (water by 5.0 per cent; sanitary sewer by 5.5 per cent)
- Number of customers increasing (water by 1.0 per cent; sanitary sewer by 1.05 per cent)

Taking the foregoing into account, 2021 consumption is budgeted as follows:

- **Water consumption projected at 54,996,000 cubic metres (54,996 ML)**
- **Sanitary Sewer flow billed projected at 52,864,000 cubic metres (52,864 ML)**

4 The Recommended 0.40 per cent Water User Rate Increase (Schedule 1) & 1.06 per cent Sanitary Sewer User Rate Increase (Schedule 2) are needed to Finance the Proposed 2021 Consolidated Water Supply and Sanitary Sewerage Business Plans and Budgets

The recommended user rates are based on the proposed 2021 Consolidated Water Supply and Sanitary Sewerage Business Plans and 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 2021 User Rate Increases	
Water	**0.40%**
Sewage	**1.06%**
Combined Average Residential Impact	**0.75%**

4.1 Full Cost Recovery

The water and sanitary sewer user rates are an important part of a full cost recovery strategy for Regional water and sanitary sewer 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 sewer systems are “User Pay” - property taxes are not used to fund water and sanitary sewer system costs.

4.2 User Rate Revenue Requirements

The proposed preliminary 2021 water and sanitary sewerage net expenditure budgets require a water rate increase of 0.40 per cent and a sanitary sewer rate increase of 1.06 per cent (average residential customer combined increase 0.75 per cent).

A breakdown of the proposed preliminary 2021 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 2021 Business Plans and Budgets is available in Report # 2020-F-24: 2021 Business Plans and Budgets and Nine Year Capital Forecasts for the Consolidated Water Supply and Sanitary Sewerage Systems.

4.2.1 Water Supply System

Approximately $3.77 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 0.40 per cent water rate increase generates $0.46 million in additional revenues;

Customer Growth - Customer growth adds $0.48 million, offsetting a rate increase by 0.42 per cent; and

Consumption – Residential consumption is projected to increase which is projected to contribute an additional $2.83 million which offsets a rate increase by 2.46 per cent.

The proposed preliminary 2021 user rate supported water system net expenditures of $115.49 million represents an increase of $3.77 million over 2020 budget levels.

4.2.2 Sanitary Sewerage System

Approximately $5.41 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 1.06 per cent sanitary sewer rate increase generates an additional $1.17 million in revenue;

Customer Growth - Customer growth adds $0.08 million, offsetting the rate increase by 0.07 per cent; and,

Consumption - Projected increased consumption (compared with 2020 Budget) will increase budgeted revenues by $4.16 million. The sanitary sewer user rate increase is offset by 3.77 per cent due to projected residential consumption growth.

The proposed preliminary 2021 user rate supported sanitary sewerage system net expenditures of $111.34 million represents an increase of $5.41 million compared to 2020 budget.

4.2.3 Billings Now on Daily Basis

The user rates are expressed on a monthly basis in Schedule 1 and Schedule 2. With the implementation of an updated billing system in October 2019, service charges for each bill are now 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 now applied. The daily rates, which are equivalent to the approved monthly rates, are calculated as shown in the adjacent table (using the 2020 standard meter service charge as an example). The service charge may now vary on individual bills depending on the actual number of days covered by the bill, but over time the charges will be the same as the former monthly charge approach.

Calculation of Daily Equivalent Water Service Charge		
Monthly Water Service Charge	$19.19	per month
Months per Year	12	
Annual Equivalent SC	$230.28	per year
Days per Year	365	
Daily Equivalent Service Charge	$0.6309	per day

Exhibit 9 - Revenues Required from 2021 Water User Rates

Budget Category	2020 Approved Budget ($)	2021 Proposed Preliminary Budget ($)	Increase/(Decrease) ($)	Increase/(Decrease) (%)
A) Operations (net costs)				
Operations, Maintenance & Administration	69,942,800	71,036,000		
Less Other Revenues	-3,191,000	-3,217,300		
Operations from Current User Rates	**66,751,800**	**67,818,700**	**1,066,900**	**1.6%**
B) Tangible Capital Assets (gross costs)				
Construction of Municipal Services	76,209,000	76,337,100		
Operations Capital	4,732,300	4,904,900		
Total Capital Program	80,941,300	81,242,000		
Less Financing & Recoveries Applied				
- Development Charge Reserve Fund - Residential	-20,823,500	-26,535,800		
- Development Charge Reserve Fund - Commercial	-678,200	-714,200		
- Development Charge Reserve Fund - Industrial	0	-1,459,500		
- Development Charge Debenture	0	0		
- Other Financing	-9,629,000	0		
Total Non User Rate Financing	-31,130,700	-28,709,500		
Capital Program from User Rates Revenue Sources	49,810,600	52,532,500		
Less User Rate Financing (Debt/Reserves)				
- User Rate Debenture	0	0		
- Asset Management Reserve Fund	-5,234,000	-5,485,600		
- Servicing of Employment Lands Reserve	0	-250,000		
- Equipment Replacement Reserve	-35,000	0		
- Treatment Plant/Rate Stabilization Reserve Fund	-702,000	0		
Total User Rate Financing	-5,971,000	-5,735,600		
Current User Rates Capital Program/Contributions	**43,839,600**	**46,796,900**	**2,957,300**	**6.7%**
C) Debt				
Expenditure	1,693,700	1,310,700		
Less Development Charge Reserve Funds Applied	-564,300	-436,700		
Debt from User Rates	**1,129,400**	**874,000**	**-255,400**	
D) Current User Rate Revenue Requirements				
Total Expenditures	152,577,800	153,588,700	1,010,900	
Less Total Revenues & Recoveries	-40,857,000	-38,099,100	2,757,900	
Total Current User Rate Revenues Required	**111,720,800**	**115,489,600**	**3,768,800**	**3.4%**
Equivalent Water User Rate Increase		**0.40%**		
E) Impact of Changes in Customers & Consumption on Rate Increase				
Factors Affecting Revenues		**Revenue Change ($)**	**Rate Increase**	
Expenditures - Increased revenue needed		3,768,800	3.28%	
Consumption - Residential increases (offsetts ICI decreases)		-2,826,600	-2.46%	
Customers - Growth reduces revenue needed		-482,100	-0.42%	
Added Revenue From Rate Increase		**460,100**	**0.40%**	

Exhibit 10 - Revenues Required from 2021 Sanitary Sewer User Rates

Budget Category	2020 Approved Budget ($)	2021 Proposed Preliminary Budget ($)	Increase/(Decrease) ($)	Increase/(Decrease) (%)
A) Operations (net cosst)				
Operations, Maintenance & Administration	108,297,900	112,342,700		
Less Sewer Rate Stabilizagtion Reserve Fund Contribution	-1,750,000	0		
Less Other Revenues	-35,897,700	-36,490,400		
Operations from Current User Rates	**70,650,200**	**75,852,300**	**5,202,100**	**7.4%**
B) Tangible Capital Assets (gross cost)				
Construction of Municipal Services	68,949,700	92,417,600		
Operations Capital	5,672,900	2,536,100		
York Durham Capital	1,532,800	1,963,000		
Total Capital Program	76,155,400	96,916,700		
Less Financing & Recoveries Applied				
- Development Charge Reserve Fund - Residential	-20,012,500	-22,581,100		
- Development Charge Reserve Fund - Commercial	-1,275,000	-1,455,400		
- Development Charge Reserve Fund - Industrial	0	-1,707,500		
- Other Financing	-17,606,200	-30,639,500		
Total Non User Rate Financing	-38,893,700	-56,383,500		
Capital Program from User Rates Revenue Sources	37,261,700	40,533,200		
Less User Rate Financing				
- User Rate Debenture	0	0		
- Asset Management Reserve Fund	-8,646,000	-9,049,000		
- Servicing of Employment Lands Reserve	0	-968,000		
- Equipment Replacement Reserve	-35,000	0		
- York Durham Reserve Fund	0	0		
- Treatment Plant/Rate Stabilization Reserve Fund	-702,000	0		
Total User Rate Financing	-9,383,000	-10,017,000		
Current User Rates Capital Program/Contributions	**27,878,700**	**30,516,200**	**2,637,500**	**9.5%**
C) Debt				
Expenditures	21,011,300	14,481,600		
Less Development Charge Reserve Fund	-13,612,200	-9,514,700		
Net Debt from User Rates	**7,399,100**	**4,966,900**	**-2,432,200**	**-32.9%**
D) Current User Rate Revenue Requirements				
Total Expenditures	205,464,600	223,741,000	18,276,400	
Less Total Revenues & Recoveries	-99,536,600	-112,405,600	-12,869,000	
Total Current User Rate Revenues Required	**105,928,000**	**111,335,400**	**5,407,500**	**5.1%**
Equivalent Sewer User Rate Increase		**1.06%**		
E) Impact of Changes in Customers & Consumption on Rate Increase				
Factors Affecting Revenues		**Revenue Change ($)**	**Rate Increase**	
Expenditures - Increased revenue needed		5,407,500	4.91%	
Consumption - Residential increases (offsetts ICI decreases)		-4,158,700	-3.77%	
Customers - Growth reduces revenue needed		-80,900	-0.07%	
Added Revenue From Rate Increase		**1,167,900**	**1.06%**	

5 Other Fees & Charges Recommendations

5.1 Recommended 0.40 per cent Raw Water Rate Increase (Schedule 1)

The Region supplies untreated raw water from the Whitby Water Supply Plant (WSP) to Gerdau Ameristeel Corporation located within the South Whitby Industrial Area to the east of South Blair Street. There is a separate raw water pumping station at the WSP and raw water delivery main, both built in 1977. This company is also one of the Region's major users of potable water.

Until 2019 there was a second raw water system which supplied two customers located on South Blair Street. This system in no longer in operation. One of the customers switched to potable water in 2018 and the other in late 2019.

The raw water sales from 2017 to 2019 actuals, 2020 projected and 2021 Budget are provided below:

Raw Water Consumption (m^3)

	Industry			
Year	**A**	**B**	**C**	**Total**
2017	406,044	36,950	608,206	1,051,200
Actual	39%	4%	58%	100%
2018	16,580	60,195	563,105	639,880
Actual	3%	9%	88%	100%
2019	0	29,015	568,069	597,084
Actual	0%	5%	95%	100%
2020	0	0	821,258	821,258
Projected	0%	0%	100%	100%
2021	**0**	**0**	**800,000**	**800,000**
Budget	**0%**	**0%**	**100%**	**100%**

Industries "A" and "B" no longer use raw water. Only industry "C" (Gerdau) remains on raw water at this time although the Region may consider additional raw water customer(s) in the future.

Consumption by Gerdau has escalated somewhat in 2020, replacing the consumption recently lost by the two other customers who are no longer using raw water. As a result, 2020 and 2021 raw water consumption is projected to exceed that used in 2018 and 2019.

Operating costs related to the raw water system are fully recovered by means of a raw water volumetric rate which is reviewed and updated annually as required. The raw water volumetric rate is included in Schedule 1. The volume of raw water supplied is metered and customer(s) 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 upgrades to the raw water supply are 100 per cent recovered directly from the raw water customer(s). 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 at their expense 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.

An expansion of the Whitby Water Supply Plant is projected for 2024. The need for upgrades has 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.

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.

The raw watermain running from the WSP to the property to the east is relatively new and does not require any work at this time.

After a preliminary review of raw water system costs and consumption trends indicating a return to historic levels, it is recommended that the 2021 raw water rate be adjusted in tandem with the potable water rate increase of 0.40 per cent.

The recommended raw water rate is shown in Schedule 1 – Recommended 2021 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 2021 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 remain at the 2020 budget levels of $29,222; and
- It is recommended that the 2021 rate be maintained at the 2020 level of $1,716 annually ($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 sewer systems.

Water and sewerage systems rates, fees and charges for 2020 (current) and 2021 (recommended) are set out in Schedule 4 – Recommended 2021 Water & Sanitary Sewer Systems Miscellaneous Fees & Charges of this report. All fees and charges where changes are recommended are bolded.

The recommended 2021 fees and charges are based on tracking actual costs over time. Most fees remain unchanged from 2020 (these charges are not bolded). The only fee change recommended is as follows:

- Item 36) - Water from Water Supply Plants, Water Pollution Control Plants, Works Depots & Bulk Filling Stations – For item number 36, it is recommended that the schedule be updated to indicate that the "new Account Fee" does not apply for new accounts set up for the use of the Bulk Water Filling Station at the Oshawa/Whitby Depot. This proposed adjustment is necessary as a result of the completion of the new bulk filling station at the Oshawa/Whitby Depot.

5.4 Recommended Regional Environmental Laboratory Charges (Schedule 5)

The Regional Environmental Laboratory is located at the Duffin Creek Water Pollution Control Plant. The lab ownership is shared with the Region of York and is operated by Durham Region.

The recommended lab fee schedule (Schedule 5) includes fees for four new tests that have been added and the removal of fees for three tests no longer offered.

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 =			0.40%
								Sewer Rate Increase =			1.06%
								Average Residential Combined Increase =			0.75%
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 ($/qtr)									
20,000	91	Standard Meter	83.18	63.71	146.89	83.53	64.40	147.93	0.35	0.69	1.04	0.71
52,800	**240**	**Avg Std Meter**	**125.57**	**132.57**	**258.14**	**126.09**	**133.98**	**260.07**	**0.52**	**1.41**	**1.93**	**0.75**
60,000	273	Flat Rate	134.88	147.69	282.57	135.44	149.27	284.71	0.56	1.58	2.14	0.76
100,000	455	Standard Meter	186.57	231.66	418.23	187.35	234.15	421.50	0.78	2.49	3.27	0.78
			Bimonthly Billings ($ bimonthly)									
100,000	455	Standard Meter	124.38	154.44	278.82	124.90	156.10	281.00	0.52	1.66	2.18	0.78
200,000	909	Standard Meter	420.10	650.48	1070.58	421.82	657.36	1079.18	1.72	6.88	8.60	0.80
5 million	22,730	2" Meter	4,036	6,192	10,228	4,054	6,258	10,312	18	66	84	0.82
50 million	227,270	4" Meter	35,626	54,150	89,776	35,768	54,726	90,494	142	576	718	0.80
150 million	681,820	6" Meter	103,980	157,668	261,648	104,394	159,342	263,736	414	1,674	2,088	0.80

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 2021 water and sanitary sewer user rate charges are shown below in Exhibit 12.

Exhibit 12 – Impact of Proposed Water and Sanitary Sewer User Rate Increases on an Average Residential Customer

	Billings		Increase	
	2020 ($)	2021 Proposed ($)	($)	(%)
Based on 52,800 gal/year (240 m^3/yr) Consumption				
Water	125.57	126.09	0.52	0.40%
Sewage	132.57	133.98	1.41	1.06%
Total ($/quarter)	258.14	260.07	1.93	0.75%
Annual Billing ($/year)	1,032.56	1,040.28	7.72	0.75%

- A residential customer who used the same projected annual average residential per customer consumption of 240 m^3 (52,800 gallons) in both 2020 and 2021 would have a bill increase of 0.75 per cent. This equates to an increase of $1.93 quarterly or $7.72 annually.

6.3 Residential Customer Affordability

As noted above, the 2020 annual water and sanitary sewer bill for an average customer using 240 m^3 per year is $1,032.56. Later in this report, the cost of water and sanitary sewer services for a typical residential customer is compared with water/sanitary sewer charges in other municipalities and with other utilities:

- Other Large Municipalities – A total of 13 Ontario larger municipalities were surveyed to determine what they charge for water and sanitary sewer services (2020 Rates). Durham at $1,033 was 5th lowest compared to the average of $1,110 (see Exhibit 15).

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

- Other Utilities – Durham's 2020 annual average water ($531) and sanitary sewer ($502) charges (combined total $1,033) 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 combined water and sanitary sewer charges are less than any of the other utilities (see Exhibit 20 and Exhibit 21).

- Although in comparative terms, Durham's average residential water and sanitary sewer charges compare favorably with other municipalities and utilities, they could still be challenging for some. Over the course of 2021, staff will continue to study the affordability of water and sanitary sewer rates including considering whether there are alternative measures which should be considered to address the affordability of the water and sanitary sewer charges on various segments of the customer base.

6.4 User Rate Impact on 25 Largest Customers

Using actual 2019 consumption levels, the impacts on the Region's 25 largest customers of the recommended 2021 user rates, compared with existing 2020 rates, are provided in Exhibit 13.

Exhibit 13 – Impact of Proposed 2021 Water and Sanitary Sewer User Rate Increases on 25 Largest Users (Using 2019 Actual Consumption Data - $/year)

Rank	2019 Consumption (m^3)	2019 Consumption (000 gal)	2020 Rates Water	2020 Rates Sewage	2020 Rates TOTAL	2021 Rates Water	2021 Rates Sewage	2021 Rates TOTAL	Combined Increase $	Combined Increase %
			($)	($)	($)	($)	($)	($)	$	%
1	2,268,580	499,090	2,026,730	3,114,200	5,140,930	2,034,770	3,147,290	5,182,060	41,130	0.80%
2	445,440	98,000	407,530	623,030	1,030,560	409,150	629,650	1,038,800	8,240	0.80%
3	425,420	93,590	389,730	595,640	985,370	391,280	601,970	993,250	7,880	0.80%
4	372,710	82,000	342,940	523,660	866,600	344,300	529,220	873,520	6,920	0.80%
5	255,900	56,300	239,190	359,120	598,310	240,140	362,930	603,070	4,760	0.80%
6	254,310	55,950	237,770	223,280	461,050	238,720	225,650	464,370	3,320	0.72%
7	245,720	54,060	230,140	350,120	580,260	231,060	353,840	584,900	4,640	0.80%
8	223,400	49,150	210,320	319,630	529,950	211,160	323,020	534,180	4,230	0.80%
9	155,020	34,100	149,560	20,180	169,740	150,160	20,390	170,550	810	0.48%
10	144,170	31,720	139,960	211,370	351,330	140,520	213,610	354,130	2,800	0.80%
11	127,790	28,110	125,380	188,950	314,330	125,890	190,950	316,840	2,510	0.80%
12	127,650	28,080	125,260	188,760	314,020	125,770	190,760	316,530	2,510	0.80%
13	126,790	27,890	124,490	187,580	312,070	125,000	189,570	314,570	2,500	0.80%
14	123,060	27,070	121,180	182,490	303,670	121,670	184,420	306,090	2,420	0.80%
15	98,710	21,720	99,590	149,260	248,850	99,990	150,840	250,830	1,980	0.80%
16	93,700	20,610	95,110	142,360	237,470	95,490	143,870	239,360	1,890	0.80%
17	91,200	20,060	92,880	138,950	231,830	93,260	140,420	233,680	1,850	0.80%
18	79,290	17,440	82,310	122,680	204,990	82,640	123,970	206,610	1,620	0.79%
19	76,960	16,930	80,250	119,510	199,760	80,570	120,770	201,340	1,580	0.79%
20	75,460	16,600	78,920	117,460	196,380	79,240	118,700	197,940	1,560	0.79%
21	72,880	16,030	76,620	6,840	83,460	76,930	6,910	83,840	380	0.46%
22	61,970	13,630	66,930	99,010	165,940	67,200	100,060	167,260	1,320	0.80%
23	56,760	12,490	62,320	91,930	154,250	62,580	92,900	155,480	1,230	0.80%
24	53,500	11,770	59,420	4,060	63,480	59,660	4,110	63,770	290	0.46%
25	50,020	11,000	56,310	49,830	106,140	56,540	50,350	106,890	750	0.71%
Total	6,106,410	1,343,390	5,720,840	8,129,900	13,850,740	5,743,690	8,216,170	13,959,860	109,120	0.79%
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/sanitary sewer bill increase of 0.80 per cent. This percentage is higher than the average residential increase of 0.75 per cent because large customer bills are more influenced by the higher sanitary sewer rate increase (the volumetric rate is more dominant for sanitary sewer than for water).

There are six (6) customers among the top 25 users that have reduced sanitary sewer charges. Most have significant water usage that does not discharge to the sanitary sewer. They are billed for sanitary based on this lower volume. For these, the sanitary sewer rate is less of a factor since their sanitary sewer 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 sanitary sewer rates survey was conducted for 20 municipalities (including Durham) across Ontario. The 2020 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 sanitary sewer 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 sanitary sewer 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 per cent) 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 per cent), including Durham, charge single block rates to residential customers. Another 35 per cent essentially charge increasing block rates (including the 5 per cent using humpback rates). One charges declining block rates.

- **ICI Volumetric Rates** – The largest category is single block rates at 50 per cent of municipalities. Declining block rates is the next most prevalent at 30 per cent. Increasing block rates are used in 20 per cent 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:

- **Sanitary Sewer Charged Based on Water Usage** – All surveyed municipalities base sanitary sewer charges on water consumption.

- **Allowance for Seasonal Usage on Sanitary Sewer Bill** – The majority bill sanitary sewer year-round based on water consumption. For residential only, Peel deducts 15 per cent from water usage when calculating the sanitary sewer bill. Windsor bills for sanitary sewer 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 sanitary sewer 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 sanitary sewer costs from the property tax levy. Some municipalities may use property taxes to recover a portion of water and sanitary sewer costs with the result that the user charge comparison may not pick up all of the water and sanitary sewer costs paid by customers in the other municipalities.

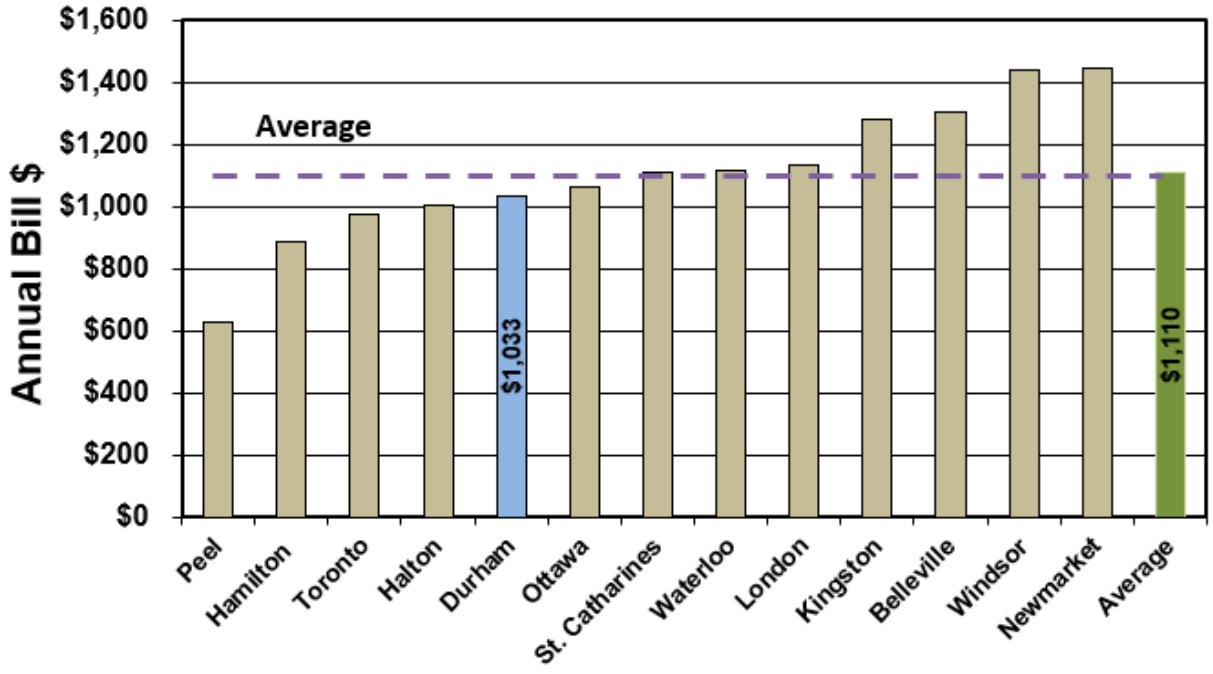
6.5.2 Residential Customer Comparison

The analysis is based on a residential customer using 240 m^3/year (52,000 gallons/year). This represents the projected usage by a typical 2021 Durham residential customer. This is equivalent to 20 m^3/month/customer (4,400 gal/month/customer).

Large Municipalities - Most of the municipalities, like Durham, have sole responsibility for water and sanitary sewer. 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.

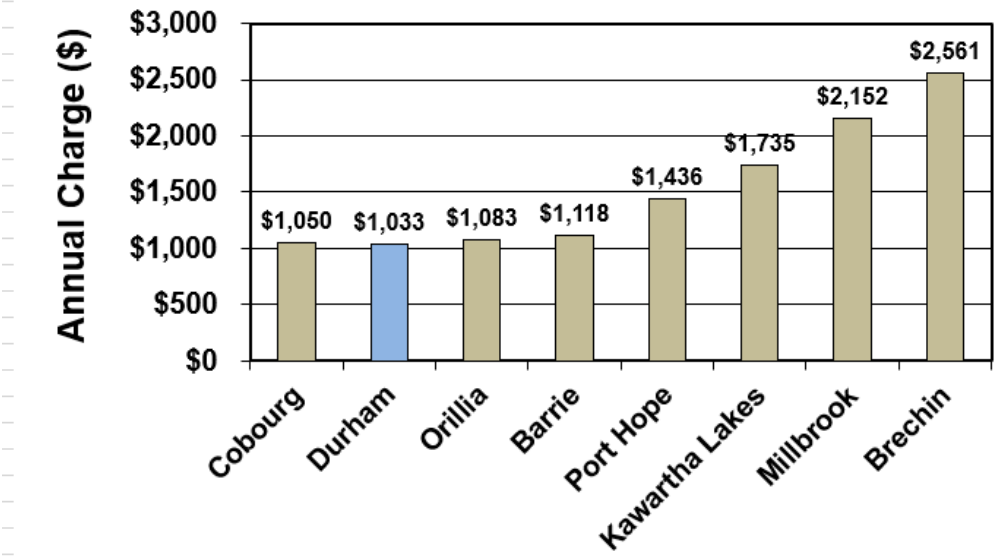
As illustrated in Exhibit 15, Durham is the fifth lowest out of the 13 in the survey. The overall average 2020 combined water and sanitary sewer bill for 240 m^3 (52,800 gallons) annual consumption for the 13 surveyed municipalities is $1,110 per year compared to $1,033 in Durham.

Exhibit 15 - Comparative 2020 Residential Water/Sanitary Sewer Charges (240 m^3/year) – Large Municipalities



Neighbouring Municipalities - Typical 2020 charges to a residential customer have also been calculated for seven neighbouring communities - see Exhibit 16.

Exhibit 16 - Comparative 2020 Residential Water/Sanitary Sewer Charges (240 m^3/yr) – Neighbouring Municipalities

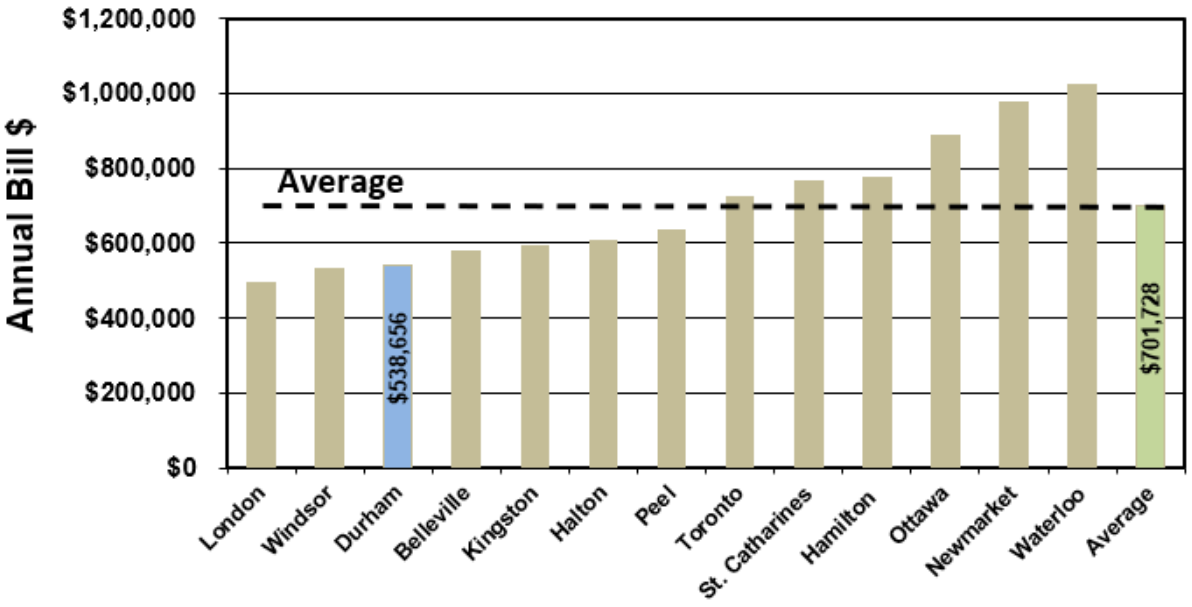


Durham is at the low end of user rate charges. Comparisons are sometimes difficult because of the use of the property tax to recover some costs in other municipalities. For example, Cobourg recovers some sanitary sewer costs from property taxes.

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 2020 Large Industry Water & Sanitary Sewer Charges - Large Municipalities (227,272 m^3/year)



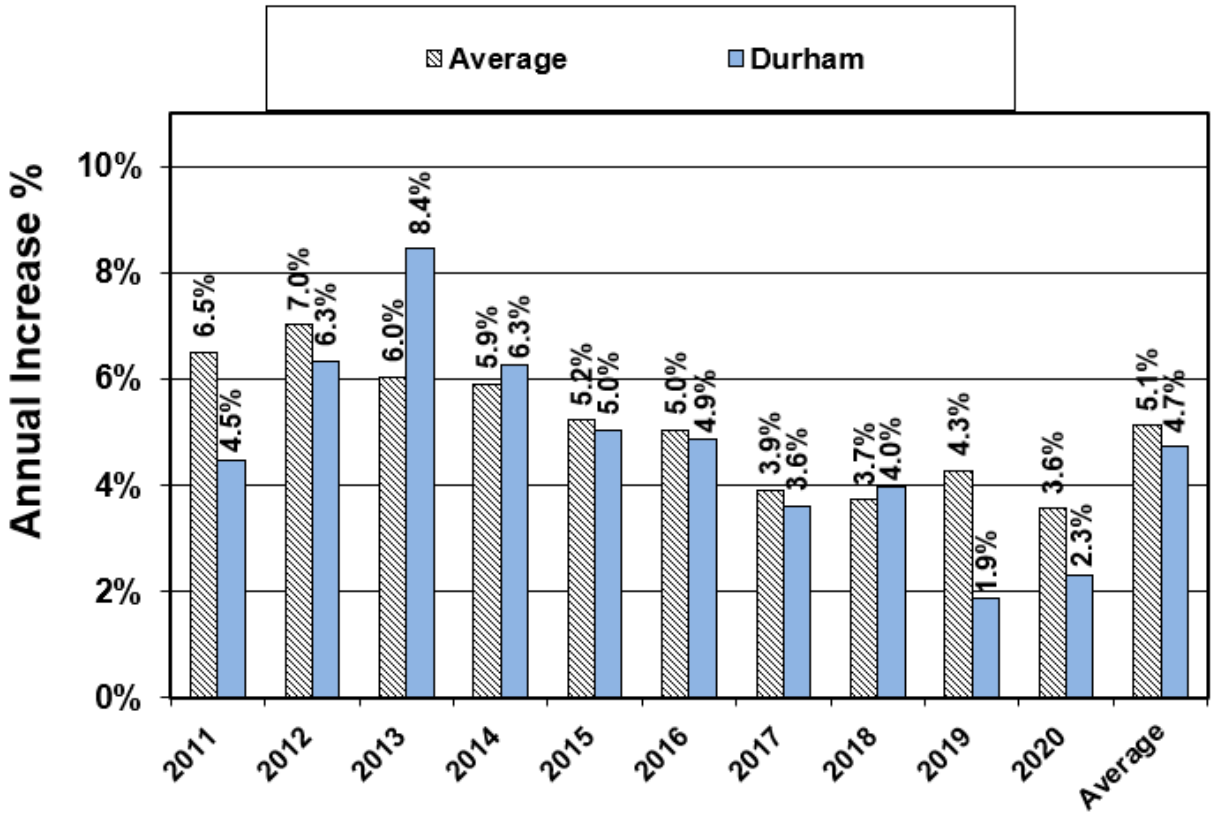
Durham was the third lowest out of the 13 in the survey. The overall average combined water and sanitary sewer bill for all the municipalities surveyed was $701,728 per year compared to $538,656 in Durham.

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 sanitary sewer rate increases faced by customers using 240 m^3/year (52,800 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.

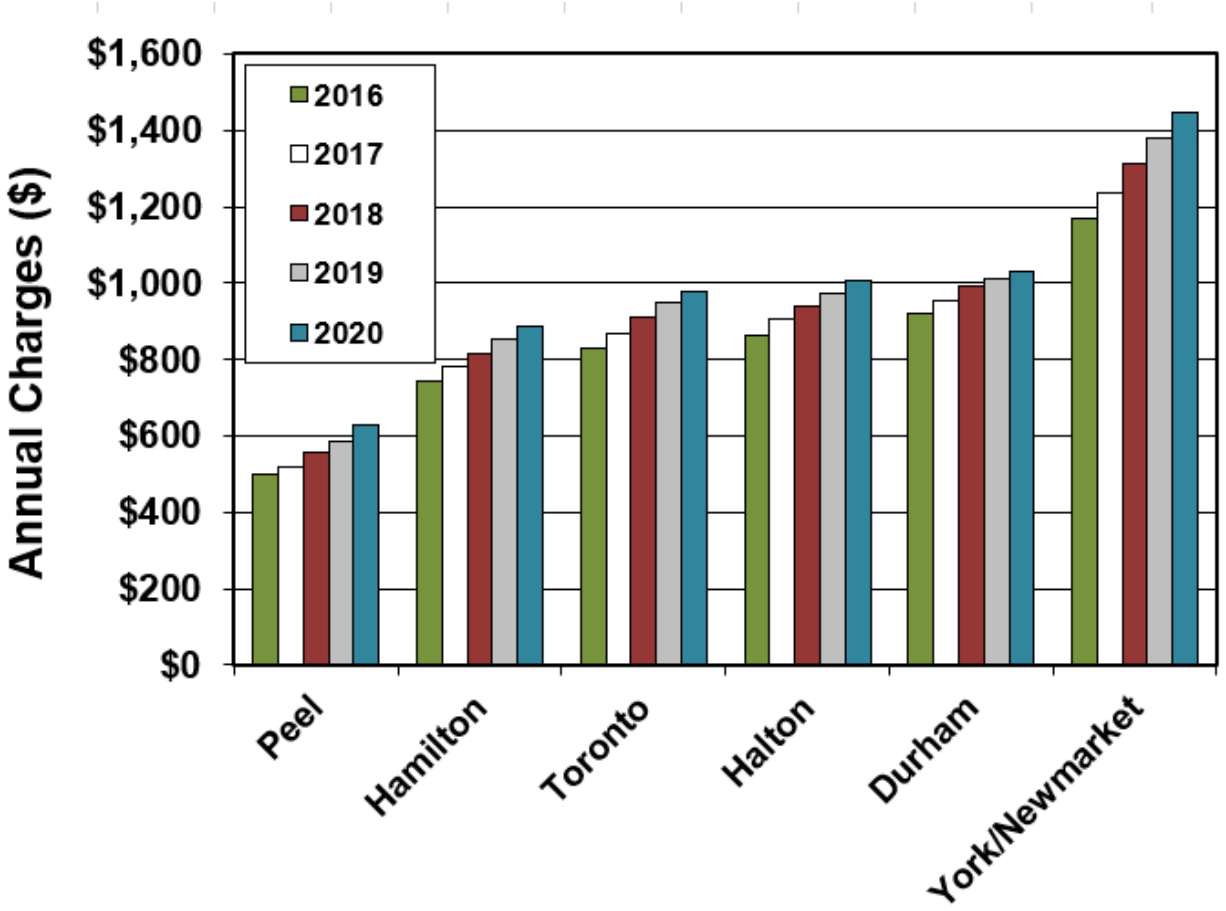
Exhibit 18 - Comparative 2011 to 2020 Residential Water/Sanitary Sewer Rate Increases — Large Municipalities (240 m^3/year)



The average annual combined water and sanitary sewer rate increase for all the municipalities was 5.1 per cent for the 10-year period. Durham's average was approximately 4.7 per cent annually.

GTA - Combined water and sanitary sewer user rate increases over the past five years in nearby Regions are graphed in Exhibit 19. The analysis is based on a customer using 240 m^3/year.

Exhibit 19 - Comparative 2016 to 2020 Residential Water/Sanitary Sewer Charges - GTA (240 m^3/year)



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 sanitary sewer 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 sewer 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 sewer 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 have 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 2011 to 2020. The average annual water and sanitary sewer rate increase of the 14 municipalities over the 10-year period has been 5.1 per cent per year compared with Durham at 4.7 per cent (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 sanitary sewer systems to sustainable levels and have been increasing rates in a similar manner.

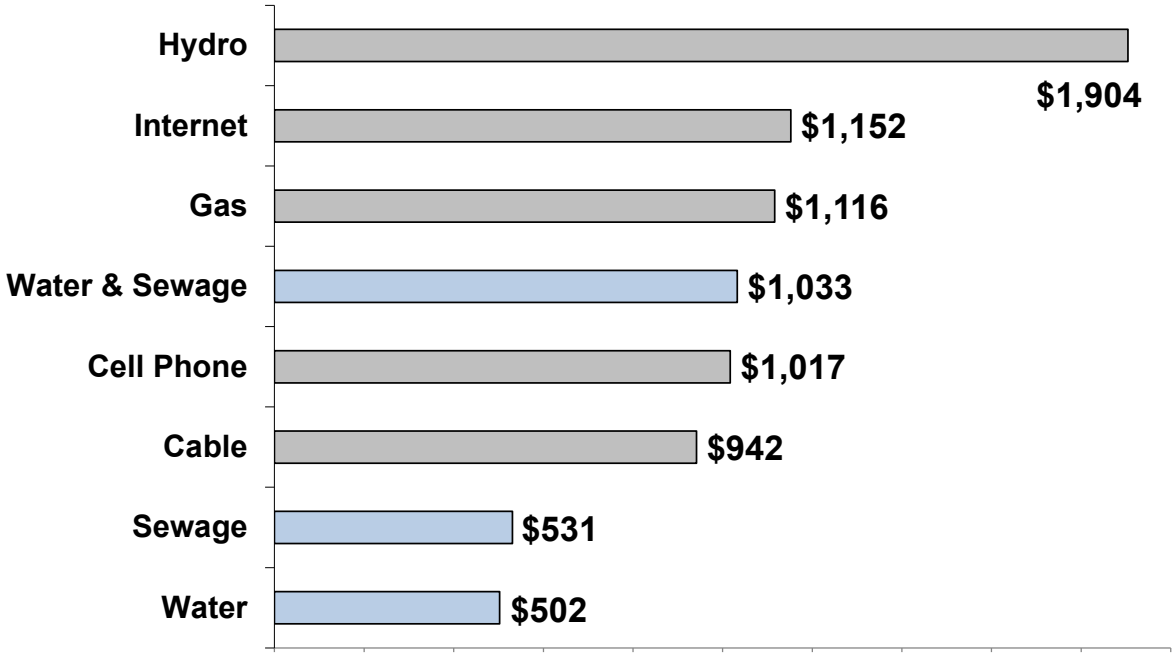
6.6 Durham's Average Residential Water & Sanitary Sewer Charges are Much Less Than Typical Hydro, Gas, Telephone or Cable Television Services

Information was gathered on local residential electricity, natural gas, cable television, high speed internet, cellular phone and home telephone rates. These rates have been compared with the Region's water and sanitary 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 land line phone at home). 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 2020 annual residential utility charges in Durham (Oshawa rates used) are graphed in Exhibit 20.

Exhibit 20 - Typical Durham Residential Utility Charges 2020



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 2020

Utility	Basis of Comparison	Annual Bill ($)	% of Annual Utility Bills
Hydro	Cooling, appliances, lighting, etc.	$1,904	26.6%
Internet	One level above basic - 50 Mbps	$1,152	16.1%
Natural Gas	Home & hot water heating	$1,116	15.6%
Cell Phone	Basic service with long distance package	$1,017	14.2%
Cable	Basic package – no movies	$942	13.1%
Sewage	Average residential use - 240 m3/year	$531	7.4%
Water	Average residential use - 240 m3/year	$502	7.0%
	Total	$7,163	100.0%

The total combined water and sanitary sewer billing for this residential customer represents only about 14.4 per cent of the total utility charges incurred in a typical home. Water and sanitary sewer charges combined are less than most other individual utility services.

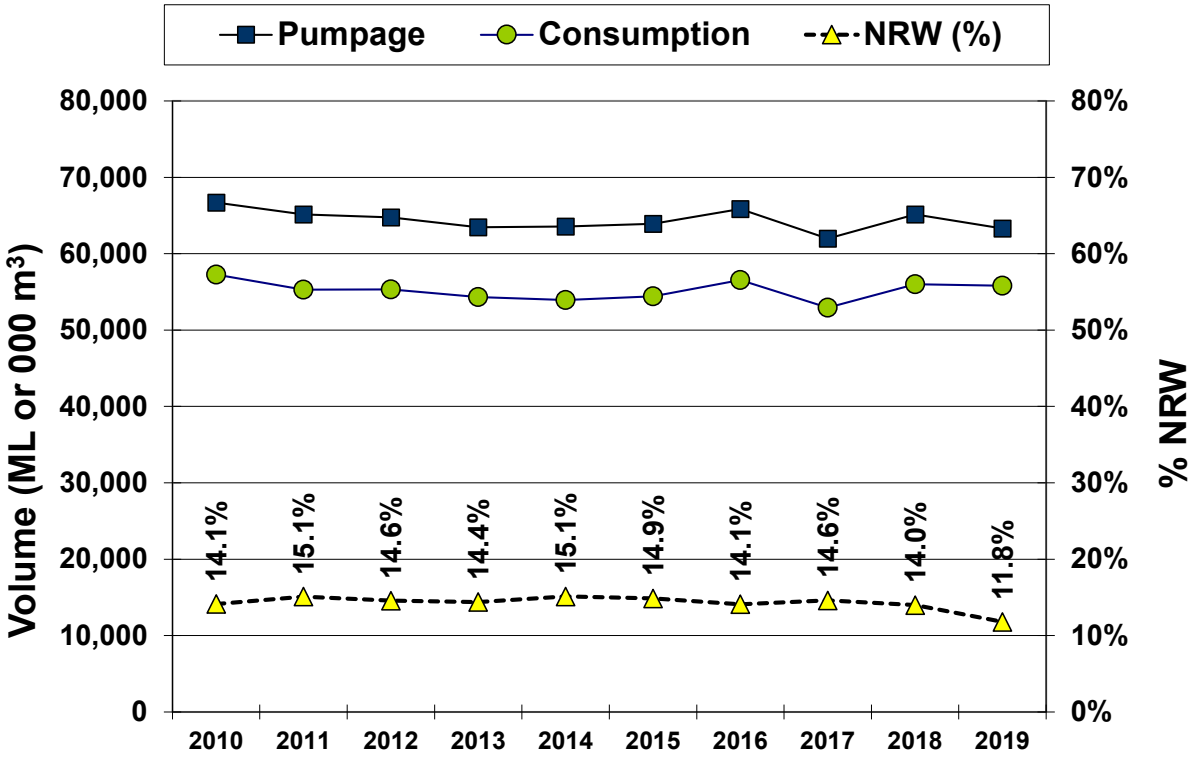
7 Other Issues

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 2010 to 2019 is graphed below in Exhibit 22.

Exhibit 22 - Water Pumpage, Consumption & Non-Revenue Water 2010 to 2019 Actual



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

NRW in recent years has been in a range of about 14 per cent to 15 per cent. This is considered to be fairly normal, but efforts are continually made to limit or reduce NRW 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 2019 data indicates a NRW decrease to 11.8 per cent. The new water billing system introduced in October 2019 (this is where consumption data is generated) carries out billings closer to actual use than the older legacy system and so may have introduced an initial transitional increase in reported consumption following the implementation of the new system. It is expected that the 2020 data, once available, will reflect NRW levels more in line with historical experience.

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 NRW.

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="10">System Input Volume</td><td rowspan="4">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="2">Unbilled Authorized Consumption</td><td>Unbilled Metered Consumption</td><td rowspan="8">Non Revenue Water (NRW)</td></tr>
<tr><td>Unbilled Unmetered Consumption</td></tr>
<tr><td rowspan="6">Water Losses</td><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.

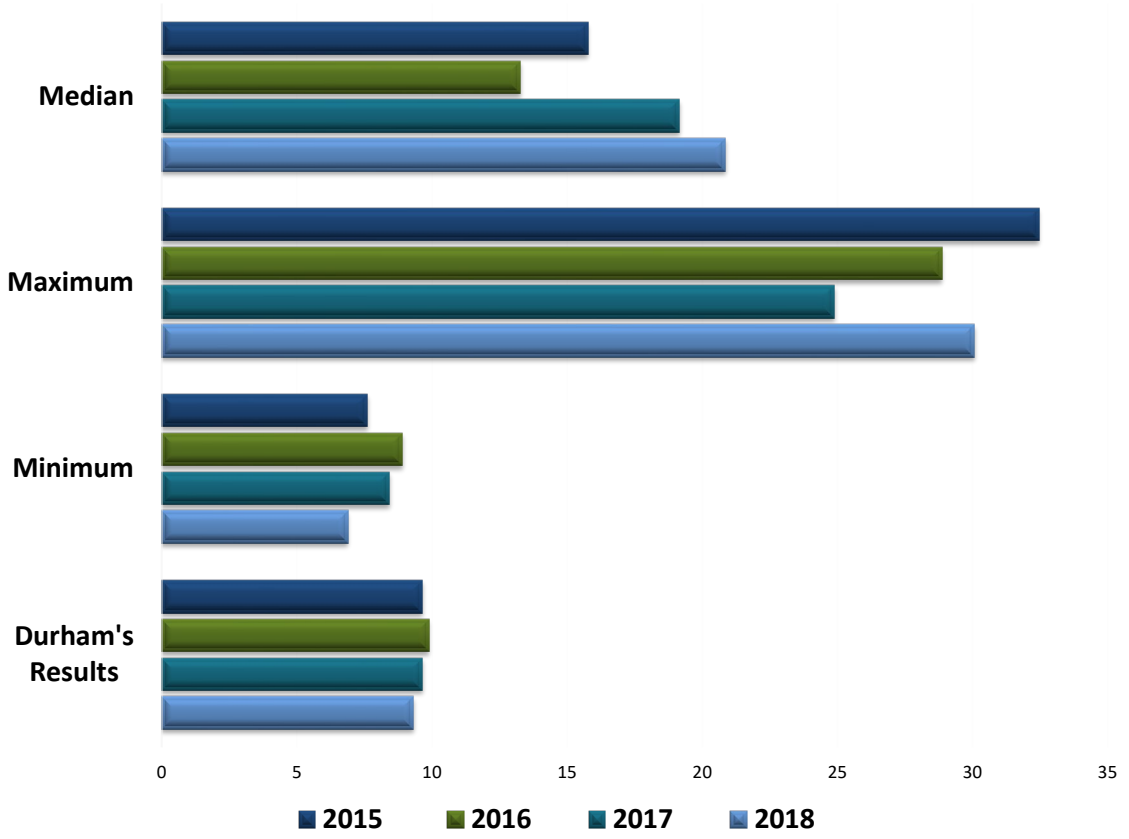
Durham Region is a long-term participant in the Municipal Benchmarking Network Canada (MBN) which facilitates comparison of statistical data with other municipal jurisdictions in Ontario.

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 2015 to 2018 is provided in Exhibit 24.

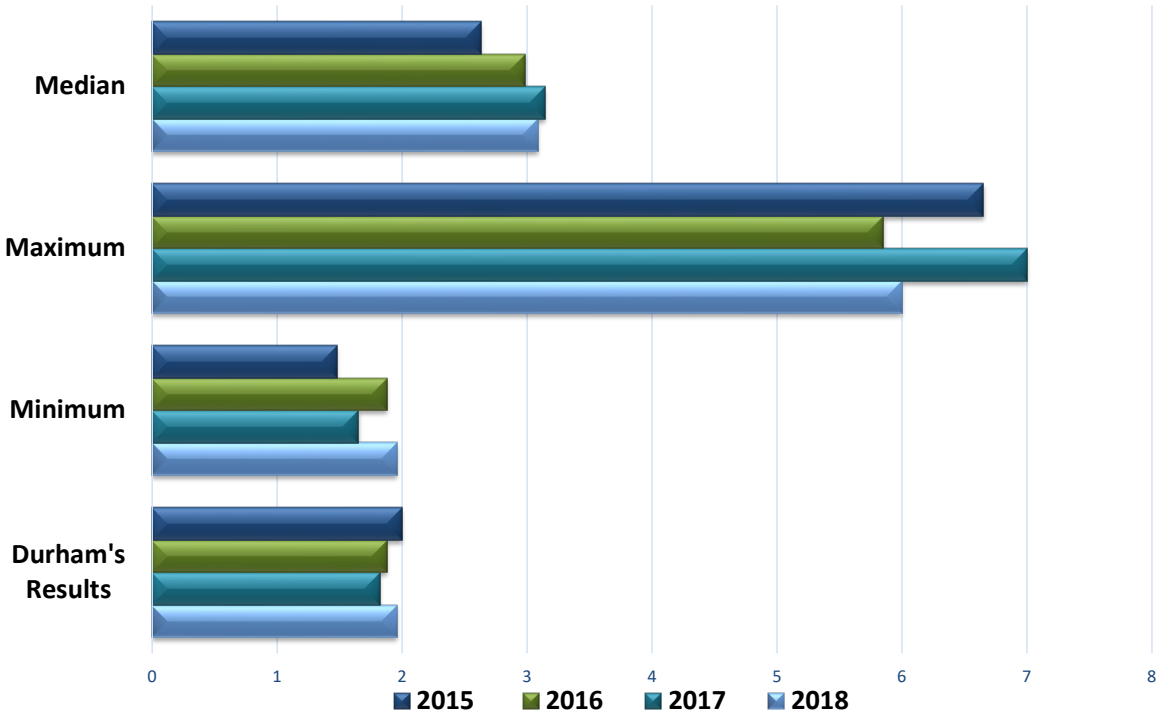
Exhibit 24 - NRW in m^3/km of Main per Day (MBN data)



Durham's 2018 NRW versus main length of is much lower than the median level.

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 2015 to 2018 survey results.

Exhibit 25 Infrastructure Leakage Index ILI (MBN data)



The 2018 Infrastructure Leakage Index (ILI) for Durham was lower and thus better than the median.

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 continued on an ongoing basis.

8 Future Considerations (2022 to 2030)

8.1 Future Customer & Consumption Trends

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

- **Residential Consumption** – The 2021 proposed user rates assume an increase in residential base (non-seasonal) consumption to 230m^3/customer/year. This increase, in large part, is attributable to the continued impact that the COVID-19 pandemic is projected to have on residential base consumption with individuals continuing to work and attend school remotely from home. It is anticipated that this increase rate in the residential base consumption will not continue post pandemic and future Business Plans and Budgets and User Rates will need to be adjusted to reflect updated residential base consumption. Post COVID-19 pandemic, the base (non-seasonal) consumption per residential customer is expected to decrease for the foreseeable future as new housing continues to be equipped with water efficient fixtures and appliances and ongoing retrofitting of existing homes continue to place downward pressure on residential consumption. When combined with a low customer growth rate, residential consumption is projected to decrease post COVID-19 pandemic.

- **Small to Medium Commercial** – This sector historically has been fairly constant, but recently has also shown decline. It is expected that post COVID-19 pandemic, consumption will stabilize.

- **Large Industrial** –Projections assume fairly consistent consumption post COVID-19 pandemic. Staff continue to follow the recent announcement from General Motors indicating production at the Oshawa Plant starting January 2022 to understand the impact this will have on future projected consumption.

- **Total Consumption** – For planning purposes, it is projected that post COVID-19 pandemic, total consumption will continue to remain level. Static or lower usage means revenues will not increase in step with increased customer growth.

- **Regulatory** - Both provincial and federal water and sanitary sewer regulations are expected to become stricter resulting in increased cost to remain compliant.

- **Asset Management** - Durham's Report #2020-COW-16 2020 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 the Asset Management Reserve Fund 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 both rehabilitation/replacement and growth related projects.

8.2 Future Cost Trends

The possibility of consumption level decreases will affect future budget levels and consequently rate increases over time. 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 consumption trends decrease.

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 per cent of combined water and sanitary sewer user revenues are based on consumption.

Capital investments are rising due to pressures to invest in aging infrastructure in order to maintain levels of service and address critical priorities and respond to growth pressures. Increased capital investments are projected to 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 sanitary sewer rates are expected to require, on average, annual increases of 4 per cent to 6 per cent. Staff continue to review operating requirements and long-term capital forecasts and financing plans to refine these estimates. Information available through the Region's new water billing system and enhancements to the capital forecast modeling under the Region's business planning and budget modernization initiative will allow for better refinement of projected rate increases for future years.

The water and sanitary sewer 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 and include:

- Customer growth that may be lower than that experienced over the last number of years;
- Potential for reductions in residential base water consumption and thus related revenues without a resulting offsetting reduction in costs. In addition, any economic decline could result in lower system utilization with consequent decreases and water and sanitary sewer user rate revenues;
- 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;
- Significant capital investments required to meet growth related pressures;
- Low development resulting in shortfall in Development Charges 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 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 sanitary sewer programs:

- Incorporate in the user rate revenue requirements the funding of the following water supply and sanitary sewerage systems investment needs:
  - Rehabilitation and replacement needs related to asset management; and
  - Adaptions required to address climate change.
- As remote meter reading capability reaches sufficient penetration, transition to automated meter readings for all billings in order to reduce the cost of meter readings while increasing their accuracy, and potentially the frequency of billing;
- 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;
- Assessment of water losses and reduction of unaccounted for losses, where possible. This would include continued 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
- Focus attention on the opportunities for intensification to maximize the use of existing infrastructure.